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JANUARY-FEBRUARY, 1943

TO NOVEMBER-DECEMBER, 1943

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MOSCOW, January 12, 1943—Led by Cossacks slashing their way triumphantly back into their homeland, the Red Army has rolled the Germans back into the Kuban River region of the Western Caucasus between the mountains and the Don.

Red Star declared that the Kuban region was penetrated after the Caucasian provinces of North Osetia

COSSACKS LEAD ADVA

and Kabardino Bakaria had been freed from the Germans in the continuing Russian winter drive.

A communique announced that the Red Army's cavalry had driven 15 miles into the enemy's positions in



NCE INTO KUBAN AREA

fierce night fighting which followed the capture of six more key towns on the Caucasian front.

The 4th Guards Cossack Corps—the Kuban fighting men who fell back from their towns and villages last

summer before the weight of the Nazi offensive—were riding in the vanguard of the Russian forces sweeping back across the steppes.

For the black-caped, high-hatted horsemen of the steppes, and for their townspeople, it was one of the most dramatic homecomings of the war.—HENRY C. CASSIDY, Associated Press War Correspondent.

COSSACK TACTICS

An analysis ment of the ha

IN modern warfare cavalry, especially when used in coördination with other arms of the service, is able to engage successfully, not only enemy infantry armed with automatic weapons, but also motorized units. This has been exemplified time and again by the Cossack Corps of Guards, commanded by Lieutenant General Kirichenko. (See news items, Page 8.)

The German break-through at Rostov in the summer of 1942 and the subsequent capture of Bataisk created a serious threat in the direction of the Kuban River. Had the Germans made immediate use of their numerical superiority in tanks and planes they could easily have reached Krasnodar, for the open ground favored a swift movement. They failed to take advantage of this,

however, so a Cossack division was ordered to cross the road that led south from Bataisk and hold up the Germans at all costs. This was done in order to gain time in which to concentrate units of the Cossack Corps then dispersed along a wide front.

First to start out was a regiment under Major Karapetian. It rode both day and night and made only a few short bivouacs in woods and thickets. German reconnaissance planes appeared over the squadrons several times, and in order to confuse the German fliers the Cossacks changed their direction or turned back each time that the fliers appeared. Because the regiment

"Swift maneuvering was made possible by excellent reconnaissance and by skilful direction on the part of the commanding officer."

★By cable direct to The CAVALRY JOURNAL from the War Department, U.S.S.R., Moscow.



By Major P. Slesarev, Red Army

sis of the successful tactical employ- rd fighting Corps of Cossack Guards.*

moved in a number of groups along parallel roads, the German pilots everywhere reported that the cavalry had retreated southward. As soon as the planes would disappear, however, the Cossacks would again head for the enemy. This deception played no small part in their final success.

At night Red Army scouts reported that the Germans were in a near-by village. In order not to arouse enemy



Sixty year old Cossack Pavel Kamnev of the Krasnodar territory sabered 14 Germans during a single engagement near the village of Kuschovskaya. He has been awarded the Order of Lenin for his valor.

suspicions about the presence of Cossack troops in the vicinity, reconnaissance was carried out by men on foot. After having received the necessary reports, Major Karapetian decided on a night battle, and mounted Cossacks thereupon launched converging attacks on the village. Bewildered by the unexpected appearance of Soviet cavalry, the Germans ran out of their huts and fled in whatever direction they could. The battle lasted for only twenty minutes, but the Cossacks destroyed more than 200 Germans and drove the rest from the village.

This attack is of particular interest because the regiment forced battle *immediately after it arrived, although it had just covered about 120 kilometers*. The decision taken was tactically correct, for the village could not have been approached by surprise in day time, and *without the advantage of surprise* on its side, the regiment would have had *no hope of success*. The well

organized enemy fire would have inflicted tremendous losses.

The decision for a night battle in itself, however, was not a complete solution of the problem faced by the regiment, for the enemy first had to be stopped and then held until the Cossack Corps took up advantageous positions for defense. Although the Germans had considerable superiority in numbers and matériel, the Cossacks captured and held the village and the near-by crossroads for four days. To accomplish this the regimental commander *employed active defense tactics*. Some squadrons shifted their positions two and three times a day. They would appear first on one flank, then on the opposite flank. This swift maneuvering was made possible by *excellent reconnaissance* and by skilful direction on the part of the commanding officer.

In some cases cavalry detachments launched flank attacks on motorized columns and cut off the infantry from the tanks. With equal success the *Cossacks co-operated with the artillery* against the German tanks. Whenever a tank attack impended in any one sector a mobile antitank detachment, consisting of a sabre platoon or squadron and several antitank or light field pieces, was immediately transferred to the threatened spot. The Cossacks often *operated on foot and placed their horses in concealment* under a heavy guard.

As a rule guns were placed behind natural obstacles—blown-up bridges, marshland, rivers, etc. Dummy positions were constructed somewhat to the side in order to stop the German tanks that drove at them with all of their strength only to find themselves under a heavy flanking fire from the antitank guns. About fifteen German tanks were thus destroyed in one week.

At another time Soviet cavalrymen held the Germans at a village for four days. On that occasion *another Cossack division* came up but did not join in the battle immediately. The *reconnaissance* soon reported that the enemy was regrouping his forces, evidently in preparation for a wide flanking movement. As soon as this became known the corps commander ordered the division to forestall the German maneuver, engage the enemy, and exhaust him with incessant counterattacks and ambushes on all approaches to the main Soviet defense positions. Subsequently, the division was to fall back in such a way that the enemy would find himself faced with fresh attacks after each retirement.

This plan was fulfilled entirely, and for two days the



A Red Army cavalryman rides his horse past an abandoned German tank.

advance guard of the Cossack division battled the enemy. After it had inflicted considerable casualties it fell back to a prearranged line, and when the Germans attempted to inflict a decisive blow on the Cossacks they failed; for during the night a fresh division had replaced the weakened one. The Germans had not noticed their chance, and the next morning they were thrown back with heavy losses.

The second attack ended in like manner. After losing 600 men the Germans gave up further attacks in that sector and the next day transferred their division to our right flank in the hope of finding it undefended, but here, too, they met with stubborn defense. In the course of five days the enemy lost more than 4,000 men killed and gained no material success. A well directed rear guard action forced the Germans, who had not divined the Soviet tactics, to hurl their one untouched infantry division in this sector against our fresh Cossack unit. When they finally learned the *strength of the Cossack troops* they lacked sufficient force to engage them. A lull in fighting allowed for a further concentration of reinforcements.

This rear guard action of a Cossack unit is characterized by mobile tactics. Squadrons constantly strike at the enemy from the flank and from ambush and in this manner inflict heavy casualties. *Because of their high mobility* cavalymen can cross the line along which enemy motorized columns are moving, and hurl fresh

units against exhausted enemy troops.

As evidenced by the above mentioned examples, such tactics enable the Cossacks to exhaust the enemy and work havoc with his plans.

Skillful action on the part of dismounted Cossacks in their employment of mobile detachments, makes fighting against enemy tanks possible. Surprise night raids are one of the methods employed by Cossacks to hinder the regrouping of enemy troops and to cause heavy losses in men and matériel. The blow is usually dealt where it is least expected. Thus a cavalry regiment, breaking through the enemy positions near a certain village, *made a circuit and entered it from the rear*. Panic broke out among the Germans, and all semblance of control immediately disappeared. After they had cut down more than 800 Germans, the Cossacks disappeared just as unexpectedly as they had come. Had the regiment remained in the village longer, the Germans probably would have organized a defense. The Cossack commanders chose not only the correct time and method of attack but selected the tactically favorable moment for retirement.

Still more destructive was a night raid led by First Lieutenant Avsenov in which two squadrons of Cossacks, *strengthened by two field pieces and two mortars*, took part. This detachment made a 20 kilometer march before it attacked the enemy. A column of German motorcyclists emerged from the village just as the Cos-

sacks were approaching it. The Cossack detachment left the road quickly and let the column approach, then opened shrapnel fire at close range. In this case, the artillerymen were right in opening fire only when the whole column stretched out along the road with both its head and tail visible. The gunners were directed to restrict their fire to the highway itself. This precaution proved useful, for after the first few volleys, the Germans fled off the road. Then the Cossacks came into action, cut the Germans down and forced them back up the embankment, where the only way of retreat was covered by mortar fire. The Cossacks then broke into the village, where they were obliged to employ different tactics. They dismounted and drove the Germans out of house after house until they had cleared the whole village.

Meanwhile, the guns and mortars opened fire in the opposite direction at the villages where reconnaissance had reported a large concentration of enemy trucks. This artillery and mortar fire in the Germans' rear tended to increase their demoralization.

At a prearranged signal, the Cossack detachment left the village. Noticing this, the Germans attempted to launch a pursuit by sending a submachine gun company after the Cossacks. The detachment commander had foreseen this development, however, and the Ger-

mans were met by fire *from machine guns mounted on horse-drawn vehicles* and were either mowed down or dispersed. Enemy casualties in the battle were considerable. Having brilliantly carried out the night raid, the Cossack detachment returned with little loss.

The success achieved in this operation was effective primarily because of the coördination of the artillery, mortar gunners, and cavalrymen. The commander remained at his observation post from where he controlled his men with the help of light signals and dispatch runners.

It has been found extremely useful to indicate meeting points of advancing subordinate units. As a rule, these meeting points should be outside of the range of machine gun and mortar fire and three to four kilometers from the objective that is being attacked. Troops should make for these meeting points along separate paths, and in case one of these detachments should be pursued by the enemy it should ride off, then break away from the enemy and overtake the main forces.

The route of mounted detachments should be laid out along scarcely populated localities, across fields, thickets, and away from roads. Cavalry will be able to escape pursuers across such terrain, for enemy motorcyclists, armored cars, and tanks are helpless at night in cross-country pursuit.

No position can be held for long, however, by attacks of small groups and night or day cavalry raids. This can

"Then the Cossacks came into action. . . ."



be achieved only by powerful counterthrusts such as those delivered by Cossacks for six days in succession in the area of three particular villages.

Cossack tactics in this case were as follows: Part of the troops dismounted and assumed the defensive along well fortified positions, while several shock Cossack detachments operated along an 80 kilometer front. Whenever the Germans attempted a mass attack, the Cossacks came into the open and charged the attackers from the flank. As soon as the enemy artillery and tanks would come into action the Cossacks would disappear, but these sharp cavalry blows of short duration proved very effective.

Battles near another village are also characteristic of this type of tactics. At extreme range three Soviet armored trains opened fire at a village. Twenty-six minutes later the fire ceased and the Cossacks broke into the settlement and routed the panic stricken enemy. This cavalry charge succeeded largely because of the efficient coordination between the cavalry and the armored trains, and German losses amounted to more than two battalions.

In another sector of the front held by a Cossack corps, the Germans had succeeded in driving two wedges between the divisions and had begun to outflank the corps from the right wing. It was then decided that the Cossacks should seize the initiative, exhaust the enemy both physically and mentally, and then retire to a new defense line. This plan was carried through by means of short but powerful blows at the German infantry positions.

At first the Cossacks counterattacked German sub-

machine gunners and motorized infantry on their right flank. Dismounted cavalry, supported by artillery, destroyed about 400 German officers and men and after improving its positions, made considerable advances in some places. Towards evening the Germans, fearing another blow at their advancing left flank, brought a fresh infantry division into action.

In the morning the Cossacks resumed operations in the same area, while the Germans brought an "SS" regiment into battle. When the fighting on the right flank was at its height two Cossack regiments delivered hard blows at the base of the wedge that had been driven earlier at the junction point between the two Soviet divisions. The skilfully concealed cavalry attack bewildered the Germans, and the Cossacks were able to knock out 1,600 Germans, crush the wedge, and force the remains of the Alpine Brigade back across the river.

The next day frequent Cossack attacks continued to disturb the enemy, and during that night there came a third attack at the second wedge on the left flank. Two Cossack regiments forced the river, charged through two near-by inhabited points and cut down about 800 Germans. Three successive blows forced the Germans to hurl their only remaining fresh division into the battle and thus use up their tactical reserve. The Cossacks thereupon seized the initiative completely and fulfilled their operation orders.

The Cossacks' high degree of mobility and great activity, intended merely to forestall enemy blows, had actually enabled them to rout a strong German force.

General Kirichenko's Cavalry Sweeps Through Caucasus

Moscow, Jan. 16, 1943.—Lieut. Gen. Ivan Maslennikov's army, with Gen. Kirichenko's crack Cossack cavalry, advanced 19 miles in the North Caucasus to capture the railroad terminal of Blagodarnoe, whence a rail line runs westward to join the Rostov-Baku railroad at Kropotkin, 135 miles south of Rostov, along with Alexandrovskaya, 30 miles up the Rostov-Baku line from Mineralnye Vody, and six other towns.—HENRY SHAPIRO, United Press Staff Correspondent.

Jan. 16, 1943.—Lieutenant General Nikolai Kirichenko's famous Cossacks of the Guards Divisions are playing a brilliant part in the present operations in the Caucasus.

Advancing in company with armored columns and tank-borne infantry, they are rapidly clearing the Germans from the Caucasian foothills and the Kuban Steppes.

Soviet Cossacks wear the traditional uniforms and carry the traditional sabres, but in addition they are equipped with modern arms—machine guns, grenades, etc. After a wild charge, when they have often broken through tank formations, the Cossacks dismount and fight as infantrymen.—*Soviet Embassy Bulletin*.

Red Army Tanks in Winter

By N. Corotneff

The author, who was a captain in the Russian Imperial Army during the First World War, uses his knowledge of Russian winters as a background for this very fine analysis of present Soviet winter tactics. His instructions in the care and operation of mechanized and armored vehicles under conditions of extreme cold are authoritative and timely.

THE second winter of the Russian-German war will probably furnish considerably more data on the operation of mechanized units in winter warfare than the campaign of 1941-42. During the first winter of Germany's campaign in Russia mechanized warfare came to an abrupt end with the retreat of the German Army from Moscow at the beginning of December and did not come back on any considerable scale until spring. The Russian tank forces participated on a limited scale in several offensive operations—especially in the advance on Ludinovo in January of 1942—but details of these operations are still lacking. Small tank units frequently supported Soviet infantry offensives, particularly when they were storming villages and strong points, but all those operations were purely local and of very limited tactical significance.

As to the German tank formations, they were mostly conspicuous by their absence. There are several reasons for the hibernation of mechanized warfare. There is little doubt that the main reason was the tremendous losses suffered by the mechanized forces of both belligerents. The violent tank battles of the summer and fall of 1941 were sometimes fought on a gigantic scale, and if in the early period of the campaign the Russian tank losses apparently far exceeded the German, the score was more or less evened up during the October and November German offensives, which were stopped at the gates of Moscow. There is conclusive evidence to show that the losses of both powerful tank armies—Guderian's group which operated on the southern flank of the Moscow pincers near Tula, as well as the northern group under General Hoth which advanced on



"When tanks operate with infantry they usually form a separate marching column together with ski detachments. Each tank usually takes on board from three to five skiers."

Klin—both suffered crippling losses in machines and matériel.

To this were added the difficulties experienced by the Germans with their synthetic fuel and lubricants, which proved to be unable to stand the sub-zero temperatures of the Russian winter. As a result, the bulk of the panzer divisions were incapacitated and had to be withdrawn deep into the rear to be re-formed and replenished. The Russians were in no better condition insofar as losses were concerned, but both their machines and personnel naturally proved to be better adapted to winter warfare. For years before the war a great deal of experimental work and hard training were done in the Soviet Army in order to adapt the machines and personnel to the rigorous conditions of the Russian winter.

Before the war it was a considered opinion of the Red Army mechanized experts that tanks could operate successfully under the climatic conditions of central and northern Russia for ten months or more out of the year. The exception was the six to ten weeks at the beginning and at the end of the winter. Especially during the latter period, when the snow blanket loses its firmness and the famous Russian mud comes into its own, difficulties for the mechanized vehicles are sometimes insuperable. It is considered by the Red Army that on a firm, compact snow tanks can operate without any spe-

cial winter equipment, if the depth of the snow does not exceed eighteen inches. With special equipment, like widened tracks and grousers, tanks can negotiate snowfalls of three and four feet, and sometimes more. A sudden thaw, however, that changes a firm snow blanket into a wet and spongy one, can play havoc with the mechanized units. In the depth of the winter in central and northern Russia such thaws are comparatively rare, and do not last for any length of time.

Practice has provided a set of simple rules for winter operations that cover the main pitfalls of driving over heavy snow. The first and most important rule, which is strictly enforced in the Red Army, is that when tanks are moving in column formation, it is absolutely necessary for each machine to avoid the furrows made in the snow by preceding tanks. Every machine must progress only over virgin snow, and the whole column must assume not a regular file, but a slightly recessed, set-back formation.

Experience amply demonstrated that the quickest way to get stuck in the snow, or, as they say in the Red Army, "to sit down," is to disregard this rule. Also important are a thorough reconnaissance of the terrain and great care in choosing the course. The snowfall is naturally deeper in ravines, valleys, and all depressions of the terrain than it is on flat or elevated stretches.

Depressions should be avoided as much as possible.



"The armored sleigh, without any firing power of its own, is towed by the tank to the forward edge of the enemy's defensive zone. Then the sleighs are unhitched and the infantrymen, supported by the fire of their tanks, dismount and go into action."



"With special equipment like widened tracks and grousers, tanks can negotiate snowfalls of three and four feet, and sometimes more."

The best possible course for a tank is along the elevated portion of the terrain, like hillcrests, plateaus, etc.

Usually straight stretches of terrain that are covered with a deep layer of snow are negotiated at second speed. Tracks should not be stretched too tight, since when they are they do not revolve easily. Extra friction is created and an additional load put on the motor. Shifting of gears should be avoided as much as possible to eliminate the danger of stalling. A tank stalled in the snow is sometimes a tank out of action for good.

Unnecessary turns are also to be avoided. If it is necessary to turn, it should be done smoothly and in a wide arc movement, as a sharp turn may cause the tracks to throw-off.

Experiments were made in the Red Army to reverse the tracks in winter, as many tank officers maintained that it would facilitate movement over snow-bound terrain. This, however, proved to be of little practical value. The reverse tracks made deeper furrows, and tanks frequently stalled. Grousers are a much more efficient solution to the problem. Those used in the Red Army are metal cleats, rounded on the edge, 2½ inches long, and extend through the whole width of the caterpillar. They are fastened by means of welding or autogenous soldering, and each track has five or six of them.

Drifts and snow banks are best negotiated at high speed. For instance, a narrow ravine filled with snow can sometimes be taken in its stride by a fast moving tank at high speed, which practically jumps over it. Drifts and high snow banks are sometimes "broken through." In this case the machine is put in reverse and backed up twenty to thirty feet to gather more momentum for the impact.

Marshes and swamps are always treacherous when

the snowfall is deep. Solidly frozen marshes under the warming layer of a thick snow blanket begin to ferment and defreeze. In northern parts of Russia, and especially on the Finnish Front, the tanks often got into great difficulties while trying to negotiate supposedly solidly frozen marshes.

Another difficulty peculiar to winter warfare is presented by heavily wooded sections. Moving through woods and forests, the tanks are handicapped by the snow that constantly falls off the branches on the periscopes and portholes, and completely obscures the vision. This makes it necessary to stop the machines frequently in order to permit the crews to get out and clear off the snow. In the dead of winter, when a thick layer of snow covers every branch, the machines sometimes have to be stopped every five or ten minutes. The experience of the Russo-Finnish War of 1940, as well as the German Campaign of 1941, helped to work out an effective countermeasure. In such cases the artillery comes to the assistance of the tanks and, with several rounds of shrapnel, shells the wooded sections through which they will have to pass and shakes the snow off the branches most effectively.*

An operation that requires careful planning is the crossing of a frozen water course. This necessitates, first of all, a most careful and detailed reconnaissance. The tactical reconnaissance, carried out by the mechanized units themselves, sometimes supplemented by skiers, must determine the disposition of the enemy forces in the vicinity of the crossing, the approaches to it, the character of the terrain—which naturally governs

*NOTE: Contrary to the practice of most of the armies, which have virtually eliminated shrapnel shells in favor of H. E.'s, the Red Army considers that shrapnel still has its uses. The same procedure as described above also is used to "comb out" a wooded section from enemy snipers posted in the tree tops.

the choice of the concentration area—and the concealment measures necessary. Additional reconnaissance, carried on by engineering troops, gives the exact topographical data of the banks of the river, the steepness of the slopes leading to the ice, the thickness and condition of the ice itself, and the width and depth of the river.

The thickness of the ice is measured by a special meter. This instrument is a slender steel rod, and when it is driven through the ice, an automatic device on top of it shows the thickness of the ice layer. Not all of the Red Army mechanized units, however, are equipped with it, and in its absence, a wooden rule is used. This requires the making of ice holes, which should be made as small in size as possible and should be done very carefully in order not to weaken the ice. If the thickness of the ice is not less than fifteen to twenty inches and the river is comparatively shallow, light tanks, keeping distances of forty to fifty yards, can cross safely in column formation. When the ice layer is less thick, it is safer for each tank to choose a separate course.

If two crossings are taking place simultaneously, and not more than one hundred and fifty or two hundred yards apart, it is advisable to strengthen the ice, as experience has shown that a simultaneous pressure on the ice within such a sector can produce cracks and fissures. To strengthen it, specially made wooden shields are laid out across the whole width of the river. If shields are not available, mats are made with straw or brush, and repeatedly watered until they are transformed into squares of ice eight to ten inches thick. A squad of sappers using hand operated pumps can prepare enough mats in two and a half hours to cover a crossing seventy to eighty yards wide. The ice must be cleared of snow before the mats are laid out.

Another way of strengthening the ice is to pour water right over it, but this is much more lengthy and involves more labor. In this case the area necessary for the crossing is cleared of snow, and a snow parapet several inches wide is made around it to dam the water within the bounds necessary for crossing.

Camouflage is especially important during crossings. The crews and engineers must wear parkas. Machines and equipment used in the crossing are carefully camouflaged with white cloth, and a thin layer of snow is spread over the fabric. Spades and tools used by engineers are painted white. The crossing itself is preferably undertaken at night. In daylight crossings smoke screens are frequently used. In the latter case care should be exercised in accomplishing it in such a manner as not to create confusion in tank columns by blinding the crews with an excessive amount of smoke. The crossing itself is made under the supervision of special traffic squads, who post men at the approaches, direct the tanks, maintain order, and look after necessary precautions. In very cold weather all sounds are amplified, and carried much farther. It is important therefore to avoid all unnecessary sounds. Commands are issued in the lowest tones possible.

During periods of rest or inactivity, care is taken to preserve the machines as well as the crews from undue exposure. Frequently, if the situation is such that a mechanized unit does not expect to be moved for five days or more, the tanks are buried in the ground approximately up to the base of the turret. Between caterpillars, trenches four to five feet deep are dug. A portable iron stove is placed under the motor housing, or, in the absence of such, a brick stove is constructed. The fire is kept going constantly, and thus frequent idling of motors becomes unnecessary. It is sufficient to run the motor three or four times a day for a few moments, in order to insure an easy start. This procedure not only saves a large amount of fuel, but also provides a warm shelter for the crews. The tanks are covered with paulins and camouflaged with snow. If the situation, on the other hand, is such that the unit may be moved at any time, this procedure is naturally out of the question; although paulins are used, portable stoves are placed near the motor, and the crew can rest under the paulin. Care is taken not to cover up the exhaust, as this creates danger of carbon monoxide poisoning for the resting crew members.

Winter conditions also affect, to a certain extent, the tactics of mechanized units. A rough terrain covered with a deep layer of snow necessitates a careful and elaborate reconnaissance of snow filled ravines and depressions, and generally militates against the use of tanks in large formations. This frequently limits their activity to infantry support. When tanks operate with infantry, they usually form a separate marching column together with ski detachments. Each tank usually takes on board from three to five skiers. A tank battalion thus carries approximately a company of ski troops. When the formation goes through a difficult or little known terrain, the skiers carry on a continuous reconnaissance in an effort to locate the dangerous spots ahead. The tank commanders keep a careful data of the character of the terrain, the depth and the consistency of the snow, the number and character of drifts and snowbanks, etc.; and this data is relayed to Headquarters.

Another winter feature of the Soviet mechanized tactics is the use of armored sleighs, which were first tried out in the Finnish War. They proved to be conspicuously successful, and by the end of the Finnish Campaign the sleighs were used quite widely. Their purpose is to provide protection for the infantry operating with the tanks. It is an armored carrier, without any firing power of its own. The sleigh, with six or seven infantrymen in it, is towed by the tank to the forward edge of the enemy's defensive zone, where the sleighs are unhitched, and the infantrymen, supported by the fire of their tanks, dismount and go into action. When storming strong points this procedure proved to be of definite value and considerably decreased the casualties of the infantry during the initial stage of the attack.

If mechanized units are sometimes severely handi-

capped by cold, on the other hand, the slowing down of motor vehicles on snow and icebound ground offers new opportunities to aggressive tank commanders. Motorized artillery, for instance, being heavily handicapped on snowbound terrain and tied to the roads, becomes a much easier prey for tanks than under ordinary conditions.

Generally, one must remember that Russian mechanized tactics were always more conservative than those of the Germans, and up to the beginning of the war were fashioned along those of the French Army. According to Field Service Regulations of 1936, which still remained valid at the beginning of the war, Red Army mechanized units are divided tactically into two categories: tanks of *distant action*, which constitute

independent formations; and tanks of *infantry support*, which are assigned to rifle divisions and regiments. Although the exact figures are not known, it is reasonable to assume that at least half of the Soviet tanks, at the beginning of the war, were in the latter category. Therefore, the limitation in the use of large independent tank formations, which the winter enforces, did not affect the Russians' tactics as much as they did the Germans', whose tank strength in the early stages of the war was concentrated almost exclusively in panzer divisions. Only at the very end of the 1941 campaign did the German command begin to show a tendency to break up large tank formations, and in many instances scatter them among infantry units. The Russian winter was one of the causes for this tactical change.

Shaposhnikov and Soviet Strategy

"... Finally, in the winter of 1942-43, with the help of the Allies in the west, the great offensive against the Reich would begin."

IF the Russians, aided by the thaws, do succeed in thwarting Hitler's plans, whatever they are, and can keep the initiative into next summer, (1942) their war would probably be won. The chances of their doing so are very small. But if they do the next-to-impossible, it will be thanks . . . mostly to the stratagems of Boris Shaposhnikov, the brain of the (Red) Army. . . .

While credit for tactical successes, or blame for reverses, must fall to such regional commanders as Timoshenko, Zhukov, Budenny and Voroshilov, there is only one man who can make the huge strategic decisions on which the war will be won or lost. That is Joseph Stalin. Joseph Stalin never makes a military decision without asking Boris Shaposhnikov what he would do. . . .

Marshal Shaposhnikov has studied winter warfare. He knows what an army can do, and what it cannot do, when snow piles above hub caps.

He knows that bitter winter warfare is old-fashioned warfare, in which man is more important than his machines. He understands winter camouflage. He realizes that in winter cavalry and infantry can accomplish more than planes and tanks. And yet at the proper times he uses planes mounted on skis and tanks painted white. He knows how important the warmth and cleanliness of his men is in the season when frostbite and typhus march with soldiers. He knows that in winter warfare Death takes the hindmost. . . .

Boris Shaposhnikov is probably not over-sanguine about the spring (1942). He would put a little salt on . . . talks of *never* giving the initiative back to the Germans. Marshal Shaposhnikov may have the initiative taken away from him in spite of his efforts to press his advantage. But even if he does lose it, he thinks he can get it back again and eventually win the war, by some such formula as this:

In the spring and summer of 1942, Leningrad would probably be tightly sealed again. Moscow would be attacked, but could hold. The Germans would make their greatest push in the south, would drive the Russians back to the Don River. There the Russians would try to stand, then in the autumn begin a counter-offensive. By that time, if Britain has succeeded in holding Suez and the Middle East, the Germans would be short of oil, men and morale. Finally, in the winter of 1942-43, with the help of the Allies in the west, the great offensive against the Reich would begin.—Reprinted from *Time*, issue of February 16, 1942.



TANK OPERATIONS

In the Enemy Rear

The following operation was carried out in the beginning of the great Soviet 1942-43 offensive. These tactics resulted in the encirclement of German troops at Stalingrad and ended in the capture of Kalach.

By Tank Major General A. Rodin, Red Army

THE Soviet tanks were to penetrate deep into the enemy's rear, some 200-300 kilometers away from the main troops and supply bases. There could be no question of relaying war supplies, fuel and food in the enemy rear. Every detail had to be planned.

The first day of the raid, the tanks were scheduled to cover more than 60 kilometers over ground outside the roads. Daybreak brought the artillery preparation which came as a surprise to the enemy. Before the Soviet offensive began the enemy did not succeed in spotting the Soviet group despite constant and careful air reconnaissance. A thick fog veiled the terrain and obscured visibility beyond 200-300 meters.

The tanks entered into battle beyond the first line of German trenches and barbed wire obstacles. Only on the second defense line did the Germans make an attempt to repulse the attack. *The tanks entered the battle straight from the march*, crushed the German resistance, and moving with increasing speed passed over the second defense line.

Movement over the broken ground of the steppe required much time. Day faded into twilight and darkness set in, but the tanks continued to press forward. Headlights were switched on. *Using their compass*, the tankmen "sailed" the blizzard swept steppe. The strong wind swept up snow which covered the visors and windshields of the trucks. Now and again men had to halt and check their bearings.

Finally, the tanks reached a state farm, the first landmark. The enemy was no longer there. He had fled, and his stores which he had left on fire served as a lighting tower for the Soviet columns.

The tanks pressed forward. Enemy artillery opened fire somewhere to the right, and the tanks switched off their lights. Darkness and the snow obscured everything, but the tanks moved on.

After two more hours, they stopped for refueling. The auxiliary vehicles kept pace with them. Some tanks appeared on the left, headed towards the rear. Scouts were detailed, and the column continued on its march. En route, it received a report that the tanks on the left were enemy tanks moving towards the Soviet rear. All the better—they would now be cut off without any retreat open to them.

Attacking straight from the march at daybreak, the Soviet tankmen captured inhabited points Novotsaritsynsky, Valamovsky, Perelazovsky, and later also Yefremovsky. At Perelazovsky, where the German Corps Headquarters was situated, the enemy offered stiff resistance. But with a sweeping blow straight from the march that enveloped the enemy ranks with motorized infantry, the Soviet troops quickly captured Perelazovsky.

The sudden appearance of Soviet tanks deep in the German rear had a tremendous effect. The enemy fled in panic. The Hitlerites had time to set only one food supply store on fire. The remaining German stores and offices remained intact.

*By Cable to The CAVALRY JOURNAL through I.C.N.

In the houses the Red Army men found abandoned staff documents, officers' coats, etc. Trucks with poultry and pork were abandoned on the streets while at Perelazovsky the enemy fuel dumps were captured. The Soviet tanks refueled with German gasoline.

An amusing incident occurred at Novotsaritsynsky. A group of Soviet commanders were standing in the street when a German automobile came dashing up at top speed. They stopped it and the passengers reluctantly came out of the car. Among them was a staff officer of the German Army Corps.

During a brief halt the tankmen summed up the first results of the raid. The enemy had suffered heavily, and retreat had been cut off for the remnants of two enemy infantry divisions. After two futile night counterattacks, the enemy retreated with heavy losses.

Meantime, the advanced Soviet detachments occupied two more enemy support points. In the morning the march was resumed towards Kalach. The thirty to forty kilometer stretch of road was littered with trophies. Groups of war prisoners, 300-400 each, were encountered en route.

By evening, the tankmen paused in the village of Ostrov for refueling. The scouts reported that 200 kilometers from Ostrov in the direction of the Don was the enemy defense zone.

This meant battle, but the tankmen were in no hurry to become entangled. With the aid of the local inhabitants they learned important information about the enemy forces in Kalach. To all appearances there were no less than a thousand German soldiers in the town and much artillery. There was a good crossing built by the Germans across the Don, strong enough for tanks to get across, and German machines crossed the bridge with their lights on.

At 5 AM our trucks and tanks moved towards the Don. On the hill beyond the village, headlights were switched on. This could mislead the enemy. Half an hour later our main forces began to move towards the Don.

A battle ensued near the enemy's fortified zone. The enemy defenses abounded in fire-points and dug-in tanks. Under cover of a barrage, the tankmen probed for the enemy flanks. The fighting continued with increasing force. Kalach was within a stone's throw, but if the Germans blew up the crossing, the town could not be reached. The ice on the Don was too thin to enable the heavy machines to cross.

Another tank unit started to envelop the enemy from the right. The Germans wavered, began to retreat, and later took to flight southeast. At 5 PM news came that the crossing had been preserved for the Soviet tanks. The strategem had worked brilliantly.

Moving on captured German trucks, Filippov's detachment freely crossed the enemy defense line as well as the bridge across the Don. Thereupon the tommy

gunners jumped from the trucks, removed the German guard and prevented them from blowing up the important, strategic crossing which was already mined.

For sixteen hours sixty Soviet tommy gunners and five tanks defended the bridge across the Don while they fought the enemy as he advanced from Kalach and retreated toward the bridge. By the end of the day another tank unit reached the bridge and together they struck a blow at Kalach. This was the third night of the offensive and almost three full days of raid in the enemy rear. Dispatches were constantly received from the units.

The tankmen crossed to the left bank of the Don two kilometers from Kalach, and there was fighting at the approaches of the town. The fighting lasted all night and tense preparations were in progress for the capture of Kalach.

Early in the morning, tankmen under the command of Filippov and Filipenko made a thrust for the city. At 10 AM fighting was already in progress on the western outskirts of Kalach. On the eastern outskirts, the Hitlerites still held their positions. The motorized rifle battalion, detailed to dislodge them, crossed the Don over the ice and broke the enemy's resistance. The surviving Germans fled along the road to Stalingrad with the Soviet tanks on their heels.

The raid was merely the beginning of operations undertaken and accomplished in accordance with the strategic plan of the Supreme Command of the Red Army.

As seen from the inside of one of the tanks, the Red Army armored units pierce deep in the rear of the German front lines in a sector northwest of Stalingrad. A German shell has burst in front of one of the tanks. (Dec. 12, 1942.)



AN ARMORED TRAIN

In Defensive Action^{*}

By Captain V. Morozov, Red Army

THE units of one Soviet rifle division, while maintaining a mobile defense on an open plain, had neither time nor available forces to intrench effectively. They were ordered, therefore, to hold the enemy by short counterattacks and, in the event that they were threatened with encirclement, to retire to the next defense line.

In many places the enemy's automatic riflemen, taking advantage of the natural cover offered by the terrain, managed to infiltrate into Soviet positions. Ger-

*By cable direct to The CAVALRY JOURNAL from the War Department, USSR.

Each armored train is equipped with powerful anti-aircraft guns. Here Red Army soldiers search the sky for enemy planes.



man infantry, under cover of their artillery and trench-mortars, massed in a ravine and then launched a heavy attack. The advanced Soviet rifle units were obliged to retire, but according to an agreed plan, as they retired, the enemy was lured along the railroad track.

Despite heavy losses the Germans, encouraged by their initial success, stubbornly pressed forward, but to their surprise, affairs suddenly took a different turn. By a sudden dash a Soviet armored train broke through the zone of the enemy's gun and mortar fire, and after successfully negotiating the gap of 20 centimeters in the rails, plunged into the thick of the enemy's infantry, and cut broad swathes in the German ranks. Simultaneously, the Soviet infantry launched a counterattack and struck at the flanks of advancing enemy troops. German artillery did not dare open fire at the armored train for fear of injuring their own infantry.

Had the defense been of a passive character, the armored train might have limited itself to a firing position, but in that case the Germans' numerical superiority might have weighed the scales in their favor.

After careful reconnaissance had made it clear that the Germans were massing large forces for an offensive in a village not far from the railroad, a plan of action was worked out jointly by the armored train commander and the commander of the rifle division. The whole plan was based on a sudden short surprise blow by the armored train. The infantry was assigned the task of inducing the enemy to move his main forces along the railroad track. Then, after smartly breaking contact with him, they were to re-form their ranks and strike at his flank. Success depended on the speed of action of the armored train which was to advance rapidly for two or three kilometers ahead of the Soviet infantry, break into the enemy's battle order, and take advantage of the fact that in mobile fighting on open ground the enemy would be unable to bring up his light artillery in time or to mask it unperceived.

The element of surprise was insured by the fact that until the moment of action the armored train was in concealment, and its presence was unsuspected by the enemy. The bold and decisive action of the armored train was insured by careful preparatory measures.

Reconnaissance observation and protection of the railroad track was intrusted to infantry posses, which had preliminarily advanced well ahead and effectively concealed themselves. The most advanced posse was



A Soviet armored train, camouflaged for winter operations, sets out on a mission.

equipped with a telephone and all the while supplied valuable information on the enemy's movements.

A few hours before dawn several breaks in the railroad track in the vicinity of the enemy (unperceived by him) were repaired with rails prepared beforehand. In the event of breaks in the track during the course of battle, wooden bars were made ready, for experience had shown that such wooden bars can be used for temporary repair of gaps of up to 30 centimeters.

Reliable communication, prior to the attack, between the armored train commander stationed at the infantry observation post and his train, was insured by double telephone lines, from signals, and motorcyclists. All of these precautions, taken beforehand, contributed to the successful action of the infantry and the armored train and made it possible to carry out "pocket tactics," to which the Germans, much to their surprise, fell victims.

Let us relate another episode—the battle for an inhabited place. Because of the character of the ground, the railroad track was not visible for a long distance, and there was a real danger of it being damaged by enemy demolition parties while the armored train was in action. To prevent this, the armored train entered the battle and from the very outset patrolled Soviet positions. The enemy's guns were unable to prevent its movement, as they were forced to confine themselves to the zone of fire.

The armored train's purpose was to retard the attacking enemy, destroy his groups of automatic riflemen near the railroad, prevent him from bringing up reserves, and to cover the Soviet positions.

Endeavoring to probe the weak points in the Soviet defense, the enemy, with the idea of striking in the flanks, began slowly to envelop the railroad track. Thanks to his numerical superiority he was to some extent successful in this, but not for long.

Covered by the armored train, the Soviet infantry parried the enemy's flanking movement and caught him in a pincer movement instead. While the infantry reformed their ranks and attacked the advancing Germans in the flank, the armored train moved on ahead, and with its guns and machine guns mowed down their reserves as they were coming into action. The enemy

wavered and began to retire in groups. The armored train's advance was impeded by a broken ridge. Therefore, a party of automatic riflemen descended from the train and advanced pointblank ahead at the enemy.

In carrying out "pocket tactics," when the railroad track is visible for only a short distance, coordinated action between the train and the infantry, and reliable contact between them by means of dispatch riders and signals, is of prime importance.

No less important is it to ascertain the exact moment when the locality around the armored train is clear of one's own troops and occupied by the enemy so that the train may open devastating fire without risk of hitting its own infantry. The proper moment for one's own infantry to attack must likewise be determined.

In order to guard the track the armored train should be assigned a company of infantry which should scatter along the track, keep watch on it and its environs, and serve simultaneously as liaison between the train and the infantry. The armored train should carry raiding parties which, in the event that the track is seriously damaged, should descend from the train and go into action if the enemy begins to waver. These raiding parties will be able to advance under cover of the train's guns and destroy the retreating enemy from the rear with impunity.

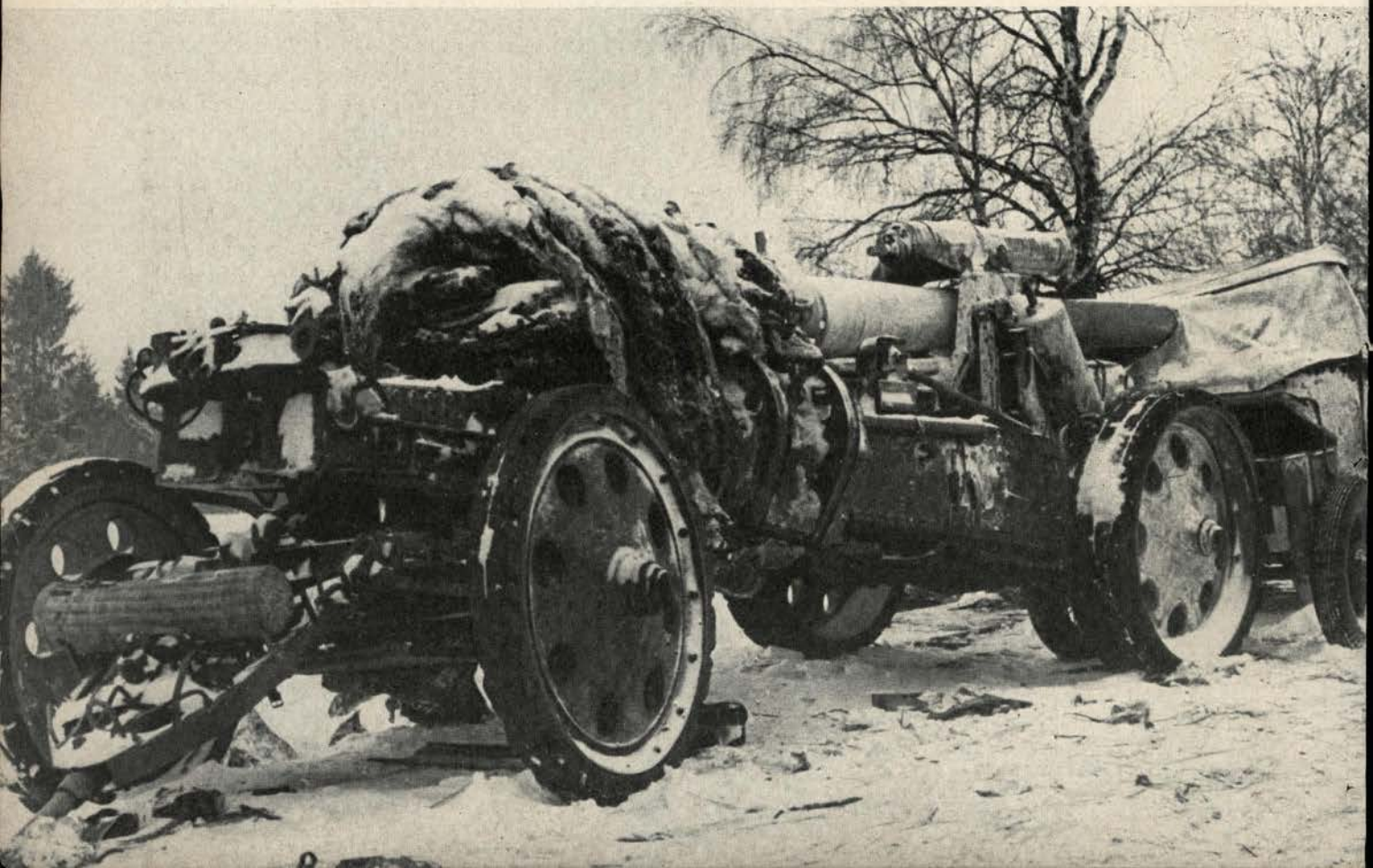
When carrying out "pocket tactics," in case of mobile defense it is important that one's own infantry should not concentrate around the train in order to secure protection of its fire. This is dangerous both to the infantry and to the train if the enemy's guns should bombard the train and the track. Furthermore, the armored train, by its tactical character, is best suited for bold, audacious, but short blows and must, therefore, retain its mobility at all costs; and the infantry may hamper its movements.

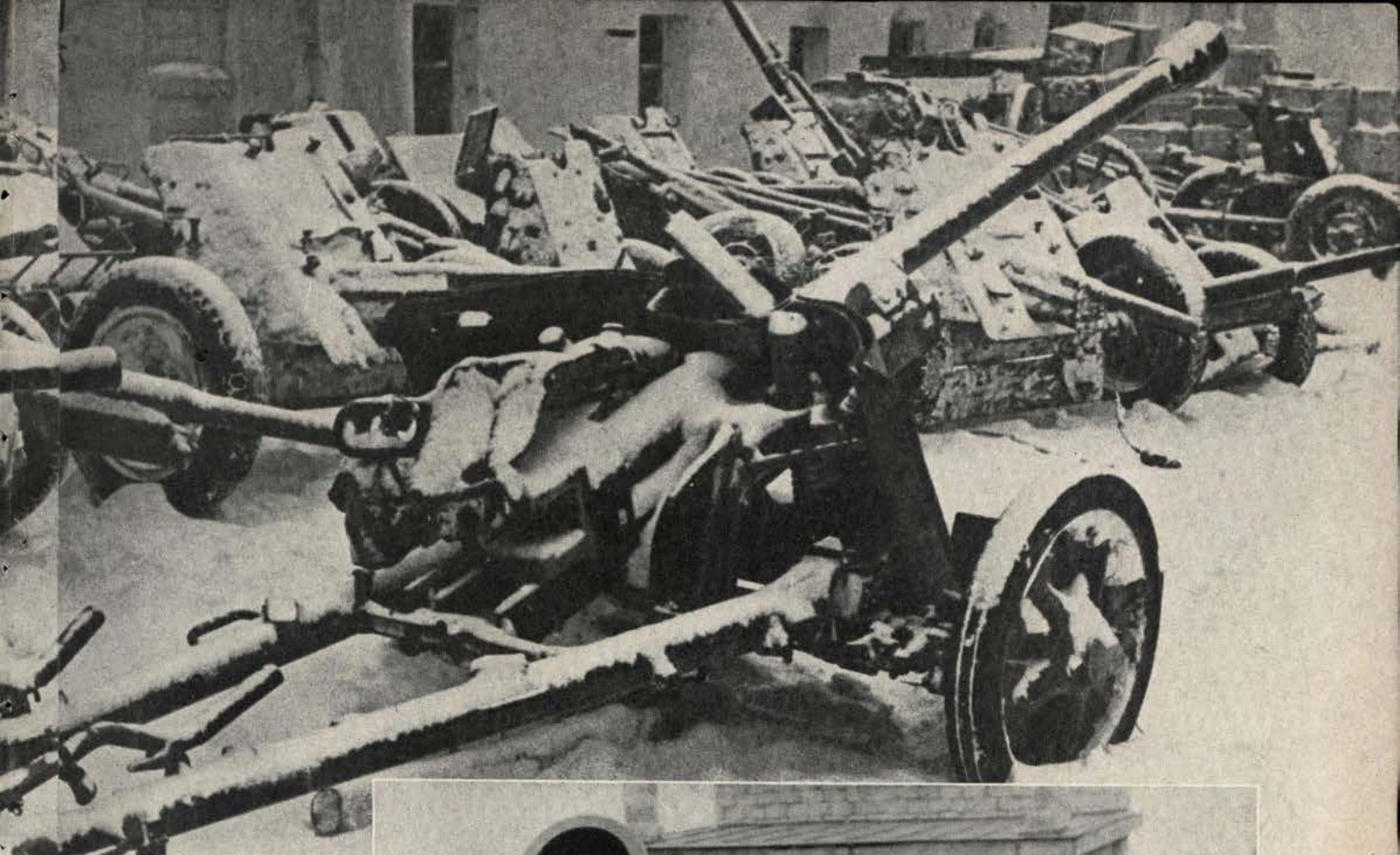
The purpose of the infantry in such cases is to lure the enemy within reach of the armored train, then break contact with him, regroup, and suddenly attack him in the flank while he is under the devastating fire of the armored train. That is the essence of "pocket tactics" or effective coordination between armored train and infantry.



Captured German antitank guns at a salvage center near Tikhvin. The gun in the right foreground is a 50mm model and is missing a wheel at the rear of the trail. Snow conceals characteristics of some of the other pieces.

This damaged 210mm howitzer, discarded on the Klin highroad by the retreating Germans, has a range of more than 10 miles and fires a 264 pound shell. It is part of the German GHQ artillery.





CAPTURED
Captured
German
Matériel

Russian Front

Bogged down in the mud is this captured 150mm heavy infantry gun. Gunners' shield is torn away and other parts are damaged. This is probably not of German manufacture, possibly a Hungarian piece. In the right background is the standard German 150mm howitzer.





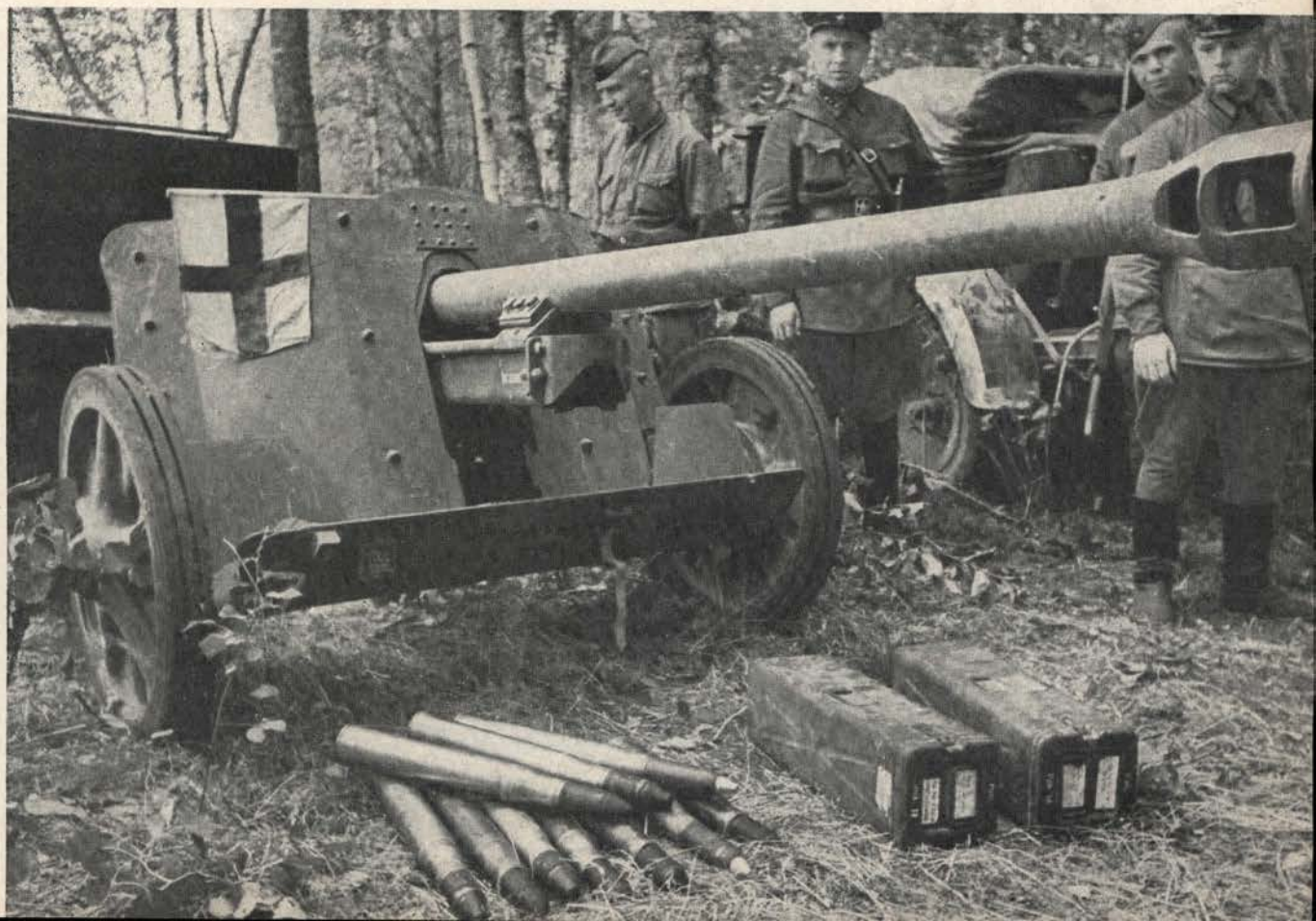
A Krupp Antitank Gun

This 37mm antitank gun was captured by the Red Army near Tikhvin. Thickness of the gun's tube shows that this product of the famous German arms manufacturer is of the high velocity type which the Germans have found so effective. The sloping shield deflects enemy bullets.



This German 88mm dual-purpose gun, captured by the Russians during their winter drive, is of the type that has been used effectively both in Africa and on the Russian front. It was also used in 1940 to smash the bunkers of the Maginot Line. Note the elevating and traversing mechanism which makes it both an antitank and antiaircraft gun.

The German 50mm antitank gun, pictured below, is known as the Pak 38. Ammunition for it lies in front; the flag placed on the shield indicates a lower echelon command post. Note the muzzle brake.



ARMORED INFANTRY

In Armored Operations

*By Colonel James C. Crockett, G.S.C.**

THE application of a purely historic, as opposed to a dynamic, analysis of military operations, principles and tactics is the greatest danger confronting a staff charged with operational planning. Journalists and commentators add to this danger by giving wide publicity to fixed ideas based on past application of military principles.

For instance, the principle of total war has been widely publicized. The ideas as to the application of this principle have become fixed. To a majority of people—both civil and military—total war has come to mean the particular type of war initiated in 1939 by the Germans.

Total war as conducted by the Germans merely represents their maximum effort with the means available. The form which this war has taken depends entirely upon their resources.

Most of the German concepts brought into play in their conduct of total war have been based on their par-

ticular situation—on their military potential. This is strikingly shown in the development of their armored operations. The German armored vehicle production potential was strictly limited; therefore, although their armored operations have been highly successful, the size and use of their armored force have been quite limited. In the light of the success of German armored operations, it seems reasonable to believe that had they had an unlimited armored vehicle production potential, their armored operations would have been far more extensive.

In drawing conclusions as to our armored needs or uses, we should guard against a historic analysis of European armored operations. Analyzing and applying the lessons of the present war we should carefully consider our almost unlimited potential for armored operations.

In the realm of tactics and organization, the fixing of ideas based on past performances rather than on future plans and needs is widespread.

Let us consider a few examples which will illustrate the meaning of the above statements.

*A. C. of S., G-2, The Armored Force—former Asst. Military Attaché, Berlin, 1933-1937.



Perched on a Red army tank, this Soviet infantry unit is being carried to the front for an attack against the Germans.



A detachment of Soviet tank-borne infantry breaks through the enemy lines and dismounts for action.

The armored division was organized as a balanced force of the combined arms, including tanks, for use as a powerful offensive unit. The strength of the armored division is its tank units used as a concentrated striking force. *This striking force must be given the support of all the other arms and services of the armored division.* The infantry, the artillery, the attached air, the engineers are combined in their support of the attacking tanks.

The infantry component of our armored division is called armored infantry. Our armored infantry is transported in armored half-track vehicles—hence its name. In some foreign armies the infantry component of the armored division is transported in armored vehicles; in other foreign armored divisions the infantry is transported in trucks. Whatever the means of transport, the necessity for the immediate and close support of the tank component is a characteristic of armored operations. *Where this infantry support lags or is absent, the tank operations are only partially successful or fail entirely.*

The success of armored operations depends largely upon the *combined operations* of all units of the armored division.

The components of the armored division are so proportioned and harmonized that detaching individual units ruins the fitness of the division for employment.

Similarly the components of the larger armored formations, such as the armored corps, must be so proportioned that the operations of the component armored divisions can be immediately supported by other ground

components, such as armored infantry divisions having the same potential tempo as the armored divisions.

The initial success of the armored divisions was, as we all know, very great. In the Battle of France, the armored divisions, with their assaulting tanks ran roughshod over other ground units. Much of this success was, of course, due to the weakness or entire absence of anti-tank tactics and weapons. But this very weakness of antitank defenses must be largely charged to the application of a historic analysis in the studies of tank operations of World War I.

Since the Battle of France, there has been a large increase in the number and effectiveness of antitank weapons and some development of antitank tactics. During the past year, the tank attack has frequently been brought to a halt by the isolation of the tanks from their supporting units of the armored division. In each case where this isolation has been achieved, the attack of the armored division has been brought to a halt, and in many cases the attacking tanks have been destroyed. The isolated tanks have often been destroyed by defensive infantry employing their various organic weapons. A historic analysis of these operations might say that the value of the tank is declining, and that the proportion of foot infantry must, therefore, be increased. In fact some armies have already decreased the tank striking power of their armored divisions, and have tied tank units to the foot soldier by making the tank units an organic part of the infantry divisions.

A dynamic analysis of these operations certainly calls for a solution of these organic and tactical problems

which does not turn back the clock hands to those massed slaughters of infantry known historically as Passchendaele and the Somme.

The tank was originally invented to get the attack forward through the deadly defensive machine gun fire which caused the attacking infantry such appalling losses. At the time the British introduced the tank, the French were working on an armored infantry carrier which was designed to carry the infantry quickly through the zone of small arm and machine gun fire. These vehicles were mothered by necessity.

Today the increased antitank defenses have brought us to a decisive crossroads. We can either lessen the emphasis on armored operations which have been so successful when governed by sound tactical principles and properly supported by air, or we can search for and devise new organization, tactics and equipment for the units supporting the tanks, and thereby maintain the powerful advantage of mobility which armored operations offer.

Armored infantry, which possesses great mobility and has the ability to fight either mounted in armored carriers or on foot, might solve many of the difficult problems that now confront those military men who see in the maintenance of battlefield mobility our greatest opportunity for success and our greatest insurance against the heavy losses of the stabilized positional warfare of World War I.

Both the Russians and the Germans appear to be turning to the latter solution. Both these armies within the past year have introduced new types of infantry organizations to give close and highly mobile support to the tanks in armored operations. The Russians call their tank infantry *Tank Desyanti*.

The Germans have organized a special arm (*Waffen-gattung*) and given it the name Armored Grenadiers (*Panzergrnadieren*).

A translation of both the Russian and the German names given to their armored infantry carries an implication of troops who fight mounted or dismounted.

Here it may be interesting to quote from the present German regulations pertaining to armored infantry. (September 25, 1942.)

"The strength of armored infantry lies in its speed and cross-country performance, the possession of numerous automatic weapons and of protective armor.

"Armored vehicles enable the armored infantry to overcome comparatively weak opposition without dismounting.

"Rapid alternation between fighting from armored carrier and fighting on foot, and the combination of these two forms of fighting are characteristic of armored infantry.

"The chief task of armored infantry is close coöperation with tanks. By following up closely, they can quickly exploit the tanks' success.

"Armored infantry, on account of their speed and maneuverability, can readily adapt their fire to suit any

situation. Fire superiority so gained can be exploited more rapidly in armored vehicles than on foot.

"The splinter-proof armor of their transport vehicles allows armored infantry to follow closely behind the burst of their own artillery fire."

In our army, armored infantry is found only as an organic part of our armored division. This armored infantry is trained to support closely the tank operations—sometimes preparing the way for tank attack, sometimes forming the defensive shelter behind which the tanks reorganize. Always this armored infantry must be prepared to operate for periods alone and unsupported, deep in the enemies' position.

The armored infantry supports the tank assault which forms the spearhead of armored operations. To give this support the armored infantry must be as mobile as the tank units, yet it must have the various weapons, light and heavy, and the other auxiliary means to establish and maintain itself defensively.

The real meaning of armored infantry, however, lies in the armor and speed afforded by its armored cross-country vehicles. In these armored vehicles, safe from enemy infantry small arms fire and from lateral shell fragments, the armored infantry must remain and fight as long as possible. If the mission or the enemy situation forbids the employment of the armored carrier, the infantry dismounts and fights on foot.

The fight from the vehicle and the fight on foot and the combination of both are the criteria for armored infantry. Their main mission is to take advantage of their mobile and abundant fire power and to put it into effect in combined action with the attacking tanks.

Often the armored infantry units have to create the prerequisites for the tank assault and must precede this assault. Such tasks are, for instance, attack across a stream barrier, across terrain cuts, against enemy strong points located on tank proof terrain, attack against pill boxes or bunkers, attack against villages and woods, and attack at night and in fog. The most characteristic mission is surprise attack to broaden the success of the tanks.

The tactical possibilities for the armored infantry are of great variety.

SUMMARY AND QUESTION

Armored divisions have great firepower and mobility.

Armored divisions grouped in large armored formations have been uniformly successful when properly supported by other ground and air units. This support must have at least the same mobility and tempo as the armored divisions.

Armored vehicles give their occupants considerable protection against enemy fire and have great battlefield mobility.

We have the greatest armored vehicle production potential. Why not study the possibilities of armored infantry divisions as possible supporting elements for large operations of armored formations?

The U. S. Medium Tank, M4^{*}



These official U. S. Army photos show the 30-ton medium tank, M4, during tests by the Armored Force Board. The new vehicle differs from the M3 model in that it has an all-cast instead of riveted body giving it a lower silhouette and smoother contours; its 75mm gun is mounted in the turret with 360-degree traverse; it has several machine guns but no 37mm gun.



^{*}Courtesy, *Army Ordnance*.

Fuel Bottles As Tank Destroyers*

Condensed from An Article by Major M. Protsenko, Red Army

IN addition to artillery, aviation, and tanks, the Red Army has found a very valuable means of combating German tanks in the "tank destroyer." This term is applied to individual soldiers or groups especially trained in the destruction of tanks by means of fuel bottles. Literally hundreds of German tanks have been destroyed by this means, and cases are on record of individuals who have reached a score of thirty to forty tanks in three months of battles.

A very effective organization consists of three men. Two of the crew are bottle throwers, and the senior is armed with a tommy gun. After receiving a mission to destroy tanks on a probable approach, the group proceeds to the designated spot, and the senior disposes his men. They dig individual trenches, each capable of containing a couple of men and completely camouflaged. Having prepared their positions, each man then carries out a dry run on objects ten to twenty yards distant in order to adjust their fire. The trio act on a predetermined signal, and when the German tank has reached the approved spot the throwers toss their bottles. As the occupants of the tank emerge the man armed with the tommy gun picks them off.

The primary consideration in the selection of a position is to choose a place where the approaching tanks must slow down to negotiate an obstacle. Favorable positions can always be located near bridges, antitank trenches, escarpments, roads, in forests and on marshy terrain.

Coördinated groups of three can be scattered check-board fashion about twenty-five to thirty yards apart in accord with the requirements of the situation. Groups are especially useful along a road that is being negotiated by mortar columns. Here camouflage is most essential, as the head of the column is allowed to proceed to the end of the ambush, and upon signal a simultaneous attack is launched. After the attack the groups return immediately to an assembly point.

When friendly troops are on the march tank destroyers are placed in the column and ordered to be alert for possible attacks. Upon meeting enemy tanks they immediately take up positions utilizing any cover at hand.

Tank destroyers are also placed well ahead of advancing friendly motor columns in areas known to be favorable to tank movements by the enemy. When the column passes the individual destroyer positions the destroyers join it.

In offensive battles tank destroyers penetrate with the automatic riflemen and attack enemy firing points as well as tanks in cases where replenishment of ex-

pended fuel bottles is expedited. If enemy tanks counterattack, the destroyers quickly take up positions in trenches captured from the enemy, communication trenches, shell holes, fox holes, or other cover and wait for the enemy tanks.

Dug-in German tanks provide still another mission for the destroyers.

In the enemy rear, destroyers are given missions such as the destruction of staff headquarters, ammunition dumps, fuel bases, etc., and for support they are given a section of automatic riflemen. After completion of the mission the destroyers retire to friendly positions under cover of the automatic riflemen.

Upon discovery by the enemy of destroyers who have penetrated, they are ordered not to give battle but to withdraw to cover.

It must be emphasized that each task is a completely new one, and that very few rules can be laid down for this type of "commando" fighting. It is obvious that the job requires an alert, smart, well trained and brave type of man.

SUMMARY

- (1) Tank destroyers consist of *three men*; two with fuel bottles and one with a tommy gun.
- (2) Selection and *camouflage* of position is essential.
- (3) "*Registration*" is carried out previous to approach of enemy tanks.
- (4) Destroyer groups are used to *precede a column* for security.
- (5) Destroyers, supported by automatic riflemen, are used in offensive action against targets other than tanks.



A Red Army man, armed with bottles filled with a combustible liquid lies in ambush for enemy tanks.

*Za Oboronu, April, 1942.

General Hawkins' Notes

Fire Power vs. Armor

SINCE the termination of the First World War, and particularly during the last decade, great improvements have been made in armored motor vehicles of all kinds. Mechanical reliability, speed, mobility, armament and armored protection, all have advanced by leaps and bounds. It finally became obvious that if another European war should come (despite the peaceful dreams of the larger part of our population) then mechanized forces would play a prominent if not a paramount rôle.

Some extremists maintained that air force alone could answer all of our war needs. Others thought that we would need ground forces as well—but only armored forces. It was in vain that some of us, at the risk of our professional reputations, published articles protesting that if or when war came ground forces of all kinds would be needed in great numbers and that armored forces alone would not be sufficient.

It was some years before the attack on Poland that a few of us began to urge the making in great numbers of guns that could successfully oppose tanks. We foresaw that should Germany attempt the conquest of Europe by means of a quick, short, violent attack upon the several countries that would be involved, she would count largely upon the armored forces that she was so obviously preparing. It was evident that with such a head start as Germany had over other nations in the way of armored forces, her opponents would not be able to catch up to her in the production, organization or training of such forces before she launched her attack. Realizing this, a few of us advocated special efforts to devise and produce a weapon that would be effective against tanks.

Of course at that time, the proper type of antitank gun had not been determined. But had it been realized how important it was to have some weapon and some method with which to oppose the violent storm that was so obviously coming in the shape of armored forces, there would have been time for much that could have been done.

It should have been apparent as early as the year 1937-1938 that the storm was coming and that there was not time to build tanks in sufficient numbers. There was time, however, to have made antitank guns, and to have improvised out of old 3 in. field guns, or 75mm guns, enough effective power to make up the deficiency in new and better antitank guns. There was urgent need for immediate action and great haste.

Unfortunately, the then prevailing opinion was, that

offensively the only weapons to oppose tanks were other tanks. Defensively, it was believed—at least by the French and British—that artillery, mines and various obstacles, with a few small calibered antitank guns distributed amongst the infantry regiments, would be enough.

The great importance of numerous tank destroyer troops, organized in separate units and armed with mobile guns of sufficient caliber, should have been realized at that time. But if it was, very little progress was made.

The truth is that the assertions of certain tank enthusiasts to the effect that the only way to stop a tank was by a tank, were responsible for the failure on the part of the Allies to have enough effective guns to afford serious opposition to the German tanks in France in the year 1940. Since they did not have enough tanks to take the offensive against German tanks, the Allies seem to have reasoned that the only thing to do was to go on the defensive and rely as before said, on airplanes, artillery, mines and obstacles. As it turned out, these measures were ineffective, and the German armored forces in France ran wild as everyone now knows.

All of this led people in America to believe that the tank was invincible. But the tank is not invincible. As has been written often in these Notes, the proper way to deal with enemy armored forces is not by the initial use of our own armored forces but by the initial use of our tank destroyer forces; and then by counterattack with our own armored forces supported by other ground forces. The use of airplanes in both phases of such a battle is, of course, indicated and, in fact, necessary. The Russians have discovered these principles and have used them successfully.

General Montgomery, in command of the British 8th Army in Africa, used these principles in his attack at El Alamein. His infantry, supported by artillery and antitank guns, and tank destroyers, was used initially, and his armored force was held in reserve. When the Germans counterattacked with tanks they were smashed. The British armored forces were then used very successfully against other troops of Rommel's army.

There are those who think, however, that fire power outside of a tank cannot cope with tanks. We have insisted in these Notes repeatedly that the time would come when tank destroying guns would obtain the mastery over tanks, and that when that commenced to be true the decline of armor in comparison with fire power would begin. It has already begun. This was obvious

in Russia in 1941. It has been obvious in North Africa for a year.

Now it is a well known fact that American made self-propelled tank destroyers were furnished in some numbers to the British 8th Army in Egypt. This new gun is accredited with having smashed the tanks of General Rommel's armored force in Africa and with having contributed much to the recent British victory in that country. If the claims made for this gun are true, we can see the handwriting on the wall. The dominance enjoyed by armored forces on the battlefields of 1939 and 1940 is over.

As mentioned before, this decline had become apparent in 1941 in Russia. In a recent newspaper dispatch, Henry Shapiro recently quoted Lieutenant General Chuikov as giving much credit for Russian successes to their *Katushka*, the still secret Russian gun that is responsible for many tank casualties. (See below.)

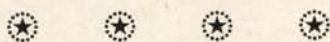
It is another example of the old story of *fire power versus armor*. Fire power always wins in the end.

This does not mean that armor will be discarded. Warships have retained armor even though the projectiles fired from big guns can pierce it. Armor gives protection against small arms, and all guns but those especially designed. Therefore, armor will continue to

be used to give protection against ordinary weapons and to force the enemy to take special measures to protect himself against armored vehicles. Nevertheless, armored force will gradually lose its abnormal ascendancy, and, although useful and necessary, will never again occupy the powerful and dominating position that it held for a brief moment in the early part of this war. Although the speed of motor vehicles on roads or suitable terrain will continue to be very important, even that value will be somewhat lessened by the coming inability of armored vehicles to give the same protection to motor columns that has been relied upon for the last three years.

We are creating many new divisions of armored troops for this war. And we are right in doing so. Armored force is a branch of the army that will be important for an indefinite time to come and perhaps always. But it may now be noticed that war correspondents and press writers have at last awakened to the paramount importance of infantry and other arms and are giving them more notice and more due credit than at any time since the advent of the two new arms—air force and armored force.

The fire power of the tank destroying guns is restoring a proper balance to our war machine.



Antitank Defense*

THE most important single consideration in the defensive battles now being conducted by the Soviets is the defense against German tanks.

Correctly disposed and camouflaged, antitank weapons can and are stopping the German tanks. One case of a recent battle is recorded in which three antitank guns of the regimental artillery held off fifty-six German tanks in an all day battle and destroyed five others. Another case records that thirty-five to forty German tanks attempted to cross a river over a single bridge. One well placed, antitank gun destroyed five of them and forced the remaining tanks to seek other means of crossing.

No set rule can be laid down regarding the density

of antitank weapons on any sector. The system depends upon the terrain and the local situation. In general, there should be greater density toward the rear. An attack by a large number of tanks is met at the front lines by artillery and rifle fire. Then antitank rifles and destroyer tanks come into play. If the enemy tanks still break through they run into tank obstacles defended again by flanking and rear antitank fire. Soviet infantry at this point attempts to cut the German infantry off from their tank support. The tanks then continue to run into tank destroyers and increased mine fields.

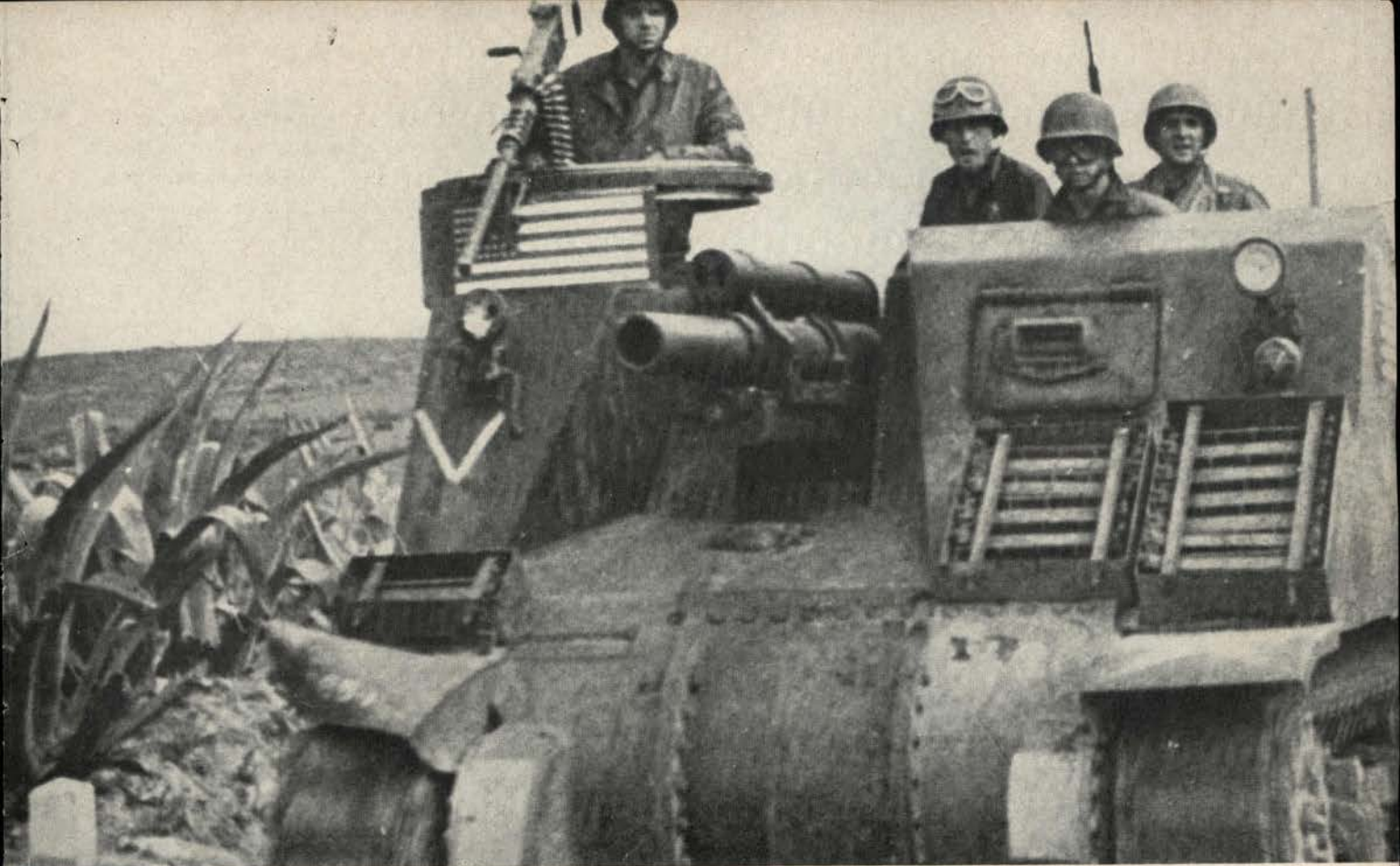
Where Soviet tanks are used in the defense they must not be pushed out front but scattered to the rear and dug in to await a possible break-through, where they can then do their best work.

*The brief of an article written by Major General F. Zakharov,



Katushka's 'Unpopular'

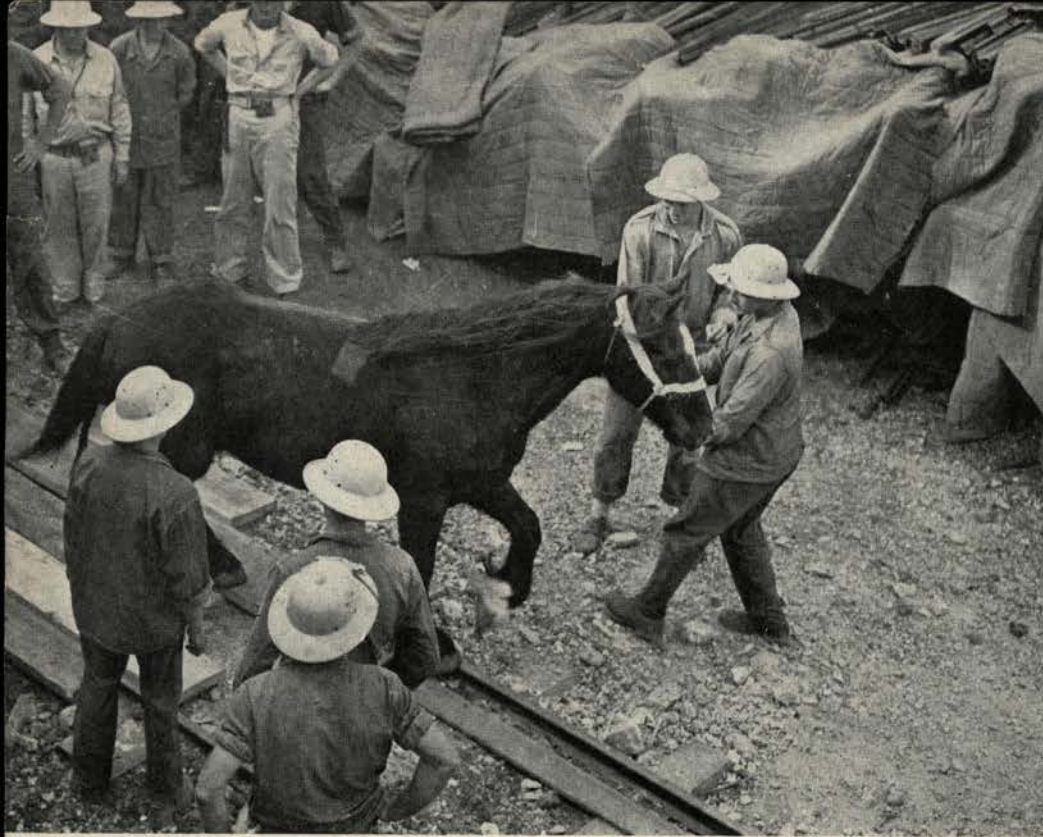
General Chuikov (defender of Stalingrad) said, "... In the Battle of Stalingrad the Russian hand grenade won general respect. Extremely unpopular with the Germans is our Katushka (the still secret Russian gun), which the enemy call 'Stalin's machine.' All living objects are destroyed wherever its shells burst."—HENRY SHAPIRO, United Press Correspondent, Moscow.



U. S. Armored Forces in North Africa

A U. S. 105mm tank destroyer rolls across the Algerian countryside after the Allied landings on the North African coast. The picture below shows a tank crew of the U. S. Armored Force in North Africa.





Cavalry and pack artillery mounts are unloaded from ship in New Caledonia.

U. S. Cavalry and Pack

The strength of the United Nations forces in the Southwest Pacific theater of operations now is augmented by the presence of mounted

troops from the United States. For certain problems of defense and offense in that area they are indispensable.

Pack train maneuvers in New Caledonia in a setting reminiscent of our own great western outdoors.





Horses are led to a corral to get their "land legs" after voyage to New Caledonia.

Horses in New Caledonia

The mules plod along with their packs. These sure-footed hybrids can travel all day over difficult terrain and carry 300 pound loads.



Editorial Comment

Tactical Data From Fighting Fronts

Each of the last several issues of The CAVALRY JOURNAL has contained a number of authoritative articles on *practical applied tactics* from one of the principal *fighting fronts*—the Russo-German line that extends for over 2000 miles—from north of Leningrad to Rostov and beyond.

Many of the articles have arrived by cable direct from the War Department, U.S.S.R., Moscow. Some have been furnished us by the Soviet Embassy in Washington. A few have come by way of other sources. All are authoritative. All are based upon experience rather than theory.

In times of peace the most reliable military deductions are those based upon maneuvers. In times of war the only deductions that are practicable are those based upon actual fighting.

The CAVALRY JOURNAL, during this time of war, is making a desperate effort to bring to its readers the *essence of lessons learned* from combat, in order that both officers and men of the U. S. Armed Forces may profit from the experiences of others.

Many of the articles deal with the most fundamental expedients of survival—simple tactics developed from the necessities of war—kill or be killed.

In these lessons from the war fronts two particular tactical features have been emphasized again and again. One is—

THE TACTICAL EMPLOYMENT OF SMALL UNITS

In a war of survival, tactical expedients grow out of necessity.

A fuel bottle, accurately aimed, stops an enemy tank (Page 26). A pilot runs out of ammunition and he learns how to “ram” his opponent, send him to his death, and bring his plane in safely (Pages 46 and 47). German parachute troops land, and small detachments dispose of them (Page 48). From three to twelve men, with rifles, tommy guns and machine guns, rout forces superior in men and matériel (Page 44).

Experience proves that in warfare the small unit—well trained, determined, and persistent—can wreak much damage upon the enemy. Individual snipers, lying patiently in ambush, are accredited with from 150 to 300 casualties, and they live to tell the story.

The other important lesson from Russian reports is—

THE VALUE OF RECONNAISSANCE

Get as much information of the enemy as you can, before you strike!

In every article from Russia, every description of combat is prefaced by, “After a thorough reconnaissance

had been made . . .,” “After a patrol had reconnoitered . . .,” “After having made a careful reconnaissance of the enemy’s position . . .,” *ad infinitum*.

Regardless of strength, any action is more powerful if the commander has some knowledge of the strength and disposition of his adversary. Without this knowledge, he moves blindly. He can be delayed, stopped or thrown back *unnecessarily* by any sudden and unexpected encounter of a hostile force half the size of his own, whose commander is well informed of the situation.

This is one of the most potent lessons that has come from a *fighting front* and one that we cannot afford to ignore. The age-old principle of conducting proper reconnaissance (regardless of the mission, size, or type of troops involved) is essential to successful combat in any war, no matter how modern the war may be. Too often its value is realized and appreciated most, when “it was not there.”

The time to learn and practice this lesson starts during the unit training period. We cannot wait until the enemy is pounding at us to learn the lesson of “*how, what, where*” is the enemy. Let us learn from the valuable experience of those who have fought this war ahead of us.

Let us use our reconnaissance units for what they were intended. Let us practice in maneuvers what we are going to find necessary in battle.

✓ ✓ ✓

“Vehicular Reconnaissance”

The article by this title which appears in this issue is an excellent, succinct summary on this subject.

Innumerable requests have been made of us for this article, originally printed in mimeographed form and mentioned in the September-October issue of The CAVALRY JOURNAL. It is with much pleasure that we present it intact on page 49 and recommend it to all, especially those officers and men on duty with reconnaissance units.

✓ ✓ ✓

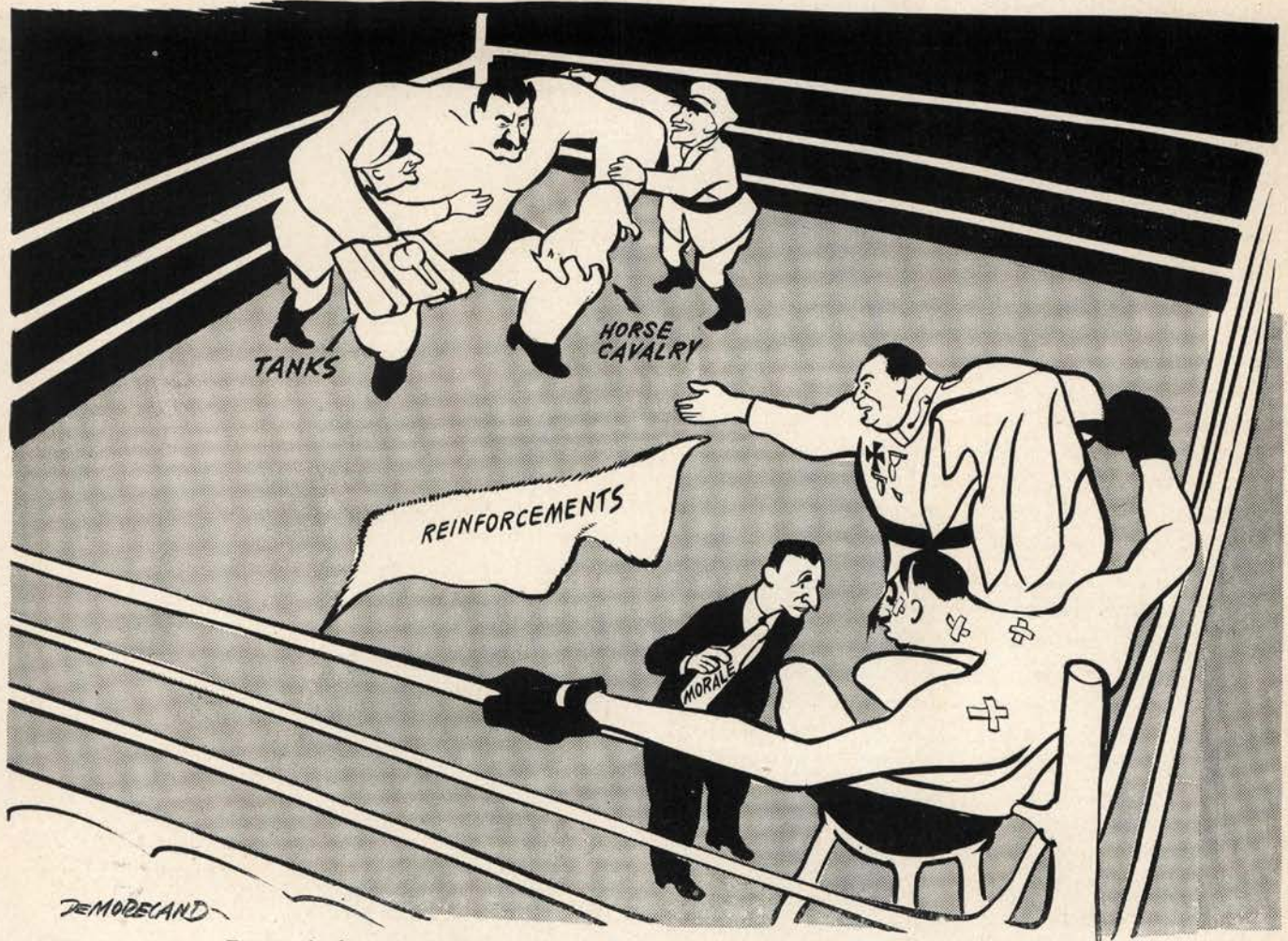
Dirty Fighting Can Be Fair Play*

If there is one single characteristic that is typical of all Americans everywhere, it is good sportsmanship.

That word takes in a lot. Think it over for a minute. Sportsmanship is more than playing clean ball. It is playing clean in the game of life. It is live and let live, it is liberty, it is freedom, it is following the rules of the human game; yes, all that comes under the heading of good sportsmanship.

*Courtesy, Bill Stern, NBC Director of Sports.

THE SELF-STYLED "CHAMP" IS WORRIED!



Rous mit der towels und vater—how do I stop his right jab and left hook?

Perhaps that is why sports in the United States enjoy a popularity such as is known in no other country in the world. Americans are just built that way. They like action, excitement, and thrills, but they play by the rules and expect the other fellow to do the same.

But what happens when the boys come off the grid-irons and diamonds and courts, and get into a game where the other team starts playing dirty, a game where there's no "Ref" to impose the penalties? Suppose it's a game of life and death and you are at war with the Nazis and Japs?

Do we still play fair, or do we toss aside everything that our boys have been taught for generations? That is a problem that is facing a lot of the boys in service, whether they are former All-Americans or grandstand quarterbacks.

You hear a lot about the "dirty fighting" being taught the boys in service. It doesn't sound like American sportsmanship, and it seems to bother a lot of "armchair strategists." Let's forget those people and think about the people who are doing that fighting—the boys in uniform.

They are being taught all of the tricks of the trade of war—things that they must know. Like the war itself, we did not ask for dirty fighting, or any fighting. But

if that is what the Axis wants that is what we will give them.

We do not stoop to tricks like machine gunning fliers who "hit the silk," or shelling men in open boats, or shooting prisoners. But in the close-in fighting there is not a reason in the world why the boys in uniform should not get tough and rough. If they do not, the Japs and Nazis will. It is a case of life or death.

It is too bad that it has to be that way. But there is just no referee in this game, and unless the boys fight as dirty as their enemies, it is going to be too bad for Americans.

1 1 1

Cavalry Journal Circulation Reaches A New High

If you do not receive your first copy of the JOURNAL as promptly as you might wish, please be just a little patient with us. We make every effort to get the first JOURNAL in the mail within a day or two after receiving your order, but our Circulation department has been so deluged with new subscriptions recently that we have sometimes fallen behind schedule.

Our aim is to print up-to-date information on combat experiences and techniques and to get the JOURNAL to our subscribers as quickly as possible. The first is useless

without the second, and we cannot do the latter without your cooperation. Drop us a card when your address is changed and keep us abreast of your APO number if you are overseas. From all the evidence we have, the Army Postal Service is doing a magnificent job and the JOURNAL is being delivered promptly at many an overseas front and camp. Reproduced on this page is a V-mail change of address which reached us eight days after it was mailed from the ETO. The foresighted officer who took three minutes to send us that address will receive this issue of the JOURNAL only a few days after the subscriber stationed right in Washington, D. C.

We appreciate your advising us as to what you like to read and see in the JOURNAL. The Reconnaissance article by Lieutenant Colonel Cook and the increase in exclusive pictures in this issue are the results of the widespread demand from our members. The CAVALRY JOURNAL is your magazine and you make it what it is.

This V-mail change of address reached us in eight days from the European Theater of Operations. The mail and the JOURNAL are getting through!

Cavalry Journal Material

Particularly interesting is the consensus obtained from the "proxy card" comments on the subject matter that has appeared in The CAVALRY JOURNAL during the past year.

As usual, the majority of proxy cards gave no answer to our query, "What article did you like best?" But a

tabulation of those comments that were received netted the following information:

Reports from the battlefronts	134
Cavalry	120
Armored	107
Reconnaissance	57
"All good"	41
Training methods and new weapons ...	24
Air-tank-horse in reconnaissance	10
Miscellaneous	44

It is gratifying to find that this tabulation follows so closely the proportionate division of subjects as they have appeared in The CAVALRY JOURNAL during 1942.

It is not always possible to obtain authoritative material on each of the above subjects for every issue. During the past year, however, a number of valuable articles have been published on each of these subjects, and each issue of the JOURNAL has contained several feature articles that have attracted sufficient attention to be reprinted by one or more other military publication. A number of articles have been reprinted as official training data.

During 1943 The CAVALRY JOURNAL will again make every effort to print the authoritative material on those subjects that its readers most desire.

1 1 1

FEDERAL INCOME TAX LIABILITIES OF OVERSEAS PERSONNEL OF THE ARMY*

The Act of Congress approved March 7, 1942 (Public Law No. 490, 77th Cong., 2d Sess.), provides that, when any individual in the military forces is serving outside the continental limits of the United States (defined in the act to mean outside the States and the District of Columbia), at the time a Federal income tax return or payment of Federal income tax would ordinarily become due, the due date for filing the return or making the payment shall be the earliest of the following dates: (a) the fifteenth day of the third month following the month in which the individual concerned ceases (except by reason of death or incompetence) to be outside the continental limits of the United States, unless prior to the expiration of such fifteenth day he is again outside the continental limits of the United States, or (b) the fifteenth day of the third month following the month in which the present war is terminated, as proclaimed by the President, or (c) the fifteenth day of the third month following the month in which an executor, administrator or conservator of the estate of the individual concerned is appointed.

The act above referred to does not relieve an individual in the military service of liability for Federal income taxes; it merely postpones the time when returns must be filed and payments made by individuals coming

*The information set forth herein was obtained by informal inquiry of the Office of The Judge Advocate General of the Army.

within its terms. The act is a relief statute and a person entitled to its benefits may nevertheless file his return and make payments if he so desires.

The Commissioner of Internal Revenue also has power to extend the due date of a payment or of a return, which has already been deferred under the above act, if an individual returning from a station outside the States or the District of Columbia has need of and applies for such further extension.

In the event that inquiries are made by the office of the collector of internal revenue concerning the failure of an individual to file an income tax return or to make a payment of income tax upon a due date, a statement by the wife of the individual concerned, or of a responsible person in a position to know the fact, that the individual was outside the continental limits of the United States at the time the return or the payment of tax was due should satisfy the office of the collector. It would appear desirable, however, both from the standpoint of the individual concerned and the Bureau of Internal Revenue, that written advice be given to the local collector in advance of the ordinary due date of a return or of an income tax payment that the individual concerned is in the active military service and is, or will be on that date, outside the continental limits of the United States. The exact whereabouts of the individual need not, of course, be given.

The privilege of deferring the reporting and payment of tax on the income of an individual serving outside the continental limits of the United States applies not only to his military pay but also to his income from sources within the continental limits of the United States even though such income may be received by the holder of a power of attorney, or by the wife or other dependent of the individual concerned. While it is the general practice, and advisable, for an individual, before leaving for a station outside the continental limits of the United States, to leave a power of attorney authorizing his wife or some other person to prepare and file income tax returns for him, the person so empowered need not file a return but may accept the benefits of the act above referred to on behalf of the individual concerned.

Allotments from pay are not income to the allottee and need not be reported as income by the person receiving the same. The amount allotted remains the income of the individual making the allotment, to be reported and a tax paid thereon when a return or payment is due, subject, of course, to rights of deferment. Income from property owned by an individual constitutes income of the person owning the property and should be reported by him when he files his income tax return. If, therefore, an individual serving outside the continental limits of the United States, authorizes his wife or other dependent, to receive and spend for her own use income from property owned by him, such income need not be reported nor any tax paid thereon by the person receiving the same. That part of the family allowance

granted to and paid by the Government to dependents of enlisted men (Public Law No. 625, 77th Cong., 2d Sess.) which is charged against and deducted from the pay of the enlisted man is to be included in his gross income as though received by him unless it is paid to a divorced wife or a wife legally separated from him in which instance it is taxable to the wife. That portion of the family allowance contributed by the Government to the dependents of the enlisted man is considered as a gift and is not taxable either to the enlisted man or to his dependents under any circumstances. (See. I. T. 3574, 1942 Int. Rev. Bull. No. 36, p. 2; Sec. 120, Revenue Act of 1942.)

The victory tax of 5 per centum imposed by the Revenue Act of 1942 upon income received after December 31, 1942, applies to the income of military personnel, including their military pay, in excess of \$624. A return covering the victory tax is not due until March 15, 1944. The act of March 7, 1942, above referred to, will, however, permit deferments of returns and payments of the victory tax as well as the regular income tax. Income in excess of \$624 separately earned after December 31, 1942, by wives of military personnel is subject to the victory tax of 5 per centum and, to the extent that such income is composed of "wages," is subject to the withholding of 5 per centum thereof under the Revenue Act of 1942 as an aid to the collection of the victory tax.

The revenue laws do not grant any general deferment to wives of military personnel serving outside the continental limits of the United States for the filing of returns or the payment of income taxes with respect to wages or salaries earned by them or income from property owned by them. Section 507 of the Revenue Act of 1942, approved October 21, 1942, however, provides for the suspension of time limits running against the Government, taxpayers and others in certain cases where, by reason of the war, timely performance of acts affecting Federal tax liabilities and rights is impossible or impracticable. The Commissioner of Internal Revenue has not yet promulgated regulations with respect to section 507. In some instances it may be impracticable for wives of individuals domiciled in community property states to file individual income tax returns on the due date. Furthermore, it may be impracticable for a wife to file a separate income tax return with respect to her separate income in cases where she may have losses more than offsetting her income, which, in a joint return, could be used to offset her husband's income. Or a husband may have losses in excess of his military pay which could be used, in a joint return, to offset the separate income of his wife. Where losses incurred by one spouse or the other raise the question of the advisability of a wife filing a separate return with respect to her separate income, competent counsel or the office of the local collector of internal revenue should be consulted concerning her rights under section 507 of the Revenue Act of 1942.

The Defense of Bir Hakeim^{*}

May 26—June 10, 1942

UNDER orders from General de Larminat, General Koenig was in command of the brigade entrusted with holding Bir Hakeim.

Naturally we are not allowed to furnish a complete picture of the battle order of our forces in Libya; we can, however, in order to give an idea of their nature, mention certain of the units which were included therein.

Foreign Legion. (Elements of the former 13th Foreign (Battalion) and Legionnaires rallied during the Syrian campaign.) Veterans of Narvik, and Eritrea, (Keren and Massouah).

Marines. (Veterans of the 24th Colonial (battalion) stationed at Cyprus at the time of the armistice and who joined the Free French Forces at that moment, participated in the first Eritrean campaign, in the Syrian campaign; new elements rallied in Syria, etc.). Battalion composed entirely of Frenchmen from continental France, particularly Parisians and Bretons.

Pacific Battalion. Recruited among the Frenchmen of our possessions in the Pacific and native Maoris.

Makeshift battalion composed of fragments drawn from different regiments of the Chad. Sharpshooters from the Sahara, recruited in French Equatorial Africa, one of whom played a capital rôle in Eritrea, at Kub-Kub, in the battle of Keren.

Batteries of 75mm artillery. Formed around the first batteries from French Equatorial Africa, which participated in the Eritrean and Syrian campaigns.

Battalions of machine guns mounted on weapons carriers (auto-mitrailleuses). Formed in Syria with motorized units of the cavalry.

Light tanks, supporting the machine guns mounted on weapons carriers.

Quartermaster Corps. Strengthened by the experience acquired during the campaigns in Eritrea and Syria.

Mobile operations battalion. Commanded by an officer and formed of elements which participated in the operation of Koufra.

Medical Corps. French doctors and nurses.

THE THEATRE OF OPERATIONS

The Bir Hakeim plateau extends for several square kilometers at the crossing of the caravan routes. One route leads towards Tobruk, 80 kms. to the northeast; the second, towards Gazala and El Gubbi to the north; the third, towards Sidi Omar, to the east on the Egyptian frontier.

Through its geographic situation, at the extreme south of the Libyan front, Bir Hakeim constituted a position as important as it was dangerous. The troops

which defended it had, at the same time, to face a frontal attack and prevent the enemy's attempt to turn the left flank of the allied forces.

One cannot, therefore, overestimate the confidence shown French troops by the British High Command who handed over to them the safeguarding of this bastion whose fall was, indeed, indispensable to Rommel's operations.

THE BATTLE

It was on Tuesday, May 26, that after a three months' calm Rommel undertook in Libya the offensive which inaugurated what *The London Times* called the Sixth Campaign since the beginning of the war, the first having been launched Sept. 13, 1940.

It was also on that day that, for the first time since the the capitulation of France, Free French Forces participated in a battle against Axis troops. Our men, for the most part, were equipped with French matériel recovered in Syria after the cessation of hostilities against Vichy.

At the moment, General Auchinleck, adopting defensive tactics, used antitank batteries on positions chosen by him. The number of tanks which he had was not inferior to that which the enemy had, but the majority of the British tanks were not fitted with cannon of equivalent fire power.

On the eve of the first engagement the Stuka dive bombers already had attacked the Allied lines, but the two armies were still separated by a vast "no man's land."

What was the principal objective of the enemy? It was still too early to deduce it from his dispositions. This was made even more difficult to determine because it was not known whether or not he was sending in all of his tanks. It was supposed, however, that the enemy



Free French Marines who made such a gallant stand at Bir Hakeim are shown manning an antiaircraft gun somewhere in Africa.

^{*}Extracted from *Publications de la France Combattante* No. 52.



A Fighting French seventy-five hurttles shells across the desert toward the enemy. The above picture was dated May 18, 1942 and was probably made in the vicinity of Bir Hakeim.

believed that he could reach Tobruk by crossing the crest of El Akaba which stretches out between Bir Hakeim and the sea. As for the armored forces of General Ritchie, they were disposed so as to answer an enemy attack from the north or from the south, quite ready, as events proved, to face the eventuality which took place.

British aerial reconnaissance was able to observe the preparations of the enemy offensive. To upset these preparations the R.A.F. heavily bombarded the enemy airfields. Raids followed each other all night long and were reinforced at dawn and dusk by low altitude attacks carried out by light bombers and fighters.

"DECISIVE ATTACK"

The meaning that the German High Command intended to give to the operations being projected was another uncertainty. This was made little clearer after reading an order of the day from Rommel to his troops, which had come by chance into the hands of the British General Staff. Here is the text of it, dated June 26, 1942.

It bears the title: "Decisive attack against the British," and declares: "The African Armored Army, in the course of important operations, passes over today to a decisive attack against the British mobile forces in Libya. Recalling our glorious deeds of the months of January and February, we shall attack and put the enemy to rout everywhere he turns up."

This text was accompanied by a commentary in which Rommel explained to his troops that, in order to make their success easier for them, he had sent out forces superior in number to those of the Allies, equipped with a complete armament and supported by a powerful aviation. He concluded by greeting His Majesty the King of Italy and Emperor of Ethiopia, the Duce of the Roman Empire, and the Führer of Greater Germany.

On the first day of the attack, the 1st Brigade of the Free French Forces was reinforced by the 3d Indian Motorized Brigade. On the twenty-seventh an attack was launched at daybreak by the Italian light tanks of the Mobile Corps; it was repulsed. Enemy orders which fell into our hands bore witness to the fact that Rommel's intention was to subdue Bir Hakeim at the begin-

ning of operations. The defeat which he suffered lengthened his lines of communication, made them very vulnerable and had considerable effect on the outcome of the battle.

Later in the day, all the enemy motorized forces moved to the south of Bir Hakeim, then fell back towards the north on Tobruk.

FACSIMILE OF THE ULTIMATUM DELIVERED BY GENERAL ROMMEL TO GENERAL KOENIG ON THE 3RD OF JUNE AT 9:30 A.M.

Dienststelle:		Rufe:	
Spruch Nr.	Defolbert am	19	Wie durch
	Aufgenommen am	19	Wie durch
	Erhalten am	10	Wie
Spruch Nr.		non	an
Bemerkte:			
Abfahrende Stelle:	in Richtung	Ort	Tag
	Abgegangen		
	Angelommen		
	An		
<p><i>Am die Truppen von Bir Hakeim.</i></p> <p><i>Leichter Widerstand bedeutet</i> <i>unvermeidliches Blutvergiessen. Ihr werdet</i> <i>damit alle Rücksicht verlieren, wie die</i> <i>britische angesehene Brigaden in Got</i> <i>Saleb, die vor gestern vernichtet wurden.</i></p> <p><i>Wir stellen den Kampf ein</i> <i>wenn ihr unsere Flaggen seht und</i> <i>ohne Waffen zu uns überliefert werdet.</i></p> <p><i>Rommel</i> <i>Generaloberst</i></p> <p><i>Recy 6 31</i> <i>2 9 10</i></p>			

Translation:

To the troops at Bir Hakeim:

A prolonged resistance will provoke useless shedding of blood. You will have the same fate as the two British brigades at Got Saleb. We shall stop the fight if you hoist a white flag and come to our lines without arms.

ROMMEL,
Field Marshal.

THE ASSAULT

Rommel threw into the attack on the French position the whole 20th Italian Armored Corps including the

102d Armored Division, the Ariete and the 101st Division from Trieste.

On our right an English division was traversed by a German armored column, but repaired the breach. During the night the German advance continued and at dawn, on the 27th, came out exactly to the south of Bir Hakeim. This attack was repulsed with the help of the fighters and bombers of the R.A.F. who violently bombarded the enemy motorized forces.

The intention of the adversary was becoming clearer; it appeared now that Rommel's offensive was developing on a triple line; the Nazi tanks were to press the Allied troops to the north and to the south of Bir Hakeim, as well as along the coast road leading to El Gazala. Of these three attacks Rommel, without a doubt, would push the one which would bring him eventually the greatest initial success.

For the moment, however, it was not yet possible to judge the results of the struggle. In this connection the German short wave broadcast announced that there would be no communique concerning Libya before the next day. It added the following strange commentary:

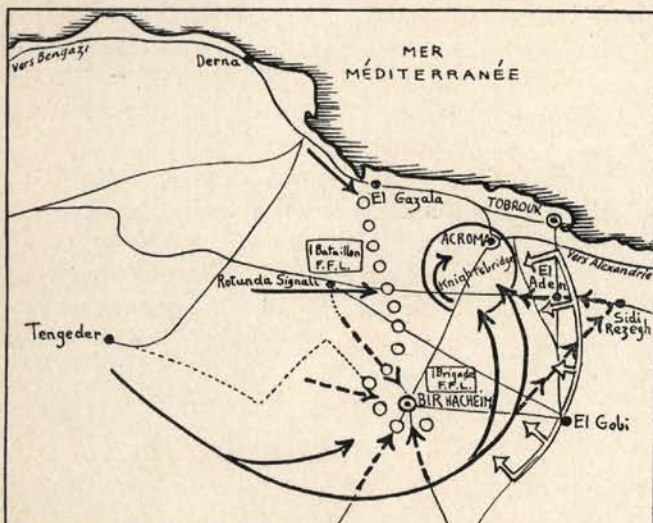
"The English themselves do not explain clearly the tactical or strategic meaning of Rommel's troop movements. They do not seem to consider that these movements are a part of a great Axis offensive."

FIRST ENCIRCLEMENT

At this point, the Free French Forces were cut off from their rear by the advance of German armored divisions rushed forward by General Bismarck, but they resisted the attacks and destroyed forty-five of the tanks. Better still, they effected a brilliant sortie in the course of which they completely destroyed a great number of vehicles and took several hundred prisoners including an Italian colonel.

This was the moment that Mussolini chose to re-

[F.F.L.] Free French Forces **○** Cities • Villages — Roads — — — Trails
→ German-Italians **-----→** German-Italian Attacks
⇨ British Forces
○ Zone of the most important tank battle **○** Antitank Mines



Spahis, the French Colonial Cavalrymen, gallop their mounts down the side of a dune in the Egyptian desert.

iterate his claims about Nice, Corsica and Tunisia! A French commander stated to a reporter from Reuter's News Service: "We have already swallowed down six Italian battalions; we ask only to digest others." But the Italians, having had their fingers burned, did not attack again. Soon, the British maneuver forced Rommel to fall back with his troops; the Ariete Division was drawn back with the others; for a time the Free French Forces ceased to be encircled.

One of the two enemy columns advancing to the northeast of Bir Hakeim tried to reach El Adem. It did not succeed, but small detachments which stole away from the battle succeeded in making their way through the Allied minefields to some 16 kilometers outside of Bir Hakeim, and thereby created a breach in which Axis troops were able to settle.

During the next two days the Allies put forth all their efforts to close this break, but they were unable to dislodge the enemy although they violently attacked his supply lines and inflicted heavy losses on him. The R.A.F. continued to support our ground forces, not only by intercepting the enemy air attacks but also by causing enormous losses to their vehicles.

On the 28th of May, Air Vice Marshal Conyngham decided to send in all his planes in low altitude attacks against armored transports and enemy trucks in this region. These attacks continued with the maximum intensity during the three days that followed.

It seemed that the armored units of the Axis operating on the southern front in Cirenaica had made a broad fan-shaped movement to the south of Bir Hakeim and concentrated to the northeast at the crossroads found at 40 kilometers to the south of Akroma; that is, between Bir Hakeim and the coast.

THE FIFTH DAY

On the fifth day of the German offensive, the battle reached its climax when the enemy tried to pass through

the breaches. It was at the crossroads, nicknamed Knightsbridge, that the fighting was the most violent. Rommel had his supplies pass to the south of Bir Hakeim, but the ground attacks of our troops and the British air attacks made the job very difficult for him, although he was able to maintain his break-through on the left flank of the British front.

On the 30th the Free French Forces attacked the enemy field workshops twenty kilometers from our position and, coöperating with the 7th English Motorized Brigade, the 29th Hindu Infantry Brigade and the King's Dragoon Guards, destroyed twenty-five enemy tanks which, their gas tanks empty, had been forced to stop near Bir El Gobi. On that same day the Free French Forces took a prisoners' camp by storm and succeeded in freeing 600 men of the 3d Indian Motorized Brigade, who joined them and continued the fighting.

On the 28th, 29th and 30th of May, violent fighting took place continuously between British armored divisions and brigades and the German Afrika Korps supported by the Italian Mechanized Corps. The battle continued with advances and withdrawals in a vast zone that extended from Acroma on the north, to Bir Hakeim, to 65 kilometers farther to the south at the approaches to Tobruk, to our minefields at 60 kilometers to the west.

"To this day," wrote General Auchinleck, "bitter fighting continues, and the battle is far from over. . . . This defeat has cost him (Rommel) dearly in men and matériel."

The Cairo communique stated: "Since Saturday noon, the enemy has been trying to concentrate on the west the most of his armored forces. He is using two paths cleared through our minefields which are near the Capuzzo trail. Although constantly attacked by our armored forces and the R.A.F., the enemy has succeeded in bringing into position his antitank artillery in order to cover the two cleared paths with the aim of preventing our armored forces from closing the break-throughs."

At nightfall on the 31st of May the enemy succeeded in sending numerous tanks and trucks to our rear through one of the two breaches which he had protected with numerous antitank cannon against the Allied attacks that had come from the west.

A great number of enemy tanks and vehicles, however, remained on the exposed side of this barrier. Our troops, with the vigorous support of the fighters and bombers of the R.A.F. continued to harass them without respite and to destroy them. The region east of Bir Hakeim was cleared by the Free French Forces. Enemy losses included at least 260 tanks destroyed or captured, in addition to a great number of trucks.

On the first of June, the King's Dragoon Guards, advancing on Rotonda Segnali, 45 kilometers to the west of the chief Allied positions, found this point unoccupied; a column of Free French Forces had received the order to occupy this spot along with the 3d Indian Brigade.

THE SECOND PHASE

The first phase of the attack, in which Rommel aimed to take Tobruk, failed. He later succeeded, we must admit, but the Free French Forces first foiled a new attempt on the part of the Germans to join the Italian infantry which was attacking Bir Hakeim.

During the day of June 2, the Germans launched a violent attack on Bir Hakeim with fifty tanks and Italian infantry, and for a short time the French brigade was threatened. Called upon by the enemy to surrender, it answered by a historic remark which certainly has already served in similar circumstances, but which was none the less apt here.

It became more and more clear that Rommel's intention was to isolate Bir Hakeim.

General Kruewell, commander of the Afrika Korps, was taken prisoner when the reconnaissance car in which he was riding was disabled within our lines.

The personal diary found on this officer revealed that on the preceding Monday he had conferred with Hitler and General Halder, personal military counselor. Two days earlier Kruewell had conferred with General Keitel, Chief of the Nazi General Staff and with General Cabellero, Chief of the Italian General Staff.

In spite of the sandstorms on June 3, the enemy renewed his attack on Bir Hakeim with great violence. Once again, the enemy repeated to the French troops their injunction to surrender—with the same lack of success.

A column of German and Italian tanks attacked the French forces from the northwest towards the south-east: elements of the two divisions of Italian infantry from the southwest towards the northeast. The French garrison, reinforced by infantry elements from the 7th Motorized Brigade, repulsed all assaults. A column of British tanks participated in the defense of Bir Hakeim by attacking from the rear the convoy of German tanks, but General Ritchie, trusting in the worth of the French soldiers, let it be known that he was not anxious about the fate of Bir Hakeim.

(EDITOR'S NOTE: The French went on fighting for another eight days and did not meet the fate with which they were threatened. On June 9th General Ritchie ordered the encircled garrison to evacuate Bir Hakeim, and on the night of June 10th the break-through was effected. Three-quarters of the garrison reached the British lines in safety.)



Machine Gun Fire in Flank Attack

*By Captain S. Leonov**

EXPERIENCE has shown that in winter the Germans stick closely to inhabited places. They are unwilling to accept battle in open country and convert every village into a stronghold.

In the village of Semenovka almost every building had been made into a fire position, all approaches toward the village were covered by machine gun and mortar fire. In a brick barn near a ravine, the Germans had set up three machine guns to fire through loop-holed walls while a short distance away an antitank gun was hidden in some bushes.

The country around the village was quite open, so that a frontal attack on such a strongly fortified position would have meant tremendous losses. The Soviet battalion commander decided to take the stronghold by a flank attack, whereupon the company commander detailed Sergeant Sevtsov's machine gun platoon to silence the enemy fire position in the barn and attract the whole of the enemy's fire while the other troops were carrying out their flanking movement.

The machine gun platoon commander selected a position for his observation post, his main and reserve gun positions, and then covered his lines of communication between these points. There were bushes growing opposite the barn, and in front of them there was a very deep ditch. These furnished good cover for the machine guns and gave a good view of the whole of the enemy's defenses. The machine gunners took up their positions under cover and awaited the signal to open fire.

*By cable from Moscow, December 30, 1942. Courtesy, The Soviet Embassy.

Red Army soldiers man a gun in the firing line on the Russian battlefield.



The attack began with an artillery barrage. A direct hit was scored on the ammunition dump behind the barn, and one group of Germans rushed to extinguish the fire. At the same time, however, the enemy machine guns opened up fire, so Sergeant Sevtsov's machine gun platoon first directed all of their fire strength on the barn itself. Well placed bursts aimed at the loopholes quickly silenced two machine guns. Through his field glasses Sergeant Sevtsov studied the enemy position closely, and seeing that the Germans were running toward the fired munitions dump, he ordered gun layer Tsigankov to open fire on them. Through his glasses he had a good view of enemy soldiers falling as they were mowed down by the machine gun fire.

Meanwhile, machine gunner Smorodinov had directed intensive fire at the surviving loophole in the barn and at the same time covered approaches to the barn from the right.

Having dispersed the group of Germans at the munitions dump layer Tsigankov turned his fire to a position on the left of the barn and thus gave the Germans no opportunity to obtain munitions.

A company of mortars cooperated splendidly with the machine guns in this action. While the machine guns were silencing the fire points on approaches to the village, the mortars kept up fire on its outskirts, knocked out the antitank gun, and prevented the Germans from digging in to repulse the attack.

The art of maneuvering machine guns lies in the ability to transfer to fresh targets immediately that one has been dealt with but at the same time not to permit the enemy to move. Sergeant Sevtsov proved to be a fine machine gun commander, for when the Germans opened a withering fire on his machine gun position, the guns were no longer there. The sergeant had changed his gun position in time, and when the Germans opened fire the Soviet machine guns were all ready to turn on the new German fire positions and quickly came into operation. The Germans were not immediately aware of the danger which threatened them from their flank, and tried to turn their fire in that direction to prevent an attack. The machine gunners were ready for them and kept the Germans pinned to the ground. When the Germans began their retreat to the center of the village, gun layers Smorodinov and Kalachev concentrated their fire on them while Tsigankov cut off the retreat of the left group.

The plan drawn up by the commander of the attacking force was carried out in full. The drive from the flank captured the German stronghold and a greater part of the garrison was annihilated.



Taking their guns from a perfectly concealed arsenal, these white clad Russian artillerymen are moving them to a new firing position in the Leningrad area.

Artillery Fire Against German Tanks^{*}

By The Guard's Major Azarov, Red Army

TANKS are the main striking force of the Hitlerite armies. In the struggle against German panzers therefore, the most important task of Soviet troops is the skilful employment of all active and passive antitank weapons. Soviet artillery plays the main part in this struggle. Hence the artillery commander must carefully study the ground in order to determine the direction from which the hostile tanks are most likely to appear and then organize an all-round defense, of which he is the center.

The struggle against the tanks will be successful only if every gunner has a practical knowledge of the tactics of the enemy tank units and sub-units, their favorite maneuvers (outflanking pincers and infiltration on flanks), and a thorough knowledge of the gaps between our units and theirs.

The success of the artillery action will depend on the extent to which the gunners have been trained to shoot at moving targets, both point-blank and from under cover. In this respect the battle for the point of Danilovka is interesting. An air reconnaissance reported that at about 30 kilometers from Soviet positions a large enemy tank column had been seen moving. The numerical superiority was on the side of the Germans. Soviet units had the advantage because their artillery had been previously placed in favorable positions. Every gun had an excellent fire zone. The mutual sup-

port of guns, well equipped gun positions, and the unexampled coolness and fine courage of commanders and men determined the outcome of this battle. Twenty-nine German tanks were destroyed. The gun crew under Lieutenant Lisin particularly distinguished themselves by destroying nine tanks.

Experience has shown that the effect of fire and maneuverability of the guns depends to a considerable extent on the equipment of the gun positions, their camouflage, and the punctuality with which they open fire. It is best to open fire at 400, 600 or 700 yards. The exact distance depends on the caliber of the guns and the nature of the ground.

Firing on moving targets has its particular features. When movements from flank to flank deflect, changes are made with accompanying range adjustments. First, the rounds are fired at one tank's length ahead of the target, and then subsequent rounds are adjusted in accordance with spotters' observations. If the first burst shows a lateral deviation of one tank's length or more behind the target, then the range is not changed, but an angle of the deflection is adjusted.

The ranges of the angle is between the line of burst and the line of the center of the tank, unless this is less than five divisions. For smaller deflections behind the target and also for lateral deflections ahead of the target, corrections are made in the adjustment of sighting when movements towards the gun position target is

^{*}Courtesy, The Soviet Embassy.

bracketed by ranging on the center of the mass of tanks. If the lateral deflection is less than the size of the figure then it is usual to change the point of aim.

When deviations are very great, adjustments are made with an angular instrument. Sighting for the first rounds are made in accordance with measured range as laid down for antitank fire. When bursts are over, the sightings are reduced to two, three or four divisions; the number depends on the distance beyond the target, the speed of the tank and the rapidity of fire. When a tank approaches within point blank range, firing is continued without any change in the sighting of the gun. If the bursts are beyond the target, then we change the range by lowering the elevation about one-half division at a time.

It is very important to remember the methods in conducting fire on the tanks during various phases of the battle. If the enemy tanks are in large numbers and

have broken through the defenses, then independent fire must immediately be opened. First of all, fire must be opened on that tank which can do the greatest damage to our infantry or even to the guns themselves.

After the first tank has been knocked out, fire should be immediately transferred to other tanks. Careful watch must be kept on the knocked out tanks, however, as they have a habit of suddenly coming to life again. It is very important to be able to take immediate advantage of the moment when a tank is turning or is stuck by some obstacle and exposes its most vulnerable point—its side with the engines, etc.

Success in battle against tanks is decided by the courage and determination of each gun crew, multiplied by the ability to conduct accurate fire. Enemy tanks are not terrifying to those who know their business, and who know how to combine knowledge with war experience and fearlessness.

Massed Trench Mortar Fire*

THE trench mortar is a powerful defense weapon and is widely used in the Red Army not only to neutralize and destroy the enemy's fire weapons, but often also to stem the enemy attacks on inhabited places.

Trench mortars first acquired prominent importance in the Spanish war of 1937-1939, where regular trench mortar units appeared for the first time. The mountainous character of the terrain in Spain encouraged the employment of mortars because of their high plunging trajectory. They could be used to fire over hill crests and at invisible targets, the destructive effect of their bombs being heightened by rock splinters.

Since then trench mortars have been adopted on a wide scale in all armies, and in many cases special units armed with them have been formed. This has been particularly true in the Soviet-German war. Trench mortar fire constitutes a powerful support to the infantry in both the offense and defense.

A case in point was the attack undertaken by the Germans, with the object of seizing the village of Nazarovka. The attack was launched from three directions. When the enemy tanks approached within 400 meters of the village, Soviet guns opened fire. The tanks came to a standstill, but the German infantry continued to advance. At the signal from Senior Lieutenant Frolov, the trench mortar unit under his command, opened heavy fire at all three German groups.

Thanks to the accurate aim and staunchness of the trench mortar crews the attack was repulsed. The Germans thrice attempted to resume the attack, but each time the devastating trench mortar fire barred their way to Nazarovka. In the end they abandoned the attempt and left 600 Germans killed and about a dozen shattered tanks on the battlefield.

The qualities chiefly demanded of trench mortar gunners are persistence, coolness, and the ability not to betray themselves until the enemy comes within striking distance.

Here is an instance. The trench mortar unit commanded by Senior Lieutenant Butkevich was defending the outskirts of the town of Khoroshkovo when the Germans attacked. The Germans advanced in a column. The trench mortar gunners waited patiently until the Germans came within range of where their fire would be most devastating. Then at a given signal, several dozen mortars belched bombs which burst in the very thick of the German column. The Germans were taken by surprise. Over 300 of them were killed, and the attack was foiled.

The other day the Germans attacked a certain inhabited place, but were detected by Soviet mortar gunners who opened fire. The bombs burst in the midst of the enemy's infantry with a devastating effect, but they pressed obstinately forward. Several times they were forced to drop to the ground by the intensity of fire, but again rose and advanced in spite of heavy losses. They had already approached within 50 meters—the range within which trench mortar is ineffective because of its angle of elevation. Several mortar layers, however, continued their fire. They held the mortars in their hands although they ran the danger of being struck by splinters from their own bombs. Their hands were lacerated by the recoil, but they persistently kept firing. Their fortitude and courage won the day, and the attack was beaten off with great loss to the Germans.

Uninterrupted contact must be maintained between the infantry and trench mortar units, so that at the needed moment, the services of the latter may be called upon to destroy the attacking enemy by massed fire.

*Courtesy, The Soviet Embassy.

after they ascertain that there is nobody ahead.

The nucleus of the group should advance only after they have received the prearranged signal, which may be an imitation of a bird call. No conversation is allowed, for at an altitude of 1,000 to 1,500 meters even ordinary conversation is audible two to three hundred meters away.

As the scout group under Sergeant Kubanets was making its way into the enemy's rear, Kubanets suddenly heard footsteps and German speech. He gestured to the scouts to conceal themselves. First, a German soldier appeared; a few minutes later others followed. They walked along the path and stopped every few steps to listen. When they were inside the circle of our submachine gunners, our men opened fire. One German soldier was taken prisoner, the rest killed.

On another occasion, First Lieutenant Golzunov's detachment was ordered to destroy the German submachine gunners who held possession of a height and hindered the movement of our troops. It was known that the Germans had entrenched themselves strongly. All previous frontal attacks had proved unsuccessful. At dawn the scouts reported that on the height there were about two German battalions as well as mortar batteries and one field gun.

It became clear to Golzunov that the only way to destroy the enemy with his weak force was to strike panic in their ranks. He divided his detachment into two parts. The first group was ordered to attack the Germans from the rear and destroy the artillery piece; while the second group, led by the first lieutenant himself, was to launch an attack from the left flank. The

right slope was purposely left as a sort of safety-valve for the Germans, who, bewildered by the unexpected attack, would probably fall back in that direction.

At the prearranged signal the first group attacked. The gun crew was instantly destroyed by accurate submachine gun fire. As the submachine gunners defending the gun were retreating towards the summit, they heard firing and loud cheering from the left slope. The Germans lost their heads and, frightened at the possibility of complete encirclement, rushed into the safety-valve. That was the move for which the attackers were waiting. Most of the Germans were destroyed; some fled from the mountain under the heavy cross fire of our men.

Because of the daring accurate plans and fire maneuver, First Lieutenant Golzunov succeeded in dealing the enemy a painful blow without any loss among his men.

Recent mountain fighting has shown that small groups, pairs of snipers, and submachine gunners are steadily enlarging the scope of their activity. They hold the roads and mountain paths under cross fire, await the enemy patiently, and destroy him mercilessly. They may also cause the enemy a great deal of trouble far in the rear. Thus by perfecting the tactics of small groups it is possible to do the enemy even greater harm than by frontal attacks of considerably larger units.

This small detachment is fighting for a village in the northern Caucasus. Notice the three kinds of weapons—machine gun, tommy gun and rifle—used by these men. They are fighting with full pack. An enemy shell is bursting less than 20 yards away.



CARD 60

Frontal Attack

Two outstanding Aces of the Red Army Air Force describe the Soviet practice of "ramming" enemy planes. These daring tactics, developed from personal encounters with the Luftwaffe, have destroyed many German planes and pilots around both Stalingrad and Moscow.

As Told to C. Zelin

By Pilot Major I. Tenekou

THERE has never been a case when a German fighter would use the particular form of attack so often resorted to by our Soviet pilots—that of ramming his adversary. These tactics require extraordinary will power and fearlessness.

Up to now (December 30, 1942), only the Russian pilots have made a practice of downing the enemy by hurling their own planes at him, from which maneuver they often escape themselves without a scratch. My experience shows that the Germans cannot grasp the psychology of Soviet airmen who, with courage and coolness, carry out such an operation. One thing, however, that the Germans did learn about ramming was that the Russian pilot usually came out victorious. Perhaps this explains why nearly always in a frontal encounter with the enemy it is the latter who first turns aside.

It fell to my lot to take part in many air fights in various sectors of the front, and not a single case is known to me where our pilot did not emerge victorious when engaged in a frontal attack. Not once have I heard that a German flier had pluck enough to face such a blow.

In a frontal attack it is necessary to catch the right moment to close with the enemy. His psychological reaction is very important, for he must be made to feel the whole weight of the enormous plane rushing down on him. For this reason—as opposed to the usual method of attack—in frontal attack it is necessary to fire some short bursts at the enemy in order to warn him of your presence.

If you are attempting the rescue of a comrade in battle, a frontal attack is a well tried and a sure method. While leading a group of three I-16's I once came up against six Messerschmidt-109's. While one Messerschmidt gained height, the other five were forced by the prompt veering of our planes to accept the battle. The enemy plane that had flown upwards then began

to dive on one of our planes from an altitude of 1500 meters. Noticing the danger which threatened my comrade, I immediately veered and directed my plane towards the enemy, ready to deal him a frontal blow. At the distance of 500 meters the German stopped his dive, and by this time, being only 30 to 50 meters from the German, I was able to down his Messerschmidt.

From either a vertical or horizontal position a frontal attack usually brings victory at very close quarters. During the air battle near Stalingrad a Messerschmidt-109 was racing after one of our fighters. Noticing it, I directed my plane to face the Messerschmidt and prepared for a frontal attack. The enemy fell back to avoid my blow, but his plane lurched to the right and he involuntarily came closer. This enabled me to set fire to him at a distance of only a hundred meters.

The frontal attack as practiced by an experienced pilot is a good tactical method by means of which he can carry on the battle even without ammunition. Here is an episode confirming this. After patrol duty two of our fighters led by Captain Vasin were on their way home. Neither the Captain nor his companion had any ammunition left. Above the airdrome they were attacked by two Messerschmidts, and for twenty-five minutes before our very eyes Captain Vasin and his companion fought and charged the enemy. Neither veering nor using any special maneuvers, Vasin turned his plane, lifted it to face the enemy, and showed his readiness for a frontal attack. This German could not face the frontal attack and retreated to higher altitude to dive again, but Vasin repeated his maneuver. Without firing even one shot our airmen won the battle and the Germans retreated.

Experience has shown us the great strength of a frontal blow in an air battle. These tactics, however, require courage and resolution of the fighter to an extent that, as a rule, the German airmen have not displayed.

*By cable from Moscow. Courtesy, The Soviet Embassy.

In Air Combat

*By Major N. Denisov**

IN air combat the situation changes rapidly. It often happens that, through an enemy maneuver or the arrival of enemy reinforcements, a fighter plane runs out of ammunition in the presence of hostile planes. Under such conditions Soviet fliers never give up the battle. They have always at their disposal one tactic in which they are far superior to the enemy—ramming.

This new method of air combat has become common on the Soviet-German front. It is difficult to establish who was the first Soviet flier to use it in action. Several cases were recorded on the very first day of the war, June 22, 1941, when the German fascist army treacherously attacked the Soviet Union. Here is one illustration:

A large formation of German bombers appeared suddenly over a Soviet airfield. Although the attack was a surprise, several Soviet fighter planes managed to get into the air. One machine was piloted by Lieutenant Butelin, who by skilful flying shot down a German plane and set another on fire. The German planes were in retreat and Butelin was pursuing them when he ran out of machine gun cartridges and shells. The brave Soviet flier dived at the enemy bomber and hit it squarely. The German plane exploded.

Ramming does not necessarily imply wrecking an enemy plane by a direct blow delivered with the whole impetus of one's own machine. The modern air ramming maneuver is based less on the impact of the attacker's plane than on his flying skill and ability for subtle maneuvering in complicated situations. Soviet fliers distinguish three types of ramming. The first and simplest—but also most dangerous for the attacker—is the direct blow at the enemy plane with one's own machine.

Less dangerous but producing similar results is the second method—hitting the enemy plane with some part of one's own plane. Most often this means clipping the enemy's wing or tail with one's own wing.

The third method, requiring great skill, is not to ram directly, but merely to bring the planes into slight contact for a moment with the attacker's propeller cutting into a vital part of the enemy's fuselage. Many Soviet fliers have mastered this method and have used it to down a number of enemy planes.

It must be pointed out that in the overwhelming number of cases on record enemy planes have been rammed while being pursued from the rear. It is practically impossible to cut down an enemy plane with one's own propeller by a frontal or side attack. The phases of a ramming attack from the rear are as follows:

1. The attacking flier overtakes the enemy and adjusts his speed to equal that of his target. This phase is described by Captain Andreyev, commander of a Soviet fighter squadron on the Southern Front. It was his second successful ramming. "When I decided to ram the Junkers I brought my plane up beside and slightly behind it. I adjusted my speed to equal the bomber's speed and slowed down my propeller to reduce the number of revolutions. I did this to make sure the propeller would not jam as it struck."

2. The next phase is the act of cutting into the enemy plane with the propeller. The most important thing is to pick the spot on the enemy plane which the propeller is to strike. Soviet fliers most often aim for the tail assemblage, but are always prepared, if circumstances require it, to strike at some other part—wing rib, fuselage, etc. The crucial moment is too brief to enable the attacker invariably to strike the selected spot. A flier's own judgment and skill in maneuvering will suggest the best solution in each case.


Lieutenant Katrich, who rammed a German plane during a raid on Moscow, relates: "While gaining fast on the bomber, I sheered off to the left and then aimed my plane at the tail group so as barely to touch the stabilizer and rudder with the tip of my propeller. My calculation proved correct. As soon as I felt a slight shock I shut off my gas and dropped away to the side. The German bomber fell like a stone."

3. The instant of striking with the propeller is followed at once by the ramming's third phase, which is extremely important—dropping away to the side. If the attacking flier is too slow his plane may become entangled with that of the enemy and be dragged to the ground. If he drops away too soon, the attack may be unsuccessful. As in all his actions, the attacker must show a flying sense which tells him at exactly what moment to drop away.

The above mentioned Captain Andreyev continued his account as follows: "When my propeller, by a slight touch, cut the bomber's wing rib, I became aware of the hit by some inner sense. Immediately I dropped off to one side. It was none too soon, for the enemy machine went into a spin from which it never recovered. My plane was undamaged. Only one propeller blade was bent. Soon after I landed safely at my field."

A remarkable point is that in the overwhelming majority of rammings, Soviet fliers escaped unscratched while bringing down the enemy plane. Their planes usually suffer no serious damage. As a rule repairs are limited to replacing propellers or patching up surfaces, after which the planes are again ready for battle.

*Soviet Embassy Bulletin.



Combating

German Parachutists[★]

German troops learn to "bail out" from a tri-motored plane at the Stendal Parachute Jumping School. Lessons learned by parachute troops were first put to use as the Nazis began their invasion of Holland, Belgium and Luxembourg in 1940.

ON the Don and in the Northern Caucasus, during the summer of 1942, the Germans made repeated attempts to land parachutists and air-borne troops in the rear of the Red Army units.

The tactical objectives of such landings are always limited—attacks on river crossings, inhabited points, railroad stations, road junctions, etc. The parachutists are usually landed in the direction of the main blow, twelve to twenty miles from the front line—sometimes nearer.

No attempt was made to conduct large scale landing operations as in Belgium, Holland, and on Crete, although the flat, prairie-like country of the Don and Kuban regions would seem a favorable terrain for such operations. The explanation is that apparently the German parachute units and air-borne troops are still feeling the effect of extremely heavy casualties inflicted on them during the 1941 operations. The Soviet aviation was also very active and successful in bringing down German transport planes.

The tactics of German parachute troops are very flexible, and always well adapted to circumstances. Whenever possible, German parachutists attack the objective from several directions simultaneously and try to encircle it. If their numbers are insufficient for a determined attack, they usually try to secure a flat stretch of

terrain near the objective, which can be used as a landing field, and then go on the defensive until a sufficient number of air-borne troops is landed by transport planes. Sometimes parachutists are landed in small groups of five or six men at different places. These groups stealthily assemble at a predetermined point, and then swing into action.

A tenacious and well organized defense as a rule succeeds in paralyzing even the most intensive effort of the parachute troops. Following are a few examples of such engagements which took place during the 1942 summer fighting in the Don and Kuban districts.

A Soviet rifle regiment successfully defended for four days an important boundary, repulsing constant enemy attacks. On the fifth day the Germans, launching a strong attack on the right flank of the defenders, unexpectedly landed a small group of parachutists with automatic rifles behind the left flank. From the rear, the group attacked the battalion defending this sector and thereby unexpectedly created a critical situation. Without a moment of delay, the regimental reserve was thrown into a counterattack. The parachutists suffered heavy casualties, the remainder were captured, and the boundary successfully held. Had the countermaneuver been less swift and determined, the outcome would have been entirely different.

On other occasions, landings were made in considerably greater strength, but never sufficient to de-

[★]Translated from *Pravda*, Aug. 25, 1942, by N. Corotneff.

velop into an important operation of more than local tactical significance.

On one of the sectors of the southern front the Soviet units, slowly retreating before the considerably superior German forces, were attacked from the flank by German tanks, which forced a river crossing and cut the railroad line running to the rear. To create an impression of complete encirclement, the Germans landed several parachute groups twenty-five to thirty miles to the rear, each about one hundred men strong, with machine guns and light mortars. Some of these groups even succeeded in landing a few light tanks. The parachutists began to advance along the main roads and tried to create an impression that a complete encirclement by strong German ground forces was being effected.

A swift and thorough aerial and land reconnaissance established the fact that, in reality, the encirclement forces consisted of only a few parachute groups. Mobile reserves were immediately thrown into action, and the parachute units were gradually liquidated.

In dealing with parachute landings the most important requirement is speed. It is essential to localize the group immediately, before it has had time to acquire strength by additional landings and then to spread out. Therefore they must be attacked without any loss of time. If the parachute troops succeed in organizing an effective fire system of small automatic arms, machine guns, and mortars, then the regimental and divisional artillery and tank units are drawn into action. The fire

system of attacking troops should preferably be semi-circular, and the antitank guns should always be placed between the parachute troops and the front line, as there is always a likelihood that a German armored spearhead will try to break through the front and come to the assistance of their parachutists. The artillery must be able to shift the fire quickly in case more attempts to land are made in other places.

It is useful to have special divisional or army corps formations held in readiness to combat parachute troops. They usually consist of tank units—from a platoon to a company—and carry, in addition to their usual crews, groups of automatic riflemen. These formations, flexible and quick-moving, are used to reinforce the troops on whose sector parachute landings were made.

In several instances during the battles for the Don and Northern Caucasus, the Germans landed air-borne troops after parachute troops had secured a suitable boundary. Transport planes then landed automatic riflemen, light and heavy mortars, antitank guns, and motorcycles. Almost invariably the landings were effected at dusk. Under cover of darkness the Germans would immediately start to dig in and to organize a strong fire system. In such cases counteraction must be

German sources say that this picture shows Nazi parachute troops landing in snow-covered rock ledges to reinforce the German garrison in Narvik. This was during the Battle for Norway in 1940.

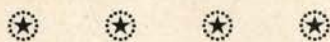


taken at once, as it is imperative that such a landing be liquidated overnight. Any procrastination is extremely hazardous because the group may be reinforced by new landings during the night, at dawn, or early the next day.

To minimize this danger, fighter planes must constantly patrol the sector, keep a lookout for new landing attempts, and cooperate with ground forces, as the Ger-

man aviation usually attempts to support their air-borne forces after landing. To maintain a sufficient aerial strength in the critical area is therefore most important.

All in all, the experience of the summer of 1942 proved conclusively one thing: a tenacious, disciplined and well organized defense—alert, flexible, and quick-moving—will always get the best of the parachute troops and eventually liquidate them.



Tank Communications in Battle

By Colonel M. Khotimsky, Red Army

FIGHTING in the Southern Sector of the German-Soviet Front is characterized by exceptional ferocity. The large number of tanks used in this fighting are often in action for several hours at a time, and with artillery and aircraft working in close cooperation, very competent handling of these tanks is required. Recent fighting has shown that the Germans have considerably increased their antitank defenses, so that tanks must be employed skilfully and with a view to decreasing the losses.

Practice has frequently confirmed the advisability of putting heavy tanks in the first echelon, mediums in the second, and then the light tanks. This formation considerably reduces losses and brings better results.

Tanks give the best results when employed en masse. This decreases the losses and achieves success in battle. Success, however, can be achieved only with reliable help from the artillery, aircraft, and infantry. When employing massed tanks the commander must have at his disposal a strong control of the center, by means of which he can maintain constant contact with his tanks and maneuver them one unit at a time and thus make the greatest possible use of each minor unit.

Until now radio has been almost the only means of communicating with tanks and directing them in battle. Experience has taught us that radio stations frequently break and become useless. A recent example of this occurred when several dozen tanks were sent into action but towards the end of an encounter communication and control of the tanks had to be maintained through one single station. Since then the tank commander's control center has included two or three light tanks which the commander uses to carry orders and information to tanks in action. At the same time these light tanks form protection for the headquarters as well as for the commander in the event that his tank

is knocked out or that the enemy makes a flank attack. In order not to disclose the whereabouts of the commander to the enemy, tank units advance in open order behind the machines which flank the commander's tank.

Another lesson learned from experience is that the control center must have at its disposal, in addition to radio, tank field communications of the type used by the battalion. For this purpose the motorcyclist with a telephonist is sent forward, behind the attacking tank units. He has two or three kilometers of cable with him and a telephone. Taking up his position near the scene of action, he then maintains communication between the observation post and the commander of tanks in the field. As the tank unit advances, this signalman advances with it.

In tank units, as in all other arms of service, the observation post must be in the vicinity of the scene of action. At the observation post there is usually a group of staff commanders who conduct the operations. At their disposal they have a tank. Following the course of action, this group notes where enemy resistance is stronger or weaker. Timely information is sent to the commander, and this forms the basis of his further decisions. This staff group, when necessary, calls for the assistance of artillery or aircraft. Such an observation post is reliable aid to the commander in the field.

It is very important that evacuation facilities should be well organized in the tank units. The commander's assistant in technical matters, or a representative of this commander is usually at the observation post. He organizes the evacuation of damaged tanks and such repairs as can be carried out in the vicinity of the battlefield. We have many instances of damaged tanks returning to fight the same day that they were disabled.

Vehicular Reconnaissance

*By Lieutenant Colonel Brainard S. Cook, Cavalry**

Men from the fighting fronts stress the value of thorough reconnaissance. It cannot be emphasized too strongly. A battle or a campaign may depend upon it.

Every officer with a reconnaissance unit—troop, squadron, company battalion, or regiment—will profit by a careful study of this article.

FOREWORD

THESE notes, prepared for the purpose of giving reconnaissance commanders some clear simple guides on which to base their action under various circumstances, are not to be taken as blind dogmatic rules without flexibility. These rules are set down here to increase the reasoning power of any individual who will have to conduct or train troops in reconnaissance missions.

RULE NO. 1. ALL RECONNAISSANCE IS OBTAINED BY A CONTINUOUS OPERATION OF MOVEMENT AND OBSERVATION.

It is foolish to assume that thorough observation can be obtained while in motion. Movement must be fast, accurate, and based on a preconceived plan. In situations where contact is not immediately eminent, observation may be somewhat subordinated to movement. However, as contact becomes more and more eminent, observation becomes the ruling factor, and movement becomes subordinate to it. Movement is then undertaken only after thorough observation has been accomplished.

Observation must be systematic and follow a general rule: *i.e.*

1. Use field glasses whenever possible.
2. Observe from a covered position.
3. Dismount if vehicle is unsteady.
4. Search ground closest to your position first.
5. Start your search on the left at close range and search in a semicircle to the right; then move to the next higher range and search back to your starting point.
6. Whenever possible, use two men to observe. Let one watch the general terrain to detect any unnatural movement while the other conducts a systematic search with the use of field glasses.
7. Utilize every available terrain feature that might

afford an opportunity for observation of the routes or ground that lies ahead or to your flanks.

Movement must be planned well in advance and executed with decision; *i.e.*, during the process of observation prior to the next move, that move must be uppermost in the mind of the commander. He should search the terrain in front with a view to finding possible traps, cover, side roads, methods of approach to cover, and possible avenues of withdrawal to cover and concealment if fired on. During the actual move he must be constantly on the alert for terrain features that will be favorable to his forward movement and yet keep in mind the terrain features that will afford him the maximum protection that he might need in a hasty withdrawal.

RULE NO. 2. IT IS ESSENTIAL IN ALL RECONNAISSANCE THAT ALL ROUND OBSERVATION BE MAINTAINED AT ALL TIMES EVEN IN THE SMALLEST UNIT.

This can be accomplished only by prearranged assignment of observation sectors to crew members of a vehicle and in larger units to certain specified elements of the command. When these assignments are made the position of individuals in the vehicle or the position of the vehicle in one column must be considered. Obviously it would be incorrect to charge the leading vehicle with observation to a flank only, and to assign the number two vehicle in column with observation to the front. A good rule to follow is, after designation of the point and point-support, to assign even-numbered vehicles with observation and reconnaissance to the right, and odd-numbered vehicles with observation and reconnaissance to the left. This rule can be extended to the platoon by assigning sections according to numbers and using the support section for rear observation. In all cases the rearmost vehicle is responsible for observation to the rear.

These assignments must remain in effect at all times

*8th Reconnaissance Squadron.

and must be especially effective when the unit is halted. They constitute the basis upon which outpost security is established.

In many cases the size of the unit will necessitate the assignment of dual observation missions to individuals or to vehicles. This should in no way decrease the quality of observation obtained but will in most cases decrease the speed with which the same area might be covered by a large force.

RULE NO. 3. DO NOT REGARD ANY INFORMATION OF THE ENEMY AS TRIVIAL BUT SEND IN EVERYTHING YOU CAN FIND OUT ABOUT HIM.

The job of a reconnaissance element is collecting information, not evaluating it. In the process of this collection it will sometimes be necessary to evaluate information gained in order to establish priorities on the messages that you send back. The *what, when, where*, should have priority over everything you have learned. If the air is jammed and your message is highly involved with a lot of technical data the chances are nine to one that the *what-when-where* part of it will be lost in the shuffle.

A good rule to follow is to send the *what-when-where* part in one complete message, and follow with the remaining data in another separate message. The other data may be vitally important in completing the picture back at headquarters, so do not neglect to send it in.

RULE NO. 4. RECONNAISSANCE VEHICLES WORK IN PAIRS. ONE COVERS THE ADVANCE OF THE OTHER AND RECONNOITERS, WHILE THE OTHER STANDS GUARD READY TO COVER THE WITHDRAWAL OR TO ASSIST IN THE ATTACK. ONE LIES IN WAIT AND WATCHES, WHILE THE OTHER FEELS OUT THE FLANKS.

Remember that a vehicle caught by surprise fire is more than apt to be slightly confused in the first few moments. It is here that the reassuring fire of the supporting vehicle is like a breath of cool air to a furnace stoker. It is like the shout, "We're on your side; stay in there and pitch and we'll get you out."

Remember, too, that an unsuspecting enemy who sees a perfect target will concentrate on it and will be considerably surprised if his first burst of fire immediately draws fire from another source. The resulting confusion will allow the advancing vehicle to collect its wits and scoot to cover.

Whenever possible the reconnoitering vehicle moves by a wigwag route to avoid the possibility of continuous tracking by enemy gunners. The covering vehicle or vehicles train their guns on the most likely spots from which to expect enemy fire. The crews of the covering vehicles observe the terrain from which fire is expected and *not* their own reconnoitering vehicles. This is a common fault and must be corrected early in training.

One member of the reconnoitering vehicle must be on the alert and keep close watch to the rear for signals from the supporting vehicle. The supporting vehicle

is usually on commanding ground and will be more apt to see an approaching enemy.

The covering vehicle stays under cover and makes no move that might disclose its position.

These duties should be interchangeable, and vehicles and crews should be trained to operate as both point and point-support so that one vehicle does not carry the burden of reconnaissance at all times.

The greatest crime that a supporting vehicle can do is to let the reconnoitering vehicle down when the supporting fire is needed.

RULE NO. 5. IN AN ADVANCE OVER OPEN TERRAIN WHERE NO COVER FOR THE RECONNOITERING VEHICLE IS AVAILABLE IT IS ADVISABLE TO USE TWO OR MORE VEHICLES ADVANCING OVER DIFFERENT ROUTES AND AT DIFFERENT SPEEDS COVERED BY TWO VEHICLES FROM THE REAR.

When the leading vehicle reaches terrain of this nature he must immediately notify the following vehicles and be prepared to direct them to places of vantage from which they may cover the reconnoitering vehicles. This should not call for an assembly of all vehicles nor a council of war, but should operate on a preconceived plan with the supporting vehicles moving into position with the full knowledge of their part in the operation and complete understanding as to the method used in the advance. After leading vehicles have gained cover on the forward side of the open terrain, the support vehicles should move forward, each covered by the remaining vehicle. A reassuring signal from the leading vehicles would call for a rapid advance from the supporting vehicles. No signal should be a sign for caution and the advance should proceed just as if the two leading vehicles had not already gone forward.

RULE NO. 6. AN APPROACH TO A QUESTIONABLE VILLAGE OR TOWN SHOULD BE MADE OVER COVERED ROUTES FROM DIFFERENT DIRECTIONS AND UNDER THE SAME METHOD AS THAT USED IN MOVING OVER OPEN TERRAIN.

Frequently it will be necessary for the leading vehicle to advance to the closest cover near the town and then dismount its crew for further reconnaissance on foot. If the village is in enemy territory a reconnaissance by fire is sometimes advisable. In this event the firing vehicle should be covered by one or more supporting vehicles which will not disclose their positions but will be prepared to return any fire delivered in order to develop the resistance within the town. When a position is selected to cover the advance of a reconnaissance vehicle, care must be taken in the selection of the covering position. On many occasions a well placed smoke screen will nullify the fire of a strongly held village. Thus when the covering position is selected the wind, range, field of fire, cover, and nature of the village must be taken into account. Mortars and grenade shooters should be placed well forward in order that extreme ranges may be used for the initial

firing so that corrections may be made from covers to avoid the hazard of firing too close to the reconnoitering vehicles. Reconnoitering vehicles when fired on should withdraw to the flanks in order that the field of fire may not be masked for the supporting vehicles.

RULE No. 7. RECONNAISSANCE UNITS ENGAGED IN ANY TYPE OF MISSION SHOULD BE PREPARED AT ALL TIMES TO GIVE A COMPLETE RUNNING REPORT OF TERRAIN OVER WHICH THAT UNIT OPERATES OR OF ENEMY CONTACTS EITHER BETWEEN THE UNIT ITSELF AND ENEMY FORCES OR BETWEEN ADJACENT FRIENDLY FORCES AND THE ENEMY.

Terrain features cover the following:

1. Routes and bridges, their types and condition, and permissible loads.
2. Location of suitable landing fields.
3. Location and condition of communication systems, both military and commercial.
4. Location of contaminated areas.
5. Location and type of supplies, both civil and military. (Particularly gas, oil, and subsistence.)
6. Location of high points and the routes thereto.
7. Location of railroads, spurs, switches, crossings, turn-tables, repair shops, and rolling stock.
8. Location of streams, containing depth, width, and current, and possibilities of crossing same by means of available boats and rafts.
9. Location of shoreline, beaches, wharves, and docks with estimated capacity of warehouses and ships that might be in the harbor.

Enemy contacts should cover the following:

1. Location, time, and direction of movement of first hostile contact.
2. Movements, contacts, and observations, gathered from visits to friendly troops that might not be reported because of poor communications.
3. Movements of friendly troops that might be cut off from their own headquarters.
4. Movements, transports, troops, vehicles, etc., that might be gleaned by questioning natives.
5. Location, type, and direction of movement of hostile aircraft as they appear.
6. Each message regarding enemy troops should include:
 - a. What it is.
 - b. Where it is.
 - c. What time it was noted.

RULE No. 8. UNITS AVOID COMBAT EXCEPT WHEN NECESSARY FOR THE SUCCESS OF THEIR MISSION. A RECONNAISSANCE UNIT SHOULD NOT ENGAGE IN COMBAT WITH AN ENEMY RECONNAISSANCE UNIT OF SIMILAR SIZE IF IT'S MOBILITY ENABLES IT TO SIDESTEP THE INTERVENING RESISTANCE.

It must be ever kept in mind that the location, dis-

position, size, and direction of movement of the enemy force most likely to interfere with the mission of the parent unit is the objective of the reconnaissance unit. Small reconnaissance forces of the enemy should be reported and left to the counterreconnaissance screen established by the larger units. The mission of any reconnaissance unit is to observe and report. Any time that is lost in small engagements with hostile reconnaissance elements is time lost in accomplishing any major reconnaissance mission. The mission is the main body behind these small reconnaissance elements.

Armored force units usually advance with air observation well to the front and are followed closely by reconnaissance in force, which are in turn immediately followed by motorized infantry. Normally, reconnaissance units are not capable of either stopping or delaying the advance of armored elements, but it must be remembered that the width of the advance of armored elements is comparatively narrow and subject to the conditions of the terrain. A prompt move to the flank will often afford complete observation of the armored unit as it passes and will leave the reconnaissance unit available for observation on the infantry column that follows. If the armored attack is sensed in time it will often be possible to fall back in front of it and not be cut off but still keep it under observation. By closing in on the flank of the enemy's reconnaissance in force, a reconnaissance unit will find that it will be possible to eliminate some of this screen and penetrate it for observation on the main force. An armored attack discovered in time is one that can be foiled. Remember, too, that reconnaissance screens usually cover the assembly of the armored units prior to an attack. Artillery fire can be brought on that assembly position if you can report it accurately. To get this information it will be necessary to penetrate this screen.

Counterattacks should be launched only to relieve an element of the reconnaissance who has stumbled into an ambush. A swift, deftly executed attack will in most cases demoralize the enemy to the extent that the involved element may break off and rejoin the reconnaissance party. These attacks should never be launched as frontal attacks, but every effort should be made to maneuver to the flank and bring flanking fire on the opposition.

On occasions it will sometimes be necessary to reduce a defended road barrier. In this instance it will be necessary to place the support section for frontal fire and maneuver to the flank with the remainder of the command in order to effect the flanking fire. The flank attack must move with speed and silence and must be launched in time to take advantage of the element of surprise.

RULE No. 9. IN THE VICINITY OF THE ENEMY RECONNAISSANCE ELEMENTS, MAINTAIN SUFFICIENT DEPTH TO MINIMIZE THE EFFECTS OF HOSTILE FIRE.

This rule is obvious if attention is paid to the fact

that each vehicle must advance under the cover of another. This entails movement by bounds while covering vehicles remain under cover until the point of reconnoitering vehicle has reached the next bound and signalled "all clear." A bound might be described as the distance between successive positions from which fire might be delivered to the front. This distance will vary greatly according to the nature of the terrain but should not exceed 700 yards. Once the point vehicle gets beyond 700 yards from the support vehicle, it is out of supporting distance of small arms fire. If bounds are greater than 700 yards apart they must be considered as a series of open terrain features and the advance governed accordingly. The covering vehicle must always maneuver into a position for support that will not be masked by the advancing vehicle. This necessarily calls for high ground for the covering position, or if high ground is not available the covering vehicle should be situated well to the flank.

In an advance across desert country where overhead cover is sparse the advance must be greatly dispersed and every terrain feature that tends to force the unit into a column formation should be avoided, or if unavoidable, should be negotiated by infiltration of vehicles.

Defiles are particularly dangerous for vehicles and should be avoided when possible. If not avoidable, covering vehicles should be placed on the top of the defile while the remainder of the unit advances through infiltration. All possible speed should be made while in the defile and under no circumstances should the enemy be allowed to catch the entire unit in the defile at the same time.

When the next bound has been reached and the all clear signal is received, it is not necessary for supporting vehicles to advance cross-country, but they should take the shortest direct route ahead and move up promptly so that no delay will be caused.

RULE NO. 10. TO FACILITATE OPENING IMMEDIATE FIRE WHEN OPERATING IN CONTACT EMINENT FORMATIONS ALL CARS WILL KEEP THEIR GUNS TRAINED ON THE MOST LIKELY POSITIONS FOR POTENTIAL TARGETS.

This rule is self-explanatory. It calls for continuous alertness on the part of all crews and quick action on the part of all gunners. Machine guns are usually transported at half load. Rifles are loaded and locked and pistols are carried with safety on but ready for immediate action. Thirty-seven millimeter guns will be loaded and ready for instant fire. Mortar ammunition will be kept instantly available.

RULE NO. 11. EVERY MEANS AVAILABLE FOR MAINTAINING CONTACT WITH EACH HIGHER HEADQUARTERS WILL BE USED. IN ADDITION TO RADIO AND MOTORCYCLE MESSENGER THESE WILL INCLUDE COMMERCIAL TELEPHONE, COMMERCIAL TELEGRAPH AND VISUAL SIGNALS. FRIENDLY MILITARY TELEPHONES WILL BE USED WHEN-

EVER POSSIBLE FOR THE TRANSMISSION OF IMPORTANT INFORMATION.

It must be constantly borne in mind that the information obtained by a reconnaissance unit is of no value until it arrives at the headquarters and in the Intelligence Section that must use it. When communication with intermediate echelons of command is out, reconnaissance patrols should have no hesitancy in attempting to get vital information through direct to the headquarters that must use it. As soon as communications are established you should confirm your previous message. The methods used in sending information to the rear depend to a great extent on the importance of the message. If radio communication is out and motorcycles all gone, vital information in the hands of the reconnaissance party calls for cool farsighted judgment on the part of the commander. Is the information vital enough to warrant the sending of one of his organic vehicles? The decision is his and he must make it promptly without hesitation. On the one hand he will reduce his strength by one combat vehicle; on the other, the failure to get this information back to headquarters may result in complete failure of the plan of a division. *Get your information back in time to do some good.*

Remember, too, that positive information of the enemy is not the only thing that higher headquarters is interested in. Negative information is just as valuable.

If you have advanced to a certain point along a certain route and have encountered no enemy, that information is important and should be sent in. Your position is of vital concern to your immediate commander, and it is your duty to keep him informed.

RULE NO. 12. CONTACT ONCE GAINED MUST BE MAINTAINED.

Subsequent movements of an enemy force of any size are of vital importance to the higher commander. Once the main body of an enemy force has been contacted, that force must be kept under constant surveillance until it is committed to its final action. This is especially true in the location of enemy reserves in battle reconnaissance.

A force that suddenly changes direction after it has proceeded along a well defined route for a considerable time, indicates some change in the enemy's plans, and if that change in direction is made while contact is lost this information may never get back to higher headquarters in time for the commander of your own forces to make a counter-move to meet the expected threat from a new direction.

In all delaying action or withdrawals in which you keep the enemy force under observation, pay particular attention to road formations that allow him the choice of direction and so arrange your forces that if he does make an unexpected change you will not be caught off guard. Remember he may keep pushing you back with

just sufficient force to make you withdraw, while the remainder of his force turns off and proceeds in a new direction.

Constant liaison between adjacent patrols will often aid in keeping enemy forces under surveillance when he crosses from one sector to another.

At night when enemy forces go into bivouac constant contact may be maintained by the use of small dismounted patrols that remain in the vicinity of the bivouac. A bivouac area should be reported immediately, and any movement throughout the night of any importance should be reported.

The arrival and departure of convoys and supply trains should be reported. The exact time of departure and the direction of movement on the following morning is of vital importance.

Remember, the general rule is: Bivouac at dusk, rest and replenishment of supplies before midnight, movement immediately after, assembly before dawn, and attack at dawn. Armored forces usually move into assembly positions during the night and launch their attacks on the following morning. A prompt report on that assembly position will usually result in the attack being considerably broken before it is launched.

RULE NO. 13. MAINTAIN CONSTANT LIAISON WITH THE UNITS ON YOUR RIGHT AND LEFT AND KNOW WHERE THEY ARE AND WHAT THEY ARE DOING.

Lateral liaison, although extremely important, is sometimes a matter of minor concern to reconnaissance commanders. This is the only method known to prevent gaps appearing in a reconnaissance screen. An open gap in a reconnaissance screen, like an open gap in a firing line, is a perfect invitation to the enemy's counterreconnaissance elements to push in. Flank your reconnaissance patrols and eliminate them one at a time.

This cross-liaison is greatly facilitated by the use of phase lines. Phase lines are lines drawn through well defined points on the map and on the ground at which point certain elements of a reconnaissance patrol may be contacted at a certain specified time. Only in exceptional circumstances should a phase line be construed as limiting the forward movement of reconnaissance patrols. Higher headquarters may sometimes assign a limit beyond which reconnaissance patrols may not move without further orders. In the event that this is done, the reconnaissance patrol, when it reaches this phase line, becomes a reconnaissance screen, and constant patrolling along this limiting phase line is indicated. The normal function of a phase line, however, is to provide a point for adjacent patrols to contact each other.

Let us take a typical example. Patrol "B" is moving towards a 9:30 phase line; Patrol "A" is on his left, and Patrol "C" is on his right. He has contacted Patrol "C" at the 8:30 phase line and now he wants to establish contact with Patrol "A." A glance at his

map will show him where elements of Patrol "A" should be at 9:30. Prior to 9:30 he dispatches his contact patrol to give them time to arrive at Patrol "A"—9:30 phase point at 9:30 or just before. If Patrol "A" has reached his phase line and has not been delayed, some element of his command should be on that phase point at 9:30. If he has reached his phase line ahead of time he should not stop and wait with his entire patrol but should leave a contact patrol there to wait until 9:30. The normal assumption then is that if the contact patrol from Patrol "B" does not find anyone on "A's" phase point, he must assume that Patrol "A" is slow and has not reached his phase line. He immediately notifies his own patrol commander and starts searching back along "A's" route to see what has happened to that patrol. Upon receipt of this message the commander of Patrol "B" immediately reports the fact that Patrol "A" has not reached 9:30 phase line and asks for instructions.

A brash forward movement to the next phase line might throw his left flank open to attack. While holding his patrol in check, he must constantly patrol to the front and flanks to be sure that enemy forces are not pushing through on either side of him.

Lateral liaison may sometimes be accomplished by radio and save much wear and tear on the patrolling vehicles. In any event whenever a patrol reaches a phase line and passes over, that fact should be reported to the next higher command.

The fact that you are operating on the flank of another unit not a part of your organization does not relieve you of the burden of lateral liaison with that unit.

A reconnaissance patrol sent out on a flank of a larger unit should immediately contact the commander of that larger unit, state his mission, and make the necessary arrangements for future contacts.

The commander of a reconnaissance patrol sent out to relieve another patrol should immediately contact the relieved commander, secure information as to what patrols are on the right and left and send out contact patrols to them in order to maintain the continuity of the plan.

RULE NO. 14. IN ANY FORWARD MOVEMENT OF THE PARENT UNIT DEMOLITIONS ARE ACCOMPLISHED ONLY ON ORDERS FROM HIGHER HEADQUARTERS. IN A RETROGRADE MOVEMENT EVERY AVAILABLE METHOD IS USED TO RETARD THE PURSUIT OF THE ENEMY.

In any advance of large forces, bridges, routes, and other avenues of approach are of vital importance to the advancing force. A reconnaissance detachment that destroys a good crossing for the sole purpose of preventing the crossing of a small enemy reconnaissance force is doing more to impede the progress of his own forces than he is to save them from attack. Road blocks may stop enemy tanks, but they will also stop our own. Mine fields may be laid but must be removed before the unit

moves forward on more reconnaissance. All large units have prepared, and ready for issue with orders for an advance, a schedule of demolitions to be accomplished. These are usually assigned to the engineer forces. Such demolitions and barricades as are to be accomplished by reconnaissance elements will be outlined in orders issued, and any deviation therefrom may result in a serious handicap to the following units.

Reconnaissance units are often called upon to effect delay on an advancing force until the units behind can move into position for an attack. In this instance every available demolition possible is accomplished. Telephone lines and telegraph cables are cut, roads blocked, train tracks pulled up and broken, cross-ties burned, fuel and gasoline destroyed, bridges burned or blown up, defiles mined, and all abandoned transportation destroyed.

Bridges, if of wood, are burned to save demolitions. If steel or concrete, part of the flooring and the supports under the center span should be destroyed. If demolitions are available a crater blown into the approach is advisable. If demolitions are not available, concrete bridges may sometimes be effectively blocked by fallen trees thrust through the railings. A washout may be dug across the approach if the stream is swift. Abandoned vehicles may be towed on the bridge, overturned, and set on fire.

In all cases of demolition remember that fire is the most destructive agent because it will continue to work long after the demolition party has been forced to leave the scene. If it can be left so as to burn with sufficient intensity and long enough, it will explode all abandoned ammunition in a tank or car. Gasoline can be ignited by a filled gas bottle capped and equipped with a short piece of long delay blasting fuse, thrown inside the car so as to break.

RULE NO. 15. BEFORE STARTING OUT ON ANY RECONNAISSANCE MISSION BE SURE THAT YOU KNOW:

1. The situation of your own forces.
2. The situation of the enemy as it is known.
3. Your mission and mission of parent unit.
4. The zone in which you are to operate.
5. Friendly forces that will be adjacent to you and their axis of movement.
6. Contacts that you are expected to make with your own forces.
7. Your own axis of movement.
8. How long you will be away from your base of supplies.
9. The initial command post and axis of movement of your highest organic commander and the intervening command posts.

The bulk of this information will be given you in your initial and warning orders; however, you must keep this check list in mind and if all questions are not answered, ask for more information.

The enemy situation and your own situation are contained in paragraph 1, a and b, of all Field Orders.

You should know and constantly keep in mind the main mission of the parent unit. By this is meant the mission of the largest force of which you are an organic part. Your own mission will come in the Intelligence Annex and should include: the size and nature of the forces for which you are to look and report on, the times you are to report, and when the information you are sent for is desired. This should also tell you the zone or routes over which you are expected to operate.

Vehicles, if armed, should have all armament and ammunition removed or destroyed. Where time is available a block of TNT set next to the cylinder block is advisable. Gears may be stripped and axles broken by a sudden shift to reverse while the vehicle is moving forward. Fan belts may be cut and fans demolished with an ax. Spark plugs may be cracked, distributor heads broken, and wiring torn loose. Gas lines should be cut and holes punched in the gas tank; the spilled gasoline should then be ignited under the vehicle. Sand thrown into the air filter will soon be drawn into the cylinders if the vehicle is running. The vehicle may be run off high places by throwing it into low gear and letting it roll forward alone. Stripping gears by reversing them quickly seems to be the quickest method of disabling any vehicle. All military vehicles will be disabled before being abandoned. Tires will burn if a small amount of gasoline is poured over them and ignited.

Machine guns are quickly disabled by removing the block and barrel extension, carrying both for some distance, and disposing of them in different localities. Extra barrels should be inserted into the receiver and their prying leverage utilized to spring the frame. The barrel should then be struck sharply across the edge of the armor plate on the car.

Rifle and sub-machine gun barrels may be bent and rendered useless by striking them across a sharp corner. Remove the bolts and dispose of them later.

37mm guns may be disabled by placing a block of TNT in the breech and igniting the fuse. If fuses and caps are not readily available, the sliding block may be removed and charges placed for detonation by a well thrown hand-grenade after all personnel have left the vehicle. The sight should be removed or destroyed. Abandoned 37mm ammunition can be detonated by TNT or hand grenades.

Mortars, both 60mm and 81mm, may be destroyed by placing TNT charges in the barrel or smashing the barrel with an ax. The sight should be either removed or destroyed.

The reason for knowing the units on your right and left should be obvious. If no arrangement is made for physical or radio contact between you and these elements, try to arrive at some mutual agreement before your departure. In most cases your immediate commander will have taken care of this. If the unit on

your right or left is not directly under the control of your immediate commander, some provision should be made between those commanders for contact.

Before departure you should know the initial command post and general axis of movement of all units through which your messages must pass in order to reach their final destination. As an example, the section commander of a reconnaissance section should know:

Axis of Movement and Initial Command Post of:

1. His platoon commander.
2. His troop or company commander.
3. His battalion commander, if the unit is a part of a reconnaissance battalion.
4. The division commander.

This information is necessary in order that the reconnaissance party may know the headquarters that will ultimately receive and act on the information that he sends in. Command posts are most frequently the objectives of bombing attacks, raiding parties, and armored attacks, and it is more than likely that some or all of your command posts may be inoperative at certain times. Your mission of reconnaissance is not complete until you have delivered your information in the hands of some headquarters that will be able to act on it.

Seldom if ever, will you know exactly how long you will be away from your base of supplies. However, it is your duty to see that your command is as completely equipped for the approximate time as you can possibly make it. *Food, fuel and ammunition* are your greatest worries. Be sure you start out completely filled and husband your resources to the utmost.

In other words, you want all of this information so that you may have your command ready to meet the situation that you feel sure will arise and still have enough to spare to meet the unexpected.

RULE No. 16. UNITS THE SIZE OF A PLATOON OR LARGER SHOULD MAKE PROVISION TO HOLD A MOBILE RESERVE FOR SPECIAL AND UNFORESEEN MISSIONS.

This is a rule that is most difficult to follow because of the fact that in the early stages of development for battle the need for information is so great that every available agency is assigned a mission and in most cases the mission assigned is unduly large.

A wise commander, however, can arrange his sectors and zones so that he may save out a few vehicles of his command to accompany him and thus have them available for special missions. In the platoon this duty will normally fall to the support section. In the troop headquarters, it is seldom that all personnel are needed at all times, and the troop headquarters itself carries sufficient fire power to conduct some reconnaissance on its own. On many occasions it will be found that the requirements of the road net can be met only by assigning a part or all of the troop headquarters an axis of movement that is not covered by one of the platoons.

The normal result of the above should indicate to

organization commanders that the troop headquarters should be as well trained in reconnaissance functions as any other unit of the organization. This training is difficult to accomplish because the duties of troop headquarters must be carried on concurrently. The selection of men for duty with troop headquarters should be given much consideration and thought. Their training may be accomplished by staggering their attendance at drill. This calls for a man of special aptitude, for he must absorb his training sketchily and in about half the time normally assigned to the remaining men of the organization.

RULE No. 17. PRIOR TO DEPARTURE ON ANY MISSION, RECONNAISSANCE PARTIES SHOULD DESTROY ALL NOTES, MEMORANDUMS, MARKED MAPS, AND ORDERS.

This is a counterreconnaissance measure that must not be ignored. Any reference to the movement of units in the hands of a reconnaissance patrol is inviting disclosure of the entire plan.

The reconnaissance man should be able to memorize plans, notes, and movements and should not again have to use notes once he has had sufficient time to look them over. Subsequent notes and messages should be made and kept in abbreviated form with references made only to code names of units and code names of towns.

A revolving template for map reference that can be easily removed and destroyed offers a solution to the coding of names of towns. Telephone code names of units can be memorized and used in subsequent notes and messages.

It is unwise for the reconnaissance unit to carry division codes of any sort. It follows that reconnaissance messages must be sent in the clear. In messages concerning friendly troops some use of code names and template or code grid designations of towns and villages renders a message in the clear unintelligent to the average interceptor. In most cases action mentioned by any reconnaissance unit is current action and will have been completed by the time that the enemy intelligence recognizes and breaks down code designations. Headquarters of larger reconnaissance units may sometimes use code in reference when they communicate with the parent unit, but this is the exception rather than the rule.

Reconnaissance units should not keep an operation map, and the situation map should only show temporary positions. No full detailed maps should be kept. Situation maps should be kept on thin overlay paper than can be easily destroyed or smudged. A handy file for messages and easy access to the template will allow the commander to outline both situation and operation maps promptly if memory fails.

RULE No. 18. A RECONNAISSANCE UNIT SHOULD BE SO TRAINED THAT IT WILL BE READY FOR ANY RECONNAISSANCE MISSION AT ANY TIME.

To meet the requirements of this statement every in-

dividual in a reconnaissance unit must be assigned detailed duties, instructed thoroughly in their performance, and be capable of performing those duties at any time. Each vehicle has certain equipment that must be loaded before that vehicle is ready for any mission. Each item of this equipment must be catalogued and assigned to some individual in the car crew for loading and replenishing.

When a unit returns from a mission, every man in that unit is to be held responsible that, before he leaves his vehicle, the machine has been serviced; ammunition, rations, fuel replaced; and any worn or broken pieces of equipment immediately turned in and *replaced*. The fact that the article has been turned in does not relieve him of the responsibility incident to his platoon. He must be certain that it is replaced. When a car commander or section leader reports that his car or section is ready to move, that report signifies that he has every article of equipment, all rations, all ammunition, and all extra fuel that is authorized. He also signifies that his vehicle or the vehicles in his section are in good running order and functioning properly.

In addition to the above, provision must be made for expected casualties in the crews and all members must be thoroughly familiar with the duties of other members so that duties may be interchanged.

In moving into bivouac at nightfall each noncommissioned officer must assign places for his men to sleep. He must know at all times where these men are and must be able to alert the entire crew in a matter of minutes. Each platoon leader should assign areas for his sections and should know where he can find each NCO. Each troop commander must be able to locate his platoon leaders. As a general rule outpost duties are assigned to entire vehicles, and the vehicle itself is dispatched to the outpost so that no dismounted men are left in case of a sudden move.

In an alert each NCO prepares his command, then reports to the next senior that he is ready to move.

Each individual upon settling down for the night must learn to place his equipment in certain designated localities around his body so that when he is awakened he can reach out in the dark and place his hands on the equipment as it is needed.

RULE No. 19. ASSEMBLY POSITIONS ARE THE RESPONSIBILITY OF THE RECONNAISSANCE UNIT COMMANDER AND MUST BE DESIGNATED PRIOR TO ACTUAL ENCOUNTERS.

Reconnaissance units are sometimes ambushed and scattered and unless a designated assembly point is set the commander immediately loses control.

A fairly simple rule to follow and one that can be remembered by all concerned is to designate the cross-roads that was last passed over by the unit before the encounter, as the assembly point. This does not mean that every vehicle makes it their business to head directly for the cross-roads and move over to the shortest

routes. Neither does it mean that all vehicles drive up to the cross-roads and assemble in one compact group. The first vehicle that arrives should reconnoiter to determine whether the assembly position is held by the enemy. If not, that vehicle should be placed under cover nearby, and one member of the crew should take up position near the cross-roads to direct the remaining vehicles as they arrive. Subsequent vehicles will halt under cover and send dismounted patrols forward to reconnoiter and meet the outpost from the first vehicle. Constant radio communication will aid greatly in the assembly of the unit. If the cross-roads is held by the enemy an effort should be made to determine how strongly it is held, and then all vehicles should proceed to the next cross-roads on the axis of movement of the unit.

RULE No. 20. THE RECONNAISSANCE UNIT ASSIGNED TO AN ENVELOPING FORCE MUST BE STRONG, POWERFUL IN FIRE SUPPORT, AND FAST. IT MUST MOVE WITH SUCH SPEED AND FORCE THAT IT WILL SECURE THE UNINTERRUPTED ADVANCE OF THE ENVELOPING FORCE BEFORE THE MAIN ENEMY RESERVE CAN BE SHIFTED TO MEET IT.

A reconnaissance unit, assigned the task of covering an enveloping force, immediately assumes three missions:

1. Advance guard.
2. Forward and flank reconnaissance.
3. Mobile counterreconnaissance screen.

An enveloping attack is launched with the hope of catching enemy reserves out of position and pushing through to the objective before the reserves can be shifted to meet the attack. It follows then, that an enveloping attack, once launched, must be driven through with all possible speed in order to gain the element of surprise.

The reconnaissance force assigned to such an attack must be strong enough to fight delaying actions on either or both flanks and still be able to launch an effective attack against small enemy patrols that might be encountered in the path of the enveloping force. These patrols cannot be by-passed nor allowed to escape. They must be attacked, their retreat cut off, and the entire personnel either captured or annihilated. This entire action must take place in less time than it takes to complete a telephone warning or send a radio message. The force sent around to cut off retreat must be especially careful to spot and cut telephone wires and watch for motorcycle messengers. Under no circumstances will messengers be allowed to escape. If the approach is found to the enemy position, two cables stretched across the road just around a curve will usually take care of motorcycles and small messenger cars. These cables must be covered by fire.

Antitank mines quickly laid in the road will destroy larger vehicles. They may be tied to a small rope and pulled across the path of an oncoming vehicle. Heavy

concentrated fire must be avoided but accurate fire is imperative. Smoke screens will be used only on the orders of the enveloping force commander.

The flank reconnaissance units must push out far enough so that enemy patrols may be effectively delayed until the enveloping force has passed the point at which they might be delayed or harassed.

This is one mission on which a reconnaissance unit is forced to fight and in most cases where this mission is assigned the reconnaissance unit commander will have sufficient combat personnel attached to his unit to successfully perform his mission. In the event that additional troops are attached, the reconnaissance commander should insist that they be furnished transportation that will negotiate the same terrain with the same speed as the reconnaissance vehicles.

RULE No. 21. MOVEMENT IN ANY DELAYING ACTION IS ACCOMPLISHED BY APPLYING THE PRINCIPLES OF AN ADVANCE IN REVERSE.

Platoons, sections, and vehicles, use the method of covering the withdrawal of the foremost vehicle as it withdraws. In this instance covering vehicles move to the flank and leave the best avenue of withdrawal open to the withdrawing vehicle.

The requisites of any good delaying position are:

1. Field of fire.
2. Cover.
3. Covered route of withdrawal.

While not every delaying position encountered has all three in a perfect arrangement, each position must contain something of each. Field of fire is most important as delay must be effected at long range. Cover is important in order to conceal your delaying position from aerial observation. A delaying position disclosed from the air is a delaying position lost. The enemy will flank it before a shot is fired. A covered route of withdrawal is necessary for the safety of the withdrawing force.

The secret of delaying action is to be able to so dispose your forces that their strength, disposition, and composition is never known to the opposing forces. Fire must be begun at long ranges and maintained until the enemy has been forced to deploy for attack. The withdrawal must be so timed and so perfectly executed that the enemy flanking attack has not penetrated to the point of bringing flanking fire on the withdrawing forces, nor is the enemy aware of the exact time of withdrawal.

Vehicles, individuals, and sections are withdrawn successively. The least engaged have priority on withdrawal, while the remaining vehicles increase their fire to prevent the enemy from knowing of the withdrawal.

RULE No. 22. "THE GENERAL RULE IN MEETING RESISTANCE IS: (1) TAKE COVER, (2) RECONNOITER, (3) ACT."

The first thought of any individual upon being fired

on is to get under cover. The natural law of self preservation still exists and is strong in human nature. There is, however, a marked difference between an individual, armed with only his rifle and bayonet, diving for the nearest swale, and the driver of a scout car or a quarter-ton jeep trying to conceal that entire vehicle and crew from observation and fire. The driver must be on the alert for every possible cover that might afford him protection. He must be ready to move towards the most likely cover without command and do it quickly and efficiently. Scout car drivers must be able to sense the ground and know from a casual observation whether or not the surface will support the weight of the vehicle.

As soon as vehicle and crew have gained the comparative safety of cover they should immediately start reconnaissance to determine the size, strength, and disposition of the enemy who delivered the fire. Every effort will be made to determine the flanks of the opposing force and fix his location. What type of fire is he using? Automatic? Rifle? Machine Gun? 37mm? Mortar? If machine gun, what caliber? Does he seem to have artillery support? Is he intrenched? If so, to what extent? What organization does he belong to? Is he cavalry, infantry, or artillery? What regiment, division, or company?

The entire reconnaissance unit should immediately start reconnaissance in an attempt to gather this information. Remember that the position of an enemy's flanks and his line determine his exact position and will in most cases give some indication of his strength. These facts, coupled with the amount and type of fire he delivers, will often determine exactly the size of his force. One prisoner captured or a good description of a casualty will often indicate to what organization the group belongs. The quality and state of clothing, food, equipment, and the physical condition of the men in the patrol are all useful information. As much of this information as possible should be sent back.

The action of the enemy patrol after he meets opposition is of extreme importance. Do they show fight or fall back? Are they pushing forward or holding on? Movements of small detachments indicate the expected action from the main body and should be reported as soon as they are learned. Prisoners should be taken if it can be done without undue involvement of the reconnaissance party. The first prisoners taken in any engagement are always important. The most likely should be selected and sent to the rear. The remainder should be disarmed and if possible turned over to the nearest large unit. If this is impracticable, disarm them, destroy their weapons and indicate that they are to march to the rear in column of two's and not look back. Have one sentry follow for a short distance but rejoin his unit after the prisoners have started well to the rear. It is better to disarm them and release them than to let them slow you down by taking care of them. In an advance they may be securely tied to trees and their presence reported.



ON the day that we donned the uniform of the United States Army we began to learn things about the Army, things that Hitler and Hirohito would like to know to aid them in attacking our country, our families, our cities, our homes, our farms, and ourselves. Every day since then we have been entrusted with information, and we will continue to be entrusted with more and more information so long as we are privileged to wear the uniform. And the more we learn, the more the agents of Hitler and Hirohito can get out of us; that is, only if they are smarter than we are. Every bit of military information is of value to the enemy, no matter how small.

These truths appear to be self-evident. Even so, every day on buses, on trains, in bars, and in the living rooms of our finest homes, seemingly unimportant bits of information reach enemy agents by some of us who don't mean to tell.

What then are the causes of indiscretion? Why is it that so much information is being given away all over the country at this very minute? There are four causes. They are:

- Conceit.
- Faith.
- Enthusiasm.
- Ignorance.

You will notice that treachery has been left out.

★War Department, Bureau of Public Relations.

HITLER'S

Are you helping to make his source of material

That is because the number of traitors is fortunately very small. This is not intended for those who are betraying their country willfully; it is for those who are betraying it unwittingly, but are betraying it just the same. If enemy agents had to depend solely on traitors for their information, they would probably have a lean time, for it is a tragic fact that the majority of what they learn is given to them by those people whose patriotism is beyond question.

CONCEIT

Conceit is the most common cause of leakage. Ninety per cent of indiscretions are the result of it, and 99 per cent of us are vulnerable to it.

Why do we boast? Most of us to impress a woman. That is understandable enough. Everyone tends to "hand out a line" when out with a girl. There is little harm in it, and providing you leave the service out of it, you can go ahead. The Army really isn't too much concerned about the fact that a corporal is able to persuade his girl that he gave up \$50,000 a year when he joined the Army or that he would have been a senator if it hadn't been for the war, as long as his "line" doesn't include service matters.

We may be on secret duties. If that is so, we must remember that these are the Army's secrets, and that we have no right to share them with anyone.

There will always be a temptation to boast when you know a lot more than the other people you are with. It is admittedly very hard to pretend you know nothing when in point of fact you know everything; and in order to try to satisfy your conceit without giving much away, you may find yourself just hinting at all you know. That is fatal. If a thing is secret, you must not even hint at its existence.

The trouble about this boasting is that it is so contagious. A man boasts to his girl friend of what he is doing just to impress her, and she in her turn boasts to all of her friends about the importance of her boy friend just to impress them. It becomes a vicious circle with everybody trying to outdo everybody else in the magnitude of the secret information which they can impart.

FAITH

As a nation we are too ready to trust our fellowmen, and to believe too implicitly in the safety of such na-

SECRET WEAPON*

Make it? Are you certain? Do you know? Check your answers by this article.

tional institutions as the United States mail and the telephone and telegraph services, all of which can be utilized to advantage by enemy agents.

Most of us consider that we are pretty good judges of character and not easily fooled. We forget that an enemy agent, if he is to be successful and avoid a firing squad, must be such a plausible and convincing person that no one suspects him, least of all those who pride themselves in being good judges of character. In other words, he will look exactly like what he isn't: a typical American with an honest face, who knows as much about the Yankees and the Brooklyn Dodgers as we do.

We should always put ourselves in the place of an enemy agent. Consider how one of the Axis agents would do his job. First, we should ask ourselves what we could learn from the conversation that is going on in the bar, club, or railroad station, or the information that is given in a letter. When we learn to adopt this outlook, we will not only be careful to keep our mouths shut, we will also want to make other people shut theirs.

But what about the faith you have in your friends and relatives; in your mother and father, and the girl you are going to marry?

Of all security lessons, this is the hardest to learn: That military information must be shared with no one, not even with those you love.

That is not to say that you must no longer put your trust in these people in whom you have confided all your life. But you must not share with them secrets that are not yours to share, secrets that belong to the Army.

Remember that the first person an enemy agent contacts when he wants to know anything secret is the wife or girl friend of the man who knows that secret.

You may feel that your wife or mother has a right to know when you are in danger, a right to be told if you know that on a certain date you are sailing in convoy, or are going on a raid from which you may never return. You may also feel that they have a right to know if this raid is canceled, so that their minds may be at rest. But this must not happen. The more people who know a secret, the less chance there is of its being kept.

Mothers and sisters and wives, with the best intentions in the world, can give away information without even knowing that they have done so. If they are worried about your safety, they will tend to confide in those

who are sympathetic. In wartime we do not always choose our friends wisely, but turn instinctively to anyone who shows kindness and understanding, especially if they seem to be suffering like ourselves. An enemy agent will not only be a good listener, he will also be a sympathetic one.

If the people who love you are wise, they will not try to learn your secrets. It is your duty to keep them to yourself.

ENTHUSIASM

Enthusiasm is a common cause of indiscretion. Anyone who is really interested in his job finds it hard not to talk and write about it. Your first impulse when your outfit has done particularly well will be to talk about its achievements. As the time approaches nearer and nearer to when your buddies and you will be going overseas, excitement increases and it gets increasingly harder to keep the news of events important to you under your hat.

But note how easy it would be for a clever person to get this information out of you. Maybe he would flatly refuse to believe you, until you got so angry with him that you blurted out facts and figures which would prove your story conclusively. Or he would be so impressed by everything you told him that you would tell more and more; or perhaps he would adopt the line of being a technical expert himself, pretending to know all about it already, and enticing you into a highly technical discussion in which you would be anxious to show off your knowledge.

Remember, never add to a newspaper account, no matter how proud you may be of the fact that you know the whole story.

IGNORANCE

A vast number of people are going about the country today giving away vital information simply because they have no knowledge whatsoever of the way enemy intelligence service works. They just cannot understand that it is all a matter of putting two and two together, of going around and collecting bits and pieces of information from a thousand different sources, and then cleverly evaluating them into a dangerous report.

Get it firmly fixed in your head that the enemy agents

are not all parading about in Washington and our military establishments, preparing to waylay a general and steal the plans of a forthcoming attack. They are quiet, hardworking investigators who go about using their eyes and ears, and picking up a little item here and another one there by encouraging people to say more than they should of news which tell of troop movements and concentrations of supplies, of strengths and weaknesses at certain points; of the destination of convoys and the position of battleships, aircrafts, tanks, and guns. A scrap of conversation picked up by an agent may at first seem to be of little value until another report from some other source continues the story and links it up with something else. The intelligence officer's job is to look for clues no matter how small, and to see what he can deduce from them.

GOAL OF SECURITY

The goal of security education is the instinctive security-mindedness of all in the military service. When discretion on all military matters becomes second nature to everyone so that we automatically shut up like an oyster whenever strangers try to get us to discuss our work, then the battle of security will have been won. It should not require an effort to be discreet. On the contrary, you should feel an acute sense of guilt whenever you find yourself referring to anything that is secret.

Remember that it is not only a crime to commit a breach of security, but also to conceal one. Surprise is a vital factor in war. If the enemy finds out our plans, it is essential that we should know that he has done so. Therefore if a leakage exists those in authority must be notified at once.

You must see security as an additional weapon in your hands, a weapon which, if developed and perfected, can become as valuable to the United States Army as the tank, the airplane, or the antiaircraft gun. That may sound like an exaggeration, but it is not. Our technical experts are working night and day to reduce our losses by faster aircraft, by greater hitting power, and through the development of better equipment, but those losses would be reduced in a far more sensational way if all leakage of information to the enemy could suddenly be stopped.

It is your duty not only to keep your mouth shut, but also to see that others do the same. If you know any secret information, keep it to yourself; and if a friend of yours knows something secret, do not try to find out what it is.

In wartime no one is ever fully off duty, and no one must ever be momentarily off guard.

DON'T TALK

1. ABOUT TROOPS:

Location, except for troops in training and on police duty.

Where, when, or how troop movements will be made.

Characteristics and limitations of equipment or weapons.

Concentration or special training of units.

2. ABOUT HARBORS, SHIPS, AND CARGOES:

Location, destination or cargo of United States, Allied, or neutral vessels.

Any information about a transport, convoy, harbor defense, or minefield.

Construction or proposed launchings.

Condition and setup shipyards.

Sinking or damage until officially announced.

3. ABOUT DAMAGE:

Generally speaking, do not disclose any information in your possession as to damage done to our side by any action of the enemy.

4. ABOUT AIRPLANES:

Production of any plant or number in any military unit.

Location, destination, or time of departure of air units.

Troop movements or war material shipment by air. Characteristics and limitations.

Development or experiment.

Name, plans, or orders of members of Air Transport Command.

5. ABOUT FORTIFICATIONS AND ANTIAIRCRAFT INSTALLATIONS:

Location and description.

Location of bomb shelters or camouflaged objects or other defense precautions.

Any information of United States installations outside the United States.

6. ABOUT PRODUCTION:

Don't give out any information on production known to you. Let the other fellow get what he's supposed to know out of the newspapers.

7. ABOUT WEATHER:

Don't pass on information of weather conditions other than that which appears in your local newspapers.

8. ABOUT RUMORS AND HARMFUL STORIES:

Don't repeat stories—

Which stir up racial discussion.

Inimical to our friendship with or in criticism of our allies.

Of the enemy's prowess.

Of our inefficiencies or shortcomings.

About a shortage of or poor quality of our equipment.

Challenge all rumors.

The Soldier and the M1 Rifle^{*}

Care and Maintenance of the Garand Semiautomatic in the Field

Lieutenant Howard L. Bagley, Ordnance

THE U. S. rifle, caliber .30, M1 is the present standard service rifle of our Army. The rifle is referred to by most men in the service as the "M1" or the "Garand," after John C. Garand, inventor, to whom credit for the development of the rifle is given. The need for a semi-automatic or automatic shoulder arm was foreseen as far back as the year 1902. Various types of actions were tried, but none were equal to the standards set up for that type of weapon. Commercial manufacturers and gunsmiths were induced to develop and submit weapons for test, and a large number were submitted, but none were satisfactory.

Springfield Armory introduced a number of weapons with varied types of actions, of which the gas-operated type showed the greatest possibility. A trend to change the type of ammunition was introduced, and the experiments continued. At this stage, Mr. Garand presented a gas-operated weapon with a bore diameter of .276-inch which stood the tests very well. It was suggested that he try the same design in a caliber .30 rifle. This was done, and the new rifle easily passed the preliminary tests. As a result, in the latter part of 1932 eighty of these rifles were ordered made for further test. These eighty rifles, handmade for the most part, were completed by the middle of 1933 and were turned over to the various service schools for prolonged tests and trials. The Garand stood up under these grueling tests in fine shape and was accepted by the various combat branches as suitable for the service weapon. It was adopted on January 23, 1936, as the new standard United States service rifle for manufacture and issue. Some of the first eighty rifles manufactured are still in service at the Ordnance School.

The rifle has advanced through various stages since the original model was adopted; changes were made in the barrel, gas cylinder, and a number of smaller parts as the years passed. The causes for these changes were generally due to the need for a more efficient means of manufacture. The change in the barrel eliminated a part that was causing some trouble both in cleaning and in accuracy. Such changes are commonplace in the development of any item of ordnance matériel. The first model is very seldom entirely satisfactory and has to be altered or parts must be redesigned to aid in the process of manufacture or to improve the operation of the weapon. A very good example of this is the U. S. Springfield rifle, caliber .30, M1903, which was considered the best of the military rifles of the world, but after twenty years of use it was decided to make a

change in the design of the stock. Like circumstances will no doubt prevail with the M1 rifle as time passes. The soldier should expect these changes as the means by which the Ordnance Department improves his fighting equipment both in workmanship and performance.

Let us now consider the rifle as it is issued to the soldier and weigh the problems of care, cleaning, and adjustment with which he is faced in the field. The rifle is the soldier's best friend in battle, and he therefore should be given all available information that will help him to understand and care for this important mechanism.

The M1 rifle is issued to the soldier usually in the condition that it is received from the point of supply. He then is expected to clean and prepare his weapon for service—a very disheartening task for an inexperienced man. He has a rifle completely filled and covered with a rust-preventive compound, and he probably is very uncertain as to where or how he should start to clean it. His first step should be to remove the excess grease from the outside of the rifle by using a coarse cloth. The trigger group is then removed and washed in cleaning solvent to remove the excess grease from the parts. The group may then be completely disassembled and further cleaned with solvent, but care should be taken not to lose small pins or parts. These parts may be further washed in boiling water if it is deemed necessary and then dried. They should be given a light coat of oil by using an oily cloth free from lint and dirt. The group may then be reassembled and wiped off with an oily cloth to remove all traces of moisture.

The stock group is then removed and cleaned by wiping down with a cloth saturated with solvent. The stock should not be placed in a container of solvent as it is detrimental to the wood. The stock should then be wiped dry and a very light coat of linseed oil applied to the wood. The barrel and receiver group may be taken down next and the parts cleaned in the solvent. The wood hand guards should not be washed in the solvent but wiped clean with a cloth saturated with it and then dried and oiled the same as the stock. The remainder of the parts may be submerged in the solvent and cleaned, dried, and oiled. Hot water may be used as for the trigger group if the parts are completely dried and oiled afterward. The barrel, chamber, and gas port at the muzzle should be cleaned and checked for the presence of heavy grease. The bolt group should be checked for the presence of heavy grease around the firing pin and ejector. This grease should all be removed and a light coat of oil applied.

^{*}Courtesy, Army Ordnance.



Came the dawn—and a rifle still uncleaned

After the rifle has been cleaned, oiled, and assembled, it should be checked by an experienced man for completeness and proper assembly.

The soldier should familiarize himself with the rifle so that he knows the entire mechanism and the function of all parts. He should be able to name a majority of the parts by feel and to disassemble and assemble the weapon in the dark. His rifle is just as important to him as his mess kit, and he should know the rifle equally well. Since the soldier has to perform first-echelon maintenance on the rifle, he should know all the ways and means of doing this work. He will not be able to depend on some one else for repairs in battle.

Proper lubrication is the first step in preventing malfunction and breakage. All parts should be lubricated with light oil; overlubrication does not help the function of the weapon and causes dust and foreign matter to adhere to the parts.

Proper cleaning after firing is not always within the power of the soldier. He may not have the time or facilities to do a good job, but he should do the best he can with the time and equipment on hand, as any cleaning possible is better than none. Water alone poured through the rifle barrel and dried out by any means is

better than no cleaning at all. For example, wiping out a dirty mess kit with dry grass or leaves is better than leaving it dirty and finding it totally unusable at the next meal. It is the same with the rifle.

Replacement and minor adjustment of certain parts is within the province of the soldier. This includes replacement of the extractor, firing pin, and such parts as he might replace without special tools or gages. Adjustment of the rear sight and tension of the spring in the sight come under this classification. The soldier should be cautioned about interchanging parts that would impair the safety of his weapon. He may find it necessary to use parts from the rifles found on the field in order to keep his own weapon in action, but he should be cautioned not to change the bolt as he thus may set up a condition very dangerous to himself.

The soldier also should know how to render his rifle unserviceable should it be in danger of falling into the hands of the enemy. The soldier can make his weapon unusable in many ways. The barrel may be bent or the



That evening—Seeking professional advice

gas cylinder may be damaged, but this may not prevent firing the weapon. Removal of the extractor will prevent the use of the weapon without considerable difficulty. About the easiest way to damage the rifle to prevent its further use is to separate the three groups and break the stock, raise the extractor, and drop the firing pin. This will cause the enemy considerable delay in placing the rifle back in service.

Since the rifle is the soldier's best friend in combat, he should treat it with the care due it. In return, the rifle will not fail in its performance. A great majority of the failures of the M1 rifle are due to neglect or improper care, just as any other mechanism will break down if not properly cleaned and lubricated at regular intervals. Where the climate is wet and the humidity is high it will be found that the rifle will require more lubrication and the bore will require considerably more care to keep it in condition. The chamber will have to be watched for rust and roughness that would cause difficult extraction. Rust will appear on exposed parts



That day on maneuvers—Jammed!

that have been oiled, due to sweat from the hands. To prevent this, the rifle should be wiped clean with an oily cloth after use. In a dry, hot climate it will be found that less oil is much better for operation due to the tendency of dust and grit to adhere to the oil thus causing excessive wear and hard operation. Under these conditions, lubrication should be applied only to those parts that act as cams and bearings. Although very little oil should be used it should be applied more frequently.

The soldier may find that his new rifle is very stiff and rough in its operation. This is true of all new weapons, as the camming surfaces are not perfectly smooth and the piece needs breaking in or wearing down until the parts become worn smooth and free. This may be done by hand operation of the piece as well as firing during what might be called the break-in period. The care and patience through this period will greatly determine the life of the rifle and its efficiency.

Cleaning the bore is an important factor and an art in itself if properly done. The new bore as it is received



Next day—A drop in time!

from the manufacturer is bright and shining and looks very clean. The tops of the lands have a finer finish than the grooves due to the process of manufacture: the lands are a hone finish, the grooves a scrape finish and are much rougher. If the surfaces of the grooves were magnified it would be found that they were covered with minute scratches. This condition causes the rifle to be much harder to clean in the first stages of its life. The cleaning of the bore during this time should be watched very closely, care being taken that all powder residue is removed. The minute scratches spoken of will in time wear down to a smooth finish, but in so doing they change from scratches to very small cracks. These fine cracks will open up from the heat of firing, and powder fouling will be forced into these minute apertures from the high gas pressure in the bore and from the friction of succeeding rounds. As the rifle cools, the cracks will close down on the powder residue.

This residue is the substance that causes the trouble in the bore, for the bore can be cleaned until the surface



Later—Learning how to clean the M1

is bright and the cleaning patches come out unsoiled, but this residue in the cracks still remains to do damage and must be either removed or neutralized. This can be accomplished very easily in the field if hot water is available which will heat the barrel and open the minute cracks so the residue may be washed out. Cold water is far better than oil, as water of any temperature will dissolve and wash out the salt found in powder residue while oil will not dissolve salt but will only retard its action for a short time. Later, the bore will start to turn dark but will not show signs of powder fouling, and if a patch is passed through the bore, it will come out clean. These conditions indicate the presence of active salts in the bore that have not been removed in cleaning or have lain dormant in the bore due to the coating of oil. The presence of oil in the bore does not mean that rust will not appear unless the bore has been properly cleaned before oiling. The soldier should remember that a neglected rifle will be a poor friend in combat.

EDITOR'S NOTE.—The M1 rifle is a gas-operated, clip-fed, self-loading, shoulder weapon, slightly over nine pounds in weight. It fires the same ammunition as the U. S. rifle, caliber .30, M1903 (Springfield), and all



Much later—Oiling the rifle prior to assembly

standard U. S. caliber .30 machine guns. The ammunition is supplied in 8-round, reversible, *en bloc* clips which are fed by hand into the magazine of the rifle. Upon being inserted, the clip depresses the follower, which, in turn, releases a catch, allowing the bolt to go forward under the action of a compressed spring, stripping the top cartridge from the clip and chambering it. When the last round in the clip is fired, the empty case is ejected; the clip also is thrown out, and the bolt is retained in the open position.

The semiautomatic or auto-loading action of the rifle is accomplished by a mechanical arm or "robot" called the operating rod. This component takes the place of the human arm in operating the bolt, the power being obtained from the propellant powder gases. In the conventional bolt-action rifle, such as the Springfield, the bolt remains closed and locked to the receiver after the round is fired. To reload, it is necessary to grasp the bolt handle manually, raise it until the locking lugs of

the bolt are disengaged from their locking recesses in the receiver, and then draw the bolt to the rear. The bolt next is returned to its locked position by hand.

In the M1 rifle, this manual operation is performed automatically by the operating rod. Briefly, the cycle of operation is as follows: When the cartridge is fired, the bullet is propelled down the bore. As the rear end of the bullet reaches a position near the muzzle, the powder gases enter a chamber and impinge against a piston, driving it to the rear. This piston is at one end of and also an integral part of the operating rod. The other end of the rod contains a slotted cam, into which projects a cam-shaped extension of one of the bolt-locking lugs. In traveling to the rear, this slot cams the bolt-locking lug extension upward, rotating the bolt until the bolt-locking lugs are disengaged from their locking recesses in the receiver. The operating rod continues to the rear with the bolt which in turn extracts and ejects the empty case, cocks the hammer, and is then returned.

German Small Arms

The equipment shown in this picture was captured by Red Army men and probably all came from one infantry company. In the background are a pair of binoculars, a radio set of the type used by an infantry company, a field telephone set with batteries, an emblem denoting a low echelon command post, and ammunition for the antitank rifle. Second from left in the foreground is a carbine; to the right of it lies a 7.9mm antitank rifle, three of which are assigned to each company; next is a light machine gun (MG 34) which fires at the rate of 900 rounds per minute. Rifles lie to right.



LEADERSHIP★

THERE are two general views on the subject of leadership. The first is that leaders are born and cannot be made; the quality exists or does not exist. If it does not exist, nothing can be done about. The second is that each of us possesses leadership to a greater or a lesser degree, and that leadership can be developed. I hold the first view, with the one qualification that individuals frequently possess inborn qualities of leadership which lie dormant through lack of opportunity for development. If the individual is placed in a position of leadership, those inborn qualities can be developed. Those who possess qualities of leadership which they have had no opportunity to develop may be encouraged to do so. Those who do not possess qualities of leadership may recognize that fact and exercise control over their personal characteristics, minimize the seriousness of their deficiency, and, in accomplishing their military duties, make maximum use of other admirable qualities which they may possess. Moreover, because many opportunities exist in the Army for individuals who work better alone than as leaders of men, no disgrace attaches to the officer who is not a leader.

What is leadership? No one has yet succeeded in defining it. In the Army we are prone to consider only the leadership of the man on horseback—leadership on the battlefield. This is too limited an approach. Leadership in the Army cannot be restricted to the battlefield. General Marshall himself must exercise leadership in the administrative as well as in the strictly military field. Leadership is required of an officer sitting behind a desk, just as much as of one leading a bayonet charge. Leadership must be exercised in the religious, social, and political fields, and in industry. The primary difference between leadership on the battlefield and leadership in other fields is that the military commander must be able to exact the supreme sacrifice of life itself from those who are led. Even this difference is more apparent than real. The willingness of a soldier—or of a civilian, for that matter—to die for our country results as much from the leadership of the President as from that of the platoon commander.

Ordway Tead in "The Art of Leadership" defines it as follows: "Leadership is the *activity* of *influencing* people to coöperate towards some goal which they come to *find desirable*." Immediately the question arises as to what is meant by *activity* and whether all goals toward which men have been led were necessarily found desirable by those who were led.

In its pamphlet, "A Discussion of Leadership," Culver Military Academy defines leadership as "The *process* of securing the wholehearted coöperation of an indi-

vidual or group of individuals in working towards a desired goal." Again, what is meant by process?

Colonel Frank M. Smith, in a conference on this subject, defined leadership as the "*art* of imposing one's will upon others in such a manner as to command their obedience, their confidence, their respect, and their wholehearted coöperation."

The primary flaw in these attempts to define leadership is in trying to define one unknown quality by another. We face the same predicament in defining leadership that we face in attempting to define electricity. We define electricity in terms of electric light bulbs; that is, in terms of how it manifests itself. We can define leadership only in terms of how it is manifested.

What are the requirements of a leader? Again, there is no agreement. We must keep four factors in mind: first, the leader; second, the cause in which he leads; third, those whom he leads; and finally, the opportunity to exercise leadership. Various writers list qualities which they consider desirable in a leader. For purposes of argument, let me offer my own views on the qualities necessary in a leader. First of all, he must have a *cause* to lead. Next, he must possess an inner urge—the spirit of a crusader—in furthering that cause. Third, he must have a determination and even a ruthlessness in carrying that cause to success in the face of every obstacle. Fourth, he must be able to engender in those whom he leads a *willing* and even *eager* coöperation in that cause. This listing of qualities also raises as many questions as it answers.

Others give entirely different definitions of the qualities of leadership. Tead lists the following qualities which are *desirable* in a leader. I suggest that each be subjected to critical analysis:

- (a) Physical and nervous energy.
- (b) A sense of purpose and direction.
- (c) Enthusiasm.
- (d) Friendliness and affection.
- (e) Integrity.
- (f) Technical mastery.
- (g) Decisiveness.
- (h) Intelligence.
- (i) Teaching skill.
- (j) Faith.

The Culver pamphlet furnishes a number of groupings of traits of leadership, one of which, a tabulation by Colonel Paul S. Bond, U.S.A., Retired, contains 83 attributes of leadership.

These differences of opinion merely emphasize the lack of agreement as to what constitutes leadership. A listing of the qualities of leadership becomes merely a set of ground rules, evolved in the mind of the particu-

★Adjutant General's School. Copies in booklet form can be secured for 10c each from The Book Service, Adjutant General's School, Ft. Washington, Md.

lar exponent of a particular grouping of qualities, as to which are considered socially desirable. These rules may, or may not, be valid under a particular set of circumstances.

If we accept the point of view that leaders are born and not made, we must answer the question, "What is man?" before we can answer the question, "What is a leader?" The Chief of Staff has expressed a vital interest in the problem of finding a means to determine who are our army leaders. That problem was submitted to the psychologists of the Personnel Procedures Section, The Adjutant General's Office. They admitted that no conclusive answers could be found. This is illustrated by the fact that, although they were able to prepare objective tests to determine various aptitudes, no such conclusive tests as to leadership could be prepared at the present state of scientific, psychological thought.

Perhaps it would be more accurate to say that we deal with *leaderships* and not *leadership*. The question arises, for example, as to whether the leadership of Lee was the leadership of Huey Long. So far as cause is concerned, the two were poles apart. Yet each was impelled by a force within himself. Long did not imitate Lee; for leadership is never imitative—it is a magnetic force, basic in the structure of the individual. To some extent it is a question of human chemistry. All great leaders have possessed this force: President Roosevelt, Lee, Grant, Napoleon, Hitler, Mussolini, Alexander the Great, Huey Long, and even Casanova. Although we are unable to explain this magnetic force, we can recognize its presence in the lives of all of our great leaders.

We may illustrate the magnetic influence of the leader upon those whom he must lead by comparing him to the influence of a magnetic coil upon a bar of iron. Normally, the bar of iron is inert, lifeless, its molecules lying crosswise and working at cross purposes. When placed in the magnetic coil, the iron becomes magnetized; all the molecules lie with their poles in the same direction; it becomes a force—a power—in itself, and is able to exert its own strength upon other inert metals. In the same way, the leader acts as a magnetic coil to magnetize his followers, to convert their inertia into power and thus animate them in turn to exert their power in a common direction.

Consider next the causes which have been led by our great leaders. Again we may quote Tead: "A fact not to be ignored is that people are influenced by a leader because he becomes the personal embodiment or symbol of the cause he is serving. Of outstanding value as helping to create a strong and deep attraction to many objectives is the loyalty which fastens upon the leader himself as an appealing and popular figure. People crave the flesh and blood reality of one who will say: 'Come and follow me,' or 'Go thou and do likewise.'"

"The potency of this appeal of the person is obvious in the great religions of the world, not only in relation to their founders but in the influence exerted by lesser

leaders—saints, popes, bishops, priests, and preachers. The person has become the symbol of the cause and has given prestige to it and human warmth. Indeed, it is in religious groups that this loyalty has on occasion risen to its sublimest heights and to the most self-effacing, sacrificial devotion on the part of the followers. And always, be it observed, this loyalty at its best has been based on the profound claim that he who would thus lose life in devotion shall find it in self-discovery. The seeming complete renunciation demanded was always in favor of a larger self-realization to be made in part through identification with the person of the leader. The idea voiced in the sentence, 'I, if I be lifted up, will draw all men to me,' is a penetrating recognition of the truth of complete self-realization through complete loyalty."

A similar truth is to be observed in military affairs. Great generals—supported by colonels, majors, captains, lieutenants, sergeants—have symbolized a purpose and often won a devotion which readily led to death itself.

The degree to which the individual, through dramatizing the cause he leads, becomes a symbol of the cause is exemplified in Alexander the Great, who became deified in the minds of his followers; or Augustus Caesar, who was similarly deified; or General Lee, who in the minds of the people of the South is idolized to the extent that his human traits fall in the background and he partakes of the supernatural. The same might well be said of Hitler as exalted in the minds of the German people, since Nazism, the cause of his leadership, has become a cult. An extreme case of course is Japan, whose Emperor is deity.

The comparison of Lee and Hitler illustrates an essential point concerning causes for which men struggle. In our minds the leadership of Lee was entirely noble; whereas the cause of Hitlerism is entirely ignoble. Great leaders heading great causes epitomize and dramatize causes, but they cannot disassociate themselves completely from the spirit of their followers. They are part of their times—the physical embodiment of the causes which lie inert in the hearts of their followers. In order to lead, they must be out in front; they must sense the objectives toward which people are striving; they must make that cause their own; and then, through exceptional internal force, they must drive on towards the common goal.

This brings us to our final topic—those who are led. Distinctions can readily be drawn between the people of the Confederacy—followers of Lee—and the people of Louisiana—followers of Huey Long; or the people of Germany—followers of Hitler—and the people of colonial days—followers of George Washington. This is merely to repeat once more the fact that the leader cannot disassociate himself from his source, that he seldom can force any substantial change in the character of his followers, and that the most he can do is to anticipate the inner urges of his people, clarify their objectives in their own minds, and carry them in the direction they

have wished to go. To illustrate—it is a fallacy to assume that the people of Germany are better than Hitler, that he has led them astray. Rather, he has merely crystallized their inner urgings and has held them in the direction they have wished to go.

So much for the broader phases of the problems of leadership. Let us now apply the problem to our own specific situations as part of the military service.

First of all, our *position* of leadership has been imposed upon us. Leaders, or gentlemen, cannot be made by an act of Congress. Nevertheless, just as we must recognize our responsibility to *act* as gentlemen, so must we recognize our responsibilities to *act* as though we are leaders, even though, in fact, we may not be.

The second point to consider is the cause for which we are striving. It is not given to us as Army officers to be leaders in the grand sense and for great causes. To make our problem more difficult, there has been a basic failure on the part of the American people to recognize their broad national objectives. We are in the midst of a revolution in our thinking on economic and social problems, as well as military ones, and our thinking has not yet crystallized. Our military objectives are awaiting the crystallization of public opinion along economic and social as well as military lines. Until our national objectives are determined by the people themselves or through stimulation by national leadership or by other causes, we must limit our immediate objectives to our own military situation. Although we cannot hope to regenerate the human race, we still have a broad field of activity for leadership in doing our particular jobs better than anyone else does, in order that the final objectives may not be jeopardized. The West Point motto: "Duty—Honor—Country" should summarize our cause adequately for our purposes.

The next point is the need for a crusading spirit. Although the country as a whole may not yet have found its broad objectives, we should find sufficient inspiration in attempting to do our share to perpetuate democracy. Democracy is itself a thing of the spirit, which we can feel but cannot define. We may contrast it with totalitarianism. The people of totalitarian countries pride themselves on their strength, toughness, and general superiority to peoples of democratic countries. As a matter of fact, they are weak, for they have abdicated the freedom which the individual has wrested from nature during a million years of slow development, and they have given it to the control of a handful of ruthless men. This small group of willful leaders constitute a thin outer shell surrounding an unsound core of a people who have abandoned themselves completely to being led. Once that outer shell of leadership is punctured, the country itself must fall.

In a democracy, on the other hand, power emanates from a sound inner core and spreads outward as a living force. So long as the interior is sound, it makes little difference what particular group of individuals occupy positions of authority at the outer surface. If the surface

be penetrated at one place, the safety of the country need not be impaired. In the one case the people are worked upon, are being guided. In the other *they* are working, and guiding themselves. The perpetuation of democracy, to which we in the Army are committed, certainly should serve as justification for our full efforts.

The Army of the United States is a democratic army and must apply democratic principles in its leadership. Although we may be unable to define leadership, we may still list a number of qualities which the Army has come to regard as essential to leadership.

Some of the basic characteristics of leadership are summarized by Mr. H. Gordon Selfridge of London, who differentiates between the boss—one who commands—and the leader, as follows:

"The boss drives his men; the leader coaches them.

"The boss depends on authority; the leader on good will.

"The boss says 'I'; the leader says 'We.'

"The boss says, 'Get there on time'; the leader gets there ahead of time.

"The boss fixes the blame for the breakdown; the leader fixes the breakdown.

"The boss knows how it is done; the leader shows how.

"The boss makes work a drudgery; the leader makes work a game.

"The boss says, 'Go'; the leader says, 'Let's Go!'"

Let me suggest the following qualities of the military leader to supplement the summary of Mr. Selfridge:

Vision: The leader must have vision, insight, intuition—call it what you will—to enable him to grasp the significance of the cause for which he is striving, and to appreciate and anticipate the many factors which bear on the success of the cause. The leader must always have the answer to the fundamental question in an estimate of the situation, "What is my mission?" and must have his plans completed in advance, to the last detail, to accomplish that mission.

Knowledge: The leader must have a thorough understanding of his job. He cannot afford to be in error. Unless he knows what he is talking about, his prestige is soon destroyed in the eyes of his followers.

Force: He must have tenacity of purpose, an inner drive, a personal magnetism. He must be a self-starter who can set his followers in motion. He must be the magnetic coil to magnetize his followers. He must stand alone and not, himself, expect to be magnetized from without.

Courage: He must have physical and moral courage. Many a leader outside the Army has been a physical or moral coward. The Army leader cannot afford to be either. Above all, he must have moral courage. Many a man who would scorn to desert in the face of the enemy, deserts in the face of moral opposition. Physical desertion can be observed and thus brought under control by public opinion. Moral desertion is hidden. Moral cowards are like termites hidden in the woodwork, who

undermine the entire structure. *Failure of moral courage shows lack of faith in the importance of the cause.*

Decision: The leader dares not vacillate. Courage, knowledge, and self-confidence are necessary in saying "yes" or "no."

Tact: This quality is offered with hesitation. In the Army, *tact* too frequently has come to mean subservience; tact is expected only from the junior to the senior. A man of force is seldom considered a man of tact. Ordinarily, tactlessness is nothing but rudeness. In a broader sense tact towards both seniors and juniors is important in a leader. Tact cushions the impact of the force of his leadership upon reluctant minds. The leader must determine whether in the long run success can best be obtained by cushioning the force of his leadership, or whether it can best be obtained by striking with all his power.

Judgment: The leader must have judgment to determine the best means of accomplishing his mission. Since most of us cannot be leaders in the grand sense and can lead only within circumscribed limits, and then chiefly with subordinates, we must be able to recognize the fact that a point may be reached beyond which, with all of our force, we cannot go without sacrificing the mission itself.

Knowledge of psychology: The leader must have an insight into human nature. He must be a practical psychologist and must know men. He cannot influence people if he does not have a deep understanding of what they are and how they are motivated.

Delegation of authority: In delegating authority the leader demonstrates his knowledge of psychology. He cannot do every man's job. He cannot expect to be the horseshoer in every troop or the clerk in every office. In delegating authority he stimulates the self-confidence of his subordinates. Delegation of authority implies the ability to organize the efforts of subordinates. From the standpoint of accomplishment of the cause, the value of delegation of authority cannot be overestimated. The unaided efforts of the leader can accomplish little. He must look to others for power. Delegation of authority increases the total power behind the cause in geometric ratio.

Loyalty: The leader's first loyalty is to the cause. Loyalty to a superior in his official status is implicit in loyalty to the cause itself. One cannot advance the cause unless he extends loyalty to those above him, or to his subordinates as well, upon whom he must rely to further the cause. He should not assign to his subordinates tasks beyond their abilities, which end in discouragement. Once having assigned a task, he must give his subordinates moral support and back up the decisions which they may make in his name. He should never require his men to do any task which he is unwilling to do himself.

Interest in Subordinates: The leader must have a generous and sympathetic interest in his subordinates. He must look after their welfare, stand between them and

the outside world, and defend them against raids upon their welfare from outside sources. The leader is the chief of the tribe. To him the subordinates look for guidance and protection. Instead of criticising them eternally, he must show appreciation of their efforts. He does not whittle them down to a smaller size nor make them appear less in their own eyes. Only a small man indulges in whittling. If you whittle a man down, you are whittling him down to *your own* size. Build him up! Tap the unreleased resources of the individual, and he will grow to a stature which will add to your strength.

Justice: The leader must be just. He must give equal treatment to all. He cannot show favoritism to his golf or poker partner. He must act only on the basis of facts, and with logic. No problem can be solved with the emotions. Anger in the leader is a sign of weakness. Injustice rankles forever.

Personal Dignity: The leader must possess innate dignity. He should not be unduly familiar with his subordinates, since familiarity breeds contempt. He need be neither sticky nor snobbish. He can be a friend to all, but to a degree he must keep himself to himself.

Selflessness: Leadership cannot be exploited for personal aggrandizement. One may symbolize a cause, but the cause must be greater than himself. Only by advancing the cause can stature be acquired by an individual. One of the most detestable individuals in the Army is the petty politician who considers that the entire system functions for his personal benefit. Placing self before the cause destroys the cause.

Personal Integrity: The Army leader must have personal integrity. Al Capone was a leader without accepted standards of personal integrity. Such leadership the Army cannot tolerate. We still expect truthfulness, honesty, character.

Discipline: Men like the commander who is severe but just. But discipline is obtained by leading, not by driving. Too many courts martial, too many "explain-by-indorsements" are signs of the inefficient officer. In fine, the leader must lead, must command, must exact the last effort from his subordinates, but must be just.

These are but a few of the many qualities which might be desirable in a leader. The line of differentiation between those qualities which go to make up the leader and those qualities which go to make up character is thin. Any one possessing all of the eighty-three qualities listed by Colonel Bond would indeed be a superman. The only leader who might be considered as possessing them all is General Lee.

In conclusion, let me emphasize the point that since it devolves upon you to be a leader, *be one*. If you are indeed a leader, within you lies the force which must animate others. *But you must turn on that force*. Of what use is electricity if you do not turn on the switch? Never hesitate to assume leadership. If you are a real leader, men will instinctively follow, given the opportunity.

Communications Notes

*By Captain John W. Hopkins**

COMMUNICATIONS may be defined as the impartation of intelligence from one person or agency to another. Military communication systems strive to accomplish this action speedily and without divulging information of value to the enemy.

The accomplishment of speedy communications may be said to depend on four factors:

1. Trained technical personnel.
2. Properly maintained equipment.
3. Careful selection of the agency which is to be used in the transmission of messages.
4. Care on the part of commanders in preparing the message which is to be sent.

Operating personnel can be considered trained only when their every action during the operation of their equipment is designed to speed traffic through their hands. Unnecessary radio traffic, the exchanging of conversation or superfluous procedure signals indicate untrained, and even worse, unthinking, operators. Radio personnel are too often observed cluttering the air with the bromidal ZSG—"What's my readability"—call simply because no one has communicated with their stations for 30 minutes. This obviously is intolerable.

The radio operator who knows his equipment and his job can often do the impossible. A piece of wire, weighted and thrown over a tree makes a far more efficient antenna than the standard "fishpole" type used on vehicles. Range of communication is thereby increased. One hundred fifty feet of wire stretched in the form of a V and suspended from the ground by a tent pole at each end and the mast base of the vehicle at the apex will form an antenna which will concentrate a signal in the direction in which the V points. Good operators know and achieve much from small things such as these.

Messengers, too, should be soundly trained, intelligent individuals. The dependence which is to be placed on them will be great. Only the more intelligent men are suited to finding their way by map and to thinking as quickly as will often be required of the messenger.

Proper maintenance of signal equipment is contingent upon frequent inspection and the proper performance of "first echelon" maintenance. Minor abuse of radio equipment, such as improper handling of key, microphone and headset cords, and failure of operators to understand such minor operations as changing tubes, account for a high percentage of equipment failure. Lack of realization of the fact that the light SCR 510

and SCR 536 sets are fragile equipment accounts for much of their breakage and failure.

Selection of the agency which is to transport a message serves the purpose of conserving the more rapid agencies for messages demanding quickest dispatch. Administrative messages should as a rule go by means other than radio. Where distances are short, a dismounted man or a mounted messenger can accomplish delivery as rapidly as can any other means. Advantage should be taken of scheduled messengers, covering stated routes at stated time intervals and handling messages of secondary importance.

Commanders should exercise care in the classifying of messages and an urgent (O type) message must be urgent *with relation to other traffic sent*. Unnecessary words should be deleted from messages. A good tactical radio net can handle only twelve short messages per hour under most favorable conditions. The operators are often slowed by poorly printed or unprinted messages.

Irrespective of how sent, all messages are subject to hostile interception. From realization of this fact the originator of a message should, as the person responsible, see to its safeguarding by codification if it contains any element of information of value to the enemy. Conversely, however, a message of no value to the enemy should be sent in clear to spare the time involved in its transmission. Generally speaking, messages of the following types may be considered of no value to opposing forces:

1. Messages that report enemy information.
2. Routine messages that give no information of location, disposition or size of own force. Example: "At scheduled location, negative report, continuing mission."

Under no circumstance should clear text and code be used in the same message. This practice clearly gives a clue to the code or cipher used.

Wire communications are of course subject to tapping, but their use, *per se*, does not give away the presence and locations of troops as does the use of radio. Only a small amount of equipment and skill is required to place the rough location of a set of any appreciable power. The Germans, in realization of this fact, maintain complete radio silence within their armored units until contact is made. At this time radios go into action on voice and without attempt at cryptographic precautions. The theory of this operation is that information gained from interception at this time is inopportune.

*7th Cavalry.





This scene shows an all too familiar figure (in recent maneuvers)—the bridge guard who had been hastily posted and given certain orders that no one was to pass without proper recognition. Is he faithful? Foolish? How long would he survive with Japs or Germans in the vicinity?



Maybe the enemy would think erosion caused these tracks leading into a unit's bivouac—maybe he wouldn't. This is what happens when trucks are allowed to move into a bivouac area at random. An enemy reconnaissance plane could spot these and his follow-up pals certainly would destroy whatever unit and vehicles are hidden in the wooded area.

WHAT'S WR

THE pictures accompanying this article were actually shot during the 1942 Louisiana and Tennessee maneuvers—not during the 1941, nor 1940, nor 1939 maneuvers, but during the 1942 maneuvers—more than six months after Pearl Harbor. They show failures in fundamental training that must be corrected. The pictures should strike home and make us wonder why the mistakes occur and reoccur. What is wrong? The failures are many, as you can readily see; but where does the responsibility lie? What are the “why’s” behind these pictures.

The officers and men who commit these flagrant mistakes are not conscious of real bullets overhead, or of real bombs from planes, or of real shells from enemy artillery.

The reports of our own units in action in the Southwest Pacific, of our Allies on the Russian Front, of our own units and Allies on the North African Front, continuously emphasize the necessity for rigid, realistic training. Maneuvers are to war as football scrimmages are to the “big game.” If fundamentals are not constantly insisted upon, checked, and rechecked, the plays will fail at the critical moment and the game—battle—will be lost.

Realism was lacking in former maneuvers because we lacked fighting incentives. That lack no longer exists. We are at war, confronted by ruthless, capable enemy fighting machines. Our troops are now equipped

★The Cavalry School.



ONG HERE?*

with modern, efficient equipment, an adequate air force, and armored vehicles, the equal or better means than those possessed by our enemies. There is no longer reason for the lack of realism in the 1942 maneuvers that caused men to be haphazard about simple fundamentals of soldiering.

Are these mistakes made because of a lack of explanation, or is it plain indifference to the situation? Is it due to improper training, or poor discipline that causes men to "fumble the ball"?

The game of football, whether it is played on a sand lot, on a high school field, or in one of our great stadiums, teaches everyone—the spectators as well as the players—the fundamentals of protection, of offense, of defense, and of well coördinated team play. This war is a far greater game. It is the real "big game"—the game that all soldiers look forward to. And we must be certain that the bad habits that to date have characterized our practice sessions—maneuvers—are corrected immediately. Because carelessness, indifference, a moment of forgetfulness, a lapse of one second, will mean only one thing—useless, unnecessary casualties.

This is 1943 and another December 7 has passed. We must check and recheck to insure that in every field exercise every individual, group, and unit is realistic in all phases of their training. The bad habits that show in training, in maneuvers, will not kill Japs or Germans—they will bring about the useless sacrifice of American soldiers!



Examine the photographic record depicted here. Did the men realize that an enemy tank coming up the road could also shoot? Why weren't they protecting their weapon and themselves by using proper cover and concealment? Why didn't they move their prime mover far enough away from their weapon so that one enemy artillery shell could not blast the entire team out of the picture?



What about the job of jamming up? This picture was taken 500 yards from the front line. What would one lone strafing plane do to this entire column? We have read and reread about enemy and allied convoys and trains being wiped out because of close columns, but here is an invitation to just such disaster.



— And What's



What caused the commander of this scout car to park his vehicle near a conspicuous landmark—an oil well? Units detrucking, bivouacking, and assembling around conspicuous terrain features would make an easy mark for hostile artillery.



Here was a common occurrence during maneuvers when the action was a short distance away. An observer noted that this disposition was maintained, unchanged, for four days. Why did this happen? Was the junior officer or noncommissioned officer in charge unconcerned with this unimportant bridgehead protection for four days?



This group of uncamouflaged vehicles closely grouped is the fault of someone. Are these men afraid of the chiggers and ticks that are waiting in the woods behind? Are chiggers and ticks more difficult to face than the real bullets, bombs, and shells that certainly would fall on this C.P.?



What about this artistic job of camouflage? The men have concealed the truck but certainly have failed to camouflage the trailer. A job partly or carelessly done is an invitation to disaster!



Wrong Here?

The three rifles leaning against this bridge may be booby traps. Doubt it? Maybe the men are just plain boobs and preferred a swim in the water beneath rather than carry out their orders. Three Jap snipers or three German snipers could learn to handle our Garand M1 Rifle soon after they found these gifts.



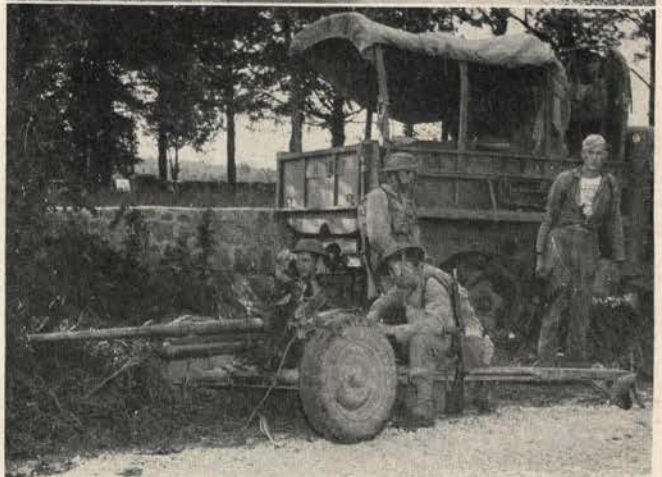
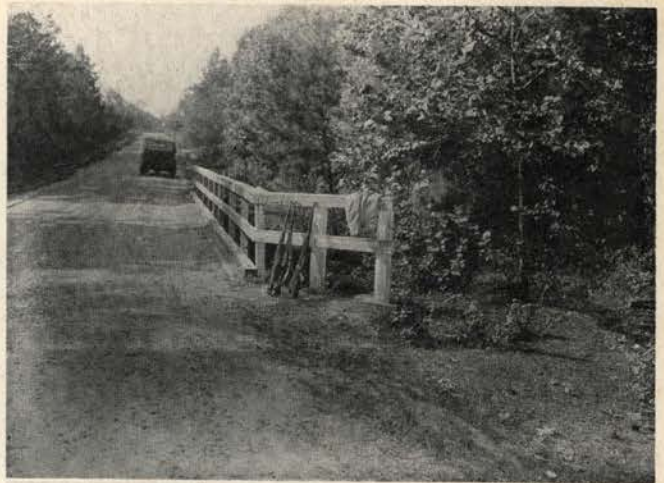
Did this machine gunner want to make it easy for the enemy? What useful purpose did he serve, other than an easy target either to a hostile plane or sniper? A sleeper—hardly an alert American soldier.



Why has this man been allowed to keep the cover on his .50 caliber machine gun while his unit was engaged in combat up the road a few hundred yards? Did he think that he could uncover the machine gun, load it, and mow down the enemy if he had to go into action in a short time?



Has this antitank gun crew been properly instructed as to where to place their vehicle after unlimbering the gun? Have they been instructed to keep down—to keep busy—to remain everlastingly alert? In combat one moment of carelessness will mean useless prisoners or casualties and a captured or destroyed gun.



Identification of Armored Vehicles

*By Captain Stanley Armstrong, F.A.**

AMONG the subjects that the Automotive Department of the Tank Destroyer School has to teach is a fifteen hour course in tank and armored vehicle identification. Every student who passes through the school has to take this course.

The purpose, as the Tank Destroyer motto reads, is to "Seek, Strike, and Destroy" the enemy's tanks and armored vehicles. The hours spent on gun drill are of little avail if the gunner is unable to tell an enemy from a friendly vehicle. The moment spent in hesitation may give the enemy the first shot.

There are three field manuals of value as a beginning in armored vehicle identification—F.M. 30-40, which deals with U.S. Armored Vehicles; F.M. 30-41 on British Armored Vehicles and F.M. 30-42 on Armored Vehicles of Germany, Japan, Russia, Italy and France. These manuals are not quite up to date, since new models have been produced by all countries since their publication. The manual on U. S. vehicles lacks, for obvious reasons, the specifications and characteristics of the pictured vehicles. These manuals present a start, but they do not contain anything definite on the identification of armored vehicles as a subject.

There are two training films on armored vehicles—TF 11-382 (Know Your Enemy—45 minutes running time) which deals with German vehicles, and TF 11-383 (Friend or Foe—60 minutes running time) which covers the British vehicles.

The film pertaining to the German vehicles does not

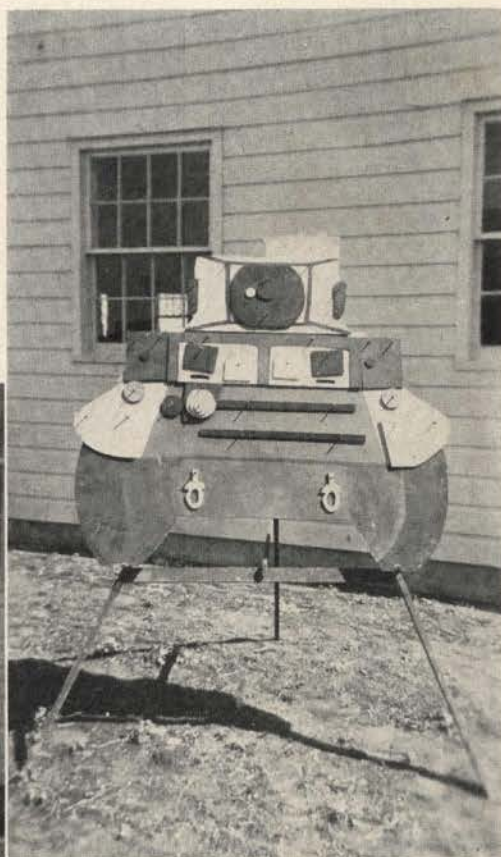
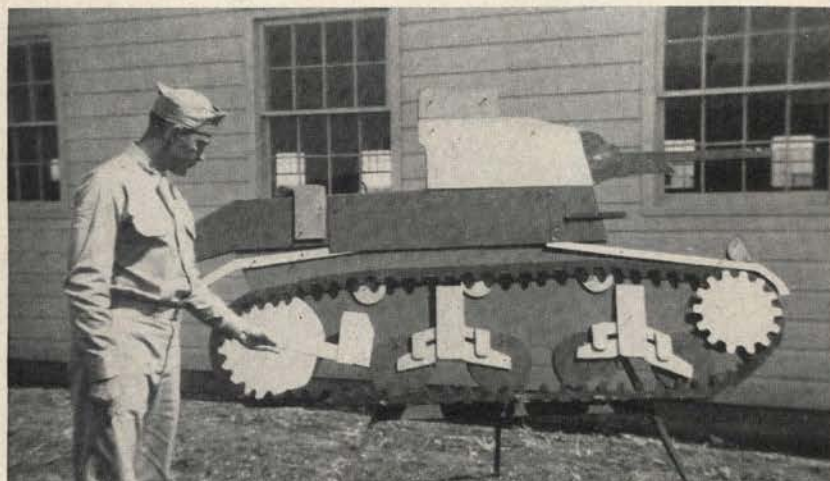
stick to vehicle identification but includes, also, information on the guns and other equipment of the German army. TF 11-383 covers the British armored vehicles very well, although some of the types shown are now obsolete or outmoded.

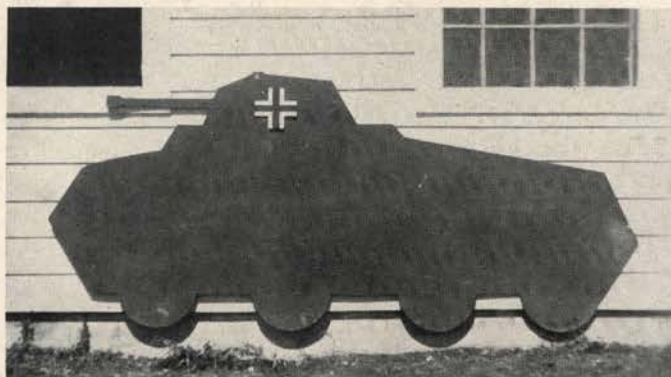
Following is a tentative outline and break-down of the course:

1. Brief history of armored vehicle development, and nomenclature of the main parts of an armored vehicle—especially tanks. 1 hour.
2. Discussion of the general characteristics, visible features, operation and maneuver characteristics, and characteristic sounds of armored vehicles.
3. Discussion of the U. S. armored vehicles in which differences and characteristics are presented with the aid of a balopticon projector and pictures from F.M. 30-40 and clippings from magazines and newspapers. 2 hours.
4. Discussion of the British armored vehicles presented in the same manner as in number 3 above. 1 hour.

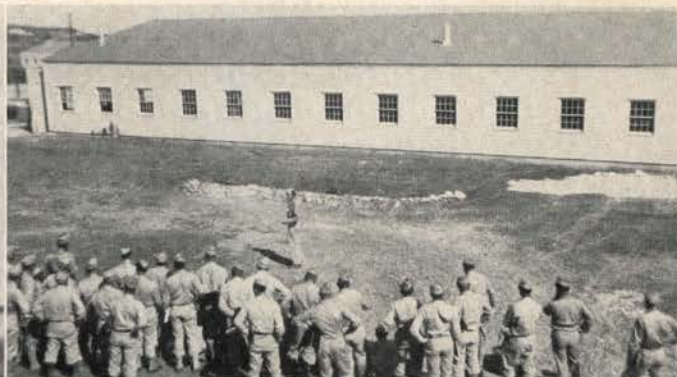
*Automotive Department, Tank Destroyer School.

Effective Tank cut-outs are made from plywood, cardboard and linoleum.





Tank silhouettes are made half the size of the real vehicle.



The 45-yard track is curved so that the student gets a side, front and rear view of the model as it passes by.

5. Showing of TF 11-383 on British vehicles. 1 hour.
6. Discussion of the Russian and French armored vehicles. 1 hour.
7. Discussion of the Italian and Japanese armored vehicles. 1 hour.
8. Discussion of the German armored vehicles. 1 hour.
9. Showing of TF 11-382 on German vehicles. 1 hour.
10. A four hour period—two hours of which are spent viewing small scale models and filling out a mimeographed characteristic key chart on each vehicle; the remaining two hours are spent outdoors viewing the models and silhouettes as they move along a track. 4 hours.
11. Graded Test. 1 hour.

For the course on the history of armored vehicle development, first the encyclopedias of the local library were scoured and this information consolidated with that obtained from "The Fighting Tanks Since 1916"—Jones, Rarey, Icks (a good book which will give background to any tank "identificationist"). Balopticon slides of selected prints are used in conjunction with the lecture.

It is important that the student have a knowledge of the nomenclature of the more common parts found on armored vehicles—especially tanks. So a side and front view of our M3 light tank were cut out of plywood. With these as the foundations, the tank progressively takes shape before the eyes of the students as the colored, cut-out parts are placed in their proper location. The parts are named, as the lecture progresses, either by the instructor or by a member of the class. Bolts in the foundation and holes in the parts make the latter "stay put."

The basis for the hour on general characteristics was found in Section I, paragraph 5, FM 30-40. This lists the characteristic visible features, and mentions the operation and maneuver characteristics and the characteristic sounds. Using this list and adding others to it, we used the balopticon projector again to point out the general visible characteristics.

During this same period it was decided to show

briefly the training aids or sources the student has available to put on a like course when he returns to his unit.

The training aids that we show are listed below:

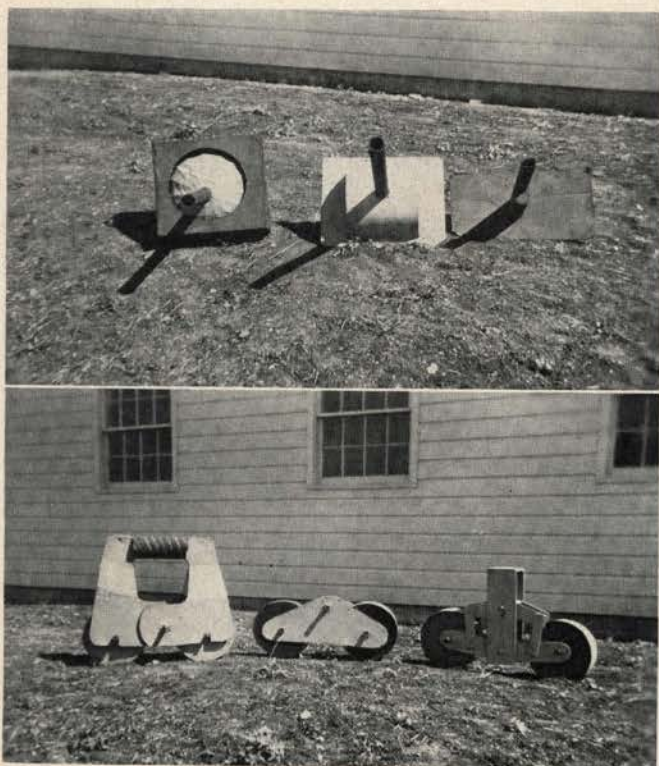
1. Linoleum or wood cuts.
2. Paper silhouettes and stencils.
3. Newspaper and magazine clippings.
4. Drawings and paintings.
5. Government charts.
6. Lithographs.
7. Reports of foreign observers.
8. Wooden silhouettes.
9. Mock-ups.
10. Small scale models.

Linoleum or wood cuts are very easy to make. Scrap pieces of linoleum can be had for the asking at any furniture or linoleum store. A silhouette of a vehicle is drawn on the linoleum, the portions not wanted are cut and gouged out, and when completed the linoleum is left with only the silhouette. It is then an easy matter to cover the surface with regular stamp pad ink and to make copies by stamping the cut on paper. The silhouette for a desired vehicle can be obtained from the listed field manuals or from pictures and can be "boosted" to the size desired.

Paper silhouettes cut out of colored paper and placed on contrasting colored paper prove a cheap but effective means of putting across a course.

A somewhat different silhouette can be made by using the above type silhouette as a stencil and spraying it with ink or paint. We made a very neat little "spray-gun" by filling a perfume atomizer with ink. When the ink is dry, the cut-out silhouette is removed, and its pattern is left on the object sprayed.

Newspaper and magazine clippings of vehicles can be collected and used in giving the course or can be pasted in scrapbooks according to nationality or they can be mounted on boards. All members of a unit can collect and look for pictures. They will find themselves, after a few hours of instruction in the course, trying to identify or recognize a pictured vehicle before reading the caption under it. We obtained some very excellent pictures by writing to some of the commercial photo agencies.



The various types of gun mountings are made very easily from some old mailing tubes and cardboard boxes.

Drawings can be made by some of the more talented members of the unit. By the use of a little color some very artistic and colorful drawings can be made and placed to good advantage in dayrooms or the mess halls. It is not necessary to have Leonardo da Vincis to accomplish this.

The Government Printing Office in Washington, D. C. puts out two charts (1941-0-200667) each entitled

"Don't Fire on American Tanks."

One of the charts shows our own, allied and enemy light tanks. The other chart deals with the medium tanks. Again, these charts have become outmoded, as new models have appeared since they were printed.

The Corps Area Engineer may be able to furnish lithographs of the vehicles appearing in the field manuals. We obtained some 2' x 3' lithographs in this manner on the U. S. vehicles. These lithographs can be used in the event a balopticon is not available for use and can also be hung in dayrooms or points of assembly.

Reports of foreign observers very frequently contain information which will prove of value in the course. If nothing else they keep you posted on the various types of vehicles being used by the warring nations.

The wooden silhouettes can be made of plywood, tin, scrap wood, or similar material. They can be made to any desired size by "blowing" up the desired vehicle as pictured in the Field Manuals listed, with the balopticon, and tracing the projection directly on the material it is to be made from. All of our silhouettes are

made half the size of the real vehicle. They can be placed to advantage by the mess-halls, the Post Exchange and the like. We place some of ours near the entrance to the mess halls and change models every two or three days. The silhouette is either named or some sort of distinguishing mark placed on it.

The different kinds of suspension systems or linkage used by the various countries can be made in a like manner from old cardboard and scrap lumber. A little paint adds color and helps to preserve the mock-up.

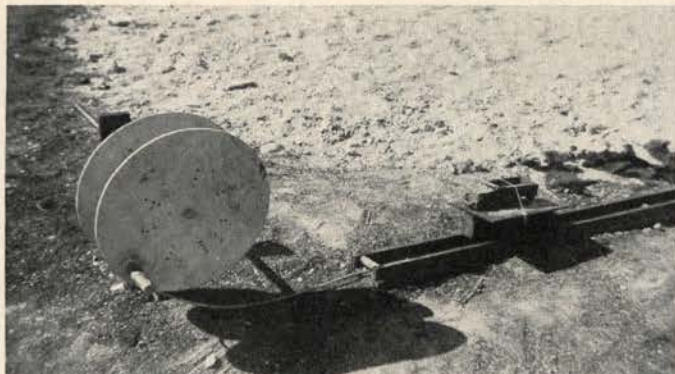
If you desire—you can build actual size mock-ups of the vehicles. These can be made so that they can be placed on vehicles for mobility or made only for the purpose of display in prominent places. Again—scrap lumber, tin and cardboard will serve the trick.

Last, but not least, are small scale models which can be built. We made our first ones out of old cigar boxes and thread spools with the aid of a coping saw, a pocket knife, a hammer and glue. Our first models were made entirely from the few pictures we may have had on the vehicle but, surprisingly enough, they are fairly accurate and serve our purpose. The models do not necessarily have to be made out of wood. The Tactics Department, for example, at Fort Knox, Kentucky, has cast some of the models. Our latest models are made on a scale 1:16. All of the units have a few hand tools and some even have power tools. With a little time and ingenuity these models can be made. Once they are made, they can be used time and time again for review or for new instruction.

The two hours on United States armored vehicles



Once made, miniatures can be used again and again.



The models are placed on a flat car which is pulled along the track by means of ropes fastened to the model at one end and to a windlass at the other.



A windlass and an operator are employed at each so that the silhouettes can be moved in either direction on the track.

are divided into one hour of conference and a one hour period during which the small scale models are studied. During the hour conference, the balopticon is used to project pictures of U. S. vehicles and the characteristic features of each model pointed out. (In regard to the pictures used in the balopticon—it has been found advisable to mount the pictures on thin cardboard or Bristol board. They withstand wear better and are not affected by the blower in the machine.) The second hour is devoted to a close hand view of the small models. The class is divided into groups so that not more than ten students are placed at a table which has a model on a turn-table in the center. The students have five minutes to study each model before getting a different one. During this time, they are required to fill out a mimeographed key characteristic chart on the vehicle—the purpose of which is to make the student look for the salient items which will aid in recognition—such as the type of suspension, turret, location of guns, etc.

The remaining conference periods on the British, Russian, French, Italian, Japanese and German armored vehicles is given in the same manner as the conference on the United States' vehicles. The two training films are given at the time shown in the outline.

The four hour period amounts to a review of all of the vehicles covered. Two hours of it are spent studying the small scale models and filling out the key characteristic charts as was done when the United States' vehicles were studied. The last two hours of the period are spent outdoors viewing the models and the silhouettes as they move along. We have built a 45-yard-long track out of wood which we use to run our models on. It is curved so that the student gets a side, front and rear view of the model as it passes by.

An operator, a windlass, and half the models at each end of the track enable us to run the models in both directions.

Actual size-appearance of the vehicle is accomplished by forming the students some distance away from the track. For example, a model built on the scale 1-16 would give the same impression to the observer 62 yards away as the actual vehicle would at 1000 yards away. A member of the class is called on to recognize the model as it travels along and to give the class his reasons for recognizing it as such. Large classes can be held at the same time with this method and the students find it extremely interesting.

We use much the same procedure with our half size silhouettes. In this case the track has to be much wider and the flat-car much larger. An old piece of pipe fixed vertically on the car gives support to the silhouette and prevents it from falling or blowing off.

The graded test given over the subject does not require the student to give model number or even the country to which a particular vehicle belongs. It is conducted by passing out unnamed, unnumbered pictures of vehicles belonging to all nations so that each student has a picture with which to start. The student is allowed to study the pictures for 15 seconds. During this time he is required to check on the test paper whether he would or would not fire on the vehicle in question. At a given signal the pictures are rotated every 15 seconds so that every student eventually sees all of them and checks the proper column on his test paper.

The subject is one which is definitely important. It offers unlimited possibilities. There are always new models to be made, new ideas to be worked out and the field is still new and ready for further developments.



Another article of particular interest to tank destroyer units will appear in the March-April issue of *The CAVALRY JOURNAL*.

HORSE BREEDING[☆]

By Colonel Emiliano Fernandez Salaza, Cavalry, Spanish Army

THE select production of horses and mules in a nation is of manifest importance for the national economy and especially for its defense and its agriculture. That is the reason why, although with distinct modifications, all governments supervise this activity through official organizations, which indicate with uniform doctrine the indispensable directorate for the best efficiency in its development and improvement.

The natural aspiration of the stud and horse-breeding farms of the government is to obtain the best products of races recognized as improved with guaranteed pedigree, racial characteristics and excellent general conformation which, selected by tests, can be expected to be good for breeding.

It is impossible to expect so difficult a mission of the private stables in general which do not have at hand the technical personnel nor the economic resources which the government can count on, but it is obligatory that they aspire to make their breeding and production desirably efficient.

SELECTION AND APPRAISAL OF BREEDERS

The basis of all improvement in animals in general is to use the best breeders, and those of characteristics adequate for the use and service to which their descendents are destined.

As to the equine species specifically, it is indisputable that it would never be sufficient to qualify a presumed breeder on his pedigree, nor individuality, if his physiological development is not previously guaranteed by a test as adequate to his race or aptitude.

Thus, the pure English blood was attained not only by the purification of its ancestors, but also by the studied mating of the same; the care with which the animal was attended in his food, exercise and hygiene from the time of its birth; and finally, by the selection by test on the race tracks.

The traditional Arab owes his fame to the guarantee of purity of race demanded of the breeders, to the work exacted of them, proof of his agility, sobriety and resistance to fatigue, and also to the pastures and climate peculiar to the geographic area where it originated.

The equine species with characteristics of aptitude for draught, (recognized in Spain as of greater utility for agricultural service and horse-power traction in general) are known to have been obtained through cross-breeding and mixed breeding effected, under the influence of a favorable medium, climate and pasture, by a careful selection of the breeders in point of view of characteristics of general conformation appropriate and

proved to be transmissible to its descendants. This procedure has formed families of well defined and uniform characteristics. Qualified as were the breeders in function of the quality of their descendence in point of fixed desirable characteristics, it was practicable to begin the edition of pedigree books with guarantees of efficacy.

We are obliged to follow such an example, not only for its effect on the national production of draught horses of the agricultural artillery type, but also of male jackasses in the known varieties such as Catalan, Leonesazamorana or Andalusian (whose utility and firmness of racial characteristics are manifest in determined territories of our peninsula).

In short (well known as the quality of a breeder's pedigree may be) it is undoubtedly the note which deserves higher coefficient for its proof, as is also its degree of fertility.

The castration of horses of bad characteristics, defective conformation, or with transmissible defects is inevitable, because their utilization for breeding purposes is very harmful for the development of horse breeding.

MATING

The conformation and characteristics of the mare in regard to weight, profile, proportions, energy and temperament should be in accord with those of the stallion. When there is antagonism between them, it goes far toward making the offspring a disharmonic animal indisposed to give the desirable efficiency of work.

It is a manifest error to suppose that mating a stallion possessing a certain failing through defect, with a mare which has the same failing through excess, will result in neutralizing the failings in the offspring.

The conformation of the pelvis in the mare is of the greatest importance, because a great number of dystocia or abnormal parturitions are caused by its small dimensions.

In the higher species of the animal kingdom there can be no fecundation without ovulation. It is recognized that as regards the mare and the she-ass the duration of its true heat in general does not exceed eight days, and that ovulation takes place days after the apparition of the heat.

It is not wise, therefore, to present the mare to the stallion at the appearance of the heat. Experiments performed have demonstrated that the greater percentage of fertilized mares have resulted on the fourth or fifth day.

The mare customarily receives the stallion on the ninth day of parturition. The period best suited to the

[☆]Translated from *Ejercito* (Spain) for The CAVALRY JOURNAL.

success of fecundation is therefore from then up to the fifteenth day.

The mares dedicated to reproduction should be the object of special care during pregnancy. The period of gestation is approximately eleven months and ten days.

The most common causes of abortion are blows, inadequate food, such as pastures covered with dew (especially the artificial pasture grounds and alfalfa fields), excessive work, and sicknesses and infections. Among the sicknesses is the very dangerous durina, or disease of coition which causes so many ravages because of delay in proper diagnosis.

Fecundity and quality of pedigree, together with her morphological and racial characteristics, are the determinants for judging the deserved mare.

The methods of reproduction are:

a. By *consanguinity* which is that obtained by the mating of breeders of the same family.

b. By *selection*, mating of individuals of the same race.

c. By *crossing*, mating of individuals of different races. The improving one is called crosser; the one to be improved is called crossed; the resulting product is called crossed or hybrid.

d. By *interbreeding*, which is the mating among themselves of the individuals resulting from crossbreeding.

e. By *hybridation*, which is the sexual union of breeders of the same genus, but different species; the products obtained from hybridation are in the equine species infecund except for abnormalities.

In the animal or vegetable species in general, the characteristic of hybrids can be absolute infecundity, bilateral or unilateral; that is to say, they can be impotent or digenic. In this case the female hybrids can be mated with males of one of the lines from which it is descended, and give birth to fecund offspring capable of reproduction "inter se" without being able to hope that such offspring will have characteristics of conformation both uniform and peculiar to the first mating. For this reason this method of reproduction has interest only in the utilitarian aspect and not in the zootechnic aspect.

We know that consanguinity is the reproduction of living beings brought about within very narrow limits of relationship.

Zootechnic authority Sanson expressed his judgment by saying, "Consanguinity raises heredity to its highest degree of power." It is manifest that if sexual divergences which neutralize the hereditary potency of the breeders are eliminated, the result will be the convergence of the action of said powers and the accumulation in the product itself of the bad as well as the good qualities of the parents; and as they cannot be exempt from any defect, it is necessary to take that into consideration.

Example of the highest degree of consanguinity that we have is that of plants which reproduce by self-pollenization, and in them degeneration is manifest in the

course of a few generations. This is indicated by *gradual debilitation, smaller production of seeds, and greater susceptibility to diseases* whose damage grows until the fifth generation and establishes itself thereafter. Experience has shown that if during consanguineous reproduction a crossing is made with an individual free from the degenerate forms, the descendants will return to the normal state of the original forms.

The above refers to general cases, for it is known that there exist species *immune to consanguinity*.

In any case we believe that the horse breeder can continue to allow consanguineous but not incestuous mating so long as there does not appear in the offspring any characteristic which would make it compare unfavorably. Then it is obligatory to refresh the blood, or better said, renew the blood by using a breeder of separate family, although of equal race, if this method of reproduction is desired.

It is known that the original stock of pure English blood were the *Byerley* (Turkish), *Darley* and *Godolphin* (Arab) horses, imported to England; the first, in the 16th century, and the others in the years 1712 and 1731 respectively. Stallions were crossed with native mares and thus also with their female offspring. The system of consanguinity was followed on the basis of a careful selection until the fourth generation. Later, the advantages of consanguinity having been obtained, in order to avoid the serious difficulties of the very near and repeated consanguinity, various families were formed by using breeders of a near stock and by pursuing the unification of characteristics without using narrow consanguineous unions.

The examples cited were ancestors on the paternal side of the present *race horses* and direct ancestors respectively of *King Herod*, *Eclipse* and *Matchem*, heads of the famous *Studbook* (genealogical book of the *thoroughbred* race) the first volume of which appeared in 1808.

Eclipse, whose exceptional quality was universally recognized, was the son of *Spilletta*, daughter of *Regulus* and granddaughter of *Godolphin*.

Herod was also incestuous and to him is attributed the exceptional quality of his daughters.

Concerning the mares, historians disagree. Some attribute the most likely origin of pure English blood as the *royal mares* of King Charles II (1660).

REPRODUCTION BY SELECTION OR ELECTION

Reproduction can be *conservative* or *progressive* or *economic*. The names are descriptive of the characteristics of each. It should be kept in mind that the qualities more and more indispensable for a saddle horse destined for the mounting of the cavalry are those of speed, sobriety, resistance to fatigue, even temper, and good character.

The method of reproduction by selection consists of choosing and using those breeders endowed with the most perfect conformation in relation to the character-

istics peculiar to their race, provided that they have proved their capacity for adaptation to the territory or region in which they must produce and breed. The methodic and continuous selection, which is undoubtedly the surest method of improvement, suffers the inconvenience of being slower in its results than that of crossbreeding and mixed breeding; but it avoids the risks of other nature inherent to acclimatization and probable lack of harmony and uniformity of type in the offspring.

Naturally, although the utilization of the best breeders is necessary to the development and improvement of horsebreeding, it would not be sufficient unless the offspring are subjected in the years of their growth and development to an adequate diet, exercise and hygiene. As happens in the vegetable species, the selected seed will degenerate ostensibly if it is deposited in soil of incomplete composition in which the plant cannot avail itself of the elements indispensable to its nutrition and development.

LAWS OF HEREDITY

We shall confine ourselves in these lines to giving a brief note of names and refer to normal heredity without including pathology. They are: preponderant; bilateral; atavistic; homocron (characteristics which appear in the offspring at the age at which they are manifested in the parents); throw-back (which appears in the first age to the parents, and then, in the adult, to the indigenous); homotópica (detail or trait which transmits itself to the descendant in the identical region of the body); and heterotópica (when such an item is transmitted but in a different part of the body).

Finally we will point out the influence of determined breeders for the procreation of offspring of their sex and others for the transmission of color or characteristics of their coat.

DIET OF THE STALLION

During the time of fecundation, diet must be clean and abundant with a base of barley, oats, bran and hay, with preference given to natural pastures over alfalfa or clover. The fodder will be given in very small quantity and not to all the horses; and also, with great prudence, beans. Of manifest convenience are hay and bran with meal, and in certain cases hot feed, or *mash* made as follows: 200 grams of straw, 500 grams barley, 150 grams of bran of flaxseed, 80 grams of barley meal and 13 grams of salt. All of these substances are put in a wooden pail in the order of their greater specific gravity. Then is added boiling water to cover them. Cover with a cloth and, after letting it cool for three or four hours, serve it lukewarm.

This *mash* or hot feed—so beneficial to sick horses, those without appetite, or those that are undernourished or have bad digestion—should be given in place of the night feed once a week, with care not to exceed in the proportion of flaxseed because of its weakening effects.

In general, there can be used as base for rationing a

stallion of medium weight during the time of fecundation that of 6 to 7 kilos of barley and 11 of straw. Included in the latter is the amount necessary for bedding. To avoid the difficulties accompanying monotonous ration, it is advised that prudent changes be made in the food diet and that rational substitutions be effected with due consideration, of course, for the nutritive value of those administered.

A model ration can be that composed of 3 kilos of barley, plus 2 of oats, 6 of hay, 4 of straw and 800 grams of meal in hay with bran.

The barley given must not have been recently harvested and the weight must not be less than 52 to 54 kilos per hectoliter. As to the oats, it would be acceptable with 4 kilos less weight per hectoliter.

Water should be the object of extreme precaution; avoid the use of public drinking troughs which do not show extreme cleanliness.

DIET OF THE OFFSPRING

All efforts in behalf of the improvement of the horse breeds would be fruitless, if adequate rationing in quantity and quality is not accorded the offspring *exactly* in the age of their growth and development. To show its importance, some expert said, "Half of zootechnics is in the bin." This does not mean that the other half, no less important, which are the laws of heredity, are of inevitable fulfilment.

EXERCISE

Except in the pure blood, to which the male as well as the female must credit his aptitude in the hippodrome, in the other races or equine varieties the proof of aptitude (work) is different. It is necessary to have the proof before using the horses for breeders. The horse destined for this function of breeding should, outside the time of stables, accomplish work appropriate to his race and aptitude, for it is known that, "Vice is the sequel to idleness," and that, "The function makes the organ." Proof of this is the fact that if a horse of a breed adapted for draught is used only for saddle and in work requiring speed, his muscle stretches with detriment to its thickness, with the consequent modification of his form in general; whereas, if a saddle horse is used for drayage or cartage, the muscle shortens and increases in thickness modifying its elasticity and, in short, also the characteristics of general conformation of the animal.

As for the pregnant mare, functional exercise is also indispensable to her. If she lives a life of liberty or pasture, her instinct and her necessities will oblige her to take the indispensable exercise; but if her life is that of the stable, it is necessary that the work she performs be directed and rational. Nonobservance is the cause of numerous abortions equally as much as carelessness in things pertaining to hygiene and diet.

As to the colts, if in their early stages the program for pregnant mares includes them, from the age of two or

three years, according as they are of races with aptitude for draught or saddle, they should be broken and subjected to work through which it will be practicable to bring about the physiological development of which the animal is capable. It should not be forgotten that it is the period of its life most suited to the result pursued and if he is to be destined for a breeder the test of *work* is of the utmost importance unless it be wise to use as breeder an animal which has not been well qualified in it.

In *The Ruling of the Center of Training and Selection of Breeders*, subsidiary of *The Directory of Horse Breeding*, a detailed account is given on how much the selection is affected by the test of the future breeders.

HYGIENE

The private stables should bear in mind that the influence of the environment (climate, quarters, pastures, altitude and economic development) is manifest in the animal species which live and develop in one region. Corpulence, characteristics of conformation, temperament and sanitary disturbances show ostensible differences in different countries, and for that reason the variations or modifications appear in the *fenotype* of individuals produced in an environment and climate not similar to the geographic area which was the origin of their race or type.

Thus, for example, in a poor country with scanty pastures and poor in nutritive principals it is not wise to hope to produce, unless artificially, horses of great height and corpulence. One must be satisfied with obtaining sober, rustic well formed horses of smaller size.

If the influence of the environment is evident in the constitution of the animal it is unnecessary to point out the importance which the quarters in themselves have in regard to situation, size, orientation, ventilation, materials of construction, arrangement of windows, mangers, racks, etc., whether they be for adult animals of both sexes or for the breeding animals, as also the beds and situation of straw lofts, hay lofts, granaries, and finally the dung hills.

The mangers and racks must be subject to perfect cleanliness and disinfection.

GENEALOGICAL BOOKS

The primary purpose of genealogical books is that the buyer of a breeder may count on the guarantee, not only of the individual characteristics which appear in the presence and action of the animal, but also on the purity of the race of its ancestors with proved capacity for transmission of the former to its descendants through which can be estimated its ability to reproduce them without irregular variations peculiar to the mating of half-breeds and still more in hybridation.

Fenotype is similarity in the external characteristics on the whole and appreciable biological capacity; its transmission is problematical.

The *genotype* includes all hereditary factors received by the individual from his ancestors.

The *genotype* has characteristics of permanence in the descendancy, and the *fenotype* can be similar among individuals of distinct *genotype*.

In short, the *genotype* is transmitted by heredity and the *fenotype* not always.



The National Horseman

The Cavalry School of 1943

THE CAVALRY SCHOOL is operating at a tempo geared to the demands and pace of the high-speed war effort.

To anyone who knew the Cavalry School in its pre-expansion days, the increase in subjects, the number of students and the variety of courses will be amazing. Production line methods have been applied to training officer and enlisted students to fill the complex needs of modern cavalry. Instruction is intensely practical and directed to what the student needs to know under field and combat conditions. Courses are constantly and frequently revised to incorporate last minute information and methods of combat. Current courses at the Cavalry School are set up under a block system in which a prescribed number of courses are conducted in 12-week cycles. In any given 12-week cycle, the following courses are conducted as of January 1943:

In order that all cavalry commanders and individuals of the cavalry branch may know the type of training available at the Cavalry School, a summary of the scope and subjects taught in each course are given in the following paragraphs:

1. *Squadron Commander and Staff Officer Course.* The purpose of this course is to provide for selected squadron commanders and regimental staff officers of the horse or mechanized cavalry intensive instruction in up to the minute doctrine, tactics, technique and procedure, and to emphasize training in command, staff, and logistics, with special reference to the horse or mechanized squadron.

2. *a. Officers' Basic Course (Horse Group).* During this course cavalry officers are given detailed training to qualify them as platoon leaders of horse Cavalry.

b. Officers' Basic Course (Mechanized Group). This course is designed to train Cavalry officers by an intensified program of instruction to qualify them as platoon leaders of mechanized cavalry.

3. *Officers' Basic and Officer Candidate Courses* are divided into two groups, the horse group and the mechanized group. Approximately seventy-five per cent of the officer candidate and basic officer students receive instruction in mechanized cavalry and twenty-five per cent in horse cavalry.

a. Officer Candidate Course (Horse Group). Established under the provisions of paragraph 20 c (2), MR-3-1 and MR-1-4, this course is conducted to qualify selected warrant officers and enlisted men of the Army of the United States as Second Lieutenants of Horse Cavalry.

b. Officer Candidate Course (Mechanized Group). Established likewise under the provisions of paragraph 20 c (2) MR-3-1 and MR-1-4, this course is designed to qualify selected warrant officers and enlisted men of the Army of the United States as Second Lieutenants of Mechanized Cavalry.

4. *Special New Division Officers' Course, 2d Cavalry Division.* This course is a special one designed to prepare brigade, regimental and squadron commanders and selected staff officers and troop commanders for the activation of the 2d Cavalry Division early in 1943.

5. *Officers' Motor Course.* This course is designed to qualify officers for duty as squadron or regimental motor officers and as instructors in the operation and maintenance of wheeled and half-track vehicles and tanks assigned to the cavalry.

6. *Officers' Communication Course.* The aim of this course is to qualify officers in those subjects which will fit them for duty as communications officers.

7. *Enlisted Motors Course.* This instruction is given to selected enlisted men in order to produce skilled mechanics, capable of performing and supervising second echelon maintenance on all cavalry type wheeled and half-track vehicles and tanks.

8. *Enlisted Communication Course.* Enlisted men are trained in all types of communications procedure in the field.

9. *Enlisted Horseshoers' Course.* This course is set up to turn out students trained to perform normal shoeing in their units. The course is divided into eight general phases as follows:

- (1) Horseshoers' Tools and Their Uses.
- (2) Fire and Heat.
- (3) Working and Shaping Iron.
- (4) Anatomy and Physiology of the Horse's Foot.
- (5) Normal Shoeing.
- (6) Corrective Shoeing.
- (7) Shoeing Refractory Animals.
- (8) The Operation of and Welding with the Acetylene Torch.

10. *Enlisted Saddlers' Course.* The Enlisted Saddlers' Course at the Cavalry School is conducted to turn out efficient saddlers, capable of repairing leather, felt, and canvas equipment in case of emergency, and to make articles of leather, felt, and canvas which are not items of issue normally needed in organizations. The Saddlers' School functions under the Department of Horsemanship.

The methods of instruction include both practical and classroom work. Great stress is laid upon the composition of a notebook for ready and practical reference in the student's future work. In it the student records daily the various measurements, specifications, and drawing that he will need to refer to in garrison or in the field.

The following phases of work are stressed:

- (1) The correct use of Saddlers' tools.
- (2) The correct and economical methods of repairing equipment.
- (3) The correct modification of McClellan saddles, saddlebags, and stirrup straps.

(4) The care of leather equipment in the field and in garrison; also methods of cleaning and agents for cleaning and preserving.

(5) Methods of fitting saddles to horses of abnormal types and horses in a run-down condition.

(6) Characteristics of leathers, including the correct methods of cutting, fitting, and assembling new leather to old equipment to make it serviceable.

Material is provided for student shop practice (both textiles and leathers) by the Quartermaster under the Table of Basic Allowances.

In addition to enlisted students, both the Officer Candidate Classes and Basic Officers' Classes receive some instruction at the Saddlers' School. This consists chiefly of lectures and practical demonstrations of the agents for cleaning and preserving.

11. *Enlisted Armorers' Course.* The purpose of this course, as conducted by the Department of Weapons, is to train troop armorers thoroughly in the nomenclature, detailed disassembly and assembly, functioning, repair, and care of all cavalry weapons, and ammunition loading equipment, so that they may perform these duties efficiently with their units in the field.

INSTRUCTION BY DEPARTMENTS

For the efficient conduct of training, the Cavalry School is organized into six Departments. The following résumé outlines the functions and type of instruction conducted by each Department:

Department of Horsemanship and Horsemastership

This department gives instruction to students of six of the eleven courses currently conducted by the Cavalry School. The training is pointed to preparing the student to perform his duties under field conditions.

It is divided into five principal phases as follows:

1. *Animal Management.* To teach the elementary anatomy of the horse, the basic principles of nutrition, the cause and prevention of animal disability, stable management and care of horses in the field, methods of transporting horses, and first aid treatment of common diseases.

2. *Horseshoeing.* To give a practical knowledge of normal and corrective shoeing, inspection for needs of shoeing and of newly shod horses; to instruct the student in the preparation of the foot and the securing of the shoe to the foot; to instruct the student in the use of acetylene welding equipment.

3. *Care and Preservation of Leather Equipment.* To impart a practical knowledge of the methods and means used in the caring for leather, the preservation of leather and the restoration of old leather.

4. *Pack Transportation.* To teach the student the fundamentals of the Phillips' Pack Saddle and its adjustment, including adjustment of pads, the selection of pack animals for suitability, and lashing of cargo loads.

5. *Horsemanship.* To train the student for mounted duties in campaign. To teach the correct principles of the military seat, and to instruct the student in conduct, control and maneuver of mounted units, and in the proper methods of marching and gaiting.

Department of Motors

The Department of Motors is divided into five sections: Department Headquarters, Supply Section, Automotive Section, Special Classes Section, and Tank Section.

The Headquarters and Supply Sections perform the usual duties of supervision, administration, and supply.

The Automotive Section conducts all instruction in



The weapons and ammunition go along. A cavalry troop can go at speed even in very rough country.



The officer candidate class rights an overturned vehicle.

wheeled vehicles, half-track vehicles, and motorcycles for the Officers' Motor Course and the Enlisted Motor Mechanics' Courses. Facilities are set up on a production-line basis to instruct enlisted classes and officer classes in 12-week cycles.

The Special Classes Section conducts all motor instruction for the Officer Candidate, Basic, New Division, and Squadron Commander and Staff Officer Classes. Each of these classes is given approximately fifty hours of motor instruction, except the New Division Classes, which are given sixteen hours, and Horse Classes, which are given six hours. In each 12-week cycle, instruction is given to Officer Candidate Classes, Basic Classes and a Squadron Commander and Staff Officer Class. Thus far one New Division Class has been scheduled. Each of the Special Classes is given a short course in the mechanical functioning, operation, and maintenance of military motor vehicles. Stress is placed upon preventive maintenance and the supervisory duties of officers of mechanized units. The limited time available does not permit giving these students sufficient technical training to qualify them for duty as motor officers.

Commissioned and enlisted instructors in the Automotive Section and the Special Classes Section are graduates of motor courses at one or more of the follow-

ing schools: The Cavalry School, The Armored Force School, The Infantry School, The Field Artillery School, The Ordnance Schools at Holabird and Normoyle, The David Ranken School of Mechanical Trades, and various service schools conducted by vehicle manufacturers. Every effort is made to incorporate the best instructional ideas of all of these schools into courses given at the Cavalry School and to standardize instruction with that given at other ground force service schools.

The Tank Section, which is currently in the process of inauguration, will be responsible for all training in the mechanical functioning, operation, and maintenance of full track-laying cavalry type vehicles. Classes enrolled in the Tank Maintenance Course will be made up of selected graduates of the Officers' Motor and Enlisted Motor Mechanics' Courses. They will be given a four-week course. Instructors for this course, in addition to being graduates of either the Officers' Motor or Enlisted Motor Mechanics' Course at the Cavalry School, are graduates of the Tank Maintenance Course at the Armored Force School.

Department of Communication

The Department of Communication has a communications class starting each week and a class graduating

each week. Classes are in attendance at all times: All instructors in this department have had previous communications experience and every opportunity is taken to present the latest information on the practical uses of military communications which may be obtained. Both the Officers' and the Enlisted Communication Courses are based on *approximately 70% practical work and 30% theoretical instruction.*

The Officers' classes receive basic communications instruction, which covers communications, security, air-ground communication, cryptography, message center operations, message writing, and organization of communications. Courses in Radio Procedure, Electricity and Magnetism, Radio Theory and Field Maintenance of Equipment are a combination of theory and practice. Many hours are spent on practical field operation of radio equipment and on command post exercises built upon the use of communications. Code Practice for the officers trains them to the extent that they are able to instruct other operating personnel, but does not aim at making expert field operators of the officers themselves. An intensive course in the duties of a communications officer gives them instruction in the command and staff duties of their assignment, signal supply, preparation of signal operating instructions, methods of instructing new cadres, and other personnel in newly activated units. This with the required outside work, which includes preparing a typical field training exercise, a command post exercise, and an hour conference to be delivered, in theory at least, to the officers of a new regiment, qualifies them to be communications officers of any Cavalry element up to the division.

The enlisted men are trained to be field radio operators and communications specialists. They must qualify at a minimum speed of 16 words per minute in Code Practice although the usual class average is above this figure. They receive an intensive course in Radio Procedure and the Tuning and Adjustment of Radio Equipment. A course in electricity and magnetism and radio theory gives them the background necessary to perform minor maintenance duties. Their basic instruction includes communications security, safeguarding military information, cryptography, message center operations, and organization of communications, and air-ground communications. A great share of their time is spent on actual field operation of radio equipment, both mobile and immobile and in the performance of all types of communications duties on command post exercises.

While the aim of both courses is to make the student proficient at any assigned duties connected with communications, emphasis is placed on how to instruct the subjects as they, the students, are being taught. The officers, in addition, act as assistant instructors during their last few weeks in the course to give them actual teaching experience. The enlisted men, while trained primarily as field radio operators, are so instructed as to



Students of an officer candidate class learning capabilities of cavalry type vehicle.

be able to assist their communications officers in giving instruction.

From reports of observers on recent maneuvers in all parts of the country, the cavalry communication personnel are living up to their mission; namely, "Get the information in and the orders out."

Department of Tactics

The Department of Tactics conducts instruction in five of the eleven courses regularly in residence at the School; i.e.:

- Squadron Commanders and Staff Officers.
- Officers' Basic Course, Horse.
- Officers' Basic Course, Mechanized.
- Officer Candidate Course, Horse.
- Officer Candidate Course, Mechanized.

The first-named course covers intensively subjects pertaining to small cavalry units, and such instruction in tactics, command, staff and logistics as are applicable to squadrons and regiments of both mechanized and horse units. Among the subjects included are the organization of all cavalry units, their characteristics and missions; organization and characteristics of certain foreign armies; map and aerial photograph reading; estimate of the situation and terrain; combat orders; tactics and technique of the associated arms including air, infantry, field artillery, and engineers; instruction in umpiring; and map exercises, terrain rides, and field exercises that illustrate the squadron and regiment in the attack, defense, and on reconnaissance, security, and special missions.

The objective of the instruction given in the Officers' Basic Courses, Mechanized, is to qualify the student



Officers of a basic course (horse) dissect the feet of a horse in the animal management laboratory. Greater understanding of the anatomy and physiology of the horse makes for better horsemanship.

to command in the field each of the following types of platoons: reconnaissance, tank, and assault gun platoons of the Cavalry Regiment, Mechanized. This instruction includes map and aerial photograph reading, estimate of the situation and combat orders, instruction in the employment of the associated arms, and the principles of communication and staff functioning in the Cavalry Regiment, Mechanized. Also included is instruction in umpiring, street fighting, and dirty fighting.

Instruction in the Officers' Basic Course, Horse, is in general the same as that for the mechanized classes except that its purpose is to train leaders of the following types of platoons: rifle, machine gun, mortar, and reconnaissance, and antitank platoons of the Cavalry Regiment, Horse.

The instruction for Officer Candidate Courses is in general the same as that for the Officers' Basic Courses.

The instruction, generally, consists of conferences, illustrative problems, demonstrations, and exercises in the field in which the students actually function as members of the various organizations. Under the block system in operation at the school, the Tactics Department conducts instruction in the Basic and Officer Candidate Classes for approximately five weeks. For the Squadron Commander Course, instruction in tactics is practically continuous throughout the course.

The instruction is continually in the process of revision in order to enable the students to become familiar with the latest tactical methods employed in the present theaters of operation.

Department of Weapons

The Weapons Course at the Cavalry School has

changed materially in the past few months. Basically, the instruction in methods of firing the weapons and in the functioning of the piece has not changed, but much has been added to the course to keep up with battle experience and to add realism to instruction. The greatest change in the past year has been the adding of small unit tactics to weapons instruction with emphasis on the employment, emplacement, and use of weapons in the squad, section, and platoon.

Instruction in new cavalry weapons, the M1 carbine, the 75mm Howitzer, and in rocket grenades, rifle grenades, and improvised grenades, has been added. Extremely practical instruction has recently been initiated, in village fighting, infiltration against automatic weapons fire (using live ammunition), and battle firing. An actual village has been constructed in which the students encounter the conditions peculiar to combat in towns and villages, and use live ammunition to overcome them.

Much construction and improvement of range facilities has been made recently. All firing of weapons, except known distance and landscape rifle firing, and 1,000 inch machine gun firing now takes place on the Magic School Range on the new reservation. Installations now include a field firing range, 1,000 inches and 500 yard moving target ranges, AA range, two blocks of buildings for village fighting, SMG-pistol-carbine range, quick firing range, dummy and live hand grenade courses, eight lane moving vehicle firing course, combat firing area for horse cavalry, and combat firing area for mechanized problems.

Officer candidates and basic officers receive identical instruction in weapons, while squadron commanders and staff officers, having fewer hours allotted, are given more demonstrations with emphasis on training aids and methods of training.

Great stress is placed on field firing and combat firing of each weapon. The combat firing is combined with instruction in small unit tactics. In mechanized classes, for example, six days are devoted to small unit tactics in which fire and movement of squads, sections, and platoons is stressed by actual work under combat conditions. Following this, one day is used to teach the employment, use, emplacement, and missions of the 81mm mortar; one day, the employment of the reconnaissance platoon reinforced with assault guns in delay; one day, the reconnaissance platoon reinforced with tanks and assault guns. This series of problems is culminated by a practical exercise in laying the various weapons to fire at night, and then firing after dark by using exploding targets to demonstrate the accuracy of the laying and firing of those weapons. Horse classes receive the same instruction and follow substantially the same sequence, but use tactical situations suitable to horse cavalry missions. Practice in control by students as leaders is stressed.

The new range facilities of the Cavalry School are

a model of compactness, with common impact areas for all types of weapons. The installation enables the maximum instruction and training with the minimum loss of time. Sections of a class may be given instruction in various areas of the range and be shifted without loss of time.

Department of General Instruction and Publications

In this department the aim is to turn out officers capable of conducting field instruction and training in a highly effective manner. A general summary of its instruction includes the following:

(1) *Orientation*. This class emphasizes to the student the general nature of training problems which will confront him and to introduce methods of presenting instruction.

(2) *Military Courtesy and Customs of the Service*. Instruction is designed to acquaint the student with all pertinent regulations and indicate the standards required of all individuals and units.

(3) *Technique of Instructing*. This subject is continually emphasized throughout all instruction at the Cavalry School. Its purpose is to teach the student how to teach others, how to impart the knowledge he has acquired; how to plan, prepare, and give a period of instruction or training; and to demonstrate the preparation, application, and uses and effects of training films, film strips, and visual aids in training.

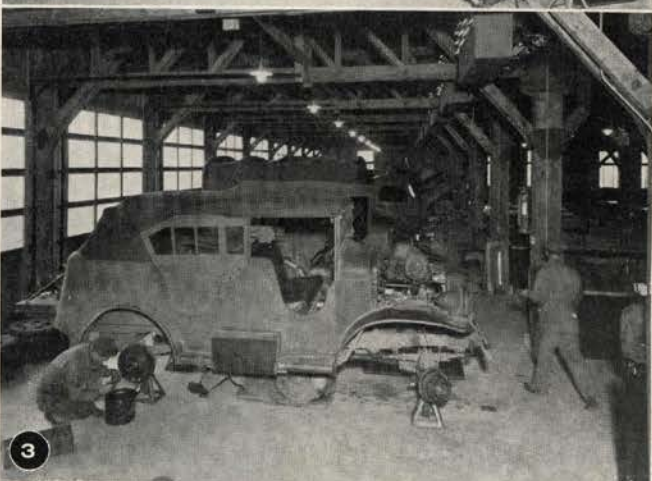
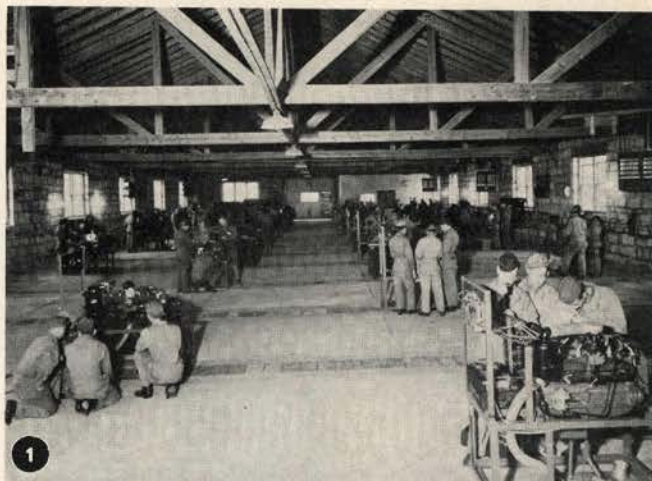
(4) *Troop Administration*. This covers the proper conducting of military correspondence, the use and preparation of daily troop reports; mess management (including nutrition, cooking, field messing, sanitation, rations and ration supply and accounting); supply, authorized supplies, how obtained; care and disposal; the administration of troop funds; to familiarize the student with the general nature of some of the problems of administration which will confront him on joining his organization.

(5) *Training Management*. This instruction is designed to teach a fundamental and useful conception of training management to include the functions of the leader, principles of training, the preparation and use of training programs, the preparation of a simple applicatory exercise, emphasizing methods and mechanics of instruction, methods of inspection, and a standard of proficiency.

(6) *Military Law and Justice*. The purpose of this instruction, based on the Manual of Courts Martial of 1928 and the Articles of War, is to emphasize the knowledge required by officers in regard to this phase of military life and to discuss troop punishment and pre-trial procedure. Explanation is made of the great necessity for good leadership necessary to reduce the number of offenses in a command to a minimum.

A CLASS IN ENLISTED MOTOR MECHANICS

1—Engine laboratory. 2—Motorcycles. 3—Scheduled maintenance. 4—Command inspection instruction.



Know Your Gasses



■ CN ■

APPLE BLOSSOMS LEND THEIR SMELL
TO THE SADNESS OF FAREWELL,
IT'S O.K. IF YOU FEEL BLUE,
BUT **TEAR GAS** STARTS
YOU SOBBING TOO.



■ CG ■

FATHER WAS PLEASED THAT 'SUNDAY MORN
TO NOTE THE AROMA OF FRESH-CUT CORN—
CRIED LITTLE WILLIE—TURNING GREEN—
"GRAB YOUR MASK, POP—
THAT'S **PHOSGENE!**"



■ M1 ■

GRANNY SMELLED GERANIUM,
STARTED FEELING KINDA BUM,
THOUGHT SHE HAD A GARDEN BLIGHT,
WHAT SHE'D FOUND
WAS **LEWISITE**



■ HS ■

NEVER TAKE A CHANCE, MY FRIEND,
IF SOME GARLIC'S IN THE WIND.
DON'T THINK MUSSOLINI'S PASSED—
MAN—YOU'RE BEING
MUSTARD-GASSED!

Book Reviews

THE RED ARMY. By Michel Berchin and Eliahu Ben-Horin. W. W. Norton & Co., Inc. New York, 1942. 265 pp. \$3.00.

At a time when the U.S.S.R. is again demonstrating its magnificent offensive spirit and power, it is fitting that a sober, non-partisan study of its army should appear. *The Red Army* provides such a study, and, in addition, reviews its development from the days when the Imperial Russian Army collapsed on the Eastern Front in 1917.

The authors trace the growth of the Red Army in size and power against the background of the Soviet Union's turbulent coming of age. During its two decades of existence it has been transformed from the ragged nucleus of an international revolutionary force into a tough, competent army for the defense of the homeland. Social theory has gradually been subordinated to the hard facts of the world as it is. "The Russian soldier is revolutionary today," say the authors, "in about the same sense as the French soldier at Valmy was revolutionary in 1793, or as the American soldier was at Princeton, or at Yorktown."

The Red Army has the world's strongest cavalry force and has freely combined therein the elements that compose modern cavalry. As Marshal Timoshenko says, "There is no conflict between horsepower and horses." There is evidence in this book that the Red Army horse cavalry would be even larger were it not for the decline in horse breeding (a consequence of the wholesale mechanization of the farms) and the fact that the Germans have occupied the territory which produced 48.8 per cent of the U.S.S.R.'s horses.

This book adequately describes the development of all arms of the Red Army and concludes with a summary of the Russo-German war through last summer's campaigns.

L. B. C.

TORPEDO JUNCTION. By Robert J. Casey. Bobbs-Merrill, New York. 419 pp. \$3.50.

Torpedo Junction is the Navy term for Pearl Harbor. Mr. Casey's book is the story of what happened to the Navy in the Pacific after Pearl Harbor. Aboard a heavy cruiser, he watched the Navy operate from the Marshall Islands through Wake, Marcus Island, the Coral Sea and Midway.

Starting out in an understandably pessimistic frame of mind Mr. Casey gives a blow-by-blow description of preparation, practice, dress rehearsals and finally action itself, until, after the victory at Midway, the last trace of gloom disappears, and he winds up his book with the optimistic statement that "the control of the Pacific may have passed to us as a result of it."

Necessarily, this is the tale of what one man saw from one ship, and therefore there are many tantalizing gaps in it. But what it lacks in completeness is more than made up by "local color" and human interest stories. The physical detail is excellent. This is one of the most readable of the current war books.

H. P. C.

REPORT FROM TOKYO. By Joseph C. Grew. Simon and Schuster, New York. 88 pp. Paper, \$1.00. Cloth, \$1.50.

Joseph C. Grew has had a long and interesting career as a diplomat. It is of particular interest that he was Counselor to the American Embassy in Berlin during the early part of the First World War. This equipped him with a sound knowledge of the German people, whom he graphically contrasts with the Japanese.

As American Ambassador to Japan from February, 1932, until the present war he was given ample opportunity to study the Japanese people. He is in an excellent position to judge the comparative attributes of our enemies, as few men are privileged to be.

Report from Tokyo is an account of the days before Pearl Harbor, of the character of the Japanese as a nation, and what the people have been doing to create this character over a period of time.

We are shown very clearly wherein we must correct our own faults if we are to succeed in conquering these people. We are told why we must conquer, why mere winning will not be enough.

This book should be required reading for every American, starting with students in the first year of high school.

E. S. D.

SUEZ TO SINGAPORE. By Cecil Brown. Random House, New York, 1942. 545 pp. \$3.00.

This long personal history is the story of a conscientious war correspondent's attempt to tell of what he saw and the difficulties that beset him. About half of *Suez to Singapore* is a recital of events that the author witnessed from April, 1941, through March, 1942; and the rest describes in laborious detail the attempts of unsympathetic officials of the British Empire to douse his shining torch of truth.

Mr. Brown was extremely alive to the dangers of complacency in the face of skilled and ruthless enemies. Playing the always unpopular rôle of Cassandra, he went from one bastion of the Empire to another in the course of his journalistic duties.

As an American correspondent, Mr. Brown considered it his duty to arouse Americans to the dangers that they were facing. He wanted to make them realize that the power of the British would not be enough to stop the world-wide aggressions of the Axis. The British colonial authorities, all anxious to have their bailiwicks in good repute in far off London, were, perhaps naturally, averse to having Mr. Brown expose one inadequacy after another; and from this fact arose Mr. Brown's many battles with the censors. They are here recounted in rather too much detail.

Most of the author's time was spent in Singapore. He states that it was only a matter of weeks before the Japanese invasion that the British discovered that the rice fields were negotiable by Bren gun carriers. This belated discovery completely destroyed the road-bound foundation of their defensive tactics. They later lost a good many miles of

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northern Malaya before they learned further that the expression "impenetrable jungle" was not in the Japanese vocabulary.

Mr. Brown was on the *Repulse* when it and the *Prince of Wales* were sunk by Japanese land-based planes, and his description of that event is the high-spot of the book. This is one of the very best of the current bumper crop of war correspondents' books.

L. B. C.

GUADALCANAL DIARY. By Richard Tregaskis. Random House, New York, 1943. 263 pp. \$2.50.

As one of the two newspaper correspondents to accompany the U. S. Marines in their attack on the Solomon Islands, Mr. Tregaskis set foot on Guadalcanal when the first detachment landed on that desolate island. He stayed there for the first seven weeks of the occupation, and this book is his story of the start of our Southwest Pacific toe-hold campaign.

The occupation of Guadalcanal was a tough and dirty job, and base headquarters was never more than a mile or two from the outpost lines. The author's view of the Guadalcanal campaign was really a "fox-hole view"—and there is plenty of evidence in this book that the fox-hole is really the best vantage point.

Mr. Tregaskis repeatedly exposed his six-foot, seven-inch frame as a target in his effort to find out what was really going on, and his description of the battle for the Tenaru River alone justifies that considerable risk.

The story is one of fierce fighting, privations and hardships, and of the development under fire of a magnificent American fighting force.

Doubt and discouragement crept in as weeks passed with no reinforcement, and the Japs kept landing at night a few miles up the beach. But American courage and determination downed them and the reinforcements finally arrived. Mr. Tregaskis then retired to Hawaii to equip himself with some more size 14 shoes and to write this book. He is now back in the Solomons.

Guadalcanal Diary lacks the polish of some of Mr. Tregaskis' older colleagues' works, but it gives the feeling of the fighting on Guadalcanal, which is no mean praise.

L. B. C.

HE'S IN THE ARMORED FORCE NOW. By Capt. Addison F. McGhee, Jr. McBride, New York. 256 pp. \$2.50.

Captain A. B. McGhee has been in the Armored Force since its inception in 1940. From his abundant knowledge he has presented an exciting story of a group of typical trainees from the time that they begin as raw recruits until they are full fledged Armoreders.

The book covers all branches of the Armored Force—tank corps, motorized infantry, engineers, reconnaissance battalion, artillery, supply, maintenance and medical battalion.

It should be part of the necessary education of every American to be familiar with the fundamentals of the branches of the armed services now engaged in this war. Books of this caliber are more than exciting reading; they are essential information.

The Signal Corps deserves special mention for their splendid pictures which bring to life this thrilling story.

E. S. D.

BOMBS AWAY. By John Steinbeck. Viking Press, New York. 185 pp. \$2.50.

John Steinbeck at the request and with the coöperation of the Army Air Force has garnered the material for this story of a bomber team, consisting of pilot, navigator, bombardier, crew chief, gunner and radio man.

Selecting six typical American boys, the author gives them imaginary backgrounds, outlines the requirements, details the training, and follows the progress of each man from civilian life to assignment with the team. Steinbeck then depicts the training of the crew as a unit until it is prepared for combat.

Great emphasis is laid on the ideal of unity and mutual coöperation essential in attaining successful completion of each mission by these courageous groups—an ideal which might well serve as a criterion upon which to found a real spirit of democratic accomplishment.

The author's style is well adapted to this type of writing. He has refrained from all personal observation or opinion and produced an account as clear cut and graphic as the very excellent photographs by John Swope which underscore the text.

This book is not a manual of instruction, but is an effort to give a better understanding of the caliber of men who are daily and nightly flying our bombers over Axis territory, what is required of them, and how they are trained. It will assist young men to decide whether or not they are fitted to become one of such a closely knit group. It will give families of men who are now participating in or are training for bomber combat a better understanding of what life their men are leading. It is quite probable that many army men will also find it both interesting and enlightening.

E. S. D.

✓ ✓ ✓

THE WAR IN THE WEST. By Daniel Vilfroy. Military Service Publishing Co., Harrisburg, Pa. 163 pp. Map. \$2.50.

Daniel Vilfroy, as a staff officer in the 2nd Division of the French Mechanized Cavalry, saw the psychological and military collapse of France. In *The War in the West* he discusses the traditional French strategy built on years of fighting over the same terrain. He points out how this static thinking allowed modern German tacticians to overwhelm the armies of Holland, Belgium, France and England in so short a time. He also presents the German strategy and tells why it was successful. No effort is made to underrate the lack of foresight in the French command nor does he attempt to justify it.

The latter part of the book deals with the "Essentials of Modern Warfare" with separate chapters given to the rôles of infantry, artillery, tanks and cavalry, and aviation. It is not to be expected that the student of military affairs will always agree with the theories advanced in this portion of the volume, but he can hardly fail to find much of interest.

While giving mechanized forces their due as an essential part of modern warfare the author does not fail to remind us that horse cavalry is still a very vital part of any army. He states, "In certain conditions of terrain, cut and wooded, it remains the only arm capable of reconnoitering."

This book should prove an excellent background for any study of the present war.

E. S. D.

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CRAZY HORSE. By Mari Sandoz. Alfred A. Knopf, New York. 428 pp. \$3.50.

Maria Sandoz was peculiarly well fitted to write this swiftly moving biography of the man who inspired his people to deal Custer and the 7th Cavalry such a crushing defeat at the Little Big Horn. Her own life has been spent in the upper Niobrara river country. She was raised on tales of the Sioux Indians, many of them about Crazy Horse, Strange Man of the Oglalas. To this background she has added painstaking research and skilful writing.

Much has been written of Custer and his men, and books abound on the opening of the west from the white man's point of view. Little material has been available, however, by writers familiar with the Indian side of the question. Most of our information by Indian writers is too imaginary to be factual or too technical to be popular.

Mari Sandoz has produced a biography to fill the gap in that period of history which settled forever the position of the Indian tribes in relation to their white conquerors in the west. It is a magnificent epic of an extraordinary man.

Crazy Horse deserves to stand in any collection of books on Custer and his time, if for no other reason, because it gives a picture of the people with whom he fought, and the warrior who swept them into one last victory.

E. S. D.

WINGED MARS. (Vol. I.) THE GERMAN AIR WEAPON. 1870-1914. By John R. Cuneo. Military Service Publishing Co., Harrisburg, Pa. 338 pp. \$2.50.

Complete in itself, this first volume of a history of air power endeavors to interpret current aerial warfare through the analysis of past mistakes. It deals primarily with the German air weapon, 1870-1914, but includes an outline of the growth of European air power generally. Excellent notes and thorough indexing give added value to the material.

The second volume will carry an account of air power through the campaigns of the first World War. Against the background of these two books will be built a history of the air weapon in this country. The complete set will undoubtedly be an exhaustive history of the use of airplanes as weapons in warfare.

E. S. D.

AIR COMBAT TRAINER. Lewis Instructor Games. New York. \$2.00.

Sponsored by the National Aeronautic Association to tie up with the Air-Youth program adopted by schools throughout the country, *Air Combat Trainer* has been found exciting as well as authentic and instructive by flying students, aviation experts and civilian defense groups.

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Machine Gun Troop, 26th Cavalry (P.S.)

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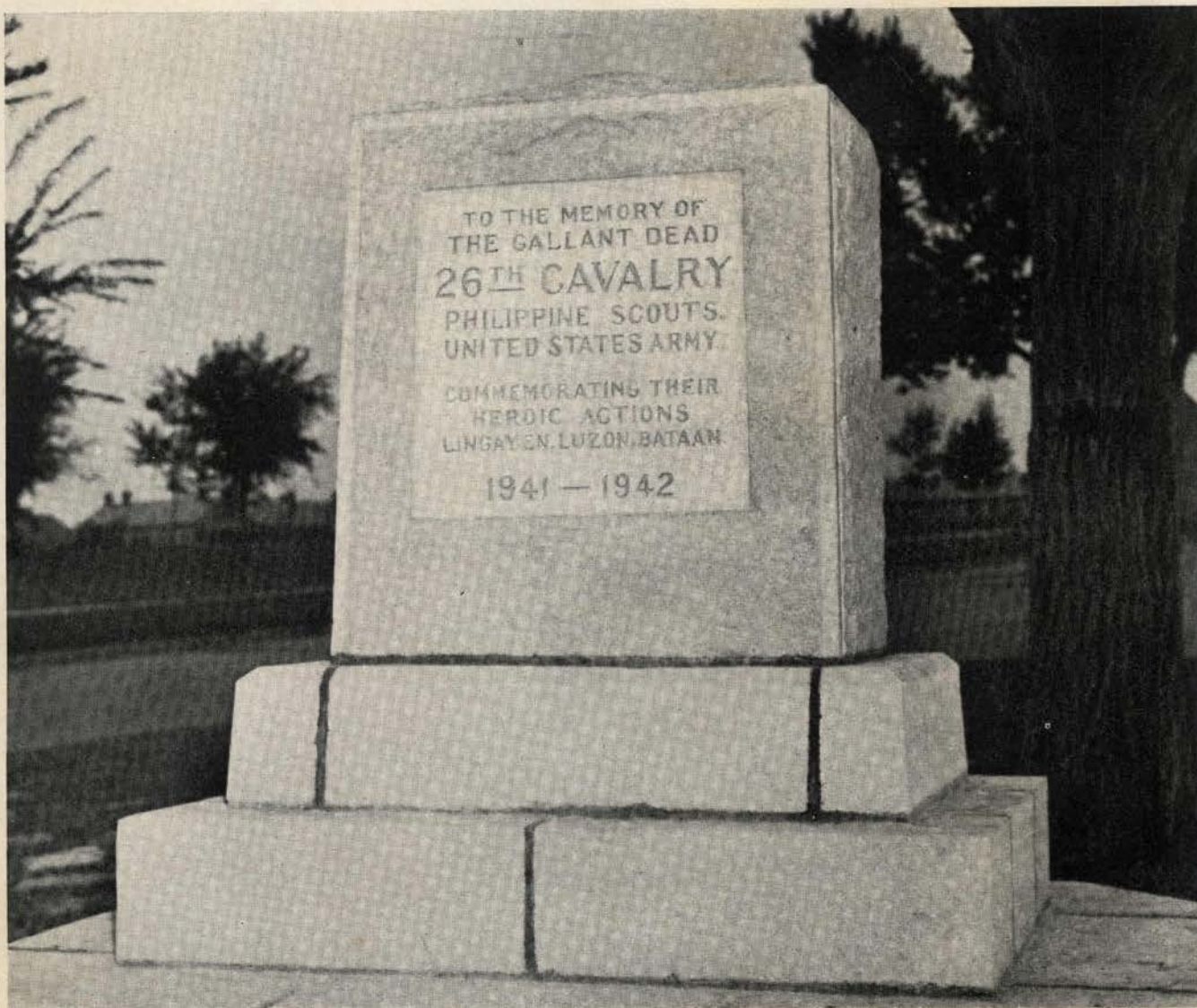
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Dedicated, Fort Riley, Kansas, August 29

THE 26th CAVALRY, under the gallant leadership of Colonel Clinton A. Pierce, actively participated in the first major encounter of American forces in the present war. All through Luzon, the officers and men distinguished themselves to the highest honor. . . . The spirit of coöperation and the devotion to duty inherent in the 26th Cavalry represents the spirit of the whole Filipino people. It has taken the bitter experience of this war to bring a true understanding of our country to the people of the United States. This deadly war has shown the deep friendship for Americans held by the Filipinos, and to prove the depth of our appreciation for the material benefits that America has brought to us.

Tennyson once wrote about England some lines which very well apply to the Philippines: "Not once or twice in our rough Island story,

The path of duty was the way to glory."

Such was the opportunity of the glorious 26th. It clinched that opportunity by courageously answering the call of duty.

We now have a double duty, for while we honor those who have defended the cause of right with their lives, we must also be prepared ourselves to make the sacrifices necessary to redeem and to justify the spirit with which those boys of the 26th Cavalry fought and died.

I can do no better, I believe, than to quote a few lines from Lincoln's Gettysburg Address: "It is rather for us to be here dedicated to the great task remaining before us; that from these honored dead we take increased devotion to that cause for which they gave the last full measure of devotion."—THE HONORABLE J. M. ELIZALDI, *Resident Commissioner of the Philippines to the United States.*

The Fighting 26th

by Clark Lee*

Without the 26th Cavalry, there might never have been a Battle of Bataan, and without the four months gained for the United Nations by that gallant, heart-breaking, hopeless fight, we might have lost Australia and all of our other bases in the South Pacific. The 26th Cavalry Regiment, commanded by Colonel Clinton A. Pierce, (later

made a Brigadier General), fought a brilliant delaying action that for five days held up the thousands of Jap troops who landed on the east shore of Lingayen Gulf on December 22, 1941. Those invaluable five days made it possible for General Wainwright to pull back his outnumbered forces along the south shore of the Gulf and get them—almost intact—into Bataan.

As I drove up from Manila on that morning of December 22nd, after the Japs had landed at Lingayen Gulf, I still brashly believed that there were three or four divisions of American troops opposing the Japs, that our planes would sink most of their transports, and that the few who got ashore would quickly be annihilated. The truth (as I found out later) was that General MacArthur was withdrawing his troops to the Peninsular of Bataan, and that the 26th Cavalry, stationed at Damortis on the Gulf, was left to deal with the landing Japs and fight a rear guard action to cover the withdrawal. Their assignment was an old cavalry mission, and it was gallantly and successfully executed.

Perhaps the best way to tell the story is in Colonel Pierce's own words.

"We fought 'em in the streets and under the nipa shacks of Damortis all day," he told me. "Then late in the afternoon the Japs got some tanks ashore farther north and came after us with planes and tanks. We pulled back to Rosario during the night, and the next day they were on us again. We took cover in the rice fields and fought them off all day, and they fired a million shots without hurting us. We found that they could be stopped.

"The next day we fought them at Pozzorubio, which we reached during the night, and it was the same story. They couldn't hurt us until their tanks and planes came. Had we had any tanks and planes, it would have been different."

The following day, fighting at Binalonan, the 26th was cut off from its horses which were bivouacked off to one side of the town. "We could have gotten out of there all right," Colonel Pierce said, "but we fought our way over, got the horses, and pulled back during the night to Tayug."

Tayug is well to the east of Binalonan, and the main

Jap force, instead of turning west and outflanking and surrounding General Wainwright's men on Lingayen Gulf, continued to follow the 26th. There was another battle which lasted all Christmas Day and then the Japs, sensing that they had been tricked away from their main objective, headed back and down the main highway toward Manila.

With the 26th covering the right flank, Wainwright kept his lines intact and backed southward.

I found the 26th headquarters on December 29th at the little town of Mexico, five miles east of San Fernando. There I heard Colonel Pierce's story, talked to his men, and had the opportunity to thank them for the fact that I was alive and not a prisoner. I had gone up to Baguio on the night of the 22nd and was cut off there. A two-day hike through the mountains had brought me out at Tayug on Christmas Eve—safely behind the 26th's lines.

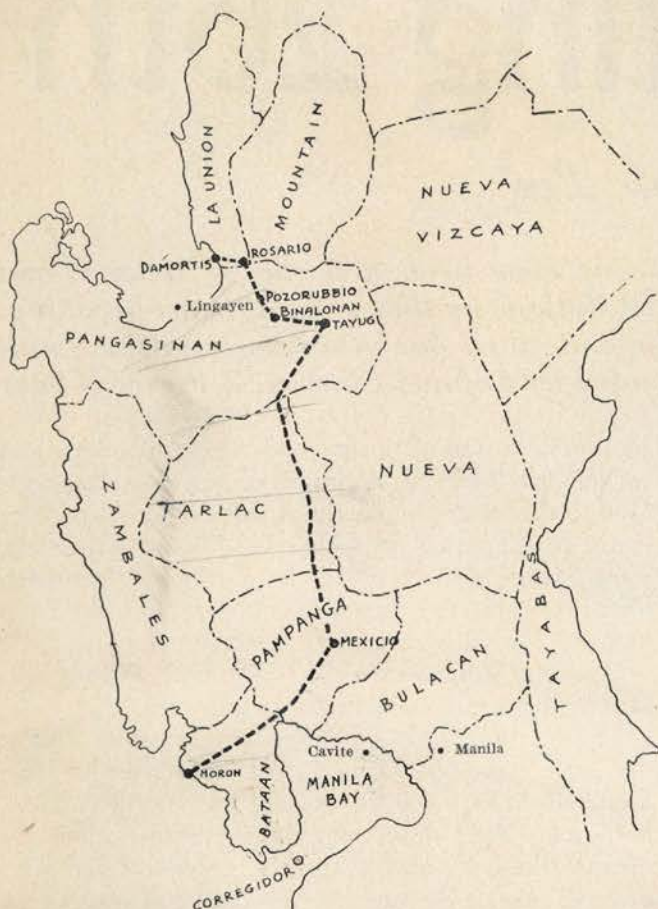
From Colonel Pierce on down, the men of the 26th were full of fight. They had sustained heavy losses—12 of 36 officers dead and 180 Scouts either killed or

A platoon of the Machine Gun Troop, 26th Cavalry (P.S.) fords Tiple Creek, Fort Stotsenburg. Picture taken, late fall, 1941.



Life photo by Carl Mydans.

*Associated Press War Correspondent. Author of *They Call It Pacific*. Mr. Lee, who accompanied the 26th Cavalry during most of its gallant fighting across Luzon, has written this account exclusively for The CAVALRY JOURNAL.



Route of 26th Cavalry from Damortis to Bataan in their action against the Japanese.

missing—but they were still confident that they were better soldiers than the Japs.

"If we just had a few planes . . .," they said.

While I was with them that day, orders came for them to transfer over to the left flank of Wainwright's line. They rode—and drove their few mechanized 75's¹—westward across the plains of Pampanga, and there they held the gateway to Bataan until it was finally slammed shut on New Year's Eve. Part of the 26th was cut off then, but most of them took to the mountains and came out safely at the town of Moron on the China Sea side of Bataan.

There was no chance for them to rest, desperately as they needed it.

The Japs were pushing on quickly, confident of an easy kill, and they soon overwhelmed the youthful troops that had been holding Moron. MacArthur had to straighten his line and he called on the 26th Cavalry to do it. Already exhausted and battle-weary, they swarmed into the little town, routed out the Japs in a fierce fight and restored the original positions.

I remember one incident related to the fighting at Moron. We correspondents had written many stories about the 26th Cavalry because it had borne the brunt of the early Luzon fighting, and someone decided that

¹Reference is probably made to the 75mm howitzer mounted on a half-track, fifty of which reached the Philippines just before war started.

it had been given too much publicity. So when the late Melville Jacoby wrote a dispatch to *Life* describing the Moron battle, someone decreed that he must eliminate the name of the regiment and all reference to horses. As censored, Jacoby's dispatch had a lot of anonymous troops reining in their —, spurring their —, and shooting as they galloped their —. Then the powers that be relented and put the horses back in.

The horses themselves, however, were not to last much longer. They had reached the end of the trail in Bataan. The survivors of the 26th were dismounted and assigned to other regiments, and the horses that they had loved so well had to be killed for food.

Brigadier General Clinton A. Pierce was given command of the troops fighting off Japanese landings on the west coast of Bataan. General Wainwright had command of that side of the peninsula, his headquarters well within range of Jap artillery.

I don't like to remember what happened in the next two months. But for me there will not be any victory—there can not be any thought that the war is won—until we are able to set free the men of the 26th Cavalry, and "Clint" Pierce, and "Skinny" Wainwright, and the Americans and Filipinos who fought with them to the bitter end—and until we can bring them home in triumph for the rewards that they deserve.

General Clinton A. Pierce (left) questions Japanese prisoners at Headquarters in Bataan. This picture was taken by Clark Lee, April 10, 1942.

Wide World photos



REARGUARD in Luzon

by Captain John Wheeler,
26th Cavalry



Life photo by Carl Mydans.

Captain Wheeler at the head of the Machine Gun Troop, 26th Cavalry, a short time before the outbreak of war.

AFTER the battle of Damortis, our cavalry was assigned to cover the withdrawal of the infantry to the south. . . .

There was barbed wire on both sides of the road, so we couldn't deploy. If a man was knocked off his horse he was trampled. The rest of the regiment went galloping down the road with bullets going by on both sides. I heard Major T. J. H. Trapnell calling my outfit and found him by a bridge. He wanted to defend the bridge, but we seemed to be the only ones left. At that moment Lieutenant Clayton Michelson of the Veterinary Corps came up with the Vets' truck. Why it wasn't blasted off the road I will never know. I helped them push it down and pour gas on it and the bridge and light it. The fire just barely stopped the tanks from crossing the bridge and getting at our infantry.

On the way back we had to go through Damortis. Japanese patrols had slipped into Damortis on a flank and effected a mild encirclement. There they were in our rear. The regiment went through Damortis fast—through mortar, rifle and machine gun fire, even shells from Jap 47mm tank guns. There was no sleep that night of December 22nd.

The following morning about dawn, the Japanese attacked—throwing fire from long range. Machine guns chattered on both sides. We withdrew troops, as we usually do by delaying action, to Pozzorubio. We had to spend the day in foxholes.

That evening we were ordered to withdraw again—about 15 miles—to Binalonan. Everything imaginable was on the road—trucks, infantry, tanks,—all mixed up in the pitch darkness that concealed us from planes. At Binalonan we managed to get a few hours rest for the first time in four days. By dawn we heard firing from the outposts and were hurriedly called into dismounted action to hold against what appeared to be an attack by an unknown number of tanks and, without any ques-

tion, a superior force of Jap infantry who had ridden down in confiscated red buses. . . .

After this fight we dropped back again to Tayug. On Christmas Eve we ate for the first time in 48 hours—canned corned beef, asparagus tips, hardtack and coffee.

All this time the other divisions and regiments were pouring into Bataan behind us. During Christmas night we withdrew south of Tayug and reached Umingan after a 13-mile march, which is plenty tough in this country. Some of us fell asleep in our saddles on the way. . . .

The Philippine Scouts were absolutely splendid. Again and again, when we came in so tired we couldn't see straight, I would watch them going miles away to find some sort of hay for the horses. We kept up the daily withdrawals until about Dec. 28th, when our last position covered the final closing of the "Gate to Bataan."

After fighting a brilliant rearguard action all the way across Luzon, a part of the 26th Cavalry reached the China Sea side of Bataan and went into immediate action in the Battle of Moron.

This first-hand account, told by Captain Wheeler to Melville Jacoby, appeared in the March 2, 1942 issue of "Life," with whose permission it is reprinted here.

Captain Wheeler, now a prisoner of the Japanese, was awarded the Distinguished Service Cross.

Then we were cut off and forced to take to the mountains as the only route of withdrawal. We rode off into the hills and wandered for three days over the mountain trails—leading our horses and eating what little food there was in the saddlebags. . . . Finally we made Bagac on the China Sea side of Bataan. We had plenty of rest and most of the missing came in.

THE BATTLE OF MORON

About January 16th we learned that the Japanese, with artillery, were moving south along beaches and over trails toward Moron. The Philippine Army outfit was ordered to attack, with my mounted troop as advance guard. Under the very reassuring sound of our artillery, we moved forward across a stretch of rice paddies into the woods which surrounded the town. Lieutenant Ramsey volunteered to lead my advance guard into Moron, where, as he well knew, there was already a battalion of roughly 300 Jap infantry.

As we neared the town our artillery barrage lifted and left an unearthly quiet. Riding in between the houses with pistols raised, we did not know what was going to hit us, but knew something would. Halfway to the town square I heard Jap machine gun fire—a characteristic snapping sound caused by higher velocity and smaller projectiles than ours, and unmistakable. I rode at the head of the advance party as we moved up. When we were fired upon, we turned around, rode back and went into dismounted action. We tied our horses between nipa huts, then moved forward down the road with men in each gutter along the sides of the houses.

A messenger came galloping back from Lieutenant Ramsey saying he had been ambushed by an enemy force with machine guns, and he wanted support quickly. From there on, it was simply a matter of cautiously moving up under heavy rifle fire to Lieutenant Ramsey and his men. They had taken cover as best they could behind coconut trees and in a ditch. One was dead, three wounded in a small area. It looked like more.

Slowing up the Jap advance. The bridge was later set on fire and destroyed. This is one of the last pictures that arrived from Bataan.



Wide World

Pedro Euperio, Pvt. 1st Cl., a 19-year-old raw recruit by Scout standards, saw three soldiers ahead wearing Philippine Army uniforms. He moved forward until they fired, then shot quickly—they were Japanese disguised as Philippine officers. Despite his wounds, Euperio crept on up until ordered to lie down. About the first thing I saw was Euperio drenched in blood, propped against the house—a pistol in his one good hand, directing us how to move up, indicating points under enemy fire.

We attacked first straight through to the beach. We fired where we heard fire and were happy to see when we went through the bushes that there were dead Japanese. We got straight through to the water, reorganized and attacked around Ramsey. Using him as a pivot, we swept south and killed Japs under houses, in trees and under bushes. About 20 broke and threw down all equipment, even guns, in the high grass. I was surprised to see two of my men with bullet holes straight through their helmets, yet unscratched. I had Private Gonzalez behind me and as I went along I grabbed the Jap maps, compasses and so forth and hung them on Gonzalez. . . .

"ALL HELL BROKE LOOSE AGAIN. . . ."

Suddenly we heard a machine gun from the river, and all hell broke loose again. We realized that what we had been fighting was an advance group, and that a battalion was forming across the river.

We fought in small groups, every man for himself. Sergeant Tolentino ran forward under heavy fire and threw a hand grenade in a house that had been giving lots of trouble. Later he grabbed a light machine gun and began chasing a squad of Japanese down the road—moving in on them absolutely alone and without fear. I grabbed a rifle and followed him because a machine gun does need a little security. We had no cover but it seems to me that if you run around and fight hard, you don't get hurt—you keep moving aggressively, and it's the best defense.

Moron was a hail of bullets that never stopped. There were so many in the air that if you had put out a sheet of cloth, in five minutes it would have been riddled. At first, knowing the Jap tactics, I had a nauseated sensation of being trapped—thinking they had let us have our fun and were sweeping around behind us on both flanks. We were outshooting them and could—any day.

We fought all day. . . . The Scouts were loyal to the nth degree—all they said were things like: "Don't go there, sir, I will go." "They are shooting from that, sir." "Be careful, Captain."

Late that afternoon our mission had been accomplished—the town was seized and held adequately and we fell back again in reserve. . . . Moron, incidentally, was held for 24 hours after our withdrawal and the final withdrawal was by order. . . . The battle for Moron was a successful offensive operation.

Philippine Campaign

*by Lieutenant Colonel C. Stanton Babcock,
formerly attached to United States Embassy, Tokyo*

Bombing of Cavite, December 9, 1941

THE war in the Philippines began early on the morning of December 8th when the Japanese, following the pattern that they had mapped out for all their campaigns, struck from the air with tremendous force at all of the important air bases in Luzon. The attackers converged from all directions—army bombers from southern Taiwan, navy planes from carriers cruising in the China Sea and the Pacific. The results that were secured appear to have been excellent.

Capitalizing on the initial surprise, the raiders blasted the planes and fields of the American Far Eastern Air Force until at the end of two days Imperial Headquarters could announce that more than one-third of the American air strength in the Philippines had been rendered inactive.

Japanese losses were light, for their bombing, which was done from a very low altitude, not only destroyed planes and hangars, but cut up the runways so badly that American fighters were unable to get off the ground the first day. The destruction of bombers and fields from which squadrons could operate, made it virtually impossible thereafter to interfere seriously with Japanese landing operations.

PRELIMINARY LANDINGS

The first landing was made just before dawn on December 10th at a point about five miles south of Vigan on the island of Luzon. The initial landing party con-

sisted of bluejackets and marines who covered the debarkation of a reinforced brigade of army troops. The opposition was extremely weak. In fact, the only American troops encountered were a scout car platoon of the 26th Cavalry—on reconnaissance duty on the west coast road—which happened to be on the spot when the first Japanese units came ashore. The Japanese were not even delayed by the four scout cars, and succeeded in damaging one and capturing another. They were, however, unable to prevent the platoon from sending a radio message to regimental headquarters near Lingayen Gulf, and in this way the first news of a hostile landing reached MacArthur's headquarters.

The troops used in this operation, as well as those used in the subsequent landing at Lingayen, had been carrying out landing operations all summer along the China coast, from Canton to the Indo-China border. Little if any military advantage resulted from those operations and it would now appear that they had been intended solely for training. If so, they were well worth the effort, for the two landings at Vigan and Lingayen were effected rapidly and with a minimum of confusion.

The Invasion of the Philippines from the Japanese point of view.

Author's Note

This account of land operations in the Philippine Campaign is based on information drawn entirely from Japanese sources: official bulletins, news reports, speeches, radio commentaries, magazine articles, and personal experience accounts written by officers and men at the front. The only Allied bulletins used were those quoted in the Japanese press.

Japanese accounts are nearly always vague, and in some cases conflicting, for the ideas of different agencies of the Government are frequently at variance in regard to the impression they desire to make on the public. Thus, the military would sanction the publication of a personal experience story which admitted temporary reverses and heavy losses, in order to play up the courage and fighting spirit of the Japanese soldier, while the bulletins issued by the Bureau of Information were inclined to minimize all enemy efforts, in an attempt to make the white man appear as an incompetent and a coward.

The information available, virtually all of which was published only in the vernacular, has been sketchy and disconnected, issued piecemeal over a period of six months, so that its translation and organization into a coherent story has presented many difficulties.

While confined to the compound of the American Embassy in Tokyo from the outbreak of war until June 17, 1942, I was cut off from any outside news. Consequently, the preparation of this paper has not been influenced by information received through any but Japanese sources. Every effort has been made to present the material without injecting either my own opinion or that of any one else, except insofar as was necessary to choose between conflicting versions of the same action.

Allied reports of the various events will undoubtedly disclose many discrepancies. It is believed, too, that the Japanese occasionally deliberately falsified dates in order to cover up reverses or to create an impression of greater speed or continuity in their campaigns than was actually the case.

It should also be remembered that all dates are one day advanced over those used in the United States. It is, therefore, the 8th of every month that the Japanese celebrate as Imperial Rescript Day, to commemorate December 8, 1941, when the Empire precipitated the war which they believe will liberate the races of Greater East Asia.

By the time that American bombers arrived on the scene at Vigan, some two hours after daylight, the Japanese had all of their troops and a good part of their supplies ashore and the air above filled with naval fighter planes from carriers of the escort force.

The American attack, which was carried out by eight light bombers (probably Douglas A-20-A's), was, according to Japanese reports, well conceived and boldly executed. The planes came in at an altitude of less than one hundred meters and dropped 250-pound bombs on the transports anchored in the roadstead and on the escort vessels which were patrolling the area. The Japanese admit the loss of one transport and one "warship" and the damaging of another transport. But if the fleet was anchored as described, and if the attack was in fact made from such a low altitude, considerably more damage must have been inflicted, although it should be remembered that the immediate effect on the landing force was negligible because most of its personnel and matériel were already ashore.

The Japanese claim that all of the American bombers were shot down by their protective fighters. Though this is undoubtedly an exaggeration, American losses must have been heavy, for the second attack, made some two hours after the first, was executed by only three planes.

The landing at Legaspi on the southeastern tip of Luzon, was carried out by a similarly organized brigade which had been assembled in the Marinas. The assault took place at dawn on December 12th and apparently was unopposed. Coming two days after the landing at Vigan and at the opposite end of the island, it resulted in delaying the despatch of American reinforcements to the northern sector. The timing of these two preliminary expeditions was excellent, for they kept the main American forces immobilized in the central plain awaiting the main Japanese landing. Both advance units behaved as though they were establishing beach-heads to protect the landing of larger forces. As the American Air Force had been driven from the air, except for a fighter squadron or two used to protect the concentration of the main army north and east of Manila, MacArthur's headquarters was deprived of its most important reconnaissance agency and could only wait blindly for the blow to fall.

MAIN LANDINGS: LINGAYEN AND LAMON BAY

All the Japanese actions up to that time had indicated that their main attack would come at one of the two places where landings had already been effected, *i.e.*, Vigan and Legaspi; and the defensive preparations of the Americans apparently were based on that assumption. The subsequent landing of the two main invasion forces at Lingayen and at Lamon Bay is regarded as one of the most brilliant moves of the entire war in the Far East. It required the Japanese to execute their main landings in the face of enemy resistance, but it split the American forces to such an extent that they

were unable to bring sufficiently strong forces to bear at any one point.

The troops sent to attack the beach-heads at Vigan and Legaspi were threatened in the rear when the main landings came at Lingayen and Lamón Bay, and had to fall back before they could accomplish their mission. This in turn enabled the Japanese advance expeditionary forces to facilitate the main landings by flank attacks on the American troops opposing those landings. This propensity for doing the unexpected, and a willingness to take great risks, have characterized the Japanese actions throughout the war in the Far East, and contributed in no small degree to their initial successes.

The first landing in force was made at Lamón Bay,



European.

Japanese troops attack a strong point of American resistance on Bataan. Photo arrived in the U. S. by clipper before the fall of the Philippines.

east of Manila, on December 22nd. The only opposition came from the normal beach guard units, for the bulk of the defending troops in the southern part of the island were engaged with the Japanese brigade at Legaspi. Sufficient American troops had been sent to that area to overcome the Japanese already established ashore and so prevent the landing of additional troops in that same area.

Had the Japanese attempted to land their main force at Legaspi they would have found their covering force driven back onto the beach, and it is highly probable that that part of the expedition would have ended in failure. But the bold landing of a large expedition at Lamón Bay without the protection of a covering force threatened the rear of the American troops pressing on the beach-head at Legaspi, forced their withdrawal, and destroyed the last chance the Americans had of defeating the Japanese in detail and preventing them from concentrating a large army on the island.

After this only one thing could save the Philippines:

a successful attack by the main American army against the army advancing on Manila from Lamón Bay. This MacArthur apparently prepared to do, but before the battle could be joined in earnest there came news of the successful landing of another large contingent at Lingayen, and there was nothing left but to abandon Manila and withdraw to the Bataan peninsula, where the numerical superiority of the Japanese troops would be offset somewhat by the narrow front on which they would have to attack.

The Japanese attack on the beach at Lingayen on December 24th was further evidence of the perfection of their timing. Lingayen is the only spot on the west coast where a large force can be landed, and it was of course defended by all the American troops that could be made available. Any unassisted attempt to land there would have been exceedingly costly to the Japanese and might even have ended in failure. The first attempts to land in the early morning were repulsed; and the second attack, made after furious bombing from the air and shelling from the fleet, though successful, was costly and was stubbornly contested, and had actually been brought to a standstill by about four o'clock that afternoon.

Just then, when one more counterattack from the exhausted and outnumbered Philippine-American troops might have driven the invaders into the sea, the Japanese column, which had landed at Vigan and had been moving south by forced marches, arrived at San Fabian on the gulf and from there launched an attack on the right flank and rear of the lightly-held American defense lines. The attack was repulsed, but the troops used to repel it were the last of the reserves (a battalion of the 57th Infantry, P.S.),¹ and their diversion to that task prevented their being used in a counterattack against

¹The Japanese reported the 57th Infantry. Actually, it was the 51st Infantry, P.A.



European.

This photo from neutral sources states that a Japanese landing party has reached shore in the Solomon Islands. This action is similar to landings made in the Philippines.

the Japanese troops which had fought their way ashore. During the night the Japanese succeeded in landing reinforcements, and the last chance of repelling the invasion at this point was lost.

The next two days were employed by the Japanese in enlarging and consolidating the beach-head, taking over and repairing the docking facilities at Lingayen, and landing more troops and supplies. About five divisions with Corps and auxiliary troops composed the expedition, and such was the thoroughness of the Japanese organization and the speed with which they worked that by midnight of December 26th, all these troops were in position and ready for the push south.

ADVANCE TO MANILA

When it became evident that the beach defense positions were no longer tenable, the American forces—which apparently consisted of portions of the First Philippine Division with the 26th Cavalry (Philippine Scouts) and a battery of horse artillery attached—withdrawed during the night to positions in the vicinity of San Carlos. Any further attempts to interfere with the Japanese landing would have involved the American troops in an action from which they probably could not have extricated themselves, and the road south to the plains around Manila where MacArthur's main army was concentrating would have been completely undefended.

THE DRIVE SOUTH

When the Japanese jumped off on their southward drive at dawn on the 27th, they found that only a small force, consisting of the 26th Cavalry with its attached artillery and a few engineers, had been left to maintain contact with them and to destroy the roads and bridges in an effort to delay their advance. The Americans made no effort to hold any positions even long enough to make the leading Japanese division deploy, but contented themselves with employing the individual rifle troops of the cavalry as independent security detachments for the engineer working parties while the latter were engaged in their demolition work. It was a typical cavalry delaying action, with the Americans holding up the Japanese advance guards at the road blocks just long enough to make them halt their mechanized vehicles and deploy their cyclist infantry for an attack.

Before the attack could be driven home, the engineers would complete their work of destruction, and the cavalrymen would fade away through the woods, bamboo thickets, and cane brakes to reassemble and repeat the operation three or four miles farther down the road. Meanwhile, the Japanese would be left with two or three hours repair work on their hands and the problem of setting up their own outpost line to cover their engineers while the work of reconstruction went on.

The Japanese had organized their advance forces in

the best possible way to cope with these tactics. Four years of operation against lightly armed guerrilla forces in China had taught them that the spearhead of their advance should be composed of light tanks and a mobile body of troops such as cavalry or cyclist infantry. The tanks would suffer comparatively light losses when opposed by light cavalry, and the light mobile troops could drive off the enemy covering forces when the tanks were held up by a road block or other demolition work.

In China the tanks were used as the point of the advance and, acting aggressively, pressed forward along the road until held up by a road block. If the terrain permitted, they attempted to outflank the resistance in their front. But if the site of the demolition work had been located in a narrow defile, the leading tanks opened fire from the road on any targets they could find. The supporting cavalry was then brought up, dismounted, and used to drive off the enemy covering forces. This allowed the engineers to repair the damage, after which the advance was resumed.

These tactics were employed by the Japanese on their march south from Lingayen, although they had no cavalry. That branch was not considered suitable for use in landing operations, because its transport by sea was uneconomical and difficult in the face of active resistance. In its place, they employed cyclist infantry. These required no additional transport space for carrying horses and forage, and were also useful as infantry in the assault on the beach. Later, mounted on bicycles, they possessed sufficient mobility to accompany and support the advance mechanized units.

From December 26th, when the advance on Manila from Lamon Bay and Lingayen began, all the efforts of the Japanese were directed towards bottling up the American forces in the vicinity of Manila and preventing their occupation of the Bataan peninsula. Their two invading columns were ideally situated to accomplish this, for one was approaching from the east and another was pressing on Manila from the north, while the American army had to withdraw to the west across the very front of the latter Japanese unit.

This entailed almost superhuman efforts on the part of the two small American rear guards which were given the mission of delaying the Japanese advance until the withdrawal could be accomplished. They performed their work well, for the Japanese did not enter Manila until January 2nd, and by then the main American forces with the bulk of their equipment were safely in position on Bataan.

The virtual annihilation of the 26th Cavalry and two battalions of the 57th Infantry² speaks well for the gallant behavior of the rear guards which made this move possible.

²51st Infantry.

(This article will be concluded in the next issue with a graphic description of the siege of Bataan and the fall of Corregidor.)



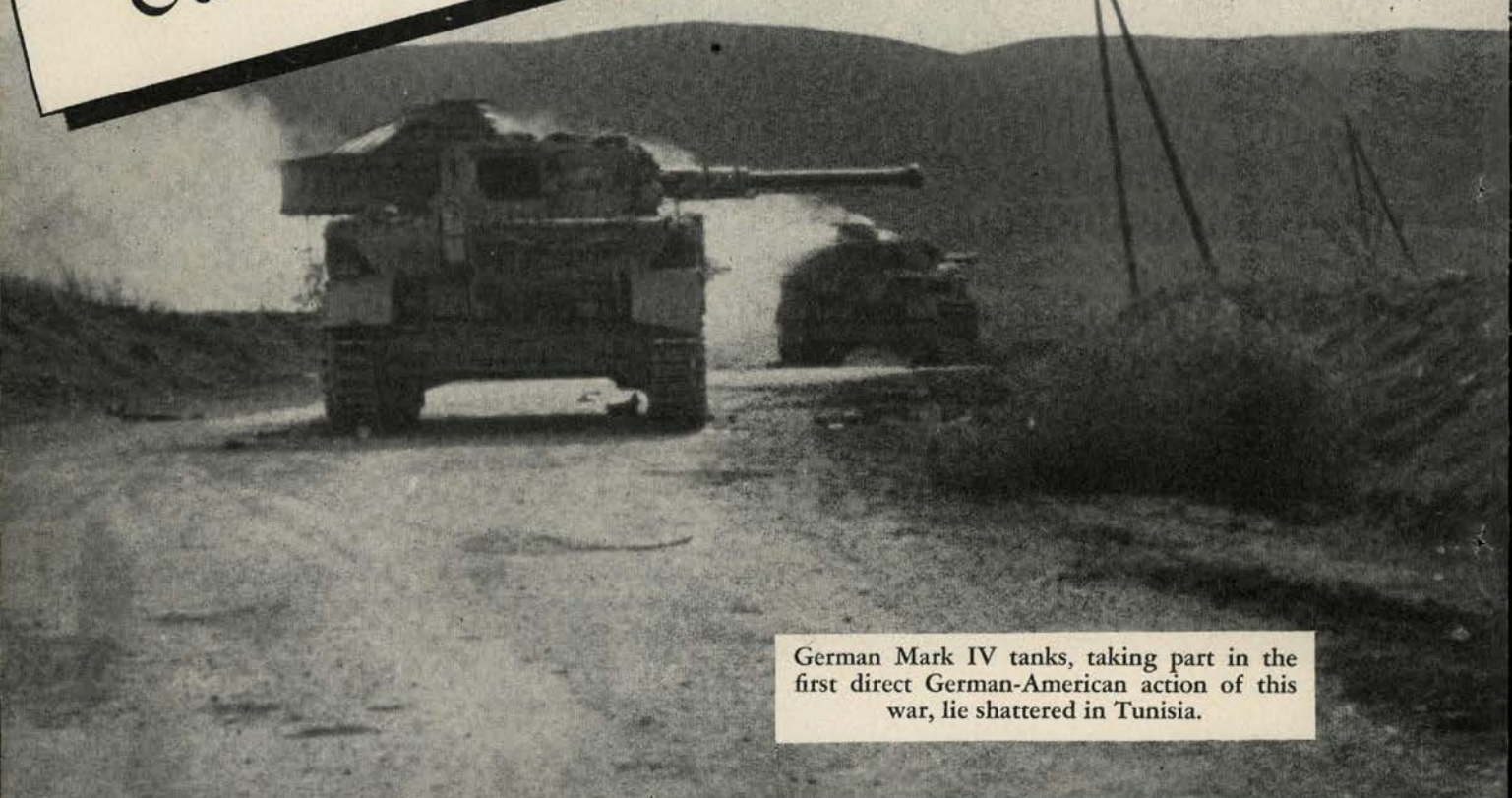
JAP 75's

The Japanese 75mm—2590(1930) field gun shown in these pictures, and probably used in the Philippines, is modeled after the French Schneider field piece. It is a modern high velocity weapon and, although dated 1930, is believed not to have been issued until much later. The gun is intended for high speed towage by mechanized equipment.



cut when needed at Binalonan

FILED Lone U. S. Tank Slugs It Out with the Nazis



German Mark IV tanks, taking part in the first direct German-American action of this war, lie shattered in Tunisia.

WHEN the Germans launched their unexpected attack on the lightly held American positions in Tunisia in early February, one lone American tank and crew boldly took on a running fight with a column of German Mark IV's and one giant 52-ton Mark VI. They destroyed four of the Mark IV's, rescued a column of American trucks and half-tracks, and saved an estimated 300 lives.

Here is the story of the embattled tank, the "Texas," as told by its commander, Lt. Colonel Louis V. High-tower, and reported through Associated Press by Harold V. Boyle:

We pulled out about 7 o'clock that morning while about thirty tanks were attacking us at a hill called Djebel Lessouda, not far from Faid.

When we got there, fifteen Mark IV's were ahead of us and twenty-two more on the crest to the left.

We sat there and shot at them, knocked out about five or six, and lost three ourselves. Then the twenty-two tanks came over the hill toward us and turned out to be fifty, including at least four of their giant Mark VI's which so far as I know have never been in action on any other front before.

We drew back to cover as they tried their usual trick

of envelopment. We kept pivoting back and shooting at first one German flank and then the other. We kept from being surrounded, but at a heavy cost—then their dive bombers caught us, and came over in wave after wave.

They didn't hurt us much, but smoked us up so that we couldn't see through the dust. We pulled across two miles of open field into Sidi Bouzid while our artillery covered us by using their 105mm howitzers for direct fire. They were hitting German tanks at every pop, and I saw three go up in flames with just three rounds.

We reorganized in the town, but after two hours they began another huge double envelopment. We got our artillery and two supply trains safely out, and then started down the road to Gafsa ourselves.

After getting all our tanks away except two light and two mediums we took out across country and came across nine Mark IV's and one Mark VI about 700 yards away. They were opening fire on one of our columns of half-tracks and light vehicles, which were completely helpless before them.

The guns on the other medium tank were jammed, and since the light tanks were too thinly armored for the task before us, I sent all three away and signaled

the column of our light vehicles to swing behind us.

As the Germans turned in for what they thought was a picnic, we let go and struck their commander's tank with our third shot and stopped him as cold as if he had hit a tree. We got a second tank with one shot.

PULLED AWAY FIRING

The eight remaining Nazi tanks then braked to a stop, but we kept going at about fourteen miles an hour, and fired steadily as we pulled away. We hit one tank three times before discovering that it was a Mark VI. I saw the last shell burst against him but don't know whether he was disabled. However, he didn't fire any more.

As another Mark IV came up to him, we hit it at the same range with one shot. It went through the turret and the tank broke into flame like a flower.

Another Mark IV approached the burned tank—which was stupid because we had only to bring over our gun a hair—and he flamed up with our first shot. Then our gun momentarily jammed as the five remaining Mark IV's really opened up on us.

We could actually see the shells coming along close to the ground like a ricocheting stone in water.

One shell fragment came right down the tube of

our gun, but caused no serious injury among our crew. Another shell went through the bogie wheels, under the tank, and tore out the other side like a rabbit. Another hit our turret but didn't penetrate. Then a shell struck our suspension system.

Each shell that hit sounded like a giant anvil or tremendous bell. It made your ears ring. As soon as our gun was unjammed, we began firing again but another shell mashed the bottom of our left rear gas tank; and flaming gasoline spurted over the back of our tank, its tracks, and on the ground about us.

"Now Is THE TIME TO GIT"

I shouted to my boys: "Now is the time to git." We boiled out of there like peas from a hot pod before the tank had stopped running. We dodged behind the tank and kept it between us and the Germans. After walking a couple of miles we fixed up a half-track we found abandoned, picked up a soldier with a broken hip near by, loaded him in and drove on.

We came to another tank which some of our fellows were about to destroy because of engine trouble. We put it back in shape. Our crew got in and we picked up our convoy of half-tracks and jeeps and came on home.



These two German Mark IV "specials," with new long 75mm tank gun, were knocked out by American forces in Tunisia. Gun is super high velocity, has muzzle brake, and uses electric instead of percussion primer. Turret that of a Mark III.



U. S. Marine Corps.

Guadalcanal

U. S. Marine tanks rumble through palm trees toward the front lines to assist ground forces turn back counterattacking Japanese at Guadalcanal.

Tunisia

A self propelled 105mm howitzer or M-7 ready to roll in Tunisia.





Buna

General Stuart tank advancing in Buna. Australian soldiers are seen marching ahead of the tanks into the tough battle, which the Allies finally won.



European.



Russia

American M-3 General Stuart tanks cross a mountain river in the Northern Caucasus.

Sovfoto.

Libya

General Sherman, U. S. built 30-ton tanks move up towards the Alamein line before the great Eighth Army offensive started. The General Sherman has a speed of 30mph, and its armament includes a 75mm gun in the turret with a 360 degree traverse. It has an all-cast body built in the U.S.A.

British official photograph.





American Bivouac in North Africa



The CARDERD Fighting French Reached Tripoli from South and East



Troops of the famous French Camel Corps took part in reconnaissance work for Fighting French Brigadier General Leclerc's light armored column.

TWO Fighting French groups participated in the Allied drive that forced Rommel from the gates of Alexandria to the relative shelter of the Tunisian Mareth line. One, under the command of General Edgar de Larminat, moved along with the British Eighth Army all the way from El Alamein to the "shores of Tripoli." Most of these men were veterans of the Battle of Bir Hakeim. The other column, under the command of Brigadier General Jacques Leclerc, made a record-breaking trip from the Tchad region—the hub of Africa—right up to Tripoli. They fought all the way, and arrived in schedule time to occupy Fezzan, now one of the missing jewels of the Italian Crown.

These two Fighting French groups differed in size and equipment, as the military situations they had to face were obviously different. The troops under de Larminat had to pursue a strong armored force of well trained and equipped Germans and Italians. The group under General Leclerc had to accomplish a long trek across mountains and desert, and it had to attack well defended and entrenched positions surrounding the Italian oases and the little villages that were the anchors of Axis communications across that region.

Equipped with British tanks, these Fighting French tank troops, along with their British allies, chased Rommel all the way from Egypt to Tunisia.



General de Larminat's troops used Brenn guns, medium tanks, and artillery in their march to the west. General Leclerc's forces used camel troops for reconnaissance and cleaning up purposes, light trucks, armored cars, and light artillery in their fight north to Tripoli. Both groups are now placed under the command of General de Larminat, since General Leclerc has been appointed to General Montgomery's staff.

The most severe fighting of this column took place at Cum el Araneb, Catroun and Mizda. Despite the constant fighting, skirmishes, and the great difficulties encountered in supplying the column with the necessary food and water, the losses were light.

To bring a full truck-load of gasoline from the Camerouns, where gas is unshipped, to Mizda, the town where the last fighting of the column took place, it was necessary to start with three fully loaded trucks. Because of the amount of arms and ammunition found in the conquered Italian outposts, however, the problem of supply in munitions and arms was simplified.

A small formation of the Free French Air Force kept the column informed of the movements of the enemy, maintained communications between the various elements of the column and, when necessary, brought the indispensable supplies.

On several occasions this flying group was attacked by Italian fighters. Once it managed to damage two of them which were later found in very bad shape on the Sehba airdrome when that base fell into the hands of General Leclerc's men. Many Italian soldiers were made prisoners, but it has not yet been possible to ascertain the exact number.

The column arrived in Tripoli soon after the Allied troops from Egypt.

The Fighting French light armored division that accompanied the Eighth Army from El Alamein in its pursuit of Rommel's forces across the Libyan desert, continued on into Tunisia.

Now the German *Swastika* flies no more in Bengardane, where the French *Tricolor* has been run up again by the Fighting French—a symbol of things to come in France proper.

Soviet Cavalry

1918-1943

by Colonel General O. I. Gorodouikov, Red Army



MODERN warfare is characterized by the massed utilization of motors and multiform technique on land, on water, and in the air. This characterization has exerted its influence on tactics, and has also modified fighting formations, but from experiences of the present war, it has been proved that the value of cavalry as a modern arm of the service has not diminished.

Equipped with the powerful, first-class weapons created during the years of the Stalinist Five-Year Plans, the Red cavalry has successfully stemmed the advance (and started the retreat) of the German armored hordes. The charred remains of burned and wrecked tanks, the twisted frames of guns and machines, as well as thousands of corpses, lined the roads along which the Germans advanced into Russia. (The same roads over which the Germans are now retreating.)

BIRTH OF RED ARMY CAVALRY

Modern Soviet cavalry is an outgrowth of centuries of Russian cavalry tradition. In the military annals of the Russian people, the cavalry has always shown its heroic fighting skill, and its able and bold action has often decided the issue of battle.

During the First World War, the Russian cavalry had difficulty in showing its fighting abilities: first, because of the positional warfare that was waged, and secondly, because of the number of tsarist generals who failed to make proper use of this arm. In fact, the inefficient use of cavalry in almost ALL of the armies during the First World War, caused many shortsighted

"theoreticians" to claim that cavalry was powerless against modern technique—that its rôle as an independent arm of troops was over. In this fallacious viewpoint, they contrasted the "new technique of war" with the former "purely saber cavalry," instead of visualizing a re-armed cavalry with tactics adapted to conform with new technical equipment.

In Russia, during the Civil War of 1917-19, Stalin visualized the huge rôle of cavalry as capable of performing innumerable independent missions. He stressed its mighty power when used in large forces rather than in small dispersed units. With great insight, he foresaw these large cavalry forces as one of the most decisive factors in the strength of the Red Army.

This new organization was started when the 4th Cavalry Division was formed in December, 1918, near Tsaritsin (now Stalingrad). Later, in July, 1919, with the addition of the 6th Cavalry Division, the First Cavalry Corps in the Red Army was formed, under the command of General Budyenny. This cavalry corps immediately proved of tremendous significance and value by dealing the Whiteguard forces many defeats.

When the Whiteguard bands threatened the capital of the country in the autumn of 1919, Stalin proposed a brilliant plan for routing them by striking through Karkov-Donbas-Rostov. He employed large cavalry forces as the decisive means of carrying out this plan. On November 19, 1919, as a result of the success of this operation, Budyenny's cavalry corps was expanded into the *First Mounted Army*, commanded by Voroshilov,

Budyenny and Schadenko. This Mounted Army, under Stalin's direction, was the basic and deciding factor leading to the destruction of the enemies of the Soviet people on all the fronts of the Civil War.

Besides the First Mounted Army, other cavalry units also covered their standards with undying glory in the grim years of the Civil War. The cavalry division commanded by Tomin on the Eastern Front in 1919; the Second Mounted Army, formed at Stalin's initiative on the Wrangel Front during the summer and autumn of 1920; the 3rd Cavalry Corps on the Western Front in the summer and on the Crimean Front in the winter of 1920; the guerilla cavalry detachment in the Trans-Baikal and Amur region in 1921-1922; the 12th and 18th Cavalry Division in the Trans-Caucasus in 1920-1921; the cavalry on the Turkestan Front in the struggle against the Basmach bandits from 1919 to 1926—all these cavalry units showed by their fighting actions in the most varied circumstances what strategic cavalry is capable of doing when it is properly utilized and directed.

Thus, as far back as the 1920's, Soviet cavalry utterly refuted the assertion of the many "theoreticians" that "cavalry no longer played a rôle" in modern warfare.

GROWTH AND EQUIPMENT

In the years of peaceful upbuilding that followed the Civil War, new arms of the service were formed in the Soviet Union—aviation, motor-mechanized units and others—but along with these, the Red cavalry continued to grow and perfect itself by acquiring new technical equipment.

In paying considerable attention to cavalry, Stalin was confident that cavalry units, fitted out with modern

This Red army detachment commander reports to Marshall Budyenny at an observation point. Lieutenant General Kureliumov stands behind the Marshall.



technique and well trained in military tactics, would find wide application in the impending war. In his greetings to the First Mounted Army on the occasion of its fifteenth anniversary (Nov. 19, 1934) he wrote: "Let us hope that the sharp sabers and the well aimed bullets of the Red cavalry will, when circumstances require it, serve the cause of the defense of our great country as it did in the not distant past."

The Red Army cavalry was copiously equipped with machine guns and artillery of all types, trench mortar guns, tommy guns, means of antiaircraft and antitank defense, tanks, and armored cars. With these means, it acquired, more than ever before, the character of a powerful arm of the service, capable of waging all manner of warfare.

In actual operations at Lake Hassan (1939), in the encounters near the Halhin Gol River, and in the battles on the fields of Finland, the cavalry units had the opportunity to test their guns, improve their formations and to master modern forms of warfare. Soviet cavalrymen made a careful study of the experience of the latest wars in Europe, and on the basis of the conclusions drawn from this study, they reorganized the arm, improved their equipment, and prepared for combative action.

Soviet cavalry now comprises a manifold, well organized, formidable system of mechanized equipment and, in close coördination with land and air units, it presents a redoubtable force to the Hitlerite army, and particularly to their motor-mechanized detachments.

For the second year now the Red Army and the whole of the Soviet people have been waging a war of liberation against the German invaders, and the Red cavalry has completely justified the hopes of the leader of the Soviet people. By speedy maneuvering and the skilful combination of mounted and dismounted warfare, cavalry units, in coördination with other arms of the service, have inflicted and are still inflicting heavy defeats on the Hitlerites. Wherever the enemy has come up against Soviet cavalrymen, he has invariably been beaten.

PROTECTING THE WITHDRAWAL, 1941

In the initial period of the war, the cavalry of the Red Army carried out, for the most part, operations of a defensive character, which enabled their army units to fulfill two general strategic objectives: first, an orderly withdrawal to join the main forces of the army; and second, infliction of the maximum damage and losses to the man power and military technique of the invaders.

By thrusting "wedges" of armored tank units and motorized infantry into our defense positions, the German troops, accompanied by massed air forces, tried to make flanking detours around our units, close the wedge, surround our troops, and operate in our flanks and rear. At the same time, their own flanks were very often exposed to the blows of our cavalry detachments,



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which broke through the lines of the enemy defense.

From June 24-31, 1941,¹ the cavalry detachment, commanded by Major General Kryuchenkin was entrusted with the defense line at the Ikva River, in opposition to the units of General Kleyst's 1st Armored Tank Army. On June 26th and 27th, acting in coordination with tanks, the detachment defeated the 16th German Tank Division, smashed more than 40 tanks and a battalion of motorcycle troops, and captured an antitank battery and a large number of motorcycles, trucks and guns. More than 1,000 German soldiers and officers were killed in this battle.

During the same period, Major General Belov's cavalry corps held the German-Rumanian army units at bay near the fordings across the Reut River, and, with a powerful blow of cavalry and tanks, inflicted a decisive defeat on the 50th German Motorized Division and the 1st and 5th Rumanian Infantry Divisions.

In August, 1941, several units of the 2d Armored Tank Army of the much vaunted General Guderian—one of the theoreticians of tank warfare—began advancing from the district of Chausi and Kricney in the direction of Roslav in an attempt to emerge behind the lines of our troops to the north of Roslav and surround them.

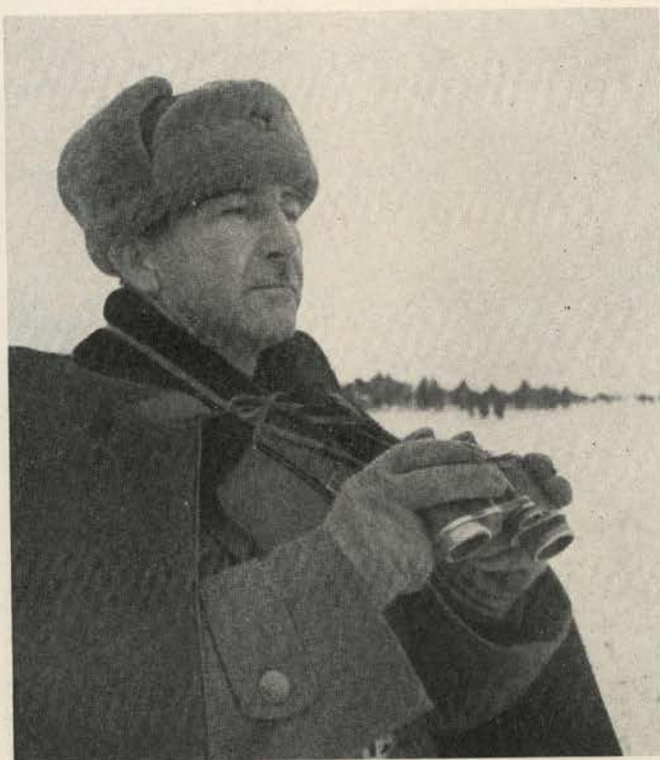
In their turn, the flank units of Guderian's group were exposed to the attacks of our cavalry detachments commanded by Colonels Yakunin and Kuliev. Effect-

ing a forced march under cover of night, the Soviet cavalry, at dawn on the 2nd of August, attacked Guderian's columns near Shumachi and destroyed 30 tanks, 50 machines with infantry, and 2 trench mortar batteries. The cavalry thus engaged the main forces of the enemy and, by skillful maneuvering, enabled our troops to carry out their withdrawal as planned.

In the operations at Shtepov in the Ukraine during October, 1941, when the German armored columns were straining toward the northeast to reach Suman and surround the Soviet troops, General Belov's cavalry, augmented by tank units and motorized infantry, skillfully maneuvered and emerged on the flank of the detouring German group. With a powerful flanking blow, the cavalry routed the 9th Tank and the 25th Motorized Divisions of the Germans and wiped out 1,500 soldiers and officers and captured 300 trucks, 180 motorcycles and much other miscellaneous war material.

ATTACKS AGAINST ARMORED FORCES, 1941-1942

At Rostov (Nov. 28, 1941), for the first time, the Hitlerite army was counterattacked and fled the spot, and Kleyst's crack 1st Armored Tank Army was routed. Here, Soviet strategic cavalry carried out its first active offensive operations. The strong attack of the cavalry group of the Southern Front, was dispatched by Colonel General Cherevichenko to the flank of Kleyst's army, and, together with an attack carried out by our infantry and tanks, completely routed Kleyst's force comprised of the 13th, 14th, and 16th Tank and the 60th Mechanized German Divisions. This action re-



Major General Belov, Commander of the First Cossack Corps of Guards, defeated Guderian's armored columns during the First Battle of Rostov in 1941.

¹Germany invaded Russian soil June 22nd.

sulted in the liberation of Rostov from the enemy.

At about the same time on the Central Front, the German command concentrated a strong army group in the region of Yelets, where they intended to take the districts of Gryazi and Voronezh for their winter quarters and cut off the railroad communication between Moscow and the North Caucasus. In the operations undertaken to wipe out this grouping of the Germans, an active part was again played by Red Army cavalry.

On December 6, 1941, the Third Guards Cavalry Corps under General Kryuchenkin aimed a blow northward from the district south of Yelets, and in the resulting battle destroyed the 95th German Infantry Division and emerged in the neighborhood of Rossoshnoye on the communication lines of the enemy's 45th Division. Here the cavalry guards closed the circle around the German grouping by joining with Colonel Kuliev's cavalry unit, advancing from the region of Telegino. In coordination with rifle units and tanks, they utterly wiped out the 45th, 95th and 134th German Infantry Divisions, which lost 12,000 killed and wounded and left 226 guns, 319 machine guns, 907 trucks and a large amount of other war materials on the field of battle.

On December 7th, the First Guards Cavalry Corps inflicted a powerful blow at the flank of the German formation near Stalinogorsk and Venyev (to the south), cut the German "wedge" at its very foundations, and in coordinated action with Soviet tank forces, utterly



Lieutenant General Kirichenko, Commander of the Fourth Cossack Corps of Guards, was particularly prominent in newspaper accounts of the Soviet advance in the Caucasus in January and February, 1943.

wiped out the 17th Tank, 29th Motorized and 167th Infantry Divisions of Guderian's grouping. After suffering huge losses in both man power and machines, they were forced to retreat toward the southwest and to abandon all hopes of approaching the Soviet capital.

CAVALRY AT MOSCOW

The detachments of our strategic cavalry carried out important, responsible tasks at the most crucial stage of the war against the invaders—the great battles near Moscow where, under the personal leadership of Stalin, the forces of the Red Army inflicted bitter defeat upon the Hitlerite plunder-army and repulsed it from Moscow.

Hitler had placed before his troops the task of "finishing with the Soviet capital regardless of everything, by whatever means, and in the shortest possible time," and had thrown two-thirds of his aviation, 13 tank and 38 motorized and infantry divisions on the storm of Moscow. He was resolved to grip Moscow in a vise from the north and south and thus possess himself of the heart of the Soviet Union.

From the South, picked troops from General Guderian's 2d Armored Tank Army carried out a strategic detour in the direction of Kashira and Ryazan. The vanguard of this group approached to within 25-30 kilometers of these two points, and the heroic cavalymen, commanded by General Belov, were the first to deal a crushing blow at the armored columns of General Guderian's troops.



Major General Dovator, hero of the siege of Moscow, was reported killed in action while on a special mission behind the enemy lines.

Enjoying the support of the whole Soviet population in the territory temporarily occupied by the Hitlerites, our cavalry units and detachments penetrated far behind the enemy lines and carried out bold and energetic operations against the foe's communications. Particularly successful was a raid behind the lines of the 6th German Army by the Cossack groups commanded by Major General Dovator, Hero of the Soviet Union. Breaking through to the enemy position, these Kuban-Cossacks (armed only with machine guns for they had no artillery) carried out a heroic raid behind the enemy lines and routed the 430th Infantry Regiment.

Despite the fact that the German command dispatched considerable forces against the Cossacks, whose appearance in the countryside had caused terror and panic behind the German lines, General Dovator's cavalry broke through the enemy front for a second time and united with their own forces safe and unharmed.

The extent of the panic that reigned behind the German lines may be judged by the fact alone that the German prisoners claimed that "a hundred thousand Soviet Cossacks had gotten through their lines!" while in reality Dovator's cavalry numbered no more than 2,000 sabers.

After the Germans had been repulsed from Moscow in December, 1941, General Dovator was extremely successful in the pursuit of the Germans. Having met bitter defeat near Ruza, the Germans began to withdraw and covered their retreat with a strong rear guard. General Dovator sent a part of his corps after the German rear guard, while his main forces set out in pursuit of the Germans. Going parallel with the main column of the retreating Germans, he followed along forest roads, and came out to meet the 78th German Infantry Division. With swift, fierce attacks, he completely routed the enemy, utterly wiped out the man power and captured 82 guns, 143 machine guns, more than 400 trucks and other trophies.

INDEPENDENT MISSIONS

Major General Sokolov's units acted with equal daring and resoluteness. Penetrating far behind the enemy lines, they seized very important communications of the German troops, and over a period of several months inflicted heavy losses by their unexpected attacks. They thereby ensured the successful actions of our army units advancing from the front lines.

On another occasion, the Guards Cavalry Division commanded by Major General Tutarinov, was given the assignment of holding an important defense boundary. The enemy sent several units of an Alpine rifle corps, two tank and two infantry divisions into attack against the cavalry division, but despite the fact that the Germans far outnumbered them, the cavalry division held the line for several days and inflicted a crushing defeat on the foe. Wedging in between the advancing German units, under cover of night, the Cossacks left only small forces to screen their movements at the front,

moved their main forces behind the enemy lines, and emerged in the rear of the central German grouping. At dawn the cavalry guards began a fierce mounted attack and by skilful maneuvering succeeded in cutting off the enemy infantry from their tanks. Then, in co-ordination with other forces, they completed the rout of the "SS" regiment and 4 Alpine rifle regiments.

In the vicinity of Kropotkin the Cossack Guards Cavalry Division commanded by Major General Milerov carried out a series of swift mounted attacks in co-ordination with a squadron of storming planes. In the course of a single day it routed a detachment of Rumanian cavalry and killed more than a thousand Rumanian soldiers and officers.

At still another time, the Germans sent two infantry regiments, supported by a considerable force of artillery and six tanks, against a guards cavalry unit. Cavalry Commander Danilovich went into counterattack and, after cutting a battalion of the infantry to pieces, scattered and repulsed the rest.

REARGUARD AND COUNTERATTACK DURING WITHDRAWAL, 1942

During the second strategic withdrawal of the Red Army (July, 1942), a large group of German mobile forces having penetrated into the district near Balta, threatened to cut off the withdrawal of our rifle units by moving on Pervomaisk.

The cavalry corps under command of Major General Belov was dispatched to halt the enemy's advance, and in two days and nights it not only covered more than 100 kilometers in forced marches over roadless country, but engaged in battle during the course of the march. By a sudden blow from the flank, the corps drove the enemy out of Balta, and in this operation defeated the 19th Motorized, 293rd and 297th Infantry Divisions of the German army and ensured the withdrawal of Red Army units according to plan.

The entire Soviet people is proud of the fighting exploits of the Cossacks commanded by Lieutenant General Kirichenko. They show equal skill and bravery in fighting either mounted or dismounted. They make bold onslaughts in mounted formation into the enemy ranks, and with true Cossack daring and prowess, they do away with the German invaders. There is an iron rule prevailing among the Cossacks—not a step back without the commander's order. In ten days of fighting the Cossacks of Lieutenant General Kirichenko's guard corps destroyed 50 German tanks, 3 airplanes, 10 heavy gun batteries and captured 8 radio stations, and wiped out with sword and shell more than 5,000 German soldiers and officers.

SUCCESS OF THE SOVIET CAVALRY GUARDS

At a crucial moment for the country, the Cossacks of the quiet Don, of the majestic Kuban, and the stormy Terek, the peoples of Kalmykia and the steppes of Stavropol rose up in struggle against the mortal



In the northern Caucasus, the entire population helped the Red Army in the defense of their native land. The Germans in their drive south from Rostov in 1942 were never able to penetrate these mountains.

enemy. The entire population of *stanitsas* and villages—brothers, fathers and sons, and sometimes whole families—joined the ranks of the Red Army as volunteers. These people, from one village and from the same families, mounted on their own horses, united together to form companies, divisions and corps. Experienced fighting commanders were placed at the head of these Cossack units and detachments. They went into battle to take their revenge on the enemy for our desecrated land, for the plunder of our towns and villages, for the atrocities and violence perpetrated upon our women and children.

With rage and hatred for the foe in their hearts, the Cossacks are fighting ably and bravely—defending every inch of native soil. Their fighting motto is not only to halt the enemy but to beat him and drive him out of the country.

Merited recognition of the heroic actions of cavalry units is found in Stalin's order awarding the rank of guardsmen to four cavalry corps and a separate cavalry division: "For valor displayed in defending the country against the German invaders; for endurance, bravery, discipline and efficient organization; for heroism of the men and officers."

The Soviet Cavalry Guards of 1941-1943, just as the

First and Second Mounted Armies formed in 1919-1920, are a genuine menace for the Hitlerite army of pillage and plunder. They set the pace for all the units of our glorious cavalry forces, which follow close behind, smashing the invading hordes.

The success of our cavalry detachments is ensured because at their head stand educated, daring and battle-hardened officers; while cavalry units are commanded by experienced and discerning generals. Among the cavalry commanders there are many older men who went through the school of the Civil War, as well as many young, valiant and talented officers. These men are not given to swagger and conceit. They persistently study and master new methods and forms of warfare. They learn all that they can from actual experience in battle and teach their subordinates.

In hard-fought battles, matching their forces in single combat against the perfidious enemy, Soviet cavalry is adding new pages to the glorious history of Russian cavalry. They are hastening the day of final victory over the enemy. They have firm faith that on the battlefields of Europe, English and American soldiers will soon be fighting side by side with them, so that by their united efforts Hitlerism will be destroyed and wiped out for all time.



BELOV'S COSSACK

by S. Garin

THE weeks I was able to spend with Belov's cavalry corps gave me a chance to see for myself what a tremendous rôle modern Soviet cavalry played in the smashing of the armies of Hitler at the approaches to Moscow. It is not only horsemen that make up a modern cavalry force. The bulk of it, of course, is made up of mounted men armed with tommy guns and machine guns, but added to it are also tank, artillery, air and other specialized units acting in strict coördination.

Lieutenant General Belov's corps include representatives of numerous Soviet nationalities. They are all men united in their hatred for the enemy and in their devotion to the service they have entered.

But that does not mean that they only know their horse and keen, cold steel, as horsemen of foregone years. On the contrary, these cavalymen of 1942 have among them many a skilled parachute jumper, veterans of successful descent operations; people who know the tank from A to Z, and men who can handle any gun made, including the guns taken from the Germans, and to whom modern infantry tactics is an open book.

"It cannot be otherwise," Belov himself often says. "The blade is a wonderful thing, but not always the most appropriate weapon. And it is not for Cossacks to sit back and wait!"

GENERAL BELOV

I first met General Belov on the distant approaches to Moscow in the days when a fierce struggle was being fought for the Soviet capital. The commander of the cavalry guards corps was standing beside his horse, tenderly patting its sides. He was talking to a young Red Army man. Approaching nearer, I caught the end of the conversation:

"So you think my horse is something special," he was saying. "All horses like cleanliness, and what they

"But training told . . ." Below Soviet cavalymen are shown firing over immobile horses during training period.



look like depends on how you take care of them. I am an old hand in the cavalry. . . . You weren't yet born when I joined. And I must say that not a single day has passed that I haven't looked after my horse. And I haven't any too much time on my hands, have I?"

Later on I found out that while inspecting his squadrons before going into action he had noted the unsatisfactory condition of the horses of some young cavalymen. He had immediately detected evidence of careless grooming. Now, five days later, he had looked up the men and had given them his advice.

To me this episode is quite characteristic of this fighting general. A courageous soldier, he is exacting toward himself and others, and makes his force fully worthy of its name: The First Cavalry Guards Corps.

NIGHT ATTACK

During the spring thaw of 1942, the rising waters inundated the meadows and gullies, and turned the swamps into welling mire. From the southwest it was impossible to approach the city. The Germans were jubilant: "Wait until the river overflows its banks yet; the Russians can then just try and get at us!" During the winter they had fortified the approaches to the city, and even in places which now were under water there were forts placed in checkerboard fashion.

The Germans felt quite sure of themselves behind the barrier of water, reinforced concrete, and fire. The local people say that as the Germans soused themselves to celebrate Easter they kept on saying: "We'll sit here until summer, and then we'll push forward. . . ." But things turned out differently.

One nice night all the seemingly insurmountable barriers were breached.

Prisoner of war Werner Kraus told me later that he woke to cries of, "The Cossacks are in the town."

The Germans ran in panic, so much so that they did not even have time to destroy military supplies, and the town was taken by the cavalry guards of Lieutenant General Belov.

Preparations for the operation were as painstaking and detailed as the blow was sudden. The men put in some back-breaking work forcing their way through the thawing snow and wallowing for hours in icy water.

As usual, the advance was preceded by scouting details composed of the cream of the force. It was up to them to do away with the German field patrols and separate sentries, and pick out the best route for the artillery.

Contrary to tradition the attack was launched with-

GUARDS[★]—

out preliminary artillery preparation, for the force was able to push up to the most vulnerable point of the German defenses under the cover of night and plunge into the final charge forthwith. The outcome of the battle was decided literally in 10-15 minutes, for the Germans had no time even to offer any worthwhile resistance.

CAVALRY AGAINST TANKS

To this very day we still know comparatively little of the rôle of cavalry in modern war. As a matter of fact not so long ago there were people who would smile skeptically when talk turned to the mounted branch of the service.

"Horses?" they would say with disdain. "What are they good for in this war of motors, tanks, airplanes and armored cars? These are not the times of Alexander Nevsky. . . ."

There will come a time, however, when war historians, paying tribute to the heroism of the Soviet soldier, will devote particularly inspired pages to the rôle played by the Cossacks in shattering the army of Guderian, the German "tank god." Stationed on a sector where Guderian's tank forces were operating, Belov's cavalry broke through the enemy's lines and began to press him back. All the varied weapons of a cavalry unit were put into action under the beneficent cover of night, so feared by the German tankmen. Encircling the enemy, the guardsmen on horseback and on foot drove in lightning-like hammer blows that forced the Germans out of their fortified positions and sent them reeling back.

Now the fascist air force was hurled into action to try to save the situation. As the dive bombers appeared, the cavalymen rapidly scattered, took cover in the woods and camouflaged their prone, motionless horses with snow. The bombers swept the locality with machine-gun fire and showered down shrapnel bombs. Had the horses been stampeded by the raiders, they might have jeopardized success. But training told; and the bombs and roaring motors of the low-flying planes did not sow panic. Lying next to their horses, the cavalymen kept up a steady fire from automatic rifles and machine guns at the attacking planes. One of them burst into flames and crashed.

"That's something new for cavalry," smiled General Belov.

By this time Soviet fighter planes appeared on the scene and the cavalry could continue pushing on. Shortly a horseman, Sergeant Krasavtsev, General Baranov's dispatch rider, who rode in at breakneck speed, his black cloak and scarlet cowl flying in the wind, re-



"As usual, the advance was preceded by scouting details composed of the cream of the force."

ported to Belov that the object of the operation had been taken and that our units were pursuing the enemy.

We drove into the liberated city by motor car. On the way General Belov told me:

"Guderian bragged that when his troops took Yelnya the road to Moscow was open and that his tanks could go on without hindrance. I do not know what he says now, but it seems to me he has something quite different on his mind. The rout of the Germans has begun and now he has only one way open for him, and that is westward."

COSSACKS MARCH WEST

Today (fall, 1942), when the outcome of the spring and summer campaign is being decided on the field of battle, Soviet cavalry is pressing farther westward hard on the heels of the enemy on many sectors of the front.

I was with Belov's men when the Germans were driven out of their fortified positions at one point. The fascists were retreating so fast that our troops could hardly keep up with them. In one day they were driven back 25 kilometers. Then the Cossacks moved in and drove the Germans still faster, hammering blow after blow at them. This irresistible cavalry drive which gave the fascists no respite sent them 100 kilometers farther back.

At another sector of the front the enemy cut Soviet communication lines in an effort to hinder our attack. Belov's cavalry was sent to eliminate the menace. By a deep flanking movement it encircled the enemy. Striking from the rear, the Soviet cavalry force cut the Germans off in seven inhabited points and all of the Nazi troops were either killed in action or taken prisoner.

Today General Belov's cavalry guards are continuing to fight their way westward.

★Reprinted from *Moscow News*.

RED CAVALRY*

Present successes of
Red Army cavalry are the
results of years of strategic plan-
ning and training under the command
of brilliant leaders who know how to use it.

GERMAN military literature has been proclaiming the resurrection of cavalry for some time now. Leading German military experts—General Brandt, General von Kochenhausen, and General Poseck—and the "Militar-Wochenblatt" itself are never tired of declaring that the epoch of motorization can and must resuscitate that honorable arm. Two conditions are put forward for the use of cavalry in modern warfare:

Cavalry must be used in great masses and not in small formations.

*EDITOR'S NOTE: This article is reprinted from a chapter of *Military Strength of the Powers*, published in the spring of 1939 under the nom de plume, "Max Werner," and translated by Edward Fitzgerald.

It not only describes Red Army cavalry as it is being used today, but emphasizes (as does General Gorodovikov's article on page 18) that today's Soviet cavalry tactics and weapons have been carefully developed in active coöperation with Red Army mechanization.

As a foreword to the book, the publishers stated, "The author of this book is a noted military authority who cannot use his own name because of the possible reflection on relatives in his native land."

At the time that the book was published, it was dubbed by many as "propaganda." Already, however, time and events have more than once vindicated the author. In October, 1939, The CAVALRY JOURNAL reprinted the chapter, "Poland Between Two Camps," which was such an accurate description of what actually happened that it might have been written after the fall of Poland rather than in the spring of 1939.

Cavalry must be equipped with the latest weapons of modern warfare, and trained to coöperate in particular with tanks.

This German army thesis has been developed from the daily practice of the Red Army. What German military experts recommend in theory has been put into practice by the Red Army. In the civil war, cavalry played a big rôle. Budyenny, the Red cavalry leader during the civil war and later their Inspector-General, writes:

"Throughout the whole civil war two characteristic tendencies were observable in the use of the cavalry arm:

- (1) an effort to use cavalry in masses; and
- (2) the use of strategic cavalry for decisive aims."¹

Cavalry is one of the most important offensive weapons of the Red Army. One can say, in fact, that today the Red Army has a monopoly of the mass use of cavalry under conditions of modern warfare. With its 34 Cavalry Divisions in peacetime, with 2 to 3 Brigades of 2 Regiments each, Soviet cavalry is stronger than the cavalry of Germany, France, Poland, Italy and Japan together. Whereas in the West—in Great Britain and France—cavalry is well on the way to being completely unhorsed and turned into lightly motorized formations, massed cavalry remains in full existence in the Red Army, and it retains its own special tasks. Whereas in Poland, which has the second strongest cavalry army in

¹Budyenny, "Red Cavalry," in the *Bolshevist*, No. 4, 1935, p. 38.

Europe, cavalry represents a substitute for motorization, in the Red Army it represents a *supplementary arm for use with motorized units*.

Red cavalry has a double purpose:

It is used as an independent arm for offensive purposes, and in this case it is used as the core of the troops with which it coöperates. Field Service Regulations 1934 declare:

"Strategic cavalry, with its considerable strength in arms and technical equipment (machine-guns, artillery, tanks, armored cars, and airplanes), is well able to carry out various tasks in battle (attack, defense, reconnaissance, raids) independently."

This idea has been expressed still more clearly in Soviet military literature:

"In future wars cavalry will be given very responsible tasks to perform. Cavalry formations, strongly supported by airplanes, tanks and armored cars will have operative-strategic tasks to perform; wide encirclement of the enemy, and the capture of his most important strategic, economic and political centers—as well as tactical tasks; the final disorganization and destruction of retreating and defeated enemy troops."²

This was the case when the army of Deniken was destroyed in the civil war, and it was also the case during the Russo-Polish War when the chief forces of the Red Army on the Southwest front consisted of cavalry supplemented by weak infantry formations, and of course, at that time, on a low technical level. Today the Red Army has much greater masses of cavalry ready for action, and they are equipped with the last word in military technique. Such masses of cavalry represent a very powerful offensive weapon in the territorial conditions of eastern Europe. The prominent Soviet military theoretician, Svietschin, points out very correctly:

²*Voyna i Revolyutsia*, September-October, 1933.

"Cavalry has not an intrinsic value, but one related to the territorial conditions in which the war is fought and in which cavalry will have to operate."

During the autumn maneuvers in West Russia in 1936 there was one phase of the struggle in which cavalry appeared as the core of an army, supported by tank units and airplanes, and a new combination of arms for future warfare became evident. Together with tank units and motorized infantry, the Red Army has powerful cavalry formations, a highly mobile weapon for an offensive blow or for maneuvering.

At the same time, cavalry in the Red Army is trained to coöperate closely with tanks, and it has its place in the decisive operations of the powerful mechanized units. It is the task of cavalry to follow up tank attacks, to occupy captured territory and mop up isolated enemy posts. It must never offer a good mark to the enemy. It must be highly mobile and be used against the manpower of the enemy, whilst the tanks are destroying his fire concentration. In such a combination of arms the operation of pursuit can be carried out rapidly and with all energy, and the exploitation of successes can be carried out at top speed.

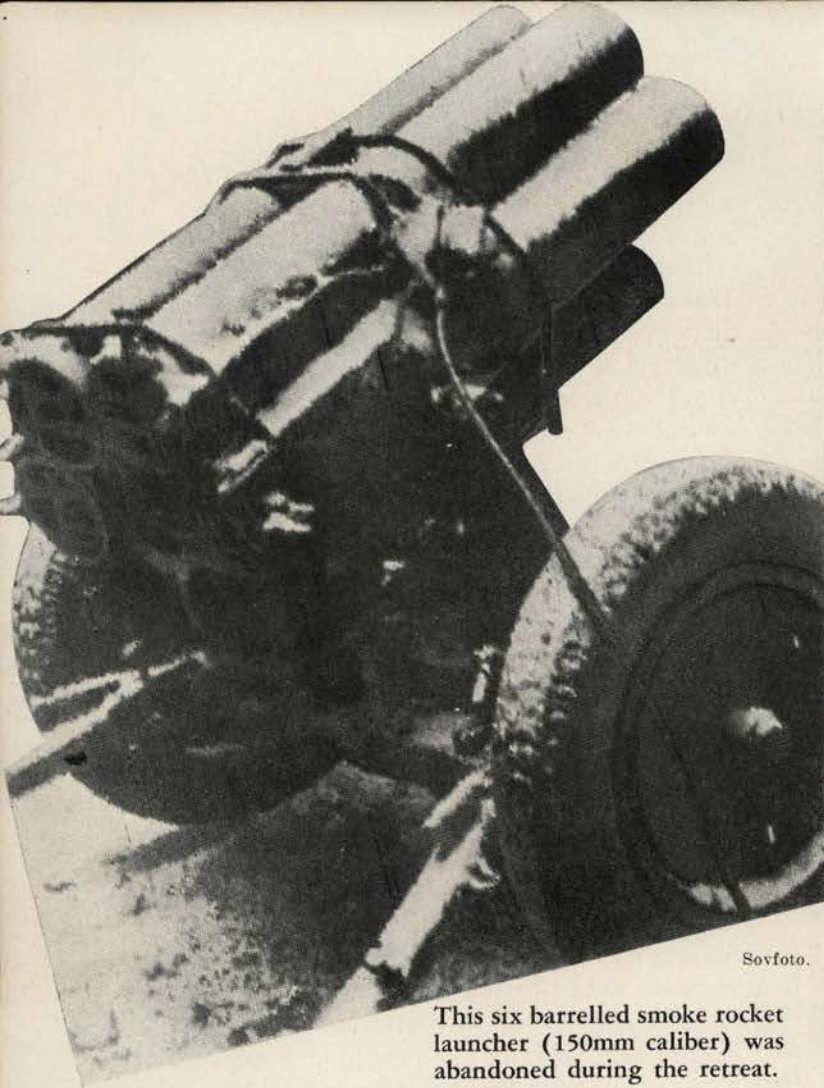
The Soviet commander, Krivoshein, writes as follows in a book that, when translated into German, created a sensation in German military circles, which regard it as a pioneering effort in the tactics of modern warfare:

"Just as for cavalry, the pursuit of a defeated enemy is one of the most fruitful tasks of mechanized troops. The great mobility of cavalry is supplemented by the impetus and maneuvering capacity of the tanks, and therefore a mixed formation of cavalry and mechanized troops represents a very effective instrument of pursuit."

The Red Army has rehabilitated the cavalry; the rider of the plains now takes his place, with modern equipment, side by side with the mechanized unit.

A Soviet Cavalry charge on the Central Front.





Sovfoto.

This six barrelled smoke rocket launcher (150mm caliber) was abandoned during the retreat.



Road Back from

Men, machines, and guns have been left behind by the retreating Germans. The gun in the lower left corner has been identified as a 150mm infantry howitzer. Center left





A heavy howitzer left by the Germans during their retreat.

German guns and vehicles abandoned along the Klin highway.

Moscow, 1943

is a Mark III Chassis mounting a 75mm short tank gun. A close-up of the 75mm short tank gun and armored mount is shown in lower right corner.





This Mark III tank, captured on the Southern Front, is off to the factory for repair. It is identified as a command tank because of its two radio aerials, one looking like a railing on the rear of the tank, and the other standing out above the turret. Armament consists of one 50mm gun on the newer models and a 37mm gun on the older ones. A dummy gun helps to conceal its command function.



The captured nine-ton Mark II tank pictured above, is on its way to a Russian salvage depot. It has two independent flame-throwers, one mounted on each front track-guard. Of short range, these flame-throwers are effective only against personnel.

Editorial Comment

Successful Withdrawals

The conquered countries of Europe ceased resistance when their armies were surrounded, cut off from supplies, and unable to withdraw to new fighting positions—for any nation at war has the power to resist for only as long as its armies remain intact.

In order for an army to accomplish a successful strategic withdrawal, re-form its lines, and prepare for another stand, a well executed rear guard action must cover the retreat, prevent encirclement from the flanks, and delay the pursuing enemy. Rear guard action is a mission for which cavalry has always been considered particularly well adapted, and the record of the first three and one-half years of the Second World War emphasizes its value when properly used in this rôle.

The three most successful strategic withdrawals of the war to date have all been covered by horse cavalry.

The withdrawal of General MacArthur's American-Philippine Army into Bataan in 1942 was covered by the brilliant rear guard action of the heroic 26th Cavalry. From Bataan, no further withdrawal was possible, but four months of invaluable time had been gained.

The successful withdrawal of the Soviet armies across half of Poland and a thousand miles of Russia in 1941, and a further withdrawal to the banks of the Volga in 1942, were made possible by the well trained Red Army cavalry (which include *two mounted armies*). In both of these cases the cavalry persistently delayed the advance of the invading "armored hordes" and prevented the main Red armies from becoming encircled. Except for this, the fate of the Soviets very probably would have been that of the other countries of Europe.

That horse cavalry was employed in these major successful withdrawals, and that it was not employed in other withdrawals that became disastrous retreats, may have been mere coincidence. But the record belies this!

Red Army Cavalry

In recent months The CAVALRY JOURNAL has published a great number of dispatches and articles on the Red Army cavalry that are of sufficient significance to warrant careful analysis and comment. The fact must be borne in mind that this information is based entirely on the battle experiences of *this war—this modern war*, where the matériel used is the most devastating and destructive that science and manufacturing facilities can produce.

Wherein lies the reason for these successes? A brief study of the data available reveals certain indisputable facts:

1—Modern Soviet cavalry is an outgrowth of centuries of Russian cavalry tradition.

2—As early as 1919, Soviet military leaders visualized the importance in future wars of modern cavalry, used in large forces and armed with tremendous firepower.

3—Pre-war cavalry was augmented by the training of reserve divisions and corps under capable, experienced cavalry leaders. (This training was carried on in the rear areas even during the period of the Nazi advance deep into Russian territory.)

4—Red Army cavalry tactics involved the employment of cavalry both against hostile tanks and in co-ordination with their own armored forces.

5—Large units of cavalry, maintained in reserve on the various fronts, reduced long strategic and administrative marches to a minimum.

6—Higher commanders have given cavalry the definite missions and objectives, which were particularly suited for its use.

It is quite enlightening to recapitulate the dispatches and news items from communiques. Following is a partial summary of the battles in which the Red cavalry played an important, and often decisive, rôle:

Battle	Date	Commanding General
Ikva River	June 1941	General Kryuchenkin
Reub River	June 1941	General Belov
Roslav	August 1941	Colonel Kuliev
Ukraine	October 1941	General Belov
Rostov	November 1941	General Cherevichenk
Voronezh	November 1941	
Yelet	December 1941	General Kryuchenkin
Stalinogorsk	December 1941	
Moscow	December 1941	General Belov
Ruza	December- January 1942	General Dovator
Balta	July 1942	General Belov

MOSCOW, STALINGRAD, ROSTOV, KHARKOV, the CAUCASUS—these places will go down in military history along with the names of such brilliant cavalry leaders as Timoshenko, Budyenny, Belov, Dovator, Kryuchenkin, Kirichenko, and Gorodovikov. Their visualization, training, and development of the cavalry arm over a period of the past twenty years is now paying dividends, and their exploits and employment of cavalry in this war will be studied by the future military leaders of the world.

This long-range vision of Red Army leaders is significant, for modern cavalry is an arm that cannot be trained in a short time.

FROM OUR READERS

EDITOR'S NOTE: Lieutenant Colonels Engel and Cullum are both well known former cavalry officers who spent some time in the remount service before their retirement. They returned again to active duty soon after the declaration of war. Their views, expressed herein, are worthy of consideration at this time.

Dear Editor:

Glad to see how the horse is coming back in this war, and it will probably continue to do as the war progresses. I have lost my contact with our cavalry but not my contact with horses.

I have learned a great deal about horses since I left the army. Although I am still in the army, I feel that I am out of it even when on active duty and in uniform all the time.

The thing that I have learned that impresses me most is that if we expect to do well in the field, we must pay more attention to selecting our horses. They must be "easy keepers," "free goers" and "galloping types." Our daily march must be pushed up from forty to sixty miles a day, not by marching longer but by marching faster. We must use the gallop more than we do.

All this requires a horse that is raised in such a way that the volume of blood carried in the circulatory system is greater in proportion to the rest of the body. There is a great difference in this respect in horses, and it is not a question of breeding. It is a question of whether the horse is barn-raised or raised on the range or in the pastures, day and night, winter and summer.

One reason why the Russian Cavalry does so well especially in winter is the fact that their horses are range bred. They carry so much greater quantities of blood that they have energy enough not only to gallop but to keep warm in the coldest of weather. This is the one important thing that I have learned since my retirement in 1922. As this relationship of blood volume to body weight cannot be measured or seen, it is not even considered of any importance. The modern trend in horse breeding and in military horses in most armies has been away from this horse and the filling up of our armies with horses that are barn-raised. These are no good for campaign horses.

I am keeping my own horses in New Jersey on pasture winter and summer. I supplement this with a few ears of corn but when I am home I would only do this to the barn-raised thoroughbreds that cannot go through a winter without losing too much flesh on pasture alone.

This letter has been inspired by the recent issue of the CAVALRY JOURNAL and the prominence given the Russian horse cavalry. Tanks and planes are our main thought, but horses and men still play a deciding part.

EMIL ENGEL, Lt. Colonel, QMC.

Resurrection of Saber

The January-February issue of the JOURNAL has just come to my desk. Congratulations on its excellence,

which of course includes the article that I always read first—"General Hawkins' Notes."

In the Editorial Comment you state "The CAVALRY JOURNAL, . . . , is making a desperate effort to bring to its readers the essence of lessons learned from combat."

Not only the notes on Cossack engagements, but the realistic photographs you reproduced, seem to me to point a lesson that is being overlooked in our Cavalry. I have long held the belief that we should restore the saber to our Cavalry. However, in this connection I have considered myself a theorist, as surely I could not speak from practical experience. Consequently, I have failed to comment. However, with the lessons coming from the Russian front I am convinced of one thing: *either we must change our cavalry doctrine or we must resurrect the saber.*

Again, admitting that this is theory, I will, however, hazard the following prophecy: If ever our troops engage in a mounted attack of any proportion you will hear a mighty yell go up for the saber.

As you so aptly say, "The time to learn and practice these lessons starts during unit training period." This applies to equipment as well as to tactics. As General Hawkins points out in his notes, the world should have foreseen not only the coming attack but should have been able to predict something of its nature.

Sometimes I fear, we give too much weight to public opinion in arriving at our decisions as to armament and component parts of our Armed Forces.

I give these thoughts for what they may be worth. At any rate, I greatly enjoy the CAVALRY JOURNAL and think that it is doing a bang-up job.

GROVE CULLUM, Lt. Colonel, QMC.

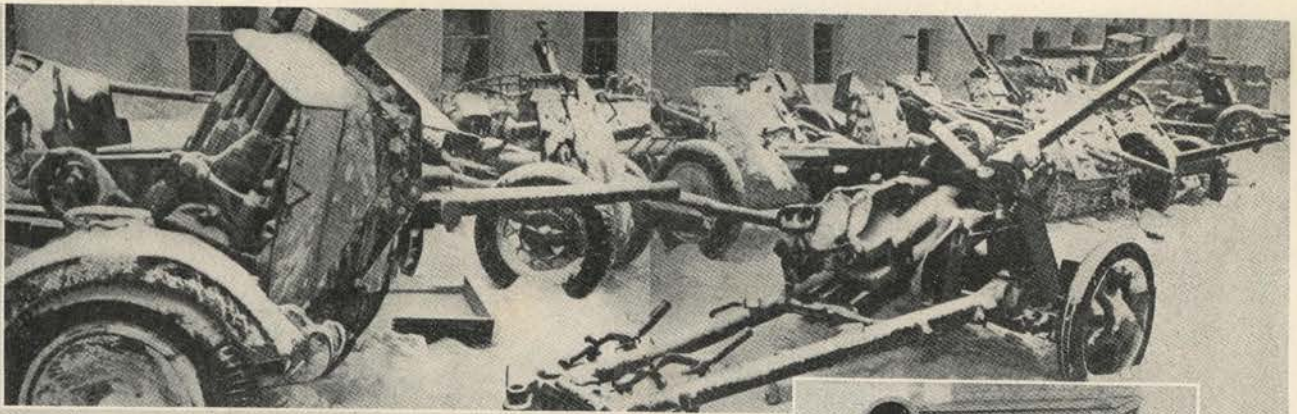
P.S. Just why I wonder, are these Russians carrying these sabers? Are they getting ready to slice bread or lance German bellies. Also, I note the rifles on their backs.

Subscription Renewals

Hereafter renewals of present subscriptions for overseas personnel of the Army to newspapers and other publications entered as second-class matter from any source will be considered as a continuation of the present subscriptions, and mailings under such renewed subscriptions are now allowed, regardless of whether or not the renewals may be paid for by others than the addressees without any request from the latter. This does not cover complimentary copies sent by publishers.

Gasoline Rationing

Now that national gasoline rationing is a reality, it is time horsemen took some stock of themselves and their horses. On every hand we hear it said that the country cannot return to the horse-and-buggy days; that



Captured German antitank guns at a salvage center near Tikhvin. The gun in the right foreground is a 50mm model and is missing a wheel at the rear of the trail. Snow conceals characteristics of some of the other pieces.

This damaged 210mm howitzer, discarded on the Kirov highway by the retreating Germans, has a range of more than 10 miles and fires a 264 pound shell. It is part of the German GHQ artillery.



Captured German Matériel

Russian Front

Bogged down in the mud is this captured 150mm heavy infantry gun. Gunners' shield is torn away and other parts are damaged. This is probably one of German manufacture, possibly a Hungarian piece. In the right background is the standard German 150mm howitzer.



Erratum

In the above picture lay-out of captured German matériel, which appeared on pages 18 and 19 of the January-February issue of *The Cavalry Journal*, two errors in identification occurred. The gun at left is 150mm howitzer. The gun in lower right corner is probably 105mm standard infantry gun. The shield has been removed and can be seen on gun in the background. This caused confusion in identification.

our whole system of economy is erected on a plan of rapid transportation; that to return to the horse would cripple our industries and retard the war effort.

All this is very true.

We will agree that horses are slow and inconvenient transportation for most business purposes. We also agree that the nation at large is hesitant to see their value so long as one automobile remains on its ragged tires for personal or private use. We can hardly blame the various business concerns for pushing the horse idea out of the way in favor of any makeshift or nebulous solution to the problem. The fact remains, the problem is at hand. Either our 14,000,000 horses will be pressed into private use or there will be no form of transportation unregulated by the government or not controlled for the war effort. Otherwise, most private citizens can retrograde to the stone age and walk, which we will all agree would be a far worse breakdown than returning to the horse.

The fortunate thing is that we have 14,000,000 horses left in this highly mechanized country of ours. As things look, it is just a toss-up that we have any at all to draw upon in this emergency. According to in-

formation widely publicized, we do not see how they can be expected to supply the anticipated demand.

It is hard to visualize our large cities filled with horses, nor do we expect to see this. We do expect to see our small towns and rural areas making 100 per cent efficient use of horses. That is where horses can best fill in the gap. We do not expect to see a return to the horse-and-buggy days simply because buggies are not being manufactured any more and there is no way to set up adequate factories. Horses will be used under saddle.

Another fortunate angle to the situation is that at present comparatively few horses are being bought for army use. This is because of emphasis being placed on mechanized warfare. Whether this is right or wrong we do not attempt to say. If horses were used in the same quantity by our armies as those of the central European governments, it would drain the best and most useful animals from stock and there would be nothing left for civilian use except the disabled and aged groups. From everything we have been able to find out, civilians in rural areas would really have something to worry about.—*Western Horseman*.



Air Support in Tunisia?*

According to Axis sources the above picture shows dive bombers attacking an Allied supply depot in North Africa. In the foreground is the gear of one of the Stukas that has already struck at its objective.

EVEN more important than inferiority in types of planes was Allied inferiority in air tactics. The Germans were able to establish air superiority over the battlefield. That was why the Stukas were able to operate against the American tanks. Correspondents have brought this out, and for weeks letters arriving from American troops in action have complained about inadequate air support.

The reasons for this go far back into army organization. The basic factor is the preoccupation of the RAF and Army Air Forces with strategic bombing—the blasting of enemy bases and cities with big bombers. A powerful propaganda advanced by such men as de Seversky has gained great publicity for the strategic bombing advocates. Last week another book on the subject, *The Air Offensive Against Germany*, by Allen A. Michie, appeared. The course it advocated would practically rob Allied ground forces of the little close-support aviation they have.

The issue is whether the ground forces are going to have enough support planes to give them air superiority on the battlefield or whether the major Allied air effort is to be devoted to strategic bombing that has not yet shown any decisive results. The consequences of stressing strategic bombing were seen in Tunisia last week. When the Nazis signaled for planes, they appeared in the minimum time, and their actions were perfectly coordinated with those of the ground forces. The Ger-

mans had the organization, the liaison, and the training. The Allies did not—although in the Southwest Pacific and in the Eighth Army campaigns, Allied air-ground coordination has surpassed that of the Axis.

A blueprint of how an air force should be organized for direct intervention on the battlefield appeared in the current issue of the authoritative Command and General Staff School quarterly. It was called "What Really Is Air Cooperation?" and the author was one of the best students of contemporary tactics, Capt. F. O. Miksche. It advocated an organization very different from anything possessed by the United States or Britain. But Miksche laid down one rule which seemed to have been proved in Tunisia: "An air force in which a sharp division is drawn between fighter and bomber commands can never lend to the ground forces that total dynamic support which is necessary to victory in a modern battle."

This was criticism that applied to both the RAF and the American Air Forces. There has long been a fundamental argument between the British Army and the RAF in regard to the matter of air support. A sort of compromise was reached with formation of the so-called Army Cooperation Command, but comments of Army spokesmen have frequently been bitter on the ground forces' lack of suitable planes.

The same bug hit the American Air Forces even though they were part of the Army. The preoccupation of the air forces has not been how best to support the ground forces but how to bomb the Reich by daylight. As a result, some armored units stationed in remote parts of the British Isles conducted battle maneuvers for weeks—without any air cooperation whatever. If the same energy that went into the bombing of Italy last week had been applied to direct intervention on the Tunisian battlefield, Rommel's dive bombers would never have stayed in the sky to strike the blow that started the American retreat.

*By the Editorial Staff of *News Week*. Reprinted from *News Week*, March 1, 1943.

General Hawkins' Notes

A Few Principles for Tank Forces

CARDEN

EVER since the creation of the Armored Force, there has been a great need for a tactical doctrine for its employment. Of course, in the beginning, the officers assigned to mechanized forces knew no more about the actual tactical employment of such forces than did any one else. They did write a manual, but, as far as tactics were concerned, this manual contained only platitudinous generalities which were of no practical value whatever. The drill regulations, prescribing routine movements for deployment into line and ployment from line into column, were all right as far as they went. Some tactical doctrine, based on the principles of cavalry employment, were stated without the realization that any useful principles would have to be very different from cavalry principles.

It was a new arm untested in war. And although something was learned from the relatively minor use of armored forces in the Spanish campaign, those lessons were few and not always reliable. Even after the commencement of World War II, and the German *blitzkrieg* in Poland, the French, British, and United States armies failed to draw the true lessons. One lesson that should have been drawn, but was not, was that if the Germans invaded Holland, Belgium and France, as they had in Poland, the only way to stop the mechanized *blitzkrieg* was by means of numerous and very mobile antitank guns, and very numerous antitank troop units carefully trained. It should have been obvious that the French and British could not hope to oppose the Germans with as many tanks as the Germans would have at their disposal, and that a defensive campaign would have to be fought in which artillery and antitank guns of sufficient caliber would be necessary to deal with panzer divisions.

This lesson was not learned in time, and the German armored forces had no opposition. But the Russians, quietly observing the debacle, drew their own conclusions, and these conclusions proved to be correct. Even in these NOTES, attention was drawn to the correct lessons from the Polish campaign (as outlined above), but to no avail.

Now, the Russians, after two years of terrible warfare against the Germans, have learned many true lessons as to how to oppose armored forces and how to use their own. Starting with the correct idea, referred to above, they developed their own antitank means and at the same time their own armored forces. Experience has taught them the proper tactical use of their armored forces. They have learned that armored force alone cannot usually be depended upon to win battles and that

there must be a combination of all forces and branches of the service. They have learned that armored force cannot be employed in the same way as cavalry, and that cavalry cannot be given the same missions as are suitable for armored forces. They make great use of cavalry but understand that the missions of cavalry and armored forces are different, though similar in some respects.

In the tactical use of their armored forces they have learned a principle that has been enunciated in these NOTES for several years. It is that tanks should not be used for head-on charges against on-coming enemy tanks except where it is impossible to avoid this. On the defensive, tanks should be used for counterattacks after our tank destroyers and artillery have crippled the enemy tanks. On the offensive, our tank destroyers and artillery supporting the infantry should protect the infantry forces from enemy tank attacks, while our armored forces are thus freed to attack the enemy main forces in flank or rear.

(Note: In our army at present, antitank guns mounted on tank chassis and designed for use particularly against tanks, are called self-propelled artillery. But whether they are called tank destroyers or antitank artillery or by any other nomenclature, I refer to them here as antitank guns.)

The CAVALRY JOURNAL has published in its last several issues some remarkable articles, written by experienced Russian officers on the tactical principles for the use of tanks as evolved or formulated from their battle experience in the war against the Germans. For convenient reference some of the principles are quoted—with some changes for brevity and clarity—as follows:

1. A *meeting engagement* is one where two forces, each hostile to the other, are moving toward each other with intention to attack, and finally meet in battle.

Success in a meeting engagement requires the gaining of time so as to ascertain the direction of the enemy's blow and make our own preparations.

The enemy blow must be delayed by launching land and air operations simultaneously.

Reconnaissance is necessary, and the best reconnaissance results are attained by fighting.

There must be a force (advance task force) assigned beforehand to accomplish both reconnaissance and delay of the enemy.

For this task, only joint air, tank, motorized and cavalry formations, correspondingly reinforced with antitank and antiaircraft means, can cope with the situation.

2. A *meeting engagement* demands swift, decisive, stubborn action. The lack of clarity regarding a situation must not delay the adoption of a decision or influence the energy with which operations are conducted by the advanced task reconnaissance and delaying force.

3. To strike a decisive blow at the enemy's task force in a *meeting engagement* between our own advanced task force and that of the enemy, time must be gained, the enemy pinned down on a definite area, and his maneuvering possibilities thus restricted. This task, including the necessary reconnaissance, must be performed by an advance group of the task force.

This group operates on a wide front and, if necessary, sacrifices itself to hold the enemy in a defined district until the main task force can launch the decisive attack in flank.

4. Experience has shown that battles between tanks are inevitable. Whenever possible, however, it is more profitable to destroy the enemy tanks by action of aviation, artillery and other antitank weapons, and leave our tanks free to operate against enemy personnel and small arms weapons.

Battles in which only tanks participate seldom, if ever, occur; therefore, combined coordinated action of all arms is imperative for victory.

5. The rôle of aviation in the battle against enemy mechanized forces is particularly important. As the air force can engage enemy tanks and auxiliaries at greater distances than artillery or any other force, the task of the air force is threefold. *First:* It bombs the enemy tanks in their jump-off positions, during their movement into battle, and when they concentrate at their rallying point. *Second:* Enemy mechanized auxiliaries such as gasoline trucks, munitions, field repair shops, etc., should be put out of commission. *Third:* The air force must protect our own tanks from enemy air attack.

6. In order to *first weaken* the enemy tanks with all means at our disposal (and *then* finish them off with our own tanks) artillery, including antitank guns, should engage them when they come within range and observation.

7. In *defensive operations*, the enemy usually has to be weakened by our antitank obstacles and fire in order to reduce his superiority in numbers. Counterattacks should be launched at a moment when the enemy is disorganized and before he can regroup his units for another attack.

8. A commander must be kept informed always by *all-round reconnaissance*. After a cool, cautious estimate, he must decide whether it is best to attack at once with movement, or temporarily to assume the defensive and engage the enemy with stationary fire from concealed positions. His tanks must not cruise around exposed to tank and antitank fire, but by keeping them for too long in a stationary position, he may be outflanked and caught in an enemy pincer movement.

9. In *tank pursuits*, enemy antitank traps may be

set up in depth, and ruses to lure our tanks into such regions must be considered. Don't break into a village or forest without prior reconnaissance (covering detachment). Tanks should enter such places only along with infantry or in rear of it. (Cavalry would be ideal.)

10. A tank brigade fights in both attack and defense by use of maneuver, although sometimes a tank group fights defensively and temporarily in a stationary position in which trenches, camouflage, and cover are available. Whether the army is fighting a general offensive or a defensive campaign, any one unit must fight sometimes by attack and sometimes by holding defensively. In either case, tank units usually fight by attacking or counterattacking *on flanks* of enemy units. Head-on attacks against enemy tank units are usually wasteful of tanks and ineffective.

11. When infantry, supported by artillery, holds a line, tank groups should be posted behind both flanks ready to *counterattack against the flanks* of the enemy advance against our own infantry. Thus the enemy may be caught by a pincer movement either in front of our position or deep into it. If our position has *open flanks*, however, these flanks must be guarded by prearranged artillery and antitank guns.

12. When a group of tanks moves out to attack or counterattack the enemy, either in flank or elsewhere, it must always be preceded by a *covering detachment* until the enemy is in plain sight. Also, it must have *combat patrols* on its flanks and rear at all times during the movement and throughout the action. This is in addition to the all-round reconnaissance for information about the enemy's strength and movements so necessary during all operations.

13. When the enemy attacks with tanks, and we counterattack with tanks, he will attempt to hold us with fire in front and then pass a large force of tanks around the flank of our counterattacking tanks, so as to catch us unprepared or by surprise on our flanks and rear. We must avoid this surprise by careful operations of our combat patrols. When his tactics become apparent, we must in our turn attempt to hold his frontal attacks by tank and antitank fire from a holding force of our own. This holding force then attempts to withdraw in such a way as to lead the pursuing enemy main tank forces into an ambush prepared by our retiring main tank forces, which had previously advanced to the counterattack and been stopped by the enemy fire, and which have now retired to lay the ambush.

When the enemy tanks have been lured into this ambush, our tanks may open fire on their flank, or advance at full speed to attack the enemy flank by fire and shock.

Thus, it is a question of outmaneuvering the enemy. It is always a matter of *seeking the enemy flanks*. When he attempts to outflank us, we outflank him. Only by getting timely information from our constantly oper-

ating combat patrols and strong reconnoitering patrols can we hope to do this.

14. When the enemy has superiority in tanks, counterattacks by our tanks must be avoided, as in such a case it is best to use tanks for operations from ambush.

15. Antitank troops must be everywhere—with infantry, with cavalry, with artillery, with tanks. Otherwise, our armored forces will have to remain with other ground forces to protect them from enemy tanks, and our tank forces will have to meet enemy tanks head-on before our tanks can maneuver for attack on his flanks.

SUMMARY

a. *Reconnaissance.* Strong task forces of all mobile units—tanks, cavalry, motorized artillery—are sent to gain information of the enemy and fight for it if necessary. These task forces also delay the enemy advance in order to gain time for our maneuver against his flanks.

b. *Security.* All-around security must be provided by use of covering forces and combat patrols. This applies to all separated forces.

c. *Flanks.* Seek the enemy flanks in all tank battles.

d. Avoid head-on collisions.

e. *Light holding forces,* supplied with mobile artillery and antitank guns, meet the assault of enemy tanks and enable our main tank forces to attack enemy tanks in flank; or the light forces in front make a show of resistance and then fall back so as to lead the enemy tanks into a trap or ambush.

f. Do not counterattack with tanks against superior numbers of enemy tanks; instead, delay and draw them into ambush.

g. Antitank troops must be everywhere. Some anti-tank guns must be with every unit the size of a regiment, but the mass of these guns must be incorporated in mobile antitank units held somewhat in the rear of the first line units but ready to be sent to points most threatened by enemy armored forces.

German Self-Propelled 75mm

This photo, received from neutral sources shows an 8-wheeled German armored vehicle moving toward the front in Tunisia. It is minus the usual 20mm gun turret and has been rearmed as a motor gun carriage (probably a 75mm tank gun). This is a very fast car. Tops 50 m.p.h.



Organization of a Tank Attack

by Captain A. Bandik, Red Army

PRELIMINARY RECONNAISSANCE

1ST ECHELON—Heavy tanks attack first line and uncover hostile defense.

2ND ECHELON—Tanks with tank-borne troops consolidate position.

3RD ECHELON—More heavily armed tank-borne troops attack flank and rear—start pursuit.

ON a certain sector of the front, our troops recently smashed an extremely well prepared German defense system. The enemy had made the most of the terrain. They held the village of Yulayevo, situated on a height from which they could shell the river and the valley in both eastern and southern directions.

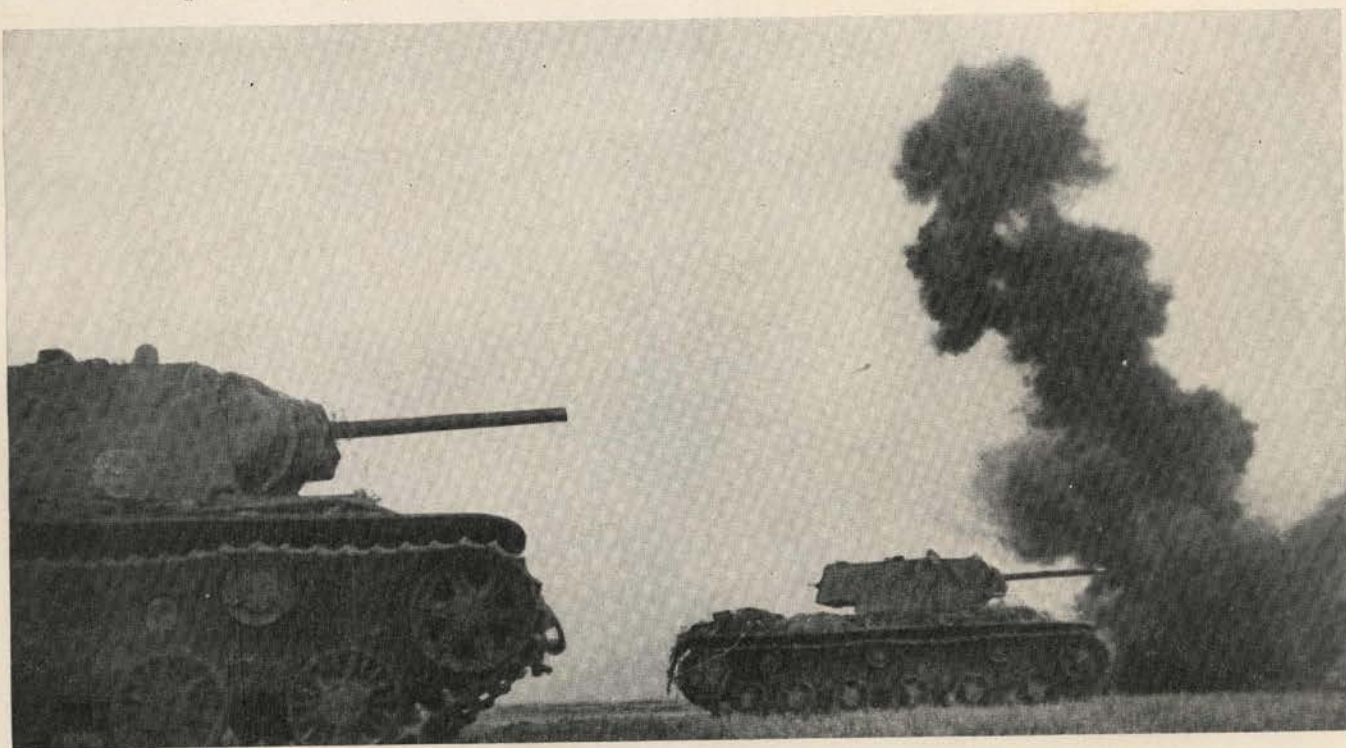
A church on the village outskirts served as a firing position and an observation point. It bristled with machine guns and antitank guns. In the southeastern corner of the village there were four firing points with both machine guns and artillery, and at least three bunkers. The place was garrisoned by an infantry regiment.

The right flank was protected by a powerful system of bunkers disposed on slopes running southeast to

northwest. South of these and easily visible from the eastern bank of the river was a powerful defense area consisting of a series of mine fields and barbed wire entanglements three or four rows deep, that protected Karpovka.

The enemy had another stronghold in the village of Popovo, from which he could also observe and keep the eastern river bank under flank fire. But there were fewer firing positions in Popovo than in Yulayevo. Entanglements two or three rows deep had been laid on the approaches.

The bunkers and firing positions in this defense zone formed a system of stratified fire that was echeloned in depth. There was also a powerful zone of fire before the perimeter of the defenses. Obstacles were arranged



These "KV" 42-ton tanks with a 76mm (3-inch) gun, are used as a shock force in attack. This is probably the type referred to in this article as the "first echelon of attack."

Winter Attack By Small Units

*by Captain Shumilov**

WINTER sets its mark on every kind of operation, and German tactics in winter have their own particular peculiarities.

The Germans entrench themselves in inhabited centers and refuse battle in the open. With the enemy's forces thus grouped around inhabited points and commanding heights, it is easier to penetrate behind their lines in winter, effect a sudden blow from the flanks, and make bold raids by utilizing the gaps between strongholds.

In winter small parties and ski detachments are widely used. These small units afford great assistance to infantry in forcing a breach in the enemy's defenses and in repulsing counterattacks. The best troops are selected for these detachments. Surrounding of blockhouses is carried out by three such groups in close collaboration with mortar and artillery.

The center group, whose task is to storm and blow up the enemy fire position, usually consists of from six to eight riflemen, two sappers, and two or three men armed with automatics or machine guns.

The second group attracts the attention of the enemy, exploits successes, destroys neighboring machine guns and mortars, and deals with enemy Tommy gunners. The third group consolidates the successes of the first group, is responsible for the final mopping up of the blockhouses and for clearing the way for attacking units.

The attack by assault groups is usually preceded by careful preparation. Reconnaissance determines the nature and direction of fire from the blockhouses; selects areas which do not come under fire; ascertains positions of sentries, patrols, mine fields, communication trenches and slit trenches; and determines the character of neighboring fire positions in the area of the blockhouses being besieged.

Small assault groups in Lieutenant Ninesanov's unit operate very successfully. After a careful reconnaissance, a well thought out detailed plan is drawn for every operation. Runners and skiers are used for communications, and rockets and whistles for signalling. Here is an instance of operation carried out by small assault groups:

The command had ordered the unit to occupy the inhabited point of Nikitino. There were several blockhouses in front of the village which held the surround-

ing country under enfiladed fire and prevented the village from being entered. The commander thereupon decided to employ small assault groups to attack the blockhouses.

He put his best automatic riflemen, Kriuohovsky, Shikov, and Antonov, in charge of the groups. There were two blockhouses in the sector that they were to attack. Each had two embrasures, one directed at the flank and the other at the front. In one of the blockhouses there was a cannon and a machine gun; and in the other, two machine guns.

The Shikova group engaged one of the blockhouses on the right flank and attracted the fire of the neighboring blockhouse. During the night a bold group had crawled to within 150 or 200 meters of the German position and had opened fire on them. Fire from both blockhouses was concentrated on this group, and this is what Shikov was waiting for. He then ordered Kirpichnikov to give signal—a burst of tracers.

The second group under Krivchkovsky passed between the blockhouses, and the third group went around them on the left flank. The attack of the central group was carried out in the following manner. Two sappers went in advance, and were followed within sight by the remainder of the group.

When the sappers gave the signal that the lane had been cleared, the whole group crawled rapidly through to the rear of the blockhouses.

By this time Antonov's group had completed its flanking movement and had begun pouring volleys of fire into the embrasures at close range.

The Germans would have returned their fire; but the central group meanwhile had reached the communication trench between the two blockhouses, had burst open the door and plastered the inmates with grenades. After this blockhouse was taken, all fire was immediately directed on the other blockhouse. At a given signal, all three groups rushed it, and in a short struggle wiped out about twenty Germans and captured three machine guns and cannon.

By the capture of these two blockhouses, small groups of bold fighters laid the way open for the infantry to attack, and the inhabited point was soon captured. The success of small groups depends upon a careful detailed plan of attack and the careful training of men. A unit commander should take advantage of any lull between battles to send his troops back behind the lines to build training blockhouses and practice attacking them.

*By cable from Moscow, December 29, 1942. Courtesy, Soviet Embassy.





25-ton fast tanks go into action.

Guard Well Your Flanks!

by Major General Tagarthkiladze, Red Army

THE fate of every offensive is decided on the flanks. From the beginning to the end of an operation, the enemy's attention is riveted on the flanks of the advancing party. It is there that he seeks decisions and directs his retaliatory blows.

By counterattacks on the flanks, the enemy seeks to restore his lost positions, to cover up a break-through, to smash the battle order of the advancing party, and to cut off the advanced units from the reserves.

Continuous action against the flanks of a break-through is a typical method of flexible defense. The present war has produced quite a few examples of offensive operations which, though carefully prepared and successfully launched, have been total failures *simply because of an unexpected counter-maneuver against the flank.*

During one of the German attempts to pierce Soviet defenses in the area southwest of Stalingrad, a rather strong tank group, accompanied by a large infantry force, drove a deep wedge into the Soviet lines. But they were cut off, and the Nazi attack failed under sudden Soviet counterblows from both flanks.

Recently, under enemy pressure from the flank, one of our units was compelled to desist from developing its success. The screen, that had been left to cope with the German center of resistance on the flank of the break-through, was too weak to parry the enemy's counterattack. The Germans regained the heights that they had lost the day before, and, threatening to cut off our troops, compelled our unit to fall back to its initial positions.

The conclusion is clear. Care of the flanks should be a necessity for every advancing unit. You cannot always rely on your neighbors. Events may take a turn that will compel each unit to solve its tasks independently.

The commander of a unit that has forged ahead, is always faced with a dilemma. Should he wait for his neighbor or go ahead without heeding his flanks? Sometimes it is not so easy to solve this problem. To pierce the enemy's defenses, dislodge him from the forward edge, and then have to mark time, allows the enemy to recover from the blow. It permits him to re-form his troops, retreat to a new line and organize fresh resistance.

Such a turn of events is a disadvantage to the advancing troops. It may mean excessive losses, gradual exhaustion of one's forces, and even the complete failure of the operation. It is clear, therefore, that procrastination and pauses are enemies of an offensive.

On the other hand, to proceed with an offensive without heeding the flanks, is also fraught with grave consequences. In forging ahead, a unit easily exposes itself to the enemy's blow. Every soldier knows how sensitive the flanks are to counterattacks.

The decision should not rest somewhere between carelessness and caution, but rather in a sober appraisal of the situation and of the relative strength of both parties. Much depends on one's estimate of the possible course of enemy action. The Red army holds that one principle is valid at all times—to secure your own flanks and go boldly on.

The problem of protecting the flanks should be dealt

with before the offensive opens. The commander of an infantry division, operating in the direction of the main thrust, must decide in advance what forces he intends to use to cover his division's flanks and what reserves could be moved to the flanks to help parry the enemy's counterattacks.

Commanders of flank units should have at their disposal at least a small antitank reserve. The artillery commander should always be ready to switch divisional and attached artillery to the flanks. The route of the division's offensive requires the most detailed study, especially regarding the roads leading to the flanks of the break-through and the centers of resistance from which the enemy could deploy for a counterattack.

In order to anticipate more or less accurately the forces with which the enemy may attempt a counterblow in the depth of his defenses, the commander should also know the dispositions and strength of the enemy's tactical and operational reserves.

In calculating his shock, auxiliary, and reserve forces, the commander must assume that immediately after the forward edge of the enemy defenses has been breached, the action may shift to a considerable degree to the flanks. In this situation the division will have to combine offensive movement with defensive action. This does not mean that the piercing capacity of the troops should be weakened; on the contrary, it must continually be reinforced.

The securing of the flanks, apart from the immediate screening, is a matter for mobile forces; hence, the necessity to detail a mobile reserve before the offensive begins.

Continuous reconnaissance on the flanks is the first and indispensable condition for a commander who wishes to spare himself unpleasant surprises in the course of an offensive. Reconnaissance must be extremely varied—infantry, cavalry or tanks, and artillery; infantry or cavalry reconnoitering units sometimes need to be accompanied by artillery. The whole terrain within a range of not less than a mile and a quarter from the exposed flank should be probed carefully by patrols. That is the only way to safeguard the flanks from sudden counterthrusts.

Experience has shown that to cover the flank of an advancing division, it is expedient to detail at least one infantry battalion, reinforced with artillery, as a flank detachment. Since the enemy almost invariably counterattacks with tanks, one must place tank extermination groups on the flanks. This should include antitank guns and rifles, incendiary bottles, and grenades.

Light tanks can be used on the flanks to the best advantage because of their mobility. They are quite reliable against infantry. Tommy gunners are also very good insurance against infantry counterattacks.

In essence, flank protection should, above all, include protection from hostile tanks.

The securing of the flanks by engineer troops is

another question. In situations where troops are moving, it can be effected by laying mine barriers. The commander of the flank force should always have at his disposal not less than two groups for laying mines in the direction of possible tank attacks.

As soon as the scouts detect the movement of enemy tanks on the flanks, the commander should order the mining of all approaches and give due warning to neighboring units.

The enemy may counterattack in such strength that one battalion proves insufficient to parry the blow. It may become necessary to deploy the flank battalion and even the whole regiment. In anticipation of such a turn of events, the commander of the flank force must have with him an artillery commander and representatives of infantry companies to ensure good liaison and the rapid conveying of orders.

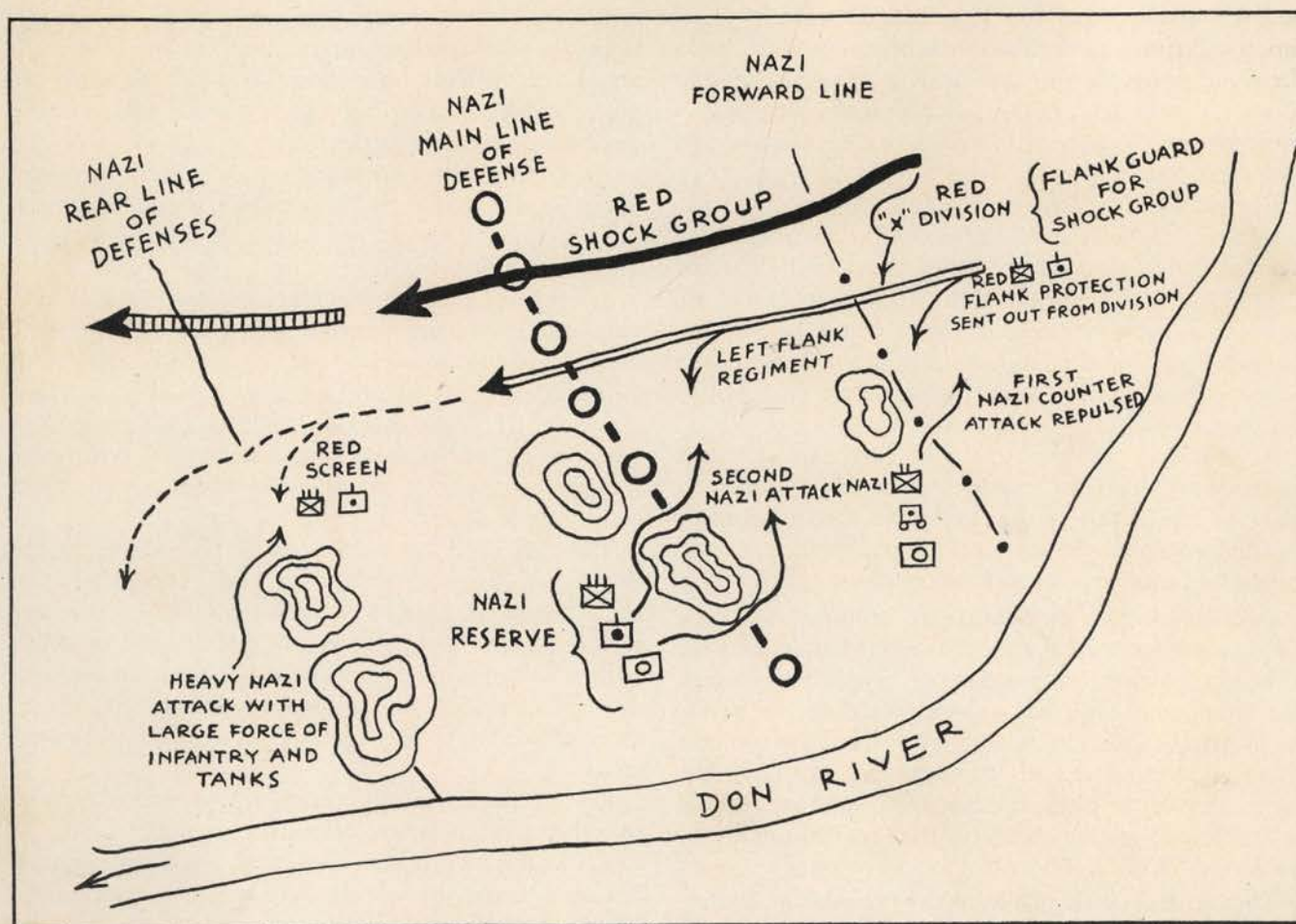
The divisional command post is best placed in the center. A division, advancing with exposed flanks, should move in wedge formation with its apex pointing forward. Flank regiments must be echeloned in depth with a half-turn to the left or right. Such an arrangement considerably speeds up and facilitates the deployment of the flanks for repelling the enemy's counterattacks.

Let us illustrate all of these propositions by the experience of the latest offensive operations of X Division in the Don bend. The division had the complex job of securing the left flank of a large shock group. While the main task of the division was to cover the left flank of the break-through and ensure the unhindered advance of the main forces, the problem of covering its own flank was even more urgent.

The enemy was in a position to hurl big forces against the exposed flank, so large reserves of Red army

These "Tetrarch" (British) light tanks are used largely for reconnaissance. They mount a 40mm gun and have a 7.62 Besa machine gun in turret.





troops had to be held in readiness. The Germans launched their first counterattack as soon as the division moved forward to the edge of the Nazi defenses.

The case was a typical one. A big enemy center of resistance remained on the flank of the break-through. It was obvious that the enemy would try to counterattack from there. Sure enough, over a battalion of infantry, with several tanks and gun carriers, sallied forth from the center of resistance.

Reconnoitering groups met and engaged them at a distance of two kilometers. Under cover of this action, the left flank battalion deployed, along with one battery of light guns and an antitank rifle squad. The Soviet flank proved to be protected adequately. After losing two tanks and more than a company of infantry, the Germans rolled back.

The main body of the division continued to develop its success without halting. A heavier counterblow followed when the main body passed the tactical depth of the enemy's defenses and wedged into them for over six miles. At this point, the Germans threw in an infantry reserve regiment, supported by artillery and eight tanks, and brought heavy pressure to bear on the division's whole flank.

Under cover of their own flank detachment, the whole Soviet left flank regiment deployed to repulse the counterblow. The engagement lasted for three hours, and ended in the Germans' defeat. Having accom-

plished its task, this flank regiment then overtook the division's main body and resumed its place in the formation.

When the division was approaching the rear line of defenses and was turning with its front to the east, the enemy sensed an outflanking maneuver, and again tried to cut off the division by striking at its flank.

A big center of resistance—part of the rear defense line—lay in the road of the division's offensive. Reconnaissance revealed that the fighting for this center of resistance might be protracted. In order not to immobilize its shock forces at the very beginning of the maneuver, the division screened itself from the center of resistance and cut it off from the south.

It was then that the enemy launched a counter-maneuver and hurled a big tank group with infantry against the division's flank. The situation became very complicated. Regiments were in movement, and the thin screening force could be pierced easily by tanks. This menace, however, was countered by the artillery, which, together with the tank extermination groups, was moved to the flank just in time.

A mine barrier also played a useful part. Some of the enemy's tanks struck the mines and blew up. The artillery cut off the enemy's infantry from the tanks and drove them into a pincers of fire. About one battalion of enemy infantry was annihilated, and many officers and men surrendered. The engagement lasted

80 hours, but *did not effect the maneuver of the division's main forces.*

After reaching the enemy's rear, the division moved away from its neighbor on the right. This move created a gap about five miles wide. The right flank regiment detailed one battalion to cover the flank and echeloned to the right, and the division once again adopted the wedge battle formation.

In the area of one center of resistance, two German motorized infantry regiments, with strong tank support, brought heavy pressure to bear on both flanks of the Soviet division. This attack temporarily stopped the advance of the division and compelled it to take up an all-round defensive position.

The regiments deployed in a semi-circle, and the rear of the division was protected by a reinforced detachment. The artillery concentrated in the center in order to facilitate maneuvers to the flanks. The engagement fought by the right flank regiment against the enemy's motorized infantry was especially fierce. This regiment

repelled several furious counterattacks and substantially wore the enemy down. He was then finally hurled back by the division reserve, and the main body continued with its freedom of movement.

Under such circumstances, passing to all-round defense was quite justified. To fall back, in order to seek contact with their neighbors, would have been the worst solution. It was necessary for the division to consolidate its positions, to protect itself reliably on all sides and, after drawing up the rest of its forces, to move forward with them.

Thus, one principle of the offensive is not to be afraid of tearing away from your neighbors. Contact and mutual support are the basis of coöperation, but the lagging behind of a neighbor is no reason to allow your flank to be exposed.

The commander should completely eliminate from his mind the very concept of the "exposed flank." Secure your flanks by a reliable force, and they cease to be exposed.

Small Arms Tactics Against Tanks

EXPERIENCE shows that the various types of weapons employed by Soviet infantrymen enable them not only to repel tank attacks, but also to strike at the enemy infantry which move behind the tanks.

An essential condition for success is the correct organization of antitank defense in infantry units. This is how the problem is solved in certain Soviet rifle formations. On the routes menaced by tanks, special defense centers are formed, composed of antitank guns, riflemen and tank destroyer groups armed with handgrenades and fire bottles. The antitank guns open fire before the machines come within range of rifle fire. As the tanks approach, the rifles go into action, aim at the most vulnerable spots in the enemy machines and support the fire of the antitank guns.

In the meantime the destroyer groups get ready to meet the enemy. Each group selects a particular tank for destruction, and sets it ablaze with fire bottles. The tank destroyers cover the positions of the antitank guns and riflemen and enable them to maneuver as necessary.

In some units this system of antitank defense is supplemented by mobile patrols consisting of one or two sappers armed with antitank mines, and one rifleman armed with semi-automatic rifle or submachine gun. On roads where tank movements are most likely to occur, the patrols select points to be mined. They then take up their observation post under cover.

As soon as the movement of enemy tanks is reported, the sappers swiftly lay the mines, level the ground and withdraw to cover. If the tank hits the mine and its crew tries to climb out, the rifleman goes into action and fires on the enemy tankmen. Such patrols operate for the most part between antitank fields or on sectors where the terrain permits only single tanks to penetrate.

This is one of many possible methods adopted by Soviet infantry to combat enemy tanks. The antitank rifle is an infantry weapon which has proved its worth in action. Though light in weight, it effectively pierces the armor plating of medium and light tanks.

The intrepidity and staunchness of the infantry are qualities of exceptional importance in antitank engagements. Courage and grit permit even a single fighter to accomplish much. The following incident was observed in a recent battle. A Soviet sub-division was defending an inhabited point when suddenly three German tanks broke through. The enemy had the upper hand.

Taking stock of the threatening danger, Sergeant Makarenko crept towards the tanks and hurled a bunch of hand grenades under the caterpillars of the leading machine. The tank was brought to a standstill, and its crew, not realizing immediately what had happened, opened the hatch. The sergeant leapt forward and hurled a grenade through the open hatch. There was another explosion, and the tank burst into flames.

The crew of the remaining two tanks tried to machine gun Makarenko. The sergeant ran nearly up to the tanks, so close that he was out of reach of the machine guns. This threw the Nazis into a fury. One of them opened the hatch and cocked his pistol. Makarenko replied with another grenade, which went flying through the hatch.

Two Red Army men hastened to Makarenko's assistance. Just then the third tank drove to one side and began to spray the street with fire. Makarenko took a bunch of hand grenades from the men and headed boldly for his third victim. The grenades went flying under the caterpillars. The disabled tank came to a halt, and the crew surrendered.



TANK AMBUSHES★

by Major B. Tretyakov, Red Army

A small tank unit separates the enemy tank spearhead from its infantry, breaks the tank formation into groups, and destroys them piecemeal.

RECONNAISSANCE PATROLS reported that the enemy was preparing to deliver a blow at the village of Kirillovka, situated on the outer perimeter of the Soviet defense. Faced with the necessity of strengthening defenses in that sector, the command brought a tank group up toward the village. Two hours later a message was received from an outpost which stated that enemy tanks had appeared north of the village, and the indications were that the main enemy thrust against Kirillovka would be undertaken with a force considerably superior to that of the defenders. Only stratagem of some kind could save the situation which was becoming precarious.

In the center of the defense area southeast of Kirillovka, and in front of good antitank terrain, there was a height with a marshy stream running to the south of it. The Germans had double superiority in force, but the advantages of terrain were on the side of the Soviet troops. It was decided, therefore, to set an ambush and defeat the Germans piecemeal.

A Soviet tank group was concentrated on the eastern slopes of the hill, but southwest of the hill and farther west toward Kirillovka the terrain offered no place of concealment for enemy tanks. In case of a breakthrough at Kirillovka, they would have to move over open ground under flanking fire from the Soviet tank group concealed behind the hill. The stream would have to be negotiated under fire from the antitank zone.

The Soviet infantry, holding the front line positions

at Kirillovka, were to let the German tanks through and then cut off the German infantry when it tried to follow. After letting the tanks through, Soviet infantry was to mount its camouflaged antitank weapons along the southern edge of Kirillovka in order to protect its rear should the enemy tanks turn back to aid their own infantry. The tank group was to remain in concealment until after some of the enemy armored vehicles had crossed the stream, then some of the guns in the antitank zone were to open fire and lure tanks on farther. As soon as a part of the enemy tank force crossed the stream, they were to be engaged by a second defense of antitank guns, rifles, and artillery. The tank group in ambush was to drive to the top of the hill and attack those enemy tanks that had not yet crossed the stream. Thus the enemy force was to be divided into three parts and destroyed piecemeal.

At noon the enemy tank column easily broke through the front line of defense and drove at high speed towards the antitank zone. Some of the German vehicles attempted to circle around the hill where the Soviet tank group was concealed, but just then several guns and rifles opened up from the antitank zone and the enemy turned sharply toward the south again.

The main body of German tanks started across the stream after its vanguard. The second echelon slowed down and gave fire support to the first echelon. At that moment, the second line of antitank guns and field

★By cable to The CAVALRY JOURNAL from War Department, U.S.S.R., Moscow.

artillery opened up at the tanks that had crossed the stream, and at the same time the Soviet tanks in ambush directed their fire at the enemy vehicles that still remained on the northern bank. The surprise was so great that the enemy tanks scattered in confusion. Those that turned back were met by fire from the first line of antitank guns placed along Kirillovka's southern edge.

The enemy apparently could not at first determine the direction of fire. Panic spread among the enemy. Several tanks were burning, and others, crippled by Soviet shells, were standing still.

The Soviet tanks chose that moment to launch their attack. Some more enemy machines were destroyed at point blank range, and the rest turned back and fled around to the west of Kirillovka. The Soviet tank group engaged in pursuit of the enemy vehicles and then crushed and dispersed the motorized infantry which was attempting to capture Kirillovka.

While the tank group from ambush was engaging the enemy tanks to the north of the stream, fighting to the south of it had developed as follows:

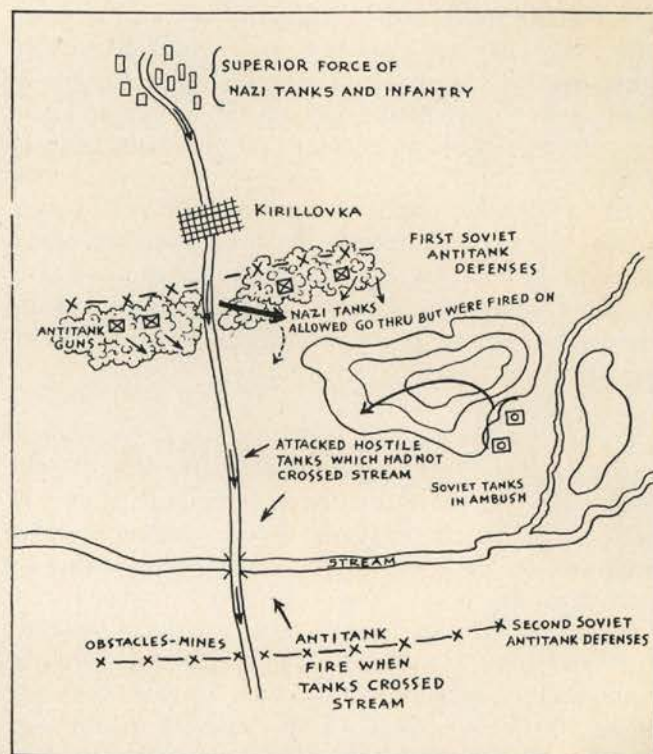
When the Soviet artillery opened fire, the German tanks that had crossed the stream attempted to storm the firing points in the antitank zone but came up against antitank obstacles and mines. Several machines were blown up, and others were destroyed by antitank guns and field artillery.

Having received considerable casualties, the enemy was forced to turn back and recross the stream under a tornado of fire. Eight tanks got stuck in the stream, and members of the crews who climbed out tried to escape on foot. The tanks that succeeded in recrossing the stream were met by the fire of a tank company protecting the movement of the tank detachment that was in ambush. Only half of the enemy tanks were able to break out of the trap. German losses amounted to 56 tanks out of 120 and two battalions of motorized infantry.

The Soviet-German war has presented numerous ex-

Tanks in ambush in a lightly wooded area await attack by the enemy.

Sovfoto.



amples of tanks operating from ambush. Well arranged ambush offers the possibility of successfully engaging a superior enemy force.

Ambush may include large tank formations operating in conjunction with infantry and artillery, or it may consist of small tank groups supported by submachine gunners, antitank guns and rifles.

The choice of terrain and the factor of surprise play important parts in determining the success or failure of ambush. Experience has shown that the most effective tank ambushes are ones placed on uneven ground on the fringe of a forest or else in thickets. Ambushes in forest-covered mountains were widely used during operations in the Caucasus foothills. Terrain should restrict movement of enemy armored vehicles and afford wide opportunity for the maneuver of friendly tanks.

A surprise attack always stuns the enemy. That is why ambush should always be concealed from the air as well as from land observation. Ambush early discovered is doomed to failure.

The possibility of the enemy appearing from some previously unforeseen direction should be kept always in mind.

Ambushes should be organized so as to ensure repulse of the enemy even should he appear from the rear. For this reason reconnaissance and constant observation is necessary. Tanks in ambush are wise to cooperate with other arms of the service. Antitank rifles and guns augment the firepower of the tanks. Submachine gunners protect them from enemy tank fighters, while sappers mine the terrain so that enemy tanks, in circling around minefields, will inevitably fall into the ambush.



All ambushes should be organized with an advance in mind. They are used not only in defense but in other types of engagements as well. Their purpose in meeting an engagement is to hold the enemy and gain time necessary for concentration of the main body of troops.

In an offensive engagement an ambush is employed to rout the counterattacking enemy forces and sometimes to protect the threatened flanks of advancing troops. During reconnaissance in force, ambushes are also used to capture prisoners and destroy enemy scouting patrols.

In a defensive operation small tank ambushes (a company or battalion) are used to cover the retirement of the main body of troops to new positions. As a rule, small groups of tanks are placed in ambush along the most likely directions of the enemy advance (highways and defiles). These groups are located along the front or in depth at a distance from each other that is sufficient to ensure mutual fire support. Antitank guns and rifles are placed in ambush along with the tanks, and submachine gunners take up positions some 50 to 100 meters ahead. It is desirable to have approaches to every tank group and spaces between them mined.

The officer in charge of an ambush, usually a company or battalion commander, should be in constant communication with each group by wireless, light signals, or telephone. He also has the mobile tank reserve and sometimes antitank rifle reserve at his disposal. The system of fire is arranged in advance and each group is assigned a definite sector. At a signal from the command post, fire may be concentrated in any direction.

Last August Major Khoroshko, commanding a force defending the approaches to an inhabited point on the Don, arranged an ambush in the open steppe. On terrain so unfavorable to defense, the movement of vehicles may be observed at a distance of five kilometers. The major placed groups of light medium tanks along a front of from two to three kilometers and at an equal distance in depth. He then issued orders for his men to dig themselves in and camouflage. Several score medium and heavy tanks were concealed in a small grove behind these ambushes, and submachine gunners took up positions in front of the tank groups, with antitank guns placed at intervals between them.

The enemy tanks appeared in the morning, formed up, and stopped from two to three kilometers from the group of Soviet tanks in ambush. Some German tankists leaned from their hatches to observe the terrain but apparently saw nothing suspicious, for the enemy tanks, accompanied by self-propelled artillery and numerous submachine gunners, rushed to attack. The Soviet tanks and antitank guns in ambush opened a tornado of fire at a range of less than one kilometer. The enemy was caught by surprise but, unable to sight any targets, he continued to advance and kept up a desultory fire.



Sovfoto.

With no trees in which to ambush, this tank crew has dug a pit and topped the tank with brush.

After losing 62 tanks, a large amount of artillery, and several hundred officers and men, the Germans were forced to retire to their initial positions. Soviet losses were 17 tanks and 6 guns.

When enemy tanks are sighted, tanks and guns in ambush open fire at a signal given by the ambush commander, and great firmness and accuracy are needed to choose the right moment for fire. The following episode is characteristic in this respect:

A group of Soviet tanks had concealed themselves in ambush near the town of Novoe when a small group of enemy tanks soon appeared from a grove. They approached to within 800 meters of the ambushed tanks, then turned and disappeared in the grove again. The enemy repeated such sallies several times, but the ambush commander guessed the enemy's intentions and directed his men to hold fire until further orders. Noticing nothing suspicious, about 50 of the enemy tanks crawled from the grove and drove forward in close formation. The tanks in ambush opened fire at short range, destroyed about 20 tanks, and forced the enemy to fall back to his initial positions. Experience has shown that coolness, firmness, and sober thinking determine the outcome of ambush.

In some cases it may be profitable for advance ambush groups to let part of the enemy tanks get through in order to place them under crossfire of tanks located deeper in the ambush zone. Then the rest of the tanks and infantry may be cut off and the enemy routed piecemeal.

Should the enemy attempt to outflank an ambush or crush it with a large force, the commander should immediately order his mobile reserve out to meet the attack. The reserve may also be used as a decoy to lure the enemy under the fire of the tanks in ambush. For this purpose a part or whole of the reserve moves ahead of the ambush and, after engaging the enemy, falls back and draws it toward the trap.

A Soviet tank unit was moving along a valley in the Mozdok area when its vanguard reported that it had sighted an enemy tank column approaching from the opposite direction. The unit commander decided to organize an ambush and ordered the vanguard to fall back but to keep a steady lookout for the enemy. Soon another message came in, which stated that enemy advance units were turning into the neighboring valley. The commander then ordered two platoons to move ahead, open fire at the enemy, then retire, and lure the enemy towards the ambush.

At the approach of the Soviet tanks, the enemy assumed battle formation and started in pursuit. The enemy suddenly found himself under a heavy crossfire, and his forward and rear tanks became crippled first and blocked the way for the rest.

When threatened with encirclement, tanks in ambush should retreat swiftly to new positions. For this reason, tanks should be entrenched in such a manner as to afford them opportunity of slipping out easily. First to retire should be the antitank rifle detachments, followed by submachine gunners protected by tanks.

Retreat of advance groups should be covered by a group situated farther inside the ambush zone, while the mobile reserve should hold up the enemy and gain the time necessary for the whole force to take up new positions. The reserve force should then lure the enemy under the fire of the tanks in the new ambush position.

The best time for retirement is at night when observation is difficult or in the daytime under cover of a thick smokescreen. In this case, it is possible to escape pursuit altogether or else mislead the enemy or even force him to engage his own troops, as did Lieutenant Semenov.

A group of tanks under Semenov's command placed themselves in ambush in a thicket along a forest through which the road cut. The enemy tanks were met by fire and rushed back into the forest. Sometime afterward one of the neighboring groups informed Semenov that two enemy tank groups were outflanking him, with the intention of making an obvious envelopment. Semenov immediately ordered fire to be opened at both flanks and, by taking advantage of the falling darkness, moved back. The enemy tanks fired back, then moved towards each other. Drawing pincers together, the enemy machines fought each other, while Lieutenant Semenov's group, which had retired, looked on.

These examples do not cover all of the problems connected with tank ambushes, nor do they touch upon ambushes organized by infantry and other arms of the service. They attempt to describe only a few of the possible tactical employments of small tank units.



These tanks, ambushed on the edge of a dense forest need less camouflage.

Salvage and Supply of Tanks in Battle^{*}

by Lieutenant Colonel A. Afonskyk, Red Army

THE salvaging of wrecked tanks from the battlefield and the constant replenishment of their ammunition and petrol is of primary importance in the Soviet army. This work is particularly complicated under actual fighting conditions and requires special care and attention.

First of all, to salvage wrecked tanks and replenish ammunition and petrol, a definite plan for this purpose must be prepared at the same time that the general plan of operation is drawn up. The rear unit of the supporting tank group must contain a special salvaging group with an officer in charge. This group is responsible for the timely evacuation of wrecked machines from the battlefield and sees to the constant supply of ammunition and petrol to fighting tanks.

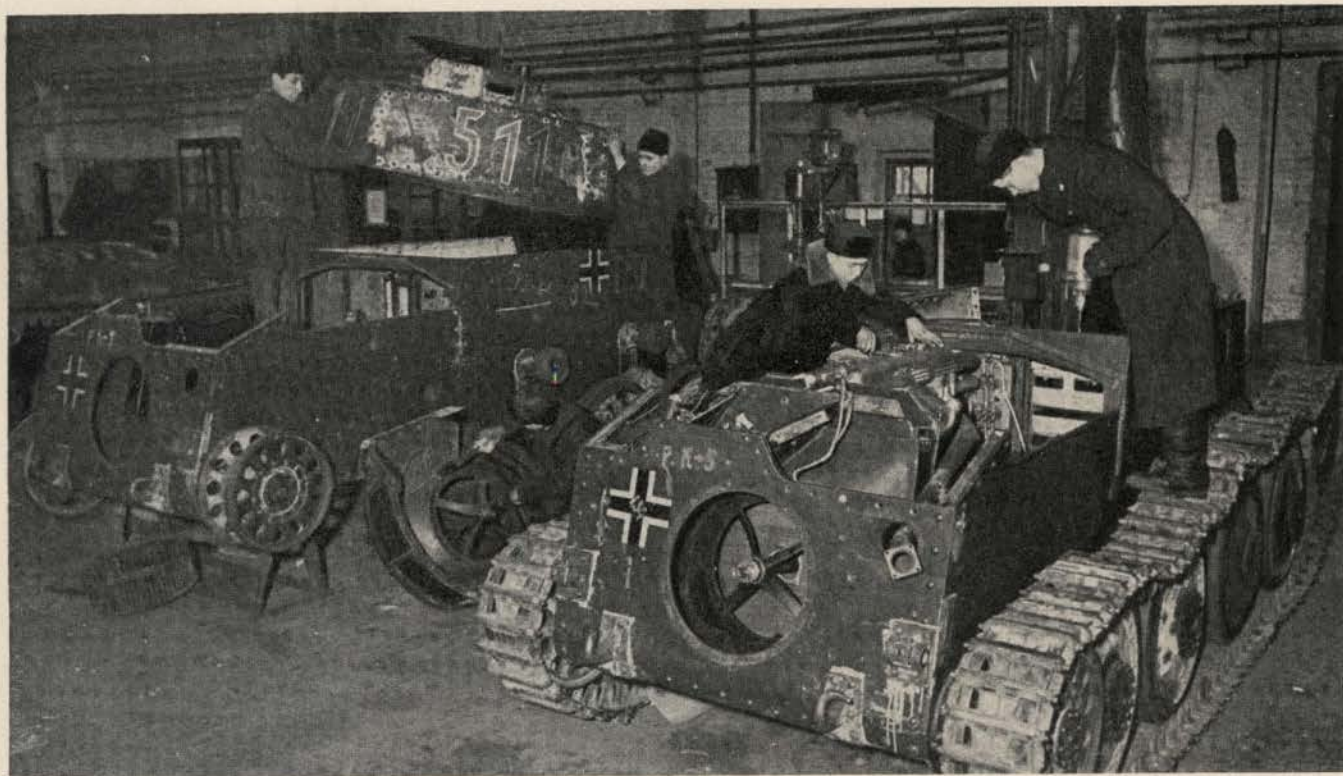
In addition, the general plan of operation should provide the necessary measures for this work, but the details depend upon specific conditions in each given engagement. The second in command of the group performing the operation, together with the assistant com-

manders of the various units, watches the movement of the tanks from an advanced observation post, stationed from one to one and a half kilometers from the actual tank formations. Contact is maintained with our posts by submachine gun groups of four or five men each.

About 600 to 800 meters behind the advanced observation post is the salvaging and supply group. This group consists of tractors, field repair units, petrol tanks, and armored haulage tractors that carry supplies and spare parts. Their job is to salvage wrecked tanks and get them to repair units, to help tank crews in repairing damaged machines on the battlefield, and to replenish ammunition and petrol supplies during the battle. The officer in charge of the salvaging and supply group maintains contact with the advanced observation point. For this purpose he is assigned several dispatch riders, and when necessary the group is reinforced by sappers and submachine gunners.

The first echelon of rear units, where the damaged machines are repaired, is located from three to four kilometers behind the salvage and supply group. The advanced observation point receives information on the

^{*}Cabled to The CAVALRY JOURNAL by the War Department, U.S.S.R., Moscow.



Captured German tanks undergo repairs at a Soviet workshop behind the lines.



These Nazi tanks, captured in the northern sector, were repaired by Soviet salvage groups in time to go into action against their former owners.

condition of tanks from scouts who act in conjunction with the forward units. After verifying these reports, the commanding officer sends orders to the chief of the salvage and supply group who then organizes the salvage of the wrecked tanks or arranges for their repair on the battlefield. For this purpose all available tractors, and when necessary sappers and submachine gunners are used. If the tanks are to be repaired on the battlefield, he then dispatches repair gangs from the advanced field repair base. The repair gang approaches the damaged machine on foot or on an armored haulage tractor.

Experience has shown that the enemy always tries to hinder the repair of damaged tanks. For example, when approaching one damaged tank near the villages of Sharovo and Fedosino the salvage group was met by enemy submachine gun fire. One enemy submachine gunner actually fired from the wrecked tank itself, so before salvage could be started the area first had to be cleared of all Germans.

At another sector where a Soviet tank was damaged by a land mine, it was necessary to de-mine the area before salvage could be made, and a group of sappers was dispatched for this purpose.

On another occasion the commander had to ascertain the condition of the damaged tank on the battlefield. As he approached it, the enemy opened strong fire from submachine guns, and our men reached the machine only after a smoke screen had been set up.

In still another case, as the Soviet salvage group approached a damaged tank, it was met by artillery and mortar fire. Not until after Soviet artillery had retali-

ated by a powerful barrage and silenced the enemy guns was it possible for them to start to work.

These examples show that salvage work on the battlefield is usually rendered easier by having submachine gunners and sappers accompany the salvaging force, and in certain cases even artillery support is necessary.

Salvage must proceed throughout the battle so that by the close of the engagement, all damaged and wrecked tanks may be safely evacuated. The work involved may require several days, particularly if proper equipment is lacking or the situation in the battle area is complicated. Meanwhile, it is possible that the enemy may locate the position of the stranded tanks and direct his artillery and mortar fire against them. In such cases salvaging is usually performed at night and under cover of our artillery.

Replenishment of ammunition and petrol for tanks is carried out directly on the battlefield, because the return of tanks from the battlefield for fresh supplies often results in reducing the pace of the offensive, and sometimes the absence of tanks encourages the enemy to launch a counterattack.

In Soviet tank units, this supply work is organized as follows: The tank in need of replenishment of ammunition or fuel seeks cover, while the salvage and supply group rushes an armored haulage tractor with the necessary supplies, which are taken from the first rear echelon. As soon as the tanks have reached their objectives the first rear echelon moves up to the tank positions, and all machines receive fresh supplies.

GERMAN DEFENSES

In Woods

IN wooded areas, the German defenses conform to the pattern shown in the accompanying sketch. Near the forward edge, lanes are chopped in the form of an obtuse angle. Mines are laid in the center of the cuts; and on either side barbed wire, wooden and other obstacles are constructed. During the day the lanes are patrolled and covered by enfilade fire, but at night they are vacated while the Germans await the arrival of Soviet infantry.

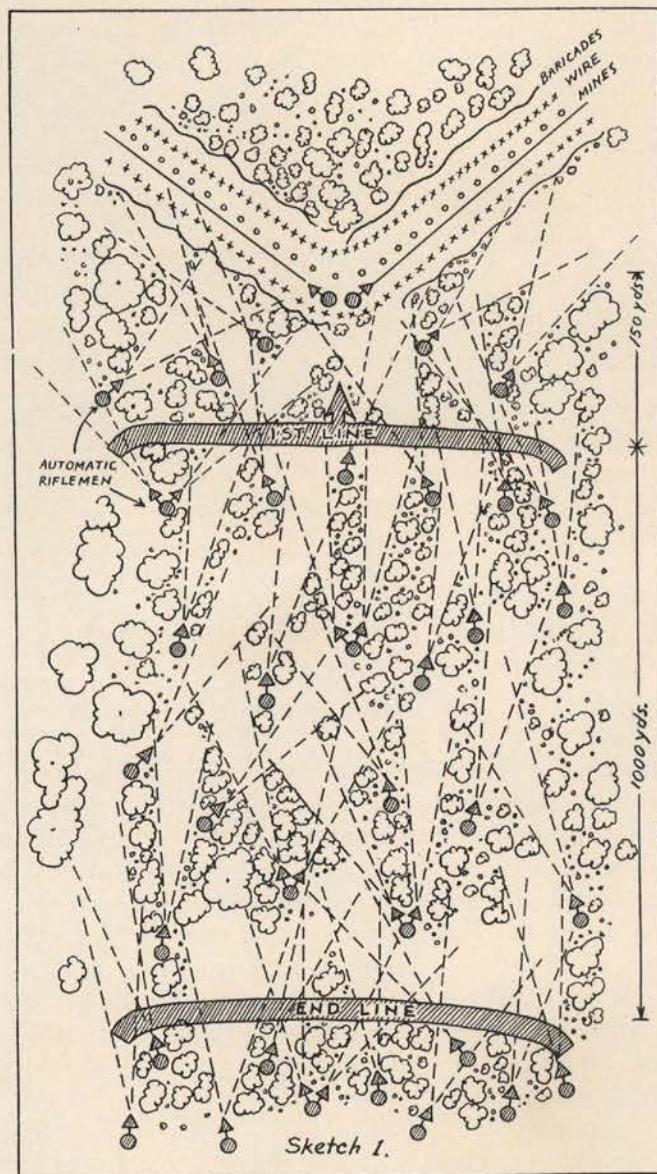
About 150 yards behind the cut is a thinly held line of infantry, and about a thousand yards farther to the rear is another stronger line of infantry. In the intervals, separated by about 50 yards, the Germans place *dzots*,¹ each armed with two automatic riflemen. Each *dzot* has individual acute-angled cuts cleared out for about 150 yards to the right and left front.

The density of the *dzots* increases toward the rear. Each is secured by cross fire from its neighbors, and all are connected by communication paths and trenches. In the event of bombardment of the forward defense zone the defenders fall back to the rear.

The weakness found in this type of defense is a lack of proper security against flank attacks.

*Brief of an article by Major N. Shandaryayev published in *Red Star*, October 4, 1942.

¹Firing point emplacements. The more elaborate are made of iron or wood.

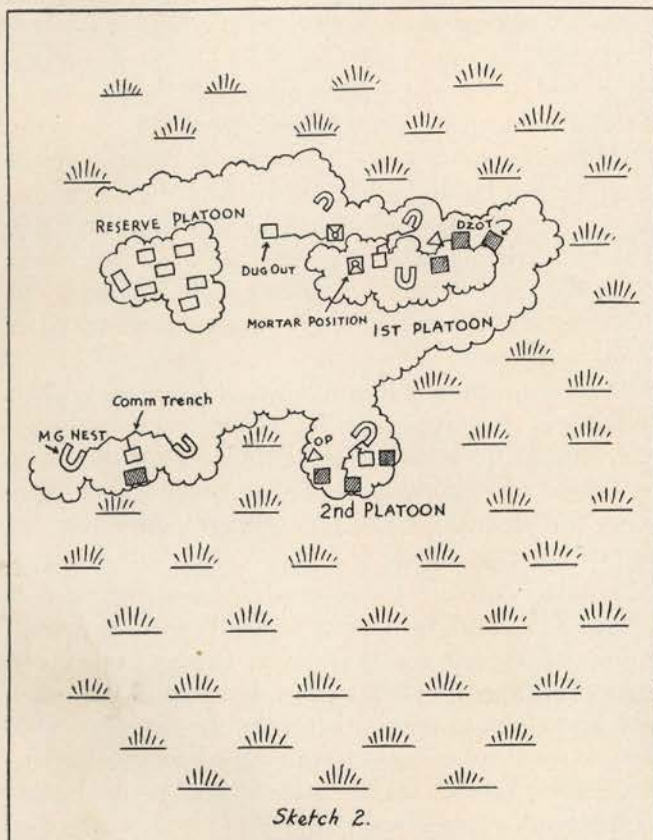


In Swamps

Defense in swampy areas is conducted only on the available dry, wooded islands (see sketch). An attempt is made to connect each island, but if this is not possible, then the islands are built up and preparations are made for carrying on independent defenses.

In the accompanying sketch two platoons are defending an area of the front that runs from about 1,200 to 1,400 yards. The reserve platoon is located about 1,000 or 1,500 yards to the rear. Flank security is maintained by appropriately placed machine guns.

The German machine gun nests follow a horseshoe pattern. The bend faces the front 3 or 4 yards wide and 4 or 5 yards long. The nest usually is covered with wood and dirt. Massive all-around *dzots* are rare on the northwest front; the smaller ones with two embrasures are the rule.





CARDED The Advance and Attack of German Armored Formations in Libya, 1941-42*

by Colonel H. B. Latham, British Army

INTRODUCTION

IN connection with the handling of his armored units, there are four principles from which the Nazi rarely departs:

(1) The primary rôle of the tank is to kill infantry.

(2) The main weapon of the tank is thus the machine gun.

(3) The tank can be successful only if used in conjunction with all arms.

(4) Tanks must be used "en masse."

As a result of these views:

(1) The Nazi will not fight a tank battle if he can avoid it.

(2) The order so constantly given to our armored formations "to seek out and destroy the enemy's armor" has led to almost tragic results.

(3) Nazi tactics are based on armor always moving with other arms in close support in the form of a "box" or moving "defended locality."

COMPOSITION OF THE BOX

The "box" is the part of the column which is inside the dotted line in diagram "B." It varies in size, but if a battalion of tanks is moving with it, it might contain

the following fighting troops, in addition to the tank "ground crews," reserve petrol, etc.:

One battalion lorried infantry, usually carried in semi-tracked, semi-armored vehicles.

One battery 50mm antitank guns.

One battery 88mm AA guns.

One troop 150mm close support guns sometimes on SP mountings.

One battery field guns.

On the move or in the attack, the artillery with the "box" is disposed of as shown, *i.e.*, the antitank and AA guns guard the flanks and front faces, while the infantry guns and field guns are usually only inside the "box" when it takes up a defensive position. In size it is approximately two miles deep on a frontage of 800 yards. The 88mm, though it has proved a very effective antitank gun, is primarily included in the "box" to protect the "soft skinned" vehicles from air attack.

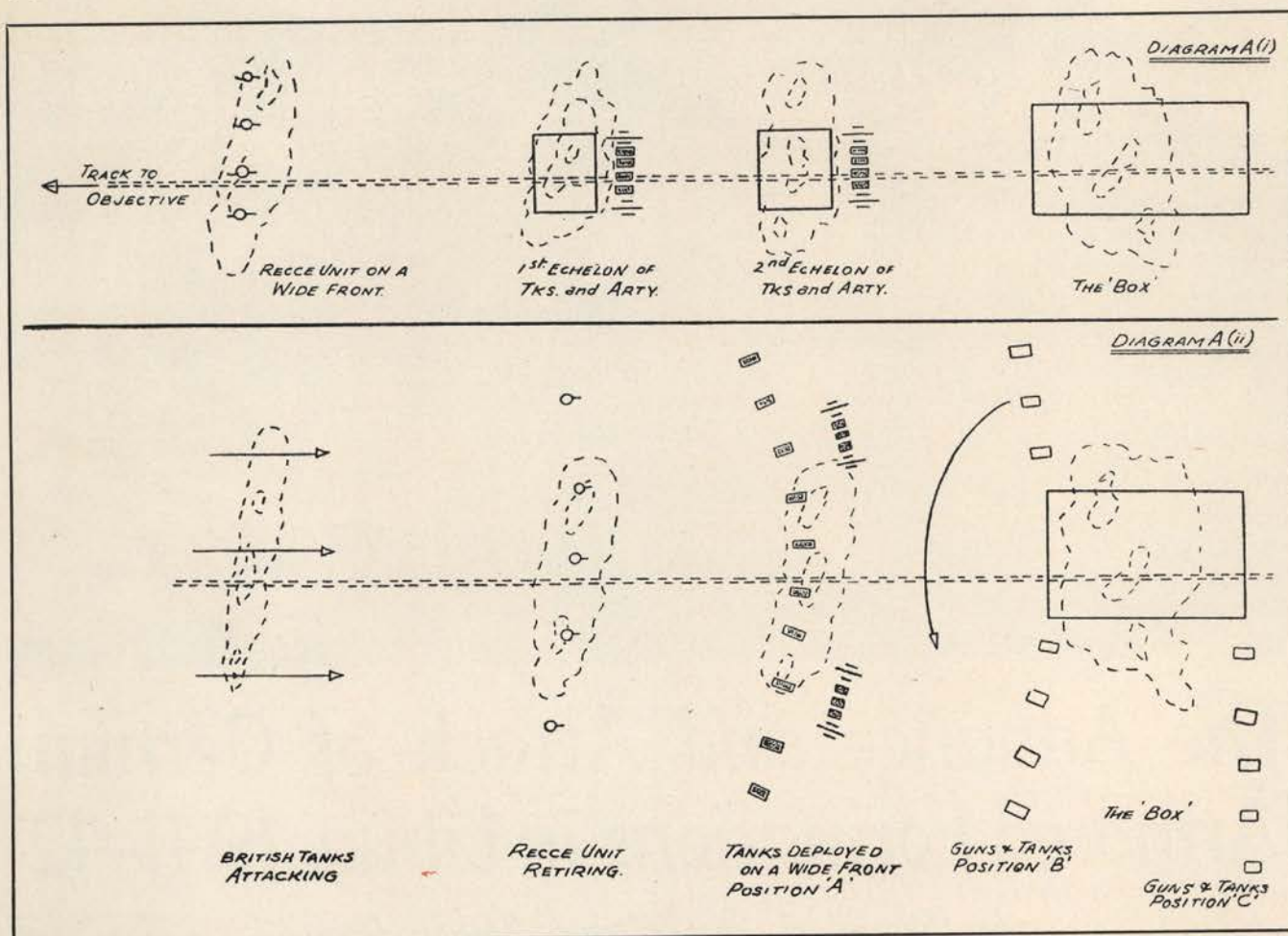
THE METHOD OF ADVANCE

The method of advance is shown in diagram "A." On dead flat country the distances between the various portions of his column are approximate.

Between the reconnaissance unit and the leading echelon of tanks, 5-10 miles.

Between the 1st and 2d echelons of tanks, 1 mile.

*Courtesy, R. A. Journal (British).



Between the 2d echelon of tanks and the "box," 2 miles.

The whole is directed towards some tactical feature which, if seized, will force us to fight and so engage on ground of the Germans' own choosing.

In normal terrain each portion of the German column moves from high ground to high ground, and the more rearward echelons of the column step up rather like the old cavalry advanced guard. Each echelon of tanks is supported by field artillery, which moves in the rear of them.

METHOD OF FIGHTING IF ATTACKED ON THE MOVE

As soon as our tanks are reported to be advancing, the "box" halts and takes up a position for all-round defense. This can be done very quickly owing to its formation on the move. As our tanks advance, the Nazi reconnaissance unit falls back, and their two echelons of tanks deploy on a wide front, with the flanks thrown forward; position A, diagram A.

If we continue to advance, the Nazis continue the retirement to position B and force us to attempt to break through one flank.

If we imagine that we decide to attack the Nazi left flank, this falls back to position C. Then our tanks, if they pursue, are not only engaged frontally by his Mk. IV tanks but are caught in flank by the antitank and AA guns of the left face of his "box." Finally, the

tanks of the hostile right flank swing around and engage our attack in the rear.

The artillery, which moves with the tanks in the advance, may either remain supporting them or enter the "box" to stiffen its antitank layout.

THE ATTACK LED BY TANKS AGAINST A LOCALITY (DIAGRAM B.)

In general the Nazi accepts our reconnaissance of the ground and aims at taking one of our localities. He realizes that it is usually impossible for an attack in depth to pass between two localities or to cross the front of one locality to attack another. His attack is launched, therefore, approximately "head on."

Such an attack might thus be carried out in the following way:

Phase 1. He will reinforce his reconnaissance unit with tanks deployed on a wide front and drive in our covering force, until he is approximately 2,500 yards from our "Crust."

Phase 2. A most careful reconnaissance will then be carried out by a senior commander in a tank to decide which locality to attack. In Libya last winter when our localities were not necessarily sited on high ground, a great deal depended on whether the Nazis could get a position about 2,000 yards from our front face on which to deploy his covering force. In diagram "B" it

is assumed that he has found this and is going to attack locality "B."

Phase 3. His covering force now deploys as follows:

Mk. IV tanks take up a hull down position on the ridge and with the fire of their machine guns attempt to pin the defense. They may engage visible antitank guns with their 75mm.

Under cover of their fire 50mm antitank guns, heavy machine guns, and close support 150mm infantry guns are also deployed in an attempt to knock out the antitank guns of the defense or to kill their detachments.

It should be noted that in the British Army, since the Vickers machine gun has been withdrawn, there is no means of engaging the heavy machine guns opposed to us except by the fire of field artillery. The majority of the weapons deployed by the German covering force are dependent on open sight laying and so can be blinded by smoke.

Under cover of the fire of his own covering force, the attack forms in rear thus:

(1) Three rows of tanks about 50 yards apart and each row approximately 150 yards in rear of the one in front.

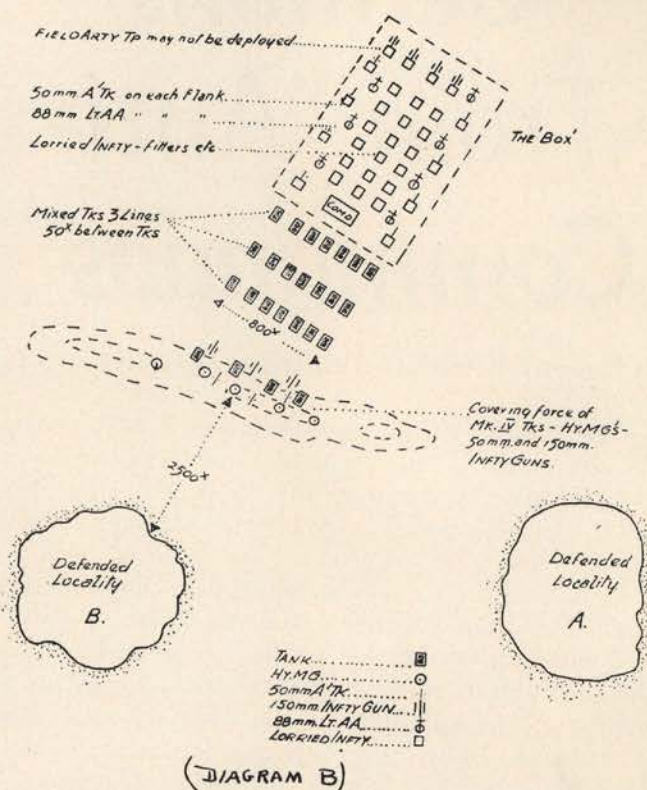
(2) When the tanks are in position, the "box" forms up in rear as shown; the infantry all ride in their trucks.

Phase 4. At zero hour, the whole moves forward at about 15 m.p.h.; the rate of speed depends on the ground. As they pass through their covering force, the tanks begin to fire, not so much with a view to hitting anything but simply to have a psychological effect.

On arrival at locality "B" some tanks drive straight through to the rear face; others assist their infantry to mop up.

The latter do not usually dismount till they arrive in the locality, when they fan out and use tommy guns extensively.

Phase 5. When the attack is successful, the covering force moves forward into the captured locality to stiffen the defense, and the tanks are usually withdrawn and serviced near what has now become the rear face of his locality.



GENERALLY

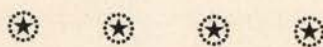
(a) It takes two or three hours to prepare and stage such an attack.

(b) If successful, no minor counterattack is likely to drive him out. His defense can be organized very rapidly, since all the weapons he requires are immediately available.

(c) As a result of such tactics, our localities have had to be sited on higher ground, and it has been necessary to avoid ground from which they can be overlooked.

(d) Such attacks are now beaten off, and it is apparent that in future they will not succeed without much more artillery support.

(e) The whole form of the attack has been reduced by the Germans to a "Battle Drill."



The Commander

The commander must guess whether, after receiving the initial blows, the core of the opponent's Army is gradually becoming condensed, tempered and strengthened, or, to the contrary, beginning to crumble into dust like a decanter made of Bologna glass whose surface has been cracked. The commander must figure out with precision how much the enemy state will be weakened by the loss of certain sources of supply and by the disconnection of certain arteries. He must foretell without mistake whether the enemy will collapse in pain from the wounds inflicted on him, or hurl himself forward with frenzied might like a wounded and enraged bull.—GENERAL CARL VON CLAUSEWITZ.

CARDED

Germans Train "Anti- Commandos"

(Recent German Training Instructions)

THE enemy (Allied) commando attack on Heraklion Aerodrome on the night of June 13-14, 1942—an exceptionally dark night during the period of the new moon—demonstrated that the enemy's specially trained sabotage troops are too good for our defenses.

It is essential to standardize and to improve the method of defense against commando raids.

Intelligence sources are unanimous in maintaining that the English and the Fighting French, probably also the Americans and Russians, have formed with their "Commandos" a new sort of troops—even indeed a new arm of the service. It consists ideally of personnel especially suited by their profession (acrobats, boxers, etc.) who have been given a thorough and systematic special training, and armed with special equipment for sabotage and raids. In several instances they have scored successes over our own troops in their present state of training and equipment. The success of the attack on Heraklion Aerodrome is also proof that the instruction of our troops concerning the enemy's methods of attack, and repeated warnings of imminent danger, are not sufficient to ensure a successful defense. In fact, an accumulation of repeated warnings of imminent danger has a detrimental effect.

The methods of attack of these enemy troops are varied and for the most part novel. Examples:

(a) The Italian Siena Division, which is under German command, received the following report through Italian military channels:

"Some time ago English parachutists landed near Prague. When they were held up by the local police, they obeyed the order 'Hands up!' But they carried a special device on their belts, with a pistol, from which cords ran to their hands. The latter fired the pistol. They thus succeeded by a quick and appropriate movement in accounting for the policemen."

(b) During the attack on Fuka Aerodrome (Africa), according to a report from X *Fliegerkorps*, the enemy troops put up distress signals. They succeeded in enticing the sentries away from their posts for a time, and successfully carried out their sabotage.

(c) Before the attack on Heraklion Aerodrome, an aircraft crew noticed six men of a Commando lying close together on the grass. It was already very dark, and the airmen shone a pocket torch on them from one



yard's distance. When questioned, they pretended they were soldiers resting. One of them gave a sort of annoyed grunt, a clever and self-possessed indication that he did not want to be disturbed. The trick succeeded.

This special training of the enemy contrasts with the state of training on our side, which is in some ways no longer adequate, and is no longer competent to deal with enemy commando raids.

New *methods and weapons* of attack demand *new forms* of defense. The following are suggestions for such new defense methods. They fall under three headings:

EQUIPMENT

The equipment of the troops must be suited to a special degree for *use by night*. First on the list comes the demand for completely silent behavior even in difficult country. Rubber shoes or rubber soles, overshoes, or stockings pulled over, must be developed. Every part of the man's equipment which hinders him physically must be left out. A combination suit is better than a coat, with belt, trousers and jackboots. *Every man* must be equipped with a flashlamp and a Verey pistol. Long-burning Verey cartridges (perhaps with a parachute) are required. At night, a pistol is better than a rifle. Sights for night firing can be improved both on the rifle and the pistol.

The equipment of the guard room with pistols, to be handed out to individual posts and patrols, and the use of mobile assault troops, must also be considered. Camouflage material to prevent the detection of posts in the dark—at least for static sentry posts—should be available. Shining buttons, bright bits of equipment, and white parts of the body betray a soldier quickly.

TRAINING

Training requires considerable changes. These can only be outlined in the following details. It will be necessary to introduce in all Air Force training manuals a special chapter "Defense against Raids." . . . Up till now, training pamphlets have not included the point that *guard duty* is always part of "field service." It is important to formulate this principle. It must be made quite clear that every soldier on guard is not merely a sentry, but is also a *fighter*. It is also worth consideration as to whether the traditional division of training into *individual training, training in close formation, and training in the field*, is still up to date.

It seems nearer the mark to emphasize that there is a "training of the individual" within the scheme of "training in the field." This training of the individual in field fighting is indeed one of the main elements of training as a whole.

In this part of his training, the young soldier must learn and be trained to be an individual fighter. He must learn that kind of conduct in the face of the enemy which he will need if he is to give a good account of himself against superior numbers in the open. Greater importance must be laid on this in training in the future. The necessity that the man on sentry or watch patrol must fight, comes into clearest relief in combatting enemy commando raids.

In the conception of "individual fighter" the emphasis must be laid on the "fighter." Statements like the introduction to the section on battle training in "Principles for Training in War," which enunciates the principle, "*Battle training takes second place to drill*," seem senseless.

One training manual says, "The sentry post must have a good field of vision, and be concealed from the eyes of the enemy." This is not enough. It is necessary that the soldier be trained to observe acutely for hours—standing motionless behind a tree, like a hunter on the trail.

An extract from another training manual again misses the mark for defense against commandos. There we read: "The sentry will observe the enemy. As soon as he sees anything suspicious, he will report it to his unit headquarters by sending a runner. He will continue to observe." If we acted in the spirit of this, even a double or a triple sentry post would never destroy an enemy night commando attack.

Instruction and training of the individual fighter lie essentially in the sphere of education of the mind and development of the will. The soldier must learn to have all his senses tense for long periods. He must combat the inclination to ease off his watchfulness and readi-

ness if he is alone and without direct supervision and out of touch with his neighbor. He must combat the inclination to regard things carelessly as not suspicious or innocuous. On the other hand, these measures must not be allowed to produce uneasiness and anxiety on the part of the soldier. This must, therefore, be treated very thoroughly during instruction.

As an individual fighter, he must be made a daring one. In close combat, to jump at the enemy's throat is often the best defense. A good kick in the stomach can be more effective than a blow with the rifle. The soldier must be fully accustomed to close combat. The means to overcome the psychological restraint imposed by loneliness can be best learned by the young soldier in regular night training. Both ear and eye must be trained by night. Both sight and hearing by night can be improved materially by practice.

During individual training the instructor (section or gun commander) must know the capacity of every man in this respect. The same holds for the use of weapons. Aiming and shooting in the dark and half-light must be introduced into firing practice. The Air Force Small Arms training manual is to be enlarged on this subject. It holds especially for aiming and firing with a pistol. The proposal to improve sights for night firing has been mentioned above.

As a matter of principle, night training must begin in the recruits' first weeks. Here too, only practice makes perfect. *The holding of training parades at night must be laid down in orders and become the rule.* Silent movement, in particular, must be practiced. Long periods without moving—silent, slow, creeping movements—carrying of arms while doing so—silent whispering—use of the flashlamp—of tracer and signal ammunition, are only a few examples of what forms individual training in the field. The silent changing-over of sentries at night can be practiced easily by detailing an opponent to watch them.

Other parts of the training, such as finding one's way across country by night, use of passwords, knowledge of all signals and alarm equipment, coöperation within a file or patrol at night, require more emphasis than they have had up till now. There is no doubt that by methodical practice in this method of fighting by night (in which enemy commandos have been specially trained for a long time) speedy successes can be won. Even pre-military training must pay much more attention to carrying out night exercises.

In the face of the demands for this type of battle training—at least in war—other training subjects must take second place. "Present Arms" can also be done away with, where it still happens to be practiced. The

These Nazi training instructions, issued by the German Air Ministry, August 2, 1942, indicate a healthy respect for Commando tactics.

section, "Training in Close Formation," can be reduced radically. Experience shows that too much time is spent on it. It is considered profitable to abolish completely all formal movements on the drill square. That belongs to pre-military training for those between 10 and 17 years of age.

The above proposals for training and defense against raids will be introduced especially in courses for N.C.O's, and in recruits' training.

OTHER MEANS OF DEFENSE

Watchdogs with trained keepers are useful on all exposed airfields: likewise, *bloodhounds* for pursuing retreating enemy. The appropriate employment of such patrols under experienced leaders must be made familiar to the troops.

Methodical floodlighting of vulnerable points and of the ground leading up to them, can be useful. Small searchlights used for AA purposes can be so employed. Veray lights can also be fired. The illumination of the country, however, must be organized to occur at irregular intervals and over a considerable area.

Temporary use of trip-wires or ropes, which are removed by daytime, between individual posts and on tracks, can also be made.

The employment of obstacles with electric charges should also be carefully thought out. It must be possible to organize squads to make obstacles with the required

material and means of producing currents, as permanent troops.

Acoustic alarms attached to obstacles are as good as unknown in the normal run of guards and protective patrols. The Chief Engineer of the Crete Garrison is at the moment experimenting with technical appliances of this sort.

The basic point of view for all measures to be taken is this:

To what extent, and with what means, can posts and patrols be improved and linked up by mechanical means of defense?

Even the essence of the above points is unfamiliar to many soldiers. When replacement personnel commence their active service, it is impossible to make up deficiencies in this kind of training because of the other heavy demands on their time, particularly in the case of specialists. The result is uncertain or innocent behavior, which often comes to light only in the first serious test (nervous loosing-off of rounds, pointless shouting in the darkness, "Is anyone there?" inability to grapple with a cunning, confident enemy, disorganized running about when incidents occur).

If better training from the bottom up is introduced, guards will go on duty with greater confidence, will bear themselves with more assurance and decisiveness, and so do more justice to their tasks in battle and on the watch.

"Special training of the enemy (Allies) contrasts with the state of training on our (German) side, which is in some ways no longer adequate, and is no longer competent to deal with enemy commando raids."

Black Star



Military Government

by Major General Allen W. Gullion*

66 **MILITARY GOVERNMENT** is that form of government which a belligerent establishes and maintains by force of arms over occupied territory of the enemy and over all the inhabitants of that territory. The military occupation of enemy territory suspends the operation of all enemy government therein, both civil and military. It then becomes necessary for the occupying army to exercise the functions of civil government, both for the protection of its military interests and for the maintenance of public order. This it does by military government.

Military government has two objectives: First, to help bring the war to a successful termination; second, and entirely subordinate to the first consideration, to further the welfare of the people of the occupied territory.

At all times, winning the war or, having apparently won it, keeping it won is the prime objective. The question must be asked with reference to every intended act of the military government, whether it will further or hinder that objective. The administration of military government is subordinate to military necessities involving operations, security, supply, transportation, and housing of troops. If hostilities are suspended by an armistice or otherwise, all military government plans and dispositions must be made so that the troops may resume hostilities under conditions most conducive to a successful termination of the war.

Subject to the primary objective—winning the war and keeping it won—the welfare of the governed must be kept always in mind. Military government should be just, humane, and as mild as practicable. A military occupation marked by harshness, injustice, or oppression leaves lasting resentment against the occupying power in the hearts of the people in occupied territory and sows the seeds of future war; whereas just, considerate, and mild treatment will convert enemies into friends.

The exercise of military government is a command responsibility, and full legislative, executive, and judicial authority is vested in the commanding general of the theater of operations. The commanding general of the theater is, *ipso facto*, the military governor of the occupied territory. His authority is supreme, limited only by the laws and customs of war, and by such instructions as he may receive from higher authority.

It is elementary that command and civil governmental powers be combined in one person—the commanding general of the theater, who is aided in the discharge of his functions as military governor by the

section of his staff known as the "Civil Affairs Section."

The question is not merely one of military versus civil government. What matters most is that the commanding general in any field of operations be given as complete control as possible over all the elements that must enter into his calculations. The administration of civil affairs is a vital element. Civil disorder or disobedience, hunger riots, passive resistance, inter-racial strife among the civilian population, profiteering, sabotage or false rumors may at any moment disrupt military movements of men and supplies or disturb the military timetable. This is the reason why all modern armies, including our own, have come to appreciate the importance of their civil affairs staffs and to regard them as an integral and essential branch of the service. A well-trained civil affairs staff and trained occupational police relieve the combat staff and the combat troops from civil affairs duties and permit them to confine their attention entirely to combat duties.

Military government is divided into two phases. There is the phase in which the Army is temporarily in control. This would be followed usually by a period in which an American or allied civil government replaces government by the Army, after which the occupied area is ordinarily returned to the defeated nation under the terms of a treaty of peace.

When the enemy has been driven back and his territory overrun by the victorious army, the scene is usually one of chaos. Frequently the area has changed hands several times. Towns have been coventried, homes have been destroyed, industry and commerce have been paralyzed, utilities have been ruined, food supplies are non-existent, famine and pestilence are imminent. The local government has either fled or become powerless. Should such conditions prevail, even in our own country, either in time of peace because of earthquake or other natural disaster, or in time of war following the ejection of an enemy, martial law, which is military government at home, would have to be set up.

Under these circumstances, the Army must assume control and restore stability and order. This must be done, partly because the civilian population of the occupied territory would otherwise lapse into anarchy. If, however, economic dislocation and civilian distress were the sole considerations, a civil government might possibly serve. But, above everything else, the Army's lines of communication must be kept open and the military situation preserved. Yet the forces of the defeated army may be in the next province, or even just over the next mountain range, preparing to resume the struggle. The civilian population may be contemplating all sorts of

*Provost Marshal General, United States Army.

sabotage or attempting to give aid to their own defeated forces.

Military necessity, therefore, demands that the conquering army be in complete control. The control that it thus assumes is what we know as "military government." It is one of those inescapable incidents of warfare, completely sanctioned by international law, that no victorious army can avoid even if it would.

Summarizing, the purposes of military government are first, to safeguard the Army and to maintain a favorable military situation; and second, to preserve law and order among the civilian population. It must lay the groundwork for the eventual restoration of the area and, in the meanwhile, render assistance to its people in such matters as food, medical supplies, and sanitation.

How long should it continue? Unless we invite disaster, it must continue so long as military necessity exists. No rule of thumb can fix its termination.

When military necessity no longer exists, the Army must lay aside the reins of government and hand them over to an American or allied civil government which, in turn, will govern until a treaty of peace is made. For example, in the occupation of our part of the Rhineland after the last war, American military government lasted from December, 1918, until January, 1920, when the Army turned the government over to the Inter-Allied High Commission, a civilian agency, which continued in authority until the area was returned to German control.

When the Army gives up its temporary control, the duties then to be assumed by the succeeding civilian agency will be on a much greater scale and probably of much longer duration. For it is then that civil authority must take on the burden of helping the crushed peoples re-create their world or, we hope, a better one.

The preparation for occupation, however, whether it be the temporary control by the Army or the more permanent régime of the succeeding civilian agency, must be substantially the same.

It is the duty of the occupying authority, whether military or civilian, to preserve, so far as possible, the local institutions, laws, and customs of the occupied region. Military government and the succeeding civilian authority are, therefore, in a sense, superimposed upon the existing local structure and seek to shape the latter to the military and political exigencies of the occupation. Hence, if the job is to be well done, those charged with its execution must have a knowledge of the institutions, customs, economy, and psychology of the occupied area and also must be prepared to supervise or to function throughout the field of public administration. This is a most complicated undertaking, that calls for a large number of professional skills.

Engineers of all types must assist in reestablishing public works and utilities. Sanitationists must restore and protect the public health. Emergency relief workers must assist in feeding, clothing, and housing the destitute. The tangled fiscal affairs and the disrupted

economy of the occupied country must be readjusted. The experts, to perform these missions, must also be indoctrinated in the backgrounds of the special areas in which they may operate.

The time is almost here when our armed forces will occupy important and extensive territories in widely scattered regions. When that time comes, we should be fully prepared to carry on those initial tasks of government that will fall to our victorious armies. At the same time we should shape our program so as to make the transition from the temporary control of military government to the more permanent civilian control as easy as possible.

Last May the Army established at the University of Virginia a School of Military Government where the top administrative personnel for military governments is being trained—not to be governors but to be administrative assistants to governors.

The school has a present authorized student body of 150 officers. Problems include not only studies of the laws, customs, economy and psychology of definite areas now in hostile hands but involve especially the preparation of definite plans for the taking over of those areas. For example, if we should occupy Hamburg, the commanding general of the theater (who will, of course, be the military governor), will have available a plan for its government, and will have officer graduates of the school who have prepared the plan. Moreover, not only will the top administrators have been especially trained and made available for the commanding general in his government of Hamburg, but the subordinate and technical personnel will also be on hand.

We are planning for the training of only 6,000 officers and men. In Poland alone, Germany has 7,000 engaged in occupational work as distinguished from combat duty.

At Fort Custer, Michigan, two schools have been opened for the training of junior commissioned officers and occupational military police. These junior commissioned officers will fill subordinate positions in the military government set-up, where their knowledge of languages will be helpful. At the same time, a large pool of expert technical and professional personnel has been created to supplement the efforts of those other groups.

The task of the Army in any military government is primarily an administrative one. Most of its larger policies, those that will carry over into the civilian government, will be determined by agencies other than the War Department or the Army. For these purposes, it will require, in addition to any administrative personnel, a large technical and professional personnel. These are now being selected from nominations made by civilian agencies of the government which will have an immediate or ultimate policy interest in any occupied territory.

In this manner the Army hopes to be fully prepared for military government in any occupied region.



Individual Assault Training^{*}

ASSAULT training outlined herein is designed (1) to develop within the Armored Force officer and enlisted personnel a high degree of self-confidence, courage, and aggressiveness in battle, (2) to train in the tactics of close combat, so that, even after his own principal weapon, vehicle, and supplies have been lost or destroyed in battle, the individual may still be capable of continuing as a potent threat to the enemy, (3) to coordinate and exploit mental and physical conditioning concurrently, and (4) to acquaint unit commanders

with a reliable means whereby they may gain insight of the individual training, qualifications and capabilities of their officers and men under simulated battle conditions.

In general, assault training should be conducted in the form of an extended field exercise, or maneuver.

LEGEND:

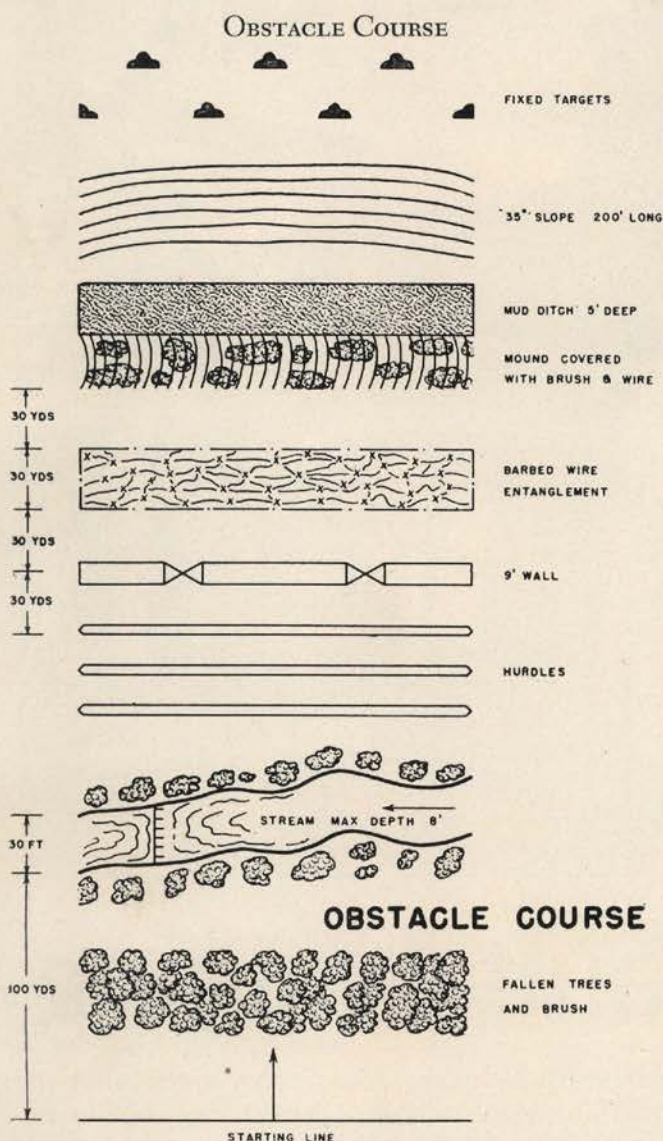
	BUNKERS		TARGETS		BARBED WIRE ENTANGLEMENT
	DEAD TREES		SHELL CRATERS		GRATERS CONTAINING LAND MINES
	PILL BOX		CAMOUFLAGED SNIPER POST		ARTILLERY SHELL CRATERS

^{*}Headquarters Armored Force, Fort Knox, Kentucky.

CLOSE COMBAT

This training instills confidence, ruthlessness, aggressiveness in the soldiers, teaches them coordination of hands and body, and trains them in the methods of employing the bare hands, knife, or stick to destroy the enemy at close quarters. Also stressed are general theories and principles of balance and the application of strength against weakness, use of kicks and blows and their counters, wrist and hip throws, stick fighting, pistol disarmament, and "come alongs."

For instruction, the soldiers are paired according to size, and each pair practices the holds and methods as explained and demonstrated by the instructor from his platform.

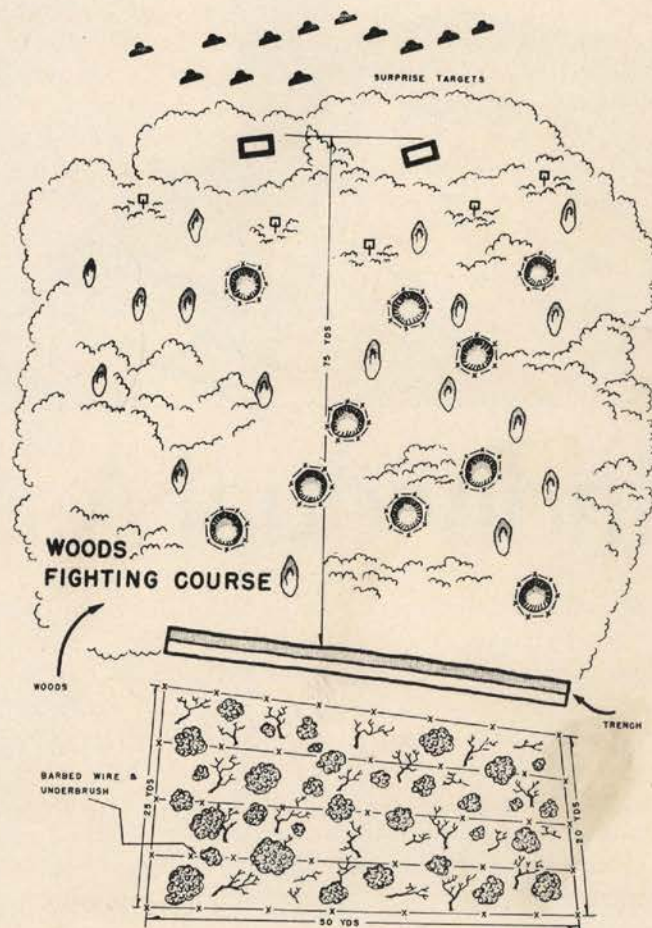


stream; negotiates a platform 8 feet high and a series of hurdles of log construction 3 feet to 5 feet in height; scales a 7 foot smooth wall; crawls through 30 yards of barbed wire entanglement exposed to smoke and explosions; crosses, in succession, a wire mesh covered earthmount 7 feet high and an antitank ditch 5 feet wide, and climbs a hill at a 35 degree slope 200 feet long.

WOODS FIGHTING

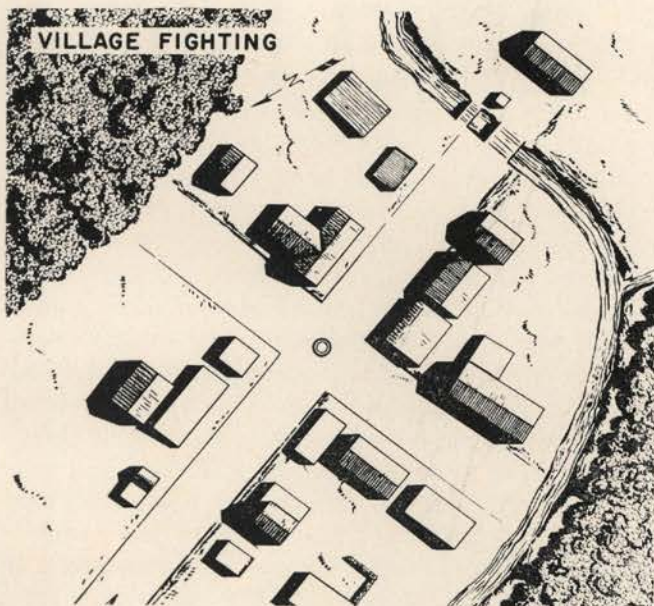
In this phase men are taught to advance rapidly and silently through woods, use natural cover and concealment and to handle small arms properly, using aimed or battle fire shots as required by the exposure of targets at various distances and time intervals.

Three groups of three men each under a leader are formed. These groups work forward through woods in a triangular formation, the three groups forming a triangle with the apex to the rear. Each group of three men uses the same formation as they move toward an objective. The leader, who is in the center of the large triangle, directs his men in the capture or destruction of snipers' posts and pill boxes as encountered, and gives the signal for the final assault on the objective. Ambush of mounted and dismounted patrols is one variation of woods fighting taught. Advantages and disadvantages of woods fighting should be stressed during this training.



This phase is designed to develop endurance, physical fitness, coordination and agility, to introduce fatigue and mental strain prior to participating in assault training, and to teach the soldier to handle his small arms under adverse conditions.

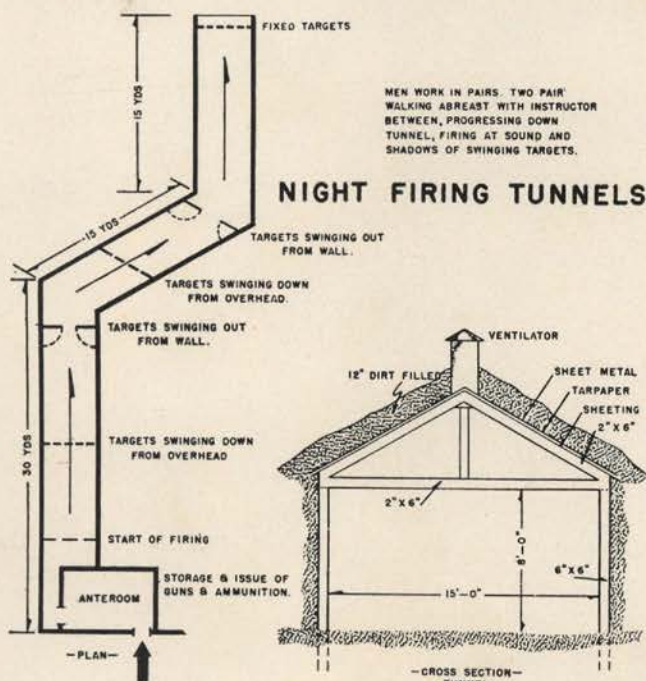
In the course, the soldier runs through soft terrain, indiscriminately strewn with fallen trees; swims a small



VILLAGE-STREET FIGHTING

This instruction trains the soldiers in street reconnaissance, introduces them to booby traps, and teaches them to handle loaded weapons in the presence of other men. Soldiers, closely supervised by instructors, are required to move through the village for reconnaissance purposes.

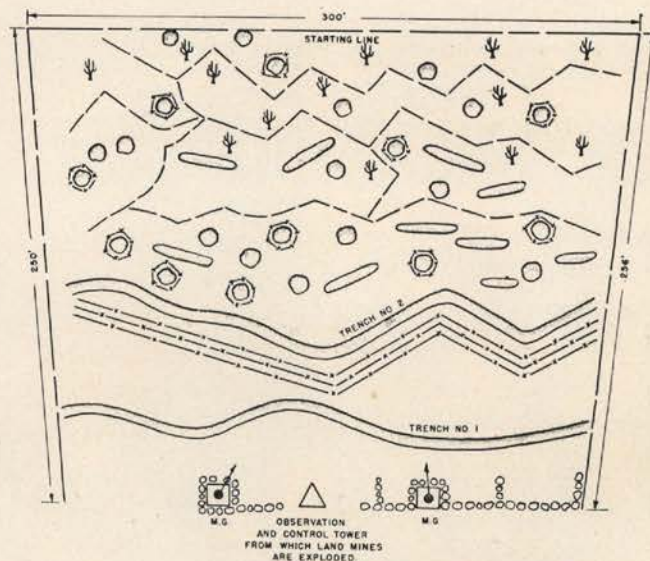
At the discretion of the instructor, targets are exposed at varying firing distances. Booby traps are exploded by the careless soldier who fails to perform proper observations during his advance. Grenades are employed in reducing strong points, clearing buildings, and for general noise-making purposes, as desired by the instructors. Movement in the village is rapid when the troops are exposed. Men progress by a series of bounds from cover to cover where they are halted momentarily for the purpose of observation, reorganization, and control.



INFILTRATION COURSE

Here the men are acquainted with gun and shell fire and explosions as they will experience them on the battlefield, and are taught the correct methods of negotiating battlefield obstacles under gun and shell fire. Machine guns are fired to adjust grazing fire 30 inches high before men are placed in position.

To begin this phase, the men starting at the far end of the course, drop to the ground upon signal and advance toward machine guns. As they advance they encounter trenches with parapets on the side toward the machine guns, slit trenches, barbed wire 18 inches high, shell holes and fallen trees. As men crawl near mine positions, mines, consisting of one pound TNT, or dynamite, are exploded electrically by an operator in the control tower. Machine guns maintain intermittent fire until the men reach the last trench. As soon as all the men are in the last trench, they charge over the last parapet and assault simulated antitank guns located in the rear of the machine guns.



INFILTRATION COURSE

SCOUTING AND PATROLLING—AMBUSH

This training is designed to familiarize troops in the practical use of the map and compass and to teach them the art of ambushing armored vehicles, mounted and dismounted patrols, attacking bivouacs, command posts, and assembly areas.

Instruction should include the following: plotting locations, measuring distances, marginal information, use of declination information, contours, orientation, use of compass, dead reckoning, day and night, simple sketches, route sketching, estimation of distances, observation, ambush of mounted and dismounted patrols, ambush of vehicles, use of mines and mine fields, attack of command posts, bivouacs, and assembly areas.

Eyes, Ears and Nose

IF you want to cut yourself a slice of board, you use a saw; but you don't use a saw to bore a hole or to weld a joint. Or, anyhow, if you do you'll never rate 110 or better in an Army classification test. An army is a weapon, of course, yet, paradoxically enough, it is a weapon made up of a multiplicity of tools, each of them designed to do a specific job in the hands of men who understand its characteristics and its limitations. For example, a heavy tank is a tool designed, among other things, for attack on the ground as part of a striking force. That is a characteristic. You would not attempt to fly a heavy tank to Tokyo in the hope of dropping a few bombs on Hirohito. That is a limitation. Yet, I have it on good authority—history—that people who have not understood the uses of cavalry—and this includes general officers who have led otherwise blameless, if not highly intellectual lives—have

employed it with an equal degree of absurdity. . . .

An American cavalryman must know everything an infantryman knows and must be proficient in the use of infantry weapons, including rifles, automatic rifles, machine guns, light and heavy, carbines, pistols, tommy guns, grenades and even bayonets. He must be something of an artilleryman, for he is armed with antitank and assault cannon and with mortars. He must be a bit of a motor mechanic, a good tank and armored-car driver, a motorcyclist, to mention but a few of his mechanical functions. He must understand signal and radio communications. Beyond all this, he must know how to care for and feed a horse, to love and to cherish it in sickness and in health, till death does them part. Also, he must be able to ride the creature. . . .

The cavalry is an eye, an ear, even a nose, at times, for the Army commander. The cavalry seeks out, ferrets out, smells out information the way a good bird dog finds game. By day or by night, in jungle or on moun-

*Reprinted by courtesy of *The Saturday Evening Post*, from issue of February 13, 1943.

Troops of the 1st Cavalry Division cross a river on a pontoon bridge.



of the Army[★] - - - by Stuart Rose

tain trail, along the roads, afoot or ahorse, in jeep or combat car, in a light tank or on a motorcycle, the cavalry covers the ground—feeling out the enemy, establishing contact, penetrating, infiltrating, securing identifications, taking prisoners, encircling the flanks of Tojo or of Fritz.

And always paramount in the cavalryman's mind, be he colonel or corporal, is information—get the information and send it back in time for the boss to act.

The cavalry works closely with air. The planes go out on strategic reconnaissance, pointing out and informing cavalry of the general locations of hostile forces, observing and photographing large concentrations of troops in rear areas, ration and ammunition dumps, main routes of communication and supply. But a plane can photograph a wood and return with a picture of a wood. Whether, concealed among the trees, there are twenty thousand or one thousand or no thousand men, neither the observer nor his camera can tell.

Daily, for weeks, the Jap planes flew over the jungles of Bataan. They had complete air supremacy and with Nipponese thoroughness they snapped, snapped, snapped their shutters, and secured for the archives of Tokyo what is undoubtedly the most elaborate record of what a jungle looks like from the air ever compiled by man. What happened when their troops attempted to advance on this innocent-appearing tree growth is too well known to warrant repetition here.

The able Army commander, then, knows how to use the tools in his hands. Having secured his long-range information from the air force, he passes it along to his cavalry and sends it off on a tactical reconnaissance mission. Tactical reconnaissance is merely a military euphemism for a close-up. What the general wants is detailed information as exact as it is humanly possible to obtain. Where is the enemy? How many troops has he? How are they armed? Are they fresh or weary, aggressive or supine? Are their flanks secure or in the air? Are there any soft spots in their line, suitable for infiltration? What are the routes? Can all combat troops and their loads use them? Where must they be strengthened or repaired? All this the cavalry will find out and report.

If the general is fortunate he will find himself supplied with both kinds of cavalry, horse and mechanized, and, understanding his tools, will employ them intelligently. In rough, heavily wooded or mountainous country he will use his horse troops; for with all our mechanical ingenuity we have not yet contrived to produce a machine that can go where a horse and a man can go. Faster than infantry, fresher—for mount and pack horse carry the weapons—the cavalry slips silent through the trees, scouts out, flankers to right and

left. When the point draws fire or otherwise establishes contact, it quickly dismounts, sends its led horses to cover in the rear, and disposes its riflemen and machine gunners to establish a base of fire. Then, maneuvering on one flank or another, the main body brings its weapons into play and presses the attack home with M1—Garand—rifles, light and heavy machine guns and, possibly, light artillery and mortars. Here no lance pennon flutters bravely, no saber glints in the sun. The good cavalryman knows the use of ground and cover, skulks like the redskin and strikes with all the fury of his heavily concentrated fire power. If prisoners are to be taken, he'll stalk them and go in with bayonet, pistol or grenade.

In open country, well supplied with roads, the general will use his mechanized cavalry. Armored combat cars mounting assault guns, machine guns and mortar-laden jeeps, will fan out on the road net, exploring to right and left, pushing ever forward to seek out an antagonist. Swifter than horsemen on this type of terrain, the mechanized patrols cover a lot of ground, pack a heavy wallop. Their speed permits relatively great distance between vehicles and they are not a profitable target from the air. Somewhere, hard behind, hurry the swift, light cavalry tanks to push home any attack that may be developed. Each mechanized cavalry troop carries its own pioneer and demolition section with it. On an advance, the pioneers can repair or strengthen bridges, construct rafts with which to cross unfordable streams, exercise their engineering ingenuity in countless helpful ways. If a withdrawal becomes necessary, the demolition experts will see to it that no bridge remains in the path of an enemy advance.

Road bound to a certain degree, mechanized cavalry, like the other military tools, should be used within its limitations in order to be most effective. Each army corps is supplied with a mechanized regiment, each motorized infantry division and each armored division with a mechanized squadron and each foot or mountain division with a mechanized or horse troop.

Horse or mechanized, the tactical tasks of cavalry are basically the same. They are, in brief, to reconnoiter in front of the army corps in order to determine the location, strength, composition and disposition of the enemy; to report on suitable routes of advance and important terrain features; to operate on exposed flanks of our own troops and to protect them; to use its mobility to encircle or infiltrate the enemy force; to attack his flanks or rear and disrupt his routes of supply and communications; to push rapidly forward to seize and hold important terrain features, pending the arrival of our own slower-moving main body; to prevent enemy reconnaissance units from advancing; to fight delaying



A machine-gun troop gallops forward to a firing position.

actions to cover a retreat, and to move rapidly to meet a paratroop or airborne-troop threat.

The late General Sir John French stated that in 1914 a brigade of cavalry saved the British Army. The delaying action fought day after bitter day by this single brigade of exhausted but indomitable horsemen enabled the Old Contemptibles to withdraw from Mons more or less intact.

Early last winter the highly trained and numerically powerful Russian cavalry so harassed the Germans on Russia's snowbound plains that the *Reichswehr* has since combed conquered Europe for suitable cavalry mounts. In spite of the fact that it has always been cavalry-minded, the German Army permitted itself to be caught with only 50,000 mounted men in the face of some 900,000 Russians, and its mechanized units had been rendered impotent by the weather.

In December of 1941, the 26th United States Cavalry (Philippine Scouts) fought the brilliant delaying action which enabled General MacArthur to bring together on Bataan his two widely separated forces. Had the 26th not been present to retard the Japanese advance, it is probable that our armies would have been beaten in detail within a few days.

So much for what modern cavalry can do. What manner of man is it, then, who can accomplish these prodigies of endurance and valor? Perhaps the simplest way in which to make him understandable to the layman is to describe him as a horse-riding member of a commando unit. Never a long-range fighter, even with his heavy fire power, he is constantly in contact with the enemy, running the ends, slipping off tackle and

playing hell with the backfield. In order to accomplish this, he must be tough, he must be intelligent, he must have great initiative, and he must be proud. . . .

Clearly it takes time to train cavalymen, and time is what we have none too much of. Your infantry recruit, if he's of good material, can put up a pretty good show in three months, and in six should make a soldier capable of going into action. This is not true of the mounted arm, whether the mount be a horse or a motor-powered assault gun; there are just too many things to be learned. In from nine months to a year, the average healthy American boy can be shaped into a cavalryman capable of understanding the complex duties of his arm and of carrying out the highly individualized missions upon which in all probability he will be sent. Anything short of that and the high command would be guilty of sending a boy on a man's errand.

Ranking cavalry officers are well aware of this and are putting all their thought on intensified training. Our cavalry is none too numerous at the moment, but when we need them—and we're going to need them bad—it will not be the cavalry's fault if a sufficient force of trained men is not available.

Of course, our General Staff is up against the great problem of building an army virtually from scratch with which to meet the hundreds of veteran divisions of our antagonists. We must have infantry and artillery, we must have an armored force, and we must have the most powerful air force in the world. Granting all that, it is still true that an army not properly balanced is in no condition to perform its function in modern war with maximum efficiency, and without the maximum this is going to be a tough one to win. Informed sources report that the Staff is well aware of this and other technical deficiencies in our fighting forces and that it is taking rapid measures to rectify them.

The British General Sir Harold Alexander complained bitterly that he might have held Burma indefinitely had he been equipped with anything save mechanized troops. Pinned to the one decent available road, *he was helpless in the face of a Japanese Army that swarmed over him from all sides, on foot, on horses and in horse-drawn carts.* In this connection, it is interesting to note that the Japs, formidable fighters that they are, have plenty of tanks but not a single armored division. An American officer who served on our intelligence staff in the Philippines two or three years ago told me that, in the course of his work, he was supplied with the Japanese tables of organization. These tables very intelligently divided troops not into the conventional corps and field armies but into task forces, each one carefully designed to do a specific job, with full knowledge of the country in which it was to operate. It was a cinch, he said, to single out the Philippine invasion army, for its guns and supplies were horse and cart drawn and it was provided with two brigades of horse cavalry. The Japs had not colonized the Philippines for nothing.

CAVALRY PATROLS*

by Captain Enrique Sandoval Castarrico, Mexican Army

IN the cavalry branch of the Mexican army, a patrol is a small detachment of troops which, placed under the orders of an officer or noncommissioned officer, is sent out from HQS of the forces to accomplish a definite mission.

Generally the patrol is made up of soldiers picked as much for their horsemanship as for their discernment and ability to carry out this kind of operation. From the chief of the patrol down to the horses, all are picked. The number in the patrol is varied according to the mission, as is the number of reports it must send unless it has means of transmission which eliminate the use of messengers. It may consist of only three individuals but, if necessary, its effective may go as high as a platoon.

When it is headed by an NCO, the patrol generally is small, but even if it is of small size, a commissioned officer may be its commander. When this happens, the mission of the patrol is more important and, according to Mexican regulations, is called "official reconnaissance." All must be brave men—active, wide-awake, observing, and able to make quick decisions, as well as competent to fulfill their mission.

The main reason that the effective of a patrol is small is that a small group is quicker, more disciplined,

and more maneuverable than a large one, which is also more easily discovered. In addition, the task which is entrusted to it does not require a greater effective nor are its elements destined to fight.

The missions which may be entrusted to one of these small groups are, in general, scouting and reconnaissance.

Let us make some general remarks, first, on why it is commonly said that cavalry patrols *explore* or *scout* because they go out looking for the enemy; then on why, even if this is the case, they really do nothing but *reconnoiter*. In addition, in their job of reconnaissance, on discovering the enemy and telling that he is advancing, they carry out a function of the intelligence branch for the forces of which they are a part, and for which reason they are designated "reconnaissance" or "intelligence" patrols, as the case may be.

At times, the particular situation in which cavalry patrols find themselves is fixed in its nature. For instance, a patrol which is operating for the security of a flank of a column is commonly called a "flank patrol," and one which works in a reconnaissance echelon of a vanguard may be called an "apex patrol."

Mexico steps up the Hemisphere defense.
Here a troop of Cavalry undergoes inspection.

*Extract from *El Soldado* (Mexico), April, 1942.



There are operations so closely related to scouting that they become confused with it and which, because of their nature, use patrols not only to reconnoiter but also to hinder the enemy from discovering our forces. These patrols have been called "counterreconnaissance" patrols and differ from other patrols in that they form part of a screen, can be backed up by forces posted for this purpose behind the screen, and are of a greater number since their mission is to repel the enemy patrols.

There are various other missions which fall to patrols, such as those of reconnoitering a road to verify its existence and determining the direction it follows, the state it is in, the possibility of its use, the condition of its defenses, and the facilities which in general are found for its utilization in the operations.

On other occasions patrols are sent out with the object of getting information about the character or nature of the terrain, simply to know what it is like. However that may be, the activities of patrols in general are of a reconnoitering nature.

Whatever the number of missions that may be assigned them, we are interested here only in the functions of an isolated patrol, which are the following:

To discover the enemy and give information regarding his activities, arms, nature, and strength.

To inform whether, in a determined point or zone, the enemy is present.

The designated commander—in the light of the orders that he receives, which in general contain in-

formation about the enemy and enemy forces, useful knowledge as to what these latter will do, what information is desired, the points to where he must send this information, the limits or zone where the patrol must work, and the probable duration of its service—takes the following measures:

Selects men and horses—the men, those indispensable, especially when the return is within a short time; and the horses, those in good physical condition and well shod.

Determines the route to follow—a study of the situation when the route has not been marked.

Fixes the hour for departure and keeps in mind the distance to be covered—the nature of the terrain, and the urgency of the information.

Takes steps to obtain the necessary objects, such as shears, field glasses, maps, etc., for the best fulfillment of the mission.

Tests, by means of an inspection before leaving, to see that everything is there and ready.

Makes known to his immediate subordinates the orders received so that if the leader is missing, the next in line may carry them out and at the same time makes known the meeting place in case the patrol is obliged to scatter completely.

Informs Intelligence of friendly forces of the probable route for return so that they will not be fired on by mistake.

Whatever may be the mission of the patrol, its commander must bear in mind that if it does not acquire the



Mexican Cavalry played an active part in recent army maneuvers.

information which interests the command that sent it out, the mission has not been fulfilled.

The patrol must report whether the enemy is present or not. First, it must indicate clearly *where*, *how*, and *when*, and it must mark the armed branch and constitution of the enemy. The armed branches are well known—infantry, cavalry, artillery; the type—motorized or armored; ordinary infantry or motorized infantry; horse-drawn, towed, or self-propelled artillery.

To be able to inform as to *where*, it is necessary to observe precisely the location of the enemy and to see if they are bivouacked, on the march, or simply halted; in formation or not. In any case, it is necessary also to estimate their numbers by direct observations. Thus one can tell *how*. To tell *when*, one will note the day and hour.

Information can also be gathered from news, signs and footprints.

The information furnished by the inhabitants ought not be taken seriously, at least not until the same information is obtained from various sources—a great number if the operations are in enemy territory. In any event, in the report, it must be stated that certain *versions* were gathered, so that this information can be accepted at its true worth.

Comments and footprints are not very reliable; many times they are deceptive, but they are useful. Above all, the footprints show whether the forces are in small or large numbers, to what armed branch they belong, and in what direction they are marching. They show also where they have stopped.

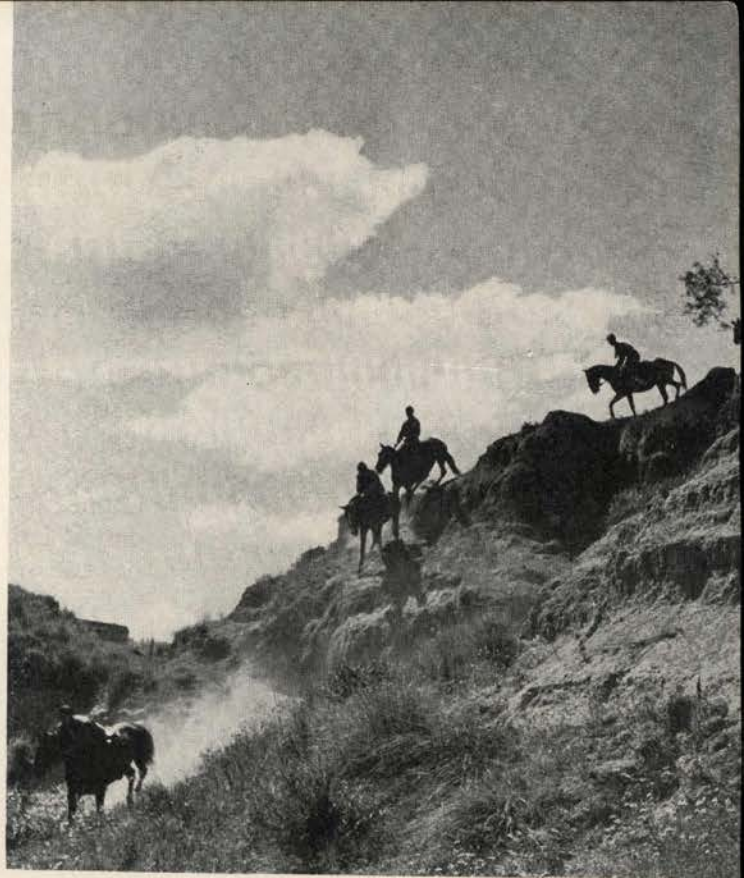
Among signs are classed also clouds of dust or smoke, and abandoned equipment. From them can be deduced the branch of service, the make-up, and sometimes the conditions in which the enemy is moving; but then one cannot be sure of this information, and it should be reported as "probably" of the infantry or cavalry—or a unit in possession of vehicles.

The documents which are received from civilians, from post offices, or from prisoners, contain very valuable information. The mails or press and military documentation found is very useful. Particularly this last gives data of great importance. When it falls into our hands, it must be utilized to orient our search, and sent immediately to the superior authority.

Information should be sought in this manner. It should never be a question of obtaining it by force; the patrol works by *cunning*, never by force. This last means is used, indeed, but only by detachments that operate in the open and attack in order to succeed in getting, by means of combat, the information which patrols could not get by means of cunning.

However that may be, every report ought to include what is observed or ascertained, without deductions or commentary.

Categorically speaking, there are no rules laid down for a patrol in movement. One can only say that it should secure for itself control, dissimulation, and liberty in its movements. All of these are gained by means of dispersed formations which reduce its visibility and



Cadets at the Mexican Cavalry School spend three hours each day at the training ground. Here they are taking the horses over and down an 80 foot cliff.

vulnerability. With its chief at the head, and in these formations, the patrol will be able to advance rapidly, to elude obstacles, and to reach hiding places. At most, one or two individuals should be sent out to observe in directions of interest. Care must be taken that they do not go too far away—the reduced numbers of the patrol do not allow the creation of a small vanguard. Almost always the necessities of concealment and the characteristics of the terrain determine the action of the patrol and the very elementary means of security already mentioned. A great part of the security depends on concealment. At night, when territory controlled by the enemy must be traversed, the patrol must seek hidden places to pass the night; and if they fear being discovered, they must even change hiding places several times.

The conduct of the patrol during the carrying out of its mission may be summed up in these words:

To see without being seen.

Not to attempt to make contact with the enemy as its mission is not a combat one.

To fight only when attacked and there remains nothing else to do, and to do so *mounted*.

To advance cleverly, evade the vigilance of the enemy, and advance by jumps.

In case of attack the patrol or the individuals who are left, *must* deliver the report.

Once the enemy is located, to continue observation without losing sight and, when there are no orders to the contrary, to report each time that the enemy changes direction or shows distinct positions.

To see without being seen calls for much cunning and concealment. To this end, in moving from hiding

place to hiding place, the patrol must pass very rapidly by exposed sites, avoid having any shining arms or equipment or making clouds of dust and noises. At the same time, it should avoid passing by inhabited places and roads when it is not interested in reconnoitering there.

The successive occupation of hiding places and points appropriate for observation is the manner of carrying out operations.

First, it is necessary to observe from hiding, whether the enemy is present or not in the place of interest. If the enemy is not visible, the patrol must reconnoiter thoroughly and advance on the place with precaution.

If it is a house in question, and the scout is alone, he must reach the spot rapidly, before its occupants can drive him back. If there are two or more individuals, they should advance from different directions, and while some enter, the rest remain outside, ready to fight. Another group will remain in the distance, ready to fire.

Similar precautions are to be taken when it is a question of a town; but when traversing it, the patrol must be ready to fire on windows and doors.

The patrol proceeds in the same way in woods. If it is noted that their habitual calm is altered, it is a sign that the enemy is there. However this may be, to observe and listen is the first thing.

To scout in enemy camps calls for bravery. It is not enough to see them, it is necessary to know their make-up, and this requires coming in close to observe the stores, fires, mines, and other details which may reveal to us their arms and total effectives.

If the enemy is on the march, the observation must be minute, well-timed, and note taken of how they march. Special care must be taken not to be discovered by enemy scouts.

A height is of good use in this work.

On reaching a river or a bridge, the patrol must take the precautions previously mentioned. In addition, all noise must be avoided.

If the objective of a patrol is to reconnoiter a bridge, it must note the length, the width of the banks of the river, and the conditions of stability.

Patrols are not destined to fight, but if they are unexpectedly attacked they must defend themselves by fighting while mounted or else by scattering.

If enemy patrols have been discovered, and they are not aware of the patrol's presence, the patrol should make a note of the fact, continue observation and try to pass by in order to complete its observations and give the respective report.

If the opportunity to take a prisoner definitely presents itself, the patrol should never let it pass, unless the outcome of the mission is compromised thereby.

When there is no other recourse, as in the case of an unexpected encounter with an enemy patrol, the patrol should attack mounted, rush on the enemy without hesitation, and prevent the enemy scouts from firing. In this way the initiative is taken, and this is the only way to gain the advantage without losing the mobility so useful in such a situation.

If the work of the patrol is continuous, reports are always useful, even if they say only that "the enemy is not present." The failure to report is the cause of frequent abuses in the use of patrols; this is the reason why, from a practical point of view, it is not possible to determine when a mission has been accomplished.

Nevertheless, any commanding officer who knows his needs ought to know how to determine what information he needs for his operations. Hence it is possible to state even the time limit within which the information should be delivered, and, since this is the case, there is no difficulty in indicating to these small detachments when or how their mission should end.

In such cases, the mission is completed when the requested information is delivered. Then the patrol can return; if the opposite is true, it should continue its work.

At times, however, certain facts observed and considered of interest are an inducement to continue. At these times, it would be an error not to take notes, report, and continue.

Really, a great deal of judgment is necessary to determine the course to be followed in these cases, but only an indifferent person would consider returning. In spite of everything, however, there comes a time when even though there is still physical resistance present, it is no longer possible to continue. There are no more men to serve as couriers because each report sent has meant one man less; the couriers have not yet returned. The limit will have been reached. The leader will return alone after he has accomplished his mission.



Reconnaissance and Protection

"... It cannot be too clearly impressed upon all authorities issuing orders that these two rôles are incompatible, owing to the fact that different tactics are required for their execution. *Reconnaissance means dispersion; whereas, Protection means concentration of force.* The authority issuing the orders must decide upon the relative importance of these two services at the moment and must then allot his available troops in the required proportion."—MAJOR GENERAL SIR EDMUND IRONSIDE—*The Lessons of the East Prussian Campaign* (World War I).

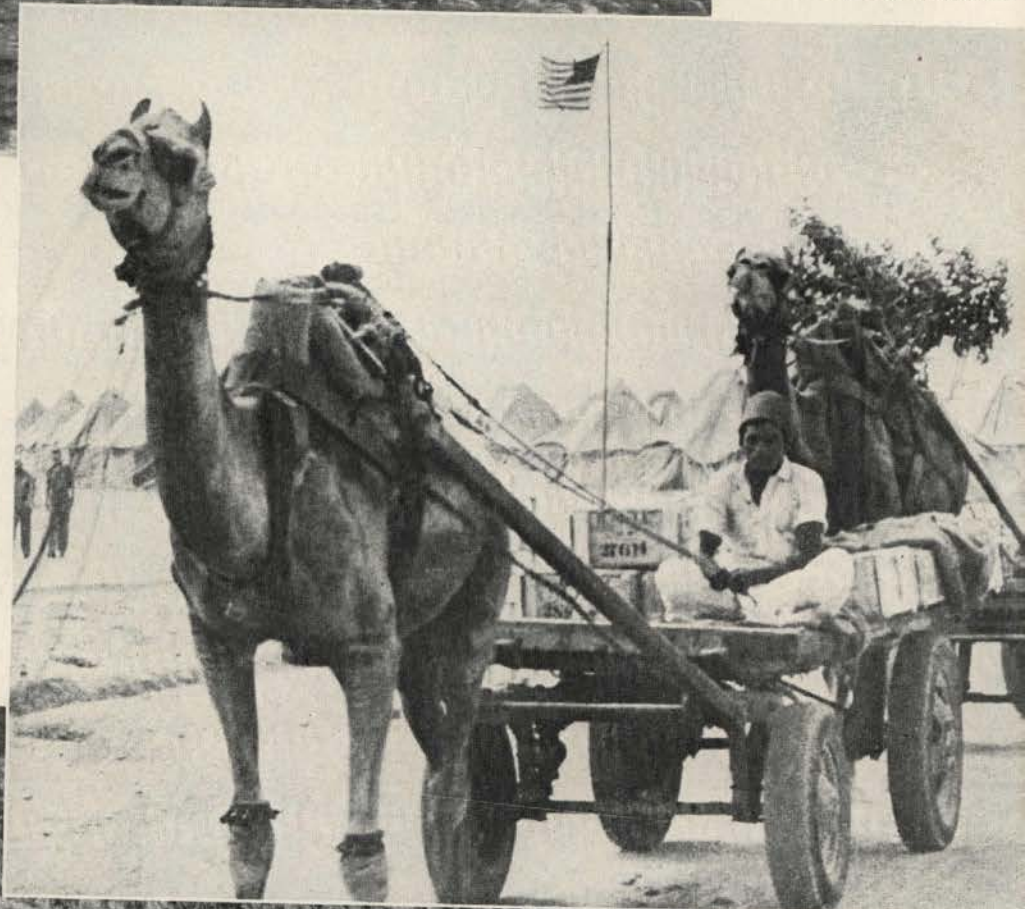


Naga Hill natives carry supplies to U. S. soldiers in remote outposts near the upper Burma border in India. A U. S. soldier leads the way across this rapid, shallow stream.

Photos by Press Association

Supplying U. S. Troops in India

Two proud-looking camels haul supplies in a rubber-tired wagon to an airfield.



Elephants are used to transport supplies to the interior. These two U. S. soldiers supervise the loading at a supply base.

Ready On the Firing Line



*by Lieutenant Colonel James W. Wallace**

TODAY, as always, the individual soldier with the basic weapons of his arm, continues to represent the margin of victory. No battle is won until the soldier, armed with his weapon, is able to advance, close with the enemy, defeat him and occupy the strategic positions—and no individual soldier is able to do that job until he knows how to use his weapons. Since our early ancestors threw their first crude spear, the emphasis has been on hitting the target. The bullet must strike its mark.

With this principle in mind the Weapons Department of the Cavalry Replacement Training Center was formed with the mission of training the basic soldier in the use of his weapons—training him so that when he pulls the trigger there is a reasonable chance of some Jap, Nazi, or Italian dropping.

All of the department's training is given out-of-doors. The ranges are not only ranges—they are classrooms. "Drive—Drive—Drive" has been the watchword in an effort to make every minute of the all-too-short days of training give the trainee another bit of information that someday might save his life.

The trainees have been a varied group during these two years. But when guns are loaded and locked and the flag dives down behind the butts and the targets come flying up 200 yards in front of their nose, they are all in there—holding and squeezing and muttering a soldier's prayer for those pin-wheel fives.

Training programs include instruction in the M-1 rifle, the caliber .45 pistol and the caliber .30 machine guns, light and heavy. While these three weapons consume a big percentage of the training hours, instruction is also given on the Thompson submachine gun, the caliber .50 machine gun, the 81mm mortar and the 37mm antitank gun.

*Chief of Weapons Department, CRTC.

THE FIRING LINE

The "heart" of the Weapons Department instructional system is "The Line"—the eight or nine instructional groups (depending on the size of the increment) that get the full weapons course. The Line is divided into two sections, each in charge of a section chief. These sections are then divided into instructional groups.

The most important job of the instructor is to perfect his organization so that full use is made, not only of his own assistants and cadre, but also of all troop officers and noncommissioned officers. This calls for teamwork.

Two years of experience has proven that the number of men who really grasp the instruction and the number of men who qualify depends more on the soundness of organization than on any other factor. Trainees must have personal attention. A study of scoreboards during rifle firing is convincing evidence of the importance of individual instruction. On a great many boards it will be found that the "bolos" are bunched. One or two firing points are responsible for most of the men who fail to qualify. These men received the same general training. It seems logical that their failure lies in the lack of personal instruction. To give this personal attention to every member of a large instructional group, sound organization is required.

Recent experience during "range week" has shown the importance of having experienced officers supervise the pits. This has paid big dividends. Studies of firing lines have shown that the quiet firing lines usually are the ones with the high scores.

Keeping down noise does not mean keeping down enthusiasm, however. Instructors are expected to use all reasonable devices to encourage competition and resulting enthusiasm. For example, instructors have

found that competition within squads and within platoons to determine the "fastest loader" is about the most effective way of teaching in a very few minutes the loading of clips into the M-1 rifle.

In addition to the regular lessons on the basic weapons and firing on known-distance ranges, each increment is given instruction in firing on moving vehicles and moving aircraft targets. This firing is done with caliber .22 rifles. One period is given to firing the machine gun at moving targets, and one lesson to machine gun field firing. Trainees are also given "back-of-the-line" instruction on such topics as technique of fire, fire orders, range estimation, use of field glasses and elementary gun drill.

SPECIAL ACTIVITIES

In addition to the main job of the department on the Line, there are three special activities.

The first of these is a Pool Officers Course—a special weapons refresher course for officers in the Cavalry Replacement Pool.

Recently added to the Weapons Department was an Armorer's School—to train troop specialists in weapons repair and maintenance.

Possibly the most interesting of the special activities is the weapons instruction of the Special Training Squadron. An important angle is the problem of men who have not mastered the English language. Usually the largest group is made up of trainees who speak Spanish. There have been also a number of Chinese, Italian and French speaking trainees. In a recent gas drill, given by the squadron, commands were given in seven languages. Nomenclature of weapons and parts must be learned in English. So to the recruit's normal difficulty of learning names, there is added the task of learning them in a foreign tongue. Most trainees have been able to do it.

In any instructional department of this kind a great deal of "behind the scene" work must be done.



A squad leader shows recruits how to strip and assemble the M-1 rifle.



A major share of the training responsibility must fall on the shoulders of the coaches.

THE RANGE

The work of the range section includes keeping the ranges and targets in such condition that instructional groups can use the ranges when needed without a thought of the work that makes this casual use possible. Twelve men spend all their time on range maintenance, and ten men have the big job of preparing and distributing targets. This section must handle a rifle range with 225 firing points, five groups of pistol targets with 30 targets per group, a standard miniature antiaircraft range, 10 landscape target groups, a 1000-inch machine gun range with 128 firing points and a field range. In addition, the department has access to a 1000-inch moving target range with 36 moving targets.

A feature of the Pistol Range is a permanent post at every firing point on the 25-yard line. This post has a shelf for ammunition and a permanent "clearing-block" for the pistol. This safety feature is soon to be installed on the 15-yard line.

MATÉRIEL AND REPLACEMENT

Among the duties of the Matériel Section is the "live storage," care, maintenance and repair of all department weapons. An officer and four men are kept busy maintaining weapons for accurate firing despite constant use.

Ammunition supply is no little problem. Some idea of its magnitude can be gained from the fact that 54,000 rounds may be fired in an afternoon on the machine gun ranges or 48,000 rounds fired in a few hours on the rifle ranges.

The Matériel Section has been able to gather valuable information concerning the ability of weapons to stand up under constant use. Any weak spots soon make themselves apparent under the thousands of rounds that are fired. Some of this information might prove valuable to troop commanders and other officers interested in weapons maintenance.

For example the department has 671 M-1 rifles. Since the modified firing pin has been in use during the past year only six pins have been replaced. Before the new firing pin was installed it was not unusual to replace as high as 100 firing pins in one week. Eighty guns were replaced during the first 20 months of the department's existence. These rifles had each been fired from 10,000 to 12,000 rounds.

Biggest parts replacement in the M-1 rifle now is the extractor or extractor spring and plunger. During the past 20 months approximately 800 have been replaced. An excessive amount of breakage has been noted after the guns were used in preliminary exercises during dry, dusty periods. The trouble generally could be traced to DIRTY CHAMBERS.

There are 360 caliber .45 pistols in regular use by the instructional groups. In the past year approximately 1000 front sights have been replaced. They are held by one small pin and during constant firing become loose and are lost.

One procedure has been developed on the Thompson submachine gun which has reduced part replacements to almost zero. Shortly after the department opened, the full-length recoil spring was used in me-

chanical training. With the guns being torn down so frequently by recruits, there was a great deal of bending and kicking of recoil springs. Slightly shortened springs were placed in the guns for mechanical training and the longer spring used during actual firing. That ended the difficulty.

The life of machine gun barrels is from 10,000 to 12,000 rounds. It is believed that excessive headspace has been one factor that has caused barrels to wear out after this amount of firing. In 20 months, however, only 48 have had to be replaced. Other parts of the machine guns have proven very durable. Only six bolts have been worn out by the 140 guns in use by the department.

The CRTC Weapons Department will continue to give recruits basic training in their arms, but every effort is being made to keep pace with battle developments and new methods of training.

There is no feeling that the department is sending out to units in the field the finished rifleman, the real machine gun technician, or the pistol expert. But it is believed that when these men go out from Fort Riley they have an excellent foundation on which to build. They are men whose troop training will soon make them "ready on the firing line."



CARDED

Motorcycle Training

by Lieutenant L. C. Alexander*

THE general impression is that anyone with long legs can ride a motorcycle, but experience at the Cavalry Replacement Training Center has shown that it takes much more than that. It is not always enough to be able to use the controls properly. Many times it is necessary to "man-handle" the machine and this requires a well built, strong physique.

As the incoming soldiers arrive at the C.R.T.C., the classification section assigns all experienced motorcycle riders and all potential riders (those with the proper requirements) to one certain troop for three weeks basic training, after which they are given nine weeks instruction in the Motors Department.

THE PRELIMINARY PHASE

Following an introductory tour of the various buildings, trainees are taught the functioning and nomenclature of the major assemblies of the motorcycle, fire prevention and control, safety precautions, road rules and traffic regulations, inspections, and the use of the various controls.

These lectures are given by the commanding officer of the Motorcycle Division, and every possible visual aid and technique of instruction is used to make them

interesting. Wall charts, cutaway models, and stripped machines are used, and the student is shown how the various units of the machine are fitted together.

Training films on riding come next. After having been told how to ride and then shown how, the great day arrives when the trainees try it themselves. A period is spent on starting the engine, and during the latter



Trainees receive an introduction to cross-country riding.

*Motorcycle Department, CRTC.

part of the period, the machines are put on the center stands to permit the trainee to practice gear shifting and to get the feel of the throttle and clutch. Finally, the machines are placed in column on a large circle and the command comes to crank up.

After riding in all gears on the circle, the trainees then are taught to ride in column over fairly simple terrain. Individuals who do not progress as rapidly as the rest of the group are segregated and given special instruction.

One constant task faced by the officers and cadre of this division is the problem of overcoming "original fear" of the motorcycle, common with many men. The only way to do this is to make the man ride. The more he practices starting, stopping, shifting gears and turning circles, the more familiar he becomes with his machine, and the sooner self-confidence is acquired.

While the mounted group is learning to coordinate clutch, acceleration, balance, and proper gear selection, the dismounted group reviews the basic subjects of functioning and nomenclature, arm signals, road rules and traffic regulations, and inspections. Students are also taught such subjects as block control, convoy operation, first echelon maintenance, the use of the driver's accident report and driver's trip ticket.

THE ADVANCED PHASE

The advanced phase consists of 30 lessons in the second three weeks of the course. The trainee is taught to ride over more difficult terrain such as hills, sand, ruts, mud, snow, and ice. Individual performance is stressed, and every effort is made to permit each man to choose his own route cross-country and to use his knowledge of map reading, scouting, and patrolling.

In the lecture room the dismounted groups are taught such subjects as map reading, bridge and road reconnaissance, scouting and patrolling, camouflage, demolitions, security of small parties, selection of bivouac areas, occupation of bivouac areas, and block control. These subjects are then demonstrated in the field. Problems are planned to permit the trainees to use initiative and judgment in applying all the knowledge gained from the classroom.

First echelon maintenance is stressed throughout all phases of training. Once each week this is performed on all motorcycles by the trainees, and an accurate record kept. Each motorcycle is checked by a cadreman before the conclusion of the maintenance period. Field maintenance periods are scheduled so that the soldier can have experience in the maintaining of his machine under combat conditions.

THE TACTICAL PHASE

The last three weeks of instruction are spent in field exercises, all-day problems, and maneuvers. In this phase the actual "riding training" is considered completed, and instruction now bears down on the rider's tactical use of his vehicle. The all-day problems usually



Trainees start out on cross-country march at 15° below.

deal with one subject: *i.e.*, a map-reading problem, or a bridge and road reconnaissance problem.

The field exercises are a practical combination of all tactical subjects taught in the classroom. Usually the Motorcycle Division joins with another division and works out a tactical field problem. Here again, the individual learns the part he must play in a group.

The final week of the tactical phase is devoted to a four day extended march and bivouac. The various sections of the Motors Department combine to form a provisional reconnaissance squadron, usually composed of 100 vehicles and 500 trainees. With the officers of the Motors Department in command, the trainees move out into the field.

In the tactical situation that follows, some of the trainees form an enemy group, while the main group sets up a bivouac after an all-day march and puts out its security elements. This march and bivouac are actually the "graduation test" for all the training divisions. The second night out a forced night march is made and a new bivouac set up under combat conditions. Members of the enemy detail and members of the Cavalry Replacement Training Center S-3 Department attempt to infiltrate through the outguards.

Each basic subject taught in this division is reviewed at least three times. Safety precautions are reviewed each week with excellent results. The accident rate is low and mechanical breakdowns are infrequent. The training mission is accomplished if the men learn nothing more than how to ride and take care of their machines; however, they also learn many more things about application to situations.

(EDITOR'S NOTE: *The Commanding General of the Cavalry Replacement Training Center would appreciate any comment from commanders who receive motorcyclists from this camp.*)

Training Mechanics at C.R.T.C.

by Captain H. J. Crase, Cavalry

WHEN the first officers and men reported at the C.R.T.C. Motors Mechanics School, the first undertaking was the collection of all sorts of salvage material from reclamation yards. At that time nothing definite had been published on shelter, type of course, number of students, schedule, or date of opening. The problem had to be attacked from all sides as the situation unfolded. Salvage material included wrecks, I & I'd vehicles of available late models, units, unit assemblies, old beds, steel fence posts, old bakery racks, bread-mixing troughs, casters, and even baby bath tubs, which made fine parts-washing pans.

Since "a picture is worth a thousand words," work was begun on instructional aids such as cut-away and exploded models, display boards, and charts. Instructors had little experience in this type of work. A few tools were borrowed from the Motors Department, a power wood saw was purchased and a power hack saw, resurrected from salvage, was rebuilt to eliminate many hours of tedious hand labor.

Balanced stands were designed to support the dead

★Cavalry Replacement Training School.



1—6,000-mile maintenance check. 2—Vehicles undergo 1,000-mile maintenance check.

engines. These welded steel stands were mounted on casters, as were the stands for heavy chassis units. By the use of stands mounted on casters, available space was used for a number of functions with a minimum of heavy lifting. This proved to be a practical idea in view of the experimental nature of the first class. All available room was used, and space planning eliminated interference between noisy and quieter classes.

Live engines were mounted on welded steel stands. Radiators and fuel systems were mounted individually. An overhead duct with outriggers was run the length of the engine room. (Each engine exhausts through a flexible tube leading to the duct, and gases are blown out by means of a fan set in the wall. Additional fans take care of any leaks that might develop in the overhead system.)

TRAINING

Fortunately, representatives of the Replacement and School Command Motor Training Council met and discussed training facilities about this time. They made a study of the driver and mechanic training problem and offered recommendations, which the C.R.T.C. Motors Mechanics School followed closely.

The schedule included three weeks of Basic and Weapons instruction and then ten weeks of daily training in learning how to be troop mechanics. Interspersed in the schedule of technical training were periods set aside for physical training which ranged from close combat fighting to close order drill.

Many schedules were written, discussed, and altered. *Experience and practice dictated many necessary changes.* This ten weeks of instructions was broken down into the Engine, Chassis, and Operation Phases. These phases started from scratch with few tools, fewer units, and a heaven-sent pile of scrap.

The first class entered the school on October 5, 1942, with subsequent groups beginning at three week intervals. This staggered system provides a steady flow of men in all stages of training without overburdening facilities and instructors. Instruction is divided into three phases:

ENGINE

The engine phase is divided into three sections, with a total of 112 hours for conferences and practical work. The first section takes up the operation and construction of internal combustion engines. Dead engines mounted on balanced stands are provided for the use of the trainees in practical work of disassembly and assembly of engines. All related adjustments to the engines are made first on the dead engines and later on live engines mounted on steel stands.

Basic electricity and motor vehicle electrical systems are studied in the second section. Cutaway and exploded models together with motion pictures, film strips

and charts are widely employed to supplement conferences and practical exercises. Electrical hook-up boards are used by the trainees in practical work.

The third section of the engine phase takes up the fuel system. Again demonstration boards and cut-away models are widely employed, and conferences are supplemented by film strips and charts. In all phases, particular emphasis is placed on practical work with conferences held to a minimum.

CHASSIS

The chassis phase is divided into two sections.

The power train section is allotted forty-five hours for conferences and practical work on clutches, transmissions, transfer and axle assemblies. Enlarged models of all power train units, as well as cutaway models, are available. These are used in conjunction with disassembly and assembly units. Such units as transmissions and transfer cases are mounted on bench racks, while axle assemblies are mounted on caster equipped stands.

The brake and steering section has thirty-nine hours allotted to cover the types of brake systems, springs, shackles, shock absorbers, wheel alignment and steering geometry. Live vehicles are used in most of the work in this section to augment charts and cut-away models.

OPERATION

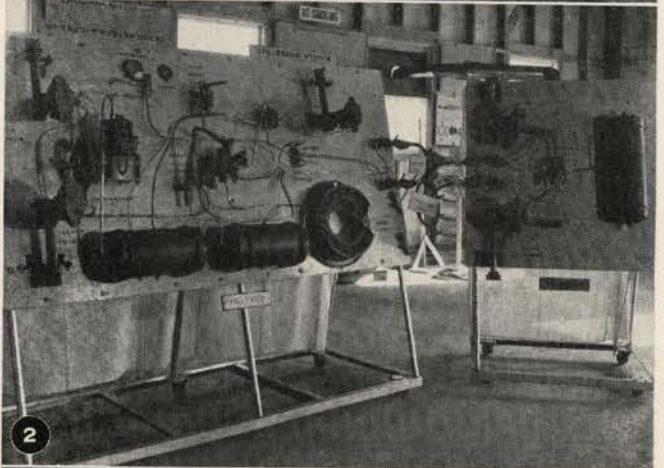
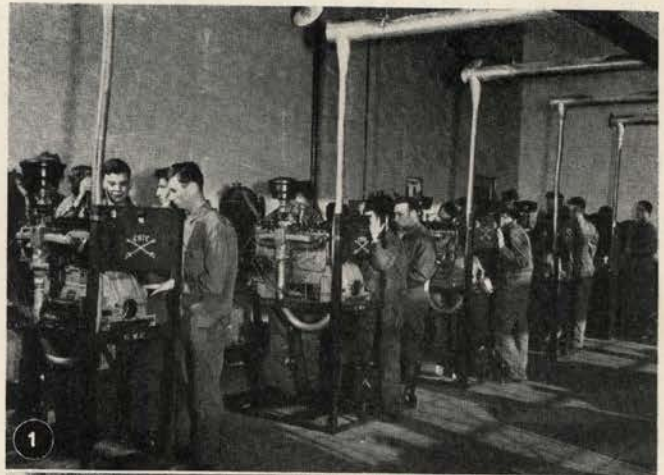
One hundred and fifty-one hours are given to the operations phase of the course. Of prime importance in this phase is the practical application of principles learned in the foregoing phases. This practical application is accomplished through the medium of 1000 and 6000-mile maintenance inspections.

Also of widespread interest and of the utmost importance to field organizations is the selection and training of drivers as well as instruction in 1st echelon maintenance. Thirty hours is allotted to this particular part of the phase.

Additional time is devoted to such subjects as march maintenance, methods of instruction, operation in cold and desert countries, loading and lashing, movement by rail and water, new vehicle service, and field expedients.

The maintenance of "field ranges" is given considerable time—which brings to mind the old saying, "An army travels on its stomach"—and may furnish a clue as to why some field organization commanders delegate the post of cook's helper to a second echelon mechanic.

Throughout the course, emphasis is placed on the fact that the trainees have to be made into soldiers as well as mechanics. Tactical principles covered in the basic training must be gone over time and time again to bring home the stark fact that a dead mechanic is no good to any organization.



1—Trouble shooting on stationary engines. 2—Air brake demonstration board—chassis phase. 3—Study of dead engines. 4—Study of live front axles—chassis phase.

Training Military Instructors

by Major Curnel S. Hampton, Cavalry*

TEACHING is the art of making men learn. Learning is the process of acquiring experience.

The test: Ability to perform as taught.

Objective: Capable soldiers.

Soldiers are required to listen to their officers. Since most officers spend about eighty-five per cent of their time teaching, this requires a lot of listening by the soldiers. Therefore, an officer must appreciate the difference between "having something to say" and "having to say something." In these times, untrained men are quick to detect, and even resent, time wasted. Drivel and aimlessness on the part of an instructor bore and antagonize soldiers.

Observers who have recently returned from the fighting fronts point out the value of teaching fundamentals to the soldiers. Those fundamentals of weapons, motors, tactics, and communications must be taught by officers thoroughly schooled in the fundamentals of teaching.

The late Knute Rockne said it. "We beat them with fundamentals. My boys simply ran harder, blocked harder, tackled harder. They held onto the ball. That's important. Razzle-dazzle makes winning a matter of luck."

Instruction in fundamentals is as thorough and interesting as competent instructors can make it. A capable instructor has two jobs to do. He must teach the essentials of the subject matter and at the same time, teach his *students* how to teach.

At The Cavalry School, the officers of the Staff and Faculty, the student officers, and even the candidates for commission, are required to attend a course on the fundamental technique of instructing.

All students have the opportunity to develop further the leadership ability which they possess, so that they should go back to their organizations with a better understanding of what makes instructing effective. They learn by actual experience, ideas, and methods to overcome the effects of fatigue, resistance to learning, and the common training area inertia among their men.

The course, Technique of Instructing, provides preliminary instruction, constructive criticism and assistance, and a limited but valuable amount of actual experience in preparing and presenting military lessons. Each student performs individually twice and benefits from the personal attention given him by his classmates and the faculty member in charge. The number of hours allotted varies with the type of class, in order that emphasis can be placed on appropriate aspects. For squadron commanders and staff officers, monitoring procedure and the supervision of instruction are

stressed. For Basic Officer and Officer Candidate Classes, the preparation and presentation angles receive the major emphasis.

THE PERSONAL FACTOR

Teaching precedes combat leadership. It is a brain-to-brain process that produces hand-ability. It requires a special ability which can be developed.

The *sequence* of saying and doing things, more than anything else, makes the teaching process. Common sense and strong personal qualities are more essential to it than refined facilities.

One of the first things an officer must understand and believe in is the difference between an expert and a good instructor. An expert is one who is able to do something superlatively well himself. An instructor must be able to transmit his understanding and proficiency to other men. Essentially then, a good instructor is an expert with a *strong sense of communication*. He must know and *believe* in what he is talking about, make sure that his men know and believe in what he is talking about, and say only those things that are worth saying. He must give his men not only the *what* and the *why*, but the *how*. He should teach with the spirit and zeal of an evangelist. If his men perform satisfactorily, he is successful. If they do not, he fails. There is no better way to judge the effectiveness of instruction.

For example, down in North Carolina, a man by the name of Buford acquired a considerable reputation as a rabbit hunter. Every time he went afield, Buford came back with his game bag full. Others, failing, came to



CHARACTERISTICS OF GOOD MILITARY INSTRUCTION

Key-word card aids establish "Thrust Lines" for a period of instruction.

*Department of General Instruction, The Cavalry School.

him for advice. He had something they wanted and needed—a perfect set-up for instruction. Buford gave them a great mass of topographical information which included going down to Van Ocker's place (and with Van Ocker's permission), turning right around the barn, proceeding so many yards along the creek and across country to the remains of the rail fence. It was there, he told them, they should sit down and wait until dusk began to settle. "Then," he said, "make a noise like a turnip. The rabbits will come to you. Jest hit 'em over the haid and put 'em in the bag." But . . . he could not tell them *how* to make that certain noise—the very thing they needed most to know. Buford was an expert, but he failed as an *instructor*.

The factors which insure a good sense of communication are: Voice, Language, Body, and Eye Contact. Together they compose *attitude*.

Voice. Voice is the instrument of instruction and command. A lazy voice has no place in military training. The speech of instructing is that of sincere animated conversation. A voice of fine quality is desirable but not essential. Clarity and power are what is needed. The voice must be projected. Every word must be understood.

Any normal individual can develop the kind of voice that an officer should have. The "chest" voice, as distinguished from the "head" voice, is best. It is cultivated by relaxing the muscles of the chest, neck, and those that control the larynx. This allows more air to be pushed up through the windpipe to the vocal cords by action of the diaphragm, commonly called the "belly muscle." Certain exercises are recommended in FM 21-20 (Physical Training). Words must be sounded distinctly. The tongue, teeth and lips are parts of the voice mechanism. Each should be used deliberately to "shape" words. **BITE LEATHER!**

Language. The purpose of language (words) is to enable men to understand each other. The best word, therefore, is the simplest word that will do the job. Good words make good pictures, and color both conversation and instruction. They gain attention, create and hold interest, and seldom are misunderstood. A military instructor calls a spade a spade. Correct nomenclature is stressed. There is a professional manner of speaking. The instructor should name things correctly but use his "color" words to put instruction across to his men. If an instructor's "color" words are peculiar to a section of the country, whenever necessary to complete understanding, he should define them. Thereafter they contribute much towards making his instruction lively and interesting.

The object is not so much to impress soldiers with fifty-cent words and long compound sentences, as to give them the things that they need to know in "nickel" words. The good instructor uses the language of football, baseball, hunting, and other common experience activities with which he has determined that his men are familiar. From these he draws his analogies, incidents

and examples. One such analogy is drawn from one of the most common experiences of all. The instructor says:

"You all have had the experience of being in bed on a hot night and trying to make yourself comfortable. After hours of tossing and rolling around you finally dozed off to sleep. Just about that time you were annoyed by the buzz of a pesky mosquito. You tried to disregard it, but he bit you on the arm. You made a wild slap, not knowing whether or not you had killed the little devil. The itch made you scratch; then you itched in several places. More scratching until you were wide awake. You got up and turned on the light and looked for the mosquito. You didn't find him. Back to bed you went, scratching and restless. Out of nowhere, came the mosquito to dive and drill you; this time in the chest. You wondered whether the same one had moved from one location to another, or whether there was a swarm of several thousand of them. Of one thing you were certain. That mosquito certainly had *mobility, fire power, and shock.*"

This is an indelible picture based on an assumption of a common experience. The analogy makes its point. The mosquito can be visualized maneuvering, arousing, angering, and confusing its victim, and seizing opportunities to harass and attack suddenly at any point on the perimeter—the characteristics of cavalry.

Body. The body talks. What it says must confirm the spoken word. The way an instructor stands, moves, and holds himself suggests either muscle tone or the lack of it, confidence or doubt. The body can, and many times does, contradict what is said, and thus depreciates the total attitude. Poor posture (slumping, humping, and sagging), meaningless movement, awkward wind-milling of the arms, weight shifting, quick, jerky mannerisms, all distract from the idea being expressed. Undesirable body habits indicate a lack of control and a failure of mind over matter.

Attitude. An instructor's interest is contagious. His voice, words, body, and eye contact convey it. Involved



VOICE TYPES

Shown by colored glass Balopticon slides supplemented by voice recordings. The natural voice is that of animated conversation. Change of pace and clarity are essential.

in an interested attitude is a quality arbitrarily called force. It is one of the "Imponderables." In common language, force is "guts and gumption." The good instructor avoids the following negative mental attitudes:

"Off-the-cliff"—"I guess you can tell I'm on the spot, I've got to do my chore and you've got to listen, so here goes."

"Cookie-pusher"—"You be considerate of me during the lesson, and I'll be considerate of you during the performance test. I may not know my stuff, but I'm a good guy."

"Saturday-afternoon"—"This is just one of those things. It's a bit irregular and I can't see why it was included in your training. Take it or leave it, and we'll be off to the races—and quick like. The old man will never know the difference."

"Tired old man"—"I had a hard night last night—I've worked hard all morning and the end is not in sight. It's obvious that I can hardly move, so don't expect very much. You know I've done this many times and really know my stuff, but I'm somewhat cold on the idea. Bear with me. I don't expect very much. Doesn't time go slowly? Perhaps we'd better call the whole thing off."

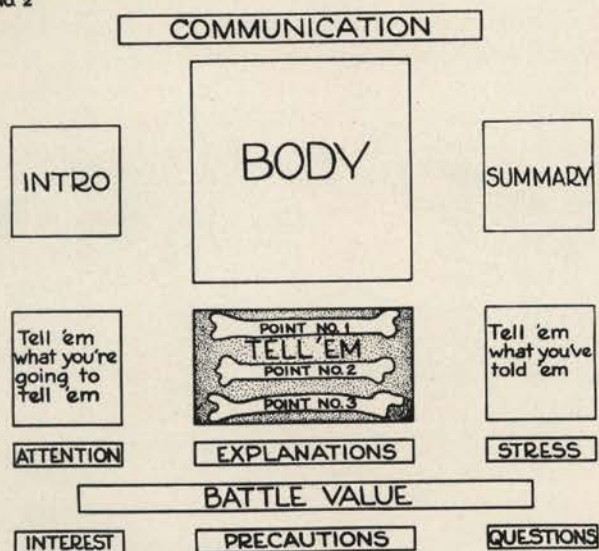
LAWS OF LEARNING

The instructor should be familiar with the three simple Laws of Learning. They govern the teaching process. While admittedly there are many ways to teach, there is only one way to learn. The laws are *Readiness*, *Exercise*, and *Effect*.

In substance, these laws say that if men are to learn they must:

1. Be made ready to learn. Attention, interest, and desire must be stimulated and maintained. An instructor must realize that truth and make use of it.

TECHNIQUE OF INSTRUCTING MANUAL
PLATE NO. 2



Appropriate for a single explanation or an entire phase of instruction.

2. Understand in detail what is required of them. The instructor's sense of communication is essential. He must give his men the *what*, *why*, and *how* of each movement and procedure to be learned.

3. Be given adequate time for "trial and error" experience.

The instructor must be quick to detect errors and correct them. Incorrect performance, if repeated several times, becomes habit which is difficult to break. However, the instructor who expects everything right the first few times a unit of learning is applied, is a wishful thinker. Early blunders are only signs of learning. The instructor must exercise *common sense*, *patience*, and *energy*. Violation of any *one* of the laws is fatal to the teaching process.

MECHANISM OF INSTRUCTING AND THE LESSON PLAN

How does a good instructor prepare himself to teach, and actually teach a lesson? Normally, he takes the six (6) steps included in the "Mechanism of Instructing." Refer to FM 21-5 (Military Training). The process should be understood and mastered.

Preparation. There is a *WHY* back of each prescribed procedure in the service. You have often heard it said facetiously that there are two ways of doing a thing—the right way and the Army way. The instructor should rid his mind of that fallacy. The procedures of the service are the results of sound thinking and long experience. To teach prescribed methods is to sell belief in their adequacy and rightness.

Preparation obligates the instructor to anticipate questions his men may ask. This practice insures thoroughness in preparation. The service is wealthy with training literature. There are Field Manuals, Technical Manuals, Army Regulations, and War Department Training Circulars wherein he finds exact information. He makes full use of them in his teaching and leadership.

The first step involves more than finding the appropriate Field Manual, Training Manual, or Technical Regulation, reading a few somewhat pertinent paragraphs, and then preaching a hodge-podge of ideas. First, the instructor appraises his material. It consists of facts, ideas, reasons, some relevant and some irrelevant, some absolutely essential, and others only desirable. It is the *LESSON PLAN* that determines what portion of all available material will be used. With his objective clearly in mind, he evaluates and selects the "bone" points of his phase of instruction. He discards ideas that do not fit. Next he arranges selected material around two or three fundamental ideas. It is important that the number of these fundamental ideas be kept to the minimum.

Explanation.—The instructor should tell the student *WHAT* he is to learn and *WHY* he is to learn it. The explanation should be *complete* in detail, i.e., exactly how, when, and where the information will be of practical (battle) value.

The instructor prepares the mind of each of his men for the explanation by referring to the *known* before he introduces a single *unknown* item. He explains the thing or things to be learned in terms of his men's own personal experiences and needs. He speaks their language.

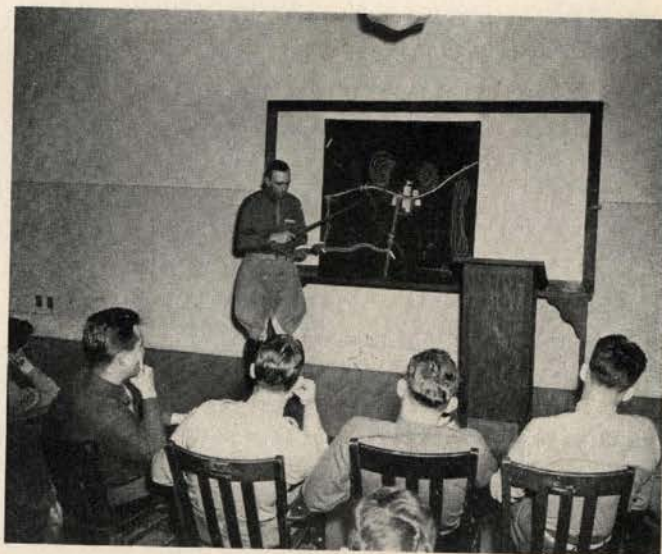
What is "new" catches the attention—a new sound, a new movement, a new word on a printed page. But the "new" does not *hold* attention unless it is in part familiar, unless it springs from personal experience. It is the new combined with the familiar that grips attention and arouses active curiosity and interest. Such details, facts and illustrations as come most fully within the knowledge and experience of the men, will bring the subject most vividly to their minds. This is known as the *principle of reference to experience*.

Example: An instructor may teach the physiology and the anatomy of a horse by analogy to the human body, its muscles, bones, tissues, and functions; or, in describing the sensations and effects of a sternutator gas, he may say: "A good whiff of Adamsite will choke and poison you. Remember how it used to feel when you were swimming and you got your nose full of water? For a moment it seemed that you were going to strangle—and then even after the sensation passed, you sneezed violently and experienced nose pains?" By using a reference to experience, an instructor makes his men more suggestible; they see, feel, accept, or do the thing desired of their own free will and through their own experience.

An instructor must be capable of supporting any statement he makes. It is unnecessary to support every assertion; some are understood readily and accepted by the learners. To enter upon a detailed explanation of that which is readily apparent, or to waste time in lengthy proof of a self-evident truth, presumes a low degree of intelligence on the part of the men undergoing the instruction, which will tire or disgust them, and reduce the effectiveness of the explanation. The decision as to what assertions will require support and what kind of support they will require is the responsibility of the instructor. Narratives, analogies, comparisons, and contrasts strengthen the explanation.

Demonstration.—A procedure or a sequence of operation is made clear, step by step. A carefully rehearsed demonstration *simplifies* instruction and makes essential points stand out boldly. The instructor, if he chooses to use the demonstration, must be expert. Obviously, the instructor must "know his stuff." The blind cannot lead the blind. Students attach far greater importance than may be thought to their instructor's professional knowledge. If they find weak links in his armor, he loses prestige. The use of an expert assistant or a well-trained group frequently is advisable.

Application.—Normally, an individual cannot be expected to develop skill or perform satisfactorily unless he is given the opportunity to apply the "lesson points" of a phase of instruction several times under patient,



THE WRONG WAY

Instructor who "throws the book" loses the confidence of his men. Reading is *not* teaching.

intelligent supervision. Gradually the mechanics of an operation or movement become *second nature* with him. Each movement is broken down into a series of motions for practice.

The instructor must be quick to detect and correct mechanical errors resulting from merely going through the motions, or ill advised attempts to improve upon prescribed method.

The instructor should be alert to the advantage of stimulating competition among those undergoing training with a view to raising the standard of proficiency of the group. Justness, encouragement, and *quick recognition* of good performance are essential to all-out effort.

Examination.—The purpose of the test or examination is twofold: (a) by it the essentials are reviewed, and (b) by it the instructor can check accurately on the effectiveness of his teaching—that is, he makes a test for understanding.

During mobilization training for combat, there is insufficient time to make the test or examination a formal one. Preferably it should be a performance test—one that encourages the student to strenuous effort.

Real benefit lies in requiring the soldier to apply principle to combat situation.

Discussion.—No lesson is complete until an instructor gives his men an opportunity to clear up any specific points he has failed to understand. *Discussion follows the lesson summary.*

Instructors must prepare beyond immediately needed details. They must be able to give sound reasons in answer to "Why?" questions and little angles on "How" not covered in the book. An analysis of experience and observation is an obligation.

The best thinkers in the military service have created by trial-and-error experience an almost fool-proof method for preparing and presenting a military lesson. The

term "fool-proof" is used advisedly in the sense that the method is simple, and its results are shown to have been highly successful over a long period of time.

Most of us are familiar with the historic sequence of INTRODUCTION, BODY, and SUMMARY. The best cornfield language explanation of that sequence was given by an old chaplain with one of the colored cavalry regiments. It appears that this old gentleman had a very compelling way about him, in that every Sunday his chapel was crowded with troopers eager to listen to him. His sermons were stories and parables. His examples were powerful. His words made pictures. They listened to him and understood him. He spoke *their* language. When asked once how he generated such power, he replied: "Ah has a plan. First, ah tells 'em what ah'm going to tell 'em. Then ah tells 'em. After that, ah tells 'em what ah told 'em."

The practiced and recommended sequence for presenting a military lesson is based on that explanation.

VISUAL AIDS

Major emphasis is placed upon simple, inexpensive devices which can be improvised and used by instructors under field conditions. It is pointed out that instructing officers cannot expect to be provided such facilities and equipment as are now in use at the Cavalry School. It is clearly established, however, that the lack of a Reproduction Section and preferred materials does not provide an alibi for the instructor within a field unit who fails to use his "imagination muscle" to create visual training aids.

It is shown that by careful planning and persistence, all instructors in field units can obtain for their use training films, film strips, maps, charts, and diagrams prepared by the various agencies of the War Department. Rough charts, inexpensively constructed portable blackboards, and simple devices which strengthen teaching by voice and demonstration are explained. Detailed information is given on how to construct such easels from scrap wood and sandtables from assorted waste materials available. Sawdust, powdered chalk, leaves, sticks, small pieces of wood, metal and leather can be used on the sandtable in lieu of decorative foliage and costly prepared miniatures. For example, drum type cheese boxes are good base material for effective large-scale models of compasses, and working models of the reticle and clinometer can be improvised quickly from scrap cardboard.

Aids to be used out-of-doors are stressed. Even the earth's surface, with a little preparation, provides an effective medium for quick diagrams and sketches.

APPLICATORY PHASES

The class, divided into five or six small groups, meets in corrals, on the drill field, and elsewhere out-of-doors. It is The Cavalry School policy to make instructional situations as real as possible. Officers must learn to teach in situations in which distractions are frequent.

They must learn to overcome these by *compelling* rather than by *demanding* attention.

Students plan and present two short phases of instruction. They present these lessons not as members of a class to their classmates, but as officers to their men. This is to a good purpose. The student instructor is told to assume he is trying to reach the minds of men who normally know less about a particular phase than he does. In this way, he is reminded to keep his lesson simple, use repetition *interestingly*, and stick to his phase. *He takes nothing for granted.*

While each student speaks, other members of the group make such notes as enable them to offer sound *constructive criticism*. It is a fundamental upon which repeated stress is placed at the Cavalry School. The error is pointed out, the *exact how* of better performance is given, and the question "Why?" is answered. Example: "That performance (statement, act, manner) was incorrect for these reasons. . . . To improve you should. . . . The reason for this method is that it. . . ."

The following *negative* aspects of criticism are discouraged:

"*Throat-cutting.*" A practice of the bigoted or prejudiced individual who thinks he can make himself "a big shot" by criticizing just to ventilate a personal grievance. He uses sarcasm and ridicule to embarrass an individual on the spot.

"*White-washing.*" An indecisive, loquacious effort by one individual to cover up obvious errors made by another. It is saying something is right when it isn't. The officer who gets into the habit of overlooking weak, slovenly performance to make himself a "good fellow" with his subordinates, is not functioning as an officer.

"*Don't-know.*"—It is an officer's business to know. He must develop a critical eye, a critical ear, and a critical mind. He must observe, evaluate, and express opinions backed up by "*Why's*" and "*How's*" if he is to lead men. Straight thinking and straight speaking marks



COLORFUL PANELS COMPEL ATTENTION

This one "Trade-marks" the first hour of preliminary instruction.

the leader. Failure to criticize or correct constitutes approval in the eyes of the individual performer.

"Bull-moose."—Lots of voice. Lots of words. Shouts and storms. Offers no encouragement. Enlarges upon little things—and misses the big ones.

To make sure that men undergoing the instruction look for and evaluate the right things, they are furnished an "instruction check list." Items included on this check list are:

1. *Appearance and Presence:* (Consider neatness, posture, bearing, facial expression and animation.)
2. *Introduction:* (Consider method and sufficiency—did he "tell 'em what he was going to tell 'em"?)
3. *Battle Importance:* (Consider mention, strength of reference, repetition.)
4. *Body of Lesson:* (Consider "bones and meatiness," logic and sequence—did he "tell 'em"?)
5. *Authority:* (Consider familiarity with subject matter and evident preparation.)
6. *Communication and Group Contact:* (Consider eye contact and language—did he speak *to* them or *at* them?)
7. *Precautions and Safety Items:* (Consider mention, strength of reference and repetition.)
8. *Voice and Expression:* (Consider quality, strength, enunciation and fluency.)
9. *Visual Aids:* (Consider quality, use, reference and timing.)
10. *Lesson Summary or Conclusion:* (Sufficient? Apropos?—Did he tell 'em what he had told 'em?)
11. *Attitude:* (Consider interest, enthusiasm, and force.)
12. *General Rating:* (Opinion of the man and his presentation—general.)

In addition to those points, students are reminded frequently of the four "S's" of good instruction. These are: (1) *Sincerity*; (2) *Soundness*; (3) *Sequence*; (4) *Summary*.

CLINIC

Between the first and second applicatory exercises, all groups of the class meet together for a critique on the first assigned phases of instruction. During this period voice recordings are played back for comment. Photographic glass Balopticon slides prompt clinical discussion on attitudes, mannerisms, and visual aids created and used by students.

CONCLUSION

The foregoing method for teaching how to teach has been found to be productive of good results at The Cavalry School. Comments made by students, former students, and commanders of field units support that statement. It is a method based on an old fact that men learn by doing. Even a little *doing* appears to be more remunerative than a lot of listening.

- 1—Individual attention strengthens the teaching process.
- 2—Second Step: Explanation of *what*, *how*, and *why*.
- 3—Third Step: Demonstration. 4—Fourth Step: Application. Without interrupting practice, constructive criticism is given.



RECORDED

TESTS IN HEAT AND COLD

*by Lieutenant Robert M. Pollock**

SCIENTIFIC testing of vehicles and armament has long been practiced by ground force organizations of various armies. Ordnance proving grounds have constantly striven for new perfection in machines and weapons. Lt. General Jacob L. Devers, Chief of Armored Force, foresaw the need for going beyond experiments with equipment. Equipment is only as effective as the men who operate it. Accordingly, the Armored Force is now determining reactions of its men to certain climatic and work conditions and ways and means of improving effectiveness of these men.

Details of the Armored Force Medical Research Laboratory at Fort Knox were worked out by Brigadier General Albert W. Kenner, former Armored Force surgeon. Funds were furnished by the National Medical Research Council, and on August 15, 1942, work got underway. In a \$300,000 glassbrick, concrete building, officers and men of the Medical and Sanitary Corps began their experiments. The building contains, in addition to splendidly equipped chemical and physi-

ological laboratories, two vast rooms for work in extremely high and low temperatures.

Striking features of these rooms are their abilities to simulate the extreme climatic conditions under which Armored Force may be called upon to fight. The hot-room can be heated to a temperature of 150 degrees Fahrenheit. With the future addition of huge lamps, intended to reproduce the radiant energy of desert sunshine, this temperature may be raised to 175 degrees. Through controlled humidity, either the desert or the jungle may be transplanted to Fort Knox.

In contrast to the intense heat of this room, stands its next-door neighbor, the cold-room. Here, by means of an immense refrigeration unit, room temperature may be lowered to 62 degrees below zero. The process used in cooling the air in the room may be so concentrated that an artificially produced gale of thirty-five miles an hour wind velocity results.

Lt. Col. Willard F. Machle, commanding officer of this Armored Force Research Laboratory, heads a staff of expert technicians. These men, constantly engaged

*Headquarters, The Armored Force.



Sub-zero temperatures in the cold-room of the laboratory are graphically shown by the ice on this tank and the bulky, but comfortable, clothes of the Armored Force emerging from this M-4 tank. Experiments in this room are usually conducted at 30 degrees below zero.

in seeking new scientific data regarding reactions of men in the Armored Force to conditions that they may have to face in combat, have developed a series of experiments to gain their ends. Perhaps the most intensive of these at the moment are work experiments within the hot-room. Here, groups of men (the highest number has been 17 at one time) eat, sleep, work and rest under conditions quite different from the Kentucky climate just outside the walls of their laboratory.

In heat that reaches a peak of 120 degrees during the day time and a low level of 75 degrees at night, with humidity similar to that encountered in the desert, these men perform certain work exercises. Their body reactions—that is, temperature, pulse rate, and blood pressure—are constantly checked by staff members on duty in the hot-room.

The previously mentioned 17 men lived inside the hot-room for 26 days, longest experiment yet undertaken. For several days, they performed the exercise routine, rested, ate and slept under normal temperature conditions. Their reactions to the work routine were carefully noted. Then came the extreme temperatures. Again their reactions were tabulated. When the temperatures first rose, the ability of all the men to perform work slumped below their ability at normal temperatures, but when these volunteers became acclimated to the extreme heat, they were able once more to do their duties with a minimum of body reaction. A comparison of their working abilities before and after high temperatures began in the hot-room, gave these laboratory technicians definite information as to the human reaction to desert conditions and length of time necessary to become acclimatized to them.

With American Armored fighters already fighting in the African desert, and with the desert perhaps playing an increasingly important part in armored warfare, the results of these Armored Force Medical Research Laboratory experiments may prove an important margin of victory.

Cold-room experiments at the laboratory are limited at the moment to a study of clothing best designed to protect our soldiers from the sub-zero conditions they may encounter in combat. The experiments also include work with various types of food and food containers suitable for Arctic temperatures.

These Armored Force technicians don't stop with testing tankers' reactions to extreme hot and cold. Constantly going on are experiments testing the effects of noise on the nervous system, gun fumes on blood circulation and respiration, visual difficulties on the eyes. Modern laboratories are equipped to study these situations and to take steps to remedy or improve them.

Comprehensive reports on laboratory experiments have been submitted to the proper authorities, and their findings promise to be far-reaching. Already a number of changes in equipment have resulted from these reports. Through experiments with the sitting height of the average man and his headspace require-



1—In important gun-fume tests, gas is pumped through the gun barrel of this 75mm cannon into an M-4 tank. Tests then discover the effectiveness of the tank's ventilation system in removing harmful gas fumes. 2—Several experiments are conducted simultaneously within the hot-room. While three men plod their way around the room with a forty-pound pack, another prepares to mount a stationary bicycle and pedal in place for a ten-minute period.

ments, sitting room modifications on existing tanks and changes in future tank plans have been made. Provision of adequate water supplies for combat troops has been assured. Generator exhaust at one time contaminated the inside of tanks. Laboratory reports discovered this, and the condition has been remedied. Visual improvements are being considered and mechanical implements within tanks themselves (brakes, gear-shift, etc.) have been changed to simplify operations.

Work continues at Fort Knox in the Armored Force Medical Research Laboratory. Radical work. While machines are being constantly tested and improved in other proving grounds, the men who operate these machines are themselves being tested to improve the fighting efficiency of those on whose shoulders rest the task of winning a war.

ARDED

Care And Use Of Your INDIVIDUAL PROTECTIVE CELLOPHANE COVERS



TWO COVERS WILL BE ISSUED TO YOU AND WILL BE KEPT IN YOUR GAS MASK CARRIER. KEEP ONE COVER READY FOR USE IN FRONT PART OF CARRIER.

4



SPREAD COVER OPENING.

5



WITH ONE CONTINUOUS MOTION, SWEEP COVER OUT AND UPWARD SO THAT AIR OPENS COVER.

Defense Against Chemical Attack

The Cellophane Cover, of general interest and of particular importance in Chemical Warfare training, is a new Quartermaster item with which the average soldier is still unfamiliar.

Before going into a field of operation, the individual soldier should carefully unfold and refold the cover, which should be kept ready for imme-



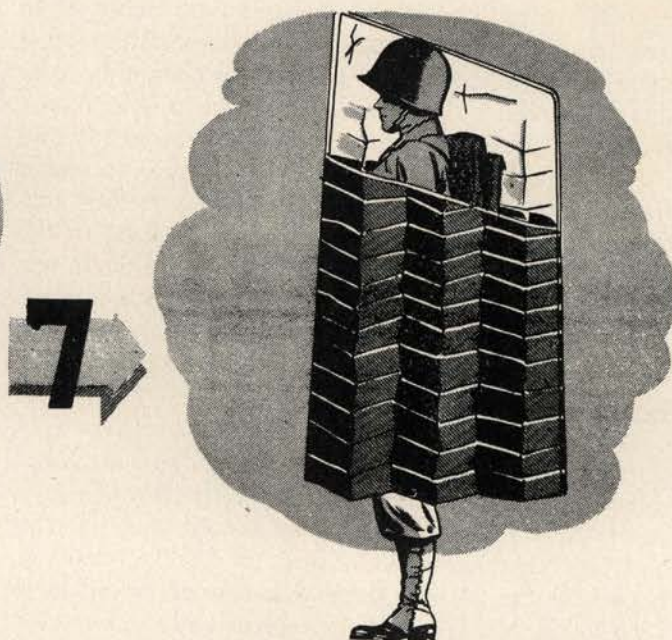
GRASP RED TABS BETWEEN THUMBS AND FOREFINGERS.



KEEPING HOLD ON TABS, RELEASE COVER, PERMITTING IT TO UNFOLD.



CONTINUE UPWARD SWING AND PULL COVER OVER HEAD.



PULL COVER DOWN, PROTECTING BODY AND CLOTHING FROM AIR-PLANE SPRAY.

diate use. This will soften the folds and increase the speed with which the cover can be put on. When the cover is refolded, care must be used in following the original folds. Making the final "accordion" folds from the top down will release any air trapped in the cover. Good care given the cellophane covers and gas masks will be repaid when a chemical attack is met.

The above illustrations give a detailed description of the prescribed manner for the handling and care of this valuable protective.

Care of Animals in the Jungle^{*}

by Captain Benjamin F. Leach, Veterinary Corps

THE successful use of animals in the jungle requires the utmost care and effort on the part of the officers and men responsible for their welfare. Difficult trails, made more difficult in the rainy season by frequent and heavy showers, make all trails through the jungle, trails of mud. Men and animals must be in excellent condition to withstand an extended jungle maneuver, and the jungle is not the place to condition green, or unconditioned, animals. This training must be accomplished prior to the time that the animal is called upon to perform jungle work.

The training and conditioning of animals requires a systematic series of exercise and work in conjunction with proper feeding and grooming. It is generally agreed that it is not practicable to keep army animals at the high peak of condition, but that they must be maintained in a state of condition which can be brought to a high level in a short period of time. Two hours of exercise daily is considered the minimum necessary to maintain animals in a workable condition. Although it seems obvious that horses and mules cannot be conditioned under stripped saddle and packs, this is one form of exercise that is practiced all too frequently and its final reflection is manifested somewhere on a jungle trail by exhaustion and death. The walk is the best conditioning gait for animals that are to be used in the jungle as it is practically the only gait used on jungle trails. A horse or mule is considered in condition when the body can perform without fatigue or injury the work and services required by the organization of which it is a part.

All animal equipment should be in excellent condition prior to jungle marches, as the rain, mud and difficult trails place a severe strain on the best of equipment. New saddles and riggings should be broken in and any adjustment made, prior to an extended maneuver in the jungle. Every effort must be made to keep saddle blankets and the mohair pads and cinches of the pack saddles free from caked mud and sand.

In camp, saddles and riggings must be kept off the ground either by the use of suitable dunnage or improvised saddle racks. The mohair pads should be folded damp side in after cleaning, and placed on top of the pack saddle. Rawhide latigoes have caused considerable trouble in the past, for when wet, this type of leather stretches, causing the cinches to loosen and the load to slip, which eventually results in severe back injuries. The rear cinch on the Phillips Cargo Pack Saddle should not be drawn tight but left loose enough so that the hand may be inserted between the cinch and the animal's abdomen.

In climbing steep trails, the cargo pack saddle has a

tendency to slip to the rear, especially if there is a heavy top load. Some animals make a lunging effort while crossing deep mud holes. In both of these instances, mules may be severely bruised in the stifle region by contact with the rear boot hook. This condition can be corrected partially by having all mule leaders tighten the breast collar strap.

The faster moving animals of an organization should lead the march. This prevents delays at difficult points on the trail and possible accidents which may occur when more rapidly moving animal elements attempt to pass slower moving units. Two or three men should be stationed at the more difficult points of the trail to assist animals that may become bogged down and need help.

As it is nearly always impossible for the veterinary officer to inspect animals on the trail at the halt, it is advisable to select a place by which the column will pass on their departure from camp, and note the fitting of packs and saddles and whether or not the loads on pack mules are balanced. If possible, poorly packed or unbalanced loads should be corrected before the animal leaves camp.

At halts on the trail the rider or the leader should inspect the condition of the animal with regard to the fitting of the saddle and the pack and to the balancing of the load.

Animals should be allowed to graze and, if there is an opportunity to water, should be allowed to drink. The individual soldier who rides a horse or leads a mule should be instructed that he alone is responsible for the care and well-being of his animal on the trail and that he must bring him into camp in good condition.

The picket line should be placed on high ground near a suitable watering site, and sheltered from the sun. The underbrush and jungle growth should be cut off level with the ground, for if snags and stumps are permitted to remain on the picket line many animals will injure themselves when rolling. All vines should be cut away and removed from the immediate vicinity of the picket line; otherwise, a good many animals will suffer from vine burns around the fetlocks and pasterns.

Black palm trees should also be cut and removed to a place where there is no danger of animals coming in contact with the thorns. Areas where the manzanita shrub grows must be avoided. The picket line should be four to five feet from the ground and stretched taut between fairly large trees. A picket-line guard should be posted at all times to watch the animals and prevent injuries from animals casting themselves in their own or another's tie-rope.

Animals on the march should be watered whenever an opportunity occurs. Animals in camp should be watered at least three times during the day. The ap-



Soldiers and army mules, carrying heavy packs, pause at a stream somewhere in the jungles of Panama for a brief rest as the field artillery battery to which they are attached moves up to new positions during war games.

proach to many jungle streams and watering holes requires leveling before more than one or two animals can be watered at one time. One man should not be required to water more than two animals at the same time. Groups of animals should come to the watering place together and leave together if the nature of the terrain will permit. The watering of animals should be supervised by a commissioned officer.

Hay is fed by breaking up the bales and distributing it along the picket line. It should be fed in small quantities and renewed as needed; if too much is fed at one time it will be wasted by being tramped into the mud or soiled with urine and feces. Grain should not be poured on the ground in front of the animals as a large amount of it is lost and the animal picks up a certain amount of foreign material. The use of feed bags is the approved method of feeding grain in the field. The bag should be adjusted to the individual animal and when removed, turned inside out to dry.

Salt is an indispensable item in the ration of an animal, and a daily allowance of eight-tenths of an ounce is authorized. Under field conditions granular or table salt should be used in preference to rock salt, and fed in the feed bag. One full mess kit spoonful of salt

should be mixed with the grain three or four times a week.

It is necessary to protect supplies of grain and hay during the rainy seasons of the year by placing on suitable dunnage and covering with tarpaulins.

Injuries from the pack and saddle constitute the most frequent causes for disabilities among animals. Most saddle and pack injuries are preventable if proper care is taken in the fitting of the saddle and care exercised in packing out and maintaining balanced loads. The two physical causes for pack and saddle injuries are friction and pressure. Friction is aggravated by the accumulation of sand and mud which the saddle blankets and mohair pads pick up going through mud and bog holes. Pressure may be aggravated by extra heavy loads and the period of time that elapses between packing out and unpacking.

Every wound or abrasion, no matter how slight, must be treated or carefully watched to prevent screw-worm infestation. All animals in camp should be inspected at least three times a day for egg deposits on wounds and abrasions. Every man in a mounted organization should be taught to recognize the eggs and larvae of the screw-worm fly and the havoc that the fly can cause.



This Royal Artillery Mountain Battery makes its way across a Scottish mountainside, where it is in training.

Animal Transport Companies[★]

THE LONDON TIMES Special Correspondent with the Army, in a recent message from the Southern Command, deals with the continuing value of horses and mules in the transport of material in every Allied theater of operations. He writes: "When the Highland Division was forward of the Maginot forts on the Saar front, mules were used for transporting material into the outpost line. Later in 1940 it had been planned that the Indian mule transport companies in France should be ready to go to Norway if that country were invaded, but the French undertook to send their own companies. Again, the successful British campaigns in Abyssinia and Eritrea were often dependent on mules and pack horses for transport in the mountainous country, just as were the German divisions that dashed across Greece. And in the Middle East today there is still a useful place for the several animal transport companies—British, Indian, and Cypriot—employed there.

"Here at home, a Transport (Animal) Training Company forms part of the Training Brigade of the Royal Army Service Corps in this Command, and men are posted from it to the animal transport companies at present stationed in the mountains of Scotland. Today the pack horse fulfils the principal function of animal transport, but when a man leaves this training company he has become skilled in most branches of horsemanship.

The best recruits for this service are the former drivers of horse artillery, many of whom have volunteered, and next to them might be placed milk roundsmen and men experienced in that type of work. Lads from the superior racing stables seldom take kindly to the inferior task of pack horse transports and farm laborers seem also to have no flair for it, though both are useful for some of the auxiliary work connected with the company.

"At these training quarters, for instance, the excellent condition of the horses and their stables is a sure sign of the type of man selected to look after them. Here the horses in use are a quiet, mixed bunch of hunters, coach horses, chargers, and so on, but for active service mountain ponies from Scotland and Wales are sought. The maximum load of the pack horse is about 240 lb., and in the field the small A.T. cart would be used until pack-loading became necessary, when the cart can be used as a dump.

"It had been thought at first that the very limited number of pack horse companies in the Army could be manned with recruits of comparatively low physique. But it was soon realized that for man, as well as horse, this is very arduous work, demanding strength and stamina. The man, for instance, must be as fit in the feet as any infantry soldier and able to endure long stretches of trudging along mountain paths. He has also to be an alert and resourceful fighting soldier."

★*The Veterinary Record*. (British) Vol. 54—October, 1942—No. 41.

Book Reviews

I SAW THE FALL OF THE PHILIPPINES. By Colonel Carlos P. Romulo. Doubleday, Doran & Company, Inc. \$3.00.

Colonel Romulo has given the world a magnificent, terrible picture of the bitter, futile struggle to hold the Philippines. He has held up for respect and inspiration the men who took part in that struggle.

Only a Divine Power could have given the strength to hold out as long as they did. "There are no atheists in fox-holes."

It may be trite, but the phrase "written in blood" seems the most applicable one to characterize this book. Its stark tragedy mocks the very freshness of the air we breathe, the food we eat, the luxuries we take for granted.

It is to be hoped that every man and woman blessed with freedom will "read, mark, learn, and inwardly digest" the lessons written here.

✓ ✓ ✓

THE STORY OF WEAPONS AND TACTICS. By Tom Wintringham. Houghton Mifflin Co. \$2.25.

A book by Wintringham is an event worth noting, for he combines the rare attributes of expert knowledge of military history with actual experience in the field. His excellent literary style makes his books not only valuable but enjoyable as well.

"If we are to survive and be victorious, we must learn the ways of change." The changes in methods of warfare and the weapons employed are covered from the siege of Troy to Stalingrad. The author divides the war periods into six classifications: (1) unarmored period—prehistoric to 479 B.C.; (2) the first armored period—479 B.C. to 378 A.D.; (3) the second unarmored period—378 to 774; (4) the second armored period—774 to 1346; (5) the third unarmored period—1346 to 1917; and (6) the third armored period—1917 to ? In each of these periods he selects the most familiar battles—the most prominent historically to the average reader and, using these as illustrations, shows in each the influence of methods on weapons, and weapons on methods.

There is perhaps nothing new here to the student of military history, but there is coördination of facts, and in coördination many features become emphasized that inevitably slip into the background when studied individually.

Mobility of mind as well as mobility of units becomes obvious in this study of change. Each age has had its die-hards; and there is cold comfort for them in the history of their ilk.

The lessons in this book are as modern as Spain, Libya, and Stalingrad. Its chief prophecy is based on the need for light, mobile tanks for use in conjunction with infantry.

INTO THE VALLEY. By John Hersey. Alfred A. Knopf. \$2.00.

This is not just another book on the Marines in Guadalcanal and the Solomons. It does not start out to be a pretentious story. The author has pictured a single skirmish and one not too successful from the military point of view.

In all events, the men fighting the battle do not see themselves as part of a large pattern but rather the pattern as part of themselves. Thus, the personal angles of situations become important in the same proportion that they fade from prominence in the larger scene. In this, Mr. Hersey has succeeded in giving us more than a mere accounting of a battle with the pictures of a few specific personalities. He has produced a book that is made up of the little things that are of importance to the men concerned at the moment in any area of warfare.

These are real men, not shadowy characters. They may have lost this engagement; they may lose many more, but ultimately the man who can control psychological fear by the tone of his voice and the simple question, "Who gave that order?" must eventually lead his men to ever more frequent successes.

✓ ✓ ✓

POSTMORTEM ON MALAYA. By Virginia Thompson. The Macmillan Co., 1943. \$3.00.

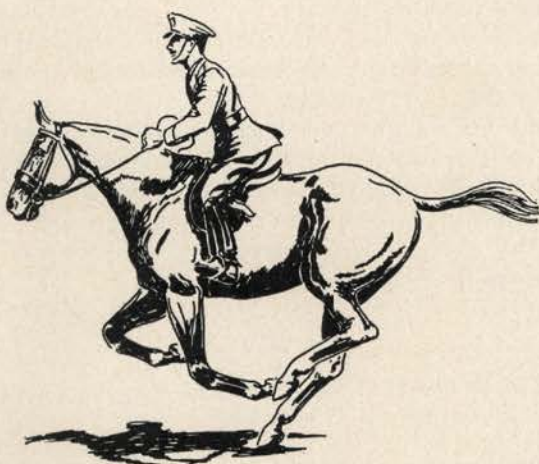
In her books on Thailand and French Indo-China, Miss Thompson has already proved herself to be a penetrating analyst of Far Eastern affairs.

"Postmortem on Malaya" is her latest account of an Asiatic country, once dominated by a European nation and now existing under the heel of Japan. This book is primarily a study of the economic and social factors that made the Malay peninsula an unsound fruit, ready to be shaken from the British imperial tree with very little effort on the part of the Japanese.

Miss Thompson considers the military aspect of the question only as an adjunct to her broad social study, and devotes but one chapter to the military history of the peninsula. She does not subscribe to the theory that "whiskey-swilling" planters were the cause of Malaya's lack of military and psychological preparation for war. She believes that "short-sightedness and gross negligence" are the charges that can more fairly be leveled at the British community and the colonial authorities.

Socially, Malaya was a melting-pot whose ingredients did not melt. A large and transient immigrant population, composed mainly of Chinese and Indians, was necessary to do the manual labor involved in exploiting Malaya's tremendous natural resources of tin and rubber. The heterogeneity of the population made a sound and stable community very difficult to create.—L. B. C.

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(American edition of this book sold for
\$10.00)



The Cavalry Journal

1719 K Street, N.W.

Washington, D. C.

BEHIND THE JAPANESE MASK. By Jesse F. Steiner. Macmillan. \$2.00.

Dr. Steiner taught English in North Japan College from 1905 to 1912. He traveled widely over the island both during that period and later when he revisited it in 1935 to study social conditions. He has written a cold estimate of the nature of the Japanese as he has interpreted it from racial customs and personal contacts studied from the viewpoint of the trained sociologist. There is no propaganda here, but a simple problem in addition.

We are reminded that for too many years we have looked scornfully at the Japanese, while they wisely absorbed all that we could teach them. Superficial western knowledge, based on a foundation of semi-barbarism, has produced a wily and vicious enemy. A thorough understanding of the nature of this opponent can be of inestimable value.

One book alone, however, cannot be expected to complete the job of building this understanding. In *Report from Tokyo*, Ambassador Grew gave us the Japanese nature and mind as seen by a statesman. In *Behind the Japanese Mask*, Dr. Steiner goes more deeply into the broad expanse of a people at large—the people with whom we are engaged in battle.

1 1 1

I SERVED ON BATAAN. By Lieutenant Juanita Redmond, ANC. J. B. Lippincott Co. \$1.75.

Here, in 167 pages, is a story that defies reviewing. It is not a great piece of literature. It has no outstanding character. Despite its obvious defects, however, this book engenders a profound respect for those who endured the siege of Bataan and then repeated their experience in the siege of Corregidor.

To face the unknown is bad enough, but to face the known horrors of slow starvation and depleted drug supplies takes more than average courage. One sentence tells the story: "There was no retreat from Corregidor."

This South Carolina girl has not tried to glorify her profession. It would be impossible, however, to describe the work of the medical units in the Philippines without commanding respect and admiration, not only for their courage, but for their ingenuity and skill.

1 1 1

GOING TO OFFICER CANDIDATE SCHOOL!

Edited by Major Nelson A. Voorhees, W. O. Martin Goldenring, and Officer Candidate Tino Suarez. Military Service. \$1.00.

Here is a comprehensive guide for men considering Officer Candidate School. It answers the questions of most importance to the candidate: What are the requirements? How do you make application? Who fails and why? It outlines the schools and programs of instruction in order that the prospective candidate may have the knowledge on which to base a thoughtful choice.

Unquestionably, this book should be a part of every library and should be available to every man who wishes to be considered for officer's training.

SOUTH OF THE CONGO. By Selwyn James. Random House. \$3.00.

At a time when American attention is centered on Africa, this book is of more than timely interest. Most Americans are moderately familiar with the northern part of that continent, but not since the Boer War has much attention been given to the section "South of the Congo."

Selwyn James has gathered his material at first hand and carried his events up to the end of 1942. This adds considerably to the importance of a book that outlines political situations and trends, in a section of the world where conflicts have always existed, not only between native and colonial populations, but between the various groups of European settlers and, in turn, between their religious and political subdivisions. Offering, as it does, such fertile ground for religious and racial antagonism among the people, the situation is one to delight the Fascist propagandist.

This book is definitely recommended reading for those who wish to understand what lies to the south of our armies in Africa, what the Germans in Africa are like, what the Nazis have succeeded in doing among them, wherein their plots have failed, and the present alignment of forces in the Belgian Congo, Tanganyika, the Rhodesias and the British protectorates.

✓ ✓ ✓

VICHY, TWO YEARS OF DECEPTION. By Leon Marchal. Macmillan. \$2.50.

Leon Marchal is one of those Frenchmen who collaborated with Vichy for as long as he thought that course to the best interest of France. After Laval's return to power in April, 1942, however, he resigned from the Vichy embassy in Washington and joined the staff of General de Gaulle's Fighting French.

Vichy is a recounting of the actions of the French government from the time of the armistice signed in Compeigne Forest to the landing of the Americans in North Africa. Chapters given to Petain, Laval, Darlan, and Weygand, include their political lives and aspirations. The whole book is unquestionably colored by the fact that the author fought in the last war, saw Hitlerism at close quarters in Munich in 1934, and had ample opportunity to watch the absorption of power by the henchmen of the Nazi regime in conquered France.

To those who believe that Vichy is not only the tool of Hitler, but a willing ally, this book will bring ample justification.

✓ ✓ ✓

DRESS REHEARSAL. By Quentin Reynolds. Random House. \$2.00.

This reporter's story of what he saw at Dieppe is the center of a racy picture of many phases of the present war. It is clear to any thoughtful person that for the present at least, material on the Dieppe raid must necessarily remain "off the record." In lieu of what he cannot tell us of the entire action, Mr. Reynolds has filled in with many personalized sketches that make the book intimate rather than impersonal reading.

New Mailing Regulations for Overseas Personnel

1. Use the service man's complete address.
2. Send no packages unless the soldier has requested the article and sends you his commanding officer's written approval. The post office will not accept the package unless the commanding officer's approval is shown at the time of mailing.
3. Magazines and newspapers may not be mailed *except on subscription, direct from the publisher.*

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No. Z-5 on The Cavalry Journal book list.

The author's defense of these personal detail elements of a big story is given in his foreword—that an eyewitness of such an event sees most closely the individuals involved. This is doubtless quite true and, incidentally, it makes interesting reading. Such writing, however, has little permanent value either from an historical or literary point of view. The reader is left with the feeling that the writer has used too much "sawdust in his bricks."

✓ ✓ ✓

MILITARY SKI MANUAL. By Frank Harper. Military Service Publishing Co. \$2.00.

The past two decades have brought skiing, as a sport, to the attention of the American public. Before the war skiing was beginning to spread beyond the limits of a few wealthy resorts. With the advent of war this sport has become an effective weapon in the far northern climates and, during the winter months, in more temperate zones.

Mr. Harper, a brilliant skier and Alpinist, trained in winter warfare in the last war, has compiled a complete manual on the subject of military skiing. Pictures and diagrams show the sportsman, amateur or professional, and how his footwork can be turned to the best possible advantage. His chapters on tactics of attack and defense include the essential features of rations, equipment and bivouac in the snow.

Several chapters illustrate the actual use of ski troops in the Russo-Finnish war in 1939-40 and the Russo-German conflict in 1941-42. Early use of ski troops in 1914-18 in France, Germany, Austria and Italy is described and contrasted with ski troops in the present war.

Needless to say, this book should prove most useful to officers and men training in far northern posts.

✓ ✓ ✓

FLYING HEALTH. By Dr. M. Martyn Kafka. Military Service Publishing Co. 248 pp. \$2.00.

Dr. Kafka, former U. S. Army Air Corps flight surgeon, has compiled an up-to-date handbook for maintaining flying health. The high physical standards required for both civilian and army aviation are outlined. Sound, reasonable advice is given to enable the aviator to maintain these standards.

This is certainly one of the saner, more balanced books on health. The medical information given is known to every practitioner as fact. There is no effort to preach, no prohibition of habits normal to the average citizen, there is a very reasonable recommendation that moderation be observed.

While this book has been written primarily for airmen it should prove of equal value to all men interested in preserving their health and maintaining a high state of physical efficiency.

E. S. D.

✓ ✓ ✓

THEY CALL IT PACIFIC. By Clark Lee. Viking Press. \$3.00.

This graphic account of our war in the Pacific was received too late for review in this issue. It is one of the best descriptions of the war that has appeared, and is highly recommended to our readers.

It is a comprehensive and gripping narrative told by a man who went through it.

Here Are This Months New Books of Current Interest

- Y- 1 **Behind the Japanese Mask.** By *Jesse F. Steiner*. A picture of the life, customs, religion, philosophy and education of the Japanese people. \$2.00
- Y- 2 **"Bushido": The Anatomy of Terror.** By *Alexandre Pernikoff*. An account of the technique of terror practiced by the Japanese in occupied territory. \$2.75
- Y- 3 **Defensive Warfare.** By *von Leeb*. This will be the second volume, companion to Clausewitz' *Principles of War*, in the series of Military Masterpieces. \$1.00
- Y- 4 **Dress Rehearsal.** By *Quentin Reynolds*. An eyewitness account of the raid at Dieppe. \$2.00
- Y- 5 **Elements of Radio.** By *A. Marcus and William Marcus*. A basic and elementary home-study course on the fundamentals of radio. 1 vol. \$4.00 2 vol. \$2.45 ea.
- Y- 6 **Fort Brown Historical.** By *Joseph C. Sides, Chaplain, U.S.A.* A history of Fort Brown, Texas, border post on the Rio Grande. Illustrated. \$2.00
- Y- 7 **From Perry to Pearl Harbor, The Struggle for Supremacy in the Pacific.** By *Edwin A. Falk*. An account of the relations between the United States and Japan from 1853 to the declaration of war. . . \$3.00
- Y- 8 **Harvest of My Years.** By *Channing Pollock*. 8vo. Autobiography of the playwright, novelist and editor. \$3.50
- Y- 9 **Heathen Days, 1890-1936.** By *H. L. Mencken*. A third volume of informal memoirs. \$3.00
- Y-10 **How to Read Aircraft Blueprints.** By *Albert A. Owens and Ben F. Slinguff*. A textbook by the authors of *How to Read Blueprints*.
- Y-11 **Into the Valley.** By *John Hersey*. A report of a skirmish of the Marines on Guadalcanal. \$2.00
- Y-12 **Judo: 30 Lessons in Modern Science of Jiu Jitsu.** By *T. Shozo Kuwashima and Ashbel R. Welch*. Illustrated with 143 action photos, this book is another hand-to-hand fighting manual. \$1.89
- Y-13 **Military Ski Manual.** By *Frank Harper*. A handbook for ski and mountain troops. \$2.00
- Y-14 **Mitchell: Pioneer of Air Power.** By *Isaac Don Levine*. A biography of General William Mitchell. . . \$3.50
- Y-15 **Modern Judo.** By *Charles Yerkow*. The complete manual of close combat. \$2.00
- Y-16 **Officer Candidate School! Edited By Major Nelson Voorbees, W. O. Martin Goldenring and Officer Candidate Tino Suarez.** An answer to the questions asked by men desirous of going to OCS. \$1.00
- Y-17 **Postmortem on Malaya.** By *Virginia McL. Thompson*. The dramatic story of Malaya up to the moment of the Japanese conquest. \$3.00
- Y-18 **The Psychology of Military Leadership.** By *L. A. Pennington, Lieut. Col. Romeyn B. Hough, Jr., and H. W. Case*. A guide for the officer and officer candidate. \$2.95
- Y-19 **Retreat With Stilwell.** By *Jack Belden*. The tragic story of the campaign in Burma and the retreat to India. \$3.00
- Y-20 **Ski Track on the Battlefield.** By *V. A. Firsoff*. An account of the ski as a part of the modern military machine. \$2.00
- Y-21 **South of the Congo.** By *Selwyn James*. A report on Southern Africa from Cape Town to the Congo, including Madagascar. \$3.00
- Y-22 **They Came As Friends.** By *Tor Myklebost*. A Norwegian journalist's account of the rape of Norway and the people's resistance. Translated from the Norwegian. \$2.50
- Y-23 **Through Hell to Dunkirk.** By *the Marquise de la Falaise*. This is a personal narrative of a liaison officer with the British Army during the retreat to Dunkirk. \$2.50
- Y-24 **The Thousand-Year Conspiracy: Secret Germany Behind the Mask.** By *Paul Winkler*. The author retraces the German idea of world domination back beyond the days of the Crusades. \$2.75
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JUNGLE FIGHT

by Captain
Willard O. Foster, Jr., Cavalry

This article, received by air mail from Guadalcanal, contains invaluable training data for every officer, non-commissioned officer or private who may find himself pitted against the Japs!

THE material that has been issued by the War Department on training for jungle combat is good. There is no doubt about that. Any unit that uses this material, and is well trained, will beat the Japs six hands around. And there is no doubt about that, either!

There are a lot of things, however, that cannot be learned from books. They have to be learned the hard way—and in war the hard way really hurts. It is in an effort to ease this hurt that these notes are written. They are the result of observations made during three and one-half months of active combat against the Japanese in the jungles of Guadalcanal. The original comments were written on the spot as the observations were made. The material itself was written immediately after the combat had ceased in order that the lessons learned would not lose their freshness through the passage of time.

JUNGLE RECONNAISSANCE

"Another officer lost on patrol today. Patrol straggled in—no decent info. When will they learn!"

Yes, when will they learn that when an officer is

conducting a patrol, his position is *not* in the point. Patrols in the jungle are constant. They are the only means that a commander has at his disposal to gain intelligence of the Japs opposing him. In training for jungle combat, the manual, "Scouting and Patrolling," should be placed alongside FM 31-20, "Jungle Warfare," and both should be used as corner-stones upon which to build the training program. A few points on jungle patrols, however, should be stressed.

Reconnaissance Patrols Must Also Fight. When fighting in the jungle, it is difficult to distinguish between "combat" and "reconnaissance" patrols. To restrict a patrol leader to pure reconnaissance (except in isolated instances) is to hamper seriously and even endanger that patrol. Jungle patrols *must* be aggressive when the situation demands. It is often their only true means of defense. A patrol should always seek information, but it likewise should always seek to cause as much discomfort to the enemy as possible. In the jungle, where patrols do 75% of the fighting, a strict "reconnaissance" patrol should seldom be employed.

**Observations made during
three and one-half months
of fighting the Japs
on Guadalcanal.**

TING

The Reconnaissance Commander. Patrol leaders must learn proper patrol formations and patrol technique. Errors commonly noted in combat were many. Patrol leaders up with the point—"to see what was going on!" No getaway man! No point! Nobody in the patrol knows its mission except the leader! Put these together and get the story of the patrol that goes out, gets hit, and wanders back in as individuals three or four hours later with garbled stories of what happened and no information as to where, how many, or where the rest of the patrol went.

Some unit commander figured during training that the manual on "Scouting and Patrolling" looked like "kindergarten stuff." The same unit commander now begins to think about such things as *double points* (the Japs use that formation), assembly points along the route, two getaway men, a man in the rear to drop

A scouting party of American soldiers come to a sudden stop as the bushes ahead begin to move.

European



back every few minutes to listen for noises of a tracking enemy, and above all, experienced noncoms as leaders and second-in-commands of small patrols, and steady officers as leaders of larger patrols.

Natural Reconnaissance Scouts. It soon becomes apparent in every unit that a certain group of men become well versed in the ways of the jungle and the wiles of the Jap. These are generally men who have grown up in country surroundings, used to hardships, clever in woodcraft. When these individuals show up, an attempt should be made to segregate them, to organize them if possible, into a group that may be used for more difficult patrol missions. As individual "scouts" or in groups as patrols, these men soon prove themselves invaluable. On the difficult "pure reconnaissance" patrols these men will be the only ones capable of slipping through the enemy positions without detection and gaining the information desired. They soon develop a pride in their ability as compared with their fellow soldiers, and the commander who is clever enough to spot and organize such a group can, by their correct employment, raise considerably the patrolling standards of his entire command.

USE OF WEAPONS

"We've got to change a lot of our ideas on how to use our weapons in this type of thing. And don't forget mortars!"

Many of our principles of employment of weapons become worthless when combat in the jungle is undertaken. At the same time, other principles assume an even greater importance. A few of both kinds will be discussed:

Field of Fire. Because of heavy undergrowth, the possibility of obtaining a field of fire optimum to the specific weapon employed is more often than not impossible. Along jungle trails, it may be considered fortunate if a range of 50 yards can be obtained. On the other hand, over open ridges often found in jungle country, or along streams in their upper reaches where they have a straight-a-way run of some distance, fields of fire may be employed properly. In the depths of the jungle, however, the greatest consideration must be placed on the lack of proper ranges, and the fire lines and automatic gun positions must be taken in the most advantageous spot.

The Japanese overcome this lack of proper ranges in many cases by spotting even heavy machine guns in the high branches of jungle trees or in the top of coconut trees in palm groves. By so doing, concealment is enhanced as well.

When the opportunity offers, we should avail ourselves of this Japanese example and emulate it.

Note: Closely allied to fields of fire is the subject of *ambushes and their employment*, as fields of fire, or the lack of them play an important part in their set-up. (See page 6.)

With the lack of proper ranges, it is seldom that sights other than the battle sight are ever employed. An exception to this is the *sniper*. (See page 5.)

Cover and Concealment. Concealment in the jungle is easy to obtain, while cover is often difficult. So few gun positions are available in the limited open terrain that cover must often be sacrificed. Prolific vegetation, however, enables concealment with ease. Care must be taken to make use of natural growth as cut vegetation withers rapidly in the heat. Artificial forms of camouflage are to be avoided if possible, as any disturbance of, or variation from, nature's rich growth stands out like a beacon.

Many jungle islands are coral formed, and often good cover for positions may be found in the rough coral ridges. This same coral, however, makes entrenched gun positions not only difficult, but in most cases, impossible.

Effective Combat Ranges of Weapons. It must be realized that in the jungle, most combat is undertaken at extremely close ranges. Practically all targets are those of opportunity only.

Extensive preparation for so-called "snap shooting" should be employed in the jungle training program. Extreme handiness with weapons is desired. Riflemen are often required to rely upon even "hip shooting," while crews of automatic weapons must be proficient to the *nth* degree in manipulation. Setting-up of jungle target courses in the training program is very desirable.*

Automatic Weapons in Defense. The employment of automatic weapons in defense is not only normal in the jungle, but it is practically the only way in which they can be employed. Machine guns, both light and heavy, should be left on defensive lines; while the attack should be made with the lighter BAR's supporting the riflemen. Attempting to carry the heavier automatic weapons in a humid, hot jungle in an active offensive must be considered impossible. However, when correctly deployed and emplaced on a defensive line in the jungle, automatic weapons prove their worth.

Employment of Mortars. One of the most effective jungle weapons is the mortar. The 81mm may be used both on the defensive and in preparation for an offensive. The 60mm may be used similarly but is furthermore light enough to follow along behind an offensive line. A serious drawback to the employment of this weapon is observation and the resultant sensing.

In the jungle training program, emphasis must be placed on sensing through *sound* rather than visual observation. Range determination likewise must be dependent upon the individual's ears rather than eyes. None-the-less, mortars should be employed to the maximum. Enemy prisoners are strong in their statements concerning the effectiveness of mortar fire. On coral islands, or any formations where steep ravines and high ridges are encountered, mortar fire is more often than not the only means of placing HE on the enemy. Even in level spaces, mortar bursting on contact with upper foliage is heavily destructive over a large area. Mortars must never be underestimated in our jungle combat.

CARE AND CLEANING OF WEAPONS

"Weapons go to pot in no time! Get hold of Jap oil, and use a rag often!"

Heat, humidity, perspiration, and dirt all wreak havoc on weapons in the jungle unless particular care is taken.

Daily Cleaning. It is vitally essential that all weapons be stripped, parts wiped with an oily rag, and fresh oil applied daily. This daily cleaning, which always has been recommended in texts, must become absolutely indoctrinated in troops as a veritable ritual during the time they are in the jungle. It is the *only* way in which weapons in the jungle can be kept in top operating condition at all times.

Oil to Prevent Rust. An oily rag, which when not in use may be wrapped around the stock of a rifle or the grip of a machine gun, should be used for the frequent wiping off of all exposed metal surfaces. Such surfaces may rust in as short a time as six hours if not so protected.

Japanese Gun Oil. It is unfortunate that the type of gun oil now issued U. S. troops is apparently not possessed of sufficient body or viscosity to adhere for any time to metal surfaces under the climatic conditions of and the use put to weapons in the jungle. Japanese gun oil appears far more satisfactory in this respect. It has the consistency of heavy syrup, yet spreads in a thin durable film over the metal without the stickiness that collects dirt and dust. Upon taking Japanese positions, it is worth while to locate and retain for use, all Jap oil found in the flask-type containers attached to rifle belts or in the square brass containers found in automatic gun positions.

Inserted in the front handguard along the barrel of Jap rifles, is a cleaning rod, which will be found to be an excellent supplement in any of our units where only one or two cleaning rods have been issued per squad.

"When correctly deployed and placed on a defensive line in the jungle, automatic weapons prove their worth."



European

*See article "Quick on the Trigger" in this issue.

"Debunk Jap snipers. And we can work this sniper business two ways."

In combat operations, both offensive and defensive, the use of snipers by Japanese forces is well known. The term "sniper" is, when applied to the Japanese, perhaps misleading. The average Jap sniper is a mere rifleman who has obtained for himself an advantageous position such as a tree-top from which to fire at his enemy. The true Jap sniper, skillfully camouflaged, supplied with concentrated rations and especially armed, accounts for but a small amount of what we presently term "sniper fire."

Value of Snipers. The value of sniper fire has been illustrated in combat. Snipers present a constant problem in both front line and rear areas. During combat operations on Guadalcanal, it was often necessary to employ a patrol with the sole mission of eliminating Jap snipers who had gained positions by infiltration through our lines. There is nothing more disconcerting than to have a battalion, or even a regimental command post, line of supply, or communications, subjected to sporadic fire from a source unknown. Although, in most cases, this fire is extremely inaccurate and causes few casualties, the psychological factor involved is important.

Defense Against Jap Sniper Fire. It has been found that along jungle trails, Jap snipers will seldom fire at parties larger than three or more, because of the fear of detection of their location by the remainder of the group. It has similarly been found that when groups of two or three are searching for snipers by maintaining careful watch or by active patrolling, a similar fear of detection will withhold the sniper's fire. From these two things, we may gain our passive defense lessons. First, individuals or even pairs should never travel along in rear areas where sniper fire may be encountered. Second, an outpost surrounding a headquarters or unit area (even if consisting of but two or three men who give the appearance of and actually do keep a sharp lookout in the direction from which sniper fire is likely to be encountered) will do much towards its prevention.

Both the active defense and the two methods of passive defense will go a long way towards keeping sniper fire at a minimum.

Employment of Sniper Fire By Our Own Troops. The employment of specially armed and equipped riflemen for true "sniper" missions should be adopted when possible.

Weapons for the Sniper. There are two types of weapons that are the most satisfactory for the sniper. The first of these is the Swift or Hornet high-powered .22 caliber with a telescopic sight. This weapon is light but has a high muzzle velocity and is effective at from medium to long range. The model 1903 Springfield, equipped with a telescopic sight, is the other weapon that may be used. Its capabilities are well known and



"The employment of specially armed and equipped riflemen for true sniper missions should be adopted when possible."

need not be enumerated here. The addition of the telescopic sight enhances its value.

Equipment for the Sniper. The issue "jungle suit" is highly satisfactory, provided the boots and helmet are lightly smeared with yellow paint. The pack, as well, should be streaked with yellow, as all of these items are a green with very high blue content, while jungle vegetation has a heavy yellow tinge. Similarly, metallic surfaces should be daubed to prevent reflection where such daubing does not interfere with the operation of the piece.

A good machete, at least two canteens of water and some emergency ration, type D or K, should be carried. Once in place, the sniper should remain as long as his fire is effective. In some cases, this may be from 24 to 36 hours. A small can of oil, a few patches and a draw string will serve to keep the weapon in top operating condition. A pair of climbing irons may be carried, but careless or too frequent use of them should be avoided, as the marks they leave may reveal a sniper's position.

Location of the Sniper. As the mission of the sniper is as much to provide harassing fire as it is the destruction of the enemy, locations should be chosen where fire upon several different targets may be employed. The most advantageous position is often found in high jungle trees, where fire may be brought upon the enemy's rear installations. High terrain overlooking the enemy may also be used. (Warning to the sniper: Never forget to rectify your aim when you are on a level higher than that of your target.)

In order to avoid detection, the position chosen must be entered carefully. A thorough visual reconnaissance of the exact route to be taken, and of any difficulties to be encountered in assuming the position, should be made during the late afternoon; and the position entered early the following morning in the dim light of

the false dawn that precedes sunrise. Once the position is gained, all precautions must be taken to prevent subsequent exposure. The position should be left only at night in order to avoid detection.

Concealment. Concealment must employ the use of natural growing vegetation, as in the jungle, any cut vegetation withers rapidly. Exceptions to this are the fronds of various species of palm. These maintain their freshness in most cases for two or three days. It would not be wise, however, to use palm for concealment in trees whose natural vegetation is at great variation to the shape and color of the palm.

An attempt must be made to blend the form of the body to the vegetation, for not even the jungle suit eliminates the ever dangerous silhouette. When assuming the position, care must be taken not to reveal by broken or scarred vegetation, the course taken or the tree or spot in which the position has been assumed.

Targets. In targets, we may benefit from the Japanese themselves. Destruction of the enemy may be accomplished by firing at individuals by themselves or groups of two or three. Harassing fire may be employed in larger groups providing they appear sufficiently occupied to be unable to determine from what direction the fire has come. Common sense must be used in determining targets. The prevention of exposure or detection by the enemy is the sole criterion.

"Back-Azimuth." One method that has worked in the detection of snipers on several specific occasions is worth noting here. When a member of a patrol is struck by sniper fire, careful determination of the position and attitude of the victim when he was struck and a back azimuth taken along the direction of the wound, may more often than not expose the approximate area from which the shot was fired. A careful search of this estimated area will often lead to the discovery of the sniper.

AMBUSHES

"A good ambush needed here. Ambushes are OK—if you don't get your tail caught in your own trap!"

In the jungle, where concealment is so easily obtained and where movement is so closely restricted, ambushes may be employed easily and with good effect in either defensive or offensive operations. A correctly organized ambush must take several factors into consideration: location, concealment, depth, field of fire, and route of withdrawal may be mentioned.

Location. Unless the enemy comes freely into the ambush where he may be trapped, the most carefully organized and set up ambush may be worthless. Therefore, reconnaissance of enemy trails, supply routes, etc., must be carried out carefully in order to determine the place where the ambush may be employed most successfully.

Suggested ambush locations are twisting trails, water points or "water holes," enemy defensive positions occupied only when the area defended is threatened (a favorite Jap tactic), supply routes used by carriers,

and jungle stream trails. In any one of these locations it is often possible to ambush large enemy parties, patrols, or supply carriers. Consideration of location must be combined with the other factors listed above and discussed below.

Concealment. Concealment is highly necessary in ambush operations as any suspicious appearance will foil all ambush attempts. Movement, once the enemy becomes visible, is a dead give-away, as you may be sure he will be keeping careful observation at all times.

The use of supporting riflemen concealed in trees must not be revealed by the scratching of bark or breaking of surrounding vines when the riflemen assume their position. Cigarette butts, paper scraps, ration tins, footprints, and bruised or broken vegetation are positive indications to keen enemy eyes that all is not well.

The use of one or two native guides to assist in the concealment and to remove all traces after the occupation of the position is desirable when possible, as they have great natural ability along this line.

The glint of metal surfaces is often a sure give-away of otherwise perfectly concealed positions. The use of lusterless paint on bright metal, when not impeding the function of the weapon, overcomes this problem. The use of green paints with high yellow content should be used for daubing of weapons, clothing, and equipment. Green paint in which the blue content is high must be avoided, as it is an unnatural jungle color.

Depth. By depth of ambush is meant the distance which the enemy may penetrate into the position before his leading element passes out of the line of fire. This depth depends upon the size of the enemy party that is to be trapped. When the enemy is fully in the position, there must be fire both in front and behind him to prevent his escape from either direction. The depth will depend, as well, upon the location of the ambush and its type.

It must be remembered that the principle of ambush is the annihilation of the entire enemy group, and depth must be governed accordingly.

Field of Fire. It is seldom possible to so place weapons in an ambush as to make use of the optimum field of fire for each. No attempt should be made to place weapons in such a way as to maintain the so-called correct range. Instead, the weapon should be brought closely into the ambush in order to bring point-blank fire to bear on the enemy if possible. It is certain that the bullet is just as effective, and the attendant roar of weapons adds to the confusion of the enemy who more often than not gives up the idea of escape as a result.

Route of Withdrawal. A successful ambush is sure to cause an attempted enemy reprisal—especially, if one or more of the party escapes and can give accurate location of the ambush. Consideration, therefore, must be given to the easiest and swiftest means of withdrawal directly after the operation, or a return ambush by the



Acme

The Guadalcanal natives are eager to help U. S. troops. Here is one serving as a guide, while others assist with supplies.

enemy may result. This is of even greater importance if the ambush is behind enemy forward lines or in an enemy area, as it often is. If possible, two or three routes of withdrawal (none of which is the route of entry) should be reconnoitered carefully prior to going into position. Care must be taken in conducting this reconnaissance, as the enemy may well back-track and ambush your very route of withdrawal. Here again, native scouts or guides should be used to cover tracks and search for the best routes.

Assembly Point. Even the most careful preparation and planning of an ambush operation may be frustrated by an active and clever enemy; and, as often occurs in jungle combat, the tables may be turned with startling suddenness. When this takes place, groups or even individuals may find themselves cut off and forced to retire. If care has been taken to designate an assembly point, with the positive assurance that all know its exact location, a reorganization may be effected quickly enough to insure rapid aid to those caught behind, or even another turning of the tables that will result in the destruction of the enemy.

Protection Against Ambushes. The Japs are active in back-tracking enemy patrol routes through the jungle and often place ambushes pending the patrol's return. In light of this, it is mandatory that tracks be concealed, insofar as possible, by eliminating unnecessary footsteps, prohibiting smoking or reentry into our lines by a different trail.

The use of native scouts as points for patrols along trails where ambushes may be anticipated, more often

than not, will disclose such ambushes (through the scout's inherent keen eyesight) in time to prevent the patrols from falling into the trap. The use of native scouts in patrol operations, when they are available, cannot be too strongly stressed.

PATIENCE

"Patience is not only a virtue—it's the mother of all virtues in this kind of job!"

Not much can be said on *how* to inculcate patience in troops operating in the jungle. Much, however, can be said on *why*. A lot has been heard about the ability of the Jap to remain motionless in one spot for long periods of time while waiting for a suitable target to appear. The soldier, fighting in the jungle, must also develop that same ability.

"Haste leads to waste" of life in jungle fighting. The patrol that crashes its way along, intent on making speed is just hurrying into trouble. The noise alone is bad enough. The patrol that moves slowly but steadily, advancing with stealth, with eyes probing each foot of ground covered, ready in an instant to fade into the bush or to take decisive action if the occasion arises—that is the patrol that will gain the most information or do the most damage. The man in the ambush group that must peek around the bush to see how far the enemy has entered the trap—that is the man who gives everything away and causes the death or injury of some of his companions. A good hunter must have patience, and in jungle combat the soldier is a "hunter" in the strictest sense of the word.

ARMORED TACTICS IN NOR

TANK WARFARE in the Western Desert, extending from the Nile Delta in Egypt across Libya to Tripoli, has passed through three phases. During these phases, the tactics employed by the British Army have been modified as the tactics and equipment of the enemy have changed or developed.

FIRST PHASE—TANKS AGAINST INFANTRY DECEMBER, 1940-MARCH, 1941

When General Wavell attacked Marshal Graziani and his Italian Army on December 9, 1940, he had a handful of out-of-date British Cruiser tanks, and a new infantry tank called the Matilda, which was a slow, heavily armored vehicle that carried a two-pounder gun. The Italian tanks, judged by modern standards, were poorly equipped and badly manned. The new British Matilda was really the deciding factor in the campaign, for the Italians had no first class antitank guns to bring against it, and no good tanks; and in the part of the desert where the fighting took place, tanks were absolutely vital.

The great flat spaces of the Western Desert give plenty of room for enterprise in maneuver. There is no position that cannot be outflanked by tanks. The British heavy armor over-ran the Italian fortified lines, while their lighter units, operating around the desert flank, were able to get to the "soft-skinned" vehicles and burst in among the transport convoys like wolves among a flock of sheep.

The climax of Wavell's campaign came when the 1st Battalion of the Royal Tank Regiment, with detachments of the 7th Armored Division, cut across the

During the "First Phase" on the Western Desert, British guards move up protected by a smoke screen and Matilda tanks. The Matilda was an infantry tank mounting a 40mm gun.



desert from Makili to Beda Fomm, a distance of nearly 150 miles, and intercepted the head of the Italian column retreating southwards from Bengasi.

By this time, the long distances and bad going had reduced the number of tanks available, and the battalion's armor consisted of only 8 Cruisers, and a few lighter tanks.

The enemy started the battle 20,000 strong, with 2,000 lorries and 148 tanks. Part of the British battalion, with the 8 tanks, took on the 40 tanks that formed the Italian vanguard, and by nightfall had disposed of every one of them without loss to themselves. This success seemed to paralyze the enemy, and it was not until the next morning that he pulled himself together sufficiently to come forward again. The British force, by this time, had been reduced by the mechanical failure of 2 tanks, but the remaining 6 tanks confidently set about the Italians, and after an hour's fight drove them from the field.

Soon after this, British reinforcements arrived, and the whole Italian column was compelled to surrender. This marked the end of the first phase in the development of British tank tactics, which may be described roughly as "tanks against infantry," for the inferior quality of the Italian tanks had rendered them almost negligible. But the campaign was not over.

SUPERIOR GERMAN FIRE POWER DOMINATES BRITISH ARMOR

German assistance for the Italians was pouring into Tripoli, and in March 1941, Rommel and his *Afrika Korps*, which included 2 panzer divisions armed with Mark III and Mark IV tanks, were in the field.

These tanks were far superior to any that the British had produced up to that time. The Mark III mounted a 50mm gun and the Mark IV a 75mm gun. Both of these guns were effective up to a range of 1,500 yards, and these well armed tanks were supported by a gun, which for a time seemed likely to prove a decisive factor in the desert. This was the German 88mm, dual-purpose gun that now appeared in Libya for the first time.

In the face of this new development, the British, with wornout armor and at the end of a long line of communication, were forced to withdraw. They were vigorously pursued, but managed to reestablish a defensive line just inside the Egyptian frontier. This left the closely invested port of Tobruk in a precarious position, 90 miles behind the enemy lines.

For the next five or six months, during the heat of the Egyptian summer, nothing spectacular occurred. Both

TH AFRICA

by Major C. B. Ormerod
Royal Artillery, Retired

General Sir Bernard L. Montgomery, Commander of the British Eighth Army during its successful "Third Phase" has chased Rommel across 1700 miles of the Western Desert.



A column of U.S. General Stuarts (M-3), mounting 37mm guns, advances during the "Second Phase."

sides made extensive preparations for a renewal of the battle, and Tobruk still held out firmly, but at a not inconsiderable cost.

SECOND PHASE — TANKS AGAINST TANKS NOVEMBER 18, 1941-DECEMBER 25, 1941

The next phase opened at dawn on November 18, 1941, when General Sir Claude Auchinleck, who had replaced Sir Archibald Wavell as the British commander in the Middle East, attacked in force.

Before the attack opened, the enemy force in Cyrenaica is believed to have comprised the German *Afrika Korps* (the 15th and 21st Armored Divisions, and the Italian 55th *Savona Infantry*), located roughly in the area Bardia—Sollum—Sidi Omar; the Italian 21st Corps (3 infantry divisions) with a stiffening of German infantry, located in and around Tobruk; the Italian 10th

Corps (the *Ariete* Armored Division and 2 motor divisions) in reserve in the area of El Adem—El Gobi—Bir Hacheim, to the south of Tobruk. In all, it was estimated that the Axis had 387 tanks, apart from old models and very light tanks.

The Axis air forces in Cyrenaica were believed to amount to 150 German and 200 Italian aircraft, to which must be added about 100 aircraft in Tripolitania, and 200 in Greece and the Aegean that might be called on to intervene in the fighting.

Details of the composition of Auchinleck's force are not available, but it is assumed that the strengths of the opposing armies were about equal, though the British seem to have had a slight superiority in the air.

The British also had some new weapons. Large numbers of U. S. Stuart tanks had arrived, and in addition to the original Matildas, there were Valentines

side had any permanent or definite advantage of terrain. Territorial gains, save for reasons of immediate military strategy, were unimportant, and the commanders of the opposing armies had one object only: to batter out of existence the armored forces of the enemy.

The massed forces approached each other like two fleets at sea, with their attendant escorts of armored cars and with supply and repair vehicles in close attendance. They closed, fought, broke away, and went into *laager* for the night, often in sight of each other.

Every advantage was taken of folds of the ground, dust clouds, smoke screens, and of the rising and setting sun. The lighter British tanks, fighting often on the move, tried to close the range; while the heavier Axis vehicles backed slowly away or maneuvered to a flank in an effort to maintain the distance which gave the advantage to their longer range guns.

The enemy killed and wounded in the first part of this campaign were given by Mr. Churchill as 24,500, but this figure included the infantry casualties in the fighting around Halfaya Pass and Bardia. Prisoners numbered 36,000, while British losses were put at 18,000. But the campaign was not yet over.



1. October 23-November 4. General Montgomery coordinates aerial and artillery barrage with infantry and tanks to crack Rommel's El Alamein line in 12 days.
2. November 4-November 21. Rommel runs, abandons Italian troops. Montgomery follows him 700 miles nonstop into Agedabia, wiping out all rearguard stands.
3. November 21-December 12. First lull. Montgomery halts Eighth Army to regroup, bring up heavy guns and armor against expected Axis stand at El Agheila.
4. December 12-January 2. Montgomery strikes, cracks Rommel's surprisingly light defenses. Desert Fox flees, to Misserata. Huntsman Montgomery hounds his trail.
5. January 2-January 16. Second lull while Montgomery hurries his big guns to the new front before Wadi Zem-Zem, where Rommel seems to be ready to fight.
6. January 16-January 25. Rommel chooses to run for cover behind the Mareth Line in Tunisia. General LeClerc's Fighting French column joins the British Eighth Army.
7. January 25-March 18. Third lull. Montgomery rests his army before Mareth Line while weather, French politics clear. Yanks and First Army push deep into Tunisia.
8. March 18-May 8. The final push. Eighth Army flanks and cracks Mareth Line. Anderson, Patton and Montgomery join forces for the big squeeze.
9. May 12-. Final surrender of Axis troops in North Africa.



Churchill tanks, fitted with 6 pounder guns, were another surprise for Rommel during "Third Phase" in North Africa. Here are some of them moving forward to the battle area.

LOSS OF TANKS PRECEDES WITHDRAWAL TO EL ALAMEIN

The British, in preparation for a further advance towards Tripoli, had established large forward dumps at points southeast of Bengasi. Before the British were able to prepare an adequate defense in this region, however, Rommel, who had been reinforced with both men and tanks, struck again in March 1942. By this surprise move, he captured or destroyed all supply dumps, retook Bengasi, and drove the British back to the line El Gazala—Bir Hacheim, where the position became stabilized for some months.

The British position was a strong one, about 45 miles long with one flank resting on the sea, and the other at Bir Hacheim in the waterless desert. It was protected by an extensive minefield, which played an important part in the battle that took place in this area in June of 1942.

Rommel attacked on May 26, 1942. He sent the bulk of his armor in a wide sweep around the desert flank and then had it turn northwards behind the British minefield. The force was to cut across the lines of communication, disorganize the rear areas, and possibly take Tobruk.

Again the fighting was very furious and costly, but it was now less a matter of tank against tank than a

case of tank against infantry and artillery. At one time, it seemed as if Rommel's armor would be pinned against the back of the British minefield and destroyed. But after nearly three weeks of bitter fighting, it was the British armor that was overthrown. The Eighth Army was forced to retreat, and Tobruk was captured.

It is impossible to say exactly how many British tanks were lost in this battle, but it was stated in the House of Commons on September 8, 1942, that the Eighth Army lost 200 tanks between the 12th and 18th of June. No army has yet been able to stand in the desert once its armor is gone. The infantry must retire, and the quicker the better. Once this point is appreciated, then the rout and retreat of every army in the desert—Italian, German or British—is explained.

With one exception, there is no defensive position in the Western Desert, because every position can be outflanked. The exception is the El Alamein line, which is unique because it is securely based on the sea at its northern end, and on the quick-sands and broken country of the Qattara Depression in the south. It was to this line that the British Eighth Army, with depleted and weary forces, retired from El Gazala, when their tanks were gone.

This may be regarded as the end of the second phase, where tanks had fought chiefly against tanks.



A Crusader, mounting a 6 pounder gun, and two U. S. General Sherman tanks (M-4) shown entering Mersa Matruh during the early part of the "Third Phase."

THIRD PHASE—ANTITANK GUNS SPEARHEAD ATTACK; ARMOR EXPLOITS, AUGUST, 1942-APRIL, 1943

When the third, and final, phase of the fighting began in August 1942, the British Eighth Army had been reëquipped, and, to a great extent, rearmed. The U. S. Sherman tanks with their 75mm guns were now a match in range and armor for the best tanks that Rommel could muster, while the British six-pounder antitank gun in the hands of the infantry, and also mounted on the new Crusader tanks, had reached the front in large numbers. It was no longer safe for tanks to try to over-run unbroken infantry.

The battles from this point onward show the infantry as the spearhead of the attack, with the armor, like cavalry, held back and waiting to exploit any success. The factors that led chiefly to this change were the employment of good antitank guns by the infantry, the increased use of landmines, and the power and accuracy of the field artillery.

Rommel does not seem to have realized these changed conditions when he attacked the El Alamein position with his armor on August 31, 1942. He ran into a heavy concentration of antitank and field artillery fire, and after being bombed all night and shelled all day for three days, he broke off the engagement and retired again behind his own minefields.

In this action, the Nazis had produced nothing new in the way of either equipment or tactics. It remained for the British Eighth Army, under its new leader, General Montgomery, to show how the new methods, which had been evolved, could break the deadlock that had apparently developed at El Alamein.

Artillery, engineers, and infantry fought their way

through the enemy minefield, which was very extensive and of extreme complexity. Rommel knew what was coming and expected that Montgomery would attack his center, which was the weakest part of his line. He divided his armor, therefore, and placed it behind both his northern and southern flanks, so that when the British armored spearhead came through, he planned to crush it by converging attacks. This decision proved to be his most costly error, for Montgomery, instead of attacking the weakest part of the line, sent his infantry against the strongest northern flank. When a breach had been made, the British armor poured through the gap and met and almost annihilated the Axis panzer divisions in a great tank battle at El Aqqair on November 2nd, when about 260 German and Italian tanks were destroyed.

But for a break in the weather, it is probable that not a single Nazi tank would have escaped. The pursuit was pressed without a pause, while the air forces kept up a continuous bombing attack on the retreating columns. Rain, however, rendered parts of the desert impassable, and the Nazi rearguards sowed minefields thickly along the roads as they retired.

The difficult terrain prevented the British from pursuing the Germans along lines parallel to their retreat. Rommel was able, therefore, to escape encirclement during his long 1,700 mile trek from El Alamein to northern Tunisia. But whenever he halted for any time, the British armor was always able to work around his desert flank and force him to continue his "withdrawal according to plan." Finally, with his back to the sea, eventual surrender is inevitable.

THE ROYAL ARMORED CORPS

The evolution of tank tactics from brute force to skilful maneuver and expert gunnery has been interesting. The British Royal Armored Corps has combined the old British cavalry regiments, now mechanized, with the Royal Tank Regiment. To these must be added the territorial cavalry regiments, or Yeomanry, which have also been mechanized (some as mobile artillery), and now form a part of the Royal Armored Corps.

The Royal Armored Corps is organized on a cavalry basis, into troops, squadrons and regiments. Various types of tanks, armored cars, and Bren-gun carriers, are included in each regiment. An essential part of the training is done with small, highly mobile columns, which, in addition to the tanks, include artillery, engineers, antiaircraft and antitank guns, and motorized infantry. Such columns have their own coöperating aircraft assigned to them. When operating independently, these small combined forces are always commanded by the senior officer of the armored units, even though some of the infantry, artillery or engineer officers may be of higher rank.

The open desert has developed its own type of tank warfare. It remains to be seen how far the strategy and the tactics evolved in Libya will apply in the more complex terrain of Europe.

Fighting French at Battle for Gabès*

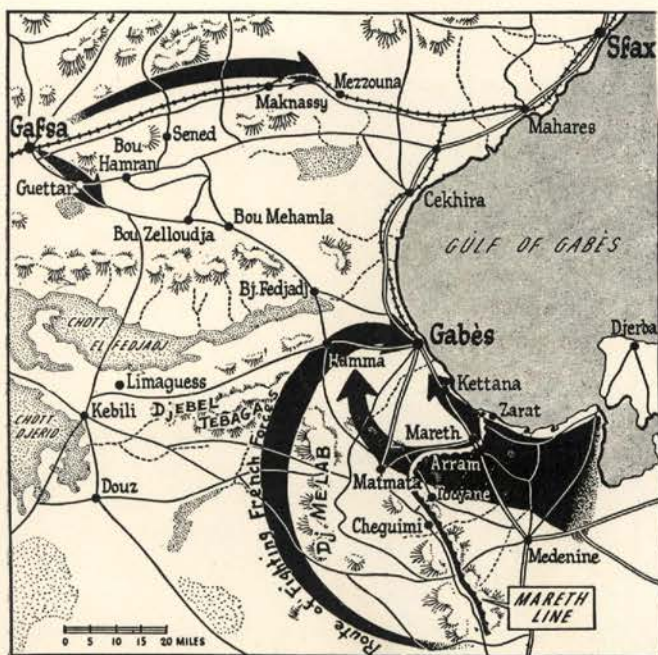
WHEN, at dawn on March 29th, the New Zealanders under General Freyberg started their successful drive in the valley from El Hamma to Gabès, the hilltops and the hillsides suddenly became alive. From their concealed positions, the Fighting Frenchmen under General Leclerc arose to take their part in the decisive battle of southern Tunisia.

In the valley three hundred yards below, two dozen heavy and middleweight tanks—Crusaders, Shermans and Grants—were moving forward in the midst of a sandstorm, which at times concealed the operation. Through the clouds of dust, one could see the flashes from the guns. Groups of Kittyhawks hedge-hopped over the enemy lines, and overhead, squadrons of Spitfires protected the battlefield from the intrusion of enemy fighters and bombers. The troops of General Leclerc were on the march, protecting the flank of the New Zealanders.

In the general plan of the operations (which were to lead to the victory of El Hamma), the objective given to the Fighting French troops was to dislodge all of the enemy posts and batteries from their positions on the hillcrests of Djebel Melab and Djebel Tebaga, from where they could stop the allied tanks progressing in the valley.

These desert troops, which had come from Chad and conquered Fezzan after long-distance treks, were now asked to progress across chains of mountains cut by deep ravines. There was no question of using trucks to carry

*By wireless from Tunisia to the Fighting French Delegation in Washington. Under General Leclerc, the Fighting French forces recently came up from Chad and are now in operations with the British Eighth Army.



Trap for Rommel: Arrows indicate converging Allied attacks in Tunisia.

field pieces; every one of them had to be placed in position by manpower.

Along this ancient invasion route, the Axis defenses were fastened to a wall dating from the days of the Romans. Their positions seemed almost invulnerable; but after a furious three-day assault by the volunteers of General Leclerc, the Italians gave up and it was surprising to find that among the prisoners were men of the same units that had previously been routed at Ugh El Kebir and at Um El Araneb. The French artillery concentrated its fire in the valley on German tanks trying to impede the New Zealanders' attack. At night, Junkers 88's repeatedly attacked the French positions, and three planes were brought down by anti-aircraft units.

The next morning, Axis troops made a desperate effort to reoccupy their former positions, and Rommel sent forward Italians and some of his best German shock troops for this purpose. After a violent artillery preparation, they made the assault, and soon the fight became a hand-to-hand combat. From all the French outposts, men could be seen counterattacking with grenades or throwing back the enemy with bayonets into the ravines below.

Many enemy dead were left on the ground. All the prisoners taken were young men of twenty, already veterans in this war. They had come from Russia, where they took part in the winter campaign, and had arrived in North Africa only a few weeks before. All of them were surprised to discover that they were captured by Frenchmen. One of them summed up their surprise in these words: "Ever since 1940 we have kept French prisoners in Germany thinking that we had liquidated France. And today, two and a half years afterwards, we in turn are made prisoners by Frenchmen. This war will never end."

Later, the Fighting French motorized units of General Leclerc paraded through Gabès side by side with the victorious troops of General Freyberg.

At Gabès a group of Frenchmen received General Leclerc, and several officers from his unit. On the floor of the room, whose windows were without glass and whose ceiling was cracked, mimosa flowers made a Cross of Lorraine; the same symbol had been embroidered in red on the flag of the Veterans' Association of Gabès, carefully concealed and kept since 1940 and today flying once more.

The Mayor of the township welcomed the General: "Perhaps we have suffered less than you," he said, "but we offered our sacrifice in the same spirit as yours."

In his reply General Leclerc emphasized the joy felt by the Fighting French Forces when they entered Tunisian territory. "From Chad and French Equatorial Africa," he said, "we counted the steps. First, North Africa, then France as far as Strasbourg; when we reached here, we felt that we had taken the first step."



"Foxhole" in Tunisia. These three men from a tank destroyer take cover in the bank of a hill while waiting for action at El Guettar Valley. When the order is given they will dash out to their machine for a crack at enemy tanks.

U. S. Soldiers Help Sweep

With the bare brown hills of Tunisia serving as a somber backdrop, American medium tanks move up to the front in El Guettar Valley. Fighting for Bir Marbott Pass, the Americans forced the Nazis into rapid retreat up the road toward Gabes.

Acme.





"Sweating out" enemy snipers, a patrol of U. S. soldiers advances cautiously through the streets of Maknassy. The 19 men took the town, from which the enemy had fled. Aeme.

the Axis from Tunisia

An American sapper is shown holding an Axis mine, which he has just dug from the sand near Gafsa. It was necessary to draw these Axis "fangs" to permit the advance of U. S. forces.





This German Mercedes-Benz half-track troop carrier and prime mover was captured by British soldiers of the Eighth Army.

Acme.

A U.S. star has been painted on this captured German tank destroyer and it is now being used against the enemy. This fast armored vehicle is equipped with a 75mm gun from the Mark IV tank and has dual controls for operation forwards or backwards. The tank was taken in a battle with the 10th Panzer Division in Central Tunisia.

Captured German Matériel



Acme

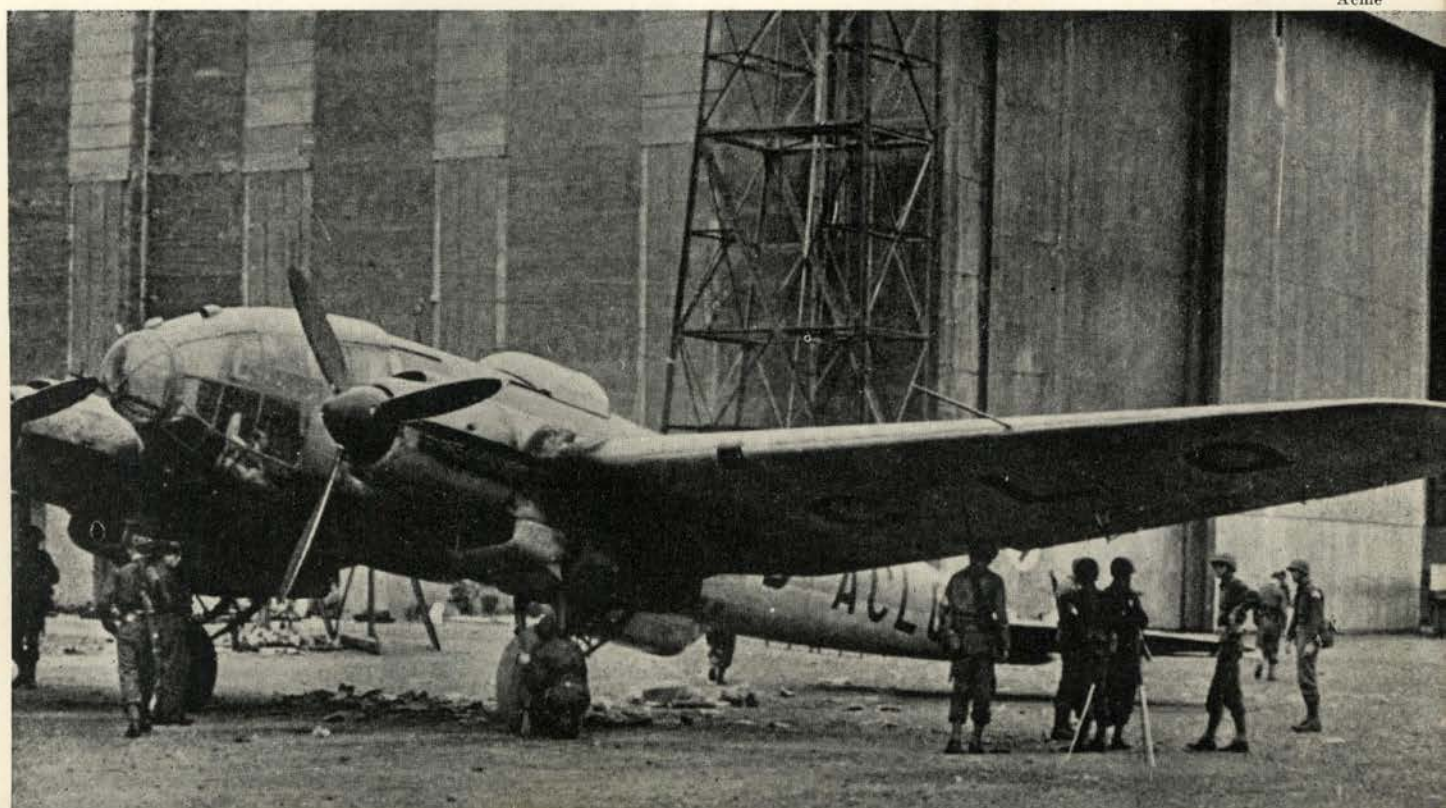


European.

This German 88mm (FLAK 18/36), shown in ambush, can also fire from wheels. In the above picture, the front wheels, placed in gap in revetment, are ready to be run towards gun and hitched on. The tripod-like travelling lock in place indicates that the gun was preparing to run. White rings on barrel represent number of planes and tanks knocked out. Soldier in foreground is examining gun shield. Ammunition is stored to right. Beneath the empty gun cases can be seen the remnants of tarpaulin and net used for camouflage. Sand bags on the tarpaulin served both to hold down the sand and to keep the tarpaulin from blowing away when the gun fired over it.

This German He 111K night bomber, captured intact, is being examined by American soldiers. No explanation is given for the lettering. "D (Deutschland)—ACLO" represents a commercial license. Machine gun is fitted in nose, and beneath the right propeller blade can be seen the "blindings" for black-out flying.

Acme





Acme.

Fuselages of damaged Italian monoplane fighters were left in this Eucalyptus grove near Tripoli. Wings and motors had been removed, probably for use in other planes.



Photograph at left shows two American sergeants examining an Italian gun captured during the successful American counterattack at Kasserine Pass in Tunisia, February 22nd-23rd. It is a 20mm AA-AT gun.

Acme.



This Italian 105mm field howitzer with its tractor was captured by rapidly advancing American troops in Tunisia. The tractor wheels are equipped with grousers that roll out for use in deep mud or sand. In background (behind gun) is the U. S. armored car that made the capture.

Captured Italian Matériel



This Italian tank, captured by Yanks at Kasserine Pass, is a 13-ton, 1940 model (M 13/40) and mounts a 47mm gun in turret.

CARDED

Trained Guerilla Troops

Behind the Enemy Lines



*by Captain Douglas M. Smith,
French Foreign Legion*

Between Jalo and Bengasi—450 miles behind the enemy lines.

GUERILLA WARFARE by trained troops is a highly specialized military function of modern total war. It is not to be confused with civilian bands or rebel groups of guerillas who operate without authority from the main armed forces. It is, rather, a phase in *trained armed warfare* that concentrates on destruction of enemy personnel and equipment in the enemy's own territory.

Small guerilla units, made up of specially selected men from various branches of the army, can and have performed missions behind the enemy lines that are of inestimable value. Operating with daring, precision, and coördination, these units have destroyed great quantities of matériel—men, guns, tanks, and grounded planes.

ACTIVITIES IN LIBYA

In Libya in 1942, a guerilla unit, made up of highly trained British and Fighting French volunteers who operated under the command of the British Headquarters Staff, executed many daring missions behind the enemy lines. They continually penetrated enemy positions, harassed supply routes and destroyed airdromes, munition dumps, gasoline stores, railroad tracks, depots, and communications.

One of the most valuable accomplishments of the



Captain Smith stands at the head of a line of jeeps just before they reached an oasis on the Libyan desert.

guerillas in Libya was the destruction of planes and airdromes. The usual method of attacking an airdrome was for the men to leave their cars and go on foot up to the airdrome at night. When possible, they passed the sentries without detection and put their bombs on the planes, then left the airdrome, and got sufficiently far away to pick up their cars before the bombs went off. Of course, this was not always possible, and many times, sentries had to be killed in hand-to-hand fighting

or else by a sudden attack with a knife. If the guerillas were detected, a part of the group would hold off the attacking enemy forces, while the rest of the men continued to destroy the airplanes. In a case of this kind, they used the 32-second fuses rather than the long time fuses.

Although the Germans made every effort to protect their planes against such attacks, approximately 300 enemy planes were destroyed by this guerilla unit during a single 12-month span. For the same period, there was only one foray recorded when the men were not able to reach and destroy at least 50 percent of the planes.

Guerillas were also trained to dispose of transport columns at night by driving along side them and firing from machine guns with incendiary shells, which not only killed the personnel, but set the trucks on fire.

Most of this guerilla activity was conducted at night so that *efficient night firing* of machine guns and small arms was very important.

Guerilla units in Libya sometimes worked from three to six weeks in enemy territory, and on one occasion penetrated as far as 700 miles behind the lines. During this particular operation, which took place in August and September of 1942, they travelled across the Libyan desert for a total of 1976 miles and worked in and around the German patrols until they reached Bengasi.

This trip was executed by approximately 250 men in 52 jeeps and 42 three-ton trucks, which had to be dug out of the sand anywhere from three to eight times a day. Some days the group covered as much as 100 miles in 16 hours; other days, only 16 miles. The rate of speed depended largely on the terrain and the amount of extremely soft sand encountered. In many places, the terrain was so difficult (either soft sand or rocky, hilly country) that, except for the discipline and training of the men, the hardship of keeping the vehicles rolling would have made it impossible to continue.

On such forays, there were always two or three pre-arranged places to meet, and if the vehicles were destroyed, the men were to make their way to one of these meeting places on foot by compass.

En route to Bengasi, a base rendezvous was established in an area affording the best protection possible. There were no buildings and no trees, but a certain amount of scrub and some low bushes helped to camouflage excess equipment and the few men left on guard. From this rendezvous, the line of jeeps and trucks moved out under cover of darkness on the last phase of their mission.

Before reaching Bengasi, the raiding party spotted a small Italian outpost fort. Three officers and six men of the guerillas were dispatched in three jeeps to dispose of this group. They made their way to the base of the hill on which the enemy outpost was located and worked up with the jeeps for as far as possible. While

THE AUTHOR

Captain Smith, a specialist in trained guerilla warfare, has recently rendered valuable service with guerilla units in Libya under the command of the British Headquarters Staff. Although serving with the French Foreign Legion, he is an American citizen, descended from a long line of fighting Americans. His forebears participated in the French and Indian Wars in 1758, the American Revolution, and the Civil War.

After graduating from Lawrenceville Preparatory School in New Jersey, he attended the University of Pennsylvania until 1916, when he left to join the Allied cause in France. There, he was graduated from L'Ecole Militaire d'Artilerie at Fontainbleau and served during the First World War as a lieutenant of the French Foreign Legion, detached to the 25th Regiment d'Artilerie d'Campagne (75mm guns).

Following the war, Captain Smith returned to America where he remained until after the fall of France. In 1941 he rejoined the French Foreign Legion under the Fighting French, and was immediately detached for guerilla operations with the Djebel Druse tribes (Arabs) south of Damascus. Since 1942, still on detached service from the Legion, he has devoted all of his time to trained guerilla fighting with the British and Fighting French behind the German lines. For his services in Libya, he was recently awarded the Croix de Guerre with Palm.

their movements were carefully noted by the Italians on the hill, the men in the jeeps continued their activities with no apparent concern, and from time to time waved nonchalantly toward the enemy. In the deepening dusk, the impression given was one of friendliness.

As the guerillas neared the fort on foot, however, they separated and were soon fired upon. Returning the fire, they quickly drove the Italians behind their barricade and proceeded to attack. Then, using hand grenades to good advantage, they stormed the fortification and killed eight of the eleven occupants. After taking what papers and documents were available, they demolished the outpost and took the three remaining men as prisoners. The guerillas then withdrew and made their way back to the rendezvous. Two of the officers, seriously wounded in this operation, had to be left behind, but the main guerilla party continued toward Bengasi.

The Bengasi raid was to have been made in conjunction with attacks by two other guerilla units on Jalo and Tobruk. Had the Germans not had previous information regarding the coordinated attacks, it would have been possible to have captured these three main



Captain Smith and his jeep loaded for the trip to Bengasi. Machine guns, heavily wrapped to protect them against dust, are packed just above the camouflage net.

German garrisons forming the points of an isosceles triangle. In addition, a big portion of Rommel's reserves could have been encircled.

This was the longest operation that the Libyan guerillas ever made, and it proved that there was no limit to the time or distance of their forays, or the numbers involved.

After the fighting at Bengasi, about half of the party walked the entire distance back to the base rendezvous on foot. Some were fortunate enough to pick up transportation after the first 18 to 25 miles.

It must be borne in mind that all of the men were volunteers for this type of work and realized fully the conditions under which they were to fight. Of the wounded that were brought back, not one complained in the slightest, even though in most cases they had little or no morphine with which to deaden the pain.

PERSONNEL

Successful trained guerilla operations depend largely upon the leader and the selection and training of his men. While the leader cannot be with all of the groups, he can so plan the work that they can operate in and over a large territory, and come together or separate as conditions warrant. He must have an excellent knowledge of enemy military tactics; he must be able to use his men advantageously in any type of country; and above all, he must be a *leader* of men.

The next most important thing in this type of warfare is the selection of personnel. All of the men, as well as the officers, must be volunteers. They must be individualists—men who are accustomed to living and thinking for themselves and acting independently of the thoughts and ideas of others.

They must have initiative, daring, and the ability to suffer or inflict punishment with equal sanguineness. This does not mean the gangster type of hoodlum, but rather a person of determined courage who can act quickly and with self-confidence under the most adverse conditions.

In the training of the volunteer guerillas who operated so successfully in Libya, every effort was made to build up a tremendous degree of self-confidence and self-discipline. Consequently, disciplinary action was rarely necessary.

Even after the most careful process of selection, however, it is not always possible to pick perfect men for the arduous assignments necessary. In many cases, this does not become apparent until after a man has been on an actual operation. In Libya, the guerilla unit was the only one that had the privilege of returning officers or men to their original units without censure or explanation. In this way, men unsuited for this specialized type of work were constantly weeded out.

EQUIPMENT

The next important thing in a guerilla organization is the type of equipment that the men must have to fight successfully inside enemy territory. Equipment in Libya consisted of American jeeps and three-ton trucks. Each jeep had 4 mounted machine guns and, in addition to many thousands of rounds of cartridges, carried 16 drums loaded with ammunition. Each jeep also carried hand grenades, tanks for water and additional gasoline, and sleeping equipment for three men. Extra supplies of fuel and ammunition were carried in trucks.

One of the most important weapons for trained guerilla warfare is the Maxim silencer, which enables the men to take care of sentries without any noise and makes it possible at the same time for other groups to kill the personnel in barracks with a minimum of commotion.

As soon as a guerilla party returns from operations, all fighting equipment is turned in and specially trained personnel (other than the fighting group) attend to putting this equipment back into first-class condition.

TRAINING AND DISCIPLINE

Speaking in the broad sense, guerillas are trained in all types of demolition warfare, although expert engineers with the groups take care of and assist in the working out of any major demolition work that might be undertaken.

All men, of course, are trained in unarmed combat so that they are able to handle guards and sentries without resorting to their arms. They should also have a fundamental knowledge of navigation (by compass) and map reading; that is, they should be able to read a compass fairly well. Although trained navigators should accompany each group, even when operating in terrain other than the desert, compass reading is essential because of the night work.

A great difficulty in trained guerilla warfare is keep-

ing the men firing low, and this is particularly true during night operations. Much time and munitions were used, therefore, to make men efficient in firing machine guns and small arms at night.*

During the stay in camp, the men were permitted to draw ammunition at will to go out and continually practice firing, both small arms and machine guns. There was never a night that the guerillas were not out night-firing.

The next important thing in an organization of this kind is the discipline, which must be very strict and rigid in every detail, not only regarding military training but also the personal control of each man over himself.

Men should be taught to go for long periods without a great deal of food yet still keep in perfect fighting condition. During training, our guerillas were taken on long night marches on which they were not allowed to smoke or drink water for the entire 25-mile walk. They were also taken out in the heat of the sun and permitted to drink only twice during the same distance. These experiences not only developed self-discipline but considerably increased the confidence of the men in their own ability to go without water for long periods of time.

*See "Are Our Machine Gunners Really Experts?" on page 70.



Two jeeps and a truck of Captain Smith's party break camp the night before the Bengasi raid. Each jeep mounts four .30 caliber machine guns in pairs, which can be shot either simultaneously or individually. Note the two sets on jeep in foreground.

Supplies for guerilla units naturally can be brought in by air, and food can often be taken from the enemy or picked up from the civil population. In Libya, each man was rationed an average of one quart of water a day per man in addition to two cups of coffee or tea.

TRAINED GUERRILLAS FOR EUROPE

In the desert, the guerillas followed no roads, but travelled solely across country, and the work was naturally an entirely different type of operation from that which would be required in terrain such as continental Europe. It does not matter, however, where trained guerilla operations are used; difficulties of one kind or another are always encountered behind any enemy lines—but the results outweigh the handicaps. In the desert it was easier to maneuver; in Europe, it would be easier to camouflage. In the desert, guerilla activities were handicapped to a certain extent by difficulties of transportation. On the other hand, in the occupied countries of Europe, guerillas would have the benefit of forests and mountains in which to hide, and inhabited areas in which they would be able to get food and water.

It is possible to visualize a large army built up to operate in small bands as trained guerillas in Europe, and it is believed that such an army could very easily be built up by selected volunteers from the different army units.

The greatest difficulty to be encountered in guerilla warfare in Europe would be enemy tanks and armored cars rather than airplanes, but since all or most of the work would be done at night, the natural camouflage



Terrain such as this was encountered near Bengasi. In the center of the picture between rock mounds can be seen what is known as a "Wadi," often used for a roadway.

of the country would be of great assistance in hiding out in the day time.

The demolitions carried would be that needed for the type of work expected in the particular country. For instance, in France, additional land mines would replace limpets. It would also be possible for operations in Europe to take field pieces, which could be dropped in gliders or even in parachutes.

With the use of gliders, groups of men and jeeps could be dropped continually behind the enemy lines by parachutes. Under proper leadership of the guerilla commander, these different groups could be kept in constant touch with one another by radio communications.

IDEAL ORGANIZATION

An ideal organizational setup for trained guerilla warfare would have three companies to a battalion in order to allow for fighting in a triangular formation when desirable. Each company would be comprised of four sections. Thus if tactical conditions warranted, the battalion could be split up into twelve self-contained sections, capable of operating as individual units. Experience has shown that the latter method of operation is the rule rather than the exception.

Desirable equipment for each section would include the following:

- Radio and radio-telephone (at least one per section)
- Machine guns—4 to each jeep, and 6 to 12 on trucks (at least 25 percent should be .50 caliber)
- Extra drums loaded and ready to use—16 to a jeep in addition to extra ammunition.
- Grenades (4 to 7 second)
- Submachine guns
- A pistol or revolver, knife, compass, water bottles, and miscellaneous personal equipment for each man
- A large amount of demolition supplies, including limpets—a mine, magnetized on flat side to fasten against the side of a ship, with time fuse. (Two of these placed one on each side, 4 feet under the water line, will blow two holes in the ship.)

Although the fighting matériel must remain practically the same for any type of terrain, the mode of transportation necessarily will vary. At times, guerillas may be required to work without trucks or jeeps, but in such warfare dependence on transportation cannot be allowed to interfere with the execution of the mission. When trucks cannot be used, pack horses can, and often will, suffice to transport essential matériel. At other times, the men may be compelled to operate entirely on foot and haul their own guns and equipment.

An ideal organization would depend largely on the equipment available. If possible, each jeep should have

two .50 caliber machine guns mounted for use as anti-aircraft; also two .30 caliber machine guns. One "bazooka" or antitank gun could also be mounted on the flange up forward. This would also be available for dismounted use when necessary.

Regarding organization and equipment, it must be borne in mind that there must be two groups in every guerilla organization. One group is the fighting personnel whose sole job is to work and fight. All specialists and experts in this group are also fighters, and no administrative personnel is taken into the field. The other group, which must be kept to a minimum, is made up of nonfighting personnel whose sole work is to take care of administrative duties, supplies, etc. for the fighting groups. These men, naturally, must be fighters in the sense that they will fight just as hard to get and keep supplies coming to the men in the field as the men in the actual guerilla groups are fighting to destroy the enemy. *An efficient supply system, minus ordinary red tape, is imperative!*

CONCLUSION

The terrain in Libya was ideally suited for the use of jeeps and is very different from that which will be confronted in the coming theater of war. But guerilla activities behind the lines can be as successful in one terrain as another. Cavalry guerillas could operate over territory favorable to that arm. Since 1941, the Russians have developed and used large groups of trained soldiers as military guerillas, and many of their *cavalry units* have had outstanding successes in this rôle. One particular example was that of Major General Dovator who was decorated for his successful cavalry operations *behind the enemy lines* during the siege of Moscow in the winter of 1941. There are many other examples, too numerous to mention here.

In case of invasion of Europe, the benefits to be derived from a large force of guerillas, operating in small units, would be of the greatest value and assistance to an army endeavoring to open a bridgehead large enough to bring in an army.

Troops trained in guerilla warfare are not new in the annals of military history. The same principles were used successfully in the American Civil War by Mosby, and in the First World War by Lawrence of Arabia. The methods employed by soldier guerillas in Libya in 1942 were new only in that the weapons, matériel, and transportation were modernized to meet the conditions of modern war.

Guerilla warfare, on the other hand, is not ordinary warfare, nor does it substitute for any present arm or branch. It supplements the action of our combined arms by performing missions behind the lines impossible for less highly specialized groups.

Properly used, trained guerilla troops can furnish just one more means with which to disrupt the Nazi war machine and hasten its final breakdown.

Employment of Air Force

by Brigadier General H. S. Hawkins, Retired

MODERN war can be won only by a combination of land, sea, and air forces working in close co-operation.

Although air power applied to the bombing of enemy war production plants is certainly useful, this is not enough. There is still more useful employment for the air force. The effectiveness of bombing, and especially the launching of torpedoes, from aircraft in naval action has been demonstrated so convincingly that there is no need for further comment.

The coöperation of air force with armies in land warfare is imperative. Close support to ground troops operating against the enemy should be one of the most important uses of our air forces. Never again in this war should there be the absurd spectacle that obtained in France in 1940. In that campaign, French and British armies were being defeated and pursued by overwhelming German forces of all arms on the ground, closely supported by air force. And while that was going on, the British and French air forces were bombing Essen and other points in Germany far behind the battlefields. They offered no effective resistance to the German air forces, or the German armored forces that crowded and frequently jammed the roads.

The same thing can happen to this country unless it is insisted that our air force units be subordinated to the commanding generals of our armies. The Navy needs its air force, as has already been indicated. The Army likewise needs its own air force (as has recently been demonstrated) just as closely as in the case of the Navy.

This fact has not yet become apparent to the people of our country. They are still under the spell of the Douhet theory. They hail with delight the reports of the frequent bombings of German cities, which at this writing are being carried out by British and American air forces in England. They have been told that this will bring Germany to her knees. They talk about doing the same thing to Japan, and indulge in dreams that this is all that is needed to defeat Japan.

The bombing of enemy supply and production sources is undoubtedly effective, and its importance should not be minimized. Army air forces will, for an indefinite time, have this task. They probably prefer this task to that of supporting ground troops, because in the former case they operate independently, while in the latter case they must be subordinated to the will and direction of ground army chiefs. Therefore, the problem arises as to how much of our air forces shall be assigned to these independent operations, and how much to the more important operations in close co-ordination with the movements and efforts of the ground armies.

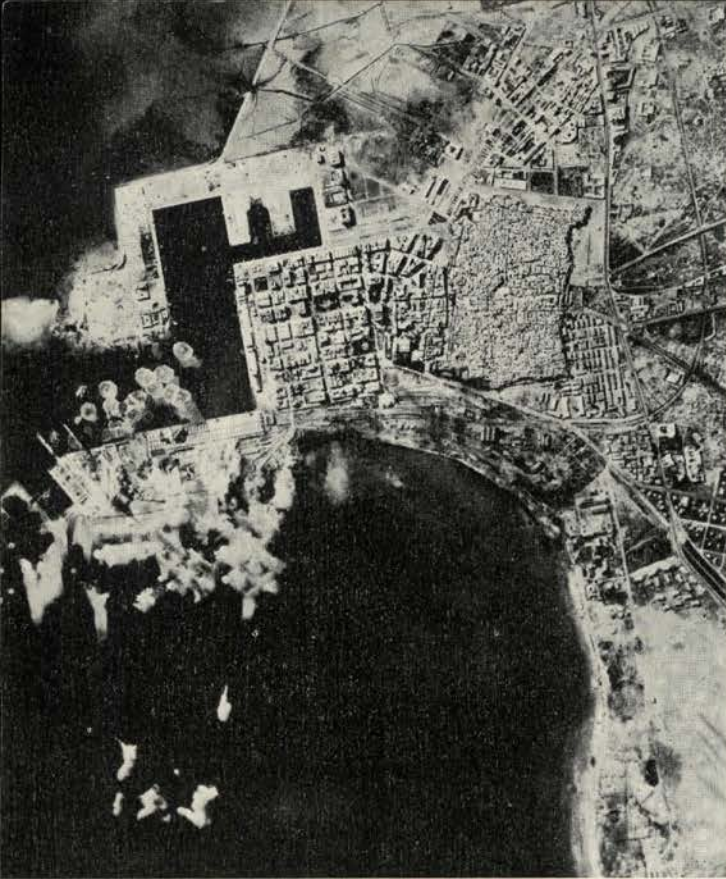
This problem can not be solved satisfactorily until everyone concerned has discarded the idea that air power *alone* means victory. There should be assigned to our armies the amount of air force, designated by units, that is considered necessary for the proper support of ground troops. By this support is meant, not only the participation in battle by dive bombers in attacks against enemy troops, but also reconnaissance observation, communication, bombing of supply trains, ammunition dumps and enemy headquarters, transportation of troops to tactical or strategical points, transportation of food and ammunition in special cases, and any other useful employment. Of course, much of this is being done. How much, is not known. Of all these items, however, reconnaissance and participation in battle are the most important.

Not until after all of these means of support to the Army have been provided, should independent air force operations be aimed against the production centers in an enemy country. It is not meant that these independent operations should be delayed or postponed until armies are in the field against the enemy. But it does mean that the material, class of planes and personnel which are devoted to such operations, should not militate to leave the ground forces without sufficient air support when such ground forces go into action. Furthermore, everything must be in readiness before such action begins, and much preliminary train-



Buried in the desert sand of North Africa, a Junker S7 dive bomber plane stands as a striking symbol of the defeat suffered by the Afrika Korps. Hundreds of Nazi planes were similarly put out of action by the British.

European



Harbor installations at the important Axis supply port of Sfax, Tunisia, are battered from the air by Allied bombers.

ing is necessary to coördinate the action of the combined forces.

The independent operations of our air forces and the R.A.F. in England are undoubtedly useful. They are in process before any large scale American Army operations have been set in motion. But when those Army operations are started, the necessary air forces must be incorporated as a part of those armies and trained and ready to assume their various duties in the armies, just as is the artillery or any other branch.

This cannot be left to the last moment. It must all be attended to sufficiently beforehand to have a trained and well coördinated team of all arms. There must be no improvisations. Air forces equipped and trained only for independent operations will not be suitable for such assignments. They must be an organic part of the Army force to which they belong and in close liaison and association with other branches of the service.

Some air forces are already serving with troops in this manner in North Africa and the South Pacific. Because the latter case is one of island warfare, the air bases are very far away from the troops that they support. The airdrome on Guadalcanal, of course, is close to the troops on that island; but those troops are there only to defend the airbase that we wish to use for other purposes. Even there, the inability of air forces *alone* to defeat the enemy ground forces is being demonstrated in a very convincing manner.

Last spring many people, including some military personnel, were lamenting the fact that there was not enough air force in the Philippines to defend at least the island of Luzon. Enough troops with a sizable

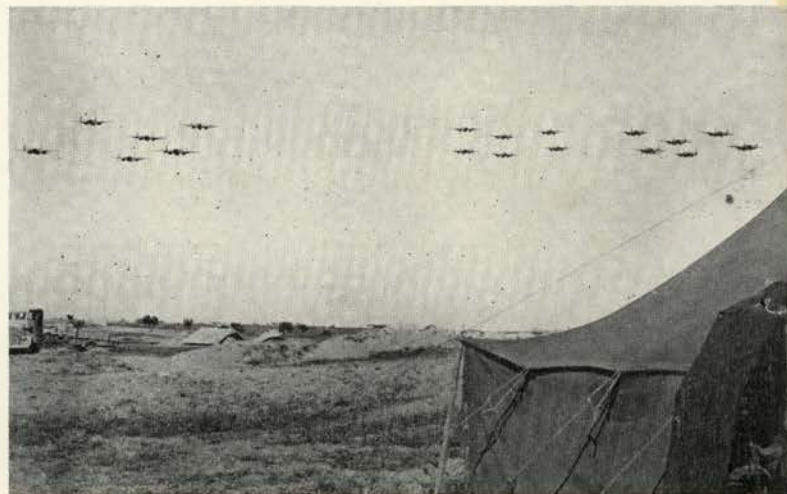
force of airplanes could have defended the island. A large force of troops even without air force might possibly have done it. Air force *without troops* could not have done it.

In the summer of 1942, in North Africa, the British with superior air force were beaten by Rommel. The whole story has never been told, but perhaps superior numbers of troops at Rommel's disposal, or tactical errors by the British and a failure to use the air force in tactical coöperation with the ground troops, was at least partially responsible.

This is a very desperate war, and the air force can perform a very great part in it, if it is properly used. If the air force is not properly used, the war will be prolonged by such misuse, and blood and treasure will be expended unnecessarily.

It is futile and stupid to assign all importance to any one branch of the fighting forces. If all are necessary, then no one branch, however small, should be disparaged. And no one branch, however large, should be considered as the one branch that will win the war. Morale is a delicate thing. Every one man in the fighting forces should be given as much credit and importance as any other one man, no matter in which branch of the service he serves. Otherwise, jealousies spring up and disrupt judgment, initiative, efficiency, coöperation, and unity of effort against the common enemy. Generosity toward each other should pervade all branches, and when one element has performed a service that attracts the public attention, all other elements should subscribe generously to the general praise.

When our chiefs or leaders, military or civilian, press writers or radio commentators, or any other persons whose speech or writing is given publicity, make statements that this or that arm or branch is *the one* that has won a victory or *the one* that will win victory, he has done a disservice to the whole fighting force and to the whole country.



American B-25 bombers fly low over their camp after taking off on a mission somewhere in North Africa. Bombers like these "softened up" Rommel's Mareth Line and played a large part in forcing the Afrika Korps' retreat in Tunisia.

Air Power Gets Full War Test*

by Frank L. Kluckhohn

ALLIED HEADQUARTERS IN NORTH AFRICA, April 10—In the African war theater this week has not only seen a terrific air "blitz," but has provided a preview of things to come when United Nations forces invade the continent.

No one will deny the great part that aviation has played in this theater. It has been proved again in the heavy fighting in Tunisia that with planes an army can move forward, and without them it can be stalled and even forced to move back. At the Mareth Line, and this week again, planes played an important part in the move forward; just as earlier at Kasserine Pass, the absence of them, first, had a great deal to do with the German advance and, later, their presence was a factor in the German retreat.

PLANES ALONE NOT ENOUGH

Yet in North Africa again it has been demonstrated that, whatever their future possibilities, *planes alone cannot decide an issue*. They are super-mobile artillery of advancing or retreating infantry—as destructive a force as naval ships. They fly fast when there is no opposition in the air. In fact, they may play almost a lone part on the sea (although not in ground warfare) and are essential when the enemy has planes in the air. Armies can no more advance without planes than they can without heavy artillery, and the lack of both when the enemy is in possession is catastrophic.

Here this week, we have seen air power used at its best under Air Marshal Sir Arthur Tedder, who has had desert experience. Major General James E. Doolittle's strategic air force has bombed, set afire, or destroyed about sixty Axis ships at this writing. Other planes have pounded Axis air fields from Sardinia and Sicily to southern Tunisia, and destroyed many planes on the ground. Still other planes have attacked enemy armor, soldiers and ground assembly columns, and thus helped to hamper action.

This represents almost the perfect use of air power. No one who has watched it at work can deny its effect on morale or its destructiveness. Similarly, no one who has seen aviation in action from underneath can fail to realize its limited effect at this stage of its development.

The writer has seen Axis aircraft score direct hits on a rail station and seen the line repaired within eight hours—and this before we had equality, let alone the present overwhelming superiority, in Tunisia. He has seen troops rally after three straight days of bombing and seen convoys move with the loss of relatively few vessels, despite aerial activity.

FACTS ON AIR CONTROL

This weekend, after three days of "blitz," air force

communiqués speak of knocking down Stukas (supposedly obsolete planes) from the air after the huge destruction wrought from above.

The truth is that there is no absolute control of the air when your enemy has airplanes. Correspondents, including those of *The New York Times*, have reported both from the Eighth Army front and from farther west and north in Tunisia that enemy aircraft have been active.

What has finally occurred is that in this theater, American, British and some French planes have acquired tremendous superiority. Since we may expect to have that in Europe as well as here, it is important to analyze what this means.

Much discussion about air power has come from German demonstrations in Poland and France and American demonstrations in the Pacific theater. Except second hand, this correspondent knows nothing about these, but he does know what has occurred in this theater, which provides a preview of Europe. Only incidentally has he directly followed the air war from Britain, where ground forces are not involved.

WHAT AVIATION DOES

What his observation, which is common to reporters on the ground, amounts to is this: Aviation, or the absence of it, can slow the enemy, hamper him and increase the tempo of retreat of forces on the ground by attacking supplies behind the lines and lessening (although not eliminating) their flow. It can aid ground forces by knocking out artillery emplacements to some extent, although not completely. It can aid in demoralizing the enemy.

But accurate correspondents with the Eighth Army (not those at headquarters) in writing air reports, speak of artillery, infantry and tank divisions, not aviation, except when it is against them.

In the European landings, our great air superiority, when concentrated, can assure over a limited area that there shall be too few enemy planes in the air to affect the issue and that the ground forces will have less artillery and be more demoralized than otherwise by a great margin. It cannot clear the way completely for a landing. Obviously, that will take ground and airborne forces.

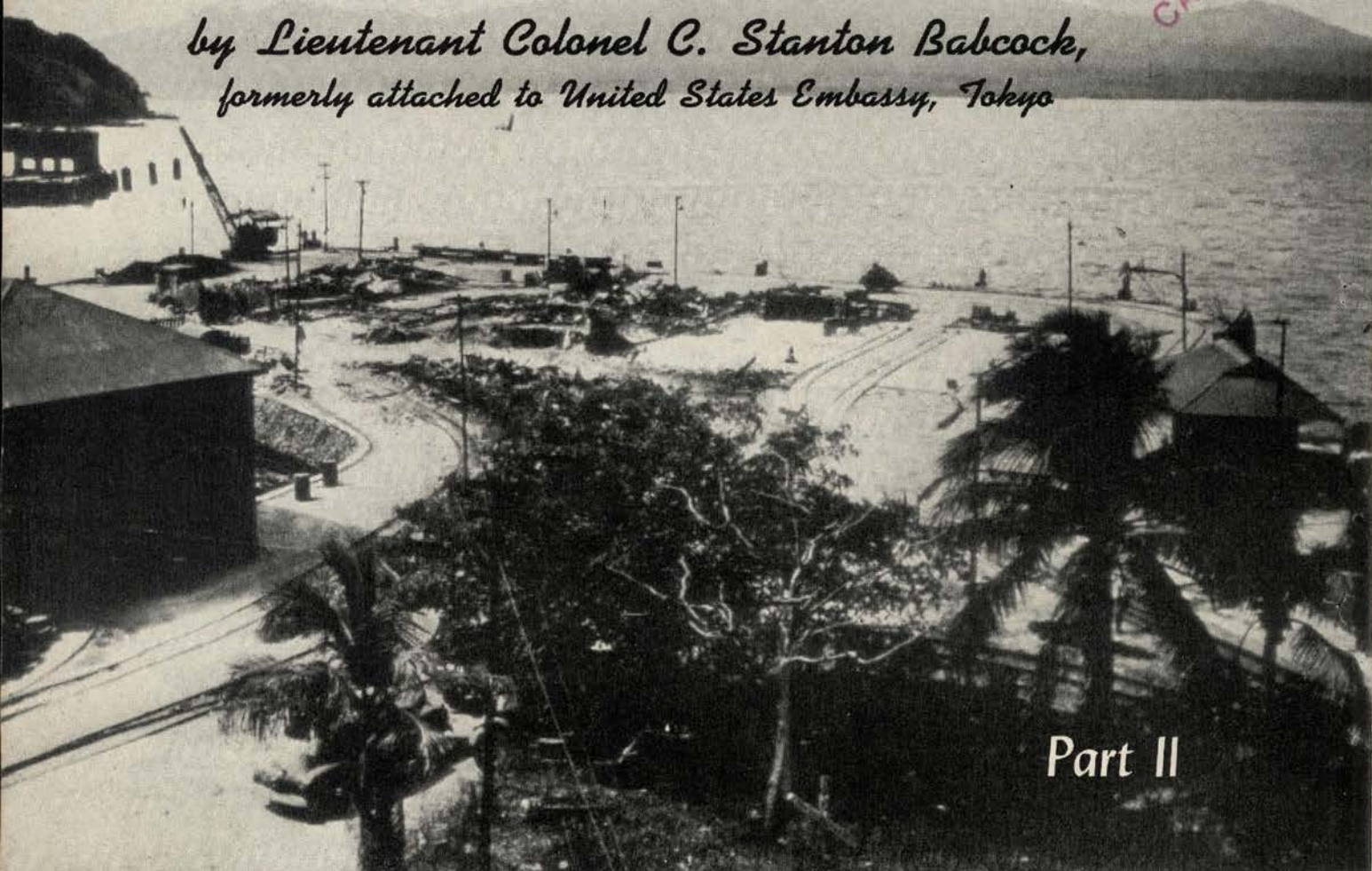
What Air Marshal Tedder achieved is the breakdown of the rapidly growing theory that air power is all. He has used air power in its proper perspective to hit the sea lanes, landing fields of the enemy air force, and ground installations with a proper distribution of heavy and medium bombing aircraft, plus fighter aircraft and those tied directly to ground operations. As in Tunisia, that should prove a big help when we go into Europe.

**New York Times* (by wireless).

Philippine Campaign

*by Lieutenant Colonel C. Stanton Babcock,
formerly attached to United States Embassy, Tokyo*

CARDED



Part II

Mount Mariveles on Bataan Peninsula as seen from Corregidor.

Wide World.

THE ATTACK ON BATAAN: JANUARY

After the occupation of Manila, which occurred without incident, the Japanese spent ten days in assembling, reorganizing, and equipping their troops, reconnoitering the American positions from the air, and carrying out raids on the defensive lines in order to determine their strength.

They found that the lines, stretching across the base of the peninsula from Manila Bay to Subic Bay, were very strong and formed a position from which the Americans could take advantage of the thick jungle and rough terrain. They also provided ideal observation from Bataan Peak and its surrounding hills.

There were only two or three places on the Manila Bay side, and only Olongapo on the western coast, where landings were feasible. The position of the great island fortress of Corregidor, three miles off the tip of the peninsula and squarely in the middle of the entrance to Manila Bay, added greatly to the defensive strength

of the American positions. Mariveles, located at the head of the small bay of the same name at the end of the peninsula, and Subic and Olongapo on Subic Bay, were minor naval bases, but their facilities had been destroyed when the Asiatic Fleet left for Surabaya shortly after the first Japanese landings.

During the defense of Bataan, Mariveles was used for communication with Corregidor; the other small ports were not used at all by the Americans. Actually, both Subic and Olongapo were captured early in February.

Apparently carried away by their early successes, the Japanese made the first ill-considered move of the entire campaign when they launched a hasty and poorly prepared attack along the entire 30-kilometer front on January 12th. At no point did their troops succeed in piercing even the first line of defense. The counterattack, executed by two divisions of the Philippine Army, drove the Japanese two miles in rear of their original positions and cut the Lubao-Olongapo road which was their principal lateral axis of communications.

This setback made the Japanese much more cautious,

Lieutenant Colonel C. Stanton Babcock has recently been promoted in rank to colonel.

and their next offensive, which was designed to recover the road and their former positions, was carefully planned and well executed after four days of thorough preparation by air and artillery bombardment. The battle lasted three days and was by far the most bitterly contested struggle of the campaign up to that time. The initial Japanese push reached its objective within some five hours of the jump-off, but their advance units were subjected to such intense artillery fire for the rest of the day and throughout the night, that they were never able to consolidate their positions.

Early the next morning, realizing the precariousness of their position, and being aware of an impending American counterattack, the Japanese withdrew their most advanced troops and gave up about half of the ground they had gained the previous day. The move was a good one, for the counterattack launched a few hours later was designed to drive the invaders out of their most advanced positions and, of course, landed in mid-air as a result of the Japanese retreat. When contact was gained, the force of the American drive was largely spent, and the Japanese troops instead of being disorganized by having been driven back from their positions were ready for the attack and stopped it easily.

Later in the day, the Japanese resumed the offensive and succeeded in reaching all their objectives for the second time. This time, heavy counterbattery fire by their artillery neutralized somewhat the effect of the American fire, and they were able to hold their positions until the next morning, when a strong counterattack drove them out once more. Now, however, it was the Americans who were unable to hold their gains, for their drive had carried them to the foot of the mountain range across the Olongapo-Lubao road, and their positions in the lowland were obviously untenable for very long. MacArthur either had to push on, which meant a general offensive, or withdraw to his lines across the base of the peninsula. There was only one choice, so during the night he pulled his divisions back to their original positions and was probably well satisfied with the time that he had gained and the really heavy losses which the Japanese had suffered—the first real losses, in fact, which they had incurred in the entire campaign.

THE ATTACK ON BATAAN: FEBRUARY

It was now obvious to the Japanese that the reduction of Bataan and Corregidor was an operation which would require a major effort and all of the troops that they could assemble for the purpose. Lieutenant General Homma, the supreme commander in the Philippines, called a halt to operations in other parts of the islands and concentrated all of the troops that he could spare in preparation for a serious attack on the American lines.

Early in February the entire front, which had been quiescent for more than two weeks, broke out once more

Author's Note

This account of land operations in the Philippine Campaign is based on information drawn entirely from Japanese sources: official bulletins, news reports, speeches, radio commentaries, magazine articles, and personal experience accounts written by officers and men at the front. The only Allied bulletins used were those quoted in the Japanese press.

Japanese accounts are nearly always vague, and in some cases conflicting, for the ideas of different agencies of the Government are frequently at variance in regard to the impression they desire to make on the public. Thus, the military would sanction the publication of a personal experience story which admitted temporary reverses and heavy losses, in order to play up the courage and fighting spirit of the Japanese soldier, while the bulletins issued by the Bureau of Information were inclined to minimize all enemy efforts, in an attempt to make the white man appear as an incompetent and a coward.

The information available, virtually all of which was published only in the vernacular, has been sketchy and disconnected, issued piecemeal over a period of six months, so that its translation and organization into a coherent story has presented many difficulties.

While confined to the compound of the American Embassy in Tokyo from the outbreak of war until June 17, 1942, I was cut off from any outside news. Consequently, the preparation of this paper has not been influenced by information received through any but Japanese sources. Every effort has been made to present the material without injecting either my own opinion or that of any one else, except insofar as was necessary to choose between conflicting versions of the same action.

Allied reports of the various events will undoubtedly disclose many discrepancies. It is believed, too, that the Japanese occasionally deliberately falsified dates in order to cover up reverses or to create an impression of greater speed or continuity in their campaigns than was actually the case.

It should also be remembered that all dates are one day advanced over those used in the United States. It is, therefore, the 8th of every month that the Japanese celebrate as *Imperial Rescript Day*, to commemorate December 8, 1941, when the Empire precipitated the war which they believe will liberate the races of Greater East Asia.

The Invasion of the Philippines from the Japanese point of view.

with renewed activity. The Japanese opened the show by staging a series of raids at both ends of the lines. The first few raids were small and short and designed to secure information and identifications, but they soon increased in intensity and scope until the 10th of February when two strong attacks, obviously intended to soften up the defensive strong points, were made by units the size of a regiment with strong artillery and even tank support.

All of this, of course, brought out an answering series of raids and patrols from the American side, and scarcely a night went by without a number of fierce minor engagements taking place at various important points along the front. The American raids and counterraiders were for the purpose of finding out what was going on behind the Japanese lines, where they were concentrating, and where and when the main assault would come. The patrol activity by the young officers sent out through the dark enemy-infested jungles, and the intelligence work of the Headquarters staff appear to have been well done, for the Japanese admit that the defenders were well prepared and well informed when their two simultaneous attacks at Olongapo and Samai finally took place.

The infantry assaults, which came at dawn, were preceded by an eight-hour artillery preparation, with particularly heavy concentrations on the American batteries, and a thick blanket of smoke laid on the northern slopes of the Mt. Bataan range to blind the observation posts. The drive south along the east coast road smashed well into the main line of resistance and created a long narrow salient in the right wing of the American line. All day, the Japanese struggled to widen the gap and poured fresh troops into the line at the western base of the salient, but without effect. When the well-timed American counterattack came, just as the last effort of the Japanese was petering out, they were swept back to their jump-off positions and thrown completely out of the salient they had fought so hard to create.

During the next two days, the Philippine division in this sector acted so aggressively and launched so many local attacks that the Japanese were never able to gather themselves sufficiently to resume the offensive. They remained active, however, and, in spite of their failure to gain ground, managed to keep the Americans in their front thoroughly occupied, and probably prevented additional reserves from being sent to the Olongapo sector where the defenders were experiencing considerable difficulty.

The Japanese assert that the attack in the Subic Bay area against the Olongapo base was the main effort of this February offensive. Certainly they employed a strong force there (apparently two divisions) and drove their attacks home in a most determined manner. Not one of their assaults was stopped until its objective was reached, and none of the American counterattacks succeeded in regaining any lost ground.

For the first time in this campaign, the Japanese had recourse to their famous *Hōi Jōriku Sakusen*, or enveloping movement, by landing behind the enemy's lines. This operation had been used time and again to good effect during the campaigns in the lake region of Central China, and four years of practice had made the troops particularly skilful in this, a favorite Japanese maneuver.

Embarking somewhere in the vicinity of Subic, a specially trained landing detachment made its way up the bay during the night, and shortly before dawn attempted to land one or two kilometers south of Olongapo and behind the American lines. They succeeded in gaining a foothold on the beach, which they maintained for about two hours, but they were never able to widen the beach-head or to exploit their initial success and finally, according to the Japanese account, "were wiped out to the last man." It is more likely, however, that a good many of the prisoners captured by the defenders of the Bataan peninsula came from this unit.

Although this attack in itself was a failure, it contributed greatly to the fall of Olongapo by disorganizing the rear areas behind the front line troops (who were engaged in resisting the main Japanese attack), creating confusion, and causing the diversion of support and reserve units that might have been used in badly needed counterattacks. On the other hand, the complete elimination by the Americans of this landing unit saved large numbers of their own troops which would otherwise have been cut off by this detachment and caught between it and the main Japanese force pushing south on Olongapo.

Apparently no serious effort was made by the Americans to retake Olongapo. They seem to have made a thorough job of destroying such naval facilities as remained there and fought desperately in defense of the place for the greater part of the morning. Then, fighting all the way, they evidently withdrew gradually until, at a point about two kilometers south of the town, the withdrawal became a hasty retreat accompanied by considerable confusion. Darkness saved the fleeing troops, and the Japanese halted their advance and spent the night in consolidating their positions. The fact that even when morning came they made no attempt to resume the attack, in spite of the obviously confused and weakened state of the Americans, would indicate that the attackers had selected limited objectives for this fight and probably that they had achieved them all.

THE FALL OF BATAAN

There now ensued a long period of comparative inactivity, broken only by one serious offensive launched early in March. Practically nothing is mentioned of this drive in Japanese reports, and there are indications that it accomplished very little and was costly in both personnel and equipment.

The Japanese press at that time was full of reports testifying to the accuracy of the American artillery fire



On the rugged Bataan Peninsular, American and Philippine troops held up the Japanese campaign for nearly four months and thus gained for the United Nations some of the most valuable time of this war.



Wide World.

One of the last pictures to arrive from beleaguered Bataan shows how one community had been battered by Jap air raiders and artillery.

because of the excellent observation available from the Mt. Bataan range, and it would appear that this March drive broke down under the barrages of the defending batteries. Certain it is that for the next month, the sky over that sector was full of Japanese reconnaissance planes combing the area of thick jungle for the battery positions and paving the way for the mass bombing attacks that ushered in the final offensive on April 3rd.

In preparation for this battle, which was to close a little more than a month later with the collapse of all resistance in the islands, the Japanese moved into the Philippines an additional mechanized brigade equipped with the new medium tanks, about three heavy artillery brigades, and probably one fresh infantry division. In addition, both the army and navy air forces were reinforced by numerous bomber squadrons, released by the fall of Singapore and the collapse of resistance in the Netherlands East Indies.

All preparations were carefully made, and it was clear that this time the fight was to be carried through to a finish. Gradually the patrol activity along the front became more intense; air reconnaissance gave way to increasingly fierce aerial bombardment of the dreaded American gun positions; and the morale of the Japanese troops, heightened by all these preparations, was raised to fever pitch by the news that General MacArthur had flown from Corregidor to Australia and "deserted his command on the eve of its most decisive battle."

Lieutenant General Wainwright, who succeeded MacArthur, seems to have made a thorough estimate of the situation and to have made all dispositions possible to meet the expected attack. But, even before the assault really began, it became evident that the constant

pounding from the reinforced Japanese artillery, and from the bomber squadrons that seemed to fly at will over the American gun positions, was daily reducing the effectiveness of the defenders' strongest weapon—their magnificent artillery barrages.

In order to conserve their dwindling ammunition supplies, the American batteries remained silent under this rain of fire, except for occasional interdiction fire at night on important roads, and a short but fierce concentration on the Japanese assembly areas as the troops were moving into position the evening before the attack.

The attack itself came in true *blitzkrieg* style just after dawn on April 3rd. The steady artillery fire, which had been daily increasing in intensity, rose to its maximum rate as the zero hour approached. The gunners poured a constant stream of high explosive on the defensive strong points, and placed thick black smoke on the heights where the American artillery observation posts were located. As daylight came, all the Japanese bomber planes in the Philippines roared overhead and unloaded on vital objectives, which the constant aerial reconnaissance of the previous month had carefully located—the last remaining airfield on the coast below Balanga, the defiles and bridges in the all-too-sketchy road net used for movement of the defenders' reserves and supplies, gun positions and ammunition dumps, and the assembly areas where the exhausted Americans were concentrating their scanty reserves.

Again, the points of attack were the extremities of the line. But this time, the main effort was made on the Japanese left, where they hoped to smash their way down the east coast road, cut off the defenders in the hills inland, break them up into isolated centers of resistance, and then mop up at leisure.

The first few hours of the attack were easy going for the Japanese. The heavy preparatory fire of the previous five days had forced the defenders to withdraw practically all troops from the outpost line and even, in some cases, from certain positions of the main line of resistance which had been subjected to particularly heavy fire. As the picked combat teams of infantry and engineers worked their way through the jungle, they encountered scarcely any resistance worthy of the name and found that even the defensive artillery barrages were unable to do more than slow their advance a little.

Eventually they reached the first strongly defended points and set about the business of piercing the defense zone so as to open the way for their tank battalions. Here occurred some of the fiercest fighting of the war. The struggle surged back and forth over the same ground for five days with heavy losses on both sides. The Japanese objective was to open a gap in the main line of resistance, through which they could pour their mechanized units and fan them out in the rear areas where they could disrupt communications, destroy supply and ammunition facilities, attack concentrations of reserves, and so disorganize the American sector that any orderly withdrawal of the defending troops would be impossible.

In order to prevent just such a disaster from occurring, the American defensive zone, extending south for a distance of six miles, had been organized in great depth with new centers of resistance, one behind the other. As the five-day battle raged it became evident to the Japanese that a break-through was impossible in the early stages, and they settled down to the arduous and costly task of fighting their way through the strongly fortified zone step by step with their infantry combat teams.

Day by day, they pushed forward under terrific barrages of supporting artillery, consolidated their gains, and fought desperately to beat off the American counterattacks. These had been fierce at first and frequently succeeded in driving the invaders back to their jump-off positions; but as the days wore on, and the same depleted and exhausted Americans had to battle over and over again with an endless stream of fresh Japanese troops, resistance weakened, and the Americans gave up position after position without attempting to retake them.

By the afternoon of April 8th, the Japanese attacks on the west had created a salient about three miles deep,³ but the force of their drive had been spent, and it appeared that the Americans had little to fear in this sector except a series of containing attacks to pin them down and to prevent the movement of troops to the other flank. *On the east*, however, where the road runs down the coast to Mariveles, the defenders' situation was much more serious. Here the last of the carefully prepared defensive positions had been pierced, and

nothing stood before the Japanese mechanized units, brought up at last for the final thrust, but a few hastily prepared shelter trenches and barricades thrown up by what was left of the American First Corps.⁴

The next morning the tanks jumped off and within an hour had pushed through to Orion, half way down the peninsula, and cut the east-west road which was the American main lateral axis of communication and supply. Here a part of the mechanized force turned west, and following this road, forced its way across the peninsula. By this action they completely disorganized the rear areas of the American First⁵ Corps and the Philippine Corps, and bottled up those troops in a pocket from which they were never to escape. At the same time, detachments of Japanese infantry peeled off from the main column, which was following the tanks down the east coast road, and, forcing their way through the jungles, took what was left of the positions on Bataan heights in rear and flank, and then mopped up the last remaining isolated centers of resistance.

The end was now in sight. The only active body of American troops left on the peninsula was a portion of the First Corps⁶ which had managed to pull out ahead of the advancing Japanese mechanized units and retreat hastily down the road towards Mariveles. Sumai, where the last American airfield was located, fell with

⁴First Corps was on the West Coast; Second Corps, on the East. This was evident by an error in the Japanese report.

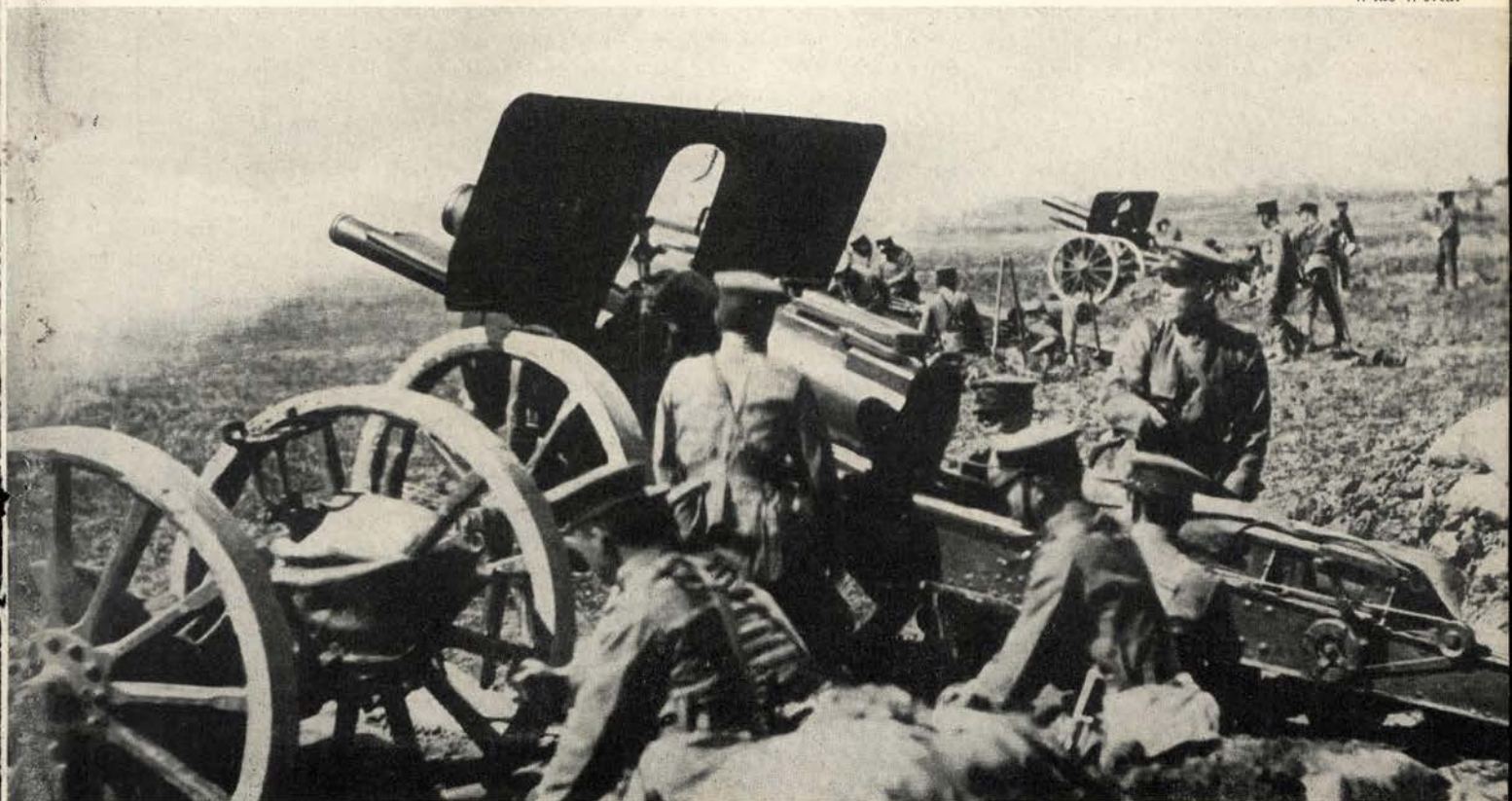
⁵Second Corps.

⁶Second Corps.

³The Americans had no artillery on the West Coast at that time.

Japanese artillery batteries 150mm. How. M15.

Wide World.



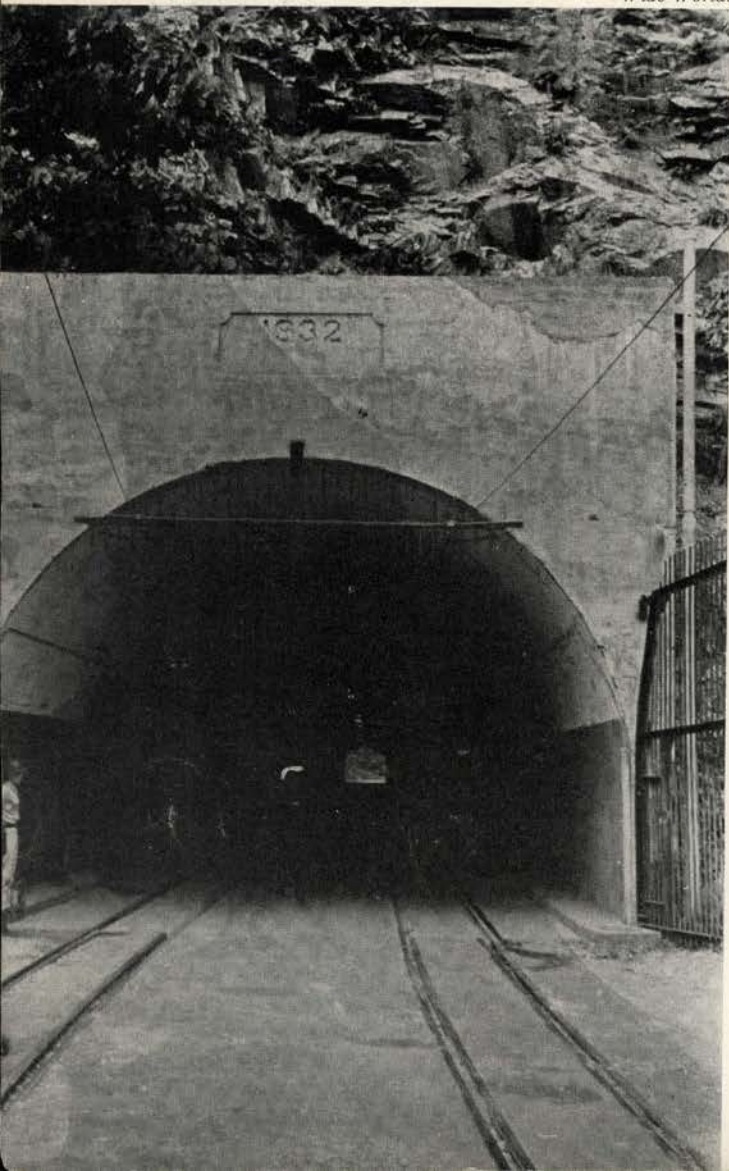
scarcely any resistance, and the Japanese High Command, which until this time had allowed no news of the battle to leak out, published the results of their great victory and announced to a thrilled nation the imminent surrender of the entire Bataan defensive force.

The surrender came on the 10th. Some 2500 soldiers and marines managed to escape to Corregidor before the vanguard of the Japanese column entered Mariveles, and all communication with the island fortress was finally cut off. General King, the Commanding General of the Peninsula force, saw the hopelessness of the situation, and sent word to the Japanese that he was prepared to surrender all of the troops under his command.

The Japanese claim to have captured in this battle 60,000 officers and men and large quantities of supplies and equipment. But the vast majority of the men were caught in isolated groups, cut off from all support and supplies, and there does not appear to have been any mass surrender of organized bodies of troops capable of further resistance. The Japanese themselves ad-

This is a view of a tunnel on Corregidor Island into which American Forces were crowded by overwhelming Jap troops.

Wide World.



mit that practically all of the artillery pieces taken were damaged, and they have never published any figures on the quantity of ammunition captured, so it is unlikely that any large units surrendered until most of their combat equipment had been put out of action.

CORREGIDOR

The attackers lost no time in pushing preparations for the assault on the last remaining stronghold, the fortress of Corregidor. Within five hours of the entrance of the first troops into Mariveles at the tip of the peninsula, the Japanese were installing their heavy guns on the slopes of Mt. Mariveles in preparation for the great artillery duel that was to last more than a month and finally come to an end with the silencing of all of Corregidor's guns and a successful attack by a landing party.

Mopping-up operations on the peninsula, and the movement of prisoners and captured matériel were delayed until all units to be used in the initial bombardment of the island were in position. No time was given the worn-out troops who had escaped to the fortress to reorganize and recuperate, and as evening fell on the day of the surrender of Bataan, the weary American prisoners, concentrated in groups throughout the peninsula, heard the opening roar of the artillery bombardment, which, in conjunction with daily aerial bombings, was to continue day and night until the final surrender on May 16th.

It was only a matter of time, and both sides knew it, for the frequent bombings and the incessant bombardment were silencing the American batteries one after another. With no air corps protection, and with all of its antiaircraft batteries out of action by the end of the first week, the fortress could only lie helpless and watch as squadrons of Japanese bombers came down to within a thousand feet and bombed the gun emplacements at will. At last, early in May, a day came when there was no answering fire from the smoke-shrouded rock. Realizing what this meant, the Japanese called on General Wainwright to surrender in order to prevent further unnecessary bloodshed. But the demand was rejected—apparently in the knowledge that the gallant resistance of this doomed fort was doing much to rebuild the morale of the American people after the successive series of smashing defeats suffered by the United Nations in the Far East.

The second night after the American refusal to surrender, the Japanese launched their attack. It was a pitch black night with no moon, and the constant roar of bursting shells effectually prevented the defenders from hearing the noise of the boats and barges as the assault units approached the island. In the van were about twenty specially constructed, steel, motor-driven assault barges, each of which contained a light or a medium tank and an accompanying combat team equipped with grenades, light automatic weapons, and light mortars. The second wave, which followed at a



distance of about two thousand meters, consisted of motor launches, tugs, ferry boats, and anything else that was capable of making the three-mile trip from Mariveles. Some of the troops and equipment, which crossed over after the initial landing but while the fighting was still going on, were transported in big barges and lighters towed by tugs.

The first wave was within five hundred meters of the island before the defenders gave any indication of being aware of what was coming. Then a single searchlight beam swept the dark waters and illuminated the first line of steel barges racing towards the low, flat tail of the islands where the small airfield had been constructed. In a few seconds, bursts of machine gun fire broke out, and later a few mortar shells dropped on the beach where the Japanese assault teams were struggling ashore, but there was no artillery barrage from the great fortress which had once bristled with guns.

The first landing was effected at 4:30 A.M., and within an hour the assault teams had taken possession of the tail of the island. But the job of getting the tanks ashore, through the debris of the shore barricades and entanglements, proved to be so difficult that the assault on the rock had to be started without tank support. Dawn was just breaking when the first infantry units jumped off from the narrow isthmus that connects the tail with the main part of the island, and began the difficult task of fighting their way up the heights to the peak. The resistance was desperate, and the battle raged all day. But the never-ending stream of reinforcements,

which crossed over without hindrance in plain sight of the American positions, forced the defenders steadily back until they were crowded together on the highest point and jammed in the tunnels unable to fight. Then General Wainwright surrendered, and all serious resistance in the Philippines ended at last when he was taken prisoner along with the 6,500 officers and men who had fought so long and desperately.

The next night, under the terms of the surrender agreement, General Wainwright broadcast a message to all remaining American-Philippine troops throughout the islands directing them to cease resistance. No attention was paid to this order, and the few remaining units in Mindanao, which had been fighting the Japanese since the capture of Davao on January 4th, continued guerrilla activities until they were all finally rounded up late in May.

The only other place where American troops were left was in Cebu, and when the Japanese got around to landing at that point, the two regiments of Philippine troops retreated into the jungle where they carried on a short but sharp little campaign and finally capitulated only when their ammunition was exhausted.

The war in the Philippines was over. Japanese control was undisputed throughout the archipelago, and the military authorities, working in close cooperation with other Japanese government agencies, set about the great task of exploiting Philippine economy and fitting the Commonwealth into its niche in the Greater East Asia Co-prosperity Sphere.

Editorial Comment

Coördination

One of the most striking examples of coördination of forces is exemplified in the recent great Allied victory in Tunisia. The results achieved should not be minimized nor passed over lightly merely because the Allies had superiority in numbers. This numerical superiority was essential, for the Nazi Afrika Korps occupied strong defense positions in hills that could be held against even a superior attacking force.

The most important principle of war—surprise—was the opening blow that resulted in the fold-up of Nazi resistance. It was a brilliant piece of strategy, which “out-Rommeled” the best that the “old fox” produced in his entire African Campaign.

This strategy required the movement of a large number of troops over a long distance without letting the information get to the enemy. It required the carrying out of a clever ruse on the part of General Montgomery's Eighth Army in order to convince the Nazi forces that the main attack was coming from the south. As a matter of fact, it is reliably reported that a large force of Montgomery's troops was detached from the Eighth Army and sent north, with those from the Second Army Corps of our own Fifth Army. Captured high Nazi commanders admit that they did not know that the main attack was coming from the north until it actually developed.

That such a surprise attack could have been launched is a tribute not only to the military genius of Allied strategy, but also to the counter intelligence machinery established to prevent such information from getting into Nazi hands. In the accomplishment of the movement, perfect coördination of every officer and man was necessary. But most of all, in the final battle, the finest coöperation and coördination was shown between British, French and American armies and the various branches of the service within those armies.

Credit for the overwhelming victory cannot be given to any one group. Neither air force, armored force, artillery nor infantry alone could have achieved this complete success. Rather, the victory can be attributed mainly to the coördination of arms and armies—the coördination of British, American and French military strategy, and the coördination of air forces, ground forces, naval forces, and supply and maintenance units that kept the armies rolling. These formed a well balanced fighting force, having and using all the tools necessary to do the job at hand.

The victory in Tunisia is indeed a convincing rebuttal against the over-emphasis of any one branch in our armed forces.

Reconnaissance Training at The Cavalry School

“The Cavalry School is given the responsibility for developing the tactics, technique, and doctrine of horse and mechanized reconnaissance units. Developments in tactics and technique recommended by other agencies will be referred to The Cavalry School for review and coördination.”

This is indeed an excellent improvement in the training methods formerly in operation for the teaching of our reconnaissance units. The principles of reconnaissance are fundamentally the same for horse or machine. Only slight modifications in the details of execution are necessary in order to apply these fundamentals to either one.

It is also fitting that reconnaissance tactics, technique, and doctrine should emanate from The Cavalry School, which over a period of many years has developed the background and facilities for this type of training.

Under the new program of unified instruction, many apparent flaws in the former method will be eliminated. Differences of opinion in technique and doctrine will be ironed out before being submitted to the student—and students will learn to talk the same language regardless of the reconnaissance unit to which they are assigned.

1 1 1

The Military Review

The CAVALRY JOURNAL extends a cordial welcome to a new monthly magazine in the field of military literature.

The Military Review, for many years published quarterly by the Command and General Staff School at Fort Leavenworth, Kansas, has recently been changed to a monthly publication. This publication is unique in the military field in that it covers every branch of the service.

Instructors at the Command and General Staff School and other well qualified military authorities are among regular contributors of main articles. The foreign field is covered by translations or digests of the most important military writings in enemy, friendly, and neutral countries.

Subscription, which is open to all, is three dollars per year, payable in advance to Book Department, Command and General Staff School, Fort Leavenworth, Kansas.

1 1 1

Change of Address

Occasionally subscribers have written letters stating that they have not been receiving their copies of *The*

Our armored forces, or tanks, would undoubtedly come to the rescue of the infantry and try to form a rear guard and a flank guard. But tanks are not suitable for fighting defensive actions on open ground, especially if they themselves are menaced by superior armored forces of the enemy.

In the situation referred to in Tunisia in February, the American force was attacked by superior German mobile forces, and found itself hampered by the very conditions just explained above. The American troops fought very gallantly but had to retreat rapidly. Many of them were unable to get back to their parked trucks in good time or to get away after entrucking, because the enemy blocked the road leading to the rear. Some battalions sacrificed themselves in order to let others withdraw. Presumably, our armored troops attacked the enemy, but many units found themselves outflanked or surrounded by superior numbers of enemy tanks.

Heroic fighting and excellent leadership no doubt saved many units and rescued much of the infantry. But, undoubtedly, many of our rear guards found themselves overrun or surrounded. Even some of our artillery, in its positions in rear of the other troops, may have been surrounded before it could get away because of the inability of our rear guards to keep in front of the enemy and delay him long enough.

Had this task force been composed of armored force together with our modern cavalry instead of motorized infantry, or perhaps in addition to motorized infantry, there is every reason to believe that the Germans could not have maneuvered so freely and so rapidly.

Cavalry in delaying actions or rear guard missions could not have been overrun and surrounded, because cavalry squadrons can move in any direction across country and do not need roads leading in the convenient direction. When fighting on foot, each small cavalry unit has its led horses placed in rear of it or not too far away for quick mounting. Motorized infantry has to be assembled at the parking place near a road before it can entruck and move in the required direction. The cavalry mounts in a much shorter time and can move in any direction either to attack or to escape.

In open order, across country, cavalry is not nearly so vulnerable to air attack as troops crowded into motor vehicles proceeding in column along roads.

For reconnaissance, other than the distant reconnaissance performed by the use of airplanes, there is no force comparable to cavalry.

For combining with infantry and armored force, as a link between these two, in attacking the enemy, cavalry is invaluable.

For security to columns of infantry or armored forces when in close proximity to the enemy, cavalry is also invaluable.

Dismounted cavalry has the same modern weapons, including antitank guns, that the infantry has. Although the infantry remains the great mobile basic arm

of the service, as often stated in these Notes, it needs cavalry with it in many situations. Both armored forces and infantry need cavalry when undertaking missions in which they are liable to be attacked by superior forces of the enemy, as was the case in February, 1943, in Tunisia.

The question as to whether we ought to have cavalry in North Africa and in every other big theater of operations, or whether we could transport it overseas under present conditions, is not discussed in this paper. But there is no question whatever of its usefulness or its indispensability for certain tasks, which cannot be accomplished without it, except at the risk of disastrous losses or serious defeat.

If we ever attempt to reestablish our cavalry and to use it in this or any other war, it should be remembered that little dribblets of cavalry can accomplish very little. In Tunisia we could use, if we had it, four or five divisions of cavalry. Too often in the past, a single division of cavalry has been given tasks that required five or six times as many, with unsatisfactory results and the discrediting of cavalry as a whole, or with tragedy to the cause for which it fought and sometimes died.

This picture from Tunisia, dated April 21, 1943, shows a British mounted patrol, which assisted in locating a large amount of enemy equipment.

British official photo



German Cavalry in Russia, 1941

by *Lieutenant Count de Schmettow, German Army*

This short account of German cavalry protecting the flank of an armored corps is reprinted from a translation in Ejército, Spanish military magazine, which republished it from the German Militär Wochenblatt, January, 1942.

THE first great German advances in the Russian campaigns brought the cavalry, along with an armored corps, to the interior of the country, where modern cavalry was to determine the outcome of the most difficult situations.

We moved rapidly all the way from the Bug River to the southern boundary of the Pripet Marshes. Within a week we had made long marches that had brought us close to the enemy. For the first time in this war, German cavalry advanced ahead of the motorized units, which had remained ditched in the sand of the so-called Russian roads.

On the morning of June 28, 1941 (six days after the beginning of the campaign), we prepared to carry out our mission, which was one of the most difficult that can be entrusted to mounted units. We were to protect the right flank of the units of an armored corps, which were advancing along the road toward the east and drawing steadily farther away from their bases of supply.

At 14 hours, the mounted units began their march. The motorized columns started later along other roads. Ahead of us there spread the impassable Pripet Marshes, which, in conjunction with the great forests, made an ideal zone for the enemy whose perfect knowledge of the terrain might enable him to attack the rear of our armored division.

With our General marching at the head of his squadrons, we rode over sandy and swampy ground from dusk until the late hours of the night and remained always in contact with the armored division. The mobility and flexibility provided by the capacity of our horses to travel through this area, permitted us to overcome all difficulties of the terrain and reach our objective with suitable dispositions for combat.

Horses and troops were forced to the limit of their

strength. In this, the horse from East Prussia again demonstrated his excellent quality as a horse for a cavalry division. Hunger and thirst, heat and dust, mosquitoes, the weight of weapons, and dragging the combat train through sandy ground did not exhaust his resistance. *The objective was always reached within the set time, although little time might remain for rest.*

Always in contact with the armored division, we rode across the plain toward the east, and finally arrived at another river, where the infantry established a bridgehead which it continued to enlarge.

Some days later, because our communications with the rear were menaced, we started to march toward the south. For the first time in the campaign, we placed ourselves in the van of the infantry, which had advanced by a powerful drive. Moving forward with it, we constituted a wing or flank guard.

About this time, a beautiful picture was presented to our sight.

Skilfully taking advantage of the terrain, the squadrons deployed in combat formation until they reached the point where they had been ordered to dismount. Here the squadron leaders placed themselves in front, and for three days we attacked on foot against the tenacious resistance of the enemy positions in that sector. When we mounted again, some good comrades no longer accompanied us.

For a total of nine days we had marched and fought constantly, had received violent fire from the enemy artillery and had sustained repeated attacks from the Russian infantry supported by tanks.

Black Star.

A heavy machine gun cavalry troop of the German S.S. (Armed Elite Guard). Men carry the MG 34's as well as light machine guns. Note tripods on first horse, belt boxes on far horse; also, spotted camouflage suits, typical of S.S. troops.



Sovfoto

The 57mm AT guns in action, showing muzzle brakes very like the German 50mm.

certain sectors. The enemy tries to find these weak positions in order to deliver counterblows. Reliable protection of the flanks therefore is essential.

The following example is instructive. Units of "N" formation, smashing German resistance west of Sevs, breached the defenses and thrust forward. The Germans, suffering heavy losses, retreated, but regrouped their forces to some extent the next day. They sent an infantry regiment, supported by twenty-five tanks against the flanks of the counterattack.

The Soviet commanders took the necessary steps to protect their flanks in the area of the German concentration. The result was that when the Germans launched their attack, they were met by heavy artillery and mortar fire. The first enemy counterattack failed, but an hour later the Germans again began to advance.

One Soviet battalion then began to thrust forward into the position held by the attacking German group. The Red Army men hacked from both sides of the wedge, cut through the German tank and infantry formation, and surrounded and destroyed it. During the day, the enemy made several further attempts to counterattack, but with no success. He lost large numbers of tanks and infantry and was pushed a long way back.

The Germans had been defeated, but the Soviet commanders never forgot that they might launch an attack on the other flank. This actually happened, but as the Soviet units had reliable cover on this flank, the Germans met with no success.

PANZER FURY

During the past spring, German tanks have cooperated in most enemy counterattacks. The enemy is trying everywhere to concentrate heavy armored forces, and with these mailed fists, cut up the Soviet defenses, thrust into them, and check the Red Army's advance.

Soviet troops have learned to deal with German counterattacks. *The enemy's mailed fist must be met with powerful fire concentrations.* The Soviet troops have adequate fire power at their disposal. They have extensive antitank and other artillery. It is only a matter of utilizing fire power correctly to the full extent.

Wherever this is done, enemy tanks find no thoroughfare.

A few days ago, to the west of Suja, one Red Army company, strengthened by two guns, succeeded for 24 hours in holding off a large enemy tank group which was attacking with an infantry company. The Germans advanced from various directions and tried to strike from the rear, but the Red Army men had organized their defenses so well that none of the enemy's counterattacks succeeded.

ARTILLERY CAN HOLD TANKS

Antitank riflemen did particularly good work. They allowed the enemy tanks to approach within close range, and fired at them point-blank. Artillery was used where enemy pressure was strongest. The German tanks, in face of this heavy fire, either remained static on the battlefield or were forced to retreat.

When separate enemy tanks entered the Soviet defenses, the Red Army men plastered them with grenades, and the tanks were immobilized. When the Germans had lost a considerable number of tanks, they gave up their effort to break through.

When driven out of any important position, the Germans nearly always launch furious counterattacks in an attempt to regain it. That is why positions won in inhabited places and on important communications must be consolidated immediately.

For example, a unit has straddled the highway. Fire positions must be established at once, and the road covered in both directions. Antitank and antipersonnel obstacles must be erected as quickly as possible, to enable the defenders to repulse any attack, irrespective of the direction from which it comes.

In inhabited points, as a rule, defense must be circular, because the enemy frequently attempts to change his direction, to attack from the flanks, to cut the Red Army's connections with the base, or to attack suddenly from the rear.

The Germans are counterattacking on almost all sectors of the Soviet offensive. They see their counterattacks as a means of checking the Soviet offensive. Every enemy counterattack, therefore, must be repulsed.

ARMORED UNITS

In Street Fighting^{*}

by Colonel J. Ziberou, Red Army

DURING fighting in large inhabited centers, small tank units are often obliged to act independently in separate streets. Under these conditions, it is not always possible to centralize command which makes it particularly difficult to coördinate the activities of troops as a whole when fighting in inhabited places.

Streets are usually filled with troops engaged in battle, wrecked motor vehicles, ruins of houses and remains of barricades. All this limits the movement of troops and of dispatch riders (in cars, on motor-cycles, or cycles). Unless traffic regulation schemes are adopted, movement along streets becomes almost impossible. Before the attack begins, the headquarters of formations and units issue instructions on the order of movement along streets.

It is important that all troops not actually engaged in fighting should move along one side of the street and leave a passage clear for dispatch riders and ammunition trucks going forward to the companies. It is advisable to place troops, not actually in battle, in large yards or gardens along boulevards or in other places where there is vegetation. This clears the streets and at the same time affords cover for the troops.

During offensive operations in streets, tank platoon and company commanders should always be in tanks with their units and should direct their movements. Directions are given by platoon commanders mostly by flag signals, tracer bullets and shells, or orally by means of infantrymen coöperating with the tanks. Commanders of tank companies direct platoons by radio instructions transmitted through the infantry, and partially by flags. The company commander should always be able to see the leading platoon of his company, and should follow and direct its activities.

ACTION OF COMMANDERS

Commanders control movement of smaller units by radio, runners, and personally issued orders to units concerned. Side streets are used to move laterally along the front. Personal visits from the commander of the unit, or even of higher formations, are more frequent in street fighting than on the battlefield. The effect of this on the success of the offensive is very great. Unit and formation commanders personally, through their

staffs and from observation posts, follow the course of the attack of every company in order to give them timely coöperation by all means at their disposal.

Unit command posts are situated never more than 500 to 700 meters from the firing line, and formation command posts, no more than a kilometer. Formation and unit headquarters use local means of communications, telephone, motor cars and cycles. Sometimes the telephones of infantry coöperating with the tanks may be used to direct the tank units.

In street fighting, runners on foot frequently have to be used. Considering the slowness of the advance of smaller units, these are frequently very reliable means of communication and direction.

RECONNAISSANCE

The most important measures to be undertaken in ensuring protection are reconnaissance, air and ground observation, flank and rearguards for the attacking units, and firefighting and clearance of streets from the remains of barricades and ruins.

Reconnaissance of enemy streets, obstacles, strongholds, various buildings and objects is carried out by the leading units in the battle. Headquarters frequently has to organize special reconnaissance to establish the



Street fighting in Stalingrad. The German Mark IV tank in rear has just been knocked out.

Sovfoto

^{*}Courtesy, *The Tank* (British).



Sovfoto

A gun crew defends this Stalingrad street with one of the new 57mm antitank guns.

whereabouts of minefields, the character of obstacles and fortifications, strongholds, side roads, fortified objects, approaches to water supply, electric power stations, communication centers, and railway stations. Forces sufficient to ensure the necessary information are detailed for this work.

At the end of 1941 and beginning of 1942, the Germans, attempting to hold the town of Narofominsk and Mozhaïsk, mined their streets so as to hold up Soviet tanks and infantry. In these places Soviet sappers with mine detectors went ahead of the tanks, found the mines, rendered them harmless, and made a passage for tanks and infantry.

Reconnaissance on the flanks of attacking units is of great importance. Its task is to discover and report signs of enemy counterattacks and enemy maneuvers on the flanks or flanking movements.

OBSERVATION

Observation plays an important rôle during street fighting in towns. Staffs of units and formations organize close observation of the enemy in front, on the flanks, and in the rear, as well as observation of operations of our own leading units. Staff observers should be in direct communication (telephone, radio, motorcycles, signal, or other means) with their staffs and should keep them constantly informed of the situation in their sectors.

The number of observation posts that can be organized depends on the situation. Brigade headquarters usually requires at least three observation posts—one in the center and two on the flanks of their area. Unit headquarters will have at least two O.P.s. One of the O.P.s organized by any headquarters should be the commander's O.P. Observers are also placed on every street.

Observation posts are placed in high buildings, in belfries, and other places from which a good view is to be obtained. O.P.s move forward together with attacking units and are never more than 400 or 500 meters from the advanced units.

The difficulties of observation during street fighting, the possibility of sudden attack from side streets, build-

ings, parks and other places that may serve as a cover for an enemy ambush, make it essential that special measures be taken for protecting the flanks and rear of attacking units. Sabotage and sudden attacks by enemy soldiers disguised as civilians are more likely in street fighting than in open country. To counteract this, infantry pickets are placed in streets and when occasion demands are strengthened by light tanks and armored cars.

During battle, the civil population are forbidden to appear on the streets, balconies, at windows, or street doors.

AIR PROTECTION

In the organization of antiaircraft defenses, it must be remembered that enemy aircraft will fly low to shoot up or bomb units during street fighting, as it is impossible for them to get a clear picture of the situation from high altitudes.

Air observation may be carried out by O.P.s having communication with their headquarters.

To repulse air attacks and fire on low flying aircraft, the usual weapons are employed—AA guns and machine guns, AA snipers, and groups of riflemen from an infantry unit. Tanks provided with AA weapons open fire on the enemy only when not taking direct part in battle. The best means of AA defense is for the fighter aircraft of the attacking side to cover the armored units during the attack on an inhabited point. This should be accomplished in accordance with the plan of the general staff and any request made by the staff of the armored formation.

FIRE FIGHTING AND MOPPING UP

Tank units, advanced infantry, and sapper units do not take part in extinguishing burning buildings. This is the duty of reserve units of the attacking formation, or even of succeeding echelons. Operation orders should



Tankists in coöperation with automatic riflemen dislodge Germans from a populated place in the Stalingrad area. The tank is a T-34—fast, medium.

So

provide for action to be taken by tanks and infantry who meet with fires on their way. They frequently have to go around burning districts by side streets, to return to their own general direction after passing the fires.

In the event of the fire breaking out on the leading tank, the machine withdraws from the battle line under its own power. If possible, measures to extinguish the fire are taken on the spot. This task is performed by infantry or sappers following behind the tank. Both sappers and infantry operating with tanks in inhabited centers should be trained to deal with fires in tanks, and utilize any means at hand (sand or earth).

Headquarters of units and formations organize timely mopping up operations in lanes made through the inhabited point. All houses, after having been seized, are carefully examined to ensure that no enemy officers or men have remained behind in them. As they move forward, units mopping up in buildings and streets inform following units of buildings that have not been examined. This is to prevent the possibility of them being fired on unexpectedly and to enable them to adopt any necessary measures. Particular attention is paid to clearing buildings of contact and delayed action mines.

TANK EVACUATION

Street fighting usually causes greater tank losses than fighting in the field. Maneuvering tanks in streets is extremely difficult. Evacuation of damaged tanks from the battle area is a difficult task, especially in narrow streets. Damaged tanks in forward units may block the street and hinder the action of other fighting vehicles. It is not possible to evacuate tanks by means of dragon tractors until the enemy in the street has been mopped up. Tanks, therefore, are taken in tow by other tanks moving in reverse.

A tank which has been damaged in a street is covered by fire of infantry or a light tank until it is removed or repaired. Damaged tanks evacuated from narrow streets should not be taken far in tow, as this crowds the streets and hinders the forward movement of troops from the rear. Towing of a machine under enemy fire is usually done in reverse. A better method is to drag the damaged machine from the street into a large yard or park where the enemy has already been mopped up. The tank remains there until the whole unit advances; then it is evacuated to the tank recovery unit of the formation.

Because of the difficulty of observing forward platoons in action on streets, and also the maintenance of communications with them, advanced observation posts and advanced communications are combined with the observation posts set up by the staff of the unit which will most quickly obtain information concerning damage to the armored fighting vehicles in action, as this unit usually has communications with the advanced units.

A tank recovery unit of a formation operating in street battles should be situated outside the inhabited point, because frequent attacks on this unit by remnants of

the enemy's forces are possible. If the inhabited point passes quickly into the hands of the attacking force and the enemy is speedily mopped up, then the tank recovery unit is set up on the outskirts of the point, in parks or on waste land. Guards for the unit are organized in the usual manner.

AMMUNITION AND REFUELING

One of the characteristics of street fighting is the unequal expenditure of ammunition in companies. The leading platoons conduct the main battle on the streets. Remaining platoons can give the leaders only partial support and mop up small enemy groups that remain behind. It follows, therefore, that ammunition is used up faster in the leading platoon than by platoons that follow. The leading platoon then halts and, when its place is taken by other platoons, retires.

Tanks should not turn in streets blocked by ammunitionless tanks. Ammunition supplies should be brought up from the rear only as far as the company headquarters.

Tanks should not be refueled in the inhabited point, especially in the streets, as this takes considerable time under conditions when the tanks, to a great extent, are without their fighting abilities.

During street fighting, refueling should be carried out only for individual tanks, and then only under conditions of absolute necessity. Groups of tanks are refueled only as an exception. Refueling should be done outside the inhabited point—in woods, on sports grounds, and other large open spaces where tanks are not likely to be attacked with bottle bombs, inflammables or flame-throwers from adjacent buildings housing enemy antitank troops.

In battles for inhabited places, the concrete situation must be considered on each occasion and decisions taken in accordance with that situation. There can be no stereotyped rules.



Sovfoto

An antitank rifle crew fire from a building in the Velikie Luki sector.

Cossacks Rout Panzers★



HOW effectively Soviet Cossack units are combating enemy tank forces was described by a colonel of Cossacks visiting Moscow. The colonel, who did not wish his name disclosed, commands a Cossack unit that took an active part in repulsing a counterattack by enemy tank forces in June, 1942.

A column of large and medium fascist tanks advanced over a broad plain against lines held by Cossack cavalry squadrons. Had the Germans succeeded in breaking through, they would have been able to penetrate deep into the Soviet positions.

The battle was to decide the fate, not only of the particular Cossack unit, but of the other Red Army units concentrated behind them. These were groomed for a thrust against heavily fortified German defenses that comprised a chain of subterranean and surface fortifications protecting the approaches to a certain city.

The battle began at dawn on a hot June day. Allowing the tank column to approach, the antitank batteries opened heavy fire. The first squall of shells disabled several enemy tanks, but the others continued to advance. Cossack antitank gunners, skilfully hidden in clumps of bushes along the roadside, then went into action. Forming a close semi-circle around the tank column, their fire slowed down another 10 tanks and then put them out of the running altogether. The Germans, however, pressed forward doggedly.

At that moment, three flights of Soviet bombers rose suddenly from behind a near-by forest and dropped their lethal loads on the attackers. In the meantime, the antitank artillery intensified its fire and forced the Ger-

man machines to falter and turn back. This exposed the fascist infantry, for whom the tanks had been serving as cover. The Cossack machine guns went into action and spit death at the retreating enemy.

Having lost their tank protection, the German infantry could not stand the hurricane of fire, and soon their retreat changed to a panicky flight. They fled the field and left dozens of disabled tanks and hundreds of killed and wounded infantrymen behind them.

The Cossacks mounted and galloped in pursuit of the enemy, then engaged them in hand to hand fighting. The whole operation took nearly three hours and cost the Germans huge losses in men and equipment.

The colonel compared this battle to some he had fought in 1941. "Since then," he observed, "the technical equipment of our cavalry has improved beyond measure. The unit under my command is equipped with practically every type of the newest firearms."

One of the arms most favored by the Cossacks, the colonel said, is the antitank musket. Convenient to carry and simple to use, these weapons have been nicknamed the "20th century lance." When attached to the saddle during a march, the weapons bear a resemblance to the lances carried by Cossack horsemen of old.

Great fire power enables the Cossack units to withstand furious enemy frontal attacks even when the latter are supported by tanks and airplanes.

The colonel recalled how early this spring his unit operated for a long time far behind the enemy lines. He is quite convinced that had the cavalry not been equipped with all modern arms, it would not have been able to deal the fascists the shattering blows that played such a decisive part when the Red Army captured important strategic positions on this sector of the front.

LAND NAVIGATION

by Major William L. Stockman, Jr., Cavalry*

WHEREVER operations are conducted at night, in fog, or in regions where prominent terrain features are lacking, the ability to navigate is the prerequisite of success.

The present war has been characterized by large scale desert warfare and by increasing dependence on night operations. Small detachments operate independently over wide areas. To be effective, such detachments must know their positions at all times and be able to follow their chosen courses accurately. During the daytime, in terrain where prominent landmarks are present, simple map reading will suffice; but in terrain where no landmarks are present, or at night when landmarks cannot be seen, some form of land navigation will be necessary.

TYPES OF NAVIGATION

The object of land navigation is to keep one always informed of his position. The subject divides itself roughly into three main sub-divisions. They are: pilotage, dead reckoning, and celestial navigation.

Pilotage or point-to-point navigation is the act of moving from one well defined point, be it a natural terrain feature or work of man, to another such well defined point. This is land navigation in its simplest form.

*Instructor, Department of Tactics, Staff and Faculty, The Cavalry School.

Dead reckoning in its basic form is merely the mechanics of keeping an accurate record of deviations from a given course. Dead reckoning may be used to supplement pilotage but will ordinarily be used when pilotage becomes impossible.

Celestial navigation is more complex than pilotage or dead reckoning and consists of the procedure necessary to locate your geographical position on the earth's surface by means of celestial bodies. An octant or sextant and special tables enable the navigator to determine by means of a "fix" on a celestial body his exact location on the surface of the earth. The procedure followed is similar to that used by the aerial navigator or the navigator of a vessel. This type of navigation is resorted to only when great error is introduced into dead reckoning because of long distances involved.

Of these three sub-divisions of land navigation, dead reckoning is the most practical method of navigation for motorized, mechanized, and armored units during darkness and over terrain where landmarks are not in evidence. This article, therefore, will consider dead reckoning more in detail than either pilotage or celestial navigation.

DEAD RECKONING

As previously stated, dead reckoning in its basic form is merely the mechanics of keeping an accurate record of deviations from a given course. The equipment used

VEHICLE No. W-131729 LOG No. 1
 DRIVER J. Doe FROM CR 829
 PASSENGERS (1) W. Jones DATE April 2, 1943
 (2) H. Smith

COURSE	TIME	ODOMETER READING	AZIMUTH	MILES	MILES RECORDED	REMARKS
1	0800	726.4	20°(m)	3.1	3	Desert trail - Cut .1mi, sand
2	0812	729.5	330°(m)	2.6	2.3	Rocky area - Cut .3mi. detour around obstacles.
3	0832	732.1	55°(m)	2.5	2.5	Good trail
4	0858	734.6	324°(m)	.8	.8	Rendezvous!
		735.4				

Figure 1

to compute this data will vary from a dead reckoning set now in the experimental stage, to the more common equipment of government issue that is found in field units.

Some of the more unusual items of equipment to be found in the dead reckoning set are listed below with brief explanations.

Magnetic Compass, Fixed.—A fixed vehicular compass made with adjustable magnets placed close to the compass in such a manner as to neutralize the magnetic fields of the vehicle.

Sun Compass, Universal.—An instrument by which, given the latitude and local sun time, the true azimuth of any given course may be determined.

Board, Drawing, with Universal Drafting Arm.—A drawing board with a built-in protractor and drafting arm, enabling the user to plot angles automatically.

The more common items of equipment which may be used to compute the necessary data for dead reckoning are the lensatic compass, engineers scale, protractor, triangle, paper, and pencil.

The distance traveled is obtained from the odometer, that part of the vehicular speedometer that registers in miles and tenths of a mile the distance covered by the vehicle. Before starting out on a "run," the accuracy of the instrument should be determined. Many factors, however, will affect the accuracy of the reading other than the mechanical deficiency of the instrument itself. Well-worn tires and tires smaller or larger than those specified, or operated at less than specified air pressure, will cause corresponding errors in the reading on the odometer.

It must be remembered that a map measurement gives the horizontal distance between two points. In actual travel between these two points, there will be a vertical deviation from the horizontal measurement due to obstacles and hilly terrain. In sandy or muddy terrain, slippage of the wheels will cause the odometer to read more than the distance actually covered. Errors caused by any of these factors must be estimated and an adjustment made for them in recording mileage in the log. (See Figure 1.)

Direction is determined by azimuth as shown on any compass. If the lensatic compass is used, the person using it must dismount from the vehicle before taking a reading. Suggested minimum distances are 50 yards from any armored vehicle and 25 yards from any other vehicle. The lensatic compass is also easily affected by any base metals on the person.

In order to record azimuths and distances traveled, an accurate log must be kept. All information pertaining to the movement of the vehicle must be written down promptly. Nothing must be left to memory. Each major change of direction is a new azimuth COURSE. Courses are numbered consecutively in Column 1.

The columns headed Time and Odometer Reading

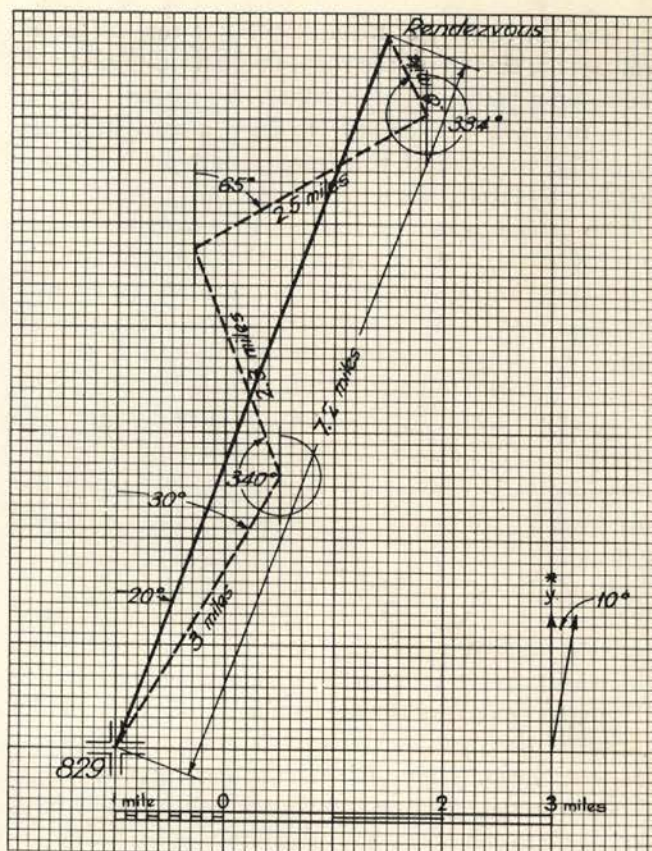


Figure 2

are filled in for each change of direction. The azimuth, either magnetic or true, is recorded for each change of direction in the column headed Azimuth. In the column headed Miles, the mileage as registered by the odometer is recorded. Under the heading Miles Recorded, the adjusted mileage, taking account of slippage, deviations, and other factors, is recorded. In the Remarks column, brief remarks about the terrain and reasons for adjusting mileage in the Miles Recorded column are entered.

A given "run" may be plotted either on a piece of graph paper or on a map. Each "run" is plotted as soon as practicable from the data shown in the log as illustrated in Figure 2.

In the following illustrative problem, a short distance has been used merely to illustrate the mechanics of keeping the log and plotting the course. Distances will usually be far greater than shown in the problem. In the problem, the lensatic compass, the vehicle odometer, a protractor, an engineer's scale, an ordinary piece of graph paper, and a pencil are the only necessary materials. It has been assumed that the magnetic declination for this problem is 10° east. All azimuth readings in the log are magnetic, and it is therefore necessary to convert them to grid azimuth before plotting them.

PROBLEM

Assume that you have been given the mission of driving across country from CR 829 to a rendezvous pinpointed on a map but otherwise unknown. Be-

cause of the scarcity of maps or the fact that no terrain features are shown on the map, you decide to plot your course on a piece of graph paper. You must never assume that you will be able to keep a straight course all of the way unless you have certain knowledge of that fact by familiarity with the terrain.

The vehicle odometer has been checked and found to be accurate, and no compensation for error will be necessary. The distance and azimuth to the rendezvous are taken from the map and plotted to scale on the graph. The distance is found to be 7.2 miles, and the azimuth is found to be 20° grid. This is your base line. If you could travel for 7.2 miles on a grid azimuth of 20° , you would arrive at your destination. Your best procedure is to travel as nearly as possible along this base line, and, meanwhile, keep track of all deviations from it.

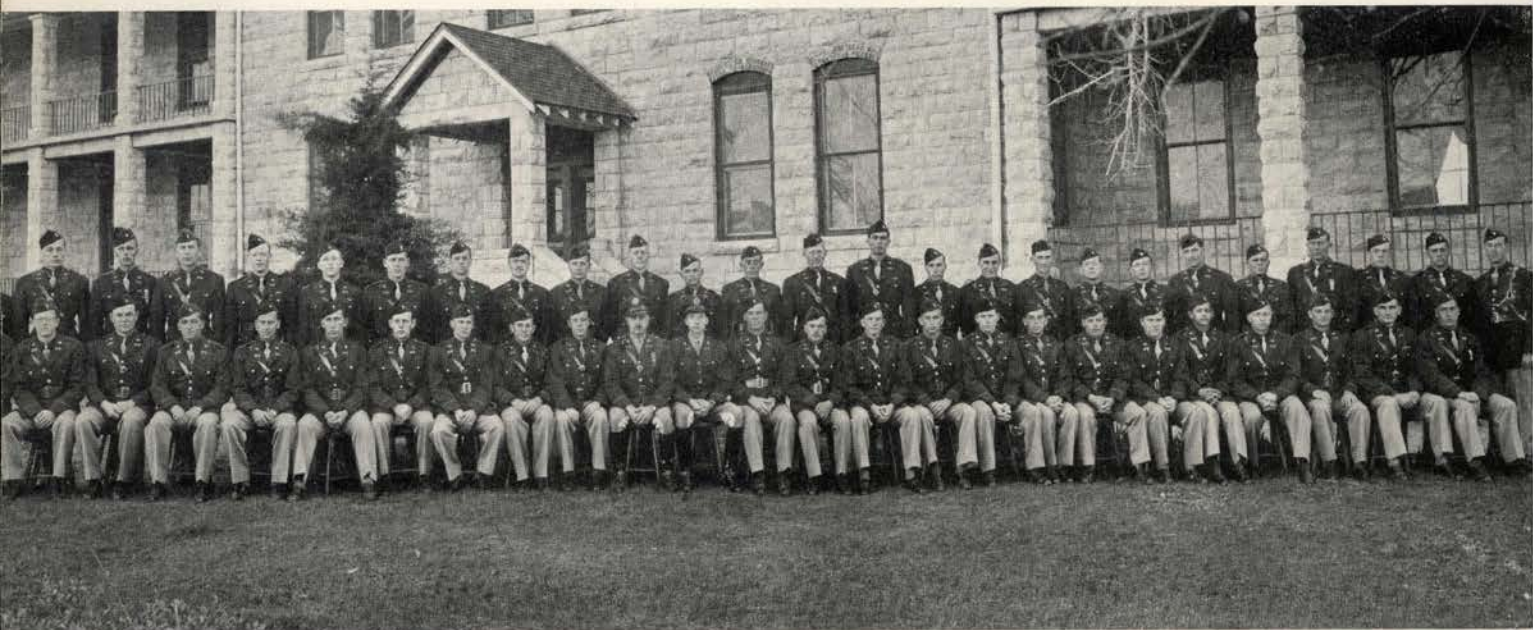
The course, time, and odometer reading (726.4) are logged by the recorder. In approximately the same direction that you wish to advance, there is a trail which you decide to take. The azimuth of the trail is 20° magnetic. You travel an actual distance of 3.1 miles, and then you are confronted with a rock-strewn area, that necessitates a change of direction. Because you have crossed a sandy stretch, and your tires slipped, you decide to compensate for this slippage by deducting

.1 mile, making the distance recorded 3 miles. These entries are recorded in the appropriate column.

Course, time, and odometer reading are entered in the log for course No. 2. You decide to go around the rock-strewn area, and you feel that an opening through the area on a magnetic azimuth of 330° will be passable. After proceeding an actual distance of 2.6 miles, you decide to get back in the direction of your original line. Because you were forced to detour around certain obstacles on this leg, you compensate for this by deducting .3 mile. Notations are made in the log under appropriate headings.

After you have entered the course, time, and odometer reading in your log, you decide to take a trail to the right on a magnetic azimuth of 55° . After proceeding up the trail for 2.5 miles, you decide to do some checking and find that you must be in the vicinity of the rendezvous as you have traveled a recorded distance of 8.6 miles. You plot your course as shown in Figure 2 and find that your rendezvous is .8 miles away on a grid azimuth of 334° . This reading is converted to magnetic, and you proceed to your rendezvous.

Successful dead reckoning depends on accurate and timely entries in the log, accurate plotting of the course, and careful estimation of and adjustment for errors in mileage.



GRADUATES OF THE OFFICER CANDIDATE CLASS, APRIL 15, 1943, THE CAVALRY SCHOOL

Reading from left to right front row seated: Raymond E. Anderson, Willis B. Berblinger, Harold B. Beverly, Roy J. Bolen, George F. Brosan, Jr., Ralph A. Broussard, Louis F. Brown, Robert M. Brown, Thomas J. Burch, Class Secretary and Treasurer; Charles F. Carroll, Captain Harry Coopland, Jr., Cavalry, Commanding; First Lieutenant James J. Costigan, Cavalry, Executive; Albert D. Clanton, Wayne A. Cowan, Clifford W. Crites, Ellsworth C. Cross, Leo M. Doran, Robert E. Ellis, Weldon W. Feters, Walter N. Garms, Paul R. Herrera, Paul H. Hofeditz, Class President; Victor R. Holt, Robert A. Huffman, Leon A. Isreal. *Back row standing:* George F. Lastrapes, II, Max D. Lewis, William H. Lynn, Walton J. McHale, Charles H. Mills, William J. Miniham, William R. Moran, Calvin L. Morgenthaler, Warren J. Morrow, Paul R. Moynahan, Joseph J. Olah, John B. Parkhurst, Joseph H. Peake, Dallas R. Peters, John D. Petropulos, Marx Rosenzweig, Michael R. Ryan, Martin W. Schoepfer, David H. Shenk, Edgar E. Sheppard, Donalan J. Shillington, Joe E. Shoemaker, Marvin E. Tomlinson, Furman H. Updike, Raymond E. Wantz, Harvey E. Wood, Frank L. Young.

The Reconnaissance Squadron in the Motorized Division

*by Lieutenant Colonel Brainard S. Cook, Cavalry**

RECONNAISSANCE, as defined by the Field Service Manual, is the operation of obtaining military information in the field by troops sent out for that purpose. The term "military information" is used instead of the "enemy information," as used in some publications of the Field Service Manual, because it is believed that the all-inclusive term is especially applicable to the motorized division.

The nature of the terrain, the availability and condition of the road net, and the location, strength, and condition of the various stream crossings in the theater of operations should be items of immediate concern to any commander of motorized forces. Second only to direct information of the location, strength, and disposition of the enemy main body, these considerations will have a tremendous bearing on the decision of the motorized division commander. Hence, these terrain conditions must be a matter of immediate concern to all ground reconnaissance agencies of the division.

The mission of the reconnaissance squadron is twofold: first, to secure information regarding location, strength, disposition, or movement of any enemy forces that could interfere with the mission of the division; second, to secure and send back vital information regarding the nature of the terrain and the condition of the road net within the zones reconnoitered.

MEANS OF RECONNAISSANCE

Having diagnosed the trouble, the good mechanic reaches for the proper tool for repairs. Certain tools are available within the division for the accomplishment of its reconnaissance missions. Each regimental combat team has available its own reconnaissance platoon, but these are for close-in reconnaissance, and should remain under control of the combat team's commander.

The division engineer battalion also has a reconnaissance company, which includes one complete reconnaissance platoon. These men are specialists on route and bridge reconnaissance, but are not sufficient to cover all routes that might be used. They should be left under the control of the engineer commander.

The reconnaissance squadron then is the unit within the division upon which the commander must rely for the bulk of his early information. It is his own tool box, always available on his call, without depleting the strength of other units of the division.

Within this so-called tool box are the types of tools

designed to accomplish the job that the squadron will be called upon to do. It contains reconnaissance units to seek out information, and support units to furnish the squadron with a fast-moving mobile reserve that can be used to conduct a reconnaissance in force or that can be held in reserve to effect a penetration of the enemy's reconnaissance screen. It may also be used to counter-attack and afford the scattered reconnaissance units an opportunity to reorganize after a determined enemy attack. It also includes mortar and pioneer and demolition squads.

SCOPE OF EMPLOYMENT

On many occasions, officers have suggested and problems have been written, to force the reconnaissance platoon into dismounted action, and to continue a fire fight against opposing infantry. While dismounted action is the basis upon which all thorough reconnaissance is built, and the reconnaissance personnel should be trained thoroughly in all phases of dismounted scouting and patrolling, it is not believed that dismounted action on the part of a reconnaissance platoon should be resorted to on every occasion of meeting resistance. Every tendency to close with the enemy should be avoided. Dismounted, the platoon becomes two small reconnaissance patrols, each supported by a light machine gun. Vehicles left immobile are useless and reduce the reconnaissance platoon to the same speed as the opposing dismounted platoon.

The dismounted platoon does not possess sufficient fire power for conducting a dismounted fire-fight. However, a small dismounted reconnaissance patrol may be formed from either section. This dismounted patrol should consist of not over five riflemen. These make excellent reconnaissance patrols and still leave the automatic weapons in the vehicles available for support or rear protection. Drivers and radio operators can man these weapons without neglecting their primary duties.

The most frequent questions encountered when attempting an explanation of vehicular reconnaissance are:

What frontage can be covered?

At what speed can it be covered?

How far should they operate in front of the division?

A reconnaissance platoon can cover effectively a front of from five to seven miles. A troop on reconnaissance should be able to cover roughly a frontage of from fifteen to twenty-five miles. All distances, of course, de-

*8th Reconnaissance Squadron.

pend on the nature of the terrain and the availability of the road net.

ZONE

In wide, relatively flat, open terrain, these frontages might be extended considerably. In close, hilly country, with numerous intersecting roads, either the forward speed of the entire reconnaissance must be sacrificed or the frontage covered must be reduced. Side reconnaissance, lateral contact, and flank protection are the most difficult, and consequently, are the governing factors in the forward movement of a reconnaissance patrol. Taking these things into consideration, it might be deduced that the reconnaissance squadron can cover effectively a maximum zone of from sixty to seventy-five miles in width. This leaves nothing for special reconnaissance and only a small reserve. If this zone to be covered can be reduced to about forty to fifty miles, the squadron usually can be assured of having sufficient units left for special reconnaissance missions. This gives the division commander and the division G-2 something immediately at hand—a working reconnaissance agency to investigate suspicious areas and conform questionable reports without depleting his carefully planned reconnaissance teams.

OPERATION

Before discussing the forward speed of a vehicular reconnaissance unit, it is necessary to discuss briefly the method of operation of those units. The popular conception of a vehicular reconnaissance team seems to be a group of vehicles, either armed or unarmed, which rolls down the highways in a more or less haphazard patrol formation until some alert enemy with a machine gun or antitank weapon opens fire on the leading vehicle. The fact that one vehicle out of five undoubtedly will be lost in such operations seems to create no impression. The loss of that vehicle and crew is considered as a fair price for the information obtained regardless of how meager that information might be. Working on that theory, a reconnaissance section would then send back exactly five messages, and the last one would be brought in by the motorcyclist who is credited with enough brains to turn tail and run when the reconnaissance car is blasted out of existence.

The division commander who wants reconnaissance today undoubtedly will want more reconnaissance tomorrow. It is the duty of the reconnaissance commander to so train his units that they may be able to operate in such a way as to secure the maximum of information with the minimum of losses. This requires such a high state of training that replacements are almost nonexistent. The boldness of the lion must be tempered

with the wariness of the jackal, and the team-work of the wolf-pack must be supplemented by the cunning of the fox when the pack is scattered.

Replacements cannot be placed immediately in responsible positions but must be worked gradually up through the organization until their metal has been tried, tested, and found true. A replacement is not a reconnaissance man. He is a soldier who has not been shown the rudiments of individual protection. He must be worked into the team after his arrival. Teamwork and perfect coordination are the essence of good reconnaissance.

Movement and observation, each dependent on the other, constitute the basis upon which reconnaissance is made. During the early stages of an operation, when opposing forces are at comparatively great distances, *observation* may be somewhat *subordinate to movement*. As the two forces approach within striking distance, however, the positions reverse and *movement* then becomes dependent on *observation*.

In a discussion of the reconnaissance elements of a division, a recent instruction pamphlet states in one paragraph that the reconnaissance troop should precede the division by a distance of from fifty to seventy-five miles. On another page, the distances are again stated as between fifteen and seventy-five miles. It seems possible that the upper limit of seventy-five miles is allowing the base runner to get too much lead off first base. A good left hander could pick him off too easily. From recent reports, both Adolph and Hirohito seem well supplied with southpaws. So many conditions affect this variable distance that it would be impossible to set definite limits that would not at some time or another be exceeded.

The more conservative Field Service Regulations says, "The reconnaissance squadron should operate far enough in advance of the motorized division to give timely warning of any hostile threat of such forces that might interfere with the mission of the division."

The most mobile force that can affect the mission of the division are the enemy armored units. They move fast, strike quickly and can do considerable damage. Most reports indicate that heavily armored vehicles have a top speed of between eighteen and twenty-five miles per hour, but no mechanized unit can move at top speed for any great distance.

A safe estimate would be an average of between twelve and fourteen miles per hour for the entire unit, unopposed but expecting resistance. Using these figures, the armored unit would then cover thirty-six to forty-two miles in three hours. Allowing one hour for the transmission of messages, this leaves two hours for

An outline of the tactical characteristics of the Reconnaissance Squadron and its ultimate use to further the mission of the Division as a fighting team—

the preparation of our mobile defense, provided that our reconnaissance agencies are forty-two miles in advance of the leading elements of the division. With tank destroyer units well to the front of the division columns, it is believed that this time should be sufficient to allow for organization of selected positions.

The time that might be secured by effective delay of the armored column has not been considered. The reconnaissance squadron is fairly well equipped with land mines, antitank guns, and demolitions to affect considerable delay on these columns. This then, allows a margin on the side of safety for the selection and occupation of the position upon which our defense is to be organized.

With these estimates as a basis, and allowing another eight miles on the side of safety, we can set our upper limit at about fifty miles. The lower limit of fifteen miles seems to be adequate to permit the deployment of the division without interference from the reconnaissance squadron.

COMMUNICATIONS

For communications, the reconnaissance squadron must depend on radio and the motorcycle messenger. The squadron is equipped with both long and short-range sets. Panels in each armored vehicle are available for air-ground communications but are seldom practicable because of the speed with which reconnaissance patrols must operate.

Operators must be highly trained, and net discipline must be almost perfect. Continuous wave operation between the long-range sets is preferable to voice transmission, because it is more readable through local interference, and it also eliminates the chance of errors through poor pronunciation.

Division codes and cipher devices should not be carried because of the possibility of capture. Messages may be transmitted in the clear, but code names and template designations should be used to conceal the identity of subjects of locations. A short system of abbreviations, capable of being committed to memory, should be used—more to speed transmission than to confuse the meaning of the message.

In addition to the means at hand, both commercial and friendly wire communications should be used to the utmost, when available. Emphasis is placed on speed and accuracy of transmission, rather than on the means used. In moving into operation, radio transmission should be kept to a minimum. Radio silence, however, should not be imposed on any unit actually engaged in reconnaissance, as constant changes in locale sometimes affect transmission, and immediate radio contact must be insured for the speedy transmission of initial contacts.

The trains of the reconnaissance squadron should move by bounds and follow closely on the advance of the squadron. They contain the maintenance personnel, armorers, kitchens, and ammunition trucks. The motor

maintenance vehicles are equipped for protection of the trains, and each maintenance crew is transported in a radio-equipped armored car.

Disposition of the trains can be made in two ways. Troop trains may be released from squadron control and may move along the troop axis of movement, or the entire squadron trains may be grouped under control of the squadron S-4 or motor officer and move along the axis of the squadron that is released to the troops to move up under cover of darkness. The latter method seems to offer greater control and more protection.

Except in extreme cases, the trains should be kept in concealed bivouac during daylight and should be prepared to move up under cover of darkness. If the advance is so rapid that movement in daylight must be made, new bivouac areas must be selected, and the trains moved by infiltration under protection of the maintenance cars.

Three-quarter ton cargo carriers in the squadron trains will allow part of the trains to move forward for supply of the troops under control of the motor officer. The remainder, under the squadron S-4, moves back to the division supply points for replenishment. If ordnance repair crews are attached to the reconnaissance squadron maintenance crews, then the long tow back to the Ordnance repair shop will be eliminated and valuable hours of darkness can be utilized for repair.

ADVANTAGES AND DISADVANTAGES OF THE RCN. SQ.

One of the advantages of the reconnaissance squadron (like the cavalry) is its *Mobility* and *Fire Power*. Added to these are the improved communications that can be maintained by the electrically operated radio sets, and the protection afforded by the speed of the quarter-ton and the armor plate of the armored car. This gives a reconnaissance unit that can move fast, deliver a stinging blow when necessary, and report its information promptly.

As a disadvantage, it is a unit that, while not entirely roadbound, is dependent on fairly good roads for quick movement. *Motor vehicles are noisy, and this puts a distinct limit on their use for night patrols.* Motor reconnaissance must be supported closely if expected to seize and hold vital terrain features. Lastly, all motor vehicles present a difficult maintenance and supply problem that must be solved completely, if the unit is to remain in operation.

RÔLE

The rôle that any reconnaissance unit plays in the theater of operations is dependent upon the mission assigned and the position of the parent unit. When the division is acting alone, the reconnaissance squadron may be called on to furnish reconnaissance to the front and flanks. This will present the hardest problem to the reconnaissance commander, as in almost every case, all of the troops must be used constantly. As battle is

joined, reconnaissance units withdraw to the flanks and move out and in, to report enemy rear installations.

When the division is operating as part of the corps on one of the flanks, the reconnaissance squadron must maintain close contact with the corps reconnaissance regiment and cover the exposed flank. In the initial stages a reconnaissance patrol may be detached to the interior flank as a contact patrol between adjacent divisions.

When the division is operating as an interior division of the corps, the reconnaissance squadron should usually be detached and used to augment the corps reconnaissance regiment. If not, it may be used to protect the division trains and cover routes for their forward movement under cover of darkness.

When the division is in reserve, the reconnaissance squadron should not be detached and used to supplement corps reconnaissance, but should be left at the disposal of the division commander for the reconnaissance of routes to both flanks and used to cover the forward movements of the division when it is committed to action.

In some instances, the squadron may be used either by division or corps to cover the movement of a particular task force which has been assigned the mission of seizing important terrain features well to the front or flanks. These tasks are essentially the same as those assigned the reconnaissance troop in the triangular division.

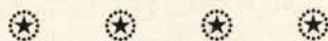
The motorized division was developed in order that it might provide fast moving combat teams to follow up the advantage gained by an armored thrust. The reconnaissance squadron, therefore, must follow closely

on the advance of the armored force, maintain contact with it, and seek out and report isolated bodies of enemy troops that might be left in its wake. Finally, it must push well to the front and flanks of the terrain feature to be held. It must be prepared to meet and report the size, strength, and direction of movement of any counterattack that might be launched. But in addition to all this, it must be remembered that the division commander will want positive information as to routes, bridges, and terrain.

CONCLUSION

It is well to enumerate the instructions and information that the reconnaissance squadron commander must have from the division staff, in order to accomplish the task assigned. First and foremost, he must have early information of the mission of the division and the division commander's plan of action. He should be informed at all times of the enemy situation and any subsequent changes. If he is assigned a dual mission, one must be given priority. If he is required to seize and hold terrain features, he should be reinforced by ground troops sufficient to organize the position to be held. As vehicle maintenance and supply is one of his most serious problems, some consideration must be given his unit as to priority on repair and replacement.

In return for this, the division staff can expect a thorough, fast moving reconnaissance; information of the enemy both positive and negative; first-hand information of roads, trails, bridges, and the general conformation of the terrain; and a reasonable delay of main enemy columns to allow the division time to prepare for action.



The Time to Learn Is Now

We frequently hear the remark: "They will learn to take cover when the first bullet comes," or, "Don't worry, those men won't do it like that when they are actually in combat."

Men who learn from the first bullet will only learn by fear and that is the wrong way. They will scuttle to earth and figuratively put their heads in the sand like ostriches. Some will be wounded or killed by the bullet that is supposed to teach them. Fear leads to panic. Confidence, which is so essential to success, is never found where fear is.

Men must learn *now* to take cover. Men must acquire *now* the physical stamina and determination which will enable them to continue to fight intelligently and correctly no matter how tired they may be. It cannot be too strongly emphasized that merely hiding is not the objective. The purpose of training in concealment is to teach men and officers to conceal themselves and still keep the enemy in view. It takes training to lie quietly watching an enemy, calm in the assurance that he cannot see you. It requires training to know the effect of backgrounds and it takes practice to learn how to use them.

It requires constant emphasis to make men realize that in this war the enemy may be expected on the flanks and in the rear just as surely as in front. Men and officers do not always realize that support platoons, elements of the heavy weapons company and the reserve company can expect fire from any direction and must dispose themselves to be ready for such fire at any and all times.—COLONEL W. H. WILBUR, U. S. Army.

Notes from a Cavalry Regiment Overseas

by Colonel J. W. Cunningham

PREPARATION FOR OVERSEAS

WHEN a regiment is alerted for overseas service, the first question to arise is that of equipment. Orders from higher authority require that it be limited to that specified in the Table of Basic Allowances. In general, this has proven satisfactory for a cavalry regiment. The six months' supply of maintenance matériel, however, as prescribed in the Table of Basic Allowances, is based on requirements of dismounted organizations. To these must be added certain supplies peculiar to the cavalry, such as neatsfoot oil, saddle soap, sponges, repair parts for machine gun and ammunition hangers, horse equipment, leather, etc.

To allow for the use of saddle bags in place of the infantry packs, a certain amount of adjustment must also be made in the prescribed plan for the packing of individual equipment. Changes in the normal packing of barrack bags A and B are necessary in order to dispose of the shelter-half and blanket, as they naturally cannot be carried in the saddle bags.

Among items not listed as prescribed equipment, but which should be included by a unit preparing for an overseas assignment, is a moving picture projector and generator.

Another item that should be mentioned is the matter of motor spare parts and accessories. Any regiment go-



Mangers and corrals constructed by the regiment

ing overseas should take all of them possible. They will be needed.

Should the band instruments be taken? Yes—by all means! Our Cavalry Band has been the greatest single morale factor, not only for this regiment, but for practically all neighboring units of all branches of the service.

Equipment must be packed in strong containers, marked as directed, with lists of equipment contained therein. In addition, a large and easily recognized identifying mark should be placed on the corner of each container. This will be particularly helpful in securing equipment upon debarkation.

During the period of preparation for overseas service, the closest attention should be given to the correct disposal of troop-owned property and the payment of bills—not only by organizations but by individuals. If insisted upon, this will eliminate much paper work after arrival.

ABOARD TRANSPORT

The regiment embarked, and every attention was immediately given to the security of the vessel. All caliber .50 guns were mounted and manned, as were all 37mm guns. Calisthenics and "abandon ship" drills were conducted. In addition to the gun crews, a considerable portion of the command was occupied by police, guard, and kitchen details. Officers schools were conducted during the voyage. Duties of some kind were assigned to as many as possible in order to counteract the monotony of the days at sea under conditions of crowded quarters and limited deck space.

The usual blackout was in effect, and upon one occasion of an actual alert against submarine attack, the conduct of officers and men was excellent, and reflected their prior training.

DEBARKATION

When the promised land was reached, the regiment debarked and immediately marched to a near-by staging area, then promptly marched back again, to unload the ship.

At this point it was discovered that we had apparently landed in the original nest of "Ali Baba and his Forty Thieves." Property and Post Exchange supplies disappeared under our very eyes, and this situation was remedied only by the establishment of a heavy guard. If possible, all organizations should take their own Post Exchange supplies with them overseas.

SEMI-PERMANENT CAMP

After several days in the initial staging area, the regiment was directed to move to a more suitable location. This area proved to be a fortunate choice. Located in a broad valley through which run several crystal-clear streams, the site affords ample camp space, a drill field approximately the size of that at Fort Bliss, water, grass and considerable cover. Roads, bridges, corrals, feed boxes, and racks for long forage have been constructed. Kitchens have been screened, and are now equipped

with concrete floors. Wooden frame mess halls are now screened and are fly-proof and comfortable.

ANIMALS

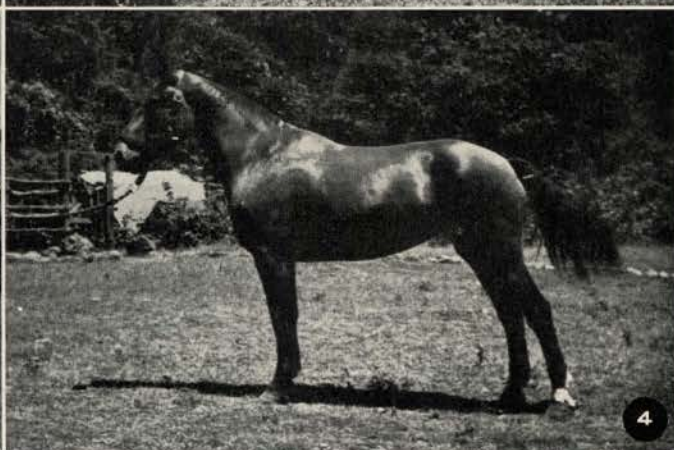
Upon arrival, it was discovered that approximately five hundred recently purchased animals had been torpedoed en route. The several hundred on hand were inferior in quality and in very poor condition. This situation was soon straightened out, and the regiment is now completely mounted. The conditioning of these animals has been a difficult task. Many of them arrived after their sea voyage with strangles or in such a condition as to make them unfit for duty for a considerable period of time. In addition, many of them, approximately four hundred, are under five years of age, and require careful handling. Very few of these animals were broken before they arrived, and there has been a heavy casualty list in the near-by hospital for some months.

The feed situation for horses has been another one of our problems. Oats have been furnished in good quality and in sufficient quantity. There has been little or no "hay" as we understood the word in the United States. The bulk forage has consisted for some months of chaff, which is nothing more nor less than chopped up oats and straw. It was found very unsatisfactory to feed this chaff in nose bags and some 200 twenty-foot feed troughs had to be constructed without delay. For the last few months the long forage has consisted of the oat stalk with the oat heads upon it. The result is that the animals eat the oats, pull out the straw, and trample a great deal of it under foot. This causes considerable waste. It is the opinion of all officers, including the regimental veterinarians, that the animals cannot do as well on this present long forage. It is deficient in nutritive value and should be replaced at the earliest possible moment, preferably by a roughage similar to the hay grown in the United States or at least by the chaff referred to above.

Approximately 60% of the animals show a great deal of thoroughbred blood. They have good heads and necks, long sloping shoulders, and straight legs. There is a strong tendency, however, to short sloping croups, and light bone. The high withers have been a source of trouble. Of the considerable number of small, stocky, draft-type animals received, a few have made excellent pack horses, but many are unsuited for use as either pack or riding horses because of their too-broad backs and almost entire lack of withers. Some of these have made excellent work horses, however, and all troops have developed good teams.

TRAINING

Training has been based upon war department directives applicable to this theater of operations, and upon personal accounts of troops who have seen active duty. Much emphasis has been placed upon rifle firing at short ranges, conditioning marches, dismounted reconnaissance of the rugged terrain of this locality,



1—Draft type, used for riding, as pack, and work horses. 2—There is a high percentage of mares in horses received. 3—Good type trooper's mount. 4—A good pack horse of the draft type.

and hand-to-hand combat. Again, the bayonet has been a very useful weapon in preparation for this type of fighting.

Officers and noncommissioned officers classes are conducted, and in general our training has corresponded very largely to that required at home.

The regiment has been seriously handicapped by details and special duty requirements—varying in number from 100 to 300 men—which have been continuous since our arrival.

GENERAL

The climate of this locality is excellent. The health

of the command, aside from the casualties incurred in breaking the remounts, has been excellent—comparable to that of our best located posts at home. Since June of 1942 there has been but one case of venereal disease incurred. This I believe is a record to be proud of.

The greatest problem now confronting us is the preservation of the present high state of morale which is maintained by keeping everyone reasonably occupied, yet providing time for such recreation as conditions afford. This cavalry regiment, trained to fight mounted or dismounted, intends to be ready to meet the enemy.



Many things hitherto unnoticed even by the thinking public have been brought to light, frequently with new emphasis and implications, through experiences undergone on the China and home fronts in connection with the present conflict. The usefulness of the horse in modern warfare is one of such discoveries. In reality, without the services of this dumb, faithful animal, Japanese troops would not have been able to carry out successful, daring attacks upon enemy positions, particularly in battles on the rugged steeps and in the narrow passes of the Chinese mountains. Contrary to popular expectations, the increasing mechanization of the army has by no means diminished the utility of army horses. The present hostilities have certainly established their distinct place in modern warfare.

From the April, 1939, edition of the *Tokyo Gazette*, a monthly report of current policies, official statements, and statistics of the Japanese Government published in Tokyo.

Superb Cavalry Mounts

From Soviet Horse Ranches*

REMEMBER how Belov's famous cavalry broke through the redoubtable Guderian's lines and sent the German "tank god" scampering back? Or the scores of other instances of shattering avalanches of mounted men that struck fear into the fascist troops and crumpled up their lines under the hoofs of superb horses to the accompaniment of flashing steel?

Everyone knows the punch of the mounted arm of the Red Army. Yet few stop to think what that punch is based on, where it derives—besides the valor and stamina of its men and the skill and grit of its commanders—the strength that has disproved all those "military theoreticians" who doomed the horse to oblivion as an important participant in frontline action.

To get to the source of the colossal momentum of a cavalry charge, one must turn to the far-flung regions of the USSR where the common, obscure horse rancher and breeder has spent long years in raising steeds that now have stood the country in good stead as a reliable battle reserve. Their persistent, stubborn work runs back for a long time.

*Moscow News.

VAST RESERVES

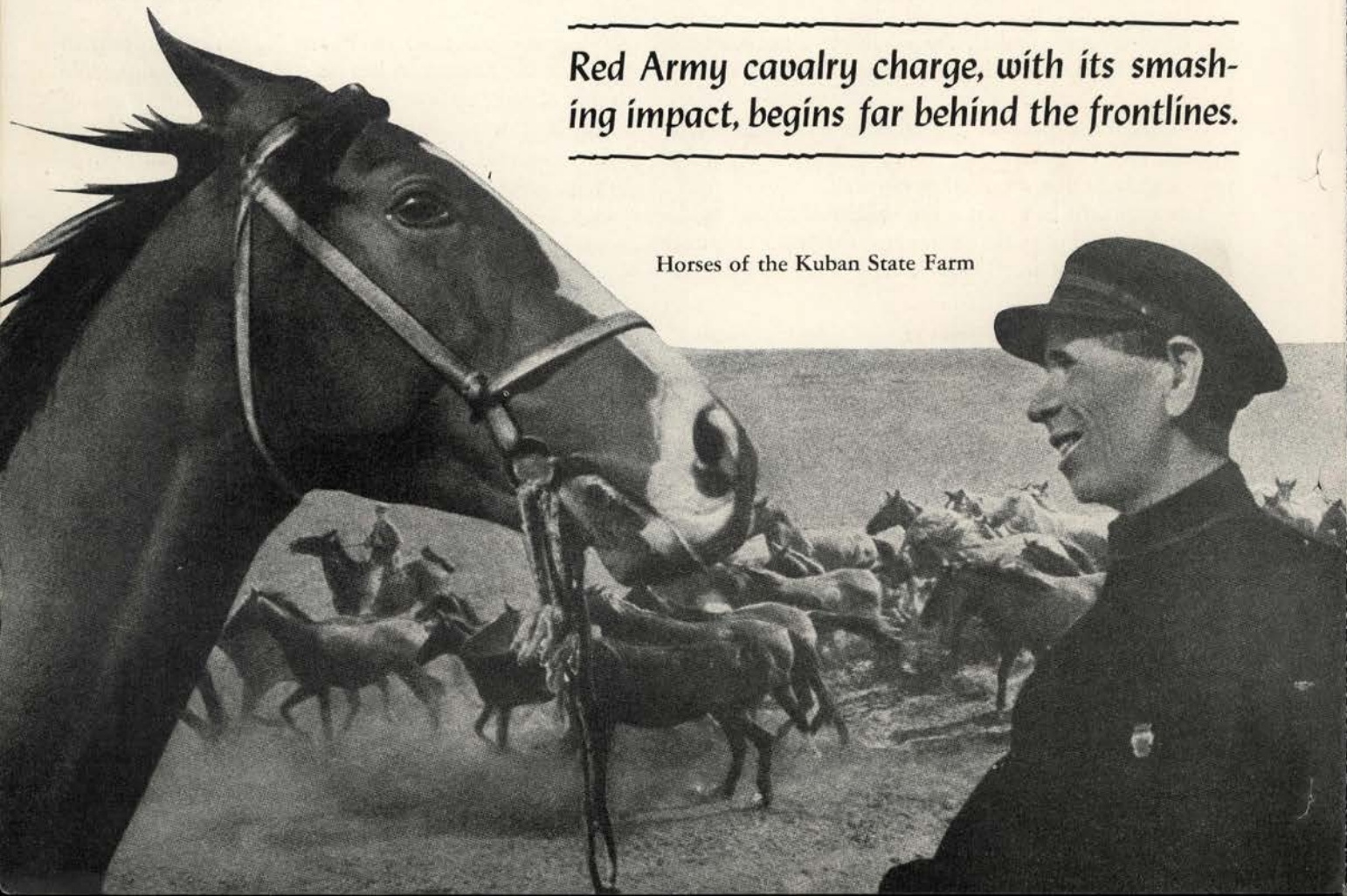
A large army of horses at the front—supplied in abundance by collective horse farms—requires vast reserves of remounts in the rear. The Soviet Union has these reserves, and even the months of war have not made much of a dent in them. In Siberia alone, there are many regions with 30,000 to 50,000 horses suitable for the army each year. What is more, these remount reserves are slated for a further increase this year, with the plan calling for a considerable rise in the number of head as against last year.

Incidentally, it must be remembered that not every horse is fit for service in the armed forces. Cavalrymen have their own requirements—only enduring and fleet-footed chargers will do for them—while the artillery evaluates its horses by their strength and plodding power. So it goes all along the line, with each arm presenting its own demands as to breeds. But they all must be superbly trained.

The Russian army has always been famed for its sturdy horses and skilled trainers. Field Marshal Suворov made his cavalrymen especially train their horses to

Red Army cavalry charge, with its smashing impact, begins far behind the frontlines.

Horses of the Kuban State Farm





These Kirghiz horses, shown on a collective farm in Kirghizia, are descendants of the sturdy Mongolian breed.

cope with the bristling square that then was a potent tactical stunt on the battlefield. Great masters at training cavalry mounts are Cossacks and Caucasians, as well as the steppe dwellers of Kalmuckia, Kirghizia and Turkmenia, all of whom have added to their adeptness at the game during the last two decades.

WIDE RANGE OF BREEDS

The tremendous variety of climatic conditions to be found in the Soviet Union is one of the factors that contributes to the fulfillment of the demands placed by the army. Thanks to them, the country has a wide range of breeds suiting the most varied requirements, from modest barnyard dobbies to pedigree pacers and heavy-duty draft horses. From the very beginning of Soviet large-scale stud farming, it has been placed on a scientific foundation. Specialization of a sort took place in the various regions, and each centered its attention on the breed best adapted to it.

The Cossacks of the Don, for instance, breed the famous Don strain of unexcelled cavalry horses. Though the Don breed has spread to many other regions, even as far away as distant Buryat-Mongolia, it is the Don area that still remains the main supplier of the breed that bears its name for the army.

The autonomous Soviet republic of Kabardino-Balkaria in the North Caucasus produces the local Kabardin breed, unexcelled for service in the mountains.

Turkmenia is the home of the Akhal-Tekin desert horse, hardy and enduring. Nor is it capricious as to food, which is a distinct advantage under frontline

conditions. A few glasses of water and a couple of pork sandwiches will suffice for a day!

Gorky region and the Mordovian autonomous republic give us our Brabancons, well adapted for artillery, and Tambov and Ivanovo regions, our Clydesdales.

The central regions of Russia and the Volga area raise the Russian and Russo-American race horses, so popular in the army.

The thousands of horses of the famous Kirghiz strain, found in the cavalry units, are daily bearing out on the battlefield their reputation for stamina and speed.

The collective farmers are devoting themselves heart and soul to raising saddle horses worthy of the Red Army cavalry; they know that the lives of the men defending the country and their peaceful labor often depend on the animals they breed.

The Kirghiz horse is a descendant of the sturdy Mongolian breed that appeared in Central Asia along with the countless nomad tribes moving westward from Mongolia. This was the steed used by the invincible warriors of Genghis Khan in their thousand-mile marches, and, although not very prepossessing in appearance, it moves over mountain paths with the agility of a goat, can make a run of from 60 to 80 km. under a blazing sun without reducing speed, and if it so happens that the rider cannot provide fodder, will find its own food, for it eats anything its strong teeth can chew.

EVOLVE IMPROVED CROSS

Considerable work on improving the breed of the Kirghiz horse has been carried on in recent years. After

many experiments, an improved cross between the Kirghiz horse and English and Don strains, as well as the Oryol trotter, has been evolved, Kirghizia now has a splendid animal which, while retaining all the merits of the Mongol breed, displays the speed of an English or Don purebred on the race track and the endurance and power of the famous Oryol strain on the field.

Between 1935 and 1940 inclusive, the number of head of horses in Kirghizia rose by 48.7%—the number of cross-breeds increasing 3.5-fold. In the last two years, the number of head of improved breeds also increased considerably. This development came as a direct result of extension of stud farming in the republic. Whereas in 1934 there were all in all 127 collective farm stud sections in Kirghizia, by the beginning of this year their number had risen to 1,590.

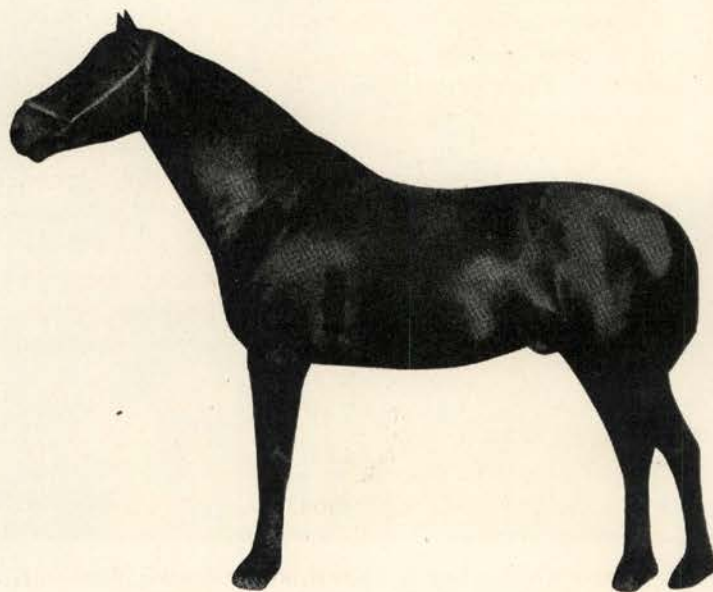
The improved Kirghiz strains have gained renown far beyond the confines of their home in central Asia. Last year they participated in races at the country's biggest tracks, and turned in some splendid times. For example, one English-Kirghiz cross-breed covered the 1,500-meter distance in 1 min. 48.9 sec.

Though not much to look at, the tough and brawny Siberian horse—a relative of the famed Mongolian breeds—did good work last winter at the approaches to Moscow. This short-legged, low-slung war horse is a priceless cavalry mount particularly in winter conditions.

WAR NEEDS

This regional specialization, incidentally, played no small part in making it possible to render the maximum

assistance to the collective horse ranches. Many collective farms in all regions of the USSR now have their own studs, while in regions where horse breeding has been most developed, there have been set up pedigree horse breeding stations, supplying the farms with colts



A pureblood horse from the Don Region



A Soviet horse farm in Kazakhstan. These horses are quite similar to the Kirghiz strain.

and stud horses. These stations also propagate the best methods of raising horses, select the best breeds to raise in the given district and check up on pedigrees, etc. Besides them, there are the state-owned stud farms and stables, state farms, and race tracks, which play a big rôle in improving and increasing the remount reserves of the country.

The war has made some changes in the appreciation of a number of breeds of horses. For instance, some pure bred, pedigree strains turned out to be poorly adapted to the difficulties of campaigning in the field. Though the scions of famous record breakers are splendidly trained and taken care of, many of these "hothouse" products proved too delicate for the requirements of war. The cavalymen at the front prefer local breeds—sturdy draft horses that combine fleetness with endurance and strength.

Love for horses and century-old experience at taking care of them go a long way in explaining the work of the breeders to whom the men at the front are so much indebted. It is this love, incidentally, that long before the war helped in building up horse breeding and establishing the collective stud farms, which have been of great importance in insuring the Red Army the equine reserves it needs. Perhaps one day there will be a memorial raised to the unknown horse fancier to whom the Red Army cavalry owes a good deal of its successes in battle.

The Campaign Horse

by Major Emil Engel, 2MC Cavalry

ABOUT the eleventh century, Genghis Khan overran more territory with his Mongolian type of horse (that could subsist on pasturage alone—winter and summer) than any conqueror of any time. His armies covered as much distance as a thousand miles a month, and up to eighty miles a day.

There are few horses today that could duplicate these feats, mainly because most of our horses are barn-raised. In the days of Genghis Khan, horses were what we call range or pasture-bred, and very few were barn-raised. For military purposes—then or now—the pasture or range-bred horse is far superior to the barn-raised horse.

An interesting example of the hardiness of the range-bred horse is found in the descendants of the "Barb," a breed of horse from the North of Africa with which early Spanish expeditions to America were often equipped.

About three hundred years ago, one (or more) of those expedition vessels was wrecked near the islands between Cape Lookout and Cape Hatteras, off the Carolina coast. The surviving horses either were washed ashore or swam in, and today their descendants are still there.

The islands on which they have survived have very few trees and no streams. The principal growth is a

sort of marsh grass, but the horses have such an efficient digestive tract that they have assimilated enough from their relatively poor pasturage to propagate for more than two hundred years.

Barbs were selected for many of the Spanish expeditions, not only because they were numerous in the north of Africa at that time, but because they could subsist on "nothing." Also, they could move forward at a vigorous gallop and were strong enough to pack the weight. They were "easy keepers," "free goers," and galloping types. "Action carries weight"—and herein lie all of the essentials of a good campaign horse.

BALANCED PHYSICAL DEVELOPMENT

In breeding and raising horses that will meet campaign requirements, all of the animal's physical systems must be brought to a point of balanced development: his nervous system, which coordinates everything; the circulatory system, which brings oxygen and repair materials to all the tissues and cells, and carries away waste; the digestive system, which takes raw material and turns it into blood and lymph; and the muscular system, both voluntary and involuntary, which controls all movement—external for the work to which the animal is put, and internal, for the various processes of life itself.



Descendants of the early campaign horses of the Spanish conquistadores have lived on the sand banks off the coast of North Carolina for 300 years. They are believed to have come ashore from a wrecked Spanish galleon and have propagated on these relatively poor pastures for all of these years. They have the characteristic goose rump of the Barbs. These Spanish expeditions were outfitted with horses from the north of Africa. They are one of the foundation strain of the present English thoroughbred. Photo by author in August, 1941, at the Diamond Head Pen, Shackelton Banks, off Beaufort, N. C.

The size of the horse, likewise, must be in balance with all these systems. One of the worst errors in raising horses today is the practice of forcing the skeletal growth, without getting the necessary and corresponding growth of all the other systems. This produces an animal big enough, but without any physical vigor or activity. The race track is filled with thoroughbreds like this. "Early maturity, early decay," is an old saying on the track.

PASTURE IN CAMPAIGN

The best food in the world for growing horses is good pasture. There is no dry food that can equal it. If food is good for the *growing* animal, it is also good for the *grown* animal.

Pasture, both winter and summer, should form the basic food for all military horses. Dry foods should be supplementary. In practice, this is usually reversed, and barn feeds are made the basic food; and pasture, the supplementary feed.

Many will say that it is impractical to give horses pasture; that it disturbs army schedules and daily routine. The old officers, experienced in Indian campaigns, found a way to do it. In the cavalry, it used to be customary to have mounted drill and stables completed by ten o'clock. Horses were then turned loose in the corral, and the herd guard of four men, with an experienced stable sergeant in charge, assembled mounted outside the corral gate. The gate was opened, and the horses were quietly, and without urging, allowed to wander through the gate and were gradually herded out to the grassy drill ground, where they remained until shortly before afternoon stables. This gave them four hours of grazing—and any horse can eat a belly full of lush grass in this time. In the days when this practice was maintained, both hay and grain rations were very much reduced.

During campaign, our old cavalry officers worked out an excellent system that kept their horses in good shape without any shipments of either hay or grain. They were saddled up and on the march before sunrise. They marched until about ten o'clock, and then they went into midday camp for four or five hours. Horses were groomed and minor injuries touched up; then they were either turned out to graze or were picketed out individually.

The men had a heavy meal, washed and hung clothes on bushes to dry, bathed, and rested for several hours. About three o'clock, they saddled up and marched until about an hour before sunset. Then they went into camp for the night, and turned the horses out for night grazing.

In a hostile country, this method not only gave subsistence but also security. Men and horses were up and out long before daybreak and ready for any predawn attack. The camp in the middle of the day enabled the outposts to detect any approaching hostile force. Because of the short stay, even if detected, the bivouac was vacated by the time that the enemy was ready for an attack. When finally encamped for the night, there



No. 1

Lady Porter, the barn-raised thoroughbred pictured above, is a "Free Goer" and a "galloping type." Not an "easy keeper" on winter pasture alone, she will stay in excellent condition on pasture from May to December inclusive, but falls off to unserviceability on winter pasture alone in late February and March. Photo shows her being ridden at the ordinary trot with a little collection. Reins stretched and jaw supple. No curb chain.

was only about one hour of daylight left for the enemy to discover the location. This method was used by General Crook during the Indian Campaigns and later again in Mexico by Colonel Dodd (who had served under Crook).

The time has come when the tremendous military value of the horse in this war should be realized. In any discussion on the subject, the question always arises as to the difficulties of supplying our animals with hay and grain in distant theaters of war. This is not a problem at all. A horse *does not* require "high octane" forage to keep him fit to fight today, any more than he did 75 years ago. He can still be raised and trained on pasture forage and be strong and vigorous. It is absurd to think otherwise. It has been proved in Russia today.

Russia is the only country that is maintaining a large force of horse cavalry, and their horsemen, many of whom are descendants of the old Mongol invaders of the Genghis Khan period, raise and maintain their animals with pasturage as the basic food and dry feeds as supplementary.

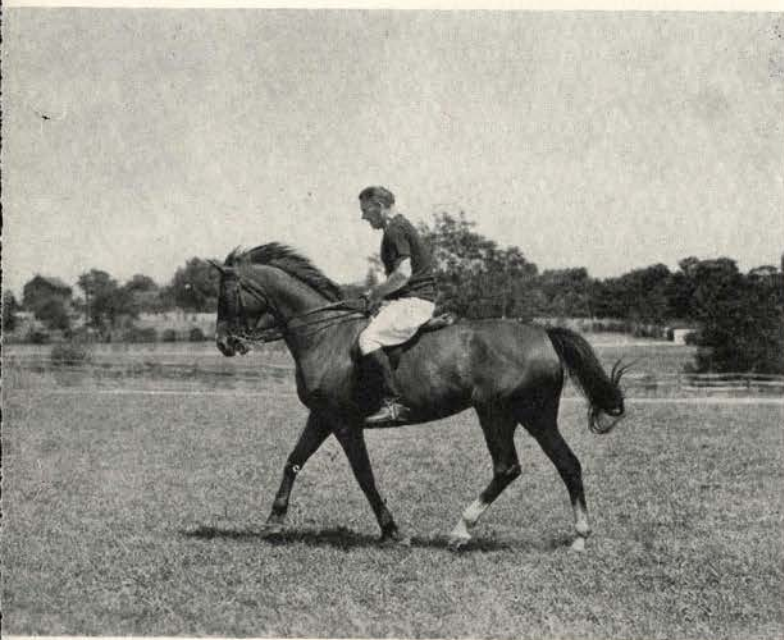
WINTER PASTURE

Winter pasture is now practically unheard of among our eastern horsemen. Very few know that the blue grass that grows so well in our eastern and middle states, when allowed to mature, will cure on the stem and make excellent winter pasture. The writer has kept horses for years, and is keeping them at this time, on such pasture. Although the barn door is always open, the horses, even on the coldest nights (ten and more degrees below zero) seem to prefer the outdoors and the winter pasture. Corn on the cob is fed merely to keep them coming into the barn, and for those barn-raised horses that have not the efficient digestive systems of the range or pasture-raised horses. When

hay is thrown down, they kick it about and go outside to eat, unless the snow is very deep and all of the grass is covered up. Even then, they will paw the snow away to get at the brown winter blue grass. These pastures consist of blue grass and white clover; the white clover disappears early in January but reappears again late in March.

An old veterinarian, who joined the First Dragoons in 1858 and went with them to Walla Walla, Washington, told the writer that when the grass was high enough for the horses to bite, they took the field; and they never returned until the snow drove them in. During this time, they never saw a bale of hay or a sack of oats.

Experience in maintaining horses in this manner is necessary so that one can calculate just how long the animals will maintain themselves on the amount of pasturage available. This necessitates moving to fresh pastures, unless the acreage per animal is very large. The great herds of horses used by the Mongols made a nomadic people of them.



No. 2

Same as number 1. Progress in training consists in sending up to the flexed jaw more and more muscular impulsion. This can only be done slowly from day to day. All the muscular impulsion that the mare was capable of receiving on the hand while holding a good position of the head, neck and shoulders is shown in this photo. The whole horse is shortened, and all the joints show more flexion and springiness. Her trot is cadenced.

During the growing season, one horse can be maintained on two acres of good pasture. The same horse in winter pasture from December first until April first will require at least another three acres, which should have been saved for winter pasture by not grazing it. The carrying capacity of pastures varies considerably because of the fertility of the soil and the amount of rainfall.

ENERGY AND SUSTAINED EFFORT

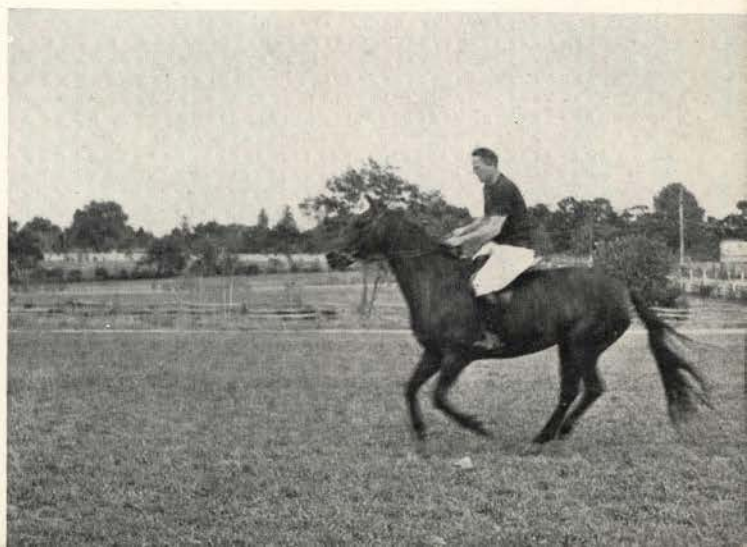
Exercise from birth, and all through the growing years, is as important as pasture. The healthy growing horse on good pasture takes exercise by instinct. This is a sure sign that the animal is growing properly; and if he does not exercise, it is a sure sign that something is wrong. This applies as well to the mature animal. When an older horse stops joining the herd in its regular gallops, he is ill or finished. The young healthy horse keeps galloping with brief intervals of rest for fully twenty minutes, and puts everything he has into the effort. The young horse that is always lagging behind most assuredly has had some interference with his growth.

Big pastures afford a better opportunity to study horses than do small paddocks. The ratio of the capacity of the circulatory system to the size of the horse has much to do with the vigor and recuperative powers of the animal. This is developed only during the growing years and only as a result of exercise. Obviously, the more energetic the horse, the better developed his circulatory system must be. This brings oxygen to the muscle cells, and the horse with the finer network of capillaries is able to get more oxygen to the cells than one that has not this development. The characteristic of the barn-raised horse, regardless of how well bred, is the lack of ability to make a powerful and sustained effort.

The nervous system, with its fine network of nerves, is also influenced in its growth by exposure to weather as well as by exercise. A windy country is a better horse

No. 3

Second generation of a pasture-raised mare. Sired by a two-year-old, half-bred colt that had not been altered and who covered a polo mare. Foaled in the field and raised with very little grain in the winter (one pound daily), she will stay in the condition seen here all winter long on nothing but winter pasture and will try playfully to buck you off. Although she is the same height as the thoroughbred in Nos. 1 and 2, her girth is twelve inches more and her weight is fully 100 pounds more. Photo shows her being schooled at the gallop to engage haunches under the body at every stride. She is not yet able to get the jaw relaxed from a muscular impulse and stops from full gallop at a touch of the bit. No curb chain. An "easy keeper."



raising country than one that is not subject to storm. The islands along the Carolina coast, where the Spanish ponies have propagated, is subject to the most violent storms and more ship-wrecks than any other section of our long coast line. Exposure to weather hardens men and horses. Starvation and deprivation of proper food and sleep only injure them. *Strength of nerve*, or the ability to work with a cool head under the most trying conditions of every sort, should be the outstanding quality of the military man and the military horse.

The capacity of the animal to stand up and work under short rations is determined by what is known as the alkaline reserve of the animal. Fatty reserve alone is not enough. The daily processes of life require lime, potassium, sodium, iron, and other minerals. These are in chemical combination with organic matter to perform certain physiological functions. When the horse is muscular instead of fat, and has pasture as its basic food, the alkaline reserve and vitamins are present. Nature puts its reserves to work in strengthening all the tissues of the body. Its reserves are not idle. When the animal is forced to work on a shortage of food, it is able to subsist on itself for a considerable number of days.

During the expedition in Mexico in 1916, the 7th Cavalry marched about five hundred miles in one month on ten days' rations for the men and horses. Horses were grazed, and the men picked up something from the country. Young horses, like young men, have not built up over a long period of years, big reserves that will stand up for a long period against hardship. Here is where the animal can surpass the machine. Where an older man or a horse shows a lack of physical endurance, it is only because they did not build their own reserve.

SPEED

To meet the competition of the machine, horses must show just where and when they are superior. In new modern armies, the machine plays the bigger part and has set a standard of speed that makes it necessary to get more out of our horses.

Where foot troops are now expected to march twenty-five miles in eight marching hours, horse cavalry must be able to march fifty. This is easy if while on the march, the rider will always lead his mount wherever he can travel on foot as fast as the horse.

In 1902, there was a horse race (military) from Brussels to Ostend, a distance of eighty miles. The winner made the distance in four hours and fifty-five minutes. He alternately led his mare and rode her at a gallop. I saw this mare in France. *Courageau* was her name. She was a small, bay, high school mare from the French cavalry school, but she was small only in height, as she was fairly broad in front and behind and showed no signs of malnutrition or forcing during the growing periods. She was also an aged horse.

The ability to subsist on "nothing" is not enough for the campaign horse. It must also be able to move at

speed. In Mexico, in 1916, I watched a troop of the 7th Cavalry of about forty men ride to its designated position after enemy action had started. They rode at a gallop of less than sixteen miles an hour, and in going about two miles those forty horses were spread over one mile by the time that the leading officer had arrived at his position. The horses were not thin. They had marched all day, however, over mountainous trails. The horse that the leading officer rode was a small, range-bred horse only recently purchased by its owner.

This inability to get up speed is not a question of breeding. The race track has plenty of race horses that hate to gallop. I have had a number of thoroughbreds that, when turned out in the pasture with my own pasture-raised horses, would stand still and watch them run. These horses were perfectly sound, young, and in some cases bred by the leading sire of the previous year.

Many of these lazy thoroughbreds reach the hands of polo dealers and are a disappointment. They have everything except the energy and vigor. Nearly all thoroughbreds are barn-raised, and I have never had one that could go through a winter pasture alone without losing so much in flesh that it affected the serviceability of the animal, while a pasture-born and raised thoroughbred, although not as tall, would stay in good flesh and even try by playful bucking to dismount his rider.

CONCLUSION

This question of vigor is a matter of the balanced development of the nervous and circulatory systems, while the question of living on "nothing" is a matter of the development to the highest point of efficiency of the digestive tract.

The plane and tank have become indispensable in warfare, and the horse is a valuable supplement to them. Mud, snow and slush, cold weather, and rain are things with which the pasture-raised horse grows up. They impede the animal very little. His food and pasture are native to most parts of the world.

The military aim should be to find a balance between mechanical and animal transport.

The great soldiers are the creative tacticians—General Arthur MacArthur. Maneuvers, American Lake, 1904.

Tactics change every five minutes—Napoleon.

Victory goes to the side with the last reserves—Napoleon.

Victory hangs by a thread—Napoleon.

All the above are still applicable to the present war. The horse now plays a very small part, but the part it plays may be the thread that gives victory to the side that has the creative tactical ability to use the animal that has played such an important part in the history of war.

SPEAKING IN JAPANESE

by Bruce Barnes

SERVE your country!—learn to speak Japanese. Nowadays there's a crying need for people with a knowledge of the language of the yellow race. And you can be one of these people if you're willing to devote a little time to conscientious study. The language really is not too difficult. In fact, you can learn enough in a few days time to get you by. Serve your country!—learn to speak Japanese.

The first thing to learn in any language of course, is correct pronunciation. Fortunately, in Japanese this isn't difficult. For the most part, I think we can say that consonants are pronounced as in English. Vowels, however, must be sounded according to the chart below.

"A" is pronounced like the *a* in *cart*
 "E" is pronounced like the *e* in *shred*
 "I" is pronounced like the *i* in *ski*
 "O" is pronounced like the *o* in *below*
 "U" is pronounced like the *u* in *blue*

Occasionally in a Japanese word a letter is doubled. (tt, oo, ii, pp, kk, etc.) When this occurs, in pronouncing the word you simply hold the *sound* of the doubled letter a trifle longer than you normally would if it were not doubled. (Thus, "i" is pronounced like the *i* in *ski*. But "ii" is pronounced like the "eeee"-sound in "eek.") This rule, incidentally, is true of both consonants and vowels.

Occasionally in your study of Japanese you will notice that a letter has a short dash (-) over it. This, too, indicates that the sound of the letter must be held a fraction longer than normal.

Bearing these pronunciation rules in mind, let us turn now to a few Japanese sentences which you may find it convenient to memorize. In fact, for best results, speak them out loud. You'll learn them more quickly and easily if you do. Our sentences then are:

Mizu ga hoshii I want water
 Gohan ga hoshii I want food
 Naifu ga hoshii I want a knife
 Machi ga hoshii I want some matches
 Empitsu ga hoshii I want a pencil
 Uma ga hoshii I want a horse
 Yofuku ga hoshii I want clothes
 Zubon ga hoshii I want trousers
 Sekken ga hoshii I want soap
 Tabako ga hoshii I want a cigaret

From the above you can readily see that to express a desire in Japanese, all you need do is place the name of the object wanted in front of the phrase "ga hoshii." By knowing this little trick, you can easily make a meagre knowledge of the language cover a lot of territory.

Here is another expression you may need to know—along with the "formula" for using it.

Sore wa warui That is bad
 yoi good
 kirei clean
 umai good tasting
 kekko delightful—fine
 kitanai dirty
 mazui unpalatable
 okii big
 chiisai small
 abunai dangerous

In line with the above, should you want to say "this," instead of "that," substitute "*kore*" for "*sore*."

Finally, here are a few common expressions and military terms you may want to know. Once again I suggest that you practice them out loud.

Konnichi wa Good day
 Konban wa Good evening
 Arigato Gozaimas Thank you
 Kochira ye oide Come here
 Hayaku Hurry!
 Hai or E Yes
 Iye No
 Ki wo tsukete Be careful!
 Wakarimasu I understand
 Wakarimasen I don't understand
 Wakarimasu ka Do you understand?
 Goran nasai Look!
 Baka! Fool! (Don't use unless you want to start a fight.)

ki-hei is cavalry
 tai ho is cannon or gun
 yaku bo is cartridge
 hohei is foot soldier
 shikku suru is to gallop
 tsuji is interpreter
 seki ju jisha is Red Cross Society
 shoju is rifle
 noru is to ride
 isha is doctor
 teki is enemy
 tomare! means halt!
 tsuna is rope
 kihei rentai is cavalry regiment
 uma is horse
 shageki is musketry
 tzu is map
 meirei is a command
 tazuna is reins
 kura is saddle
 abumi is stirrup
 kuruma is wagon

JAPANESE NIGHT O

JAPANESE military leaders consider night attacks one of their specialties. In these, they were very successful in the Russo-Japanese war, the Manchuria "Incident," the China "Incident," and more recently in Malaya, Borneo, and the Philippines. They have experimented extensively with various night tactics, over a period of many years, and have adopted certain specific techniques.

As a rule, the Japanese have only limited objectives at night and do not attack very deeply. Once these objectives have been accomplished, the Japs usually effect a slight withdrawal, and reorganize for rest during the next day (except for reconnaissance or infiltration activities).

Although the Japanese admit that night operations result in more confusion and less control, they feel these disadvantages are more than offset by the advantages of greater mobility, secrecy of movement, and therefore greater surprise.

A Dutch officer, who escaped from Japanese confinement in Borneo, attributed the following statement to a Japanese officer:

"You Europeans march all day, prepare all night, and at dawn launch an attack with tired troops. We Japanese allow our troops to rest all day, while we reconnoiter your positions exactly. Then that night we attack with fresh troops."

OBJECTIVES

The objectives of Japanese night attacks usually are to locate and attack the front lines of the opposition with only limited or shallow objectives. "However, there will be times when it is necessary to attack the enemy's position in considerable depth," their manual explains.

Before the attack, each subordinate unit is given a clearly defined terrain objective. Objectives can be clearly defined only by thorough daytime reconnaissance, or by drawing hostile fire. Villages are avoided because they are difficult to attack at night.

RECONNAISSANCE

Japanese regulations emphasize the importance of thoroughly reconnoitering terrain over which night operations are to take place, and of obtaining detailed information as to the location of opposing centers of resistance, machine gun positions, obstacles, and searchlights. The reconnaissances are made in daytime. Japanese patrols, frequently moving for long distances on their stomachs at a snail-like pace, get as close as possible to opposition positions without being observed. If they are unable to locate these positions exactly, they sometimes deliberately expose men to draw fire from the opposing forces so that the latter will give their locations away.

The patrols also select the points where the opposition's wires will be cut.

Sometimes, the Japanese make a second reconnaissance just before dark to satisfy themselves as to opposition positions, or to determine whether new positions have been occupied.

FORMATION OF PLANS

Japanese military leaders go into great detail in mapping plans for attack. This is doubly true for night operations. Particularly emphasized are march directions, methods of identifying friendly troops, liaison with adjacent units, the necessity for silence in order to achieve surprise, and flank protection.

Obstacles which would interfere with the attacks are removed by destruction squads—usually engineers—about an hour beforehand. This phase includes the cutting of lanes through barbed wire.

APPROACH MOVEMENTS

In approaching, the Japanese select routes over which the troops will make the least noise. They generally move by column rather than in a line, in order to maintain as much control as possible up to the point of assault.

To maintain direction, the Japanese may use any or all of the following: compass, flares, rear lights—which give direction by alignments; searchlights or disappearing lanterns; markers, white stakes, strips of paper; lines of chalk, flour, or tape; and artillery shells fired for direction.

THE ASSAULT

Japanese techniques in the assault are quoted from their own manual, as follows:

"(1) *With limited objectives.*—When the attacking unit gets close to the enemy's position (the assault position), the commander orders a front-line group to assault. The remainder of the troops will quickly observe the general situation. For instance, if it is necessary to strengthen the front line with reserves, these should either attack the flank of the enemy, or enemy counterattacking troops. The commander watches for these opportunities, and leads the battle with firm determination. Placing reserves in the front lines thoughtlessly and unnecessarily will bring about confusion. This must be avoided.¹

"At the start of combat, the commander of the reserves will send out liaison men to inform him regarding the movements of our assault echelons and the enemy situation, to connect the reserves with the

¹Although the Japanese manual emphasizes the importance of holding troops in reserve during night attacks, in the present war the Japs have often thrown their full strength into the battle at the beginning.

PERATIONS



front-line unit, and to secure our flanks, rear, and front.

"When the assault has captured the enemy position, quickly organize your attacking forces. For example, the machine gun and infantry gun units take up their firing positions, security measures are taken, order is quickly restored and preparations are made to repel any enemy attack to recover the position just lost. The reserve commander will send out patrols as quickly as possible to the rear, flank, and front to determine the condition of the enemy, and he will be prepared for action with the remainder of his troops.

"The machine gun takes part in the night attack by occupying a secure position. Thus, it ordinarily cooperates with reserve troops in action, and may at times participate in the direct night attack, according to the opportunities for firing.

"When attacking by sheer strength, the machine gun is used to cut off enemy communication with other adjacent areas. Furthermore, it opposes the counter-attack from other areas and concentrates its fire at the proper time. For this reason, the machine-gun plan must consider the cooperating fire plan of the artillery. The use of firearms will expose our plans, and it may bring hostile fire on our troops. There is also the danger of hitting friendly troops. Therefore, make thorough arrangements beforehand.

"(2) *Attack in depth.*—When attacking deeply in depth with two assault echelons, the front-line unit will capture the predetermined hostile position and take security and reconnaissance measures, restore order, and make arrangements for the enemy's return attack. It must prepare quickly to be leap-frogged by the second echelon of attack and always must make local conditions clear to this unit. If the first line unit receives a counterattack by the enemy, do not fire, because it would endanger the leap-frogging unit.

"The second attack echelon takes up the attack formation at the beginning, as a security measure. Before leap-frogging, it will put out security reconnaissance. Maintenance of direction will be considered after leap-frogging. In order not to get intermingled with the first echelon unit at the time of leap-frogging, the distance and intervals before and during the attack are controlled accordingly.

"The second assault unit of attack must keep in definite contact with the first-line unit, and keep itself informed of the enemy situation and the progress of the first echelon. It will be prepared to advance by leap-frogging as soon as the order arrives. At this point, do not come too close to the first-line unit because of the danger of getting into the lines of fire.

"The commander will determine the time when the second echelon must first advance to the attack from the place of departure. The time of advance will de-

pend upon when the first echelon, leading out, has passed the second-line unit. . . .

"When the second assault unit captures the designated hostile position, the commander must get control of the unit quickly and then have the first assault unit advance to secure completely the occupied position. The remainder (the reserve) prepare for action."

PURSUIT

The Japanese nearly always seek to capitalize to the fullest on pursuit. Even before combat begins, they have detailed plans for maintaining close contact with retiring forces. The following data on pursuit is quoted from their manual:

"The enemy will take advantage of darkness to conceal his retreat. It is important to gain early knowledge of this retreat by keeping a close contact with him. The battalion commander must make close reconnaissance, observe various signs, and always be careful not to lose the enemy. In order to clear up the possibility of an enemy retreat, do not hesitate to make a night attack with any necessary part of your strength.

"If the enemy's retreat is found out, the battalion commander quickly sends out a part of his strength for quick pursuit—the main force follows soon thereafter. . . ."

MACHINE GUNS IN DEFENSE

"Because the development of battle during the night is very quick, it is necessary to put machine guns in positions where they will be able to concentrate their fire power on important areas to the front of the battalion's positions. The guns should be sited to have enfilade fire against the line of advance of the enemy, or in such a way as to be able to fire on a small, specific sector through which the enemy must pass. To obtain the most effective fire, machine guns are sometimes placed in the front line. Avoid placing guns separately at night. . . .

"Depending on the amount of natural light available, machine guns vary the firing method, and use night firing lights when necessary. . . ."

RETIREMENT

"When you are retreating during the night, hinder the enemy's reconnaissance, and do not make any movements before darkness. According to the situation, make night attacks with small units, or have patrols to move about. These will help to deceive the enemy as to the true action you intend to take.

"As quickly as possible, make full use of the road with the main force, and concentrate your strength close behind the battle. Make sure that control will be well in hand by retreating in a column without confusion. . . ."

How to Use Your Eyes at Night

MODERN WAR is often fought at night. This means that men must learn to see in the dark—or at least to use their eyes in new and unfamiliar ways.

This article is written to tell you how to make the best use of your eyes at night. It will help you, whether your job is in an airplane or a tank, on a ship, driving a truck, or just getting about on your own feet.

It will not give you the uncanny eyes of an owl or a cat, but it may give you just the edge on the enemy you need to get in the first shot—and to get home.

You already know that when you go into a dark room from a bright one, it is hard to see until your eyes have become used to the gloom. At a movie it takes a minute or two to see the vacant seat. It may take another minute or two to be able to recognize a friend. During these minutes your eyes become more sensitive to the faint light.

ADJUSTING FOR DARKNESS

Your eyes adjust in two ways for seeing in the dark. One way is by opening up to let in more light or to make maximum use of what little light there is. This works in the same way as a camera diaphragm, which can be opened up wide for taking pictures in dim light. Your eye pupils open wide in dim light and close to a pin-point opening when the light is very bright.

But this is not the most important change in the way your eye works in dim lighting.

You actually have two kinds of sight. Your day eyes use one kind of vision cells known as "cones." They are principally located in the very center of the eye.

Your night eyes use an entirely different kind of cells, the rod cells, which are mostly around the outside edge of the eye.

The rod cells used by your night eyes are color blind. That is why "all cats look gray at night." If you see a colored light shining at night, and it looks red or green or blue, it is only because it is bright enough so that you can see it with your daylight eyes.

But your night vision is much more sensitive to light of some colors than to others. Red is seen equally well

by night and day vision. Blue light, however, affects your night eyes 1,000 times as much as it does your day eyes. For this reason it is extremely dangerous to use blue lights in a blackout because it affects the enemy's eyes just as much as it does yours.

Night eyes lack the sharp vision for detail that your day eyes have. If you want to see to read, if you want to watch the dial of an instrument, if you must look at a map, a road sign, or your watch, then you must use your day vision. For this you must have good light—the more the better. Especially if the print or other forms are small, the light must be bright.

Night eyes are extraordinarily sensitive to faint light. This is shown by calculations that an ordinary candle flame could be seen at a distance of more than 100 miles if the night were completely black and if haze, dust, and the curvature of the earth did not interfere. A lighted match is about as bright as a candle flame. Under ordinary night conditions, a match can be seen from a plane for many miles away.

Night vision is not in use as soon as you step into the dark. It takes time—a half hour or more—before your eyes are completely adapted to the dark. When you leave a sunny street to go into a darkened theater, or step from a brightly-lighted room into the dark outdoors, you are completely blind at first.

Then several things happen. First the pupil of your eye dilates, letting more light into your eyes. This is a mechanical action.

Next the cones of your day vision adapt to the darkness. This takes about 5 minutes, and after that you feel more comfortable about moving around in the pitch dark.

After a much longer time, your rod vision adapts itself to the darkness and you can begin to see shapes and outlines in the gloom that were not even vague bulking shadows at first.

Just how this change-over from cone to rod cells is accomplished is not completely understood, but it is at least partly a chemical process.

The soldier who, at a command or an alert signal, leaves a lighted room to run on duty without having prepared his eyes is completely at the mercy of the enemy insofar as his vision is concerned. By the time he gains the use of his night eyes, the emergency may be all over.

And even when your eyes are adapted to the dark, flashing on a light, even for a very short time, may ruin your night vision for another half hour. You can lose in a few minutes all you gained by half an hour in the dark. The brighter the light and the longer you look at it, the more you lose.

GETTING YOUR EYES READY

Complete darkness is the best preparation for night fighting. It pays to protect your eyes from light before you start and while you are out. If you can't stay in darkness, keep the lights around you as low as possible and don't look straight at them. If it is necessary to look

at any lighted object, be as quick as you can about it. Experiments have shown that looking at an instrument dial lighted only by radium paint will cut down the distance at which you can see a friendly or an enemy plane by 50 per cent. Don't look at the dial any longer than you must or the loss will be greater.

Experienced gun pointers and spotters know that they must not watch the flash of their guns as they fire. The flash of a 6-inch gun may dull the eyes for a minute or more. Under continuous fire at dawn or dusk it is impossible to aim some rapid-fire guns accurately at a target more than 7 times a minute if the gunners watch the flash. At night the blinding effect would be even greater. Looking away from the flash gives almost complete protection. Luckily the flash of rifles and small-caliber machine guns has much less effect on the eyes.

There are several ways by which one can become dark-adapted or maintain dark-adaptation, even though working in a fairly bright light. Each method is suitable for certain types of jobs, and each has its limitations and dangers. A patch worn over one eye will keep this eye ready for night duty at any time, but vision from one eye alone is not as accurate as binocular (two-eye) vision, especially in judging distances of near-by objects. An individual may work in red light, or wear close-fitting red goggles, either of which are effective since red light has little effect on the rod cells and leaves one ready for nearly instant action in the dark. It is wisest to consult a medical officer concerning the necessity for such preparation, and the methods best suited for the task at hand.

USING YOUR EYES PROPERLY

Always remember that you must look a little to one side in order to see best on a very dark night. Learn to pay attention to things which are just a little off to the side. Learn to keep from looking directly at any object. As you feel your eyes drawn irresistibly toward what you want to see, just let them slide on over it to the other side and look again with the tail of your eye. It takes practice to learn to do this without fail, but it is worth the trouble to learn the trick.

And don't keep looking steadily to the same side of an object. This will make it disappear, too.

Try it out yourself and see how your eyes at night can play "parlor magic" tricks on you.

When in your darkened room or outdoors, hold up your finger and look steadily at it. It will disappear. Look a little to one side and it will appear again. But if you keep staring at this side it will soon be gone again. Move your eyes to the other side and back and it will reappear.

This means that in searching the sea or the sky for a dark object, you must look at first one area and then another. When you think you have spotted something, keep looking first on one side of the object and then at the other, or above and below it.

But don't try to sweep your eyes over the sky or the horizon—you can't see well while the eyes are moving. "Scan" the sky, don't sweep over it. Night eyes are slow in responding. At night, a faint object may not be recognizable until after you have looked near it a number of times. If you have ever hunted quail in the morning or watched deer in the dusk, you know that you can look right at such a camouflaged object for a while before you notice it. In darkness, such an object is even harder to pick out because you won't see it at all if you stare. You have to look again and again at points near it.

CONTRAST HELPS NIGHT VISION

Another thing that affects our vision at night is the contrast between an object and its background. If the thing observed is very different from its background, it is much more easily seen. An airplane may be clear if you look up at it against the night sky, but invisible if you look down on it against the dark ground. A ship may show up clearly against a star-lit sky, but fade into the background if you are looking at it against a background of dark water.

If light from the moon is reflected onto the under side of an airplane from white clouds below, the plane may become almost invisible from any angle.

To notice small differences in contrast, it is essential to have clear vision. It is for this reason that windshields must be kept clean and free of scratches or fog. These tend to scatter light in all directions and reduce contrast. Careless night fighters have been known to tolerate enough dirt on their windshields to double the time it takes to see a plane moving along near by. And sailors on ships sometimes let the salt from spray pile up in blotches on the glass. This is courting death.

For the same reason it is important to keep down the lights on your side of a windshield. Any light on your side reduces the contrast because stray light spreads over the whole glass and reflects in your eyes. That is why you push up close to a window when you try to look out at night. By coming up close, you shade part of the glass and increase the contrast of the objects seen through this part. If it is necessary to have any light on your side, keep it as dim as you can and screen it from the glass. This also helps your adaptation to darkness.

VITAMINS

There has been a good deal of talk about the effect of shortages of vitamins A and C on ability to see at night. These are the vitamins in fresh vegetables, cheese, and fruit. People who don't get enough of these vitamins do become poor in night vision, but regular Army and Navy rations supply plenty of these vitamins. Occasionally, when boats are on long trips or when fighting lasts until fresh foods are all gone, a shortage of vitamins may occur. In these cases, medical officers will supply men who are likely to be on night duty with

vitamin capsules. Extra vitamins don't improve night vision if your diet or your night vision is already normal.

Night vision is affected by fatigue. Anything that reduces your physical well-being has a greater effect on night vision than on day vision. Experiments have shown that hangovers, slight illnesses, or excessive fatigue may double or even triple the amount of light needed to see an object. The night fighter must train for his job as a boxer trains for a big match. The boxer who is not at the peak of training is likely to be knocked out. The night fighter whose eyes are not at the peak of efficiency is likely to be killed.

REMEMBER THESE THINGS

a. Protect your eyes from light before you go on night duty and while you are out.

b. Don't look directly at any light or illuminated object. If you must, be quick about it.

c. Use the corners of your eyes. Night targets are more clearly seen when you don't look directly at them.

d. Keep your eyes moving. Quick, jerky movements and short pauses are better than long, sweeping movements and long pauses.

e. Keep your windshield spotless and free of scratches and fog.

f. Keep yourself wide awake and on the alert. Don't break training. Use good sense about eating, drinking, and smoking.

g. Practice what you know about seeing at night until it becomes second nature to use your eyes to the best advantage. Use every possible device to aid you in learning to recognize ships, planes, and other important objects from slight cues.



Are Our Machine Gunners Really Experts?

*by Lieutenant Colonel Will J. Hayek**

NOW that periods for intensive, large scale maneuvers are again approaching, the question arises as to what further phases of training should be stressed. Perhaps that training most neglected, and (from all reports received) that which is most needed, is the ability to defend against attacks during periods of darkness.

The maneuvers of 1942 showed that our forces had improved in making the training realistic. They had improved in the use of camouflage. They had learned to put out guards and outposts that could alert the command in the event of the approach of an enemy force. But these improvements are not enough for 1943.

Could the maneuver outpost of 1942 hold off an enemy attack during the night, or during a period of fog or heavy rain—periods of poor visibility? Could effective fire be continued during darkness on the areas previously determined to be possible avenues of enemy approach, i.e., a bridge, a crossroad, or some pass in the hills? Could effective grazing fire be placed along a selected slope of a hill which our force might need to

defend during periods of poor visibility? Was each machine gun still delivering effective fire along the final protective line instead of firing several feet too high because someone had accidentally shoved the gun?

In order to answer these questions in the affirmative, the soldiers operating the machine guns must have been trained in the technique of night firing, in addition to having fired the known distance courses.

Many former maneuver umpires can recall having heard from some noncommissioned officer in command of an outpost, an answer to the effect that his number one machine gun could lay fire on that bridge, and his number two gun could cover that crossroad; or that it would be impossible for the Blues to take his position by any attack from that direction.

Some umpire, who took his job seriously and realistically, may not have been satisfied with this fine answer. He may actually have gotten down on his "belly" and required the gunner to demonstrate and prove his sergeant's answer. So far, so good. That inspection may have sufficed for 1941 maneuvers. In the maneuvers of 1942, the umpires may have insisted on

*Office of the Inspector General, IX Corps, Fort Lewis, Wash.

the machine gunners furnishing and explaining range charts, and may have checked up on the selection of alternate positions by the platoon leader.

But now comes the supreme test—the maneuvers of 1943. Will they teach our machine gunners how to repel the Japs' night attacks and meet the need for the training suggested in "Fighting on Guadalcanal"? Our forces will be confronted with much of this type of warfare, for, as stated in this very interesting and illuminating booklet, the Jap, "when given his choice, operates exclusively at night . . . he attacks on a very narrow front, practically *en masse*."

If our force can have all possible approaches to the occupied area covered by machine gun fire at all times during darkness, a successful night attack by the enemy will be impossible.

Machine gunners who have fired the prescribed qualification courses have no trouble in registering on targets in the daytime. Those units having qualified gunners can be reasonably certain that an enemy attack in the daytime can be repulsed. At night, however, more is needed than merely the ability to fire the gun.

During the period subsequent to the registration of the guns on the target during daylight, the gun may have been accidentally moved. It may have been either depressed or elevated, and instead of covering the assigned target, the strike would then be in an area several yards away from it. This alteration would result in having no defensive fires to prevent the enemy from crossing the spot previously determined as a possible approach for hostile troops. Thus the enemy would be able to come through and carry on.

Again, a situation may arise where a first attack had been successfully repulsed by well laid machine gun fire, but in the excitement of the battle the machine gun had become inadvertently moved and no check had been made to ascertain whether it still covered the assigned target; so in a second attack, the enemy would come through at that spot, because it would not be covered. The gun, having been shifted by this accidental movement, would land its strikes in an area several yards away from the original target. It takes only a slight change in elevation to throw the center of impact of the shots 150 yards from the target—especially when firing at close range on level ground.

Our gunners must know how to check for this accidental movement. If the check discloses the gun to have been moved, they must be able to re-lay it at night, so that it will again cover the target on which it was registered during the day. There are several methods used for this type of checking and re-laying. Two of the most common are the use of the aiming stake, and the use of the night aiming box, also called night firing box.

Investigation has disclosed that some phases of this instruction have already been touched upon in some of the service schools. Unfortunately, many graduates of these schools—several of them serving with machine

gun units—do not know any methods which may be used for this important detail, and the machine gun units themselves seem never to have had this brought to their attention! Possibly this is because not enough stress was placed upon this point, or possibly the student failed to grasp the importance of this training. At any rate, *our machine gunners do not know how to check for an inadvertent movement of the gun, and do not know how to re-lay it during periods of poor visibility.*

Field Manual 23-60, Caliber .50, Browning Machine Gun, Ground, goes into some detail on placing night firing devices and on the use thereof. If the reader, however, fails to realize the need for this type of instruction, and simply reads these references without studying them, he will not have learned what was intended to be taught. Neither *Field Manual 23-45*, covering the ground use of the light machine gun, nor *Field Manual 23-55*, covering the ground use of the heavy machine gun, contains any information on the use of night firing devices.

Each manual does contain brief instructions on laying the gun at night, during fog, or darkness, on final protective lines. Here, again, unless the reader makes a thorough study of the short reference and is inspired by a realization of the possible importance of this type of training, he will quite easily miss the point.

Since both the caliber .30 heavy, and the caliber .30 light machine gun, would be used as much, and probably more, against ground attacks by enemy personnel than would the caliber .50 gun, this instruction in *Field Manual 23-60*, on use of night firing devices, should be inserted in the other two field manuals. This information should be so well known and understood by every machine gunner that it would become second nature for him to check periodically for any inadvertent movement of his gun.

CONCLUSION

One of the goals for training in the maneuvers of 1943 should be for everyone armed with a machine gun to learn the technique of night firing. The wearing of one of the qualification badges for the known distance machine gun course, should not in itself satisfy any commanding officer that the wearer has learned to handle the machine gun during the night.

Our machine gunners must check the guns automatically and if a mis-alinement is found, then they must correct it by re-laying the gun to the sight setting as recorded on the range chart during the registration the previous evening. This can be done through the use of some night aiming device.

If our gunners have this knowledge, and are able to keep the fire of each machine gun on the assigned probable approaches of the enemy during darkness, heavy rain, fog, or smoke, it will then follow that a break-through laid down by the attackers will be impossible, and a successful enemy attack can be prevented.

CARDEN TRAINING BRITISH TANK

TANKS, born in the last war, have been developed in the present war to a state where they are now the object of all possible ingenuity in order to make

them ever more formidable. As the tanks are steadily being improved to make them more effective in warfare, those who man them must be made as formidable as their tanks.

On parade, the tank soldier resembles—and often is—a soldier of one of the former crack cavalry regiments; for the Royal Armored Corps consists of the Royal Tank Regiments and all the Cavalry Regiments in the British Army.

At camps where men of the Royal Armored Corps are toughened to their jobs, exhaustive and intensive training is always in progress to turn recruits into "tank-minded" men. These men are taught to take their places in the crews, to honor their corps and its traditions, and to stand the strain of armored warfare.

The period of training, which lasts for several weeks, turns the raw recruits into tank drivers, gunners, wireless operators, fitters, and motorcyclists. Preliminary to joining the training regiments, the men take a six weeks course in the General Service Corps, where, while undergoing drill and weapons training, they are tested by psychiatrists to ascertain the jobs for which they are best fitted.

A tank is a messy monster, and the mechanic's job is never done. In the tank parks and repair-bays, close association with grease and oil is unavoidable, and these get into the men's back hair; but in the camps, where the trainees operate in slush and casual water, although there is plenty of mud, there is no muddle.

The men swarm up Jacob's ladders on the assault course; swing by ropes across rivers; scale cliffs and slide down them; cross swift streams on slippery logs; climb trees and drop from ropes, and plunge into underground labyrinths where they swim under muddy water in the dark. They come out grinning and covered with slime—their only covering a pair of thin shorts.

The tunnel they penetrate is sixty feet long, bored and built at the suggestion of the recruits themselves, whose ages range from eighteen-and-a-half to twenty-nine years. For the first forty-nine feet, the tunnel is two feet wide and eighteen inches high. Through this part, the soldier does a squirming crawl over dank earth. Then he takes a deep breath, drops into icy water thick with mud, and swims the last fourteen feet completely submerged.

The tunnel course is regarded as a sovereign test for claustrophobia—that dread of confined spaces which must never be part of the make-up of a tank soldier.

The men of the tanks work in crews consisting of a driver, a gunner, a wireless operator, and a commander.

The driver must learn to take his \$80,000 worth of steel and equipment up hill and down dale without mishap. On a recent obstacle track a good driver



During training, this British Tommie keeps his balance high above a city street.

TANK CREWS

*by Guy Innes**

charged his tank at an earthen bastion, poised it on the brink of a seven-foot drop and held it there for a moment, then let it drop gently to the ground on the other side. He never put a tread wrong. He took the first fence perfectly—a nasty slope covered with logs and other impediments—and eased his tank down the descent as if rocking his crew to sleep. Having taken an almost vertical barrier as skilfully as a fly on a wall, he came down gracefully at the water-jump, crept quietly through, and swept up the farther side. The last obstacle was a steep hill topped by a ditch which was protected by a dense hawthorne hedge. He could not see what was on the other side; but the tank paused with its nose in the air and came down on an even keel.

Training tank gunners is equally important but distinctly different. Instant reaction must be developed, lest the enemy get his shot in first.

For all tank crew members, physical fitness is imperative. "You don't know how heavy is the strain of modern battles," says an experienced officer. "We are looking for two things—guts and durability—to make these lads into real kill-the-Boche blokes."

Training puts four inches on men's chests if they are under twenty-five years old, and takes four off their stomachs if they are above that age. After two months of such training, a recruit's first battle-dress no longer fits him.

Scientific feeding is closely studied. On a sample day, breakfast is bread and margarine, sausage, bacon and beans, porridge, and tea; dinner is roast beef, Yorkshire pudding, two vegetables, rice and prunes, and tea; tea is bread, butter, jam, cakes, cold ham, chip potatoes, baked beans and sauce, and tea; supper is bread and margarine, fish cakes, chip potatoes and cocoa.

All training is carried out in the open air, and the camps are really schools rather than camps. Instruction is of very high caliber and is imparted by expert non-commissioned officers. It is even possible for the trainees finally to attain Sandhurst Military College and their commissions.

Whence come the recruits?

The Royal Armored Corps does not care, so long as the men are of the nature, quality, and substance demanded by the exigencies of tank warfare. On the whole, it is better to have come from a good garage than from the best college. But the Royal Armored Corps is composed of neither blimps nor snobs. If you are an Argentine volunteer or a policeman you will be equally welcome; and if your uncle happens to be a major-general it will not be counted against you. Into the same hopper all will go. The machine grinds exceeding small; and from the mixture that feeds it, there

emerges in the course of months a level array of tank soldiers worthy of all the skill and care that has been spent upon them.



"Scaling Jacob's ladder" is a part of routine training. British training has become increasingly intense.

*British Information Service.

From the use of dummy ammunition, there grew the term, From today's realistic training, the 1st Cavalry Division coins "Damp Run on Battle"

ALL reports indicate that the battle efficiency of troops—even the actual lust for battle—rises immensely after the first taste of battle, regardless of whether the immediate result is success or set-back. Working on the theory that a small taste of battle now will lessen the shock of the real taste later, or even produce the beginning of a cultivated taste, the 1st Cavalry Division trains realistically for combat.

Training requirements are based on lessons learned from Stalingrad, Tobruk, and Guadalcanal. From them, we know that, in spite of the mechanization of modern warfare, the individual soldier is still the important element in the field army. We know that he must possess a high grade of physical endurance; that he must be skilled in the use of varied weapons; that he must be accustomed to fitting himself into the team-work of all the other elements of his particular group; that he must have confidence in the ability and courage of the other members of his team; and that he must have the confidence of his own courage and ability to "take it."

"The first baptism of fire is the final phase of training."

Secretary of War Stimson.

"Sweat now, that you may not bleed later."

Major General George S. Patton, Jr.

It is well known that the greatest shock to troops is their first baptism of fire, with the attendant full realization of all the grim hazards of battle. Our Army has sought to prepare the individual soldier in every way possible to withstand that shock in such a manner that he may continue to fight with the minimum of demoralization and the maximum use of all his faculties.

BATTLE TRAINING AREA

To bring this realistic kind of training to all personnel of the 1st Cavalry Division, a large battle training area has been developed east of Fort Bliss, Texas. The numerous box canyons in this area make it possible to use service ammunition of all types at numerous installations, without the dislocations and interruptions imposed by considerations of safety and restricted impact areas.

The accompanying sketches and air-photos indicate some of the numerous training installations or stations. These are enlarged, expanded and elaborated upon as

*Commanding, First Cavalry Division.

the training progresses. The only limitations are in the imagination, energy, and ingenuity of the participating troops. Every bulletin of the war is likely to bring forth a new idea for the development and use of the battle training area. In general there are eight principal stations as follows:

- 1) The Mock Village, dubbed "Little Tokyo."
- 2) The Infiltration Course.
- 3) The Close Combat Firing Instruction Course.
- 4) The Unarmed Combat Instruction Area.
- 5) The Special Weapon Instruction Area, including booby traps, hand grenades, rifle grenades, land and antitank mines, home-made Molotovs, smoke, and "sticky" grenades, protective measures and gas.
- 6) The Field Firing and Platoon Combat Range.
- 7) The Camouflage Demonstration and Instruction Course.
- 8) The Stalking Range, which includes tank stalking, attack by stealth, and a course for application of close combat fire, combining fire and movement.

The area is generally assigned to a regiment for a period of one week, and this is divided to accommodate squadron combat teams in turn, each for three days. In this manner, the entire regiment obtains training on the course, and the squadrons become accustomed to working with their normal combat team attachments. Each squadron marches dismounted to and from the area, with arrivals and departures so timed that the area is in constant use. The movements to and from the area are planned as tactical exercises comprising at least 50% of work at night.

The bivouac area, which is about one mile from the main area, in itself is an important training installation. The bivouac is tactical and requires black-out and camouflage discipline, out-posts, sleeping in slit trenches, night command post raids, operation of messes under battle conditions, and individual cooking.

Every officer and soldier, having first completed preliminary training, including mechanical training, physical conditioning and known distance firing, will know what it is to live in this area for a few days; and what is more, he will probably return to it time and time again, during his current training.

Each of the stations is operated by a trained crew, consisting of one officer and the necessary number of enlisted assistants. These crews are prepared generally

"dry run"—a troop activity simulating rehearsal. a new phrase—

*by Major General Innis P. Swift**

by having them visit with the preceding unit and work on the various courses, so that they become skilled prior to the arrival of the troops they are to instruct.

Units arriving at the area are divided into the number of groups appropriate to the number of stations. In this way, all groups commence training at all stations simultaneously and, as one visitor put it, "There is never a dull moment."

Groups progress from station to station in rotation, until every group has completed the training at every station. Group No. 1 starts at station No. 1, and finishes at station No. 8; Group No. 5 starts at station No. 5, and finishes at station No. 4. It generally takes at least two full days to run a squadron combat team through the entire course.

"LITTLE TOKYO"

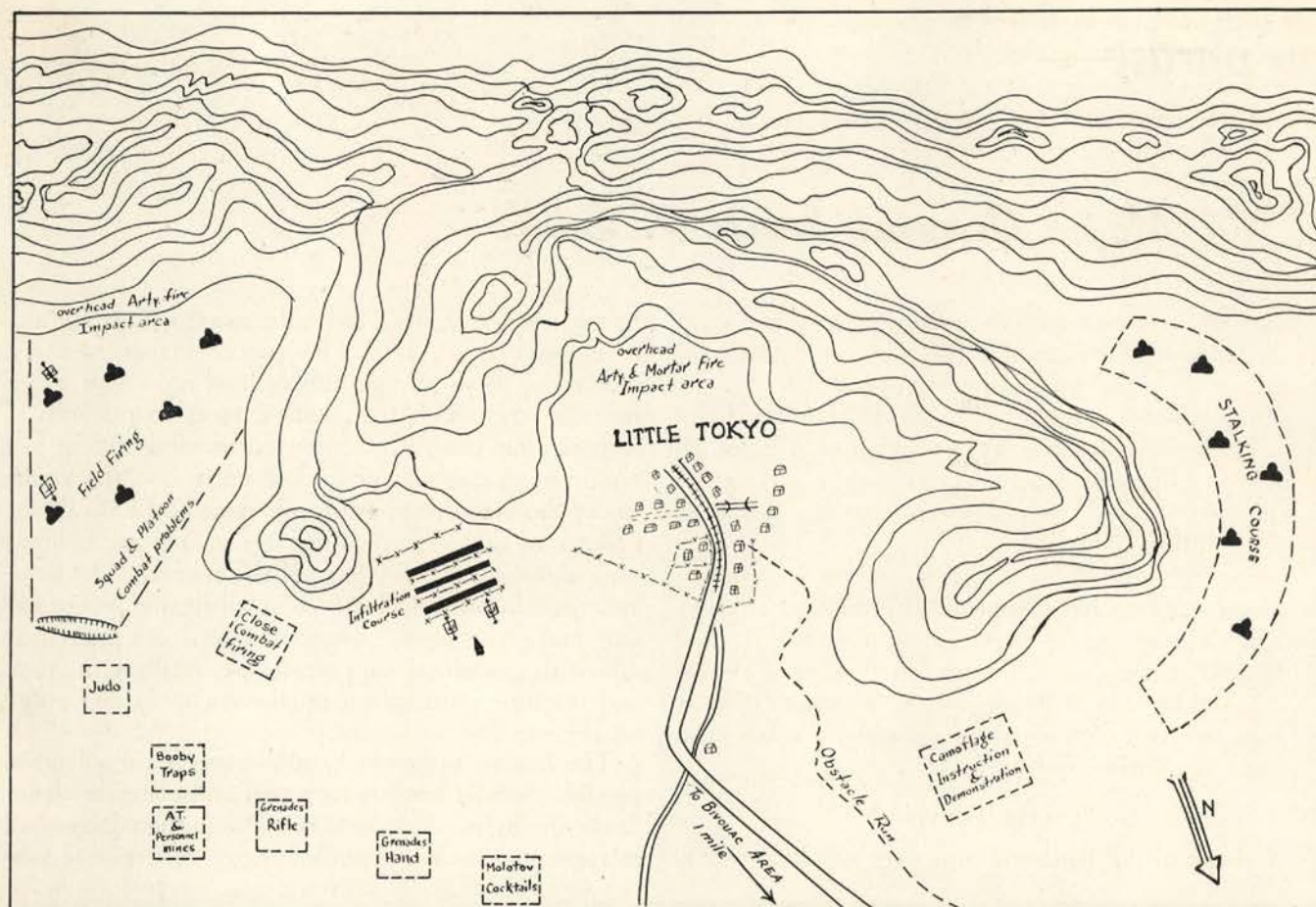
A visitor to the battle training area would probably

be taken first to Little Tokyo, the mock village. Located in a box canyon, Little Tokyo consists of buildings mocked up from salvage lumber, and represents a very realistic little tough spot, tucked away in the hills. It is here that detailed demonstration and instructions are given in methods of forcing entry into the village under the fire of supporting weapons and with the assistance of demolitions. Then comes a house-to-house campaign to clear the village of the enemy. "Dry runs" are made in order to instruct in all details before ball ammunition is used. Demonstrations are staged in which the overhead supporting fire, artillery, mortars, and machine guns soften up the enemy strong points for the assault detachment.

The heavier fires are placed as close to the village as possible without causing its actual and complete demolition; the lighter fires are directed into the village itself at appropriate targets installed there. A system of wire



"The men are lined up at a firing point facing irregular terrain, dotted with stationary and surprise silhouette targets."



entanglements protecting the approaches to the village, requires the use of Bangalore torpedoes to facilitate the advance of the assault detachment. Pillboxes and machine gun emplacements are actually knocked out by 37mm fire, pole charges, flame throwers, and grenades. The assault detachment advances through a natural gully under the overhead fire of supporting weapons, and mortars provide a smoke screen to facilitate the final advance of the assault detachment from the gully and into the village itself.

The air is filled with smoke, dust, and the acrid smell of powder. (If this description sounds dramatic, remember that the purpose and intent of the course is to present the dramatic confusion of battle in such a village.) When the supporting fires are lifted on signal, the leader of the assault detachment dispatches his first team into the nearest building. Prior to this time, he has divided his squad or detachment into pairs or threes that will work together and in a pre-determined relative position to the base of the squad as it moves. The basic group of three men, working in a triangular formation, appears to be the most satisfactory for security, coördination, and control of the detachment as a whole. Regardless of the direction of the movement, there is always one man as a *point* with the other two covering and supporting him. Upon approaching a building, the point man throws in a grenade and, lying prone close to the building, is covered until the grenade dis-

charges. Then, taking precautions against booby traps on windows and doors, he enters the building as rapidly as possible.

Up to this time, he has been covered by his teammates from possible sniper fire from other buildings. Upon his signal, the other men of his team in turn enter the building rapidly and prepare to proceed to the rest of the buildings by similar methods. In this system, the one moving is always covered by the other two. Meanwhile, similar teams are entering other buildings, so that eventually the street is crossed and the house-to-house campaign progresses on both sides of the street. There are plenty of booby traps and numerous fleeting targets representing snipers at windows, doors, and roof-tops. Aggressiveness and thoroughness are the key-notes of this instruction; speed is desirable, but is subordinated to thoroughness.

In Little Tokyo, the cavalryman, amidst the actual sounds of battle, is introduced to the reality of carrying out a mission in the most warlike setting possible, this side of the war itself. It is here that he begins to sit-in on the real game, so that he will have a chance for his chips when the cards are down.

INFILTRATION

The next station to be visited would probably be the near-by infiltration course. This course consists chiefly of a series of alternate trenches and low barbed-wire,

with shell holes, rocks, thorny brush, yucca plants and cactus scattered throughout. It is all hard and rocky ground; it is a crawling course throughout, and even without the firing and explosions is a nasty bit to go through. Two or three machine guns are mounted in line at the finish on platforms with bars. The bars prevent depressing below a safety limit tested by actual firing, and the guns deliver fire over the approaching troops at a height of eighteen to twenty-four inches above the parapets of the three trenches. Small bombs are placed in the scattered shell holes and are detonated electrically from a control tower.

Prior to this phase of training, the troops have spent a good deal of time learning to crawl under wire on various obstacle courses. Nevertheless, the training here also includes instruction on methods of crawling and keeping the body as close to the ground as possible. The technique of turning from belly to back before trying to go under barbed-wire, is demonstrated and practiced. The wire is very low—practically on the ground. This makes it necessary for a man to use his hands to lift the wire in order to go under. Men are cautioned not to crawl into the shell holes because they contain explosives; they are also cautioned that a hand, a knee, or a foot that is raised too high will probably get a bullet in it. Kneeling silhouettes, and sometimes balloons, are placed throughout the course to show where the fire is going. The course accommodates a platoon.

After all preliminary instructions have been completed, the men are lined up approximately thirty yards from the first trench. On command or signal, they run

"Machine guns open fire and keep a steady stream of hot lead constantly overhead."



"The instructor first demonstrates and then instructs the men in the use of a natural crouch with the weapon held tightly to the body."

at top speed for the first trench, hurdle a two-foot wire fence en route, drop prone in the trench, and start crawling. As an additional realistic caution to hit the dirt, a bomb is detonated as the line reaches the first trench. Machine guns open fire and, keeping a steady stream of hot lead constantly overhead, traverse over the course. The $\frac{1}{3}$ dynamite stick bombs are detonated as they are passed. This tends to break up small groups that sometimes form at tough spots. There is no pause in the second trench. As a matter of fact, there is seldom any lagging anywhere; the impulse seems to be to go ahead constantly.

Upon reaching the last trench (almost under the muzzles of the machine guns), men remain there prone until the last man arrives. At this point, "sticky" grenades are thrown into the trench with warning, and the men come charging out, grinning through grimy faces, yelling and cursing, and assault the dummies at the machine gun positions. The men are dirty, bruised, and scratched. Their class X clothing, issued for the occasion, is torn to shreds. Their nostrils and mouths are clogged with dust. They know that they have been under actual fire!

Officers and men who have gone through this course shoulder to shoulder have a new confidence and respect for each other. There is a cocky assurance about them as they go on to other training, and they seek opportunities to go through the course again. They have learned how to go under fire, by actually going under it. The participation of officers is another step in their doctrine to "lead physically."

Two cautions about the course are important in order to prevent unnecessary injuries. First, test the sheaf of fire from each machine gun thoroughly, so that it may be close, but at the same time, perfectly safe for the man



who crawls properly. Second, clean out shell holes when charges are laid for each run, so that flying rocks and other fragments will not add an unnecessary and unintended hazard in the course. The charge should be laid on sand or soft earth. The properly laid charge may be set off within a few inches of a crawling man with no more serious effect than a good, hard jolt.

CLOSE COMBAT FIRING

Around a high rocky spur from the infiltration course is the close combat firing course. Everybody takes to this type of firing as a duck takes to water, because it is lively, and produces surprising results. This instruction prepares the soldier to fire his weapon instantly and by reflex when he moves in close combat at night, or in thick country. Firing is done with such weapons as the carbine, the pistol, the submachine gun, and the light machine gun. The work is stimulating, and skill develops rapidly.

The methods and phraseology of instructors are tough. Men are taught that the only safety is the trigger finger. Pieces are never locked. One NCO instructor demonstrated vividly what happens when the safety is on, in a pinch, and then said to his men in a doleful tone, "Mamma ain't got no little boy no more."

The men are lined up at a firing point facing irregular terrain, dotted with stationary and surprise silhouette targets at varied ranges from about fifteen to two hundred yards. Instruction is given on the range that is best suited to the weapon. The instructor first demonstrates and then instructs the men in the use of a natural crouch with the weapon held tightly to the body, so that it is at all times pointed the same as the man's nose.

When the men have finished the preliminary training, they practice with live ammunition and fire from fixed firing points on a firing line. Later, they move forward as a squad in assault, and during movement, fire at surprise targets. Firing at slight noises such as the creak of bobbing targets is included in this course. The ingenuity of instructors develops many interesting devices for this purpose.

FIELD FIRING RANGE

About six hundred yards north of the close combat firing course is a large valley or cove in the mountain, which is used for field firing, musketry problems, technique of fire, and squad and platoon combat problems. The limits to directions of fire in this area are much more generous than the usual combat range. This permits fire and movement, the maneuver of squads within the platoon for flanking fire, and even a change of direction of the platoon as a whole. Fixed and surprise targets, controlled from pits, are placed in simulated defensive positions throughout the area. Overhead artillery and mortar fire is also used in this area for combined training.

UNARMED COMBAT

Upon returning from the field firing range, a group of soldiers can be seen moving at double-time (as all



"The men practice all kinds of disabling holds, throws, and blows."

groups do in going from station to station) toward the unarmed combat instruction area. Here, the men are instructed in "dirty fighting"; it is definitely not a course in *judo*. The instructors demonstrate and have the men practice all kinds of disabling holds, throws, and blows that it is believed can be used effectively by the average man. They are taught to fight in the manner that is most natural to the individual, but they are cautioned that this type of fighting is the last resort and that the most effective way to kill is with a weapon.

The important thing in this course is to commence the breakdown of the American soldier's instinctive sportsmanship which inclines him to give the other fellow a break. Here, he is taught that the American soldier who goes up against a Jap or a German with a sporting attitude is a dead soldier. Another advantage in this kind of work, not to be overlooked, is that it adds to the physical fitness, strength, and toughness of the individual.

SPECIAL WEAPONS

Next is the special weapons instruction area, which is subdivided into a number of different stations. These include a mine field, where demonstration and practice in the laying of the field is conducted. Most of the work is with antitank mines. There is a booby trap demonstration where various types are shown, and their construction explained and practiced. There is also a course in which anything picked up, and wires tripped over, sets off a charge. The most effective demonstration of this course is given by the "booby squad," which goes through the course doing everything wrong.

Further along is a rifle grenade course, in which grenades are fired at mock-up targets at varied ranges. Every man gets to fire the AT grenade on this course. Near-by are courses where instruction is given in the various methods of throwing hand grenades.

Another area is devoted to instruction in how to

make and throw Molotov, smoke, and sticky grenades. Some of these home-made grenades are retained by the individual manufacturer and used later on the tank stalking range. Specially selected teams from engineer and chemical warfare troops assist in the instruction in this area. These teams put on the demonstrations which are suited to their particular function in combat.

CAMOUFLAGE

The camouflage demonstration area includes installation, set up by engineers to show camouflage of gun positions, machine gun nests, and small ammunition dumps. Camouflage discipline is emphasized by the restriction of traffic to established trails. Soldiers going through this course are given camouflage suits and are required to demonstrate that they can approach to within ten or fifteen yards of observers and conceal themselves effectively. The ground and vegetation are so well suited to the demonstration that an observer can turn his back while the men are thirty yards away and when asked to turn around finds that the men have disappeared; when the men rise, he sees that they are practically under his feet.

TANK STALKING

The last principal area located in a valley separated from Little Tokyo by a high rocky ridge, is the stalking range. This range is designed for application with live

ammunition under tactical conditions of the instructions received at various other demonstration and instruction courses. The tank stalking course consists of a tank park, mocked up from rocks, which is raided, in turn, by squads that have finished the course of instruction in the various home-made grenades.

CONCLUSION

Some of these courses are well established and have turned out hundreds of graduates; others are still in their infancy and will develop as time goes on. New ideas, fresh from the front, may produce additional methods to prepare men for the grim shock and confusion of battle. Whatever they are, they will be designed to produce men who can use their heads and use their weapons, because they will not be demoralized by sights, sounds, and smells that are entirely strange to them. Men are not afraid of familiar things; it is the mystery and doubt of strange things that tear at their courage.

When our trooper faces the first blast of enemy fire, he can say to his own soul, "Well, here it is; I know what it is like, and I know what to do." His realistic training will begin to pay dividends. He will have a chance for his white alley; he will go forward with courage and confidence in himself and his comrades. His "Damp Run" will have prepared him for battle!

"Here the men are instructed in 'dirty fighting.'"



"Quick On the Trigger"

by Colonel Walter F. Siegmund, Air Corps

WE have drifted away from the technique of the greatest individual fighting men in our history—our pioneer forefathers, who carved out this great nation with the frontier six-shooter, the lever-action rifle, and the Bowie knife. The speed and accuracy with which they whipped their guns and shot the head off a rattlesnake, or drilled a bad man or savage, meant life or death. That was an age of kill or be killed.

Now, we are back again to an age of the rattlesnake, bad man and savage, and we must revert to the tactics and technique of our forefathers who wiped them out in their day.

SINCE the beginning of time, the element of surprise has been the foremost factor in warfare, and now, combined with mobility, speed, and fire power it makes modern warfare. The airplane has set the pace. It fulfills the mission of reconnaissance, observation, counterair attack, bombing, and transportation of personnel and supplies. It has changed naval warfare, and has cut down the days, weeks or months of artillery preparation of the last war. It has spread war over all areas and made the entire face of the earth the battle front. The tempo of war has been stepped up to a terrific pace as compared with the past.

But what of the individual soldier with his weapons? With all of the revolutionary progress in the tactics and technique of war, much remains to be done in training the individual fighting man in the art of gunmanship with the pistol, submachine gun, carbine, or weapons of similar character.

"SOLDIERS MUST BE MADE INTO GUNMEN"

Gunmanship of pioneer days has passed into mountain-top to mountain-top game shooting with a high-powered rifle and the telescope. Pistol shooting has become a holding and squeezing game, with the object of putting all the shots in the same hole. Some marksmanship has been practiced by a hunter rushing into an area where there is a heavy concentration of game, trusting to luck that a buck would run by, getting a shot in, and lugging the carcass out before somebody accidentally plugged him with a 30/30.

Others have joined the multitude who bedecked

themselves with padded shooting jackets and gadgets, and after an amazing combination of pulling rabbits out of a dope book, judging or misjudging the wind, breathing, squinting and trigger squeezing—have sung out, "I fired only ten shots, and I got eleven bull's eyes in my target!" All of this is good, *but* it does not make versatile close combat gunmen.

The Cavalry Mounted Pistol Course was the only carry-over from the Wild West, and as an old horse soldier, I have prepared a combat obstacle course for the training of troops armed with the pistol, submachine gun, carbine, and weapons of similar character, to enable them to meet the conditions of close personal combat warfare, particularly in the orient where the Japs practice all the arts of the snake, rat, and the various members of the cat family.

Soldiers must be made into gunmen—gun pointers, instead of gun aimers. It is recognized that troops generally, and snipers particularly, must be trained in the fine arts of placing a bullet in the right spot with all of the aids available. But once the rank and file run into ambush, engage in jungle fighting or its equivalent, they fight where it's man to man, kill or be killed, and the technique of Wild Bill Hickok and of Billy the Kid is absolutely necessary to survive.

A COURSE OF MILITARY GUNMANSHIP

A course for training with the pistol, submachine gun, and carbine has been constructed for the use of the Overseas Replacement Training Group, Army Air Forces Technical Training Command at Kearns, Utah.

CARDED

The chart accompanying this article includes sufficient descriptive material for the operation of the course. Variations as to obstacles, number of obstacles, and target locations on the course, may be made depending upon the available facilities and terrain. The course must be laid out in a horseshoe form to insure one general direction of fire and at the same time, afford fire to the left and to the right. The course should not be longer than 125 yards, and the time limit should not be in excess of 2 minutes, depending on terrain, footing and type of obstacles.

In laying out the course, the general direction of fire should be to the front from the centrally located control booth. A line, drawn from tip to tip of the horseshoe across the open end, should be to the right of, and parallel to the direction of fire. Distance to targets should not exceed 25 yards.

Where large bodies of troops are to be trained, a series of these courses may be laid out with full regard to safety measures.

In the drawing, 15 targets are set up. When firing the carbine, a full clip of 15 cartridges and 15 targets should be used; or fewer targets, if desired, will allow 2 or more shots on any target. When firing the Thompson submachine gun, a full clip of 20 cartridges and 15 targets will afford 5 extra shots, which may be fired full automatic or otherwise on any of the targets designated by the instructor. When firing the automatic pistol, 2 clips of 7 cartridges each, and 14 targets, or fewer targets if desired, will afford 2 or more shots on any target.

OPERATION OF COURSE

The scorer sits in the control booth. At the blast of the whistle, the soldier starts his run. After he clears the course, the scorer blows a whistle, and the pasting and marking detail run out (one man to each target) and each marker pastes his target, and calls out "Hit or miss on No. 1—Hit or miss on No. 2, etc." Each marker runs back to a line in the rear of the control booth after he has completed his work.

After the markers and pasters have all cleared the course, the scorer blows a whistle and the next man takes off.

A loud-speaker installed in the control booth will provide supervision, instruction, and correction from that point.

For safety measures, the control booth should be timbered against accidental discharge of weapons. If the control point is in the open, a sand bag nest, dugout, or other natural cover will suffice.

A competent noncommissioned officer should be in charge of weapons at the starting point. He will hand the soldier his weapon and clips. The soldier will proceed to the starting point, load his piece, take off the safety, and at the blast of the whistle, will proceed. The safety must be put on before the soldier leaves the ditch (obstacle No. 6) and left on through the crawl (ob-

stacle No. 7), then taken off for firing over remaining obstacles. He will return his weapon and empty clips to the noncommissioned officer in charge at the finish.

Great caution must be exercised in the instruction of the soldier in regard to the method of carrying the weapon. If the man is a right-handed shooter, he must be instructed that on the first half of the horseshoe course, when the weapon is being fired to the right, it must be carried in a raised position in the right hand and *not across the body*. When he completes the first half of the horseshoe, and starts on the last half and is firing to the left, he must then shift the weapon across the body, and hold the carbine and Thompson submachine gun with *two hands*. This procedure is reversed if the man is a left-handed shooter. It is obvious that this procedure is necessary to prevent an accidental discharge of the piece toward the control booth, and in the opposite direction of the direction of fire.

In the event of a malfunction of the weapon, the soldier should stop on the course, raise his weapon and call, "Malfunction," and remain until relieved by the noncommissioned officer in charge. He should then return to the starting line, be given another weapon, and proceed over the course.

Dry practice runs should be held with combat field equipment and weapons to develop shiftiness on foot, dexterity with weapons and physical hardening in order that the soldier may gradually be brought up to the actual firing. The usual preliminary training with arms and firing on the regular type of range should be accomplished prior to firing on the combat firing obstacle course.

Below is a suggested method of scoring. It is based on a rating of 50% for a possible number of hits made, and 50% if the officer or board of officers conducting the firing declare a perfect performance. Judging should be on the basis that the course has been completed within the specified time limit; upon the manner in which the soldier handles his weapon, and negotiates the obstacles; and the ferocity, determination, craftiness and wiliness of his performance.

As an example, in determining the final rating, a man using the pistol makes 13 hits, which gives him 86%, as far as the firing record is concerned. If the judgment of the officers gives him a 100% performance, and he has completed the run within the time limit, his final rating will be the sum of 86% plus 100%, divided by 2, or 93%, which qualifies him as an expert. And as a further example, if he makes less than 9 hits, irrespective of his performance rating, and completion within the time limit, he will not be considered qualified. In other words, hits are a matter of fact; his performance, a matter of the directors' judgment.

Local conditions, available material, as well as terrain, and the ingenuity of individuals give a wide latitude in variations and innovations in the construction of a course and in firing procedure. The guiding principles, however, should be those that will result in hard, tough,

agile, mentally and physically alert, *deadly* gunmen, with full confidence in themselves and their weapons to the end that the individual soldier is unconquerable.

PROCEDURE WITH THE PISTOL

1. At the starting point, the noncommissioned officer in charge will hand the soldier a pistol and two empty magazines. (For actual firing, two magazines loaded with seven rounds each will be supplied.)

2. The soldier will immediately assume the position of *Raise Pistol* and insert one magazine. At the blast of the whistle he will execute *Load Pistol*, without engaging the safety lock; then proceeding over the course, he will carry the pistol at *Raise Pistol* at all times except when actually firing.

3. The 1st and 2nd obstacles will be hurdled, and the first two targets fired on while running.

4. The 3rd obstacle will be cleared as a hand vault, and the 4th obstacle broad jumped. As the 4th obstacle is cleared, the soldier will go down on his knee, and fire on targets 3 and 4 from that position. When firing on more than one target from the same position, the direction of movement will be to the front.

5. After completing obstacle No. 5, the soldier will crouch low and fire from the hip on targets 5 and 6 from a crouching position. (During dry runs the next man will leave the starting point at this time.)

6. He will then jump into the trench (obstacle No. 6), and fire from the cover of the trench on target No. 7. Since this will be the last round in the pistol, the slide will remain locked in the open position. While under the protective cover of the trench, the soldier will remove the empty magazine by applying pressure on the magazine catch. The loaded magazine will then be inserted, the slide released by pressing upon the thumb piece of the slide stop, *and the safety put on*. From this point on, the pistol will be carried at *Raise Pistol* but will be pointed to the left away from the control booth. (In the case of left-handed trainees the procedure will be reversed. The first half of the course will be run with the pistol pointed to the right across the body and the last half at *Raise Pistol*.)

7. The soldier will then slip from the trench and run low to obstacle No. 7, where he will go to the prone position and negotiate the obstacle by using the "jungle crawl." Upon emerging from the undergrowth, *the safety will be taken off*, and target No. 8 will be fired on from a prone position.

8. Rising and running into the cover of obstacle No. 8, he will see target No. 9 on his left and will fire from a standing position.

9. As he comes out of the thicket, he will drop to his knee and fire on target No. 10.

10. As he moves off, target No. 11 will be sighted above him to the left, and he will fire on it with a quick shot from a standing position.

11. The soldier will then cross the stream ahead by running over a fallen tree, obstacle No. 9, and as he hurries toward the protection of the fallen logs, he will fire on targets 12, 13, and 14 with three running shots.

12. After clearing obstacles 10 and 11, he will return to the starting point. The weapon will be kept at *Raise Pistol*, the magazine will be withdrawn, and the pistol and both empty magazines returned to the noncommissioned officer in charge.

13. The soldier who has just completed the course will then return to his squad, and the next man will proceed to the starting point.

PROCEDURE WITH THE CARBINE

1. At the starting point, the noncommissioned officer in charge will supply the first man with a carbine and one empty magazine. (For actual firing one magazine loaded with 15 rounds will be supplied in lieu of the empty magazine.)

2. The soldier will immediately grasp the carbine with the right hand as a pistol and will carry it to a position similar to, but slightly lower than *Raise Pistol*, and will insert the magazine. At the blast of the whistle, he will load the carbine by pulling the slide handle all the way to the rear and allowing it to snap forward. While carrying the carbine at the modified position of *Raise Pistol*, he will then proceed over the course.

3. The 1st and 2nd obstacles will be hurdled, and the first two targets fired on with pistol shots while running.

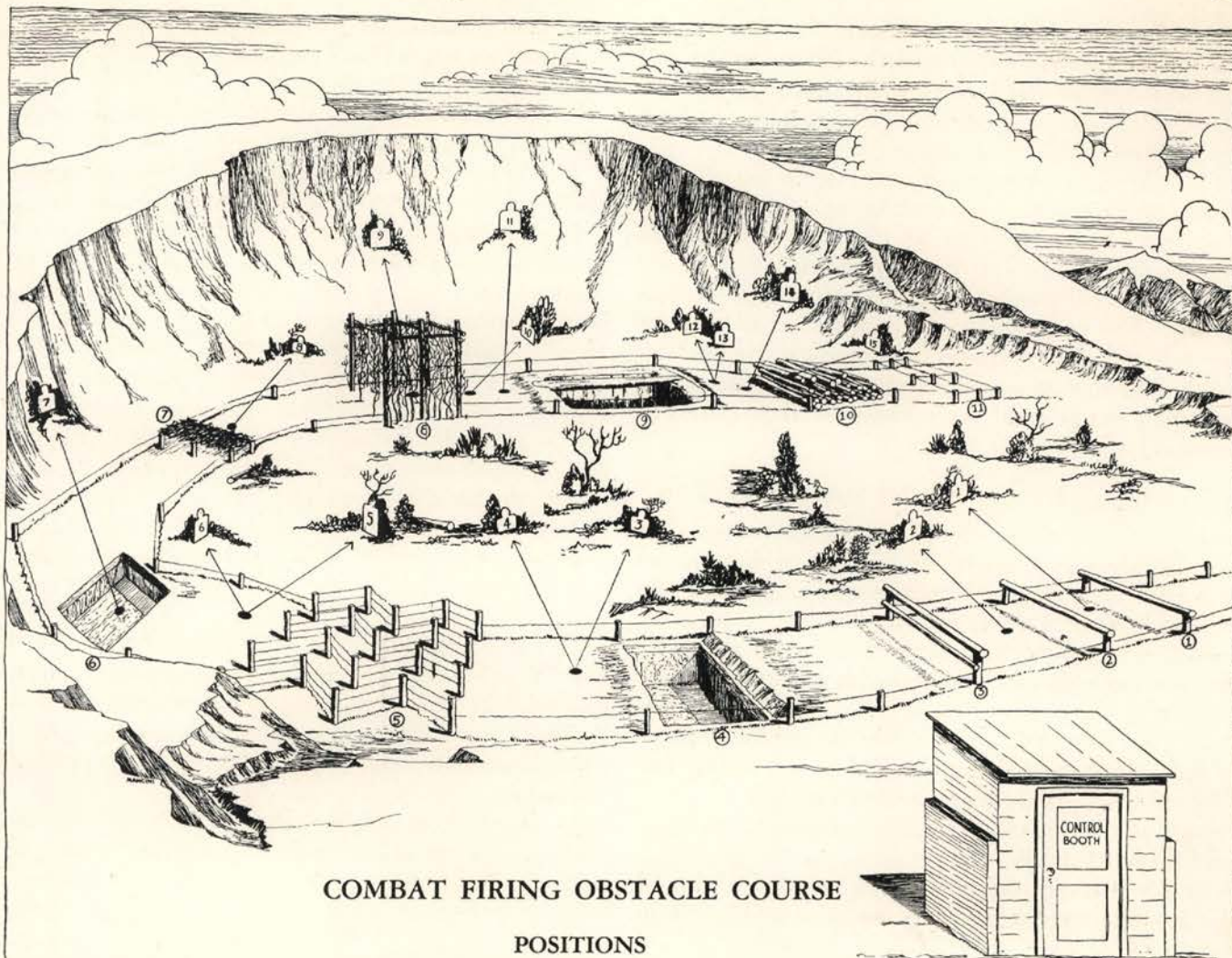
4. The 3rd obstacle will be cleared as a hand vault, and the 4th obstacle broad jumped. As the 4th obstacle is cleared, the soldier will go down on his knee, and will fire on targets 3 and 4 from the shoulder while kneeling.

5. After completing obstacle No. 5, the soldier will fire on targets 5 and 6 from the hip. (During dry runs the next man will leave the starting point at this time.)

6. He will then jump into the trench (obstacle No. 6), and fire from the shoulder from the cover of the

METHOD OF SCORING

	<i>Pistol</i>	<i>Carbine</i>	<i>Thompson Submachine gun</i>
100%	14 Hits—Possible	15 Hits—Possible	20 Hits—Possible
86%	13 Hits—Expert	13 Hits—Expert	17 Hits—Expert
75%	11 Hits—Sharpshooter	11 Hits—Sharpshooter	15 Hits—Sharpshooter
62%	9 Hits—Marksman	9 Hits—Marksman	12 Hits—Marksman



COMBAT FIRING OBSTACLE COURSE

POSITIONS

Carbine . . .

- 1 & 2—Pistol shots running
- 3 & 4—Kneeling from shoulder
- 5 & 6—Standing from hip
- 7—Crouching from shoulder
- 8—Prone
- 9—Standing from shoulder
- 10—Crouching from shoulder
- 11—Standing from shoulder
- 12 & 13—Pistol running
- 14—Standing from shoulder
- 15—Prone from shoulder

Submachine gun . . .

- 1 & 2—Standing from shoulder
- 3 & 4—Kneeling from shoulder
- 5 & 6—Standing from hip
- 7—Crouching from shoulder
- 8—Prone from shoulder
- 9—Standing from shoulder
- 10—Crouching from shoulder
- 11—Standing from shoulder
- 12 & 13—Standing from hip
- 14—Standing from shoulder
- 15—Prone from shoulder

Pistol . . .

- 1 & 2—Running
 - 3 & 4—Kneeling
 - 5 & 6—Crouching
 - 7—Crouching
 - 8—Prone
 - 9—Standing
 - 10—Kneeling
 - 11—Standing
 - 12, 13 & 14—Running
 - 15—Prone
- (Pistol to be swung on target at various angles. Direction of movement to front)

trench at target No. 7. The piece will then be locked on *Safe* by pushing the safety slide fully to the right. At this point, the piece will be dropped from the position of *Raise Pistol* and carried in both hands diagonally across the body. This carrying position will be used for the balance of the course. (In the case of left-handed trainees, the procedure will be reversed. The first half of the course will be run with the piece in both hands in the diagonal position, and the last half at *Raise Pistol*.)

7. The soldier will then slip from the trench and run low to obstacle No. 7, where he will go to the prone position and negotiate the obstacle by using the "jungle

crawl." As he emerges from the undergrowth, he will unlock the piece and fire on target No. 8 from a prone position.

8. Rising and running into the cover of obstacle No. 8, he will see target No. 9 on his left and will fire from the shoulder at a standing position.

9. As he comes out of the thicket, he will crouch and fire on target No. 10 from the shoulder in a crouching position.

10. As he moves off, target No. 11 will be sighted above him and fired on with a quick shoulder shot from a standing position.

11. The soldier will then cross the stream ahead by

proceeding over a fallen tree (obstacle No. 9), and as he hurries toward the protection of the fallen logs, he will fire on targets 12 and 13 with two running pistol shots, then hesitate long enough to fire on target No. 14 from a standing shoulder position.

12. He will then take cover behind the log pile and fire on target 15 with a prone shoulder shot over the top log. Next he will clear obstacles 10 and 11 and return to the starting point. The weapon will be kept at the *Raise Pistol* position, and the magazine will be withdrawn. The piece and empty magazine will then be returned to the noncommissioned officer in charge.

13. The soldier who has just completed the course will then return to his squad and the next man will proceed to the starting point.

PROCEDURE WITH THOMPSON SUBMACHINE GUN

1. At the starting point, the noncommissioned officer in charge will supply the first man with a tommy gun with bolt closed and one empty magazine. The noncommissioned officer will inspect the piece to be sure that the fire control lever is set at *Single*. (For actual firing, a magazine loaded with 20 rounds will be supplied.)

2. The soldier will immediately assume the position of *Raise Arms* and insert the magazine. At the blast of the whistle, by retracting the bolt, he will cock the piece, and then carrying it at *Raise Arms*, he will proceed over the course.

3. The 1st and 2nd obstacles will be hurdled, and the first two targets fired on from the shoulder while standing.

4. The 3rd obstacle will be cleared as a hand vault, and the 4th obstacle broad jumped. As the 4th obstacle is cleared, the soldier will go down on his knee, and fire on targets 3 and 4 from the shoulder in a kneeling position.

5. After completing obstacle No. 5, the soldier will crouch low and fire from the hip on targets 5 and 6. (During dry runs the next man will leave the starting point at this time.)

6. He will then jump into the trench (obstacle No. 6), and fire from the cover of the trench on target No. 7 with a shoulder shot. The piece will then be set on *Safe*. At this point, the piece will be dropped from the position of *Raise Arms* and carried diagonally across the body by grasping the fore grip with the left hand. This carrying position will be used for the balance of the course. (In the case of left-handed trainees, the procedure will be reversed. The first half of the course will be run with the piece in a diagonal position, and the last half at *RAISE ARMS*.)

7. The soldier will then slip from the trench and run low to obstacle No. 7, where he will go to the prone position and negotiate the obstacle by using the "jungle crawl." As he emerges from the undergrowth, he will *unlock the piece* and fire on target No. 8 with a prone shoulder shot.

8. Rising and running into the cover of obstacle No. 8, he will see target No. 9 on his left and will fire from the shoulder while standing.

9. As he comes out of the thicket, he will crouch low and fire from the shoulder on target No. 10.

10. As he moves off, target No. 11 will be sighted above him to the left and fired on from the shoulder.

11. The soldier will then cross the stream ahead by running across a fallen tree (obstacle No. 9), and as he hurries toward the protection of the fallen logs ahead, he will hesitate long enough to fire on targets 12 and 13 with rapid hip shots. Swinging to the front, he will sight target 14 and fire on it from the shoulder.

12. He will then take cover behind the log pile and fire on target 15 with a prone shoulder shot over the top log. After clearing obstacles 10 and 11, he will return to the starting point. The weapon will be kept at *Raise Arms*, the magazine will be withdrawn, and the piece set on *Safe*. The piece and the empty magazine will then be returned to the noncommissioned officer in charge.

13. As there are only 15 targets on the course, when the soldier is actually firing the Thompson submachine gun with 20 cartridges in the clip, the instructor will designate any target on the course which may be fired on full automatic, and thus use the extra 5 cartridges in the clip.

14. The soldier who has just completed the course will then return to his squad and the next man will proceed to the starting point.

NOTES FOR USE OF COURSE

1. Mechanically operated bobbing and surprise targets may be used depending on facilities and terrain.

2. Variation in types of obstacles should be confined to such characteristics that will not destroy the primary object of developing versatile gun handling.

3. Length of course should not exceed 125 yards.

4. Distance from firing points to targets should not exceed 25 yards.

5. Hits on targets should count 50 per cent of rating. Performance and "way of going" should count 50 per cent of rating.

6. Time of run per man should not exceed 2 minutes.

7. Method of control and scoring, same as mounted pistol course.

8. Preliminary training on regular range should precede actual firing on combat firing obstacle course to familiarize men with functioning and firing of weapons.

9. Series of dry runs with weapons and combat field uniform and equipment should be run before troops are allowed to fire.

10. For dry runs, as many men as can be instructed and controlled may be on the course at one time. Obviously in firing, only one man on course at a time.

11. A loud speaker in control booth will facilitate supervision of instruction and firing.

Motorcycle Endurance Run

by Lieutenant Bernard A. Walsh*

THE largest motorcycle school in the United States is operated by the Motorcycle Department of the vast Armored Force School at Fort Knox, Kentucky.

It teaches students to take cycles apart and find out what makes them tick. The soldiers are taught to do everything from repairing a puncture to straightening a bent frame.

Riding is incidental in the school's instruction. Men are required to be able to ride only well enough to test the vehicles they repair. Most of them, however, have found that riding is fun, and they want a chance to continue the sport while training.

Extra-curricular activities, popular with officers and men of the school's motorcycle department, include occasional endurance runs. Typical of these was the most recent, in which 105 mud-spattered, rain-soaked enthusiasts rode, pushed, and lifted their heavy cycles over 61 miles of northern Kentucky's sticky red clay.

The course followed secondary roads on the Fort Knox reservation and near-by areas. A two-day thaw that followed snow and cold had made the course a morass of mud. Then to test to the limit the mettle of these messengers of mechanized warfare, a cold rain beat down during the latter stages of the contest.

At one point more than 30 machines were mired in the same quarter-mile-long mud hole. Some of them bogged down permanently at this point and failed to finish.

The run was over a route unknown to the contestants, who were assisted only by a crude map and an occasional road sign. The tough going was designed to equal the worst conditions to be found in combat areas. In the words of an officer who laid out the course, "If the men can follow secondary roads, go through woods and mud with a poor map, they can be trusted to get from here to there in battle."

Chief objectives of the endurance run were these:

1. To test the condition of men and machines.
2. To test the ability of individuals to follow an unfamiliar route guided only by the most simple directions.
3. To test the ingenuity and ability of the soldiers to get the most out of their machines with the expenditure of a minimum amount of gasoline.
4. To impress on the armoraiders mechanics the necessity of keeping motorcycles in condition for the difficult tests they must face in combat.

The run was started at 10 o'clock on a Sunday morning, and riders took off at one-minute intervals on alternate courses. Even-numbered cyclists followed the



Two cycleraiders wrestle through a sticky spot on the Armored Force School's endurance run. At times as many as four or five riders teamed up to push their clay-captured mounts through "General Mud's" tougher traps.

reverse of the route taken by the odd-numbered men. It was well after 3 P.M. before the early finishers began arriving.

The ride was not a race but a competition against calculated time. The schedule called for riders to average 15 miles an hour. But these plans were made without consulting the weather man. The winner's elapsed time was five hours and seven minutes, an average of some 12 miles an hour.

Each man's score was computed in points, every rider starting with 1,000. A point was deducted for every minute late or early in arriving at a check point, of which there were six; two points were deducted for each minute early a rider left a check point, and 100 were lost for missing a check point.

In addition, a point was trimmed off the rider's score for every ounce of gasoline expended over an amount estimated in advance to be sufficient for the course. It was his saving on gasoline that gave victory to the winner, who lost only one point for excessive gas consumption, while most of his competitors lost from 50 to several hundred.

Chief complaint of all riders was that the sticky clay collecting between the front wheel and fender, packed so tightly that the wheel couldn't rotate. One cyclist reported he was forced to stop 50 times to clean his wheel.

One of the few who found a way to overcome the mud menace explained his success in these words: "I rode through all the water I could find and let the water clean my wheel for me." He had to stop only once to scrape off the clogged mud.

There were only four instances of mechanical failure. Each consisted of a burned-out clutch resulting from inexpert riding.

In summing up results of the run, it was definitely proved that if a machine is ridden and handled properly, it will negotiate the most difficult terrain.

*Armored Force School.

Preventive Maintenance Personnel

by Major Henry G. Bell, Cavalry*

INSPECTIONS reveal that in each 100 military vehicles selected at random there are approximately 1700 defects because of a lack of preventive maintenance.

What is preventive maintenance? It is the maintenance that must be performed to make sure that vehicles are always available to move men, guns, ammunition, and supplies. Preventive maintenance is "the ounce of prevention and the stitch in time."

Who performs preventive maintenance? Drivers and mechanics in the troop, squadron, and regiment—under the supervision of their officers and noncommissioned officers.

When is preventive maintenance performed? Daily, weekly, monthly, or every 1000 miles, and semi-annually or every 6000 miles, as a general rule.

Why is it that so many defects are found in our military vehicles when, to begin with, they are the best vehicles any army possesses? The answer is improper selection, training, and/or supervision of drivers and second echelon maintenance personnel.

SELECTION OF DRIVERS

Most men, with proper training and supervision, make good drivers. There are a few, however, who because of physical defects or poor judgment will never become good drivers. These should be weeded out

early in the training period, regardless of how hard they try or how good otherwise they may be.

TRAINING OF DRIVERS

During their basic or unit training, most drivers have undergone the *minimum* training as outlined in FM 25-10 or TM 21-300. In many cases, they have memorized the list of prescribed duties of the driver and will recite them to their superiors verbatim. They can drive excellently on secondary and better roads.

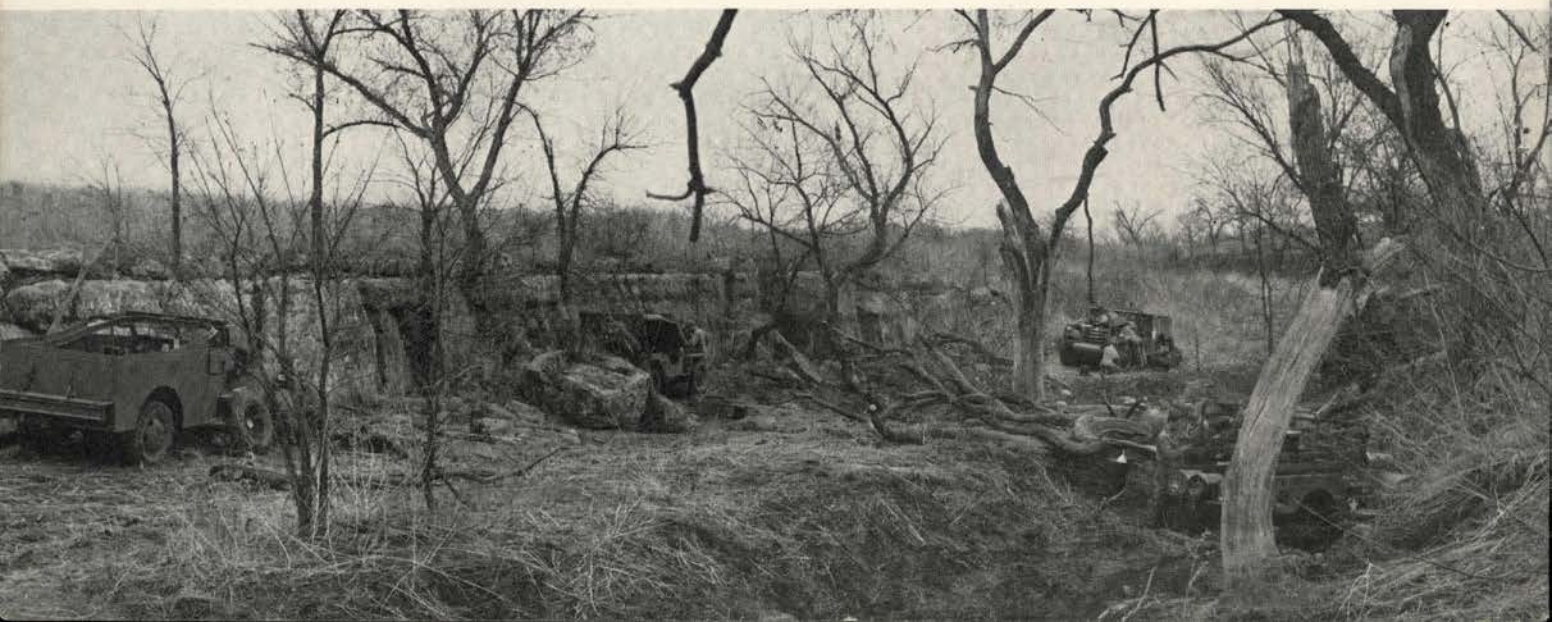
A military driver, at the end of an eighty-six hour course, usually cannot be classed as an expert driver. Training must continue on every march, every short trip for rations or supplies, every small problem, every phase of maneuvers, and every battle engagement. When the going gets tough, the duties of a driver are doubled and redoubled; his training for the first time has become intense and real, and his appreciation of good maintenance begins.

Many drivers lack sufficient training in negotiating shallow streams, deep ruts, gullies and ditches, stumps, logs and small trees, sand, mud and soft ground, thickly wooded areas and narrow, crooked roads. The use of traction aids such as chains, corduroy mats, brush, winches, and snatch blocks has been omitted in the driver training program of some organizations.

Road reconnaissance in combat areas will usually reveal that bridges and road crowns are in poor condition. A lack of training in difficult operation results in

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Students in the advance course practice maintenance in the field.



the worst kind of vehicle abuse, causes an extra burden on second echelon maintenance units, and reduces the time that should be devoted to preventive maintenance operations.

SUPERVISION OF DRIVERS

Corporals, sergeants, platoon leaders, troop and higher commanders fail to supervise and inspect driver performance properly. The 1700 defects in each 100 military vehicles is the evidence.

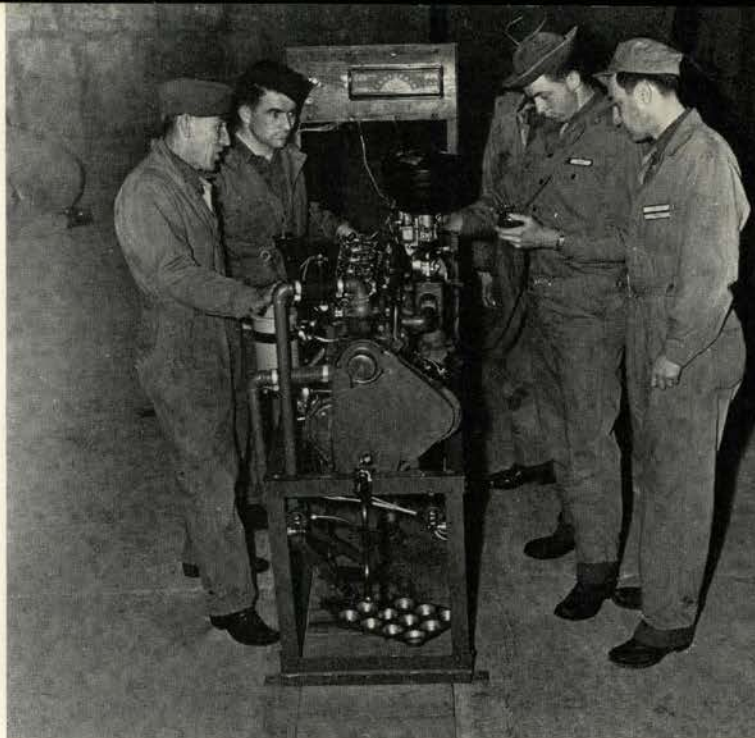
The place and time for thorough supervision and inspection of driver performance is the same as for driver training. Supervision is necessary on every march, every trip for rations and supplies, every small problem, every phase of maneuvers and every battle engagement.

The driver is with his vehicle one hundred per cent of the time when it is in operation. He performs the most important part of preventive maintenance, and the success or failure of a mechanized unit depends largely on expert driver performance. The secret of good driver performance is *expert supervision and inspection* by all concerned.

SELECTION OF SECOND ECHELON MAINTENANCE PERSONNEL

On June 11, 1942, a committee, made up of representatives from service schools and replacement training centers, met at Headquarters, Replacement and School Command, Birmingham, Alabama, and discussed matters pertaining to the training of second echelon motor specialists. They recommended that for prospective students of service school motor courses, the *minimum* qualifications should constitute the following:

1. For Officers' Motor Course.
 - (a) Troop grade and age.
 - (b) Qualified vehicle operator.
 - (c) Desirous of attending the course.
 - (d) A minimum mechanical aptitude test score of 110.
 - (e) Possession of mechanical background as evidenced by one or more of the following:
 - (1) College training in mechanical engineering.
 - (2) Experience in the operation and maintenance of commercial motor vehicle fleets.
 - (3) Any other comparable experience.
 - (f) Graduation from an Officer Candidate School or from an Officers' Basic Course of a Special Service School (desirable but not mandatory).
2. For Enlisted Motor Course.
 - (a) Qualification as motor vehicle operator.
 - (b) Desirous of attending the course.
 - (c) A minimum mechanical aptitude test score of 90.
 - (d) A minimum AGC test score of 90.



Group of students in engine course study tune-up and trouble shooting.

- (e) A grammar school education or its equivalent.
- (f) Indicated ability to perform duties of a non-commissioned officer.

Four out of ten students now enrolled in the Cavalry School Motor Course do not have motor vehicle operators' permits and cannot be permitted to operate a vehicle. This means that motor officers and motor mechanics cannot be trained thoroughly in two very important operations: road testing and trouble-shooting.

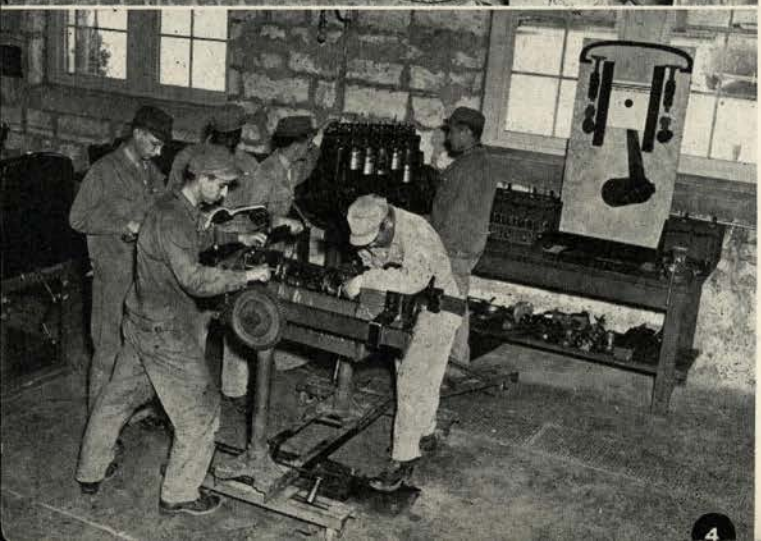
To become efficient motor mechanics, men must have mechanical aptitude to a marked degree. If they do not have it, they cannot possibly absorb necessary information. Students have been sent to the Cavalry School Motor Course with a *mechanical aptitude test* score of 51 and an AGC test score of 44. In such cases, either one of two things must be done: Send the student back to his organization, or give him hours and hours of individual instruction. The latter will result in a lowering of the standard of instruction for the rest of the class.

A man who is unreliable and of little use in an organization will not make a good mechanic. It has been tried. It is a waste of transportation and precious time, and a hardship on students who want to learn, for any organization to send a man to a service school motor course, if he does not meet the minimum requirements previously listed.

TRAINING OF MECHANICS AT THE CAVALRY SCHOOL

The method and scope of instruction on all unit assemblies and sub-assemblies of the motor vehicle is in general as follows:

The construction and functioning are explained to the student by the instructor with the aid of charts,



models, cutaways, and vehicles. The student then studies the construction, functioning, adjustments, and maintenance of disassembling and reassembling a dead unit. When a certain type of unit is thoroughly understood by the student, he performs a 1000 mile and 6000 mile maintenance operation on a similar unit installed in a live vehicle. After construction and functioning of the unit is understood by the student, and he has performed the 1000 mile and 6000 mile maintenance operations, common troubles are placed in the unit for the student to diagnose and repair or replace. This method of instruction applies to each unit studied by the student, whether it be a generator, engine, transfer case, or spring.

The course of instruction consists of 12 phases of one week each (except the fifth phase which is three days in length). The different phases are coordinated under three principal groups; namely, the chassis group, engine group, and operations and maintenance group.

1. Chassis Group.

1st Phase Instruction includes the use, care, and maintenance of second echelon tools and equipment; care and maintenance of field ranges; repair of radiators; painting; soldering; welding (oxyacetylene and electric arc) and blacksmithing. Students are schooled in fundamental principles, and with practice should become proficient.

2d Phase Instruction introduces the motor vehicle and includes the study of clutches, transmissions, transfer cases, winches and pintles, bearings and propeller shafts. Figure 1 shows instruction on a front-mounted winch.

3d Phase Instruction includes the study of driving axles and axle gears, steering joints, springs and shock absorbers, steering gears, wheel alignment, wheels and tires (Figure 2).

4th Phase Instruction includes the study of hydraulic, vacuum booster, hydrovac, air, electric, and hand brakes. Instruction on hydraulic brakes is shown in Figure 3.

2. Engine Group.

5th Phase Instruction includes study of the construction of internal combustion engines, principles of their operation, engine valves and valve actuating mechanisms, and engine lubricating and cooling systems. See Figure 4.

6th Phase Instruction includes the study of fuel and electrical units, fuel systems, carburetors, storage batteries and starting motors, generators and generator regulation, and the ignition system (Figure 5).

7th Phase Instruction includes the study of engine tune-up and trouble shooting. All units studied in the 5th and 6th phases are brought together at this time. Sequence and thoroughness of engine tune-up and trouble shooting procedures are the main items stressed.

3. Operations and Maintenance Group.

8th, 9th, and 10th Phase Periods are spent in the

shop performing 1000 mile and 6000 mile maintenance operations on vehicles from the field. Maintenance is performed on motorcycles, half-tracks (Figure 6), and wheeled vehicles (Figures 7 and 8).

11th Phase Periods are devoted to maintenance in the field. During this week a 1000 mile and a 6000 mile maintenance operation is performed.

12th Phase Period, like the 11th, is devoted to field operations and includes a 1000 mile maintenance operation, loading vehicles for rail movement, diagnosing troubles on the march, a day of replacing units (ranging from fuses to springs and transfer case grease seals), and a two and one-half day march. The march usually covers a total distance of only twenty-five miles, because most of the students' time is devoted to march maintenance, including everything from unit replacement to emergency roadside repairs. Four hours of blackout march maintenance also is included. During two hours of this period, no lights of any kind are used, and all troubles must be diagnosed and repaired in darkness. During the last two hours of darkness, a small light is used when repairs are made, but blackout is made complete by using burlap bags and a tarpaulin to cover the vehicle undergoing repair. During the march, use of various field expedients is practiced and the proper use of winches and snatch blocks, A-frames, corduroys, mats, anchors, stakes, and any makeshift equipment is stressed.

SUPERVISION OF MECHANICS

Students graduating from the Cavalry School Motor Course have a foundation which, with practical experience, will enable them to become highly proficient in their field. Because of the short time allotted for the course, instruction has been fast and, to some, furious. Many things are confusing in the graduate's mind. Close supervision and advice by motor officers and motor sergeants are necessary to get them oriented, and such supervision will pay big dividends.

Such things as the proper use of tools and equipment, checking of electrical and fuel units, adjustments, scopes of 1000 mile and 6000 mile maintenance operations, road testing, and trouble shooting require months of practice before a mechanic can become truly proficient.

CONCLUSION

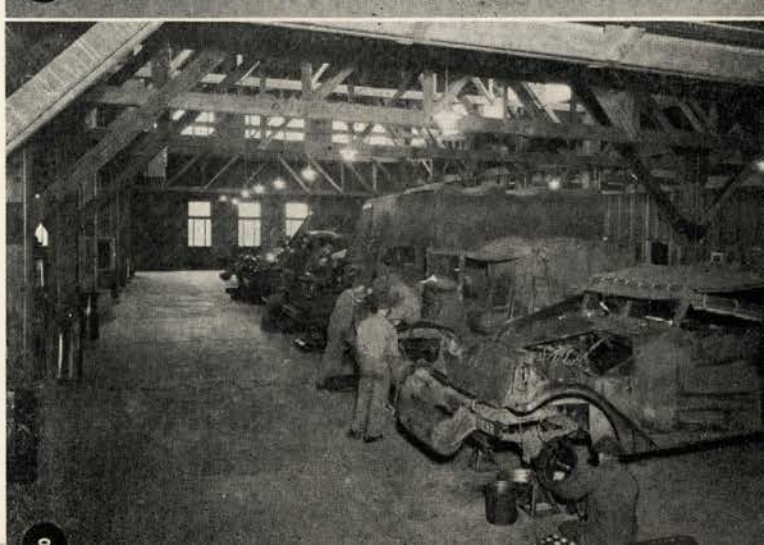
It is believed that defects in our military vehicles can be reduced to an average of four or five per vehicle—

If drivers are more carefully *selected*, and more thoroughly *trained* in difficult operations;

If close *supervision* and *inspection* of driver performance is made by officers and noncommissioned officers;

If prospective motor officers and motor mechanics are *selected* on the basis of the *minimum requirements* previously stated;

And if more assistance is given to graduates of motor courses by the motor officers and motor sergeants upon their return from school.



Training Drivers at the CRTC



EDITOR'S NOTE: *In the Motors Department at the Cavalry Replacement Training Center there are two separate schools—the Motor Mechanics School, which teaches maintenance and repairs; and the Motors School which instructs men to drive tanks, scout cars, motorcycles, light and heavy trucks, and bantams. Articles on the Motor Mechanics School and Motorcycle Training appeared in the March-April issue of The CAVALRY JOURNAL. This article deals primarily with that course in the Motors School pertaining to the training of the other motor vehicle drivers.*

IN the Motors School, trainees are assigned to the vehicles for which they are best suited. Physical capabilities and past experience are the usual factors deciding the one to which a man is assigned.

Perhaps the most rigid requirements are for prospective tank drivers. Not only are ruggedness and strong backs essential to withstand the shock and shake up that the men receive, but good eyesight without the use of glasses is also necessary because of the limited visibility from the vehicle. These factors are "musts" for all tank drivers. The tank school, more than any other department, loses men because they lack sturdiness and the ability to "take it."

Starting with a film strip on basic driving, the trainees practice maneuvering over all types of terrain. In this, much emphasis is placed upon the proper gear selection. During the last two weeks of the course, tank men participate in a field exercise for Cavalry School students. They use live ammunition, and really train "under fire." The tank course is concluded with a graduation cross-country ride with blind ports.

In choosing men for scout car training, height is necessary so that the driver may see over his vehicle. Just as aggressive combat is emphasized in tank training, so does reconnaissance play a big part in the operation of the vehicle. After the men have mastered no-

menclature, functioning, and basic driving, they are schooled to be "sneak and peek" experts. During the last few weeks, emphasis is placed on tactical exercises that combine both mounted and dismounted action. At this time, a practical application is given to all theory that has been studied.

While the two courses for training drivers in light and heavy trucks have much in common, they differ sharply in several respects. In work with the six-by-six, emphasis is placed on defense against all types of attack. In the smaller vehicles, reconnaissance comes first.

In addition to basic driving, during the first six weeks, the men receive instruction in map reading, orientation on the ground, camouflage and explosives. The remainder of their course consists of tactical training in field exercises and road marches.

There seems to be something fascinating about the quarter-ton truck. If the trainees had their way, probably about ninety per cent of the drivers would take the bantam course. Although this vehicle is easier to learn to drive than other types, trainees are given much more extensive instruction in tactics, security and map reading. All drivers must know these subjects well, as there is no way of knowing where they will go or what their duties will be, with this all-purpose vehicle.

Three tactical night exercises are held during the second three weeks. Close order drill calls for as much precision and snap as if the men were dismounted. The final week involves several bivouac and march outpost problems in which all-round security is stressed.

Each of the seven courses given by the Motors Department does a thorough job in turning out efficient drivers and skilled mechanics. The men know that they are to become battle replacements and are eager to take their place in combat. They have confidence in their vehicles, and are fortified by the strength that knowledge brings.

Book Department

JOURNEY AMONG WARRIORS. By Eve Curie. Doubleday, Doran & Co. \$3.50.

This is much more than a panorama of the battle fronts of the world. It is an overwhelmingly human account of the people who make up not only the fighting fronts, but the supporting production fronts, of the Allied nations. It could have been written only by a person reared in a world that knew no boundaries but scientific truth, yet whose heritage was rooted in two conquered nations.

Untinged by private opinion, this magnificently written book gives the reader an extraordinary grasp of the essentials of each nation's political and social problems, as found among the people of all classes. With a shrewd detachment, Miss Curie has studied the various countries, and with warm-hearted enthusiasm she has described what she has seen. Her exceptional ability to describe personalities with vivid understanding rather than dazed awe, makes even the most famous of her companions alive and vital. This human quality is a definite contribution to the reader's comprehension of national problems.

Miss Curie's picture of Russia is powerful, moving, and honest—in many ways the best with which we have been presented. This is partially due to the unprecedented privileges granted her in the Soviet Union. She went into villages but two days back in Russian hands, and of the inhabitants she said: ". . . I felt suddenly very close to them, perhaps because I was French and because my mother came from Poland. I was sadly rediscovering something which the French and Polish people had known for generations: that only a country which had stood foreign invasion really knew what war was."

From the Middle East, through Syria to Russia and on to China and India, she journeys with an unwavering enthusiasm that carries her reader on the crest of her own intensity.

Her brilliant writing, shrewd observation, and superb management of her material make Miss Curie's book the most important contribution of its kind to war literature.

BETWEEN THE THUNDER AND THE SUN. By Vincent Sheean. Random House, Inc. \$3.00.

Continuing the pattern of the war begun in Spain, this book will be welcomed by those who read with sympathetic interest *Personal History* and *Not Peace But a Sword*. Less violent in its denunciations, it nonetheless carries the same firm convictions found in the earlier books.

It commences with a picture of the dying European world that was a familiar background of such characters as Maxine Elliott, Forbes Robertson, Shaw and a Winston Churchill giving his former king a lesson in English democracy. This brief prelude is in strong contrast to the mad confusion of the fall of France, and the ensuing Battle of Britain with its stunned rejection of defeat.

Every mile of his trip home via China, the Philippines, and Wake and Midway Islands, revealed the unpreparedness, not only of munitions and men, but of minds, for the coming war.

Mr. Sheean is in no sense a military observer, but he is a passionate liberal and humanitarian, and as such, he views the war in its influence upon human values.

THEY CALL IT PACIFIC. By Clark Lee. Viking Press. \$3.00.

Clark Lee had what might be described as a "ringside seat" for the fall of the Philippines, and it wasn't a pretty show.

Primarily a newspaper man, he has made the maximum use of his training and opportunities. The result is a thrilling account of the magnificent defense put up by the men who were finally forced to surrender at Corregidor, but more particularly of *the men who made that retreat possible, the 26th Cavalry*.

As a matter of historical record, this book will probably remain of tremendous value long after the news-interest is past. Mr. Lee's observations in China and Japan, prior to November, 1941, gave him an excellent background on which to base his analysis of the Philippine situation, and enabled him to see the problems with greater clarity than would have been possible without his oriental contacts.

This book covers for the Pacific islands what Vincent Sheean's *Between the Thunder and the Sun* covers for Europe. These two books give a comprehensive, coordinated picture of what is happening to the world that would be difficult to obtain, even if time permitted, from a thorough reading of every day's news.

THEY CAME AS FRIENDS. By Tor Myklebost. Doubleday, Doran & Co., Inc. \$2.50.

This comprehensive story of the spirit of the Norwegians and their struggle to hold fast to their democratic ideals is timely, informative, and interesting. It covers the days of the early conquest in 1940, when the Germans "came as friends" and blindly believed that the Norwegians would extend them a hearty welcome because they were of a similar bloodstrain, but the patient stubbornness of the Norsemen came very close to defeating their conquerors.

The thoroughness with which the medical, labor and ecclesiastical groups united in their fight against the invader, contributed much towards coordinating the underground rebellion under experienced leaders.

The author has drawn an understanding picture of the Norwegian people, whose fundamental characteristics during their enslavement have been exemplified in their determination to survive and their willingness to suffer, and continue to suffer, in order that their sons may fight on against the enemy.

U. S. A. Second Lieutenant's Handbook

By LIEUTENANT JOHN R. CRAFT

A ready reference to pertinent information now scattered through manuals, official regulations, and texts.

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HOW TO SHOOT THE U. S. ARMY RIFLE. *The Infantry Journal*. \$25.

The Infantry Journal has produced an excellent manual, graphically illustrated, on *How to Shoot the U. S. Army Rifle*. The pictures and text are well coordinated and should prove valuable to any man training for combat service.

I SEEK MY PREY IN THE WATERS, THE COASTAL COMMAND AT WAR. By Squadron-Leader Tom Dudley-Gordon. Doubleday, Doran & Co., Inc. \$3.00.

TORPEDO! STORIES OF THE ROYAL NAVY. By Commander Gilbert Hackforth Jones, R.N. William Morrow & Co., Inc. \$2.50.

These are two exciting books on the war—factual stories of the sea and the air over the sea.

I Seek My Prey in the Waters is the result of the experiences of three R.A.F. officers whose observations include the sinking of the *Bismarck*, the torpedoing of the *Lutzow*, the capture of a U-boat by a Lockheed Hudson off Iceland, and many other incidents of this war.

Torpedo! is an effort to bring alive the men of the Royal Navy. They are not supermen, but men to whom the sea is home. The stories are exciting, tragic, humorous—even as the lives of the men are made up of these reactions.

ARMY BRAT. By Tommy Wadeldon. Coward-McCann, Inc. \$1.75.

Tommy Wadeldon is growing up. Unlike his two previous books (*My Mother is a Violent Woman* and *My Father is a Quiet Man*), which were autobiographic in nature, *Army Brat* is primarily fictional, although many characters, such as the Chinese houseman, Sui Jen, are drawn from life.

The story takes an "Army Brat" from his boyhood days in a motherless home to the time when, as a Lieutenant in the Army Air Force, he goes to China to fulfill his debt to Sui Jen, the finest influence in his early youth.

The story is delightfully told, and retains much of the humor of former books by this young author—whose first published story appeared in *The Cavalry Journal* in 1939.

MASTERS OF MOBILE WARFARE. By Eldridge Colby. Princeton University Press. \$2.00.

Contending that, although mechanization enables armies to move faster, it has not altered the basic principles of mobile warfare, Mr. Colby draws lessons from three of the military masters of all time: Marlborough, Frederick the Great, and Napoleon.

This little volume is an interesting study, well written and illustrated with small but excellent maps.

IT'S 'ARD TO GO WRONG IN THE CACTUS. By Kay Grant. William Morrow & Co., Inc. \$1.00.

An Australian girl has written this zany book of poetry that deals principally with American soldiers and Australian girls.

From it, we judge that the American doughboys have made a hit with the girls from "down under."

THROUGH HELL TO DUNKIRK. By Henry de la Falaise. Military Service Publishing Co., \$2.50.

This is another eye-witness account of what one man saw of the Battle of Flanders and the evacuation at Dunkirk.

The author is a graduate of the Sorbonne and served in the French army from 1915-1918. During the latter part of January, 1940, he was attached by the Headquarters of the Franco-British Military Mission of Liaison in Arras to the 12th Royal Lancers.

In this account, the author has successfully avoided the dullness frequently found in books written in the form of a diary. The characters are very much alive, and the incidents move swiftly and consecutively to their disastrous climax.

✓ ✓ ✓

THE FIRST CENTURY OF FLIGHT IN AMERICA.
By Jeremiah Milbank, Jr. Princeton University Press. \$2.75.

After observing a balloon ascent in France in 1783, Benjamin Franklin wrote, "... Convincing sovereigns of the folly of wars may, perhaps, be one effect of it (air progress), since it will be impracticable for the most potent of them to guard his dominions."

Mr. Milbank traces man's slow, discouraging struggle to conquer the air, from this American's first interest in embryonic aviation to 1895, when The Aeronautic Society was established in Boston.

This interesting and factual account will be an addition to any library of aeronautics, professional or lay. The excellent format and illustrations will be a delight to any lover of fine volumes.

✓ ✓ ✓

VICTORIES OF ARMY MEDICINE. By Colonel Edgar Erskine Hume. J. B. Lippincott Co. \$3.00.

Colonel Hume has thoroughly reviewed the accomplishments of the Army Medical Corps, and it is a creditable record.

Every war has brought forth marked advances in medicine, not only surgical but preventive as well. On these advances, made largely by the Army Medical Corps, civilian medicine builds during years of peace.

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✓ ✓ ✓

HOW TO PREPARE FOR MILITARY FITNESS. By Lt. Colonel Francois D'Eliscu. W. W. Norton & Co., Inc. \$1.96.

This volume contains instruction in the essentials of building physical fitness. There are chapters on calisthenics, tumbling, wall scaling, and tree climbing, outdoor and indoor obstacle courses, wrestling, boxing, elementary Judo and other valuable means of physical development.

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SEVEN CAME THROUGH. By Captain Edward V. Rickenbacker. Doubleday, Doran & Co., Inc. \$1.50.

By now, almost everyone is familiar with the facts surrounding Captain Rickenbacker and his men during the internment from life through which they passed. In this book, these facts are brought forth as personal experiences, and the stark simplicity with which they are told unconsciously portrays the character of the author.

Without deliberate modesty, but rather with an innate self-effacement, obviously characteristic of the man, Captain Rickenbacker unconsciously reveals himself as a leader in whom men instinctively trust, and without whom survival might not have been possible.

The reader feels that a culmination of years of self-discipline and philosophy found their justification in those twenty-one days, when organization and faith were essential.

1 1 1

A FRENCH OFFICER'S DIARY. By D. Barlone, formerly Captain, 2nd North African Division. Cambridge University Press. Macmillan Co. \$2.00.

Major Barlone served in the first world war. He entered the army to fight for France in the second. His diary from August 23, 1939, to October 1, 1940, describes with frankness the misuse of matériel and the waste of man power that characterized the days during which France fell. The lack of coordination among the higher officers, and the consequent mental confusion produced in junior officers and men, was not only disheartening; it was disastrous.

While the facts of this period are well known, they are here analyzed from a military point of view.

The personal struggle of the author is probably characteristic of that faced by almost every French officer. His efforts to reach de Gaulle and fight once more for a Free France comprise a very interesting closing chapter.

1 1 1

TUNIS EXPEDITION. By Darryl F. Zanuck. Random House, Inc. \$2.00.

A sense of good theater does not necessarily produce a worthwhile book. That the requirements of the two arts are very different is amply proven by Colonel Zanuck in his account of the expedition in Tunisia. His predilection for great names weakens the reader-interest. There is too much of "Who's Who" doing what on the African front, and too little account of what our fighting forces are doing, to make this book one of enduring interest to either fighting men or the public.

1 1 1

CHILE, A GEOGRAPHIC EXTRAVAGANZA. By Benjamin Subercaseaux. Macmillan Co. \$3.00.

On a market glutted with war books—good, bad and indifferent—it is a novelty to find a delightful, cleverly written story of a country about which the average North American should know a great deal more than he does.

Senor Subercaseaux, one of the younger school of writers in Chile, has written a charmingly satirical explanation of his country and his people. It will undoubtedly inspire the reader to learn more about this interesting South American country.

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Innumerable calls for copies of *Cavalry Combat* have been received from schools, staff officers, and overseas troops.

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An M-4 Tank of an American Armored Division bumps up the road to Gabes.

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The Tunisian Campaign

by Major G. R. De Beer
British Army

THE Tunisian campaign is an example of a successfully accomplished plan for the annihilation of the enemy's forces. The plan provided for: first, the approach and build-up of Allied forces; second, the engagement of the enemy; and third, the assault and annihilation of his forces.

ALLIED APPROACH AND BUILD-UP

The approach involved two major operations. From the east the Eighth Army, having administered a crushing defeat to the enemy at El Alamein in early November, 1942, set out as rapidly as supply considerations and communications permitted on the 1,500-mile advance



British Official Photo

One of the vast armada of transport ships in Algiers harbor unloads troops and stores.



Acme

Tanks, landed at Oran, are quickly assembled and rushed to fighting British and American troops on the Tunisian front. Technical work on the tanks is supervised by a civilian Diesel engine specialist.

baign

to the Tunisian frontier. The capture (January 23, 1943) and organization of the port of Tripoli was of first rate importance in this operation, since it enabled the conveyance of troops and supplies by sea, and endowed the Eighth Army with striking power far greater than that which the enemy estimated possible in the time.

From the west, the plan of approach involved the assembly of forces in America and Great Britain, their convoy over thousands of miles of ocean, their landings in Morocco and Algeria against the resistance of the

Vichy French, overcoming that resistance, and finally organizing communications to the east from their landing points. Here again, timing, objectives, and magnitude of Allied operations took the enemy completely by surprise.

Landings in northwest Africa were made at dawn on November 8, 1942, by three task forces; by United States troops in Morocco at Mehdia, Fedala, and Safi; by United States troops in Oran in Algeria, and by combined United States and British troops in Algiers.

Resistance by Vichy troops was stubborn but rapidly overcome, and on November 11th the local French rallied to the Allied cause.

The fact that Allied troops had to anticipate prolonged opposition played an important part in subsequent operations, for it meant that transports had to be loaded "tactically." In the case of the western landings by United States troops, the first assault part, with a minimum of fighting vehicles, was followed by the main body of troops who were to secure the extended bridgehead. Administrative personnel and all transport etc. had to follow later. In spite of the speedy collapse of Vichy resistance, communications between the Atlantic ports and the eventual fighting front in Tunisia were so long and difficult that the Allied forces were for a long time virtually immobilized. Assault forces that landed at the eastern ports were followed by their appropriate transports, then antiaircraft and administrative personnel. Transport for the whole army did not follow immediately, as the main body of troops was not scheduled to land until a later date.

Balancing metal landing mats on their heads, native laborers help American Army engineers to build a mile-long metal runway at an airport on the West Coast of Africa, near Dakar. Construction of the airport began shortly after the United Nations had occupied the naval base.

Acme





American Armored Forces at front line observation post prepare for the successful counterattack at Kasserine Pass. Acme

On November 11th, therefore, General Eisenhower was faced with the question of whether to advance eastwards to Tunisia with the Allied forces immediately available or wait until the Allied forces, and in particular the British First Army, had time to build up their strength. He rightly decided in favor of the former alternative, and the 400-mile advance to Tunisia began immediately, despite the facts that the forces available in Algiers amounted to little more than one division, that the rail and road communications were very poor, that sea communications along the Algerian coast were subject to enemy air and submarine attack, and that serviceable airfields would have to be improvised from scratch as and when the Allies advanced.

Meanwhile, the enemy lost no time in flying and shipping forces across the 100-mile wide Sicilian Straits to Tunisia at the rate of about 1,000 men daily, until towards the end of November they had assembled 20,000 men and some tanks. Tunis and Bizerte had good harbors and excellent airfields and, further, could rely on bomber support from permanent bases in Sicily.

ENGAGEMENT

Contact with the enemy in the hills of northern Tunisia was made about November 15th, and the active operations began. These operations may be divided into four phases: first, the Allies' initial rush to Tunis; second, the enemy's reaction and offensive operations; third, the storming of the Mareth and Akarit position by the Eighth Army; and fourth, the Allies' final offensive. (See map, page 6.)

The Allies' advance into Tunisia from Algeria had as objects: an attempt to carry Tunis by rush tactics before the enemy became too strong; or failing this, to secure positions from which the final assault could ultimately be launched. An additional object was the support of those French troops who had refused to obey Vichy's orders and were valiantly resisting the enemy with the feeble means at their disposal.

By the end of November, United States and British troops had reached points midway between Tunis and Bizerte, but were unable to proceed. The forces that the enemy had been able to concentrate were too strong for the relatively small Allied force opposing them. The phenomenally bad weather and mud had also interfered with the improvisation of airfields and consequent

operations of the Allied air forces in support of their ground troops, so the latter had to fall back. They had, however, secured Medjez El Bab, an essential jumping off ground for any subsequent assault on Tunis, and they had rallied French troops and stabilized the front.

The enemy's reaction to the advance of the First Army (still less than two divisions in strength, including advanced echelons of certain United States formations) took the form of a succession of offensive thrusts. The enemy forces consisted of the German Fifth Panzer Army under General Von Arnim, headquarters in Tunis, which was being built up to the strength of four infantry divisions and an armored division; and the Italian First Panzer Army, under Marshal Rommel, stationed in the Mareth position and consisting of the German Afrika Korps, two German infantry and two armored divisions, and two Italian corps.

Five main enemy attacks were launched between mid-December and early March. The first was launched in December against Medjez El Bab with the object of recapturing that strong point. The second was directed in mid-January against the French in the Ousseltia sector in the hope of defeating the poorly equipped French forces. The third, in mid-February, was made against American forces in the Gafsa sector in an effort to widen the coastal corridor of communication between Von Arnim's and Rommel's armies and capture Tebessa, which would threaten the flank of the entire First Army. The fourth attack was launched against British forces in Northern Tunisia in late February with the object of overrunning what the enemy hoped would be the rearguard of the First Army, menaced in the flank from Tebessa. The fifth and last major enemy counteroffensive was launched in early March against the British Eighth Army in Medenine in an attempt to spoil the Eighth Army's preparations for attack on the Mareth Line.

One and all, these offensive thrusts failed. Medjez El Bab was held by the First Army; the French were pushed back but were unbroken; the enemy failed to reach Tebessa and soon had to relinquish the temporary gains at Sbeitla, Kasserine and Gafsa; the attack on the First Army made only slight, slow, and costly progress in the extreme north without forcing the Allies to relinquish their position at Medjez El Bab or Beja; while

the attack on Medenine resulted in nothing but a loss by the enemy of fifty-two tanks.

On February 20th, under the supreme command of General Eisenhower, the Allied Eighteenth Army Group was set up under the command of General Alexander. This comprised the British First and Eighth Armies, the United States Second Corps, and French forces organized into the Nineteenth Corps. Allied Air Forces were likewise reorganized. Responsible to General Eisenhower, Air Vice Marshal Tedder became Air Commander-in-Chief in the Mediterranean. Under him, Air Vice Marshal Coningham was in charge of air operations in support of the Eighteenth Army Group. Also acting under General Eisenhower, Admiral of the Fleet Sir Andrew Cunningham commanded all naval operations in the Mediterranean. Thus, all British, United States and French forces in the African theater were organized into united ground, air, and sea forces, with the individual commanders of each subordinated to one supreme command.

ALLIED OFFENSIVE

The first step of the combined Allied offensive was the attack on the Mareth Line. By March 18th, the United States Second Corps reoccupied Gafsa. The object was, first, to menace the Italian First Panzer Army (now under General Messe) in the rear and to draw off as much of its armor as possible; and second, to guard supply dumps for the Eighth Army that had been accumulated at Gafsa.

The Eighth Army attacked Mareth positions on March 21st by frontal assault on the sector near the sea, and a turning movement was directed on El Hamma on the enemy's right. The frontal assault crossed Wadi Zigzau and the antitank trench, and formed a bridgehead, but it proved impossible to bring up the necessary heavy weapons to repel the enemy's armored counter-attack. The weight of the British attack, therefore, was shifted to the left flank, and on March 26th, after the assault by the New Zealand division had gained its objectives, the British First Armored Division passed through and reached El Hamma, which fell to it the following day, when Gabes also was occupied. The enemy had been driven out of the Mareth positions.

Meanwhile, to the east of Gafsa Allied forces had had to withstand heavy enemy attacks which were repelled, and on April 5th, the Eighth Army burst through the enemy's position at Akarit by frontal assault. The First Army likewise broke through the enemy's flank guard at Fondouk on April 10th, and the enemy was now in full retreat to his strong prepared perimeter positions, covering Tunis and Bizerte along the line from Enfidaville through Pont du Fahs to Goubellat and the high ground north and west of Medjez El Bab and west of Bizerte.

The two enemy armies had been driven together, but the Eighteenth Army Group had also joined up to form a continuous front of about 110 miles.

At this stage, General Alexander made the following dispositions. The United States Second Corps moved right across the lines of communication of the First Army to the extreme north of the Allied lines. This move was accomplished with such skill of staff work and execution that although heavy streams of traffic were crossing one another at right angles, it went off perfectly. In their new positions, the United States Second Corps was to press eastwards from Sedjenane and Beja in the direction of Mateur and Bizerte. The Eighth Army was directed to attack the enemy positions near Enfidaville to pin down forces in this area, after which the First Army would launch an attack eastwards along the Bou Arada-Medjez sector.

Accordingly, the Eighth Army attacked on April 19th and after very severe fighting, occupied the objectives. The First Army (reinforced by the First Armored Division from the Eighth Army) attacked April 22nd and 23rd. For the ensuing ten days the First Army sector was the scene of furious fighting. Counterattacks succeeded one another day after day and neither side made much headway. But by May 3rd, the United States forces, by dint of hard fighting, had driven the enemy out of Mateur, and the enemy showed signs of withdrawing the northern sector of his perimeter to reinforce the center. On May 5th, the First Army captured Djebel Bou Aoukaz, a key position on the way from Medjez to Tunis, and the following day the final assault was launched.

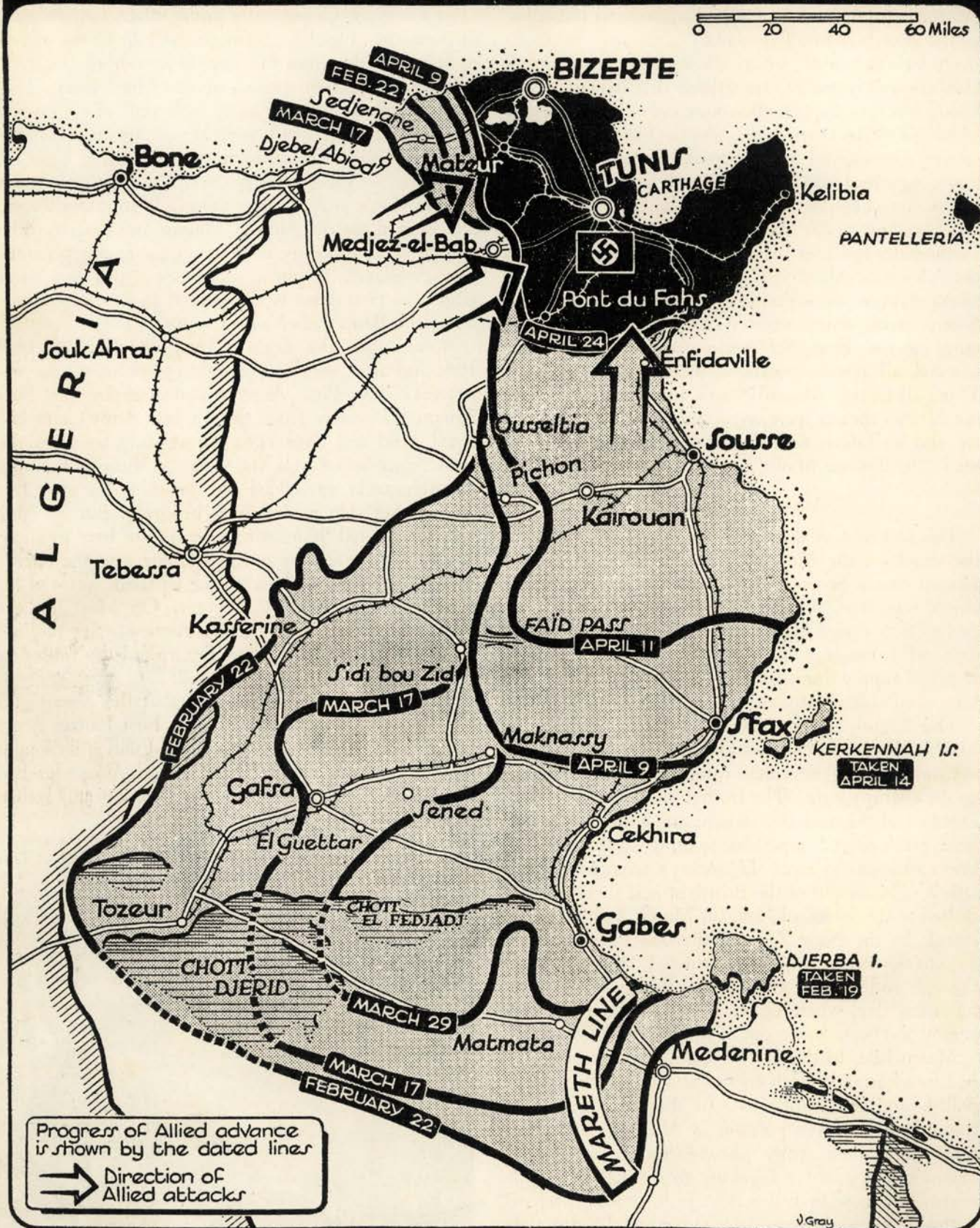
Taking advantage of the fact that the enemy still maintained the bulk of the Italian First Panzer Army in the south, where indeed his general staff still thought that the greatest danger lay, General Alexander had transferred the Seventh Armored Division and Indian

Infantry of the British First Army rests against a craggy crest above Kelbine after they had taken the height. This was one of the last heights before Tunis.

British Official Photo



THE PATTERN OF ALLIED ADVANCE IN TUNISIA



Fourth Division from that sector to Medjez El Bab.

Allied mastery in the air was now complete. After intense bombardment of the enemy's forward positions and lines of communication both from the air and by artillery preparation, the British Fourth and Indian Fourth Divisions attacked due east from Medjez El Bab

on May 6th. After overcoming the enemy's resistance the British Sixth and Seventh Armored Divisions passed through the gap, and by May 7th they had cut clean through the enemy's defenses and entered Tunis.

The same day the U. S. II Corps stormed into Bizerte. With these two blows the enemy's main defense

formations were broken down, his forces cut in two, and all those between Tunis and Bizerte were forced to surrender. But the enemy still had a possibility of establishing a restricted perimeter defense line from Hamam Lif on the coast, southeast of Tunis through Zaghuan to the heights north of Enfidaville. In these naturally strong formations, the enemy could have drawn supplies from dumps in the Cape Bon peninsula and replenished them by means of landing jetties which he had established at Kelibia. This contingency had been foreseen by General Alexander and provided for. No sooner had the Sixth Armored Division secured Tunis than it turned southeast and blasted its way through enemy resistance at Hamam Lif, cut right along the base of the Cape Bon peninsula to Hamammet and beyond, and linked up with the Eighth Army in the coastal sector on May 11th. The remaining enemy forces were thereby encircled and cut off from supplies. General Von Arnim was captured near Sainte Marie du Zit on May 12th, and the following day Marshal Messe, with the rest of the enemy forces still intact in their formation, surrendered unconditionally.

The Tunisian campaign lost the enemy 290,000 prisoners and 50,000 killed, more than 250 tanks, 1,000 guns, including thousands of tons of supplies, 1,700

aircraft shot down and 630 captured on the ground, 137 ships sunk by the Allied Naval forces, and 95 by air action certain, with many more probable.

Such was the well-earned record of the Allies grand strategy, efficient planning, excellent war matériel, indomitable fighting spirit, perfect inter-Allied cooperation of all services, and superb generalship.

British Official Photo



Right; General von Arnim, Commander of Axis forces in Tunisia is shown as he steps out of a car to surrender to the Allied command.

Below; American MP's check in the German and Italian prisoners as they arrive at a prison camp behind Bizerte.



European

U. S. Soldiers in Tunisia



Press Assn.
An American artillery unit files up a hill in the El Guetar Valley in Tunisia to join their comrades who have established an observation post on the crest.



An antitank crew mans a gun in the extreme forefront of the American Line.

A tank destroyer unit shielded by the crest of a hillside, await the word to go into action against the 10th Panzer Division.

Press Assn.



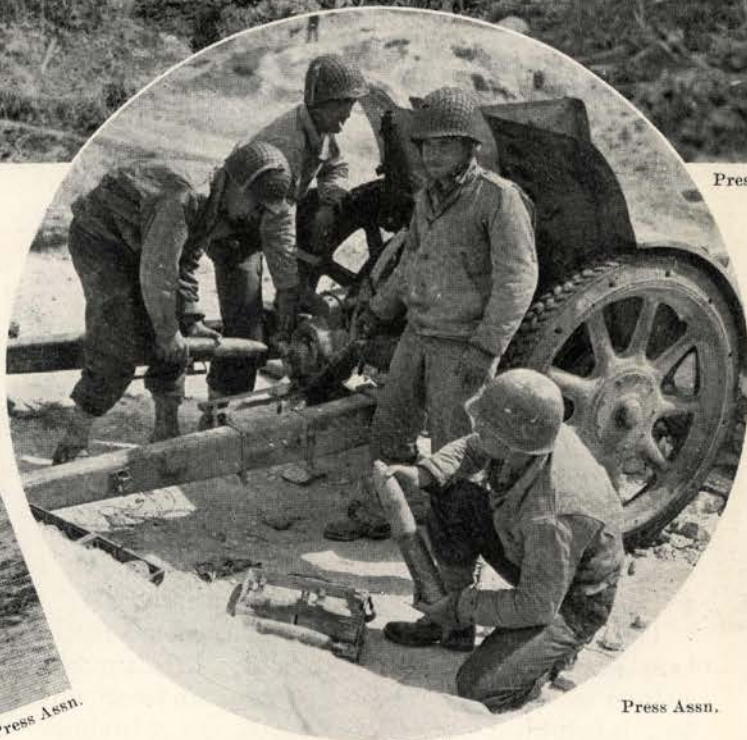
Realistic maneuvers, such as shown in this picture, preceded actual combat. An American half-track (center) crossing a stream is caught between bomb bursts. At left is an amphibious jeep. At right, partly concealed by grass and bushes is a radio jeep.



During an Allied raid on German-Italian positions in Sened, this U. S. half-track, mounting a heavy gun, and the speedy jeep in the foreground, proved tough and mobile.



Press Assn.



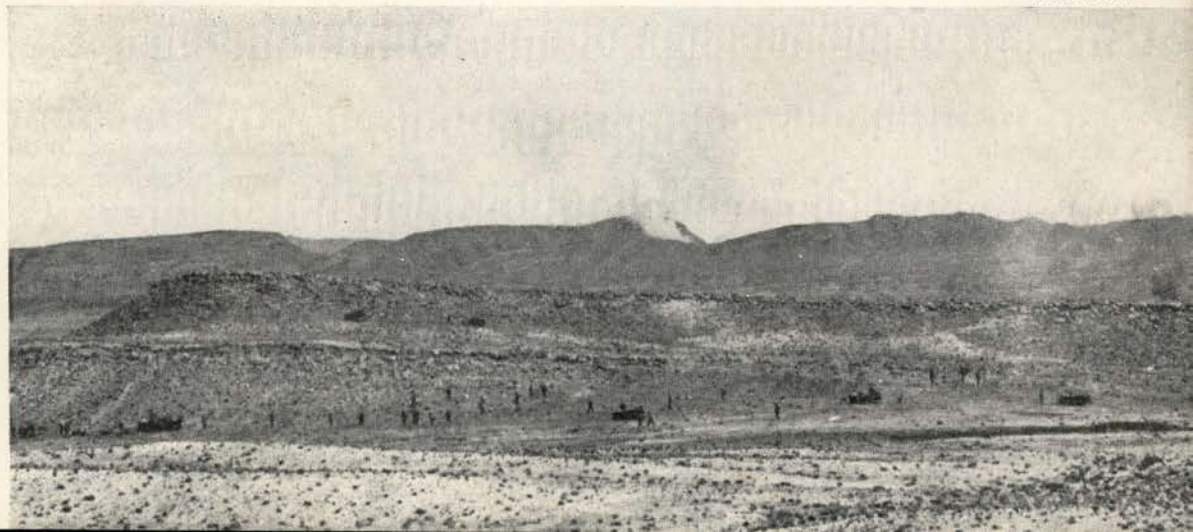
Press A

Press Assn.

Infantrymen familiarize themselves with a 75mm Italian field gun, captured in action on the Tunisian front. The gun was later used to knock out a German Mark III tank.

Press Assn.

Infantrymen and armored vehicles advance over hilly terrain during their thrust for Bir Marbott Pass, on the way to Gabes. Artillery fire sweeps the ridges ahead.

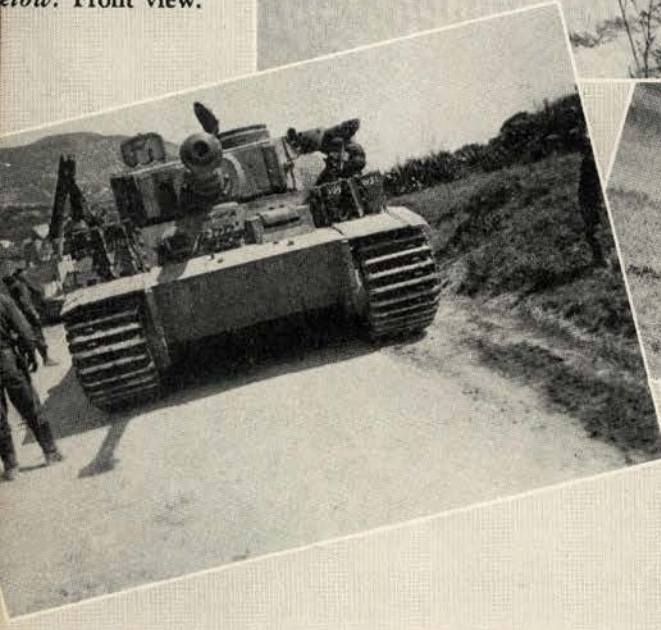


German Tanks and Captured

(Pictures by

ight: Side view of
German Mark VI
or "Tiger" tank.

elow: Front view.



Towed 50mm AT gun.



Towed 75mm AT gun
with muzzle brake.

TANKS IN TUNISIA

ANY discussion of our campaign in Tunisia, from November 8, 1942, to May 9, 1943, must lead eventually to a discussion of tanks, since both the Axis and the United Nations used them extensively.

The U. S. 1st Armored Division, affectionately known as "Old Ironsides," is the only U. S. armored division to have seen extensive combat so far in this war. It furnished combat teams for the initial landings in Algeria and the November push into Tunisia, elements of which reached the 12 kilometer post on the road to Tunis before German armor forced them to retire. Later, in the dark days commencing February 14th, the 1st Armored Division bore the brunt of the German panzer attack through Faïd Pass, which finally bogged down in the Kasserine Pass. Elements of the 10th, 15th, and 21st Panzer Divisions were reported in action against it, in this last great drive by Field Marshal Rommel's troops to gain elbow room.

Finally, "Old Ironsides" furnished the break-through south of Bizerte which ended on May 9th with the surrender of the Axis forces north of Tunis, and the disintegration of Axis resistance in North Africa.

It is not the purpose of this article to discuss the strategy and the tactics of the various armies and their

components, except as they may bear on the lessons learned during the six months of this campaign. A prominent and successful British commander remarked to me once that he did not consider an officer's training complete until he had experienced defeat. The author feels no twinge of shame in stating that we of the "Bloody First" have tasted to the dregs both defeat and victory, and it is hoped that our experiences may be the source from which other American armored divisions may draw the lessons that will enable them to succeed, without having to retrace our painful steps.

In drawing conclusions from the following lessons, it must be remembered that there will probably be many extensive changes in methods of future employment.

RECONNAISSANCE

In our training areas and in our schools, great emphasis has been placed on reconnaissance, yet it is apparent that we have not yet mastered the subject. All too often our reconnaissance elements knew the subject as taught in a company or regimental school or as practiced on maneuvers, but they were not sufficiently well grounded in details of application to adjust themselves, effectively, to strange terrain and circumstances.

Antitank Guns in Tunisia (the Author)

Towed 50mm AT gun



PzKw38t (1938 Czech tank chassis) with F K.36R—the Russian M1936 high-velocity 76.2 mm field gun.



20mm Flak 30 hastily abandoned.



Colonel Peter C. Hains III and his executive officer, Lt. Colonel Louis V. Hightower, near Tebessa.

*by Colonel
Peter C. Hains III, Cavalry**

All reconnaissance agencies must master such details as the proper method of establishing and conducting listening posts at night, observation posts in daylight, and night patrols dismounted and mounted. They must learn how to observe properly, how to identify and describe what they have seen, how to plan their reconnaissance, how to locate hostile guns, and how to detect and mark or remove mines. There are innumerable other details that must be practiced until they become second nature.

Reconnaissance on the battlefield is not alone the responsibility of the reconnaissance elements. Every soldier must be alert at all times to the nature and possibilities of the terrain, the weather, the sun, the enemy's activities, and the disposition of friendly troops in his vicinity. Combat troops must have "eyes in the back of their heads and necks like an owl."

At Faïd, German tank commanders were seen observing through glasses for minutes that grew into hours. No movement was made until a thorough, careful, visual reconnaissance had been completed. Every next move was studied in detail and so carefully planned that when made, it was always to a selected,

defiladed position from which the tank could fight, or within which it could hide.

At Sbeitla, ten Mark VI Tigers moved rapidly and boldly into a wadi. There they disappeared from sight. An hour later the muzzles of their 88's pushed over the bank and opened devastating fire.

On February 16th, German tanks advanced across open terrain against Djebel Hambra. The advance was painfully slow. When taken under fire, they disappeared in defilade or halted their advance until further reconnaissance revealed the secure position they sought. Throughout the day, the German tanks, keeping just outside of the effective range of our guns, maneuvered, until at 16:00 hours they felt prepared for the attack. During the entire day their reconnaissance was thorough, careful, and continuous. At no time could they have been taken by surprise and counterattacked.

At about 14:00 hours on February 14th, tanks moving east toward Sidi Bou Zid were observed from our

*Colonel Hains commanded a regiment of the 1st Armored Division throughout the entire campaign in Tunisia.

artillery positions. They were barely visible from the battery position. Knowing the dispositions and numbers of our own tanks, however, it was realized that these were probably not friendly. Prompt reconnaissance revealed an attempted envelopment by 15 German tanks. Again the next day, an S-3 became suspicious of what appeared to be half tracks moving east. Careful observation of this movement caused the discovery of a German tank attack, out of the sun, toward the flank and rear of our infantry.

The lessons are clear. All ranks must be keenly alert. No soldier can assume that he will have to perform only his assigned job well. He must realize that in battle every member of the fighting team will be called on to perform a wide variety of tasks. He is in a never-ceasing struggle for existence, in which his constant aim is the destruction of his adversary.

INDIRECT FIRE

With the ever increasing effectiveness of the antitank defense, the tank must be considered more and more to be an armored, mobile gun platform, capable of rapid, crushing, powerful thrusts when conditions warrant. It is also capable of delivering destructive fire from defiladed positions by indirect fire methods.

Reduced to a last analysis, tanks, like bombers, are a form of artillery—another means of bringing destructive fire power to bear on the hostile forces.

The conception of using indirect fire from tanks is not new. The German used his tanks in groups or batteries as artillery, and especially at El Guettar and Maknassy he used them as roving guns in support of his infantry. At Djebel Nemia, Mark IIIs and Mark IVs climbed into the defiles and attacked our infantry. We countered this form of tank employment by using more tanks on similar missions. They remained in the front lines with the infantry day and night.

Destroyers and antitank guns, being vulnerable to small arms and shell fire, could not accomplish the task as well as the completely armored weapon.

Thanks to the foresight of the division commander, Major General Orlando Ward, our medium tanks were equipped with quadrants and M. 1917 MG panoramic sights. The crews were well trained in indirect fire, and even after we lost our equipment, they used improvised methods to fire indirectly.

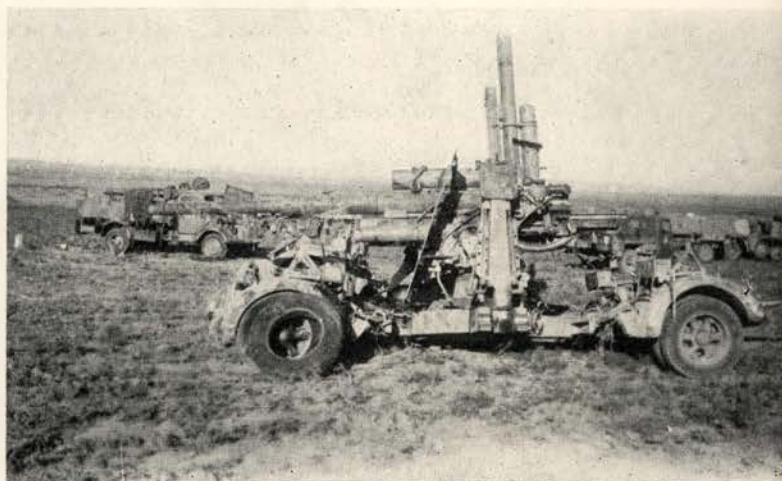
During the period commencing January 29th, platoons and even companies fired against targets in Faïd by using a forward observer and indirect fire. The Germans had a pair of 210mm howitzers that so harassed our artillery that the crews were forced into foxholes. The American tanks, however, would advance to within effective range, and by using dispersion instead of concealment, they would take on targets such as located antitank guns, motor parks, dumps, vehicles and other targets of opportunity. "Jerry" would reply with his 210s, and often a company of tanks would disappear in smoke, but when the smoke cleared, there they

would be—unhurt and still firing with as many as sixteen guns.

Once, when the hits seemed to be getting too close, the officer firing was advised that he had better move his company out of range. His reply typified the feeling of his men, "They have to get a direct hit to hurt us, and they haven't been able to do that yet. Watch this one!" Then his company fired a salvo out of the smoke and hit an ammunition dump in Faïd.

Later in February, a group of nine "assorted" medium tanks were led into the mountain north of Sbeitla. Then, by using such crude methods as, "so many turns on the hand wheel," they fired against the flank of the German attack. So effective were they, that our artillery received frequent counter battery fire. The Germans never located the tanks, which continued their fire mission until their H.E. ammunition was expended.

Much stress should be placed on the importance of training all personnel to be forward observers. In the training of the 1st Armored Division great emphasis had been placed on teaching crew and squad leaders to adjust artillery or assault gun fires by simple methods. Our rule in Tunisia was: Whoever can see the target and get near a radio, should be able to adjust fire. He had only to call for a round of smoke near a prominent landmark, and then report, "The burst is so many yards north, south, east or west of the target."



Two 88mm AA-AT guns—one at maximum elevation, the other sited horizontal.

Frequently, a doughboy or a tank commander would put the gun on the target in three or four rounds, and our Artillery Fire Direction Center would then bring one or two battalions of artillery in on the target with devastating effect. Naturally, the artillery forward observer was used in preference to the others, but sometimes the F.O. was pinned down by hostile fire or was not in a position to see a particular target. As a result of this system and an excellent fire direction center, we never lacked for supporting fires. We often wished for guns with greater range, but within the range limit of our guns, our observer system gave us a perfect team.

TANKS IN SUPPORT OF INFANTRY—HILL 609

Commanders of tank units must keep an open flexible mind. Too often the situation demands the employment of armor in a rôle totally different from the normal school of thought.

In April, one of my medium battalions was in division reserve near Beja. The 34th and 1st Infantry Divisions had been battling for days in a fortress-like range of mountains against crack, determined, German infantry. Losses were running high, and progress was slow. One particular terrain feature, known as Hill 609 and held by the Germans, was the key to the hostile position. It was imperative that we take this hill. The face of the hill was abrupt rim-rock.

On April 29th, the tank battalion commander received orders to alert one company and have the company commander report to the commanding general of the 34th Infantry Division. Following is an excerpt from the report of the battalion commander:

"We found General Ryder at a forward O.P. from which he could plainly see the hill, held by the enemy, which was holding up his advance. (Hill 609.) He explained the situation fully and pointed out accurately on the map and on the ground, the locations of his own and the enemy troops.

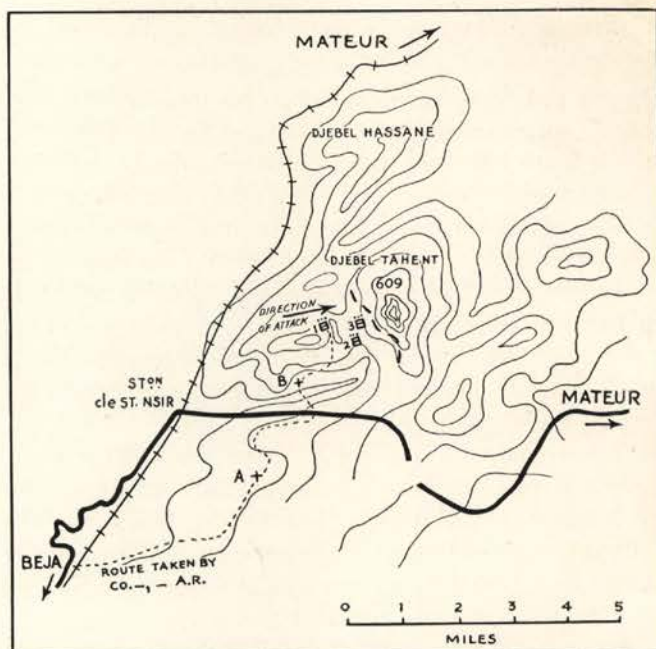
"He gave the tank commander his mission and stated that his own infantry would support the tanks in driving the enemy from the hill.

"The tank officers then went forward to the friendly infantry positions and made a deliberate and thorough study of the terrain. Their plan was submitted to General Ryder, who assembled his artillery and infantry commanders to coördinate the details. The smallest details were worked out—from the construction of a wadi crossing to the identification signals to be used. After agreeing on the time of attack, Captain Gwinn and his officers returned to their company and explained to the men the plans of the operation in detail."

Here is Captain Gwinn's own story of the battle that followed:

"April 30th—Company X, X Armored Regiment arrived at an assembly area behind Djebel el Kerh at 02:30 hours. In order to get to our defiladed positions, we had to descend a very steep hill, cross-country, and cross a wadi at the bottom. This would have been difficult but 'Jerry' obligingly shot a flare which made our task easier.

"We got into our defiladed assembly area, arranged a stand-to for 04:00 hours, and then the men got some sleep. At 04:15 hours we jumped off after contacting our supporting infantry. Lieutenant Adams was to move the 1st Platoon forward and gain a position on a rim-rock to the company's left, from which he could cover by fire the entire operation of the company. On reaching the vicinity of his objective, he found it was inaccessible, so he moved his platoon to an alternate position, where he covered our advance.



toon to an alternate position, where he covered our advance.

"The other two platoons then advanced rapidly—leap-frogging as they neared the objective. Quite near Hill 609 the terrain narrowed, so that there was maneuver room for only one platoon. Lieutenant Riggsby led the 2d Platoon into a defiladed position, while Lieutenant Ruppert continued the forward advance with the 3d Platoon. Thus, although the entire company was under rather heavy fire, Lieutenant Ruppert was protected on both flanks from hostile tank counterattack.

"The infantry advanced with our tanks and on many occasions tried to designate targets. The noise, however, made this almost impossible.

"The C.P. was just forward of the 1st Platoon and came under direct antitank fire from the right. Before any damage was done, Lieutenant Adams located the gun, a ground-mount 75mm, and knocked it out by fire from his own tank. The 2d Platoon ran into difficulties, and Lieutenant Riggsby's tank was knocked out. Platoon Sergeant Neal then took charge of the platoon and covered Lieutenant Ruppert. At this time, one of the 3d Platoon tanks, that of Sergeant Kaschak, was knocked out and set afire by a 50mm antitank gun which scored five penetrations out of six rounds, at about 300 yards.

"Lieutenant Ruppert withdrew his remaining three tanks about ten yards to a defiladed position, from which he continued to fire on enemy infantry and guns withdrawing to his front and right front. His further advance was denied by hostile antitank fire from his right flank. The mission, however, was accomplished as our infantry came forward and took possession of the hill and we were ordered to withdraw to our assembly area.

"Our losses were two tanks completely inoperative,

and two tanks which were repaired and put back into operation a few days later."

It is worthy of note that when his tank was knocked out, Lieutenant Riggsby remained in his tank and, firing until his ammunition was exhausted, materially assisted the advance of the other tanks and infantry.

The attack started at first light and by 09:30 hours, the tanks had reached their objective. Because of the hill's rim-rock faces, some twenty feet in height in places, the summit of Hill 609 was inaccessible for tanks, but they beat down the hostile automatic weapons fire and allowed the infantry to close with the enemy on the objective.

The attack on Company X against Hill 609 is an example of the completely successful employment of tanks in support of infantry. Neither the tanks nor the infantry had had previous experience in this type of action, nor had they operated together before. Success was due primarily to three things:

First—Complete, careful, and thorough reconnaissance was made prior to planning the operation.

Second—Surprise was obtained because movement was made during darkness, and because the terrain was so unsuited to the employment of tanks.

Third—There was complete coöperation between the tanks and the infantry.

ENEMY ANTITANK DEFENSE

Every tank commander should make an intensive study of antitank methods. Only by knowing them, can he hope to outwit or outmaneuver them.

The German is adept at antitank defense. His guns vary in caliber from 47mm to 88mm, with the squeeze bore 20mm as a valuable "side kick." They are all characterized by high muzzle velocity, great range, and a low silhouette. The German is a master at concealment and invariably digs his guns in, often in almost conspicuous places. However, they are very hard to locate, and their muzzle flash is negligible.

Guns are employed in depth in antitank areas and are mutually supporting. Many are sited to cover reverse slopes and to fire at tanks that have passed. Be wary of the gun that opens fire. Look for the supporting guns that will take you in flank and rear, as you attempt to maneuver against the located gun.

A favorite German trick is to fire with several calibers at the same instant, in order to confuse the observer as to range and location. Another trick is to adjust with a 47mm gun and switch to an 88mm to fire for effect.

Each antitank gun seems to have a special detail who dig the gun in. Many alternate positions are used, and after firing from one the gun is promptly moved. This increases the difficulty of locating it and gives the impression that there are more guns than are actually present. I have seen one gun fire from three different locations on about a 500-yard front. We were unable to locate it until our infantry got close enough to dis-

cover the defiladed routes it was using in moving to its various positions. It had created the impression that at least two and possibly four guns were firing.

Before attacking an antitank area, the guns must be made to open fire and disclose their location. This will require a reconnaissance in force, for antitank guns will not open up unless forced to do so.

Just such a procedure was followed in the attack against the German positions east of Mateur. The reconnaissance in force cost eighteen tanks, but the locations of the antitank defenses were so accurately plotted that in the attack only one tank was lost, and that one ran over a mine. A heavy smoke screen was placed and maintained on the antitank guns on the south flank, so that their fire was ineffective. The remainder were neutralized with time fire. Tanks advanced into the fringes of their own artillery barrage and took over the neutralization. Then the artillery shifted its fires to the next ridge and close-support infantry took over.

This method repeatedly drove the Germans from their defenses, and many guns were captured because the crews were unable to remove them. Actions of this type required additional artillery. By using indirect fire, tanks in reserve can be used to augment the artillery.

AIR POWER

No discussion of present day warfare is complete without reference to the effects of air power. In the early part of the campaign, we received much attention from the German air force; but in the latter part, our own air force practically drove them from the sky.

The immediate effect of the German air attacks was to teach us to use dispersion, and we required not less than two hundred yards between vehicles, whether on the march or in bivouac. Since estimates of time and space are seriously affected by dispersion, it is essential that our troops train with the dispersion to be employed. It is too late to wait until in combat.

Other than attached antiaircraft, we depended on our .50 caliber machine guns to keep the "Jerries" up and found this very effective. Stukas will dive to within 50 to 100 feet of their targets and drop eggs in your hat, if you do not fight back. But a determined use of antiaircraft weapons will cause them to unload above 1,000 feet—and they proved very inaccurate under those circumstances. Our tanks were repeatedly the targets for Nazi bombers, but their attacks were mostly ineffective.

The airplane had a definite effect on our stowage problems too. After our first fight we removed everything from inside the tank except fuel, rations, water and ammunition. Since a deck load would be cut to ribbons and often set on fire by strafing and artillery, we left our musette bags and rolls in the assembly area to be brought along with the combat train.

The effect of air attack was principally psychological, and after the troops learned how to combat it, this effect was greatly reduced.



"The pattern for victory is clear. If we had set the stage we could not have provided a more shapely defined picture than that offered by the battle of Tunisia. There we had a perfect example of coördinated leadership for Allied action; an assemblage of overwhelming military power—air, land and sea; and the explosive effect of the skilful application of that power."—GENERAL GEORGE C. MARSHALL, Chief of Staff of the United States Army.

A Reconnaissance Squadron in Tunisia

*by Captain Jack H. Ficklen, Cavalry**

April 18:

"X" Squadron, now assigned to the 9th Infantry Division, performed combat missions east of Abiod. We relieved "A" Infantry Regiment occupying defensive positions and observation posts on Djebel Tabouna and low hills to the front thereof.

April 19:

The Squadron was disposed along a general NW-SE line in a zone 10 miles wide, with "A" Infantry Regiment on our left and "B" Infantry Regiment on our right. All these initial dispositions were a distance of approximately 29 miles west of Mateur, a strongly fortified German key point.

April 20-22 Inclusive:

(a) We established observation posts to the east in the vicinity of Melloul and Rhanem.

(b) Day and night mounted and dismounted patrols were made as far as 5 miles to the east of original N-S line as above.

(c) Road patrol from Amara to Aussif. Removed many teller mines thereon.

(d) A great number of mortar battery fire. Missions on north and south flank. Discovered German forward observation posts and artillery positions which were well camouflaged and thoroughly dug in.

During all of above operations, all elements of the Squadron were under frequent artillery fire. All forward elements were under frequent small arms and mortar fire from concealed German positions along a general N-S line in the mountains approximately 16 miles west of Mateur.

April 23-29 Inclusive:

A general attack by all units of the II Corps commenced at 05:30 hours on April 23. The Squadron was still covering a 10-mile wide zone between the 1st and 9th Infantry Divisions.

April 30-May 2 Inclusive:

During these four days the most stubborn enemy resistance was encountered by the Squadron from the same strongly dug-in and fortified German positions. All movements at this time were dismounted, and small arms contact was constant day and night. The Squadron suffered some casualties. We asked for and received our first artillery support during these four days of vigorous attack and resultant determined enemy re-

sistance. It has since come to light that the Squadron was facing a reinforced strongly fortified battalion of the crack Barantrin Regiment.

May 3-May 4 Inclusive:

Patrols during the night discovered and reported that there were indications of a large-scale German withdrawal. Commencing at dawn on the 3rd, all elements started a vigorous mounted reconnaissance push in the direction of Mateur.

No enemy fire was drawn until daylight of the 4th, as Squadron was in tactical bivouac outside the town. Squadron received 88mm shelling. Assigned to 1st Armored Division, this date, and the entire Squadron moved to the vicinity of Michaud. Having been ordered to clear Djebel Achkel of enemy troops, we established observation posts thereon. Reports from civilians placed 2 enemy infantry companies there.

May 4th mounted patrols from the Squadron made every effort but were unsuccessful in attempts actually to get on Djebel Achkel. However, much small arms fire was received on all sides of the mountain by these patrols; and from information gained thereby, the Squadron was able to formulate a well coordinated plan of attack.

The patrols also learned that this mountain afforded the enemy thereon a virtual fortress of tunnels previously operated as metal mines under the French. In addition, the entire 4½-mile long and 1½-mile wide fortress was completely surrounded by waist deep swamp, which prevented any known type vehicle from approaching closer than approximately 1 mile. This forced a great disadvantage upon us in that a great many of our vehicular weapons, so badly needed, were eliminated from desired use.

May 5-6 Inclusive:

The Squadron was still engaged in repeated attacks on a concealed, well covered and determined enemy force on Djebel Achkel. About 30 German prisoners were taken; the Squadron suffered 27 casualties. Prisoners confirmed that this well equipped force was of the Hermann Goering Division.

May 7:

At daylight on May 7th, in compliance with orders from the Commanding General, 1st Armored Division, the Squadron moved from Michaud to a mission of reconnaissance toward Ferryville on the general line of the Mateur-Ferryville road. One troop remained on the Djebel Achkel mission.

*S-2/3 of "X" Reconnaissance Squadron.

After encountering stiff artillery, antitank, and small arms resistance south of Ferryville on the road and from the hills to the immediate east of the road, forward elements of the Squadron under the cover of some M-4 fire, entered Ferryville and took over there at 12:57.

The 60,000 French refugees of the town overwhelmed our reconnaissance patrols with cheering and crowding the streets at the arrival of American troops.

The Squadron bivouacked tactically at approximately 2 miles east of Ferryville on the night of the 7th.

May 8:

The Squadron moved at daylight northeast toward the general direction of Munzel-Djemil and came under terrific enemy 88mm and 47mm fire from positions generally in front of Djebel Kechabta. An 88mm versus an M-4 and M-10 battle developed here about 10:30 hours, and the Squadron confirmed its activities and established O.P.'s for artillery fire control. At approximately 18:00 hours one of our tank platoons succeeded in reaching and securing an important RJ 11 miles east of Ferryville on the Bizerte-Tunis highway. Approximately 1,000 prisoners were sent to the rear by this platoon.

At approximately the same time another tank platoon with a reconnaissance platoon attached, was successful in reaching an Italian held naval six-gun shore battery between Menzel-Djemil and Bizerte. The conclusion of this was the surrender of the battery and all personnel therein—approximately 500 men and officers. That same night the balance of the Squadron moved to a point 3 miles south of Menzel-Djemil on the main Tunis-Bizerte highway.

May 9:

The Squadron was ordered to push reconnaissance to the northeast of Menzel-Djemil, toward the beaches, to contact and bring fire on enemy forces withdrawing toward Rass Zebib.

Forward elements were advancing dismounted through the sand under enemy artillery fire from the northeast when at 11:10 hours the following message was received from the Commanding General, 1st Armored Division: "Cease firing and hold present position until further orders. Germans have surrendered."

Thus ended 39 days of missions in which the Squadron was constantly active and during which time, it is believed, proved its ability to function efficiently as a reconnaissance team.

CONCLUSIONS

1. There must be continuous night dismounted patrolling by each reconnaissance platoon.
2. Safe and secure methods of visual signals must be developed among friendly patrols.
3. No high ground must ever be passed by without scouting the summit with a view to the establishment of an O.P. prior to arrival of platoon proper.
4. Reconnaissance platoon leaders must be afforded the means for requesting and directing immediate friendly artillery.
5. Reconnaissance radio reports must be quick, constant, by voice, and above all, accurate. Time does not permit CW and encoding.
6. As many individuals as possible within the platoon must be afforded a good night's rest. Future planned patrols should rest *before* going out.
7. All individuals of the platoon *must* know maps, sketches and rapid use of the compass—when casualties occur, someone *must* get the information back.
8. In past operations, reconnaissance platoons in general have made far too little use of their 37mm guns and 81mm mortars.
9. Too little planning is done regarding the use of *covered* (not concealed), approaches toward enemy installations.
10. Rapid movement during shelling is essential.
11. The best riflemen within the platoon should be equipped with telescopic sights.
12. When exposed vehicular movement is necessary while under fire, supporting weapons *must* cover this movement with stationary fire.
13. Officers must realize the extreme importance of maps covering the territory in which they are to operate. They should thoroughly familiarize themselves with the area in such a manner that they can throw the map away and still know the country. It is absolutely criminal for any officers to go on a mission without the proper knowledge of the maps and the terrain he is to cover. Noncommissioned officers as well as officers must know how to read maps and report positions by coordinates.

HEADQUARTERS 1st ARMORED DIVISION

17 May 1943

SUBJECT: Commendation.

TO: Commanding Officer "X" Reconnaissance Squadron.

1. I wish to commend you for the excellent manner in which your battalion performed their assigned duties while attached to this division.

2. I particularly wish to commend you and your organization for their operations during the period May 7 to May 9, the attack which resulted in the capture of Ferryville and subsequently engaged enemy positions to the east thereof. The whole-hearted cooperation of all ranks and the ready response to orders contributed, to a great extent, to the successful operation of this Division.

MAJOR GENERAL, U. S. Army,
Commanding.



Acme.

Men and armored vehicles of the British First Army move to attack a nest of Axis troops. The above picture shows a Crusader cruiser tank and Bren gun carrier, armed with U. S. Browning M2.

ON APRIL 9, 1943, an armored unit of the British First Army was ordered to force its way, at all costs, through a large minefield defending Fondouk, a mountain pass in central Tunisia. The minefield was shaped irregularly, but by chance one troop hit on a lane and got through. That troop was never seen again. Three squadrons then spent the afternoon trying to force their way through, regardless of damage to tanks, or of fire from machine guns or mortars.

Nearly every tank in the leading squadron was disabled, and the squadron leader was shot in the head by a sniper as he left his crippled tank. Three or four tanks struggled through and knocked out several enemy antitank guns that might have seriously held up the advance. The remainder persisted until blown up by mines. Each successive troop extended, at the cost of its own tanks and lives, the lane opened up by its predecessors. Thirty tanks were disabled, though many of these were later recovered and repaired.

When it was clear that the attempt could not succeed, another armored force was ordered to try to find a way around the minefield via a wadi on the left, which was also mined. Eventually, a squadron did this, and got around to the rear of the town. The remainder followed, and the infantry secured the heights to the north. The enemy then evacuated Fondouk.

This action illustrates very well both the limitations and the advantages of modern armor.

We are not told the circumstances under which it became imperative for the British armor to attempt the passage of the Nazi minefield before a way had been cleared for it, but it may be assumed that the matter was urgent, and that delay might have seriously interfered with the development of the Allied commander's

British Tank Attack at Fondouk Pass

*by Major C. B. Ormerod, Royal
British Artillery*

plans. At any rate, in spite of what appears to have been a very determined attempt, this direct assault by tanks on the strongly prepared position failed.

Once a way had been found around the minefield, and the pass was forced, the tanks were out in the open and were able to demonstrate their particular functions—outflanking enemy rearguards, meeting and driving off counterattacks by enemy armor, and breaking in upon the retreating transport vehicles.

After the capture of Fondouk a start was made for Kairouan on the morning of April 10th, and for the next two days the armored cars showed how such a unit should operate. They reconnoitered far and wide and took at least 700 of the 1,500 prisoners captured in the operation.

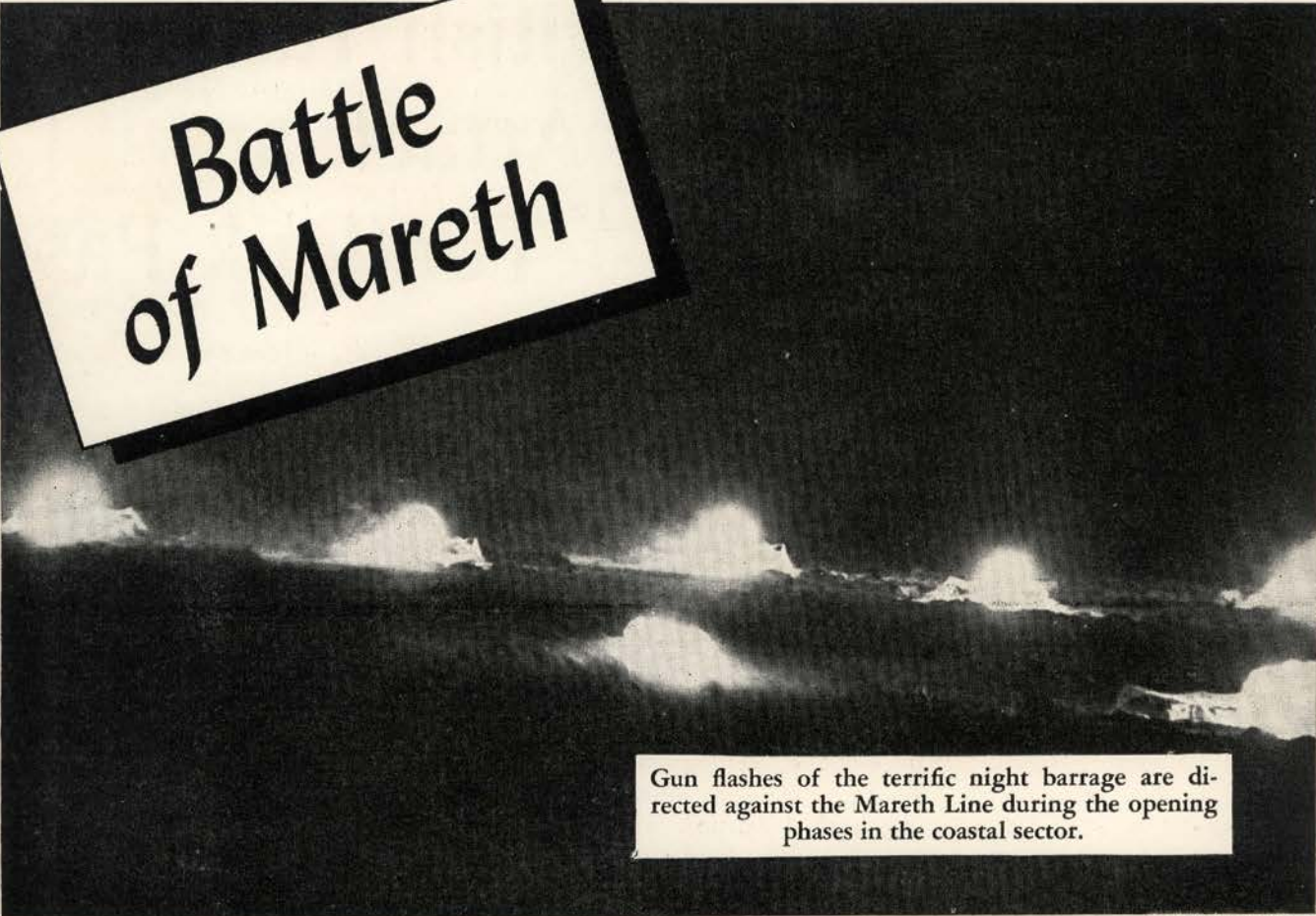
About midday, on April 10th, the armored units of the First Army repelled, in two hours of battle, the 50 tanks remaining to the 10th and 21st Panzer Divisions (a part of the original *Afrika Korps*), that had been sent up hurriedly from the south to cope with this flank attack. By drawing off this armor, the First Army materially helped the Eighth Army's advance. Having drawn them off, they destroyed 13 of the tanks, 15 self-propelled guns, 20 antitank guns, and forced the remainder to withdraw.

The next morning, British armored cars from the First Army entered Kairouan and contacted the Eighth Army. Even before that, however, the armor had swung northward and was driving the enemy before it. At 1 P.M., about 12 miles north of Kairouan, it met an enemy rearguard of a weak infantry battalion with field guns, self-propelled guns, and 25 tanks well posted on high ground with their flanks protected. The British attacked, and after four hours of fighting, the enemy tanks began to withdraw.

Meanwhile, some of the British tanks got around the left flank under cover of the enemy's smoke barrage and did great damage among his transport, destroyed 40 vehicles, 12 tanks and decisively broke the rearguard.

This account omits all reference to the activities of the Allied, or Axis air forces, but from contemporary newspaper reports it is believed that, during the period in question, the Allies had effective air control over the area in which the fighting was taking place.

Battle of Mareth



Gun flashes of the terrific night barrage are directed against the Mareth Line during the opening phases in the coastal sector.

British Official Photo

THE British Eighth Army, under the leadership of General Montgomery, can now add the word "Mareth" to its list of battle honors. This engagement will undoubtedly rank close behind that of El Alamein in strategic importance and tactical brilliance.

In brief, the Battle of Mareth was a brilliant example of a successful turning movement following on a temporary frontal attack.

The initial attack began on March 20th with the establishment of a bridgehead over the Wadi Zigzau. After the infantry had fought its way across the Wadi Zigzau to the ridge beyond and bridged the Wadi with brushwood to enable vehicles to cross under the most appalling fire, they met a series of heavy counterattacks. At first they held their ground under the most difficult conditions, and a break-through appeared imminent; but after some 36 hours the enemy brought such pressure to bear that they were forced back, with very heavy casualties. By Tuesday, March 23rd, the enemy had regained most of the ground that he had lost at the coastal end of the Mareth Line. When this news was first announced, it looked like a very serious reverse. Now that it can be fitted into the picture as a whole, this frontal attack on the eastern wing has all of the appearance of an experimental probe.

On March 22nd the British attack was switched further inland, and the infantry occupied some ground south of Wadi Zigzau about three miles north of the Mareth-Medenine road. Meanwhile, continued intense air and artillery pressure began to tell on the

enemy. At the same time an exploratory column, consisting of tanks, motorized infantry and guns, was sent on its daring trek around the enemy's western flank.

Various pieces in Montgomery's tactics now begin to come together in closely-knit unity. Two probes were driven into Rommel's heavily fortified quadrilateral—one frontal, and the other enfilading. The frontal assault tested the possibility of a direct break-through along the coast and also compelled Rommel to bring a large concentration of his troops and armor to the south-east corner of his position. Similarly, the enfilading probe toward El Hamma tested the feasibility of throwing a proportion of the Eighth Army against the enemy's rear, and obliged Rommel to face west as well as south and so to dissipate his strength.

While the frontal drive was pushed back, the enfilading probe made good by fixing itself deep in the enemy's flank. Under the cover of darkness a force, consisting of New Zealanders and one armored division under General Freyburg, moved rapidly around the western slopes of the Matmata hills. Then, striking north along the jolting track, they made for El Hamma, which they reached on March 24th.

An attempt to outflank the Mareth Line had been fully expected by Rommel. Even before the Allied command had announced that the Eighth Army had begun its resumed offensive, the German communiqué had stated that a British column had moved around the Mareth Line positions and was advancing "to the north-east." This column was confronted by a strong force, in-

cluding German armor; and it was only after stiff fighting that it was able to establish itself in the area between Djebel Tebaga and Djebel Melab, and along the foothills on both flanks.

Rommel then switched everything he could afford, including armor, against this daring and dangerous thrust against his rear. But there was no letup in the relentless pressure along the front of the Mareth Line positions. Rommel, with this threat to his flank, had no alternative but to withdraw to the previously prepared Akarit position. The action at El Hamma lasted from March 24th to 29th, when British troops entered Gabes.

The operation which finally broke the crust was launched on March 26th. Three regiments of British tanks attacked the enemy on a front of 600 yards beyond the Roman wall.

The enemy had batteries of antitank guns arranged in depth, supported by German tanks—some dug-in, some mobile. Field and medium guns were also directed with great accuracy from wonderful observation posts in the hills.

British tanks advanced in extended line, like a cavalry charge of old. In front of them rolled a creeping barrage.

The tanks charged the antitank guns, which opened up from the front and from either flank. Many fired

at point blank range. Some of the tanks were hit; others came on. As they passed the antitank gun positions, the men leaned out of their tanks and annihilated the gun crews with hand grenades. Machine guns on tanks were busy too.

By dusk the tanks as well as the infantry, were established beyond their objective. The force for El Hamma was already well on its way.

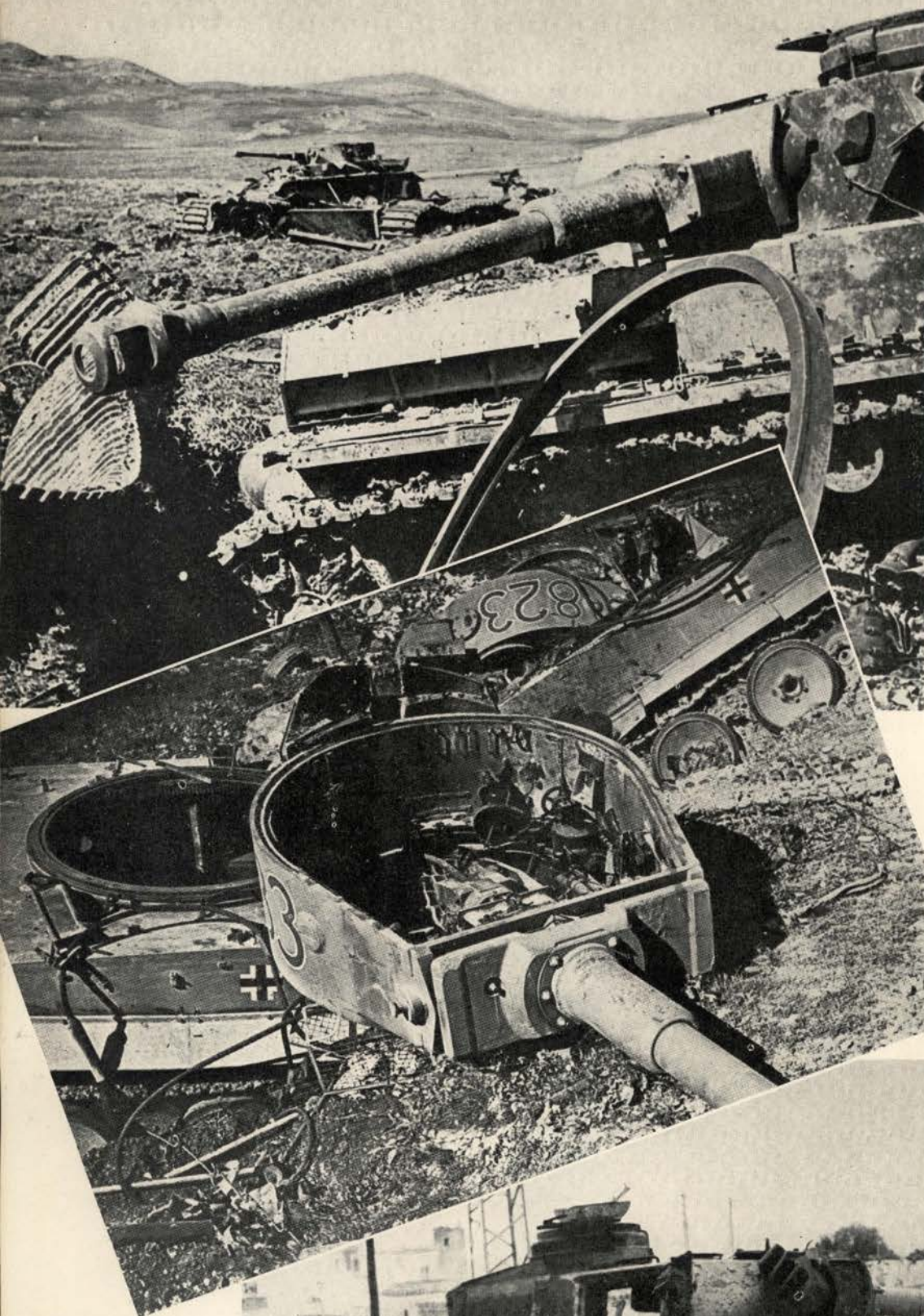
The blow to the enemy, so far as their part of the front was concerned, was mortal; and history will probably decide that it was the "beginning of the end" of the African Campaign. Though our losses were severe, the enemy's were heavier. Eight thousand prisoners were taken, and one panzer division almost entirely destroyed.

The retreating Rommel was forced to make a stand. He was out-maneuvered, out-gunned and out-fought. With the ever present threat of the Americans on his flank, he retreated to the hills and abandoned, as usual, his Italian allies.

The rest of the story is well known. The last battle of this war on African soil has been fought. Americans, British, and French all had their share in the final victory, but the Battle of Mareth will well deserve its place in history. Perhaps because subsequent events moved so rapidly, this first of the series of Tunisian victories has received too little mention.



The turning of the Mareth defenses was carried out by a rapid and perfectly organized outflanking movement. British Crusader tanks push into El Hamma after the retreating enemy. The sign in German lettering reads "watering place."



These two shattered tanks resemble the Mark VI "Tigers" but are really the newest Mark IVs. Parts of a Mark VI lie between them.

British Official Photo.

Axis

This gun turret from a 60-ton Mark VI "Tiger" tank has been torn completely away from the tank.

British Official Photo.

At right is a Mark III tank, which now mounts a long 50mm gun as standard equipment. Note the "spaced armor" layer held well in front of turret face and of face in front of driver.

British Official Photo.



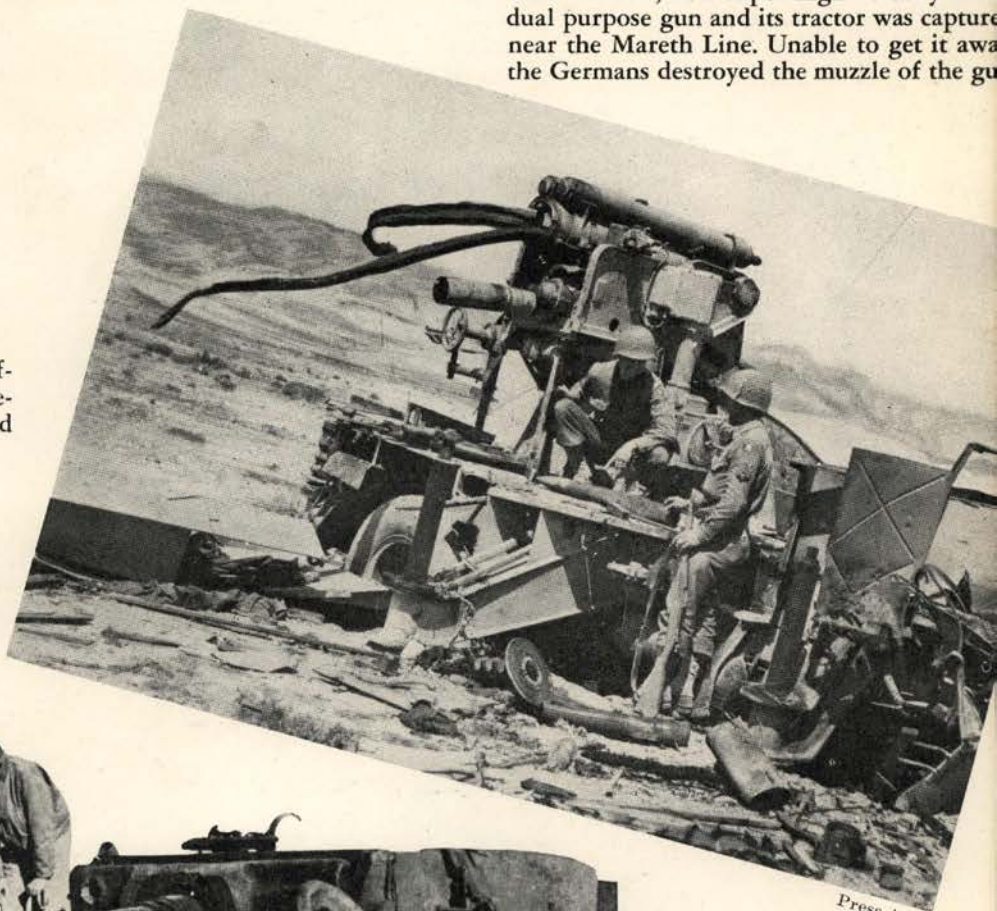


Press Assn.

This Flak 41, new super high velocity 88mm dual purpose gun and its tractor was captured near the Mareth Line. Unable to get it away, the Germans destroyed the muzzle of the gun.

Matériel

The wreckage of this Italian self-propelled anti-aircraft gun left behind in Central Tunisia, is inspected by American soldiers.

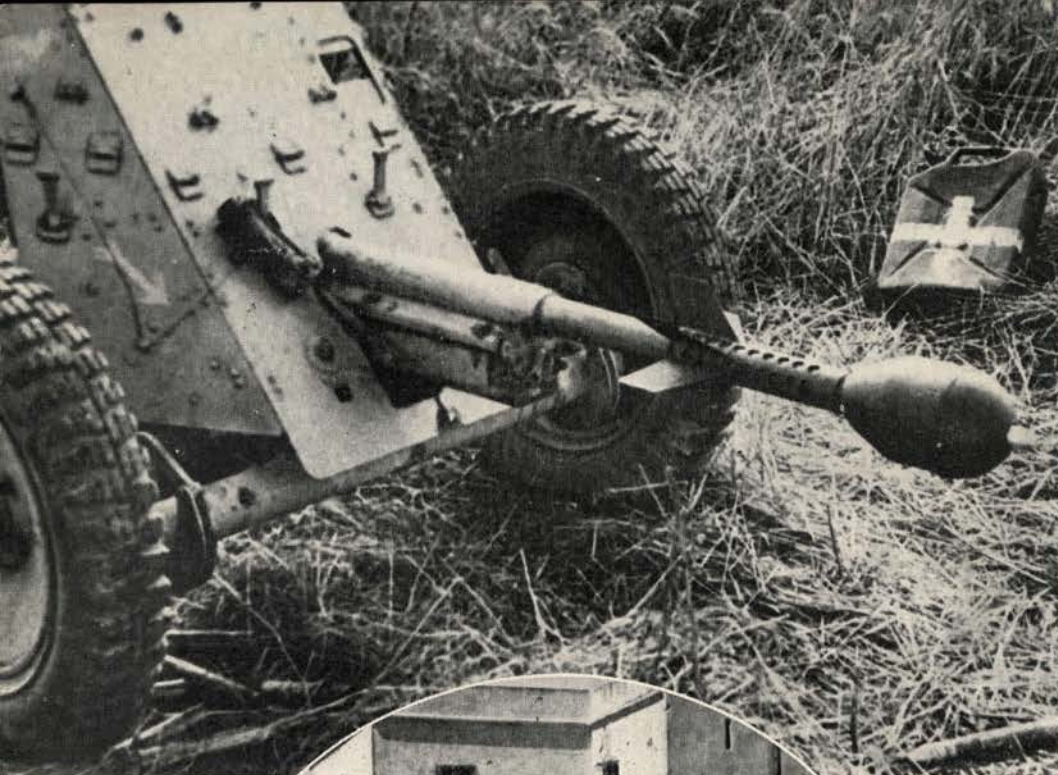


Press Assn.

Closeup of the 60-ton Mark VI "Tiger" tank.

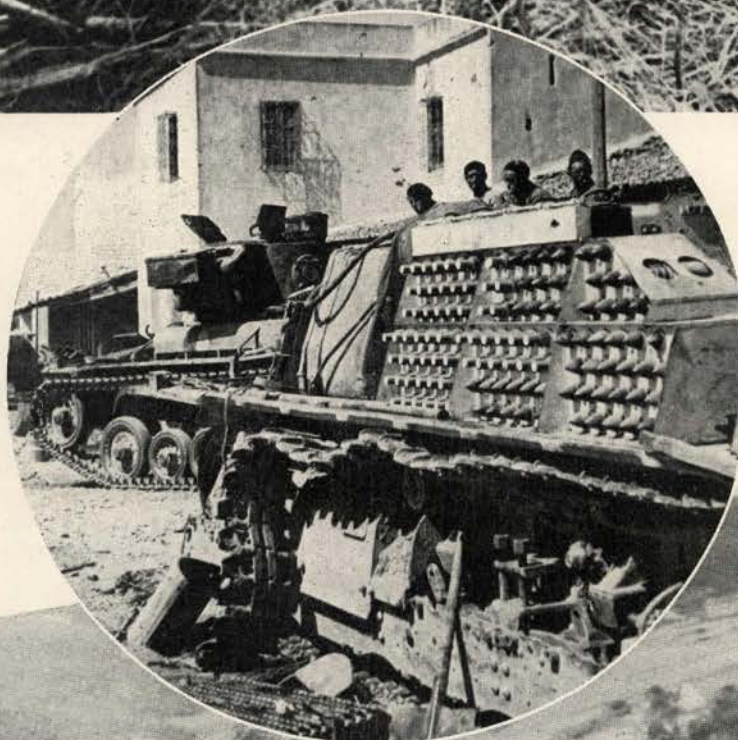


European



This German antitank gun captured near Medjez-El-Bab has high explosive bomb projector.

Captured

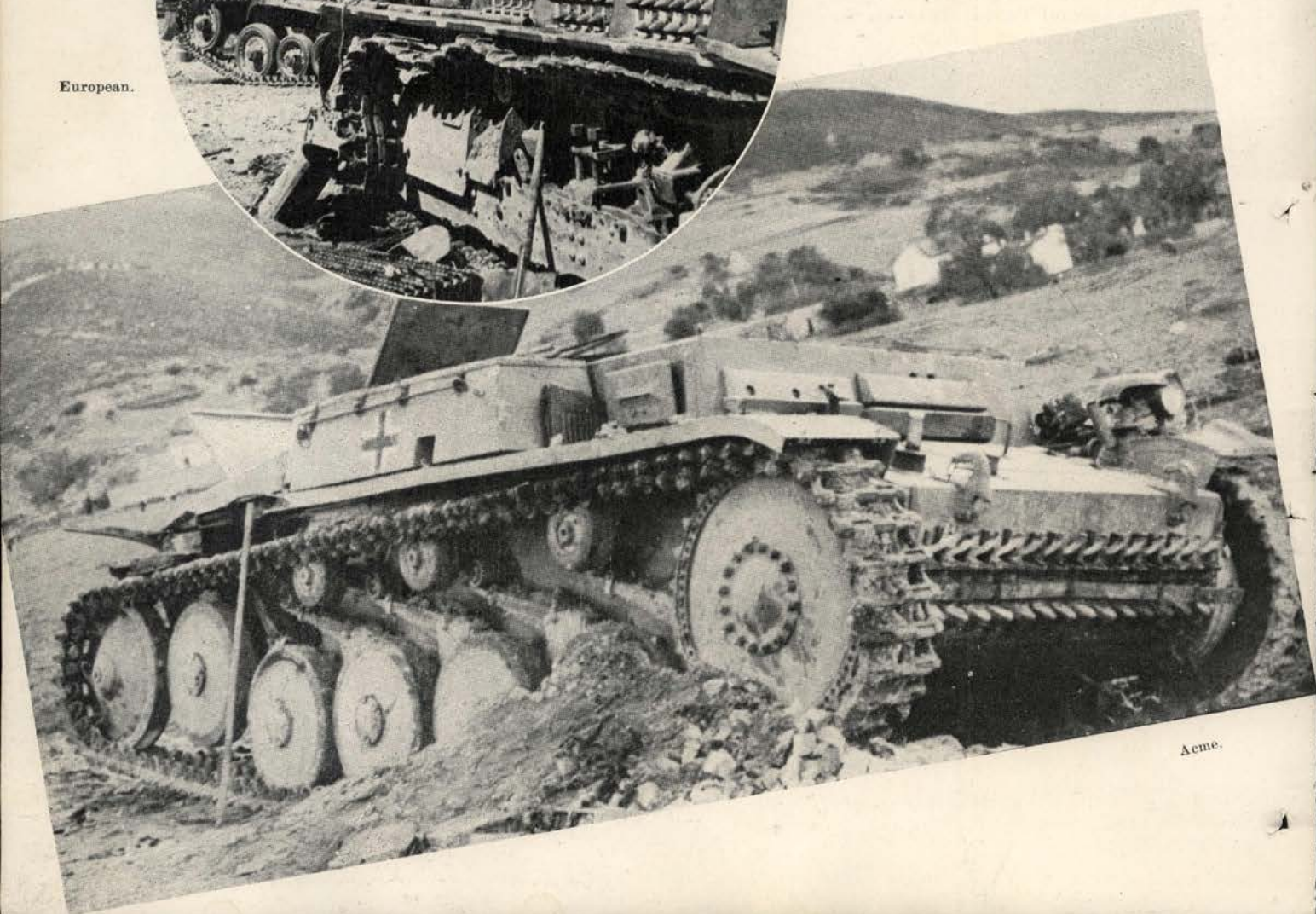


Aeme.

This British tank and ex-French munitions carrier were re-captured at Porto Farina, where the German 10th and 15th Panzer Divisions were trapped.

European.

This Mark II tank rests by the roadside near Mateur.



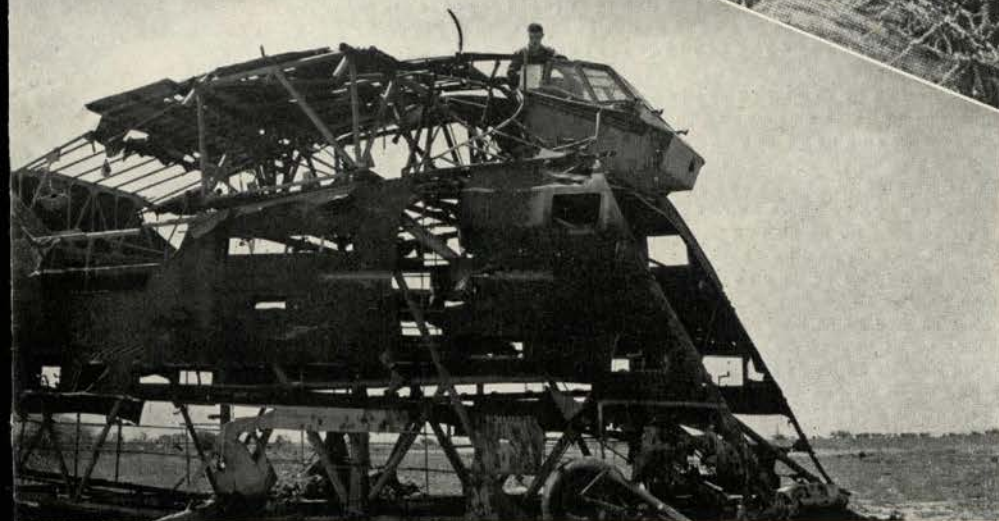
Aeme.

The Germans have now fitted their standard 105 mm howitzer (z.f.h.18) with a recoil-reducing muzzle brake. This battery was abandoned near Tunis. The Germans neglected to blow up the gun tubes.

in Tunisia



European.



This wrecked hull found at the Tunis Airport is believed to be the remains of an Me-323, 6-motored transport plane converted from a glider.

U. S. Air Corps Photo.

More than 100 enemy aircraft which had been put out of action by our bombers were found on an airfield in the Daba area. Here are scores of Messerschmitt Me109 fuselages collected by the units as soon as they occupied the airfield. Many more remained to be collected.



Hong Kong Campaign

*by Colonel C. Stanton Babcock,
formerly attached to United States
Embassy, Tokyo*



Hong Kong under Japanese attack.

Aeme

THE FIRST DAY OF ATTACK

AT dawn on December 8,¹ 1941, a squadron of Japanese light reconnaissance bombers took off from an airdrome on the outskirts of Canton. Ten minutes later when they appeared over the Kowloon airfield, they found the RAF Hong Kong detachment (some four or five old training planes) and the entire commercial fleet of the China National Aviation Corporation drawn up for inspection in front of the hangars.

Cruising leisurely about over the field, the Japanese airmen bombed these targets with no more difficulty than if they had been at bombing practice on a range in peacetime. When they left, half an hour later, the hangars were on fire, most of the planes on the ground had been damaged or destroyed, the China Clipper had been sunk, and one of the huge oil tanks of the Standard Oil Company was blazing furiously. There had been no serious anti-aircraft fire, and the dive bombers returned to their base without the loss of a single plane.

As the first bombs were dropping on Kowloon, the leading units of the Japanese ground force crossed the border of the Leased Territory. These were the advance guards of the 9th Division, attacking from the

north, and the 103d Division, pushing southeast from Canton. Resistance at first was negligible; in fact, except for a few patrols acting as frontier guards, no contact was made with the British until late in the morning. The Japanese gave as the reason for their slow and cautious advance their expectation of stiffer opposition and their suspicion that the enemy was trying to lead them into a trap.

As the advance guards of the two columns neared the "Outer Line" (the first defensive position stretching from sea to sea about a mile inside the border), they took up an approach march formation and moved forward as though expecting to be fired on at any minute. A mile or so in rear, with the heads of the columns just about at the border, the two main bodies rested quietly along the road until their advance detachments developed the situation sufficiently for them to move out once more. With no enemy air force to fear, the troops were allowed to relax almost as if they had been on a peacetime practice march.

It soon developed that the "Outer Line" was undefended and contained only a few observer groups which withdrew well in advance of the Japanese columns, and the march was resumed. Messages dropped on the columns by reconnaissance planes informed the commanders that there was great confusion on the roads

¹Dates in this area, west of the International Date Line, are 1 day advanced over those used in the United States.

leading north from Kowloon; that British troops were moving into the "Inner Line" (about two miles from Kowloon); but that there was no evidence of any real activity in the neighborhood of the "Intermediate Line," a previously prepared defensive position lying half-way between the "Outer" and "Inner" lines. The Japanese, however, refused to believe that some sort of resistance would not be offered along this second position. Once more they halted their columns, deployed the advance guards, and cautiously felt out the line; their advance guard artillery even threw a few shells into the position in an effort to stir up some activity among whatever forces were in their front.

By the time that the Japanese had satisfied themselves that there was in fact nothing opposing them, it was late in the afternoon. Word came down from Force Headquarters to halt along the line generally occupied by the troops at the time, and to establish a strong outpost line about one mile south of the former British "Intermediate Line." This extraordinarily cautious attitude was strangely out of keeping with the dash and *élan* shown by Japanese troops in other sectors, and it is possible that in this campaign they had been somewhat misinformed by their Intelligence agencies as to British intentions.

These troops, too, had been engaged for the last two years in operations against the Communist Fourth Route Army in China, and there they had learned that too hasty an advance frequently led to disaster. Several references in personal experience articles written by officers of this unit to the effect that "the situation greatly resembled a Communist guerrilla trap" would indicate that this consideration was at least in the minds of many of the officers, and may have carried some weight in influencing the attitude of the expedition commander.

ATTACK ON MAINLAND POSITIONS (DEC. 9TH TO 13TH)

Still concerned about the British, with whom as yet they had not even made contact, the Japanese established two very strong outposts. They reinforced the advance guards and sent out a number of strong patrols. Each consisted of one or two platoons, which operated in the flat country stretching between their outposts and the line of hills where the British "Inner Line" was located. Fully expecting to contact British patrols the Japanese combed the area all night, but without result. Not even a flare went up from the heights which the British had occupied, and, as one young officer put it, "The continuing quiet created a strange feeling of apprehension. It was impossible that the enemy would let us come so far without a fight. Something was sure to happen." But nothing did. When at dawn the planes went out to reconnoiter, it became evident that the British were planning a purely passive defense, and that the Japanese would not meet interference until they actually attacked the British line.

Even so, the Japanese had a formidable task ahead of them. The line, which was about three miles long, consisted of a number of strong points made up of concrete pill boxes located just below the crest on the forward slope of a range of hills that stretched from sea to sea. Because the hills rise steeply out of the flat plain, the troops could avail themselves of virtually no cover as they advanced toward the British lines. The two roads along which the Japanese were advancing climb steeply over this range through narrow passes, one near each end of the line.

The Japanese spent the next two days in reconnoitering and developing the defensive position. They kept their main forces well back out of artillery range and shelled the British forward positions at extreme range, so that their own artillery was not greatly interfered with by the guns on Hong Kong island. Small patrols carefully reconnoitered the country over which the troops would have to attack in their final assault.

The Conquest of Hong Kong from the Japanese point of view.

Like the two installments of "Philippine Campaign," written by Colonel Babcock, this account of operations in the Hong Kong Campaign is based on information drawn entirely from Japanese sources: official bulletins, news reports, speeches, radio commentaries, magazine articles, and personal experience accounts written by officers and men at the front. The only Allied bulletins used were those quoted in the Japanese press.

Colonel Babcock says: "While confined to the compound of the American Embassy in Tokyo from the outbreak of war until June 17, 1942, I was cut off from any outside news. Consequently, the preparation of this paper has not been influenced by information received through any but Japanese sources. It should also be remembered that all dates are one day advanced over those used in the United States."

On the afternoon of the 10th, three offensive patrols the size of a company were sent out to gain contact with British advance posts and to capture some prisoners. They encountered little resistance, for the outposts fell back promptly under cover of a machine gun barrage from the main position. A few Indians, influenced by handbills scattered over their lines by Japanese planes, stayed behind and surrendered when their detachments withdrew. These furnished the Japanese with the first prisoners of the campaign.

From these prisoners and from reconnaissance patrols, the Japanese learned that the position in their front consisted of a single line of concrete pill boxes manned by one British battalion (the Royal Scots) and two Indian battalions, and that close-up artillery support was furnished by one six-gun battery of 25-pounders. Plenty of wire had been laid on the slopes in

front of the pill boxes, but, according to Japanese accounts, the organization of defensive fires was very weak; there were far too few machine guns for the size of the sector, and only two places where interlocking bands of fire were used.

On the next day (December 11th) the Japanese carried out what they refer to as a "reconnaissance in force," but just what it was intended to accomplish is not clear. They used three battalions in this operation and preceded the advance with a thirty-minute artillery preparation which seems to have pretty thoroughly broken up the British wire. The force used was not strong enough to do much more than again drive in the outposts, and the Japanese appear to have withdrawn without gaining any important results. They admit that on the morning of the 12th all of their troops were back in their original positions.

By this time the Japanese seem to have come to the conclusion that the key to the enemy position was Shin Mun, the strong point on the right of the sector occupied by the Royal Scots. This battalion was on the left of the line, so that the pill box was about one mile in from the western shore of the peninsula. On the reverse (British) side of the hills, a long ravine running down from Kinchan to the southwest, opened out into the plain close to the shore and about a kilometer behind the lines. Once in possession of this strong point, the attackers would have a covered route leading well into the British area and would be in a position to assist the general frontal attack by pressure from the flank and rear. Aerial reconnaissance had shown that this ravine was the chief British axis of communication.

British antiaircraft guns in Hong Kong. This picture was made when Hong Kong seemed an impregnable fortress.



European

Cutting it would add greatly to the confusion still evident behind the enemy lines.

On the 12th, the Japanese staged a night attack with a battalion of infantry reinforced by a company of engineers. There was no artillery preparation, for this was intended as a surprise attack, but the batteries had all ranged in on their targets during the afternoon and were ready to put down their barrages whenever called for. With the engineers out in front clearing the way through the wire, the troops worked their way through the darkness toward the crest of the hill. Not until the Japanese had advanced to within less than a hundred yards of the pill box did the British send up their first flare. Once they were discovered, the Japanese abandoned all caution, called for artillery support (which came down as a box barrage at the head of the ravine), ripped a way through the remaining wire with grenades, and attempted to storm the position in one wild rush.

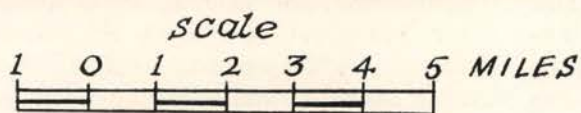
The British fire was too heavy, and after nearly half the engineers had been wiped out, all the machine guns, light and heavy, of the battalion were brought up and their fire concentrated on the gun ports of the pill box. Under cover of this fire, small groups of Japanese worked up close enough to use flame throwers and grenades on the ports, while other units cleaned up the supporting machine gun nests and rifle groups in the vicinity. A very few minutes with the flame throwers sufficed to make the garrison surrender. The Japanese then worked feverishly to reorganize the captured position in preparation for the counterattack which they momentarily expected.

But no attack came. During the night a few shells from one of the forts at Hong Kong fell in the area, but otherwise all was quiet. By daylight the Japanese not only had organized the area for defense, but had brought up two fresh battalions and were ready from this position to attack the flanks and rear of the British forces on their right and left, in coördination with a general attack all along the line which had been planned for eleven o'clock that morning.

Although the Japanese were in a strong position and were sure that they eventually would drive the enemy out, they were planning on a three- or four-day fight, and expected a lot of opposition before they accomplished this result. The artillery preparation started at dawn. Shortly afterwards a number of light bombers flew out to add their loads to the bombardment. A few minutes later, Headquarters was astounded to receive a message from the planes that the British had abandoned the entire position and that their columns were in full retreat. One British battalion was deployed as a covering detachment on the outskirts of Kowloon, and the rest of the force had practically completed the move across the narrow strip of water to the island.

Orders went out at once for the troops to advance, and the Japanese infantry pushed forward and up the heights as rapidly as possible, but for some reason no effort was made to cut off the British or to pursue them

HONG KONG



into Kowloon. From their observation points on the crest of the captured hills, the Japanese could clearly see the British rear guard withdrawing towards the ferry, but they made no attempt to interfere with it and contented themselves with throwing a few shells into the outskirts of the city. They finally entered Kowloon about four o'clock in the afternoon and took over the job of policing the city, which they say had been in a state of wild disorder ever since the withdrawal of the British troops that morning.

THE ATTACK ON HONG KONG ISLAND

During the next few days, the Japanese were occupied in "restoring peace and order in the Kowloon peninsula"; collecting all the small boats they could find between Canton and Kowloon; "securing and protecting the oil farms" on the peninsula, none of which had been destroyed by the British; and establishing gun positions on the captured heights from which they could shell the fortress of Hong Kong. They bombed gun positions and other military objectives on the island once or twice each day, but they used only a few light reconnaissance bombers at a time. Apparently no attempt was made to lay down any heavy concentrations during this period.

According to Japanese accounts, the British were even more inactive. Little if any attempt was made to interdict the passes over the hills north of Kowloon, and the invaders poured troops down into the plain, in full view of the observation posts on Victoria Peak, with very little interference and with a minimum of casualties. Not a single round was fired at the oil farms in Kowloon, although a battery could have set the entire place ablaze in fifteen minutes of good shooting. On the day before they crossed to the island, the Japanese shelled the Victoria waterfront all afternoon with trench mortars set up on the Kowloon docks, without eliciting any answering fire from the British positions.

On the night of the 18th, the Japanese crossed the straits and landed on Hong Kong at North Point. Artillery fire during the afternoon and evening had put the British pill boxes in that area out of action and set fire to a number of oil tanks located there. There was very little fighting.

The confusion caused by the smoke from the burning tanks seems to have prevented the British from realizing what was happening, and two companies of the leading Japanese battalion were already ashore before they came under fire. There was a short fire fight but no counterattack by the defenders, and when the other two companies landed, the British withdrew about a kilometer to some high ground at the base of the little peninsula. From some prisoners captured in this engagement, the Japanese learned that the troops opposing them were a battalion of the Middlesex Regiment.

All day long in full view of the British observation posts, the Japanese ferried men and matériel across to North Point. As the successive increments of reinforce-

ments arrived, they enlarged the beachhead, and gradually forced the British back towards the hills in the center of the island. Until late in the afternoon, when the beachhead had been enlarged sufficiently to provide plenty of maneuver space, the peninsula of North Point was, by the Japanese' own admission, a scene of terrible crowding and confusion. The area was well within the range and field of fire of at least three batteries of fortress guns, and the Japanese frankly admit that they accomplished their mission with so few casualties only because the British failed to bring a sufficient concentration on this sector during the first and second days after the landing.

From this time on until the surrender, the battle consisted, for the Japanese, of a slow but steady enlargement of their beachhead. They concentrated their main strength in such a way as to drive south towards the center of the island in an attempt to isolate the defending troops stationed in the eastern part. The advance was slow, for the terrain was difficult and the British defense stubborn; but progress was steady, and was rarely hampered by counterattacks.

The British failure to counterattack puzzled the Japanese throughout the campaign. It was not until after the surrender that they found out that defense plans provided for only a limited number of reserves, so that when the line was once broken sufficient troops to retake the lost ground simply were not available. The absence of reserves, and the lack of depth in all their defensive positions, indicate that the British placed excessive reliance on the ability of their line of pill boxes to repulse any attempted landing. Japanese criticism of the British defense was that it lacked flexibility, and, once pierced, was difficult to reorganize.

By the 21st the British, realizing that their garrisons at Stanley and other parts of the eastern and southeastern shore were seriously threatened by the Japanese push southward from North Point, withdrew all troops from those areas and established a new line which swept in a large semicircle around the skirts of the Peak. Here they dug in for their final defense, and the Japanese say that the severest fighting of this little campaign took place during those last three or four days.

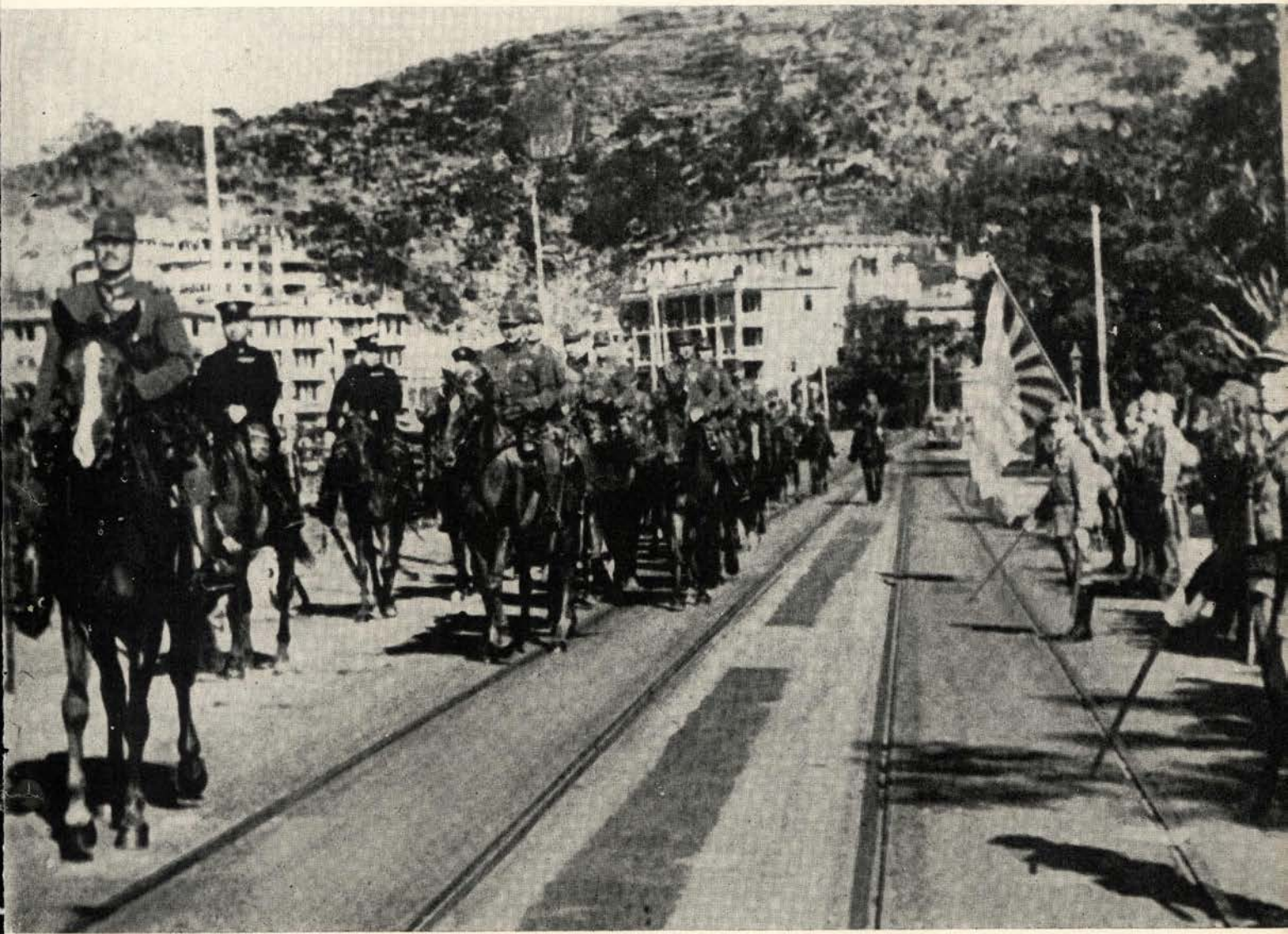
It was, however, only a matter of time. Powerless to stop the constant stream of troops which poured in to reinforce the attackers, the British were pushed farther and farther up the slopes of the Peak. On the 23rd an unopposed landing was made at Stanley (abandoned by the British two days previously), and additional pressure was brought against the defensive ring from the south. The General Officer in Command was in favor of surrendering at this time, but the Japanese demand was refused by the Governor. The next morning the Japanese put down a heavy concentration on the sector manned by one of the Canadian battalions at the head of Happy Valley, and later in the day followed it up with an infantry assault. As the leading Japanese battalion jumped off, a squadron of light

bombers came in low over the Canadians, strafed them with light fragmentation bombs and machine gunned them. The troops stood their ground well and evidently brought down one of the machines, for the Japanese account refers to "an intrepid Wild Eagle who, deliberately dashing his plane onto the ground, caused it to explode within the enemy ranks and threw them into utter confusion."

The Canadians had been pretty badly mauled, for they were not dug in sufficiently to withstand such prolonged artillery bombardment nor an attack from the air. When the Japanese infantry moved into the position early in the afternoon, they found many casualties lying in the shallow individual "fox holes," which were the only protection the troops had made for themselves. The lack of even the simplest kind of shelter trench shows the disorganization of the defending troops in this final stage of the battle.

The surrender came the next morning, on Christmas Day. The persistent, uninterrupted advance of the Japanese, the confusion behind their own lines which made it impossible to organize and launch a counter-attack, and the realization that further resistance would only postpone the inevitable and cause serious loss of life among the exhausted troops, finally convinced the Governor of the hopelessness of the situation and caused him to surrender the island and the forces under his command.

On the 26th the Japanese staged a formal triumphant entry into the city of Victoria. Lining the streets were thousands of Chinese, waving little Japanese flags and cheering the long columns of tanks and guns and marching men. In what the Japanese described as a "never-to-be-forgotten ceremony, the first of the Anglo-Saxon strongholds of imperialism in the Far East fell to the advancing champions of the New Order."



JAPS MARCHING INTO HONG KONG

The Japanese title on this picture said it showed victorious troops marching into Hong Kong after the British Citadel fell. Along with mounted army officers are seen two Japanese naval officers. This picture came to the U. S. by way of Brazil.

Editorial Comment

Stalingrad—the Modern Cannae

For many years we have been reading and discussing the pros and cons of the double envelopment in battle strategy. It is well known that this was a favorite with the German General Staff and very probably influenced them, at least to some small degree, in their tables of organization.

The late Count von Schlieffen, whom the Germans practically idolize as one of the military geniuses of his day, believed that the principle employed at Cannae (complete annihilation and extermination of the enemy by encirclement) was just as feasible and effective in modern warfare as it was when Hannibal surrounded the Roman troops under Varro. The Roman troops were partially annihilated and the rest taken prisoners.

Since the late Count's day, German military experts have bragged of the time when they would pull a "Cannae" on Germany's enemies. It is quite probable that many attempted imitations of Cannae can be found in German military history, but as yet it is difficult to find the real classical example of mass encirclement and annihilation.

Of profound interest, therefore, is the hand of destiny which reached out at Stalingrad and pulled the trick on the Nazis themselves. It was Hitler's fair haired boys who thought that they were the "real McCoy" as exponents of the art of encirclement. Yet it was the Soviet High Command who played the part of Hannibal, and Colonel General von Paulus who was forcibly obliged to be the Terentius Varro in the modern version of Cannae.

Nikolai Tikhonov gives us an interesting story in the official account of the Battle of Stalingrad in which he states:

"Lieutenant General Waldemar Erfurt, Senior Quartermaster of the Military-Historical Department of the General Staff of the German Army, has written a special treatise entitled, *Victory Entailing the Complete Annihilation of the Enemy*, in which, after examining all of the military operations recorded in history similar to those of the Battle of Cannae, he makes the following observation: 'The course of the Battle of Cannae, provides no clue to the way a modern general should surround and exterminate his adversary.' He then proceeds to analyze the operations of the German Army during the last World War, but is forced to the melancholy conclusion that none of the battles that might have been a Cannae actually turned out to be such.

"He even extols the Abyssinian campaign conducted by the Italian Marshal Badoglio, who with a vast and well equipped army tried to surround the poorly armed

Abyssinian forces. But in spite of Mussolini's comic opera parody of the order of former great captains—"Surround the enemy and destroy him!"—Badoglio utterly disgraced himself. The Abyssinians calmly withdrew beyond the reach of his blows.

"The present war, however, has already provided the German Command with a classical example of Cannae. The future students of German military history will not have to go far for an illustration of Schlieffen's famous proposition. The Count may turn in his grave, but that will not alter matters. Hereafter, the word "Stalingrad" will cause the German generals to look round in fright to see whether the specter of Cannae is following them.

"Erfurt was right: 'The course of the Battle of Cannae provides no clue to the way a modern general should surround and exterminate his adversary.' The clue will be found in the course of the Battle of Stalingrad.

The Red Army has administered a stern lesson in history to the swashbuckling adventurers of the German General Staff, and has added a chapter to history upon the reading of which all of Hitler's generals will gnash their teeth in impotent rage. The Red Army has shown the whole world what Cannae really looks like, and how to achieve its objective—the annihilation of the enemy."

Thus Spake Der Fuhrer

Hitler's long silence during 1943 is a more significant barometer of the course of the war than were his perfidious braggings of previous years. The following choice selections, taken from speeches and proclamations made by *Der Fuhrer* in the past, were collected and published by *News Week* last year.

December 30, 1939: "May 1940 bring a decision. Come what may it will be our victory."

September 4, 1940: "Whatever may come, England will break down. I recognize no other termination. The people of England are very curious. When the British say, 'He doesn't come,' my answer is, 'Keep your shirts on—he is coming.'"

December 31, 1940: "The year 1941 will bring consummation of the greatest victory in our history. The year 1941 will see the German army, navy and air force powerfully strengthened and with improved armaments. Under its blows the last phases of the war criminals will then collapse. We give assurance that for every bomb dropped on us, a hundred will be returned."

November 8, 1941: "Never was a great empire smashed and destroyed in shorter time than was Soviet Russia. (Leningrad) is surrounded and it will fall into our hands. At the end of this year we probably can say

this greatest danger (from Russia) already has been averted. We can have no doubt that the destiny of Europe for the next 1000 years has been decided."

September 30, 1942: "In my eyes, the year 1942 has behind it the most fateful trial of our people. That was the winter of '41 to '42. Nothing worse can or will happen. Either all (of us) must survive victoriously together or be destined for extermination together. Under no circumstances will we ever capitulate. That they ever will beat us is impossible and out of the question."

In a recent order, purportedly issued to troops just prior to the 1943 summer offensive against Russia, Hitler produces new phrases of evasion and contradiction. He says that the 1943 Russian offensive "must be the decisive turning point of the war. The battle will be difficult, but it's the last one for victorious Germany." He neglects to explain just when or where Germany found it desirable for the war to have a "turning point" or just how, in one last battle, she can subdue the whole of the armed might opposing her from south and west as well as east.

Hitler's Strategy Turned Against Him

The peace of Europe depended on an incomplete system of collective security. To destroy this system, Hitler followed the teaching of Clausewitz; first divide the forces of your opponent, then destroy each force singly, one after the other.—MAJOR F. O. MIKSCHKE, *Attack*.

The Atlantic Wall

As the Axis reels under increasing Allied blows, the German propaganda ministry boasts ever louder of the wall of fortifications erected along the west coast of Europe as a protection against invasion.

For a change, the Germans seem to have neglected their military history. Fortified walls have never been invulnerable against a determined foe. It is not necessary to go back beyond the present war to find examples of strong prepared fortifications that failed miserably when put to the crucial test. It was, in fact, the Germans themselves who pierced the Maginot line at its "hinge," poured troops through the breach, and quickly took the fortifications from the rear. They even turned the fortress guns on the French army that previously had manned them.

More recently, on the border between Tripoli and Tunisia, Rommel utilized the fortified Mareth Line for a final stand against the British Eighth Army, only to be outflanked when the British penetrated the difficult terrain to the south and reached the rear of the Mareth fortifications almost in time to cut off the German retreat.

These striking examples of the inadequacy of fixed fortifications should warn the Axis that an Atlantic wall is not enough. There are ways around and over walls.

Not only have fortified walls proved inadequate defense in this war, but natural barriers have become less formidable. Mountains have been crossed, a desert conquered, and the Allies have now accomplished successful sea-borne invasions in the South Pacific, on the North African Mainland, and more recently (with a fleet of 2000 ships), the Italian island of Sicily.

The American Military Institute

Admiral Mahan once described his fellow Americans as "combative and warlike but the reverse of military." Among the great powers, the United States is the only country in which the civilian study of military problems has received no official support.

For many years the American Military Institute, a non-government association organized in 1933 under the laws of the District of Columbia, has attempted to fill in this gap. Its mission is to promote the historical study of war and military power, especially as these problems relate to the security of the United States.

From 1936 onward the American Military Institute has published *Military Affairs*, the only scholarly publication dealing with the military subjects in the United States. It has published this well-edited journal at a loss and needs the support of all men in the service and civilian life who see that our national welfare is intimately connected with military matters. It is particularly important that the American Military Institute receives enough support to enable it to carry on its vital functions in the post-war period when the temptation to "get back to normalcy" and "forget the army" will be great.

Membership in the Institute is "elective" but is open to those in the armed services and civil life who appreciate the importance and desire to encourage the study of military power and institutions in these critical times. Those who wish to become members should send their names to Dr. Harold Sprout, 3 Dickinson Hall, Princeton, New Jersey. Annual dues are \$3.00 which includes a subscription to *Military Affairs*. Life memberships are \$50.00 and a Founder membership can be established by contributing \$250.00 or more.

Institutions or individuals who are not in a position to become members may subscribe to *Military Affairs* at the membership rate. Gifts to the working funds of the American Military Institute are urgently needed.

The officers of the American Military Institute are:

Dr. Robert G. Albion, President
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General Hawkins' Notes

Some Comments on Training for Combat

A DISTINGUISHED officer, who has already had a lot of fighting experience in this war, has given me a short list of observations on handling and training troops that correspond so closely to my own conclusions, drawn from experience in campaign and in training, that I present them briefly here in my Notes.

Loading troops on transports without regard to organization and with noncommissioned officers separated from their men is faulty. Boat drill, police, and control in case of torpedoing and bombing, are all greatly improved by preserving the integrity of units.

Sizing companies for the sake of appearance breaks down organization.

Fatigue details should not be made indiscriminately without regard to organization. The numbers of men necessary should be found by detailing squads, platoons, or parts of such units rather than by detailing individuals from a company list without regard to the organization of the company.

In an attack, the soldier has many things to discourage his advance—enemy fire of all kinds, barbed wire, difficult terrain, fatigue. In training, the soldier must be taught to use accidents of the ground as cover for his further advance. When he halts, he should remain no longer than necessary to get his breath and determine the spot of cover to which his next dash forward will carry him.

This instinct for self preservation can be overcome by training—teaching the soldier team-play with his comrades, instilling a sense of duty toward the small units on his right or left, and by inculcating a desire to close with the enemy. This can be done by practicing exercises across ground in simulated attacks. It cannot be done by lazy, careless advances in erect postures while carrying out tactical exercises or maneuvers. Squad and platoon leaders especially should be careful to keep up the forward impulse and to avoid by every possible means that inertia which can develop so quickly in a small command.

In all exercises, the team play between squads and platoons must be kept in mind constantly. To this end, the integrity of the squad and platoon must be preserved in all training, combat exercises, marching, camping, fatigue duty, and even in games.

In our national sports there is always a substitute, fresh and ready to take the place of a tired or injured member of the team. In battle, however, there is no rest, no replacement. The job of the unit must go on despite casualties to men or equipment. A lost leader must be replaced at once, not by some leader sent up from the

rear, but by some man in the unit who voluntarily takes over the leadership. Further, the unit must go on with reduced numbers and reduced equipment. This also can be practiced in tactical exercises.

Mixture of small units in combat must be regarded as inevitable. Such mixture must be practiced deliberately so as to learn how to bring order out of confusion quickly. This practice, both day and night, brings great dividends in actual campaign.

Thus, we should practice, not only the preparation for combat and the advance to combat, but also the combat itself (as this friend of mine expressed it) the tail-end of a combat. Losses of numerical strength, loss of leaders and equipment, confusion in the combat groups, mixture of units, general fatigue, and a powerful inertia must all be expected, faced, and overcome. This can be done only by anticipating these things and then training to overcome them.

Good shooting with guns of all calibers is the first essential in training. The next essential is that the soldier and small unit leader know and practice the skilful methods of using the ground to avoid casualties.

Leaders of larger units must see and study the ground over which they contemplate advancing their troops. Ground on which there is absolutely no cover from aimed enemy fire should be avoided for advancing troops for long distances—say more than one hundred yards in successive stretches. This can often be done by narrowing the fronts of various units and increasing their depth of deployment.

Cover from high angle fire or from airplane bombing can seldom be found in open country, but cover from aimed small arms fire is often provided by ridges, gullies, and water courses. Cover from observation is important even though no actual cover from the flight of projectiles or bombs is possible.

By means of training and discipline, the men and machines can be made to avoid bunching. This fault of bunching is very noticeable in our maneuvers and is seen very often in photographs of troops actually under fire in battle.

The desire to get forward and close with the enemy will be much enhanced if the men realize that it can be done without excessive losses and if they have been trained so as to know how to do this. Furthermore, if the men realize that their leaders, of large as well as small units, will not commit them to ground where they have no chance whatever to survive, they will respond with a determination to close with the enemy as quickly as possible.

German Ordnance Captured Near Stalingrad



Sovfoto

The gun in the right foreground is probably a 25mm French Hotchkiss magazine-fed AT-AA. Note the lunette wheels lying against the 75mm Pak 97/38 and the Pak 38. The Hotchkiss has a big flash hider. The Pak 97/38's brake is also a flash hider. Note the double shield on the Pak 38s and 97/38s.

At right is the French Model 1897 (their and our standard 75mm gun) mounted by the Germans on their split-trailed, low-silhouette 50mm Pak 38 antitank carriage. This has been made possible by the addition of a muzzle-brake, which preserves stability without the necessity of a heavy carriage because it cuts the recoil. The muzzle brake (seen in picture below) looks more French than German. This new combination is designated the Pak 97/38. It fires HE as well as armor-piercing shell. Apparently the rounds are now semi-fixed. The complete weapon adds a third wheel to the lunette and is light enough to be man-handled by three men.



Sovfoto

Encirclement at Stalingrad

This double flanking maneuver around the German Sixth Army was spearheaded from the north by tanks — from the south by tanks and cavalry in coördinated day and night assault.

THE plan of the Russian High Command in the great winter offensive of 1942-43 was to break through the German lines simultaneously in two places, northwest and southwest of Stalingrad. Then the two massive pincers, curving deeply through the German rear, would come together somewhere near the railroad line from Stalingrad to Likhaya, and thus completely encircle the German Sixth Army, which occupied the whole area west of Stalingrad to the Don—roughly, about 50 square miles.

One of the most important features of this plan—vitally important for the success of its initial stage—was to *launch the northern blow along the right, on the western bank of the Don*. The blow was timed to fall before the Don would freeze solidly and when only two crossings would be available for tanks and heavy vehicles—one, the bridge at Kalach; another, the railroad bridge on the Likhaya line farther south. The brittle, thin ice on the river made any crossings with heavy loads out of the question.

It follows then that a successful break-through, starting on the western bank from the Serafimovitch bridgehead, could sweep down the bend without much danger of being stopped by a quick counterblow of the Sixth Army, whose maneuver would be tied up by the formidable natural obstacle of the Don, and the Russians would have to reckon only with the German forces located in the bend of the river. Considerable as they were, they were far less redoubtable than the powerful concentrations of the Sixth Army beyond the river. This was the reason why, for many weeks, when Stalingrad's plight was growing daily, the Russians continued to fight with the utmost tenacity for this bridgehead and never fell for the temptation of diverting their considerable reserves in this area to the assistance of the besieged city. It is hard to understand how the German Command could have missed so completely the significance of this fighting.

For the success of this plan, two factors were vital, outside of the possession of the bridgehead:

(1) After the break-through, the sweep down the western bank had to be accomplished with the utmost speed. That made it necessary to spearhead the offensive by powerful tank formations, and *these formations had to advance and fight day and night without interruption*, until the first important objective—the Kalach crossing and the Likhaya railroad—were reached.

Leisurely, all-night stop-overs, under the guard of motorized infantry, as advocated by the pre-war doctrine, were clearly out of the question.

(2) If, in the first stage of the operation, the mechanized thrust from Serafimovitch succeeded in capturing the Kalach crossing intact before the retreating Germans could blow it up, then the junction of the two pincers (the northern one moving along the western bank, and the southern one moving up from Abgenerovo to the eastern bank) would be much facilitated, and the encirclement of the Sixth Army virtually assured.

The means necessary to insure the first factor were obvious—careful preparation covering every detail, and arduous, specialized training of the units assigned to the task. During this training, which went on for many weeks before the raid, the greatest stress was placed on night actions.

The tanks of the XXVI Tank Corps spent endless hours driving without lights through stretches of terrain exactly similar to the one to be encountered in the Don bend—steppes criss-crossed by a maze of gullies and ravines—some of them shallow, some of them deep, all with cliff-like banks. Steering was done by compass only. Replicas of antitank obstacles most widely used by Germans in this sector were strewn all over the training grounds, and tankmen and engineers acquired experience in detecting them in the darkness and removing them quickly.

Two days before the beginning of the offensive, a war game, in which all commanders participated, was played at the corps headquarters over the projected route of the road. Then battalion commanders organized war games for the junior officers, with objectives correspondingly reduced.

A solution of the second important problem—the capture of the Kalach bridge—was also reached. It was clear that the undertaking would succeed only if the element of surprise were overwhelming. The Russian Command knew that the bridge was mined just for such an emergency and could be blown up instantly. The only way to beat the Germans to the draw was to seize it in one lightning move. That could be done only by a small, fast-moving mechanized force that could slip through the German lines unobserved, or at least unimpeded.

The solution was logical and simple—to entrust this

by
Nicholas Corotneff

task to a small tank group camouflaged as German machines. Accordingly, the group was made up of five captured German tanks, and two or three trucks of the type used by their motorized divisions. Sixty specially trained tommy gunners completed the force. Some of them rode atop the tanks, the way the Russian and German landing parties do; the rest rode in trucks which were armed with several machine guns. The detachment was commanded by an experienced and resourceful officer, Captain Philipov. The tanks bore swastikas and other German insignia. Whether the deception was carried all the way through and the crews and tommy gunners were clad in German uniforms, the account does not mention.

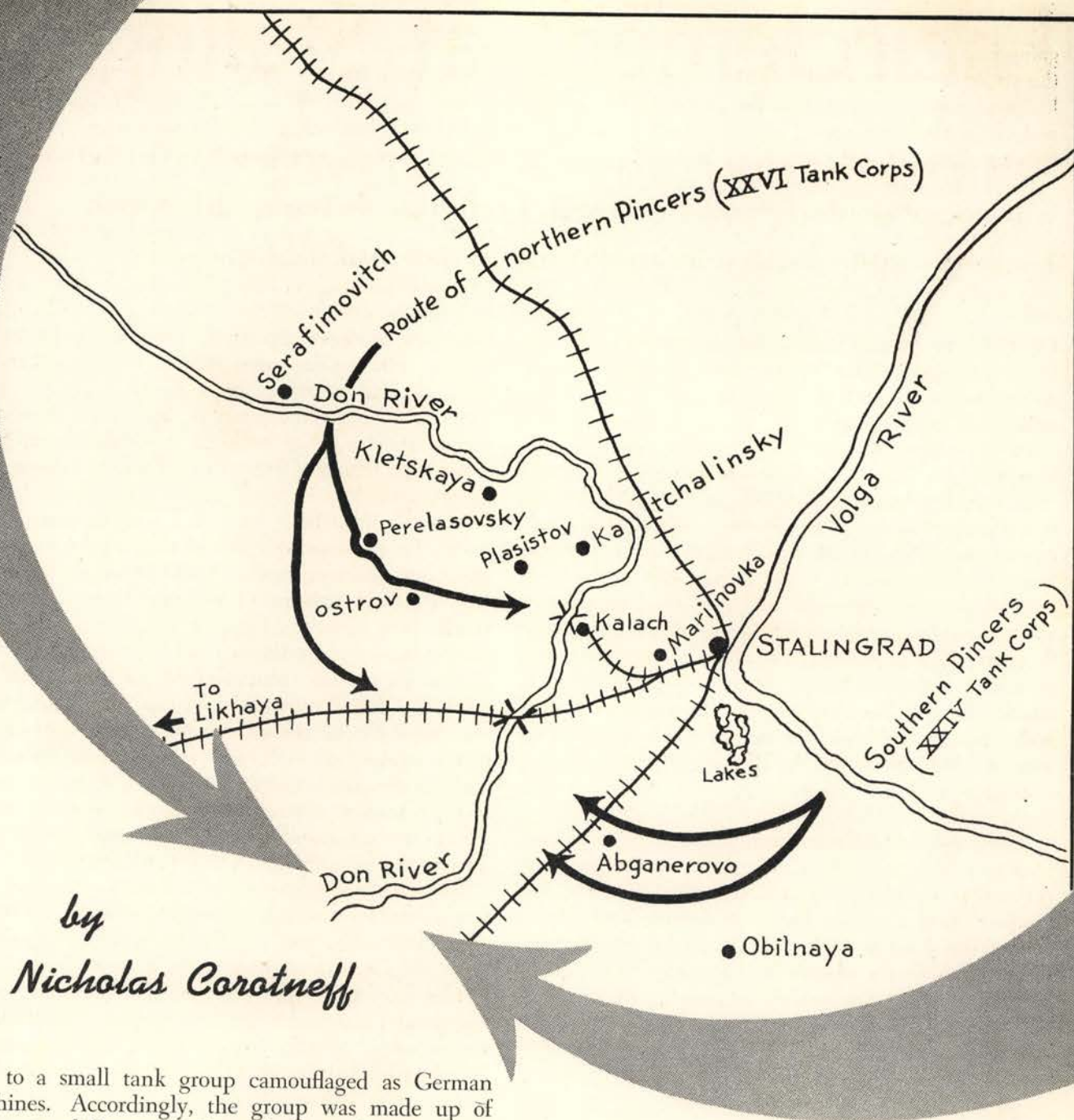
The break-through operations began at dawn on November 19th, in the usual way, with infantry, artillery and engineers blasting the way for the tanks. A thick fog, dense as milk, according to some accounts, reduced visibility greatly. However, there was no hesi-

tation in launching the tank attack, as everybody was completely confident that they would keep to the appointed course and get through. As previously decided, guides, recruited from local inhabitants, were put in the leading tanks.

The first German line was completely smashed and left without resistance. The second line was broken through without much trouble, and with the corps moving in two columns the advance continued at a somewhat increased speed.

FIRST NIGHT

The columns moved off the roads right over ice-bound terrain, and spent considerable time in crossing gullies and ravines, but despite all difficulties continued on the course. Lights were switched on, and the



going became easier. A strong wind gradually reached the strength of a blizzard. Tanks steered by compass had to stop frequently to clean the port-holes from snow and check the bearings. The first landmark, a burning state farm, was reached and passed.

After some artillery fire was heard on the right flank, lights were switched off. In the middle of the night, a short stop was made for re-fueling. A tank column, moving on a parallel course, but in the opposite direction, was observed at that time on the left flank. Assuming that the column was German, it was decided not to molest them and let them advance to their inevitable doom. Scouts that were sent out to check up on the column, returned shortly and reported that the tanks were German ones.

At daybreak, some real fighting took place around four villages. The first three villages were attacked right from the march and quickly taken. In the fourth one, Perelasovsky, a more stubborn resistance was encountered because of the presence there of a German army corps headquarters. The village was turned from both flanks by motorized infantry and successfully stormed.¹ The few hours left of the night were spent there under the protection of an all-round advance guard of motorized units which repulsed two German counter-attacks. Early in the morning, the advance was resumed and, with intermittent fighting, went on all day, registering a progress of over 40 kilometers for the day.

THE SECOND NIGHT

The corps stopped for the night in a large village, Ostrov, which was taken some time in the evening. A strong reconnaissance was sent towards the Don, and a report came soon that the main defense zone of the enemy was located within about 20 kilometers from the village. In the meanwhile, in order to obtain as much information as possible on the Kalach crossing,

many village inhabitants were questioned.

The commander was elated when the intelligence officers succeeded in locating a peasant woman from Kalach who had just come into the village to buy food. She was immediately brought to the headquarters, and the interrogation brought out several important facts. Apparently, the Germans at Kalach had not grasped as yet the full significance of the break-through and did not show any particular signs of alarm. Local inhabitants still could cross the bridge freely, without even showing their documents to the sentries. German tanks and automobiles still crossed the bridge with lights.

This information augured well for the success of Philipov's assignment. About 5 o'clock in the morning, still in complete darkness, his small detachment left on its dangerous mission. He was instructed to proceed in regular German marching formation with all lights on.

About half an hour later, the main columns of the XXVI Tank Corps also moved out. The German defense zone was soon reached and here, at daybreak, the most stubborn fighting of the raid began. One after another, the numerous German strong points were subdued, and several villages in the fortified zone were stormed by the left column of Major Philipenko.

(These two Commanders, Philipov and Philipenko, with their similar names, created a good deal of confusion in some of the Soviet accounts. Philipov commanded the advance detachment of five captured German tanks sent ahead to secure the Kalach bridge. Philipenko commanded the left column of the main spearhead formed by the XXVI Tank Corps.)

The two most important villages—Plesistov and Katchalinsky—were taken by Philipenko's column in deep turning movements. By the middle of the afternoon, the German resistance was broken.

The tension at headquarters, though, was not relieved. Hours passed without any report from Philipov, and the anxiety for the fate of his detachment mounted. Finally, it was surmised that his mission must have met



Battle scene from official war film "City That Stopped Hitler."

This picture shows cavalry in action south of Stalingrad where it was used with tanks to form the southern pincer.

¹For a more detailed account of this particular action, see General Rodin's article, "Tank Operations in the Enemy's Rear," January-February CAVALRY JOURNAL.



Battle scene from official war film "City That Stopped Hitler."

Tank reinforcements are shown moving to the front during the Stalingrad offensive.

with failure, and Philipenko's column was ordered to proceed to the crossing immediately and to relieve his group, if it were not too late.

At 5 o'clock Philipov's report finally came in, and the spirits in headquarters soared. His raid was a complete success. The small detachment had gone through the German lines with perfect ease, without eliciting any suspicions, and made a non-stop run from Ostrov right to the bridge. Neither were they stopped by the sentries at the crossing. The leading tank, with lights blazing, was midway across when the Tommy gunners from the following tanks jumped off and took care of the German sentries. As a matter of fact, this achievement proved to be the easiest part of Philipov's task.

After the bridge was captured, Philipov immediately organized an all-round defense and none too soon. The baffled Germans quickly recovered and launched a counterattack from Kalach on the eastern bank of the Don. At the same time, some German units, retreating down the western bank, much to their surprise found the Kalach bridge in Russian hands and attacked from the western bank of the Don on Philipov's rear. From daybreak until the middle of the afternoon, the little group fought alone. Then Philipenko, breaking through from the west with the left column of the XXVI Tank Corps, joined forces and the fight continued until darkness.

THE THIRD NIGHT

The main forces reached the Don soon after darkness. By that time the German counterattacks from Kalach, directed against the little group defending the bridgehead, began to weaken. The arrival of the main column of the XXVI Tank Corps* broke them up completely, and fighting ceased shortly after midnight. The rest of the night was spent in organizing the attack on Kalach, getting artillery into positions, etc. Early in

the morning, the attack on the town started with Philipov's and Philipenko's units still in the vanguard. Kalach was taken shortly after 10 o'clock in the morning, and the German garrison began a hasty and disorderly retreat. The first stage of the break-through was completed.

ADVANCE OF THE SOUTHERN Pincer

The advance of the southern group, whose spearhead was the XXIV Tank Corps,* which started almost simultaneously with the northern group, was equally successful. On this sector, the main German defense zone was sited along the chain of lakes which run in an almost straight line south of Stalingrad.

The two raids were very similar in their main features. Such fighting as took place at night was invariably successful, and the main German base in the southern sector—the town and railway station of Abganerovo—was reached and successfully stormed, according to plan, at just about the same time that the northern group near Kalach. The amount of matériel captured at Abganerovo was enormous.

Although few details are yet available, it is known that one factor, which was absent in the northern part of the offensive, played an important rôle in the advance of the southern group. The tanks of this group were closely followed by large cavalry formations which, according to the Soviet's accounts, brilliantly fulfilled their task of securing the territory gained by the mechanized thrust and completed the German rout.

Exact accounts of what happened on the next day are not available. It seems, however, that both Corps, which blazed the trail for the great encirclement, were relieved by other formations almost immediately upon reaching their key objectives. It is known, at least, that two pincers around the German Sixth Army came together either late on November 23rd, or in the early hours of the 24th, somewhere south of the village of Marinovka, west of Kalach.

*The XXVI Tank Corps was later changed to the I Guard Tank Corps; and the XXIV Tank Corps to the II Guard Tank Corps.

Red Cavalry Plays Vi

The most powerful cavalry on earth, combined with air and armor in summer, successfully combats enemy panzers—and drives en masse in winter in pursuit and defeat of retreating Germans.

THE Red Army had at the start of this war, and still possesses, the most powerful cavalry force on earth. Strong as it was at the start of hostilities, it is today in even better shape, thanks to its extensive reorganization, accompanied by the widespread introduction of more powerful weapons and the increased use of motor transport.

While in many armies world-famous cavalry units with long and honorable traditions have been mechanized during this war and have abandoned horses, the contrary is true of the Red Army, which has maintained the cavalry as one of its most important arms.

CAVALRY VITAL IN PURSUIT

Cavalry has been exceedingly useful, not only as a scouting element both for ordinary reconnaissance and for combat reconnaissance, but as a pursuit force in the winter offensives, which perhaps have furnished its most dramatic rôle.

Main bodies of cavalry have not usually been mixed with other branches of the army, but have been held in reserve for pursuit at the ripe moment, when, after Soviet tanks and infantry have smashed the enemy line, saber-bearing horsemen have ridden after the fleeing enemy.¹ There have even been cases where Soviet cavalry has successfully attacked armored forces.

The Axis does not have any cavalry comparable in quantity to the Russians. When the Moscow counter-offensive opened in December, 1941, Soviet horsemen, plowing through snowfields and woods, were able to out-maneuver the enemy who were limited to the highways.

AIR-ARMOR-CAVALRY IN COLLABORATION

Pursuit operations are somewhat more limited in summer than in winter, and at this time of the year have far more favorable chances of success in wooded areas, where cover is available.

However, as one of the movements toward making Red cavalry more efficient since 1941, it has been trained to work with armor, and now on many special missions horsemen and tanks are collaborating and both

are receiving air support. This has produced the combined use of two of the newest and one of the oldest branches of the military service, in what the Red Army reports to be a most effective fashion.

Such forms of mixed collaboration are employed by the Red cavalry, especially in summer, when armor is not so limited to road communications, and these strange triangular combinations of air, motor, and horse have more than once given battle with success to enemy panzer units. In such instances, the Russian horsemen, bearing long-barreled antitank rifles as lances while mounted, dismount and become antitank units.

RECONNAISSANCE BEHIND ENEMY LINES

On many reconnaissance parties, Red cavalrymen using radio transmitters, have been able to penetrate far behind the German lines and, working almost as guerillas, have caused considerable havoc and transmitted important information to their headquarters. In such cases, the Red air force frequently assigns a few planes to keep an eye on them.

"Numerous examples of well-conducted mounted reconnaissance have insured the success of major operation," one Soviet military expert says. "The most important factors in its favor are the great mobility of the light mounted force, as well as its ability to penetrate far deeper into the enemy's positions than any infantry scouting detail could."

Remarking that even heavily held sectors are not proof against Red cavalry penetrations, he describes one guerilla-like operation in which a large cavalry formation was ordered to break through to the Germans' rear and straddle and disorganize their communications. The operation was preceded by several days' scouting afoot by cavalrymen probing the mine fields and other defenses. Then they slipped through one night as a mounted force.

After locating the enemy's main concentrations and headquarters and radioing the information to their command, the scouts conducted a raid on the enemy headquarters as British Commandos do. The operation was successfully carried out on foot with machine guns and hand grenades. Then the Cossacks remounted and returned to their own lines without a single casualty.

*Moscow correspondent of the *New York Times*.

¹See "Encirclement at Stalingrad," page 38 this issue.

tal War Role

by Cyrus L. Sulzberger*

Other operations of similar type have been reported in which mounted machine gunners and mounted sappers—both pertaining to cavalry units—have conducted raids deep in enemy territory and blown up bridges and railway communications. In some instance such raiding forces have taken along artillery as well as small arms.

NEW ORGANIZATION AND MODERN WEAPONS

Since the start of the war, many new weapons have been distributed wholesale among cavalymen. These include thousands of tommy guns, many of them American models. The cavalry has received quantities of heavy machine guns and automatic rifles similar to the American Garand. Also in use are vast quantities of "tachanka" carts, drawn by three horses and bearing machine guns.

One thing that has greatly improved the power of Red cavalry is the widespread introduction of antitank guns, both heavy and light. The latter type—long-barreled antitank rifles—are carried by horsemen in the same fashion as the old lance. Sometimes there is confusion among persons seeing the Red cavalry from afar or in newsreels. Other antitank weapons used are the 37mm, the 45mm, and the new 50mm guns mounted on wheels.

COSSACKS STILL HEART OF CAVALRY

The heart of the cavalry is composed of the famous Cossacks of the Kuban and the Don, but it includes many horsemen from the eastern Soviet republics. The

EDITOR'S NOTE

This excellent article on Red Army cavalry has been compiled from two press releases, wirelessly by Mr. Sulzberger from Moscow to the New York Times (June 14 and 15, 1943), with whose gracious permission the combined material is reprinted here.

Mr. Sulzberger has represented the New York Times in Russia since July, 1941. His observations and keen analyses of the phenomenal rôle of cavalry in the successes of the Soviet fighting machine are a valuable contribution to the annals of modern war.

cavalymen's eastern ponies of Mongol type are tough, stocky horses that can endure much hardship. The ordinary Russian and Cossack stock has Arabian blood in it. When necessary, both types of horses can live off the country for long stretches, except when the ground is covered by snow.²

Red cavalry remains a separate force, well handled generally and used en masse only in winter and at the right tactical moment. The old cavalry, hampered by horse-drawn baggage trains, has been largely eliminated by the gradual introduction of motor transport. Today, within a range of 150 miles, it can be just as mobile as any other troops, thanks to trucks. This new tactical mobility is a big advantage.

²See "The Campaign Horse," May-June, 1943, issue, The CAVALRY JOURNAL.

Cossacks attack in the area west of the Don. Such attacks are often supported by tanks and air power.

Sovfoto.



Employ

A Cossack antitank crew on the move. Note long barrel antitank rifle.



by
Colonel General
O. Gorodouikov

Although the modern Cossack may also be a mine layer, an artilleryman or an antitank gunner, he is still an incomparable scout. This picture shows a Cossack patrol setting out on reconnaissance.

THE domination of the motor in modern war, the development of aviation and mechanized forces, and the increased fire power of all arms, naturally have affected considerably the tactics of cavalry and the methods of its employment in battle. To a certain extent, cavalry lost its operative independence. Still, as the progress of the war has shown, it continues to play a prominent and important rôle on the battlefield.

INDEPENDENT MISSIONS

In the past, large formations of cavalry carried out operative assignments independently. Often it broke away from its main force as far as sixty to seventy-five miles and raided the enemy's rear for days, and sometimes for weeks. Now, to gain the greatest amount of success, cavalry fights in constant contact with other troops in a combined frontal effort. Usually, cavalry is thrown forward to distances of twenty-five to thirty miles, to strike the flanks or the rear of the enemy. Good examples of these tactics are the actions of the large cavalry formations of Generals Bolov, Dovator, Kruchenkin, and Kirichenko.

It is possible sometimes for large cavalry formations to carry out independent operations even farther away from the main forces; but in such cases, cavalry must be heavily reinforced by other arms—motorized infantry, tanks, artillery and aviation. In the absence of such

reinforcements, there must be a certainty that the enemy is sufficiently disorganized and unable to maintain a stubborn and well-knit defense.

The experience of past wars has shown that the main tactical principle in the employment of cavalry should be *the use of large formations for massive blows at the enemy*. This has been confirmed by the experience of the present war. In its first period, we had several examples of simultaneous employment of large cavalry formations on one hand, and of separate cavalry divisions on the other—divisions frequently lacking in fire power and team work.

Sometimes these divisions were given to army corps or army commanders to carry out assignments of secondary importance, such as protecting the flanks and providing security measures on some sectors or directions. This method of using cavalry seldom if ever brought positive results. Scattered cavalry quickly lost its hitting and staying power. Even in the initial period of the present war, it became clear that the only correct employment of cavalry is the use of large formations, reinforced by combat teams of all arms.

FRONTAL ATTACK IN COÖRDINATED ACTION

In offensive operations, these formations are most effectively used on the flanks for a blow at the enemy's main group, with a view to penetrating into his depth up to thirty miles. A close coördination with other arms

*Translated from *The Red Star* by Nicholas Corotneff.

ment of Cavalry in Battle^{*}

engaged in the frontal offensive is absolutely necessary. The general idea of such tactical teamwork is to strike simultaneous blows from different directions. Examples of successful actions of this kind are the offensives of General Belov's corps from Kashira to Stalino and General Kruichenkin's corps from the area of Kastornaya to Livni and Rossosh. By these blows, the main groupings of the enemy were shaken, rear organizations and ground centers disrupted, and the advance of our forces engaged in the frontal assault was greatly facilitated. Eventually, by combined efforts, the main German group was annihilated. In both instances, cavalry actions were continuously coordinated with the frontal advance of our troops. This was the most important factor for insuring success.

After the hostile defense is broken through by the infantry, the success is best developed by throwing into the gap a powerful mobile group of cavalry and mechanized forces. The battle in the depth of the enemy's defense must be planned so that the contact and coordination of the mobile group with the elements engaged in the frontal advance is continuous and uninterrupted. Practice shows that mobile groups which lose this contact are usually unable to achieve tactical success.

The break-through should be from nine to twelve miles wide, and after cavalry and mobile groups move in, the elements engaged in the frontal advance should strive to widen the gap and to repulse the enemy's counterattacks from the flanks.

It is one of the most important duties of the command to see that cavalry groups going into the break-through should be reinforced adequately by antiaircraft defense and units of engineers. Care should be taken to insure the flow of supplies and matériel, and the maintenance of liaison with the rear. To leave the advancing mobile groups without ammunition, food, or fuel is to doom them to destruction. To rely on local supplies only is out of the question.

MOBILE RESERVE

In long drawn out and stabilized defense operations, cavalry is best employed as a mobile reserve of the front commander. Together with other reserves, it may be thrown into action to liquidate the enemy's hostile forces which succeed in breaking through, or it may be kept on hand for future offensives. In the First World War, cavalry was successfully used in this

fashion on several occasions. Similar examples can be found in the present war. In the summer of 1941, when the Germans broke through at Pervomaisk, the Second Cavalry Corps rushed from another sector, made a sixty mile march, and struck the advancing Germans a surprise blow of such power that their drive was checked at once and then turned back at Balta. Another excellent piece of work was a similar action of General Dovator's cavalry corps in the approaches to Moscow.

In a maneuvering defense Cavalry fights for important boundaries, protects the flanks of the armies, and covers important operative directions.

During the 1942 summer campaign on the southern front, the Cossack corps of General Kirichenko gave a brilliant example of well organized and active maneuvering defense. Skilfully combining a stubborn defense with bold and determined counterattacks, the Cossacks not only succeeded in checking the enemy on the boundaries held, but inflicted heavy casualties and captured booty and prisoners. The Cossacks fought under adverse conditions and against a numerically superior enemy. In these engagements, cavalry once more proved its ability to fight successfully against mechanized forces.

In every engagement, cavalry must preserve its mobility. This mobility is greatly impaired when cavalry fights in a frontal line with other troops. A frontal

Cossack machine gunners move to a new position on foot. Cossacks often fight dismounted. These are identified by their uniforms.



command which puts cavalry into the line deprives itself of mobile reserves capable of executing a swift maneuver, often necessary to liquidate a break-through or to switch to the offensive on some sectors of the front.

In the course of successful development of large offensive operations, cavalry can be used to create an advantage for the pursuit and annihilation of the retreating enemy. Instances are known, however, when under such circumstances, cavalry commanders, carried away by their enthusiasm in pursuing the enemy, did break away from the main advancing group, which could not keep pace with them. As a result, the coordination was disrupted, the pursuit gradually died down, and some cavalry units found themselves in a critical situation.

MANEUVERABILITY AIDS SURPRISE ACTIONS

The present war abounds in examples of successful use of cavalry in the enemy's rear. This method of using cavalry necessitates its equipment with special technical means and matériel. The trains must be light and cut down to a minimum; mortar and automatic arms greatly increased.

Cavalry units are not tied down to specific areas and inhabited points. Flexibility and concealment in maneuvering are most important because this enables them to surprise the enemy and appear unexpectedly to strike at his most vulnerable spots. Surprise actions, especially night raids and ambushes, are the basic methods of fighting in the enemy's rear.

To choose the best and most advantageous direction for penetration to the main objective often decides the success of an operation. In this respect, engagements of General Kruichenkin's cavalry corps in the operations of Eletz are most interesting. The cavalry went into action on the sector where the Germans had rather weak forces, and had no fortified positions. This insured a complete freedom of maneuver. The corps had no difficulty in penetrating into the rear, and thus its mission in the first stage of the operation was successfully fulfilled. At the next stage, the cavalry became engaged in a thickly populated area where numerous inhabited points were solidly fortified and held by substantial hostile forces. The maneuvering ability of the cavalry units thus was cramped and the corps became involved in a series of indecisive actions, tied down to the same area for several days.

BOTH MOUNTED AND DISMOUNTED ACTION

It must be taken into consideration that, if in former times cavalymen went into action mostly in mounted formation with a cavalry charge as an ultimate objective, now they maneuver on horse, but fight, as a rule, in dismounted formations. This does not mean that bold cavalry charges, swift and unexpected, have become impossible. When the enemy is taken by surprise, when his fire system is not yet organized or is already disrupted, when the enemy is demoralized by

our fire and held by frontal actions of infantry and dismounted cavalry, then cavalry can and must charge daringly and, supported by tanks, aviation and artillery, must annihilate the enemy by fire and saber.

The Guard Cossack Division commanded by Major General Toutarinoff was assigned to hold an important defensive boundary. The advancing Germans had considerable numerical superiority. Discovering the junction between the advancing German units, during the night the Cossacks left a small covering force, on the front, while the main striking force of the division penetrated into the rear of the enemy's main group. At dawn, they went into a dashing cavalry charge, cut off the German infantry from their tanks, and, supported by our other units, they completely smashed a (SS) unit and a fourth regiment of mountain rifles. Three thousand German officers and soldiers were killed in the charge.

Many other examples of skilful cavalry charges were made by General Kirichenko's forces in the fighting on the Southern Front. Several times the Cossacks cut their way through the enemy's formations and inflicted heavy casualties. This shows how important it is to combine skilfully the fighting on foot with cavalry charges, and to be able to switch quickly from one to the other. This is one of the most important secrets of successful cavalry leadership on the battlefield.

CONCLUSION

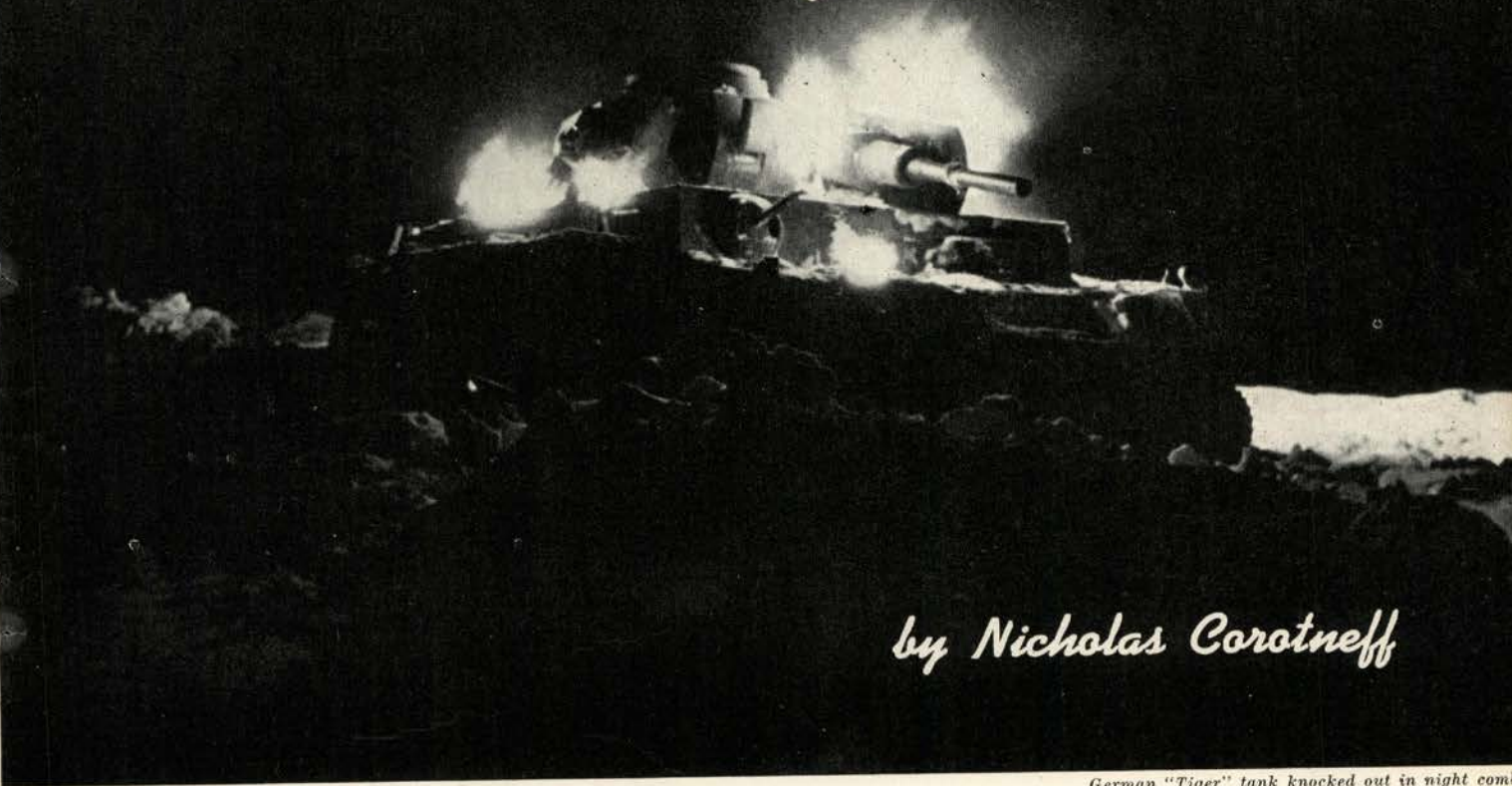
In engagements of a maneuvering character, the mobility of cavalry must be exploited fully with a view to striking surprise blows at the most vulnerable spots. For instance, it always brings good results, after breaking off the battle suddenly in one sector, to regroup the cavalry under the cover of darkness in an area eight to ten miles away, and then strike quickly an unexpected blow on the enemy's flank from a new direction.

Experience shows that the main forces of large cavalry formations should not become entangled in long drawn out engagements in the same sector, as this paralyzes its mobile power and dooms it to tactically passive actions.

Security in general, and antiaircraft defense in particular, is of especial importance for cavalry. Its most dangerous enemy is hostile aviation, especially in an open country. Cavalry must be trained in the use of every possible method of concealment, and should be able also to disperse quickly. When the enemy's aviation attacks cavalry on the march, all means of fire power, antiaircraft guns, machine guns, antitank rifles, and rifles must be used fully.

As far as antitank defense is concerned, the experience of the latest campaigns shows once more that even with their own means only, cavalymen can successfully repulse motorized attacks if such means are skilfully used. If the cavalry is reinforced by tank units and artillery, it is capable of striking very telling blows to stop the enemy's advance, and hurl it back.

Tanks in Night Combat



by Nicholas Corotneff

German "Tiger" tank knocked out in night combat

FOR years before the war, one of the most controversial questions of the mechanized tactics of the Red Army, endlessly discussed and argued about, was the question of the feasibility of using tanks in night action.

The majority of officers of the mechanized forces steadfastly maintained that the use of tanks in night combat was extremely dangerous and that, great as its moral effect on the enemy might be, it was more likely to lead to a disaster than to success. As one of the Russian tank commanders put it—"A tank in night combat has no more chance than a blind man in a street brawl."

The difficulties of mechanized operations in darkness, or under conditions of poor visibility, are, naturally, obvious. On the other hand, many tank units in the Red Army, over a period of years, conducted tests and experiments to show the possibility of successful tactical operations by mechanized units at night.

Probably the most painstaking and successful experimentation was carried on by the Siberian Army, or as it is officially called, the Far Eastern Red Banner Army. Their tank formations were almost exclusively recruited from local inhabitants—nearly all of them experienced hunters and trappers—who felt perfectly at home in the Siberian wilderness under any weather conditions and at any time of day or night. Night drills and maneuvers were widespread in Siberian tank units and their drivers

accumulated vast experience in night movements across the country.

This experience proved to be an invaluable asset in several engagements which these tank units fought with the Japanese during the so-called "border war" of 1938-39, following the occupation of Manchukuo by Japan. Some of these actions were mere skirmishes; some, pitched battles involving divisions and army corps. Officially, all of them, however, were classified as "border incidents."

The most important of these "incidents" was fought on the river of Khalkin-Gol, near the Mongol-Manchukuo border, August 20-28th, 1939. The Japanese who were decisively beaten, lost 18,000 men killed and wounded and a large amount of matériel. To a great extent the Russian success was due to their mechanized units. According to orthodox logistics, these units, being several hundred miles away in the Chita district, could not possibly get to Khalkin-Gol in time. Siberian logistics, however, proved to be quite unorthodox. They were based on day and night marches, over a most difficult country—marches which the Japanese considered unfeasible. The appearance of the Russian tanks on the battlefield in large numbers came as a complete surprise to the Japanese command, and contributed greatly to the Russian victory.

However, successful as some of these experiments

were, they failed to convince the majority. Army regulations pertaining to mechanized operations—stressing the importance of developing the ability to execute long marches and movements at night, with and without lights—practically left out tactical operations by dismissing them with a few vague generalities.

In 1934, a remarkable treatise on mechanized warfare was published in Germany by a former Austrian Artillery General, Ritter von Eimannsberger, under the title of, "The Tank War." It made a great impression both in German and Russian military circles and, to a certain extent, considerably influenced the development of mechanized doctrine. Eimannsberger's influence, however, was more organizational than tactical. His tables of organization for panzer divisions no doubt played a considerable rôle in the final makeup of these divisions which emerged on Poland in 1939. With a few deviations, their elements bore a striking resemblance to Eimannsberger's blueprints.

Eimannsberger also laid the groundwork for the modern antitank defense, although, naturally, at that time the concept of antitank defense was purely along artillery lines. The possibility of fighting tanks with close combat weapons was not even considered. The Spanish Civil War brought the first pioneer efforts in this field.

On the other hand, the tactical views presented by Eimannsberger were unanimously rejected by the German tank experts. He failed completely to grasp the most important principle underlying the *blitzkrieg* tactics, which is a battle, or rather, a series of battles, on a narrow front, each one devised so that the full weight of the armor could be concentrated against a weak spot in the enemy's defense and just as quickly changed to another spot if the resistance at the original point of thrust proved to be unexpectedly strong. Fluidity and flexibility in a tactical sense, combined with the idea of encircling the enemy by means of two or more converging attacks, can be called the essence of the *blitzkrieg*.

Eimannsberger's battle is titanic in scope, but hide-bound and pedestrian in its tactical and operative concepts. In his blueprint of a great tank battle of the future, he concentrates 5,000 tanks in the break-through echelons alone, with many more in the exploitation force, followed by 10 to 20 motorized divisions. All this takes place on a front 20 to 30 miles wide and is conceived as an operation on diverging lines. In other words, it is just a mechanized version of the great artillery break-through attempts of the First World War. In his description of this battle of the future, Eimannsberger confronts his supreme commander with the necessity of quickly solving two vitally important problems which come up just before and during the battle. A dense fog hangs over the battlefield on the morning of the break-through when all the preparations are made and his thundering torrent of steel and fire is about to deluge the enemy's line. Should he go through with the attack, or wait for the fog to lift? Unhesitatingly, he decides to wait; and the greatest mechanized army

ever assembled—in human imagination—remains in frozen immobility for almost three hours until the fog lifts completely.

The break-through is a complete success. Motorized divisions begin to pour into the gap made by the giant battering ram.

The battle, delayed by the fog, rages all day. Darkness falls over the battlefield, and the forward echelons of panzers, far behind the smashed lines, are fanning out and completing the rout. What shall the commander do—order them to keep on going, or stop them until daylight? He decides upon the latter, and the pursuit is stopped entirely all over the battlefield until the next morning.

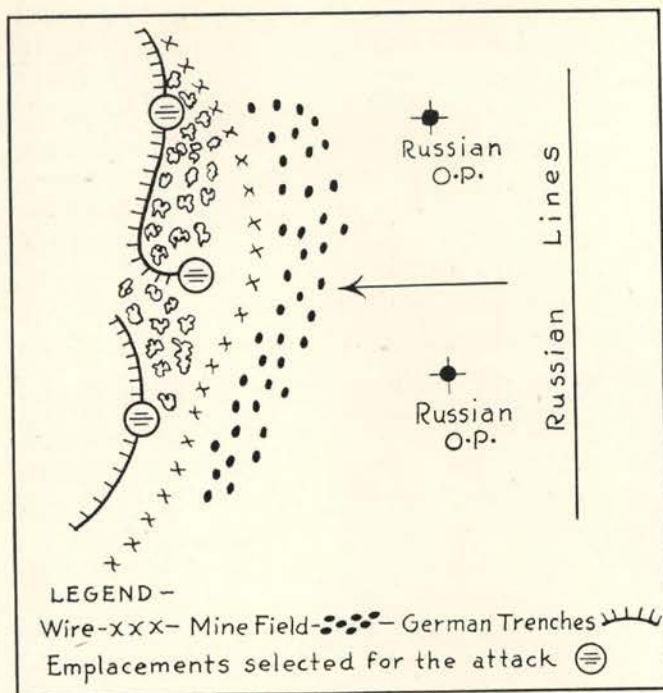
Eimannsberger's description is characteristic of the viewpoint that prevailed in his time in both the German and Russian Armies. He has no doubts or hesitations in gambling his huge tank force on one stake and cheerfully disregards the fact that in case of failure, his mechanized hordes could not be disengaged without courting total disaster. He boldly puts all his eggs in one giant basket. But he is convinced that darkness or fog are insuperable handicaps for tanks and there is no use of taking any chances.

Eimannsberger's book, translated into Russian in 1936, sold over 60,000 copies and was much discussed in the Red Army. Several of his ideas on the organization of antitank defense were carefully noted by the Soviet High Command and, to a certain extent, reflected in the Field Service Regulations of 1936, which were still valid when the Red Army started to the war. There is no doubt that the prejudice against the use of tanks at night was also strengthened by his book's influence.

The beginning of the war, apparently, saw no changes in this viewpoint. At least no reports of mechanized night operations in 1941 are available.

Beginning from the summer of 1942, however, a definite change in the Russian attitude seems to have taken place. The question of mechanized night actions has been reconsidered in the light of the actual war experience and the tremendous development of night combat in general. The trend now is in favor of using tanks at night extensively and exploiting to the full the overwhelming element of surprise inherent in the mechanized attack in darkness. The time when tanks operated only between daybreak and sundown is definitely past.

The first night actions we know of bear the earmarks of careful, well planned experimentations. They are laboratory tests laying the preliminary groundwork for bigger operations to come. It is also interesting to note that, as far as we know, these actions were carried out on almost every front, except the Stalingrad sector where, in November, the great break-through took place. Apparently, on this front, the Russian High Command was bent on building the element of surprise to its greatest possible extent and did not want to put



the Germans on the alert by giving them a foretaste of the new mechanized tactics to come.

In the change of attitude on the question of employing tanks in night combat, one factor, undoubtedly, played a considerable rôle. The great difficulties attending the operation of tanks in darkness were even increased in the Red Army. The main stumbling block of night operations—the difficulty of keeping on the course and locating targets—was rendered even more difficult by the inadequacy of Soviet radio equipment. At the beginning of the war, it proved to be one of the main technical weaknesses of the Russian Army. Radio equipment was insufficient in quantity, and a great many commanders were completely unfamiliar with it. Therefore, they were sometimes reluctant to use it even when it was put at their disposal.

Only the minority of Soviet tank formations were equipped with radio sets in 1941. In the units assigned to work with infantry, even tanks of company and battalion commanders often lacked them, and only in the summer of 1942 was this deficiency gradually eliminated.

By the beginning of the 1942 winter offensive, all independent tank formations were equipped with radio sets. Still, the reform was not complete. As late as in November and December of last year, several reports in the military press clearly indicated that many infantry tanks still operated by visual and sound liaison alone. For instance, in one report describing the combined operation of infantry and tanks, the failure of the latter to execute their mission is traced to the fact that it took the tank battalion commander 45 minutes to transmit his orders from his advanced O.P. to his companies a few thousand yards behind. It is clear how the element of chance is increased at night under such conditions.

Following are translations of two accounts dealing with these first experimental night actions, with strictly limited objectives:

I. A Trench Raid

On one sector of the Western Front, several Russian attempts to capture prisoners for purposes of information (called in the Red Army, "control prisoners," or "tongues") failed consistently. The German defense lines were strongly fortified, extensively wired, and had mine fields in front of them everywhere. Their troops were alert, and an excellent system of sound and light signals spread the alarm all along the line as soon as one of the Russian raiding parties approached. It was decided to try a new expedient—a trench raid by a tank landing party. This method promised the benefits of a completely unexpected blow whose moral effect was likely to be stunning.

The drawbacks, on the other hand, were equally obvious. To drive a tank in darkness through a mine field and aim at one particular spot in the enemy's line was no easy matter, and a most careful preparation was needed to insure the success.

After a study of the terrain and the enemy's forward line, the objective for the raid was selected—a machine gun emplacement, with a shelter for the crew, sited on the skirt of a small wood in front of the German trench lines. A continuous day and night observation was established from two points. Officers in charge of the preparations supervised the two scout pairs and paid them frequent visits. The carefully kept logs were collated each day, and the officer in charge of the raid spent a great deal of time at both O.P.s.

It was established that the garrison consisted of five Germans. Usually only one of them stayed at the machine gun; the rest, except for the usual occasional errands, stayed in or behind the shelter. The latter was well built and equipped with a stove, which the Germans kept going all night from dusk until dawn. Behind the shelter a deep trench running to the north, connected the emplacement with the rest of the defense system. There was no trench to the south, which led the Russians to believe that the emplacement was a junction between two separate units. (See map.)

It was observed that shortly before 19:00 o'clock all of the Germans invariably gathered in the shelter and stayed inside for some time, apparently enjoying their supper. It was decided to make the raid at this time. It was the darkest hour of the evening, and the raiders could be sure of finding everyone at home.

Two tanks were assigned to the action, and a landing party formed of eight picked men, all experienced in scouting and close combat. Then preparations for the raid started.

Reconnaissance parties of engineers covered by infantry scouts spent three nights establishing the exact location of the mine fields in front of the enemy and de-mining them. On the last night the engineers were

joined by tankmen who went carefully over the proposed route of the raid, studied the landmarks which could guide them in the dark and made a detailed map. They also spent a whole day at the O.P.s studying the objective and the Germans' everyday routine.

In the meanwhile, preparations went on in the rear also. There, a section of the terrain was selected similar to the one to be attacked and a replica of the emplacement, shelter, and part of the trench was built. Then a painstaking training of the tank crews and landing party began. Every stage of the operation was gone over and over again—mounting, dismounting, the dash across No Man's Land, assaulting the shelter, mounting again, and then the final dash down the home stretch. The signal system was gone over till every participant knew it by heart. Finally, as each stage of the operation was worked out to perfection, a dress rehearsal with live ammunition and grenade-throwing, took place on the last day.

On the day before the raid, the battery commanders and the commanders of the mortar units were summoned to the observation point. They were shown the targets which they had to suppress before the raid and were made to study the time-table and system of signals to be employed during the operation.

As the result of all these activities, the plan of the raid, containing detailed instructions for all participants, gradually fattened and grew to the size of a miniature manual. Here is the outline of the plan: The opening signal, "series of red rockets," would be fired from the company's C.P.; then the supporting artillery, reinforced by two companies of 80 millimeter mortars, would open a 3-minute barrage on designated targets to the right and to the left of the objective. At the same time, one tank with a landing party would rush toward the objective at full speed, while the other tank would follow behind to a landmark approximately half the way across and would stay there to support the attacking tank, if needed. The landing party would assault the shelter, capture the "tongue," fire the signal, "series of green rockets," and retreat to the tank. At this moment, artillery and mortars would open another barrage. This time, a part of them would fire at the same targets, while the other part transferred its fire to the depth of the German defense. On their way home, the tanks were to be guided through the mine field by two lighted torches placed at the end of the mine-free corridor the minute the second barrage was opened.

Everything went "according to plan" and fell only one minute behind schedule. The forward tank crossed No Man's Land and reached the objective in 1 minute, 30 seconds. A hail of hand grenades fell upon supping Germans. The first one to rush out (a corporal) was captured. The rest of the post was wiped out. The whole operation took exactly 15 minutes. The Germans were completely overwhelmed by the surprise and swiftness of the assault.

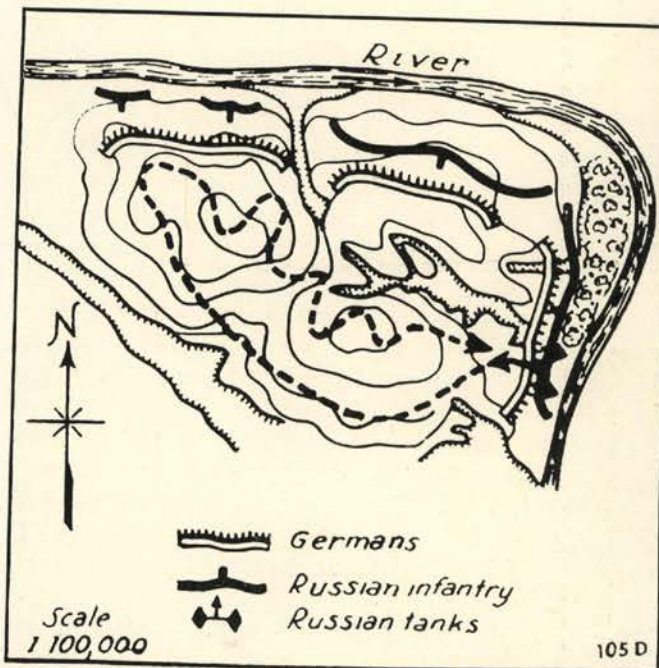
German Artillery opened up a minute after the land-

ing party returned. After that, apparently anticipating a large scale Russian attack, they kept up an intensive fire in which all weapons joined all along the sector for almost 20 minutes. No casualties were inflicted by this belated retaliation which, in fact, proved rather helpful in establishing the German fire system in greater detail than had been known before. The landing party had two men wounded.

It was agreed that the complete success of the raid was due entirely to careful preparation and painstaking attention to the smallest detail.

II. Night Attack On A Fortified Position

On a sector of the Central Front, where a period of stalemate had existed for several weeks, the Germans occupied tactically important heights on the right bank of a river, while the Russians held a narrow strip of this bank down in the valley. (See map.) The German positions afforded an excellent field of vision of both river banks and a good field of fire. Tactically, this situation was rather typical of the Eastern Front, as the majority of Russian rivers run North and South and, as a rule, the western bank is the high one. The Germans, in their advance to the East, always had this advantage.



Several times the Russians tried to break this stalemate, but every attempt to take the height was repulsed. The Russian Command finally decided to try a night attack in which tanks participated. At night a tank unit was ferried across and concealed in the woods in the bend of the river. (See map.) As usual, in Russian accounts, the size of the unit is not specified, but judging from the description of the action, it can be assumed to have been a battalion.

All of the next day was spent in studying the terrain to determine the battle course for the tanks, organizing

the liaison and the signal system, and perfecting the plan of coördination between the different arms assigned to the action. In determining the best course of attack for the tanks, the morale factor was considered to be of prime importance. In order to enhance the element of surprise and confusion which, in the estimation of the Russian Command, the unexpected night attack by tanks was likely to create, it was decided to launch them on a wide sweeping curve to the south and southwest to create the impression in the minds of the defenders that they were being encircled by large mechanized forces.

The tanks were deeply echeloned. The first echelon consisted of heavy tanks; the second, of light tanks with landing parties of 4 to 5 Tommy-guns on each. The tanks of the third echelon had infantry guns and anti-tank guns in tow. Their gun crews mounted the tanks. Shells were also carried on the tanks.

Before the attack, the Russian artillery opened a barrage at the forward edge of the German defense, and the fire then gradually crept into the depth and covered the possible roads of retreat. The signal for opening the barrage was given 30 minutes before darkness fell. This was considered to be just sufficient time for the tank echelons to pull out of the wood, reach the departure line of the infantry units, and take their place in the van of the attack.

A full moon facilitated the movement of the tanks. As soon as they reached their assigned place in front of the infantry, they opened up with all weapons. Outside of firing at the flashes of German guns, they were also helped by the light signals of the infantry which designated some of the targets.

Unfortunately, the Russian account¹ is somewhat vague as to the course of the battle. It states: "Pressed simultaneously from the front and the flanks, the Germans started a hasty withdrawal. The infantry following the tanks destroyed the retreating enemy and his fire means. The German artillery kept up a disorganized, unaimed fire, sometimes firing at their own infantry. Not a single tank was hit." Immediately after, however, the account states that the battle lasted for four hours until finally the tanks and the infantry gained complete possession of the heights. After that, "... the tanks maneuvered along the south and southwest slopes of the heights to give the infantry the opportunity of consolidating and fortifying the newly-won positions."

Apparently, the German retreat was not so panicky after all, as four hours seem a rather long time for a "local withdrawal"; and the cruising of the tanks after the battle tends to show that the Russian Command expected immediate counterattacks. These attacks, as the account itself reveals later on, did in fact materialize, were numerous and are described as varying in

strength, sometimes up to a regiment. It seems, however, that they came after a considerable interval, possibly even the next day. All of them were repulsed.

Apparently, tanks did not participate in these subsequent actions. They retired to the woods for refueling and replenishing ammunition after it became clear that the position was securely held. They found there a maintenance detachment and supply trucks which had been ferried across the river while the action was in progress. The account states that the Germans left several hundred dead on the battlefield and a great deal of equipment. Prisoners (whose numbers are not specified) stated that "the attack was completely unexpected, and the surprise was over-whelming. The Germans thought they were completely encircled, and whole units became disorganized and took to flight."

Russian casualties are not mentioned, except for the fact that no tanks were disabled.

Vague as the account is, there seems to be no doubt that a decisive tactical success was attained; that the use of mechanized forces was the factor that insured it and thus broke the stalemate which repeated infantry attacks along more standardized lines had failed previously to achieve.

It is also stated that in the ensuing days, several similar attacks were made on this and several other sectors of the front and that all of them were successful and achieved results with negligible tank casualties.

The experience of these actions leads the Soviet reviewers to the following conclusions:

(1) Night attacks should be staged on moonlit nights when it is easier for tanks, as well as for infantry, to orient themselves and when the latter can help the tanks to locate targets and keep on the right course.

(2) Tanks should be deeply echeloned. Movement on a narrow front is not only easier in darkness, but creates in the mind of the enemy the impression of a great concentration, as they cannot estimate the number of tanks employed as easily as they can when dealing with a linear formation.

(3) Upon reaching the final boundaries of the attack, the tanks should not stop, but should continue to cruise around occupied positions to give the infantry the necessary time to consolidate.

(4) In night action, tanks need the assistance of infantry much more than in the daytime. Therefore, they should stay with the infantry throughout the engagement and, under no conditions, break away from it.

These two accounts illustrate how the first experiments, involving the new tactics of mechanized operations around the clock, were carried out.

From such unfortunately meager material as is available, it seems evident that lessons learned from such experiments as these were later applied in the great Stalingrad offensive, where tanks in night combat played a most important and decisive rôle.

¹Written jointly by Major Jeguillo and Major Katzenelson.

German Aerial Reco

EVERYTHING that will shorten the time required for reconnaissance and preparation must be utilized. The aerial photograph is one of these things. It can be of great assistance to the commander of troops. It shows changes that have been produced in the surface of the terrain, either by nature or by the enemy, in time of war or peace, that are not or cannot be shown on the map made earlier. . . . Poor and old maps especially need such supplementary information. But if there are no maps of the proper scale available, then it is only the aerial photograph that can be had in relatively short time to take its place.

Hence, generally speaking, the aerial photograph possesses the valuable characteristic of being able to supplement and, in exceptional instances, to replace the map. Reconnaissance by means of aerial photography offers itself as a supplement to or substitute for ground reconnaissance. As a rule, aerial reconnaissance by means of photographs will be possible at a time when

*Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a German article by Colonel Rossmann in *Militär-Wochenblatt* October 16, 1942.

ground reconnaissance is out of the question, and on the basis of it, certain measures can be taken at a very early point in the operations. This early information may later be supplemented by ground reconnaissance.

It might also happen that a considerable number of reconnaissance missions would have to be started at the same time. In this case a previous division of effort into aerial photographic and ground reconnaissance will be advantageous, or in all instances, previous reconnaissance by means of aerial photography may be carried out and then after the elimination of the cases in which the aerial photograph suffices, the principal terrain to be covered by ground reconnaissance may be chosen. There is always, however, a gain of time and a saving of forces—factors that are particularly important. . . .

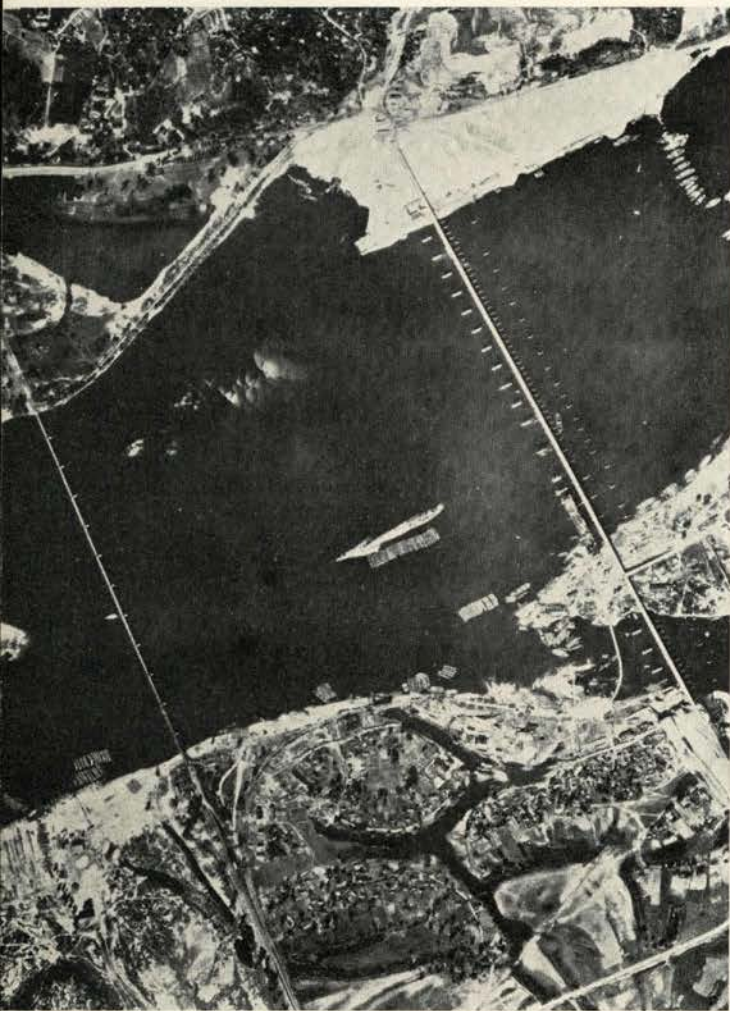
The advantage of aerial photographic reconnaissance in comparison with ground reconnaissance, lies mainly in the rapidity and timeliness with which it can be carried out within the limitation set by the type of plane used, and the distance at which the object to be photographed is situated. (Among other things, it may still be in the hands of the enemy.) But aerial photographic reconnaissance also has its limitations. It is well to have a clear idea of what may be expected of it and what must be left to ground reconnaissance.

IN CONNECTION WITH BATTLES FOR RIVERS

We shall now consider in detail these limitations as far as they affect reconnaissance. As a river sector is approached, the commander will desire to know at an early moment whether any bridges exist or whether known bridges are still intact; which bridges are destroyed and the nature and extent of damage that may have been done to them; and the location of suitable bridge and crossing sites. The presence or absence of bridges can be told from the aerial photograph, as well as the extent of the damage in case the bridges have been blown up, especially when the photographs are taken at a sloping angle or when shadows are being cast from directly above the object. In both cases, the construction of the bridges and the absence of important works, particularly piers, is to be noted so that from this the type of repairs to be made may be considered, the material and labor that is going to be required calculated, and march and transportation movements initiated.

The aerial photograph also gives us information concerning the width of a river, the level of the water, the bank characteristics, possibilities for cover, the routes leading to and from a position, stores of construction

This German photo shows an interesting view of Kiev, the capital of the Ukraine. In addition to the road bridge across the Dnieper, there can be seen preparatory works for another road bridge, also a ponton bridge in construction.



Black Star

Reconnaissance [★]

material, etc. On the other hand, any information regarding the velocity of the stream, depth, nature of the bottom, and the load capacity or preparations that have been made for the destruction of a bridge is not available from an aerial photograph.

BARRICADES AND HIGHWAYS

Also in battle at barricades and on highways, aerial photographic reconnaissance comes to the aid of the commander since, in choosing highways for the advance of the troops or for supply columns, those that show the least and most easily passable barricades may be chosen in advance.

It is also easier to find in the aerial photograph op-



Black Star

This German reconnaissance photo, received from neutral sources, shows English anti-aircraft defense before Tobruk. Ramparts of sandbags three meters thick (8) and light anti-aircraft guns (9) protect the heavy anti-aircraft batteries. The German caption on this picture says that a few days after this air survey, some direct hits were made on this position and all guns were silenced.

portunities for circumventing these barricades. Discernible in an aerial photograph are nearly all types of obstacles such as shell craters, mountain roads on steep slopes that have been blown up, tree-trunk barricades, concrete walls, obstructions in streets caused by the debris of wrecked houses, road blocks, etc., but not, however, mines planted on highways, or mine fields forming obstructions which bar progress over the terrain. Other terrain obstacles such as concertina type entanglements, stake barricades, antitank ditches, inundation, are usually not difficult to detect.

Most of these terrain obstacles are built in connection with field or permanent fortifications. The course



Press Association

Pictures of London taken from German long distance reconnaissance planes, are studied by these German airmen. Film is spread out of doors for drying prior to picking out the best film for reproduction.

followed by the obstacles gives a clue to the location of the fortifications. Paths made over the ground by persons on foot, and cable trenches poorly grown over by grass offer further clues. Also, such centers of resistance as bunkers, fortifications, battery positions, etc. are more or less easily recognized in an aerial photograph. This depends on the degree to which they are camouflaged and the thoroughness of the work.

Bicycle reconnaissance troops are greatly limited in their ground reconnaissance by distance and the situation of the enemy—factors which do not affect aerial reconnaissance.

CONCLUSION

Hence we see that in preparation for the advance and the attack, aerial photographic reconnaissance is an almost indispensable help. We should not forget to make use of it in defense, as well. An examination of our own camouflage measures, especially those protecting our fortifications, is certainly profitable. The preparations and assembly points for attack over defended water courses and on our own obstacles and positions, can be recognized by the enemy at an early stage and he may take measures against them.

This German officer sitting before a special apparatus is making practical use of the photos taken by reconnaissance planes over enemy territory.

Press Association



A Panoramic Impression of a German Panzer Division Moving Into Action, 1940*

Drawing by Captain Bryan de Grineau

ONE of the gravest errors ever made by our (British) War Office was the neglect of tanks, whose force and power were only tardily recognized when the Germans released their full fury against the Low Countries, although many years ago we worked out effective schemes of attack with fast moving tanks combined with close-support aircraft.

The Germans built up a force of some fifteen armored divisions, each consisting of about 400 tanks of mixed types, with accessory units. A *panzer*, or ironclad, division is a completely self-contained unit. In addition to the tanks, there is a squadron of supporting aircraft to each division, a mechanized reconnaissance unit, consisting of motorcyclists and light armored cars, a field artillery detachment mounted for swift and mobile operations, an antitank battalion, an engineer battalion for the maintenance of roads and bridges, and a mobile repair and supply unit with traveling workshops.

When a panzer division proceeds into action, as

★Courtesy Illustrated London News.

demonstrated in Captain Bryan de Grineau's panoramic impression of the advance of a panzer division in Greece, the real weight of the onslaught is sustained by the four battalions of 100 light, medium, and heavy tanks.

At that time the most numerous type in action was the medium and very fast tank of about 20 tons, armed with a 37mm gun, two machine guns, and with armor about $\frac{1}{8}$ of an inch thick. It was operated by a crew of three.

The normal heavy tank carried a 75mm gun, 2 machine guns, a crew of five, cruised comfortably at 30 m.p.h., and shipped a formidable load of ammunition.

Most dangerous of the monster tanks encountered at that time was that weighing about 36 tons. It had a quarter-inch of armor, carried two 105mm guns able to fire high explosive, and a 47mm antitank gun. It had a crew of eight.

When the panzer divisions attacked the Low Countries and Greece, the primary object was speed. Stukas bombed and machine gunned enemy positions, and, in



Tanks, Motorcycles, and Armored Cars Move Up With Dive Bomber Escort

fact, took the place of the artillery barrage of the last war. Meantime, the advanced scouts, on motorcycles, armed with tommy guns, light machine guns, and grenades, reconnoitered openings to find the weakest spot. Once a wedge was driven in, the light tanks penetrated as deeply as possible, struck at communications, gun lines, and headquarters, and sent back wireless information to the heavy tanks, which swept through like a giant battering ram.

It is doubtful if any of the heavier German tanks were put out of action during the Battle of France.

Captain Grineau's panorama, showing all units in action, explains itself. The motorcycle scouts advance on a position, and all other units of a division move forward in support—tanks, guns, infantry in lorries, with petrol and ammunition lorries bringing up the rear, and the dive bombers acting as escort and in action.



Tanks vs. Fire Power, 1942-43*

ROMMEL lost a large proportion of his tanks in North Africa. The Allies pursued his forces with tanks. In Russia, Poland, France and elsewhere, the panzer divisions thrust forward as the spearhead of the attack. The Allies have learned the lesson of the panzer divisions, but have the Nazis any surprises to spring?

In considering the use of the tank, it seems to be indicated that the second great tactical revolution of the war has taken place, for the original panzer formation has undergone profound modifications.

Two factors have apparently been responsible for changing the original formation of close-packed tanks headed by scouts and accompanied by supporting units of all arms.

First, there was the counter-tactics of the Russians; and, second, the German necessity of countering tank attacks in North Africa. The panzer has become a defensive as well as an offensive formation. The change was effected mainly by increasing the amount of infantry support, and by a greater use of artillery.

It is a most significant change, and not only because of its encouragement to those who regard Germany's conquest phase to be now at an end. Far more important to serious military minds is the aspect, in relation to the coming task of attacking Germany ourselves, that the panzers may well prove as formidable in defense as in offense, especially if we don't move quickly with the times and understand clearly that the days of fast-moving, independent tank formations are nearly at an end.

The Russians carefully studied the German campaigns in Poland and France. They were temporarily upset by a surprise change of German tactics at the beginning of the Russian invasion; instead of sending panzers in deep thrusts across the country, as in France and Poland, the Germans used their armored columns in Russia like whips, penetrating so far, then turning back in attempts to encircle whole armies.

The Russians, on their part, concentrated on cutting

off the speeding panzers from the main German infantry and artillery formations behind.

This led to all sorts of German dodges planned to hold territory till the infantry and guns came up—notably the digging-in of tanks and converting them into steel fortresses from which groups of infantry could set out to keep communications clear and resist counterattacks.

When such counterattacks were delivered by heavy Russian tanks, the Germans had to improvise even more drastically. They found that the ordinary small anti-tank guns with which the panzers were equipped—3.7 cm. and 7.5 cm.—were quite inadequate to keep the counterattacking Russian tanks at bay.

It was then that they brought down the muzzles of some 88mm antiaircraft guns, and used them to some effect at close quarters as antitank weapons.

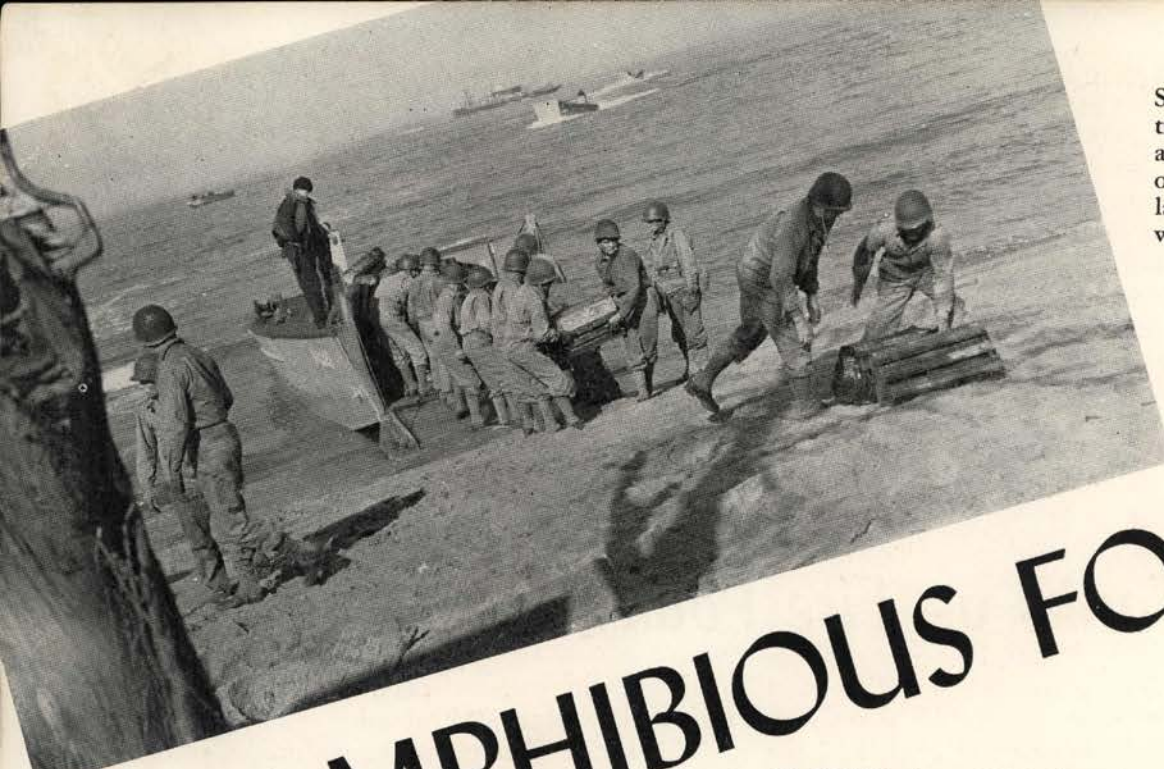
The German General Staff has a rule whereby tactical lessons such as these are embodied at once in Field Regulations. In other words, there is *no gap between the lesson and its adoption in general practice throughout the Nazi army*. Thus Rommel in Africa was apprised of the Russian antitank tactics and advised to make suitable dispositions accordingly when the British attacked.

At first, our armored brigades set out very much like the original German panzers, as if expecting to encounter similar enemy formations. They *did* meet German tanks, but these were often decoys, leading them straight into the close range fire—hidden by artificial smoke and other stratagems—of the German guns. These were of a greater caliber than the ordinary antitank gun that our tanks had been designed to meet, and many tanks were destroyed by them.

It has been demonstrated that powerful artillery, provided it can be mounted on tractors and brought quickly to strategic points, has the measure of today's tanks.

The tanks of tomorrow, indeed, may have sufficiently strong armor to resist big guns. *It will be a race between tank armor and gun-power.*


*Reprinted from *United Services Review*. (See also General Hawkins' Notes, Jan.-Feb., 1943.)



Soldiers unload ammunition from a landing barge at an East Coast amphibious training base as other landing craft move in towards shore from a Navy transport.

U. S. AMPHIBIOUS FORCES

Official U. S. Navy photographs.



An Army jeep rolls off a landing barge and onto a specially built wire net road at an Atlantic coast training base.

MORE than 2000 ships joined in the greatest armada of all time to speed the United Nations invasion of Sicily.

Beachheads were established by fighting forces from the radically designed and highly-specialized fighting ships, many of which pushed their way across the Atlantic under their own power.

For some time, a unified invasion force, composed of picked Army and Navy officers and men, has been training for assaults on enemy territory.

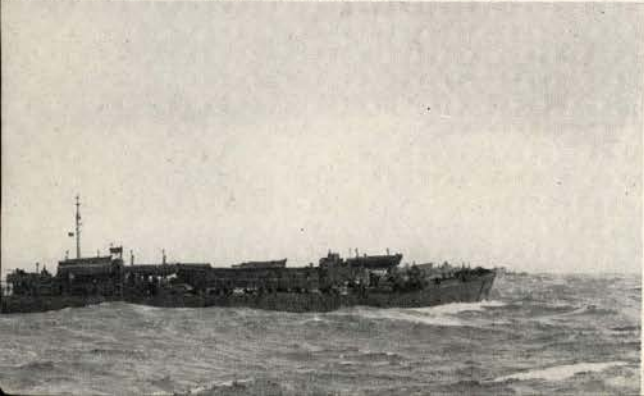
Because of the complex nature of amphibious operations, the training program is both broad and intensive. Every officer and man in the Force must understand not only his own task, but the part that will be played by the other units involved.

Naval personnel assigned to the "Amphibs" are selected on the basis of outstanding records in service or in the classroom, and for excellent physical condition. The result is a group young, enthusiastic, and capable of meeting the extraordinary demands of its dangerous assignment.

They are sent to one of the bases of the Amphibious Force, where they begin their specialized training. They study seamanship, piloting and navigation; they drill in gunnery, ship and plane identification, and the highly intricate communications methods necessary to carry out a landing with dispatch.

At the same time, the Army selects units which have already had thorough training in the infantry or the armored forces, and assigns them to the Amphibious Force.

The enlisted men are given a tough conditioning course to prepare them for the hard task that lies ahead, and then receive basic amphibious training. They learn to clamber over the sides of ships and down into the



The sturdy ocean-going LST, with the lighter landing craft mounted on its decks, plies its way across the Atlantic bound for North Africa.

This landing craft is called a "crocodile boat." Here a tank rolls down the steel ramp to the beach during training maneuvers.

small boats pitching below; they are taught to come ashore from the landing craft through rough water and still keep their equipment dry; they study the tactics of surprise attacks.

Meanwhile, the Army officers go to another base, where, with Navy officers, they learn the art of amphibious operations. They study strategy and tactics, and the proper methods of liaison between the many organizations involved. Great stress is laid upon communications.

Working with large scale models of the ships attached to the Amphibious Force and also scale models of the equipment that will be used, the Army transport officers work out the intricate problems of so loading the ships that the equipment may be unloaded swiftly and in the proper sequence when the landing is made.

When all units have completed their basic training, they are assembled for advanced training. The crews of the small boats are assigned to the transports aboard which they will serve; the flotillas of larger landing craft are formed; the Army troops go aboard the transports. Then dress rehearsals of actual landing operations are run through. The ships are loaded for combat operations with the needed supplies and equipment. The convoy then sails for a selected practice landing beach, and actual landings are made under simulated battle conditions, with the beach "defended" by opposing troops and with aircraft and Naval combat vessels taking part.

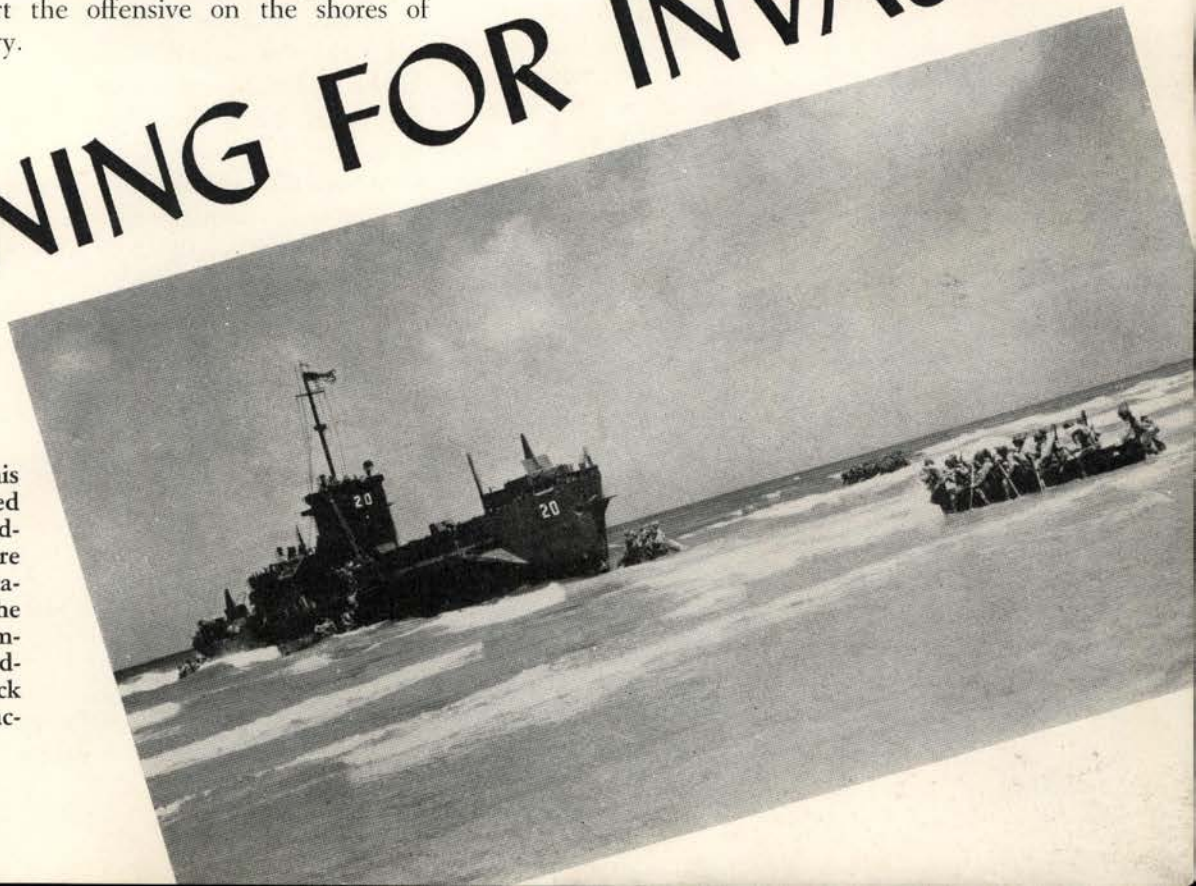
This is the Amphibious Force—a strong, well-drilled invasion spearhead which will carry the fight to the enemy, to drive ashore from a convoy with perfect coordination, to start the offensive on the shores of enemy-held territory.



Army troops stream out of an LCI and "hit the beach" during practice invasion maneuvers along the Atlantic coast.

TRAINING FOR INVASION

Landing craft like this were used by the Allied amphibious forces invading Sicily. This picture was made during invasion maneuvers along the African coast. U. S. amphibious crews are paddling in rubber boats back to their LCI after a practice landing.



Tactical Exercises and Maneuver

by Brigadier General Hamilton S. Hawkins, Retired

Herein are valuable training suggestions, with details left to be worked out by the division, brigade, regimental, and separate unit commanders.

IN ORDER that the division, and any of its component units, can be handled quickly and with greatest mobility, each unit must have a number of set formations that can be understood by all in a few established words, which become common language to everybody without the necessity of describing them in detail every time an order is issued or reference is made to them in instruction or conversation.

Except when the division, or any smaller unit, is marching in route-order in protected or safe areas (even safe from airplane attack), it does not march on roads. It must be able to move across country in any direction—forward or backward, left, right, or toward any ground feature or point of the compass—merely by the issue of a few simple words of command or brief vocal or written messages. These set formations enable such movements to be started almost instantly.

Aside from route marches, the division has to understand only a few set formations which are named "Maneuver Formations." These Maneuver Formations are practically deployed formations, either as foragers or lines of squads or platoons. No unit larger than a platoon is in close order. They are convenient for cross-country movement, for dispersed defense against air attack, artillery fire or small arms fire, and for quick dispositions of all units for combat.

EDITOR'S NOTE

Well known to most CAVALRY JOURNAL readers, General Hawkins needs no introduction as a sound tactician. To officers who once served under him, his methods of training and ability in the field are equally respected.

This outline for tactical exercises and maneuvers is based upon General Hawkins' personal experience while in command of the 1st Cavalry Division.

By utilizing the four Maneuver Formations of the division, the commander can issue quickly, by voice to his commanders, or by message or radio, his brief orders for the direction of march—the Maneuver Formation No. 1, 2, 3 or 4—and the rate of march. Thus, it is like

giving drill commands to a small unit. The division can accommodate itself to the terrain, change direction or formation or gait, and immediately be ready for combat of any kind in a very short time.

In daytime, cross-country movement is made easier and safer. At night, the columns must be condensed in the manner of route order marches, although they must be across country.

DESCRIPTION OF THE MANEUVER FORMATIONS

Each squadron (or artillery battalion) has one standard Maneuver Formation. It is really its best combat formation—a *line of troop columns of platoons*, as foragers or each platoon in *line of squad columns*. The squadron commander can alter the formation to suit conditions, but the squadron must be able to move in any direction at any gait—forward, backward, right, or left.

Each regiment has two Maneuver Formations.

No. 1 Maneuver Formation is Line of Squadrons. Formation A, as prescribed in the Cavalry Field Manual, 1940, Par. 261, is satisfactory.

No. 2 Maneuver Formation is Column of Squadrons. Formation C. of the Cavalry Field Manual is satisfactory.

In both formations, the deployment and arrangement is suitable for immediate disposal of the units into any order for combat, the squadrons being practically in combat order at all times.

Each brigade has three Maneuver Formations.

No. 1 is Line of Regiments on (such a regiment) at (so many) yards interval. Regiments in Column of Squadrons.

In this formation the special units, such as weapons troops, communications, etc., have specified places; also, the artillery battalion, if one is assigned, has its place.

Each regiment is in the Maneuver Formation that the circumstances or terrain seem to indicate to the regimental commander as suitable. No. 1 is the habitual brigade formation.

No. 2 is Column of Regiments at (so many) yards distance, in Line of Squadrons.

Formations for a Cavalry Division

No. 3 is *Column of Squadrons* at (so many) yards distance between Regiments.

The division has four Maneuver Formations.

No. 1 is *Line of Brigades* at (so much) interval.

No. 2 is *Column of Brigades in Line of Regiments* at (so much) distance.

No. 3 is *Column of Regiments in Line of Squadrons*.

No. 4 is *Column of Squadrons*.

Each of these formations has a specified order for all component units.

It must be emphasized that the reason for these formations is the necessity in modern warfare for cavalry to march, not on roads, but across country and, except at night, in extended order. Furthermore, orders can be given and the division put in motion much quicker, and any dispositions for attack or defense can be made more easily and quickly from these Maneuver Formations than from the old columns of fours or twos.

It will be noticed that in these formations no advance guards are used. Covering detachments are more mobile, more under control and better in every way when maneuvering across country.

Another important consideration is that the war in Europe has shown that with adequate equipment of antitank guns, the enemy tanks can be stopped if the enemy airplane attacks can be neutralized or rendered ineffective. In addition to support from our own airplanes, troops on the ground must learn to maneuver in dispersed formations.

In any movement the division commander has only to order; for example:

"Division marches on (point or direction) 6 miles per hour. Maneuver Formation No. 1—*Line of Brigades on 1st Brigade*, Interval between Brigades—1500 yards." Or, "Maneuver Formation No. 2—*Column of Brigades in No. 1 formation*. Distance between Brigades, 600 yards."

Such things as covering detachments and combat patrols are attended to by brigade commanders or regimental commanders if regiments are abreast in the brigade.

Of course, when roads can be used, the ordinary system of Route Columns is used; but this will not be possible in the theater of operations except sometimes at night.

DESIGNATION OF TERRAIN OBJECTIVES

When the division commander issues such an order, the brigade commander of the base brigade has only to order, for example, "Brigade marches at once on (such a feature, point or direction), 6 miles per hour. Ma-

NOTE: The intervals and distances as shown in the text and on the charts are approximate. They are subject to variation and may be changed to fit the situation and terrain.

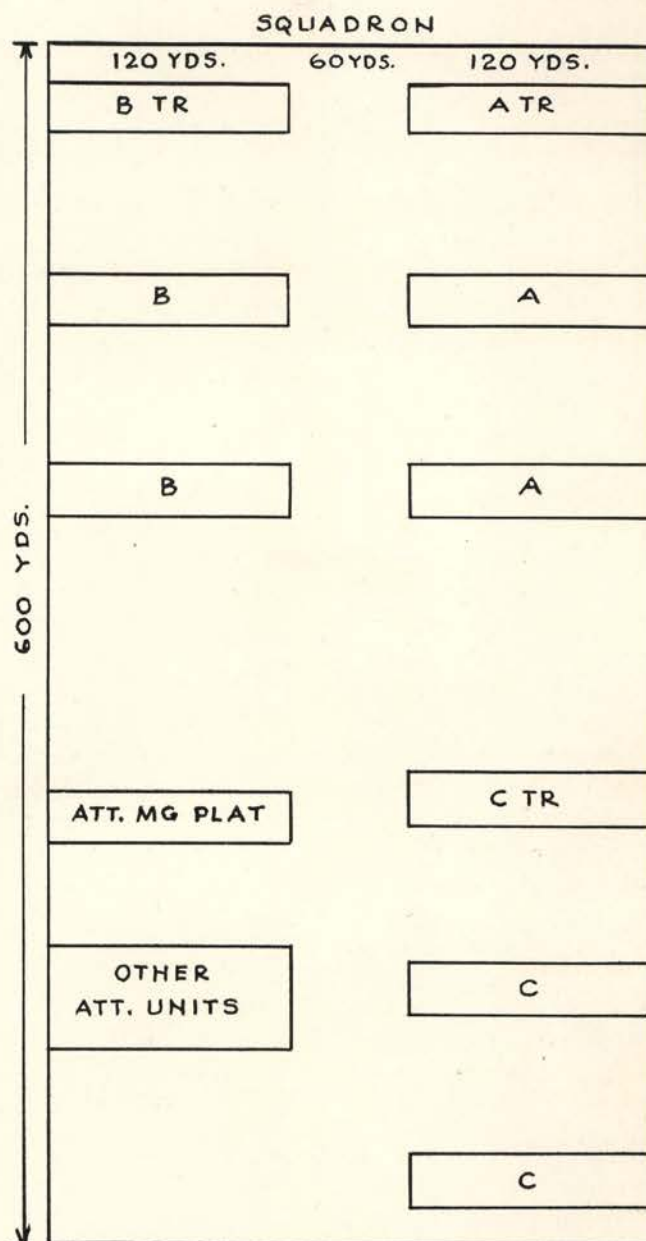


CHART NO. 1

Cavalry Rifle Squadron Maneuver Formation

The Cavalry Squadron Maneuver Formation will occupy a rectangle of approximately 300 yards in width (or front) by 600 yards in depth. This span is variable, but for purposes of this chart it is assumed that the squadron is in *Line of Troop Columns of Platoons*, with one troop held back 200 yards in reserve.

The habitual formation of each troop is a Column of Platoons, with 100 yards distance between platoons.

The platoon is deployed in line with at least 5 yards interval between troopers, or in Line of Squads.

The squad is usually the only unit which at times may be in close order. But, on some kinds of terrain, the platoon may move in Column of Squads.

Combat Patrols and Covering Detachments are not included in chart rectangle.

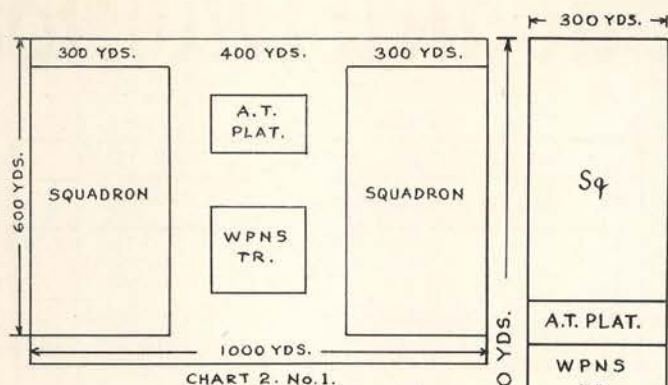


CHART NO. 2

Cavalry Regiment Maneuver Formations

No. 1. *Line of Squadrons on 1st Squadron.* Interval 400 yards.

No. 2. *Column of Squadrons on 1st Squadron.* Distance between Squadrons, 400 yards.

neuver Formation No. 1, *Line of Regiments on 5th Cavalry.* Interval, 1000-2000 yards." Or, "Maneuver Formation No. 2, *Column of Regiments.* Distance between regiments, 1000 yards." He may order, "Follow me," without giving the direction if he is going to lead.

Regimental Commander, 5th Cavalry, orders, "Maneuver Formation No. 1, *Line of Squadrons on 1st Squadron.* Interval, 400 yards; follow me."

Regimental Commander, 12th Cavalry, orders, "Maneuver Formation No. 1, *Line of Squadrons on 1st Squadron;* follow me," and leads his regiment to its position, etc., etc.

Each unit commander may make any special arrangements he deems wise after the start is made. Initiative is expected. The order of the next higher commander requires only the relative positions of his units, the direction and the rate of march.

Any regimental commander who has a front of his own, puts out his own covering detachment and combat patrols. Thus, once the movement is initiated, the division commander relies on his subordinates to do the right things.

These standard formations must be had, also, for artillery battalions, engineers, signal troops, various headquarters. The positions in the division of artillery battalions, engineers, reserve units, are all specified in the standard formations for each of the four Maneuver Formations.

MUST HAVE HORSES AVAILABLE

Units that are motorized have to do the best they can. Across country, they may not be able to go; if so, they must be left behind. The mobility of the division must not be confined to ground where motors can go. On

such ground, the enemy mechanized forces would outmaneuver the cavalry division because they would move faster than horses. There must be no competition in mobility between horse units and mechanized units on ground favorable to the latter. Division Headquarters, therefore, as well as Brigade and Regimental Headquarters, must be mounted on horses, as well as have motors for use where they can be used.

SUPPLY

The supply trains of the Division are motorized. There are usually roads leading to various points behind the division where supplies can be sent for the different regiments and separate units. These are established at points as safe as can be found with several days' supplies. When the division moves forward these points are advanced. When the division retires, new points are established farther in rear or near the locations toward which the division is moving. The division ought to be able to carry several days' supplies with it on pack saddles, in saddlebags, or by vehicles when this is practicable. When the units run completely out of supplies, they must send packs back to the supply points or retire toward those points tem-

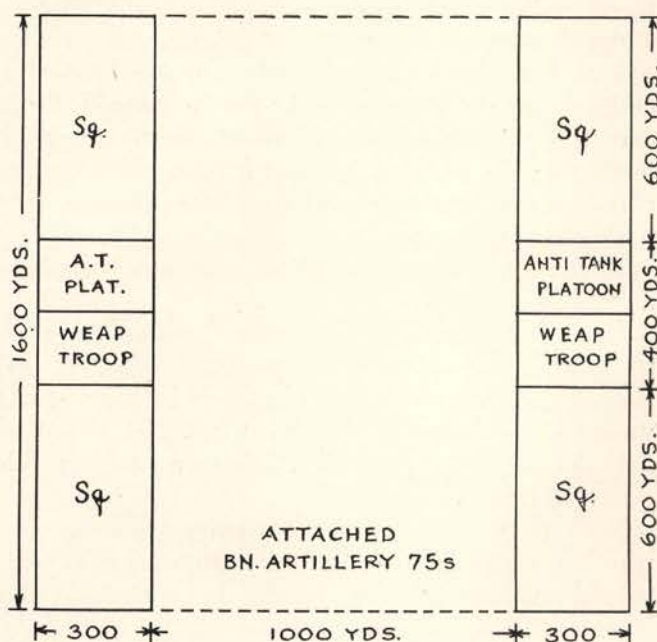


CHART NO. 3

Brigade Maneuver Formations

No. 1. *Line of Regiments in Column of Squadrons.* At (1000 yards) intervals. (This is the habitual Brigade Maneuver Formation.)

No. 2. *Column of Regiments in Line of Squadrons* would be one regiment following the leading regiment with the ordered distance between them, and attached artillery in the spaces between regiments or following the rear regiment. This column would be about 2400 yards long with a front of 1000 yards.

No. 3. A simple Column of Squadrons, would be over 4000 yards. A Line of Regiments in Line of Squadrons, with 600 yards interval between regiments, would have 2600 yards front and only 600 yards depth.

porarily to get supplies to carry with them for several days more. Of course, when an emergency demands it, the troops must do without supplies, except ammunition, for a day or two. Resource and expedients come into play.

After these Combat Formations for every unit in the division have been established and learned, the Division practices its first tactical exercise.

TACTICAL EXERCISE No. 1

The division, less its trains, is assembled in any convenient order and place without regard to relative positions of the larger units. The division commander appears in the area, assembles his brigade, artillery, and separate unit commanders. He gives them brief orders as suggested above and starts them on their way across country. He tells them that they are going to be attacked by airplanes and that the whole march must be made with that in mind. The necessary dispersion must be made at once and maintained until the destination is reached, perhaps some five or ten miles away. When the destination is reached, he changes the direction of march and orders another Maneuver Formation. If there is room and time he does this several times and brings them back by such means to the starting point near their camps or station.

This is simply an exercise in using various communications to send orders and control the division—to "sling it around," so to speak, while in more or less dispersed order.

TACTICAL EXERCISE No. 2

The division commander tells his commanders he is going to *march to a certain line or point, by a circuitous*

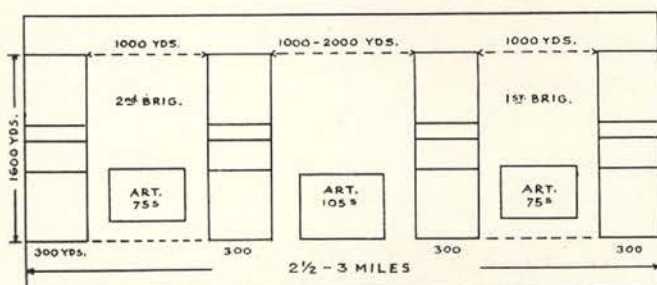


CHART NO. 4

Division Maneuver Formations

- No. 1. *Line of Brigades at (1000 to 2000 yards interval). In Line of Regimental Columns* (No. 1 Brigade Maneuver Formation) Division Reconnaissance Squadron and Division Engineer Squadron are given separate orders.
- No. 2. *Column of Brigades* would have each brigade in its No. 1 Formation, with 600 yards between the leading and the following Brigades. The front would be 1600 yards; the depth about 3800 yards.
- No. 3 and 4. These in simple Column of Regiments or Squadrons when the lateral space is very narrow. *Column of Regiments*, each in *Line of Squadrons*, will have a front of 1000 yards and a length of about 4800 yards. A *Column of Squadrons* throughout would be over 5 miles long.

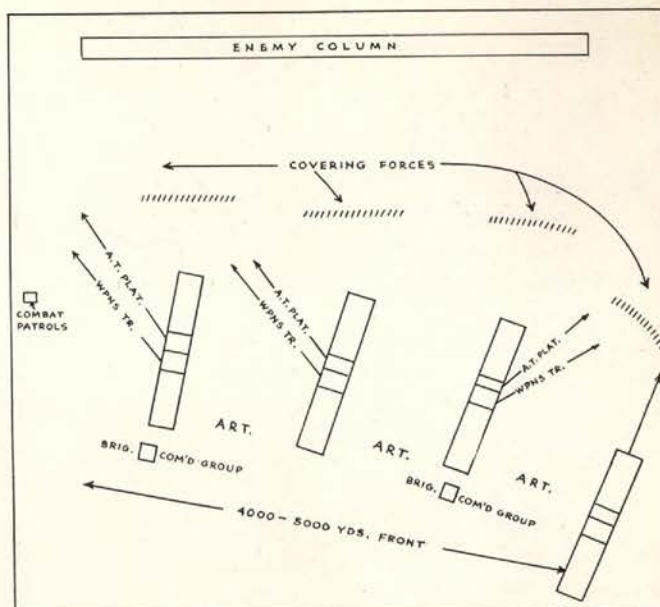


CHART NO. 5

Tactical Exercise No. 3

Division Reconnaissance Squadron may have preceded the division at beginning of movement, but is now replaced by Covering Forces and is operating far on right flank to discover rear of enemy column, or is retired to rear to guard the rear of the division.

Other groups, such as Engineer Squadron, are back with the trains.

route, for a reconnaissance of the area and for a short distance beyond the objective toward which they will march. He gives the Maneuver Formation to be taken, perhaps with greater intervals between the larger units. He changes direction at proper points to follow the circuitous route. He may have to change the formation to accommodate the division according to the terrain. Woods, rivers, or mountain passes may have to be traversed. Towns or villages may lie in his path and be passed by, or avoided, and perhaps reconnoitered. Having arrived at his destination, he halts in readiness for anything, and requires his brigade commanders to send out patrols to reconnoiter areas in their front and flanks. Only very short distances are used for this, as it is only an exercise, and he wants to avoid long delays and tiresome or boring waiting for patrols to return. Perhaps, he permits the units to have lunch during this time.

Then he marches back by a different route, but always across country, and under the assumption that strong forces of the enemy are following at six or eight miles distance; and the division is put into a *defensive position*, which requires it to halt and turn about to face the enemy. The position is only for a delaying action not very far from camp. It is done rapidly, and then the units are dismissed.

TACTICAL EXERCISE No. 3

The division is marched across country by similar means with the idea of *striking in flank an enemy*

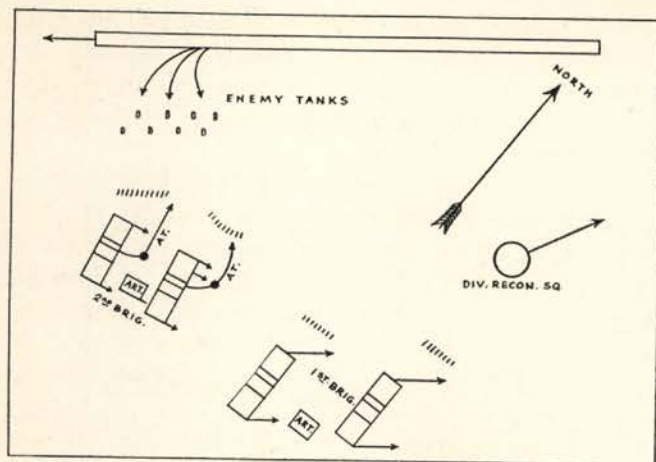


CHART NO. 6

Tactical Exercise No. 4

Leaving AT guns to fire on enemy tanks and then fall back and rejoin division, the division commander orders "Column of Regiments on 1st Brigade march N.E." All units turn to right and follow 1st Brigade. Division Reconnaissance Squadron moves to find motorized troops of enemy which are not protected by strong groups of tanks.

motorized or marching column supposed to be moving on a certain road not very far away. When the road is in sight of the covering forces, the division halts and prepares for fire action against the enemy column. The handling of the division reconnaissance squadron is important here. Concealment while marching, and a sort of ambush position are emphasized. Employment of covering detachments and security patrols on the flanks of the brigades are important. The return march is merely another exercise in moving in one of the Maneuver Formations across country.

TACTICAL EXERCISE No. 4

This is the same as Exercise No. 3, except that while moving on the assigned mission the division meets a small mechanized force of the enemy. Antitank units go into action and then retire rapidly, while the division is moved back and then maneuvers several miles around one flank in order to gain the flank and rear of the enemy tank units and attack the motorized units of infantry that follow the tank units.

This requires speed and initiative on the part of subordinate commanders, and rapid communications from division commander to subordinate commanders. The division commander must use brief orders changing the direction of march and using appropriate Maneuver Formation.

For example, he could send a message: "All units to the right (northeast) in *Column of Regiments, Maneuver Formation No. 3*. All antitank units rejoin their commands. Rate of march, 8 miles p.h."

Then, after a half hour: "Slow down to 5 miles p.h. Change direction to north, *Maneuver Formation No. 1—Line of Brigades on 1st Brigade*; interval, 1800 yards."

Then, perhaps, he makes another change of direction

so as to curve around to march directly upon the flank of the supporting motorized columns of the enemy.

This exercise is difficult and requires much practice and initiative on the part of various commanders. Previous practice in Tactical Exercise No. 1 is important.

Use of the division reconnaissance squadron is important to guide the division. This squadron, however, must not give away the presence of the division behind it. If it cannot negotiate the terrain across country, it should be left behind and reliance placed on the mounted covering detachments of the brigades. Scout cars should not be used in front. They would give warning to the enemy.

TACTICAL EXERCISE No. 5. DELAYING ACTIONS

Delaying actions are of two different kinds. Action against mechanized forces and action against infantry. A third kind would have to be considered if enemy has cavalry. Delaying actions involve both defensive action and attacks.

DELAYING ACTIONS AGAINST STRONG MECHANIZATION

This requires great mobility and independent action on the part of component units of the division. The mechanized enemy will stick to roads or their vicinity, or to ground that can be traversed easily. Tanks, however, have developed considerable mobility across country. This must be considered by cavalry commanders.

Since the division reconnaissance squadron and the division antitank troop will be motorized, they will presumably have as much mobility on any given terrain

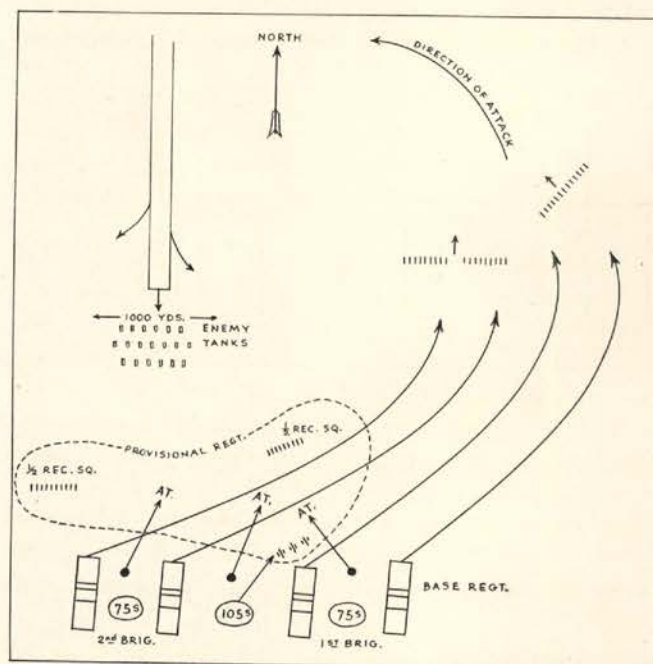


CHART NO. 7

Tactical Exercise No. 5

After sending out the provisional regiment, the division commander orders *Brigades Right Oblique to North East*. Engineer Squadron (if available) moves up to join provisional regiment.

as the hostile mechanization. It would, therefore, be safe for the division commander to oppose frontally the advance of the hostile mechanization by using the reconnaissance squadron supported by the antitank troop. These forces could be reinforced by the antitank platoons of the brigade weapons troops. Sufficient scout cars must be used on the flanks to detect the wide turning movements that the enemy mechanized forces will often use to get around in rear of the delaying forces. Reports of such movements by radio (in the clear) from scout cars will enable these delaying units to withdraw in time. Of course, scouting airplanes will be of great service also, especially in daytime.

Now, therefore, in this tactical exercise, the division commander will combine his *reconnaissance squadron*, all antitank units, and his *engineer squadron*, into one command to fight delaying actions in front of hostile mechanized advance. The *motor battalion of 105 howitzers* from the artillery regiment will also be a part of this command.

This command must be organized and used in practice. A colonel and several assistants in motor cars should command it. It will use roads and such cross-country as may be feasible. It must have a dispersed formation to provide for enemy air attacks. It must have a name such as *Provisional Antitank Regiment*; but it is not assembled as such until the need for it is apparent. The division being in any formation, the order is given, "Provisional antitank regiment assemble at (point)." All units assigned to this provisional regiment leave their regular organization and proceed to the assembly point.

In addition to those means of delaying an enemy mechanized advance, the division commander sends his brigades, each supported by a battalion of 75mm howitzers, around across country to attack the flank and rear of the enemy mechanized column. These continuous attacks are especially directed against the motorized infantry supporting the enemy tanks.

The exercise is initiated by an oral, or dictated, or written order from the division commander, something as follows:

"Division fights delaying action against hostile mechanized force moving (south) along or near road between (such points). Provisional Antitank Regiment moves at once on (such point) to oppose enemy movement.

"The division, less provisional regiment, marches on (point or direction), 6 miles p.h., *Maneuver Formation No. 1, Line of Brigades on 2nd Brigade*, at 800 yards interval."

The division commander will probably accompany brigade commander of base brigade, and will indicate the changes of direction to follow a circuitous route toward the flank of the enemy. The covering forces of the two brigades (one rifle troop to each) will be the means by which the moving enemy is found.

In case the road on which the enemy is reported

moving is found empty, the division must halt and send out patrols to discover him. When the enemy is discovered, the division may have to move back or forward, right or left, to place itself in position to attack the flank or rear of the enemy.

In case a comparatively small flank guard of the enemy is encountered it should be attacked at once, by the regiment that first encounters it, by dismounted attack while other units attack mounted against its flank or rear. Such an attack is executed by the regiment or brigade without waiting for Division orders. Thus, the initiative and resource of every commander is developed and depended upon.

These attacks against the enemy mechanized column are continued as long as he moves forward. Attack—then maneuver for another attack, is the order of the day. The division is reassembled by radio orders or messengers at some rendezvous.

For this exercise, the enemy may be represented by a column of tanks or may be imaginary. In any case, when contact with the enemy is assumed to be gained, the units must change from Maneuver Formations to Combat Formations, and go through the motions of firing at the enemy and falling back to attack again after the enemy has resumed his advance.

This exercise represents an important operation of cavalry that cannot be carried out well without practice.

TACTICAL EXERCISE NO. 6. DELAYING ACTION AGAINST INFANTRY (NOT MOTORIZED)

In this exercise the division commander decides to oppose the hostile infantry by using one brigade in front of the enemy advance and the other brigade on one of the enemy flanks. He gives simple and brief orders to carry out this plan. A *liaison detachment* of one platoon is posted between the brigades.

Each of the two brigades moves out by means of its Maneuver Formations.

Depending on the character of the terrain, the *artillery* attaches one battalion of 75mm howitzers to each brigade and holds the motor battalion of 105mm howitzers on the axis of movement of the brigade offering direct opposition. All units, however, avoid the roads.

The *Combat patrols* in each brigade have a very great responsibility. Infantry can march across country; and while waiting in a position to use fire power against the advancing enemy, the cavalry may find itself out-flanked by a demoralizing surprise. Combat patrols must be trained to scout around the vicinity in which they are posted so as to prevent such surprise. The same thing applies when the cavalry is moving. Combat patrols must always be out and very active. Covering forces can take care of the front.

The division reconnaissance squadron, which is mechanized, should be sent out well in front of the brigade, which is on the axis movement, to gain contact and explore widely on both flanks for any signs of hostile mechanization.

The division commander keeps the advance echelon of his headquarters with that of his artillery commander. His antitank troop and engineer squadron remain behind the brigade on the axis of movement ready for any emergency.

As in all exercises during maneuvers, all camps or bivouacs are in dispersed formation and camouflaged if possible. While moving, these divisional units keep always in the Maneuver Formations.

When contact with the enemy infantry has been gained, it should never be lost. Any patrol that gains contact should watch the enemy night and day until it is relieved. Progress of the enemy along the axis of movement should be reported every hour, and any movements of important units off the axis of movement must be reported at once.

This exercise can be had with the enemy represented or imaginary. If imaginary, all dispositions are made, then contact is assumed and commanders notified by officers detailed as umpires. Each brigade and separate unit makes dispositions to defend its position or attack the enemy according to its mission in front of the enemy or out on the flank.

The liaison system can be tested and the exercise terminated.

One of the important principles in such operations is that while the force opposing the enemy along the axis falls back from position to position, the force operating on the flank makes harassing attacks continuously. Not one attack but many during the day are made. While keeping the enemy observed by patrols, the brigade on such duty must be able to attack by fire, then withdraw and maneuver around to attack again.

TACTICAL EXERCISE NO. 7. ATTACK AGAINST INFANTRY

These occasions are numerous. The Division may have to attack an infantry rear guard or flank guard when it is not desirable to go far around to avoid such a force. It may have to attack an infantry force which is advancing on the flank of our army or is pursuing. Such attacks are chosen when the hostile infantry is not as numerous and powerful as our cavalry division. Otherwise, of course, the cavalry division resorts to defensive actions and delaying actions.

Another occasion for attack is when the cavalry division is part of a larger force which is attacking the enemy and the mission of the division is to cooperate by attacking the enemy in flank.

For this exercise, assume any of these occasions and move the division out across country in one of the Maneuver Formations to make contact with the enemy. When contact is gained by the reconnaissance elements or the covering detachment or detachments, dispositions are made to attack.

The first thing to consider is the terrain. Does it give cover for the individual rifleman to use in advancing toward the enemy? Perhaps there is cover on one side and not on the other. For any dismounted

attack, some sort of cover for the individual soldier to use in his advance is essential. If this cover, in some form, is not present, the commander should maneuver so as to attack over other ground having little folds, gullies, holes, boulders, brush or other advantages which the soldier can use to protect himself, at least from observation, while lying down. Attacks over flat, coverless ground are too costly for dismounted cavalry to undertake with the means at its disposal. If the enemy is moving, dismounted cavalry can risk the crossing of open spaces if not more than a hundred yards across.

For supporting fire, open spaces across which the enemy can be seen are suitable. Every squadron in the attacking echelon should have fire support of machine guns posted in the intervals between squadrons. The first thing to do, therefore, is to put these machine guns into action and let the riflemen advance in the spaces between these groups of machine guns. When artillery is available, it, together with the machine guns, opens up the fight.

The Division Commander directs where each brigade is to attack, and on what general targets the supporting artillery, not attached to brigades, is to fire. The brigade commanders and regimental commanders post their artillery, machine guns and other supporting weapons, and the squadron commanders put their riflemen in between.

The development and deployments are made quickly, the led horses are sent back and held in dispersed formations under cover. Any division reserves are posted, and the action commences immediately. The Maneuver Formations lend themselves to this quick disposition so that the enemy has little time to prepare.

Deliberate, long-drawn-out preparations and prolonged preliminary reconnaissance are not for cavalry except in special cases.

If combined action is feasible, one brigade, dismounted, attacks first, and by using cover, advances to within three or four hundred yards of the enemy. Then the other brigade attacks mounted on one or the other side of the dismounted brigade—and by surprise if possible.

The attack is followed up by antitank units to resist hostile tanks that may have appeared unexpectedly. If hostile tanks appear in strong force, the whole division withdraws as quickly as possible in dispersed order to assemble at a rendezvous previously designated. Such an episode would be a good exercise of the resource and leadership of the division.

The reconnaissance squadron explores far out on the flanks.

TACTICAL EXERCISE NO. 8. DEFENSIVE POSITION

The division, from some Maneuver Formation, should practice literally galloping into a position to hold a bridgehead, mountain pass, or other defensive mission.

The artillery and supporting weapons, machine guns, etc. go down on the ground for action first of all. The riflemen are posted afterwards.

Led horses are sent back, dispersed, under best cover available, and liaison established between them and their squadrons.

Covering forces remain out in front or on flanks until contact with the enemy is had or until relieved. Reconnaissance squadron explores far out on flanks.

Division Commander rectifies the dispositions, and hasty entrenchments are started.

Then, practice a quick withdrawal while under fire. Dispersal formations or Maneuver Formations are taken quickly, and all head for the rendezvous.

SUMMARY OF TACTICAL EXERCISES

No. 1. A *march* across country in various *Maneuver Formations*. *Dispersion* to reduce casualties from air attack. Practice of control.

No. 2. A *march* across country in *Maneuver Formations* to a certain line for purpose of *reconnaissance*. Brief reconnaissance by patrols. Return march halted and units turned about to occupy a defensive position against pursuing enemy. Only a brief occupation of the position before units are dismissed.

No. 3. A *maneuver* across country to *attack flank of moving enemy*. Deployment for *fire action*. Special attention to handling of the division *reconnaissance squadron*, *covering detachments* and *security patrols*.

No. 4. Same mission as in Exercise No. 3, but division *meets* a small hostile *mechanized force* evidently sent to oppose it. Use of *antitank guns* and *maneuver* of the division to attack flank and rear of enemy. Motor vehicles on reconnaissance must not betray the presence of the division.

No. 5 *Delaying Action* against strong hostile *mechanized forces*. Use of a *provisional Antitank Regiment*. Much *initiative* on part of squadron, regimental, and brigade commanders. *Mounted attacks* against small enemy forces seeking to delay the advance of the division towards the hostile flanks or rear.

No. 6. *Delaying action* against *infantry* (not motorized). In this exercise the main plan is to oppose the advance frontally with one brigade, while the other brigade operates on the flank.

No. 7. *An attack against infantry*. Quick deployment or development from *Maneuver Formations*. Use of cover.

No. 8. *Defensive position* and *withdrawal* from same. Quick assumption of position. Rectify afterwards. Artillery and machine guns posted first. Maneuver Formations gallop into position and also used in withdrawing.

NOTE: It must be understood that the intervals and distances given in the charts are only suggestive and not mandatory.

CONCLUSION

Assuming that the small units are well trained, these divisional exercises will fit the division for the rapid cross-country maneuvering necessary to accomplish modern cavalry missions. The developed initiative of every commander, especially the squadron commanders, will enable the division commander literally to hurl his division at the enemy in harassing attacks, successfully accomplish delaying actions, or fight in the spot to a decision over the enemy, if the relative strength of his command and other considerations justify such an attempt.

The formations of the division are loose and flexible and not tight. In harassing and delaying actions, every squadron commander is justified in attacking the enemy on his own, wherever he meets him without waiting for orders from higher commanders. Other squadron commanders go to the support of a squadron that has become engaged unless they are themselves already engaged or have received orders from the regimental commander to do something else.

The regimental commander has only two or three squadrons to handle, and he rides with the commander of one of those squadrons. Similarly, the brigade commander, riding with or near one of his regiments can exercise control, but should expect his subordinate commanders to use their initiative after having been told what the mission is, what the base element is, and approximately how far apart the units are to be.

The division can be wide-spread, wide-flung, and yet be under sufficient control by means of radio communications.

Of course, for a concentrated, coordinated attack, the time, plan, and method of the attack must be fixed by the division commander. The same idea applies to the holding of a position.

In harassing and delaying operations, a very loose formation and much initiative by subordinate commanders must be relied upon and encouraged. This may cause some apparent confusion and temporary loss of touch and control, which must not disturb the division commander. He can, eventually, through radio communications, regain control when he wants to pull his division off to a rendezvous or to undertake a new mission.

Maneuver Formations for the following named units, devised on the same idea, must be determined.

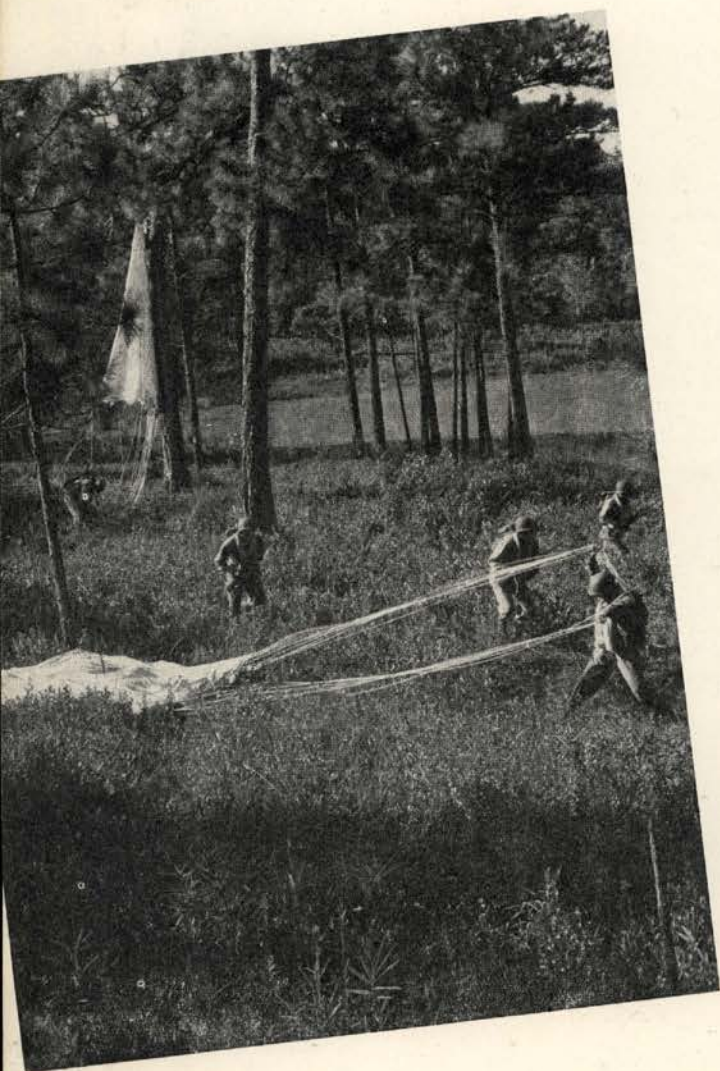
1. Artillery Battalions (75s and 105s).
2. Engineer Squadron.
3. Machine Gun Troops.
4. Weapons Troops.
5. Division Reconnaissance Squadron.
6. Command Groups: Squadron, Regiment, Brigade, Division. These groups are not shown on Charts but are placed wherever convenient for each case.
7. Medical units.



Troops of the Airborne Command prepare to board planes.

The Airborne

A landing in wooded area.



THE employment of parachute and air-landed units has provided one of the major surprises in the current war and has led to such development of these units as to constitute a new weapon of increasing importance.

The Airborne Command is charged with sharpening the edges of this weapon and with developing a technique which will make its employment most effective. It consists of the airborne divisions, the Parachute School, parachute brigades and regiments not assigned to airborne divisions, and of numerous parachute and glider field artillery and antiaircraft units. The Command is responsible for the training of all airborne divisions, and for training standard infantry divisions in the use of transport aircraft. Additional functions include the development of airborne equipment and matériel, and the development of supply by air utilizing parachutes, gliders and aircraft.

Closely allied to the Airborne Command is the Troop Carrier Command, which furnishes the transport airplane and glider units for all airborne troops. Set aside at glider stations throughout the country are facilities and training aids for the use of airborne units sent there for that phase of their training.

It is true that airborne units are organized and equipped for special operations, and that parachute elements consist of volunteers, but the fact is stressed that the parachute, glider and airplane are but different means to place the soldier quickly near his objective. Upon landing, the action is that of other ground units, modified by the use of special equipment and weapons, and characterized by a reduction in motor transport

Parachutes open
as troops bail
out.

Command

and the necessity for supply by air. The airborne soldier should possess military skill of a high order, and, likewise, his effective employment demands aggressive, intelligent leadership in small units.

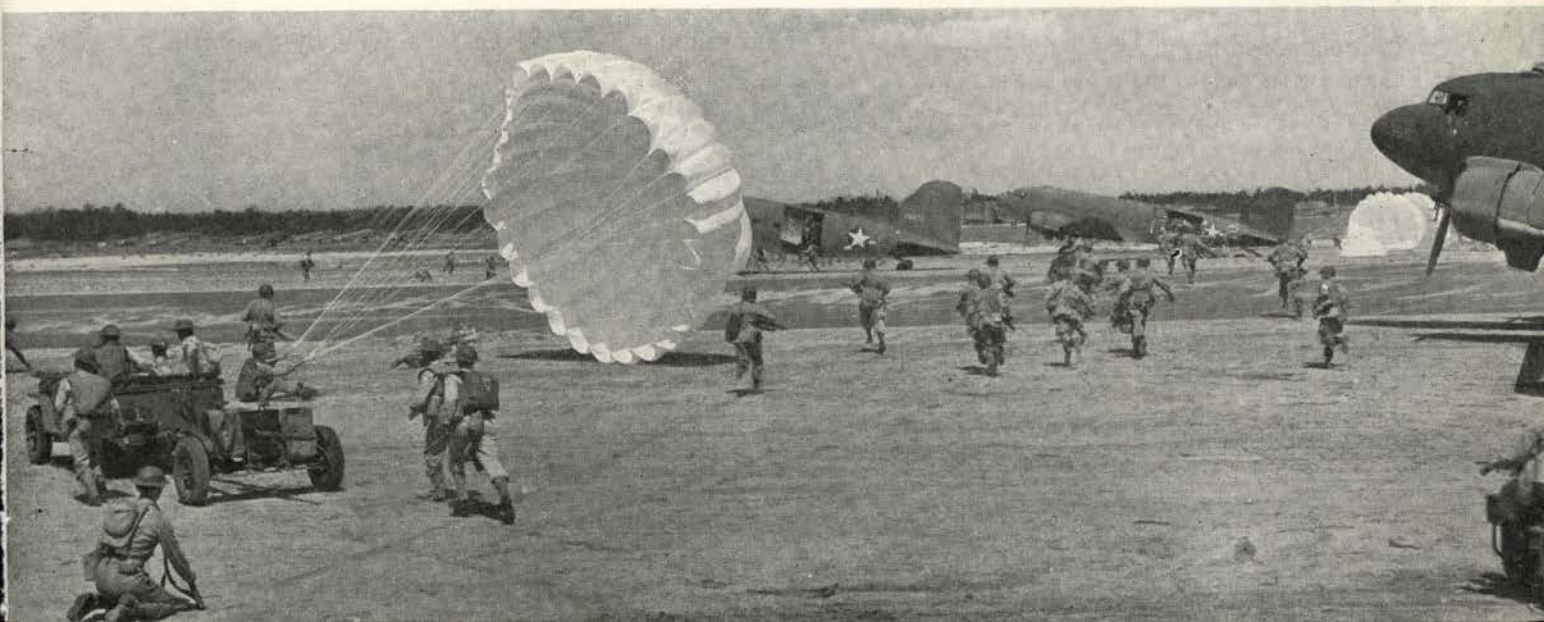
The landings of airborne troops will usually be made in enemy territory. The term "shock troops" is not inappropriate, but the idea is far from correct that these are in any sense either "Commandos" or "suicide units."

The employment of airborne troops presupposes a strong superiority in the air, a continuing support by fighter aircraft, and the employment in mass and in conjunction with other major elements of the ground forces. An airborne operation is too expensive to permit failure, and accordingly must be favored with more than the usual number of factors required to insure success.



Airborne troops landed in enemy territory are prepared for immediate action.

Troops of the Airborne Command take an air field during maneuvers.



Principles and Modern M

"Send ye men up in the land beyond Jordan to spy out the ways thereof, the going and the coming of the people, the wines and the honeys of the land."

So spoke Moses to his assembled captains some three thousand years ago. Today, such a mission is called reconnaissance.

THE collection of information concerning enemy and terrain has been a vital factor in the success of every military operation since the dawn of history.

Reconnaissance agencies today are many and varied. To insure the continuous collection of information in every theater of this global war, reconnaissance units must be trained and equipped to function in the jungles of Burma, the deserts of Africa, or the hills and plains of Europe. Depending on terrain, these units will operate in vehicles, on horses, on skis—or on foot.

Successful reconnaissance in any theater, however, must follow certain basic principles. The following are some of the most important reconnaissance principles:

1. Every commander is responsible for initiating his own reconnaissance in any tactical situation.

The overall intelligence plan of the G-2 does not release the subordinate commander from this responsibility. He must insure that reconnaissance for his own unit is made within the unit's zone of action.

2. Reconnaissance should get information of the enemy and terrain.

a. Information of the enemy includes type and composition, location, strength, and disposition.

b. Information of the terrain includes roads, bridges, wells, lakes, rivers, contaminated areas, landing fields, and bivouac areas.

3. Missions assigned reconnaissance agencies must be based on their capabilities.

a. Reconnaissance units, whether vehicular, horse, or foot, have definite limitations as to rate of march and width of zone they can cover.

b. The road net, type of terrain, weather, attitude of civilian population, and enemy resistance must be con-

sidered carefully before reconnaissance missions are assigned.

4. Reconnaissance must be coordinated.

a. The intelligence plan must provide overall coordination by assigning zones, objectives, and definite missions to each unit.

b. The intelligence plan must be familiar to all reconnaissance units or agencies so that duplication of effort is avoided and mutual cooperation is insured.

5. The minimum number of reconnaissance agencies necessary to gain required information should be used.

a. Bearing in mind that reconnaissance must be continuous, the intelligence officer should maintain a "reconnaissance reserve" for unforeseen contingencies and for relief of overworked reconnaissance units.

b. The hardships and difficulties encountered in performing reconnaissance missions make frequent relief of reconnaissance units mandatory.

6. Reconnaissance is classified as distant, close, and battle.

a. Distant reconnaissance is normally performed by the air force and by vehicular units and is strategic in nature. It seeks information of large enemy forces whose location and disposition will probably change before contact is made.

b. Close reconnaissance is normally performed by vehicular and horse units and is tactical in nature. It seeks detailed information of the strength, composition, disposition, and movements of enemy units with which our troops shortly may become engaged.

c. Battle reconnaissance is normally performed by vehicular, horse, and foot elements. Its aim is to follow the shifting fortunes of battle and to obtain information

Methods of Reconnaissance

which may enable the commander to take advantage of any enemy weakness or to strengthen his own lines when and where necessary.

7. *Reconnaissance forces are located with respect to the enemy.*

a. The location and movements of reconnaissance elements, unlike security elements, depend upon the location and movements of the enemy.

b. Frequently, reconnaissance elements may be on the enemy's flanks or rear, cut off except for radio contact with the parent unit. Operation is obviously hazardous and resupply difficult.

8. *Reconnaissance forces move by stealth; they fight only in self-defense or to get the required information.*

a. The mission of reconnaissance agencies is to obtain early information of hostile main groups. Reconnaissance units, therefore, must not be delayed by unnecessary combat.

b. The German Army puts it this way—"When patrols and detachments have learned all that is possible by skill and artifice, the commander must fight to make the enemy show his actual strength. If the enemy's screen is thin, he may break through it; if the hostile groups are too strong, he must maneuver to get around them. . . ."

9. *When closing with the enemy's main force, reconnaissance is intensified.*

Information as to general location and approximate strength of a distant enemy is normally sufficient. As contact becomes imminent, however, the commander requires increasing detail—location of artillery, tanks, automatic weapons, and reserves—so that he may dispose his own troops to the best advantage.

10. *Reconnaissance must be continuous.*

The search for information must be unceasing. The enemy's location and disposition, like ours, is constantly changing. Contact is secured as early as possible and once gained is never lost.

11. *Information obtained by reconnaissance units must reach the commander in time to be of use.*

a. The commander of a large unit requires early information so that he may maneuver his forces to the best advantage before contact becomes close at hand.

b. Reconnaissance is extended the maximum possible distance in the direction of the enemy so that the

commander will have the maximum time to act on information received.

12. *Personal reconnaissance by the commander is necessary for the most intelligent employment of his unit.*

Regardless of the size of the unit, a commander who has personal knowledge of the situation can employ his unit far more effectively than the commander who relies on information from others.

These principles of reconnaissance will apply regardless of the terrain or type of reconnaissance agency employed.

INSTRUCTION

Reconnaissance instructions now vary from the simple oral order given a patrol leader to the detailed written instructions, accompanied by map or overlay, given the commander of a reconnaissance regiment or group. Changes No. 7 of *Basic Field Manual* 101-5, dated February 3, 1943, specify the use of Form 13A, *Intelligence Instructions*, and Form 13B, *Reconnaissance Instructions* for use in Service Schools to insure uniformity in instruction in the formulation of orders to be issued to reconnaissance agencies. Either one of these forms, however, will aid the intelligence officer in the field in preparing reconnaissance instructions and in coordinating all reconnaissance activities in his unit. The use of the above forms is strongly recommended.

The Cavalry School has prepared a notebook or log entitled "*Reconnaissance Instructions and Work Sheets*." The purpose of this reconnaissance log is to train the reconnaissance patrol leader in what to look for. The log is in loose-leaf form with a durable cover. It can be folded and placed in dispatch case or saddle bag. On the cover are listed items of information which the commander usually wants to know. The collection of information concerning these items should be SOP for all reconnaissance units. Under each item of information is listed everything a commander desires to know concerning the item. For instance, under item number 7—*Landing Fields*; the following appears concerning landing fields:

Airports—Airdromes—Landing Fields

(State which)

1. Location.
2. Dimensions (width and length).
3. Type, number, and condition of runways (dirt, gravel, pavement, asphalt).

by Lieutenant Colonel Allen D. Hulse, Cavalry

2d Cav Div
York, Pa. (395-765)
1600, April 6, 1943

INTELLIGENCE INSTRUCTIONS

No. 1-D
 To: CO Rcn Det No. 1 (92d Rcn Sq) Effective 0500 April 7 1943
 Maps: Special Map A. Strategic Map, Gettysburg -
Richmond, 1 inch = 4 miles, Gettysburg Sheet

REPORT ALL INFORMATION OF THE ENEMY AND IMPORTANT FACTS ABOUT THE TERRAIN WITH PARTICULAR ATTENTION TO THE ITEMS CHECKED (✓) BELOW.

Special Instructions

(AREAS AND ROADS TO BE OBSERVED, IF NOT INCLUDED IN UNIT'S NORMAL SECTOR OF OBSERVATION. SPECIAL INTELLIGENCE ACTIVITIES. HOUR AND DESTINATION OF REPORTS.)

1. RAILROADS—Traffic densities, detrainments.
2. CONCENTRATION AREAS—Location, strength and composition of troops, activities, movements into, movements from.
3. ASSEMBLY AREAS—Location, strength, and

a. Move at 0500, April 7 to
the line: Blue Ridge Summit
(310-730) - Thurmont (330-710)-
Western Maryland Railroad;

Sample form for Reconnaissance Training.

4. Type, number, and approximate size of hangars and other buildings.

5. Extent of natural cover and concealment for planes.

6. Repair shop and servicing facilities available.

7. Existing communication facilities—radio, telephone, telegraph, teletype.

8. General kinds and approximate quantities of supplies on hand—fuel, oil, water, etc.

Obviously a detailed reconnaissance of a landing field following the above form would result in a wealth of information. The other items of information are similarly expanded so that the reconnaissance patrol leader may find out practically *everything* the commander wants to know about a specific item. Obviously, the log should not be taken into active combat. The use of the log in training, however, is recommended. It will aid the reconnaissance unit commander in teaching subordinate leaders to *look*, and *what to look for*.

EXECUTION

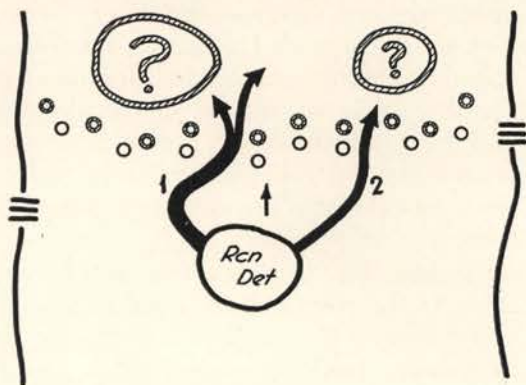
The reconnaissance unit commander cannot, in general, be bound to any particular method of carrying out his mission. There is a great variety of methods, depending again upon the terrain and the actions of the enemy. Generally a line or wave of reconnaissance patrols, followed by the reconnaissance detachment, ad-

vances rapidly toward the enemy. The speed of the patrols is regulated and controlled by phase or report lines. Initially, the patrols must move as rapidly as practicable. Every minute wasted decreases the distance between the main bodies and, therefore, reduces the freedom of action of the higher commander. Support units initially march approximately in the middle of the reconnaissance zone, prepared to move rapidly to any critical area.

Hostile reconnaissance and security patrols are avoided if possible. Terrain must be used to the best possible advantage. Patrol leaders must keep the mission in mind continuously. They must contact the *major* units of the enemy. Their successive messages and the results of personal reconnaissance gradually form a picture in the mind of the detachment commander. The lines of the picture are here sharp, there vague. Now reconnaissance must be intensified. Additional patrols are sent out to obtain information which will broaden and brighten the picture of the enemy. In addition, as forward patrols contact major units of the enemy—an infantry battalion here or a cavalry squadron there—their zone or route reconnaissance phase is over. Now observing and maintaining contact, they must report every move made by the hostile unit. Other patrols, therefore, must be sent out to continue reconnaissance and to contact hostile units as yet unreported.

Combat On A Reconnaissance Mission

- 1-Break through to continue reconnaissance.
- 2-Develop an obscure situation.



COMBAT

As hostile resistance becomes stronger and security patrols more aggressive, reconnaissance enters the combat phase. Reconnaissance units engage in combat for two main reasons: either to develop an obscure position—force the enemy to show his hand—or to break through a hostile security screen so that reconnaissance may be continued deep into enemy controlled territory. Support elements, tanks, infantry, or artillery, are moved rapidly to a critical area and committed under the command of a designated officer or the reconnaissance detachment commander himself.

If the hostile position proves to be too strong, the reconnaissance detachment commander must be prepared to break off action and to withdraw, leaving a patrol or two in observation. For, after all, has he not accomplished his purpose? The enemy has been forced to fight and thus disclose his dispositions and perhaps the locations of his stronger elements. This is the information the higher commander wants.

Lest we forget, detailed reconnaissance in the presence of the enemy is executed *dismounted*. The man on the ground is not only master of the battlefield, he is also the most effective and reliable intelligence agent. Air reconnaissance gives us an instantaneous picture of the enemy over a wide area. Weather, terrain, and hostile antiaircraft measures handicap the aircraft. Vehicular reconnaissance gives us distant ground reconnaissance. The most fanatical mechanized soldier, however, will admit that he obtains little information while moving in his vehicle. He must dismount and reconnoiter on *foot*. The same applies to horse reconnaissance. The accepted rule is—march as fast as possible but reconnoiter dismounted.

These fundamentals carry over into special operations—reconnaissance in the desert, jungle, and mountains.

DESERT RECONNAISSANCE

Reconnaissance patrols in the desert are normally vehicular. They move rapidly across country in widely dispersed formations. Lack of terrain features may limit the use of zones and phase lines for control. Compass

direction and march rate must provide control. Supplies—fuel, water, and ammunition—must be carried in sufficient quantity to last for the duration of the mission.

The famous "Desert Rats," army reconnaissance units of the British Eighth Army, frequently spent weeks at a time operating in the rear or on the flanks of Rommel's Army, before returning to the Eighth Army for rest and resupply. Messages to the higher headquarters are normally sent by radio because of the great distances involved. Colored flags are widely used for local control. Dismounted reconnaissance during daylight must be cautious. The dismounted patrol may easily be captured or destroyed by a motorized enemy. Close co-operation between air and ground reconnaissance agencies is imperative.

JUNGLE RECONNAISSANCE

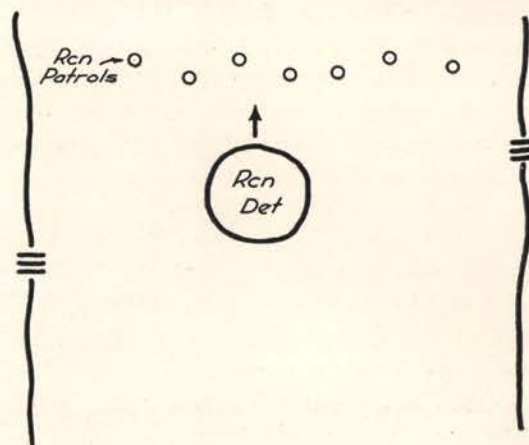
Reconnaissance patrols in the jungle are normally dismounted. They vary in size from two men to a platoon. The three man patrol, one member being a specially trained intelligence scout, is considered ideal by the Marines who made the initial landing on Guadalcanal. The patrol must move in close formation and must use swamps, rivers, and hills not as obstacles, but as avenues of approach.

Frequently, reconnaissance patrols are sent out in successive waves, a favorite method of the Japanese. This provides for the support and security of forward patrols and provides also for continued reconnaissance if leading patrols are lost or ambushed. The use of air reconnaissance is obviously limited in the jungle. The value of radio communication is also minimized. Even the portable radio may prove too bulky, and the close contact with the enemy makes use of voice or key dangerous. Training for jungle reconnaissance must stress night operations, training in patience, and training in maintaining direction, day or night.

MOUNTAIN RECONNAISSANCE

Reconnaissance in mountainous terrain may be accomplished by horse or vehicular units in summer and

Reconnaissance—Initial Disposition



by dismounted units on skis in the winter. Reconnaissance patrols must be strong in combat power and, again, must carry with them supplies for the duration of the mission if the terrain is barren of wild life or other natural food or forage. Equipment must be light and durable, clothing light and warm.

Wooded areas restrict the use of air reconnaissance to the same extent as does the jungle. The radio, however, may be widely used for communication. The reconnaissance patrol moves rapidly from one observation point to the next in column or open formation as the terrain permits. When contact with the enemy is gained, reconnaissance must be made on foot.

Supply in these special operations is extremely difficult. The reconnaissance patrol will frequently contact enemy supply dumps, truck parks, and other rear installations, the destruction or capture of which may seriously handicap the enemy. Often, therefore, reconnaissance over special types of terrain may have the secondary mission of combat.

CONCLUSION

The principles of reconnaissance are not changing. Modern equipment and methods have simply required

a different application of some of the principles. Modernizing influences in the current war include: the use of the fifth column—coördination of reconnaissance units, operating deep into hostile territory, with fifth column agents; the expanded influence of air reconnaissance and the development of the air-ground reconnaissance team; the use of armored vehicles for reconnaissance; and the coördination of reconnaissance agencies in different arms and echelons to insure mutual coöperation, to provide for a "reconnaissance reserve," and to avoid duplication of effort.

Reconnaissance forces are the eyes and ears of the commander. It therefore behooves the commander to select reconnaissance personnel with great care. Reconnaissance training should be centralized. Its aim should be the development of initiative, mental mobility, and resourcefulness. The German Army early recognized the great part that reconnaissance plays in modern war. In 1941 the following was extracted from an official German Army journal:

"Reconnaissance requires of both officers and men a degree of decision, of independent thinking and action, of broad technical knowledge and military skill, such as is required of no other soldier."



The Good Instructor^{*}

The soldier is the individual link from which the whole chain of the Army's organization is built.

The man primarily responsible for the forging process is the instructor. His rôle is a most vital one and should, therefore, be fully understood.

Many instructors lose sight of the fact that the man of today was a boy of 15 when the war started. It is not at all surprising, therefore, that he should be somewhat mystified as to the meaning of all this fighting. It should be remembered that 18 is a highly impressionable age, and that he is now expected to mould the soldier and, what is more important, the man.

The man who does not understand the *cause* for which he fights can never possess sound morale. The instructor can help in this direction by giving a brief explanation of the causes which led up to the war, the reasons for our failures so far, and at the same time point out that, no matter *what* the reasons are, our goal remains the same—the defeat of the Axis Powers. He should endeavor to discover his students' outlook and points of view by organized discussion, and at the same time make it clear that "points of view" would go by the board should Hitler win.

The instructor must always be up to the mark—keen, efficient, enthusiastic and *inspiring*; otherwise, he cannot hope to obtain the best results. In short, he must be the "pattern" upon which the men under instruction

will be expected to shape themselves. When teaching, no matter how good he may be (or thinks he may be), a lesson should always be prepared beforehand. Marshal the facts, excluding everything irrelevant to the subject to be taught. At the same time, preparation must be flexible, in accordance with the capabilities of the students.

He should never take his own knowledge for granted and assume too much when teaching; remember that this is something entirely new to the men.

He must never lose sight of his own experiences as a recruit, or become too impatient with the man who is rather slow in absorbing knowledge. Some men take time to "digest" what they have learned, and yet often possess the best memories.

He must never forget that a squad is composed of individuals, drawn in most cases from widely different environments. His job is to blend them into *unity*.

The men must be encouraged to find out the answers for themselves. Knowledge thus gained is more easily retained than a mere parrot-like recital of the facts.

The aim must always be *collaboration*, and not a slavish submission to a dull routine.

It is the duty of every instructor, interested in his work, to take frequent stock of his own knowledge and, if necessary, bring himself up to date. He will probably never know all the answers; he can at least endeavor to know them.

^{*}Courtesy, *The Tank*.

HORSE BREEDING

Conditions in Europe

What are they? From Poland, Norway, Denmark, Holland, France and Belgium, horses have been bought or requisitioned in great numbers and exported to Germany—where they are used for agriculture, draft, and war.

*by J. Clyde Marquis**

THE progress of horse breeding in European countries since 1938 has been seriously hindered by German requisitions and unsettled conditions. Recent reports indicate that as a result of the shortage of horses caused by army requisitions, there has been an increasing use of cows for farm work in addition to the oxen normally used.

The concensus on the problem of rebuilding European livestock after the war generally is that it is primarily a matter of encouraging natural increase, and that relief by livestock shipments from overseas, while valuable, particularly for certain countries, would be limited by shipping facilities to relatively small numbers.

Alternate measures suggested are:

1. Restriction of slaughter of breeding stock, (for application principally to stock other than horses).
2. Expansion of veterinary facilities to reduce losses from diseases.
3. Importation of animals from near-by countries, primarily Axis countries.
4. Encouragement of artificial insemination.

Details of breeding plans contemplated since 1938, by the different countries, are not available. However, the following information gathered from various sources is of some interest.

GERMANY

The total draft work (presumably in 1941-42) per-

*Foreign Information and Statistics, U. S. Department of Agriculture.

formed in Germany was 3.92 billion horsepower-hours per year, of which 88.7 per cent was done by draft animals, distributed as follows in percentages:

	Per cent
Horses	71.5
Oxen	7.7
Cows	9.5
Total	88.7
Tractors	11.3

The percentage of tractors used on farms of different sizes was as follows:

0.5 to 2 hectares (1 to 10 acres)....	3.6
2 to 5 " (11 to 48 ")....	1.8
5 to 20 " (12 to 49 ")....	11.03
Over 100 " (247 ")....	32.35

Following the various campaigns of Germany in the East, North, and West, it is stated that a large number of horses, requisitioned by the Germans in Poland, France, Holland and Belgium, were brought to Germany and sold to German farmers and other users of horses. Consequently, many foreign horses now have German masters. The new owners were cautioned by the authorities that at first, difficulty would be encountered in making these horses understand directions, and advice was given on how to teach the animals to take commands in German.

Formerly, Germany imported all the mules used. About three years ago (1937), the first mule foal was born at Graditz-Repitz, where a stud had been estab-

lished near Torgau, Prussian Province of Saxony. By means of asses imported from Italy and America, breeding activities were expanded, and it is stated that Germany is now nearly self-sufficient as regards the mule requirements of the Germany Army. The mule foals are kept at Graditz-Replitz only a few months and then are sent to the Bavarian Alps to become accustomed to their future field of activity. There they are also trained for military purposes.

FRANCE

The Germans have already taken many horses out of France, and last summer were threatening the wholesale requisition of horses if the farmers continued to resist. The German Re-Mount Service negotiated with the French Government (Vichy) for the right to buy horses to replace motor traction in Russia the following winter. The French Government, in order to help the farmers and curb speculation, had fixed a maximum price of 36,000 francs (about \$82) for a horse. A year earlier, horses cost only 10,000 francs (\$23). The Germans asked the suspension of the fixed price in their favor to allow them to offer 40,000 francs (\$91), and also asked that they be given prior rights in the markets.

That was not enough, so they increased their offer to 50,000 francs (\$114) and finally to 55,000 francs (\$125). Still, they were unable to get enough horses, so they advertised in the French press that if they could not get enough horses, they would resort to requisitioning. Free France did not produce enough hay and grain for winter feeding. Consequently, there has been a heavy mortality of animals, believed to be equivalent to 4 per cent monthly. Stock breeding had virtually halted by last summer. According to the latest census, France had the following numbers of breeding stock:

	November 1929
Stallions for breeding	5,835
Draft horses	177,591
Stallions for breeding and work ..	11,674
Geldings	936,787
Mares for breeding	45,494
Mares for breeding and work ...	579,794
For producing mules	22,361
For work only	543,606
<hr/>	
Other horses	172,942
Stud stock	3,414
Army	71,815
1-3 years	369,140
Under 1 year	195,156
<hr/>	
Total	3,135,609

Of the total number on hand, 2,887,438 were described as farm animals. The principal breeds of horses were as follows:

Breton over	140,000
Maine over	110,000
Trait du Nord (Northern draft) ..	120,000
Normandy	80,000
Boulonnais	70,000

Farm horses of 3 years and over numbered 2,323,000.

CZECHOSLOVAKIA (FORMER)

At present, it is considered important to import horses for breeding, especially of the Belgian, Nonius, English, and Arab half-blood breeds. No large decrease in numbers has occurred. The principal breeds with the location are as follows:

Bohemia-Moravia Protectorate

Belgian—heavy draft
Oldenburg—medium draft
English—half-blood—light draft
(Moravia especially)

Slovakia

Nonius—medium draft
English, Arab and Anglo
Arab half-bloods and Lepizan (light draft)

Sub-Carpathian Russia

Huzul (Suitable for carrying loads)
Stallions kept for breeding 1936—1,533 head.

POLAND

At present, it is estimated that there are about 40 per cent fewer horses in Poland than prior to the war. Prior to the war, the horse population was as follows:

One year and under	296,000
1-3 years	292,000
3-4 years	182,000
4 years and over	3,120,000
<hr/>	
Total	3,890,000

Of the total, 2,982,000 were in rural areas.

There has been a complete requisitioning of horses since Russia entered the war. *The Germans have requisitioned all possible horses in central Europe for the Eastern Front.* In order to resume normal farming in Poland, about 4 million horses must be returned to that country. The best sources are Germany, Hungary, Sweden, and the Middle East. The most suitable types to be found outside Europe are in North Africa, South America, and light breeds from the United States and Canada.

Lack of horses in other European countries and lack of ships and difficulties of shipping overseas will make it difficult to import the necessary number of horses.

DENMARK

Denmark has been required to export a large number of horses to Germany. During the period October 1,

1941, to September 30, 1942, 15,700 horses were so exported. In 1942, approximately 14,900 horses were released compared with 16,000 in 1941 and an average of 6,000 for the years 1930-34. Originally, 20,000 horses were to have been moved, but notwithstanding favorable prices, Danish owners were unable to supply that many. About 24,000 draft horses are in use in Danish towns at present. Exports are destined almost entirely for Germany and German-occupied territories in the East.

The abnormal fodder situation in the spring and early summer of 1942 caused extraordinary losses of colts as well as of other young animals. Colts are needed to replace horses that have been sold (presumably to the Germans). The death rate among colts in the Holback district was estimated at 40 to 50 per cent of the number of births.

NORWAY

More Norwegian horses have been bought recently by German authorities, both for export and for the *Wehrmacht* in Germany. Thus a severe shortage of horses has developed in Norway for farm work owing to both the German requisitions and to the need for horses for forest work as a result of the fuel shortage. Many Norwegian farmers will be forced to use cows for plowing this spring and such an improvisation is being encouraged by the Minister of Agriculture.

SPAIN

The Minister of Agriculture stated last summer that the number of horses in urban areas was in excess of that which could be fed from available fodder supplies. At the same time the number of farm mules has fallen at least 60,000 head below actual needs. This shortage is being aggravated by the fact that while the mortality rate is exceeding the birth rate, farm mules cannot be imported. The number of horses has decreased materially since pre-civil-war days and, at the end of 1941, were 27 per cent less than in 1934.

PORTUGAL

There was an appreciable decrease in livestock numbers in Portugal in 1941-42; the decline amounted to as much as 30 per cent in horses, mules and oxen. This decrease may be attributed to larger "on the hoof" exports to Spain and a virtual suspension of imports of draft animals from the colonies.

GREECE

The Greek horse derives its origin from the horses of Hungary, Italy, Bosnia, Algiers, Tunis and Asia Minor. The crossing has been so irregular that the typical horse today represents an heterogeneous mixture of various races. The animals are small and incline more or less to the oriental type. Only on the plains of Thessaly, Ilis and Argos are found animals of good build. The

different breeds of horses in Greece are described as follows:

Skyros pony—Island of Skyros is the place of origin. They are strong, hardy, agile, spirited and intelligent and are raised throughout the year under primitive and semi-savage conditions. They forage for food and water like goats.

Pindus horse—Raised by the nomads in the Pindos mountains. Herds consist mainly of mares and foals. Under the hard conditions of their normal way of breeding, they are small, but if given ample nourishment at an early age would develop into the heavier type of the western European horse.

Foreign breeds—Outstanding foreign breeds used for agricultural work are the Hungarian horses of the Nonius and Lippitza breeds.

RUSSIA

In relation to the total number of animals on collective farms in Russia, there are more horses than any other livestock. Early in March of 1942, norms were fixed for field work by horses, oxen and cows as draft animals with certain inducements offered for this use. The number of draft animals was to be supplemented by the use of cows for plowing and by increasing the number of bullocks to replace horses requisitioned by the army. There is a serious shortage of tractors.

Agricultural leaders of Volhynia and Pedolia stated at a recent conference that 1,780 stallions and 4,066 mares had been selected for breeding; also, that 3,395 head of red cattle and 3,398 of black and white had been purchased from farmers and segregated into 179 herds. These measures will form the foundation of future development of breeding. To increase the stock of draft animals, 16,500 colts and 10,500 oxen were placed in the so-called colt and oxen farms.

Because Hitler needs all of the horses that he can get, portable X-ray machines have been rushed to the Eastern Front to determine the nature of an injury immediately.

European.



Wild Horses Join the Army "D

ROUNDED up from the open ranges of frontier Australia, a herd of wild broncos is turned over to the American Army for basic training. These horses, many of which have never seen a human being before, are first run into the river for a cleansing, soothing bath. Then follows the "breaking," which American soldiers prefer to call "gentling," and which is handled as humanely as possible. The horse is allowed to become accustomed to the nearness of mankind, and then is run into a corral and haltered.

The next step is to accustom him to the feel of the saddle. Then he is released, and allowed a chance to

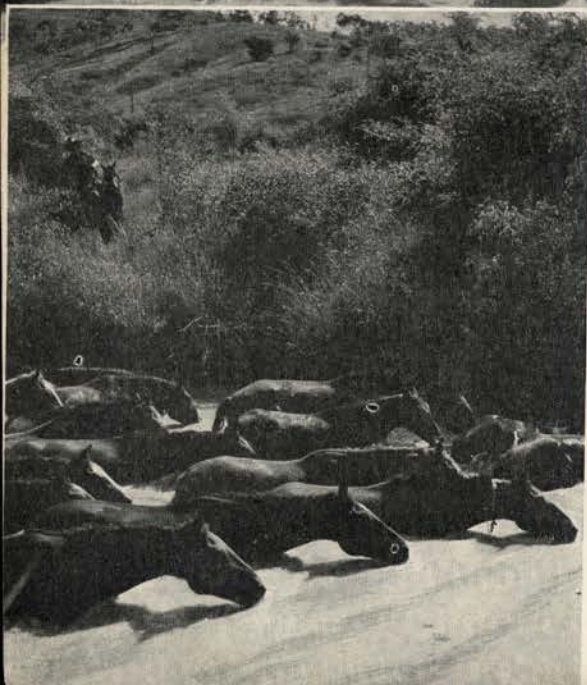
get accustomed to the saddle. The next event on the program is to turn the horse over to an Australian breaker who uses the methods of the American bronco-buster.

After this period, which rarely lasts longer than two weeks, the horse is given a "GI" haircut and started on advanced training. He is taught to carry any one of the six component parts of a broken-down 75mm pack howitzer and other matériel and supplies, and to take his place in the line. Only occasionally is a foal born in this outfit, but such naturally become the pets of the regiment.

Official U. S. Army Signal Corps Photos



Horses from the open range are guided into a near-by stream by Australian horsemen.



Horses are being given a bath after unloading them from freight cars in the depot area.

Some of the wild ones object to being a friend to mankind.



own Under"

A few weeks of gentling soon changes their attitude.

Official U. S. Army Signal Corps Photos

This one got loose but quieted down later.



On maneuvers, horses given a drink near picket line, while they being rested from the weight of their packs.



The pack train continues its trek across a stream in the Australian hinterland. As well as food and ammunition, horses carry 75mm pack howitzers broken up into six component parts.



The Air-Cavalry Team in

Tactical Aviation—the modern Pegasus—works with all ground arms, but his coöperation with Cavalry has an effectiveness born of close kinship.

LITTLE is known of the war record of the legendary winged steed, Pegasus, but it is probable that he flew many a military mission before he was tamed by the Muses. He could operate in three dimensions with superior mobility, and he had power. Did he not kick a hole in Mount Helicon? Weather limited his operations, and at night he was not very effective. His wings were fragile and he probably required 100-octane oats. Nevertheless, he must have been exceedingly useful in those heroic Olympian campaigns prior to the Trojan War.

Today, Pegasus is with us again. We call him Tactical Aviation. As before, he operates far and wide; he fights, harasses, raids, observes, screens, delays, exploits, and pursues.

Tactical aviation now includes virtually all types of operational airplanes, except the heaviest bombers. Combat experience indicates that small, fast, fighter-type airplanes are the most useful for reconnaissance. Two-seated fighters can carry observers over the enemy lines. Single seaters, capable of reaching high altitudes and of avoiding enemy fire and combat aircraft, make effective photographic planes. Fighters, fighter-bombers, and medium bombers are reported most useful for close coöperation with ground troops in combat. For liaison work behind the lines and for employment as mobile observation posts, light machines, capable of operating from small fields, have been of considerable value.

THREE PHASES OF THE AIR SITUATION

The ground commander who keeps abreast of the air situation in the theater of operations generally will be able to estimate the when and the where of air support with reasonable accuracy. He must observe the progress of three phases of air action in arriving at his estimate of the time when his requests for air missions will be granted:

Phase 1

Neutralization of the enemy air force in army's area of decisive action.

Phase 2

Isolation of the enemy's front at the point of decisive action.

Phase 3

Close support of ground forces.

In some situations, ground forces will find it difficult and inadvisable to move until supporting aviation beats down the enemy's air force. In others, cavalry and other action may be started while the struggle for control of the air is in progress. In the latter case, the supreme commander must make a decision as to the amount of aviation that he can spare to help the ground force commander. This will not be a simple matter, because assignment of direct supporting combat missions at this stage weakens the air force then struggling for superiority. Furthermore, *few effective reconnaissance missions can be flown for ground units as long as the sky swarms with enemy fighters.*

NEED FOR PRIORITIES IN AIR MISSIONS

After freedom of action is gained by neutralization of the enemy's air force, the supreme commander, with the assistance of his air commander, again faces a difficult problem involving allocation of air missions. Common sense requires that he apply the bulk of his air strength to the support of the ground unit making the main effort, but other units, particularly cavalry, require a certain irreducible minimum of aviation in order to see. The decision as to this minimum air support will vary in almost every situation. Often it may consist of a small amount of "look and run" reconnaissance or photographic aviation only.

In a situation in which a cavalry division of an army is called upon to perform the traditional mission of finding and fixing the enemy's main body, the cavalry may be the first ground element to obtain direct assistance from aviation. Whether it be mechanized cavalry or horse cavalry, it will find that every properly planned flight can extend its vision and multiply its ability to move and fight.

Normally, the cavalry commander can expect to be furnished information and photographs obtained by the air force in the course of its fight for control, and any aerial map substitutes that may have been obtained during the planning of the combined operation. Reports of "softening" attacks against the enemy's strategic installations also will help him in his estimate of the situation. A thorough familiarity with all the preliminary aerial operations is necessary in planning his own fight and in deciding what missions he will request of the supporting aviation when it is available.

Reconnaissance

by Major Roy C. Flannagan
Infantry*

In preparing for his operation, the cavalry commander must keep constantly in mind the possibility that weather or a sudden change in the air situation in the theater may deprive him of all or part of his air support. He plans with a view to using aviation to the maximum if it is there, and to accomplishing his mission without it if he must. Aerial reconnaissance often is like a pair of super-power binoculars—convenient to have as extra equipment but not indispensable in every situation. Combat air support is highly elastic supplementary fire power, but a ground mist at zero hour can render it useless.

In requesting aerial reconnaissance, the commander normally will ask the aviation to perform *missions beyond the capabilities of ground agencies*. Likewise, he will be careful with the priority of his requests so that if only a few mission requests can be granted, these will be the most useful to him. Similarly, he will take pains with his plans for any combat air missions that may be available. It would be uneconomical to ask for assistance except at critical points against targets that offer the most formidable obstacle to accomplishment of the ground mission. Normally the most profitable air targets are important enemy concentrations or installations beyond the range of ground weapons.

THE "PROCESS" MACHINERY FOR AIR RECONNAISSANCE

Reconnaissance missions rarely are combined with combat missions, although reconnaissance planes may be used against targets of opportunity if the risk is worth the effort. Combat aviation, on the other hand, though its mission is not primarily reconnaissance, often brings back enemy information and photographs obtained during its flight to and from the target area.

The cavalry commander's requests for air support are processed like those of any other subordinate command of the army. He consults the officer of the air support or liaison party which has been assigned to his unit; receives from him the latest information as to the status of the "air war" and as to the capabilities of the air support command to help him. The air officer will know how much aviation is available to support the army, and generally he will know something about the weather and other factors in the air situation. He will be much interested in the cavalry missions, because much may parallel the mission of the air support command. In "isolating the front," the air support command first must find the front with the help of the cavalry.

The machinery by which a cavalry commander's requests are sent back to the air support command is similar to that which other ground commanders employ. The request goes to air support control, to air support command, and to army commander for approval before it reaches the airdrome and the aviation unit that will fly the mission. Therefore, the wide dispersion of cavalry

increases communication difficulties.

Normally, the cavalry division commander will anticipate many of the needs of his units for aerial information and cover their principal requirements in his plan for the operation. On the other hand, a good air plan cannot be completed until a considerable number of mission requests, which originate in the regiment, squadron, and troop, reach division headquarters and are studied and coordinated. The general scheme for air-cavalry teamwork, therefore, is made up of plans which originate at both ends of the chain of command.

THE WHEN, WHERE, AND HOW MUCH OF AIR SUPPORT

Because of the high performance of modern aircraft, the occasions when air support can be decentralized to units smaller than a division will be rare in future. It manifestly would be inadvisable to assign a large unit of 400 mile-per-hour planes to exclusive operations on the front of a squadron or battalion, even if that front were extended to maximum limits. A single fast reconnaissance plane is capable of covering three hundred miles or more of front, road, or river line in one sortie of less than an hour's duration. Furthermore, as an additional incentive toward the economical use of reconnaissance missions, it may be necessary to provide each look-and-run plane with fighter protection because even a crippled enemy will try to prevent aerial surveillance of his vital installations and his important movements.

As with reconnaissance aviation support, so it may be with combat support. When the cavalry must fight, it can use fighter-bombers and bombers as effectively as other ground units, but the commander can expect only on extraordinary occasions to have an umbrella to aid him in strafing his opponent or protect him from strafing. If his fight coincides with the aerial effort to isolate the front, if he is on a critical mission such as establishing an important bridgehead, or if he is exploiting a break-through or leading a pursuit, he probably will receive support from combat aviation. Otherwise his calls for support, however important air missions may be to his particular operation, all may be placed in a low priority.

During American operations in Tunisia, ground unit commanders often reproached their air support officers without understanding why there was no aviation available. German planes sometimes strafed our ground positions at will and made a nuisance of themselves. It was only later when the complete story was told that the ground commanders realized how concentrations of air power at the point of successive main efforts had broken the enemy's air force, helped breach the Mareth line, and helped clear the way to Bizerte and Tunis. These concentrations would not have been

*Air Support Branch, Headquarters Army Ground Forces.

possible if British and American air power had been dispersed along the front.

While it is improbable that air support will be available at *every* stage of an operation, it is virtually certain that it will be available during *some* stage of every operation. It is for the latter that cavalry and other units must train with painstaking patience. The training problem is essentially that of teaming a 400 mile-per-hour force with another force that can move at 25 miles-per-hour or less, and doing it without sacrificing any of the capabilities of either. This is a formidable task.

In reconnaissance, aviation and cavalry supplement each other's efforts like two players on the same team. Airmen cover much more territory than cavalymen, but the latter can look longer and discover negative information that the aviator cannot report with assurance. Obstacles which temporarily may halt a ground patrol do not bother the flyers, but on a rainy day the pilots must remain grounded, while the cavalry continues to operate. Between the two, however, they can get the reconnaissance job done—sometimes in a remarkably short time.

In combat, the methods of the two arms differ materially. Action by air against small targets such as deployed troops generally is unprofitable, although attack aircraft effectively neutralize deployed units. The flyers must hit quickly and withdraw to reload. The aviation cannot make a sustained effort unless airplanes are available in large numbers. Favored battlefield targets are vehicle parks, convoys, bivouacs, and supply points and traffic centers.

COMMUNICATIONS AND DISTRIBUTIONS

Training of the cavalry-air team calls for particular attention to communications. Figured in the problem are several kinds of radios including the very high frequency sets most useful for air-to-ground messages. Visual signals also come into the picture because the smallest ground units may be called upon at times to identify themselves, or to point out a target area to aircraft speeding overhead. The colored smoke grenade thus far has been the most effective ground-to-air visual device, but fluorescent ground panels of distinctive color have been used with success in training. Airmen can identify themselves visually by predetermined movements of their planes in flight, or by lights or pyrotechnics.

All this is not as simple as it seems, because of the tactical considerations already mentioned. Without the most careful teamwork, hedge-hopping planes will be unable to spot ground signals, and cavalymen will be tempted to turn their weapons on friendly planes which suddenly whiz over a near-by ridge. In some situations, bomb safety lines must be marked by artillery smoke far in advance of the ground troops, and the latter must be forbidden to fire at any plane unless it starts to commit a hostile act.

The wise cavalry commander will pay much attention to aerial photography in his team training because frequently the only reliable intelligence from the air will come to him in this form. Pilots and observers can see but little of the enemy under ordinary flying conditions. Much dependence, therefore, must be placed upon photographs. The G-2 of the future who cannot interpret film strips and pin-point pictures will be at a great disadvantage against an enemy who can tell the difference between a half-track and a tank on a photograph taken at 30,000 feet.

Closely allied with the problem of quick communication, is that of distributing information, including aerial photographs. Forward elements generally need reconnaissance photographs most. The picture that enables them to make map corrections, to determine the condition of roads and bridges, and to locate objectives on the enemy side of the lines, often must be requested many hours in advance. Thereafter the photographs must be processed, reproduced, and delivered by ground or aerial messenger to a unit which often is hard to find quickly because it has had to change its position several times since the mission was requested. It is necessary also to distribute quickly to advanced units any helpful aerial photographs that have been taken by request of the division, corps, or army commander.

CONCLUSION

While recent experience inevitably has rendered obsolete certain equipment and some of the methods formerly employed, the basic doctrine expressed in FM 31-35, *Aviation in Support of Ground Troops*, largely has survived the test of battle. The value of strategic action by aviation against distant targets, and of tactical action to isolate the battlefield has been demonstrated in Tunisia and in the Pacific theaters. Furthermore, the overpowering use of close-in air support at the critical point on the battlefield was a major factor. Surprise was made possible by knocking out the enemy's aviation and blinding his army. Thereafter, the supplementary fire power and morale effect of combat aviation materially assisted during the decisive struggle.

Observers have reported that air power was a dominant factor in the break-through of the New Zealand division of Montgomery's Eighth Army at El Hamma, and in the final drive of the First Army and the American II Corps upon Bizerte.

Sky cavalry, the aerial reconnaissance squadrons which make the first contact in battle, must contain the fastest and most maneuverable aircraft obtainable. The units that cooperate most closely with ground troops have become *corps d'elite*. As for the heavy dragoons of the air force, the fighter bombers, they, too, have become battle factors as vital in warfare as once were Napoleon's *cuirassiers*—and as picturesque.

Pegasus, living in retirement on Parnassus, doubtless is very proud indeed of the flying horses of 1943.

Weapons and Realism

*by 1st Lieutenant Yale Soifer**

“. . . In your training, put your time and emphasis on the squad and platoon. . . . Teach not to waste ammunition. Learn to make every shot count. . . . The Jap has a great deal of respect for our hand grenades. . . .” — FIGHTING ON GUADALCANAL, 1943.

BECAUSE of the global aspect of modern war, an army service school must be able and ready to make frequent changes in its doctrines of instruction. Combat tactics applicable to one theater of operations may not be successful in another theater. A service school, therefore, must prepare the graduates of its officer, officer candidate, and enlisted courses for any eventuality of destination that may be their assignment.

All such instructional changes can be based on only one source—the lessons our fighting men are learning over there.

In the light of these lessons, the Weapons Department of the Cavalry School has made many additions to its program in the past few months. In general, the instructional methods in firing the weapon and in the mechanical training and functioning of the piece has not changed. But added to these is a new realism that gives the student a close approximation of the experiences that future battles hold for him.

These new courses may be grouped into three phases—new weapons adopted or in a stage of tentative adoption by cavalry units; small arms battle firing; and small unit tactics. Specifically, these include the following:

1. NEW CAVALRY WEAPONS

- a. Carbine, Cal. .30 M1.
- b. 75mm Howitzer, Assault Gun.
- c. Grenades.
 - (1) Hand
 - (2) Rifle
 - (3) Rocket
 - (4) Improvised

2. SMALL ARMS BATTLE FIRING (WITH LIVE AMMUNITION)

- a. Grenade Throwing
- b. Village Fighting

- c. Infiltration Course
- d. Small Arms Battle Firing

3. SMALL UNIT TACTICS

A seven day combat course combining small unit tactics with weapons instruction is included. The employ-

Two officer candidates enter door of a house during combat reconnaissance of the Village Fighting Course. One man, with pistol, opens door and covers entrance of sub-machine gunner.



*Weapons Department, The Cavalry School.



Mutual protection during a squad's advance through the village. A time bomb or booby-trap may go off at any minute and these officer candidates are ready for anything.

ment, emplacement and battlefield use of all arms in the squads, sections, and platoons of mechanized and horse combat elements is emphasized. *Only live ammunition is used during these tactical exercises.*

NEW CAVALRY WEAPONS

Instruction in the M1 carbine, the 75mm howitzer, and grenades, follows the established sequence of basic fundamentals: first, mechanical training, functioning, and technique of fire; then, the firing of range problems that emphasize manipulation, fire adjustment, and manufacturing and throwing grenades.

Because of restricted facilities, the 75mm assault gun instruction consists of only limited practical work by the students and demonstration of firing and tactical employment. This instruction is augmented by the use of slides, charts, and "jumbo" models of the weapons parts. The student, therefore, can become thoroughly informed of the details and theory in the functioning of the gun. Sights, instruments, ballistics, dispersion, direct and indirect fire, fire orders, and adjustment of fire are all included in the course.

The grenade course covers all types of grenades employed by cavalry units. A practical exercise in grenade manufacturing and throwing familiarizes the student with hand grenades (fragmentation, chemical, incendiary, and offensive); rifle grenades (fragmentation and antitank); launcher grenades (antitank); and improvised grenades (gasoline bottle, Molotov cocktail, tin can, and nail grenades).

Various experiments are being carried on with the rocket launcher for use by cavalry. A demonstration with the rocket launcher for the students enables them to learn of its firing methods and its penetrating qualities. The rifle grenade is also shown. It is fired from all positions, with special emphasis given to the methods of aiming and sight adjustment. Both practical demonstrations are preceded by conferences dealing with the

description, nomenclature and functioning of these special weapons.

SMALL ARMS BATTLE FIRING

Following their basic instruction, students proceed to small arms combat ranges and, with live ammunition, put to practical use what they have learned. A grenade throwing course, which emphasizes the importance of the proper method of throwing hand grenades, has been built. A simulated village of forty buildings has been constructed, where students, carrying loaded sub-machine guns and pistols, encounter the conditions peculiar to combat reconnaissance in towns and villages. As a climax to this small arms firing, a machine gun infiltration course teaches the student the priceless lesson of keeping down when advancing under enemy fire.

In the grenade throwing period, each student, using dummy rounds, practices the various throwing positions. Following this dry run, a live fragmentation grenade is thrown by each at a stone tank and stone pill box target. Stress is placed on methods of throwing, timing, making use of trenches and fox holes, and accuracy.

Each man, armed with either pistol, carbine, or sub-machine gun, goes through the village area firing live ammunition at surprise targets. Demolition bombs, booby-traps, and smoke shells bring realism to the period. One squad at a time, under a student leader, goes through the village. Strong emphasis is placed on individual protective fire, care in entering and circling buildings, reconnoitering windows, and accuracy in quick firing.

During its advance, the squad is taught to stay out of the streets and open areas. To bring this point home, a constant cone of heavy machine gun fire is laid down the main thoroughfare as the squad advances. Instructors find that they have no great difficulty in putting this particular principle across. Explosives are used to represent mortar and artillery fire.

The infiltration course climaxes the student's small arms battle firing. An appointed leader is given the mission of taking an enemy position. He must make a plan and execute it. The plan includes the advance of the group (which is composed of two squads), under the cover of a ditch, until within one hundred yards of the enemy position. From there the leader must conduct his group across an area approximately seventy-five yards wide, through thick brush, under barbed wire entanglements, and over open terrain. They must creep and crawl in the direction of the enemy position, and assault only when within hand grenade throwing distance.

Three heavy machine guns from the enemy position lay down a steady burst of fire approximately thirty inches over the heads of the advancing men. Time bombs, firecrackers, and smoke shells are used to add to the realism. By the time that he has completed the advance, the student is well aware of the importance of creeping and crawling on his belly, watching for all available types of protective cover, and taking advan-

tage of terrain. Stress is placed on the control of the group by the leader.

SMALL UNIT TACTICS

Climaxing their weapons instruction, Officer Candidate and Basic Officers' Classes spend their last week in small unit tactics problems. These exercises place great emphasis on the employment, emplacement, and battlefield use of the weapons of the cavalry squad, section and platoon.

Every student is given some part in the daily problems and is detailed as the unit leader at least once. Using only live ammunition during these periods, students learn the principles of fire control, fire and movement of squads, sections and platoons, and control of the individual soldier. Conservation of ammunition is brought out realistically. Dismounting arms and men from their vehicles or horses, and crawling or rushing over rough terrain to put the guns into action is also part of the day's activities.

Each day finds a different combat unit of the mechanized cavalry stressed. One day the students work with a fully equipped reconnaissance section, each man and vehicle carrying its quota of ammunition. Another day the problem involves the employment of the assault gun section. When assault guns are not available, they are simulated by the use of 37mm one-pounders mounted on the rear of three-quarter weapons carriers. One day is devoted to stressing the employment of the .50 caliber machine guns and the emplacement and fire missions of the 81mm mortar squads. The series of exercises is climaxed by the employment of the reconnaissance pla-

toon, supported by tanks and the assault gun section.

Horse classes move through the combat problems with fully equipped rifle and machine gun squads, sections, and platoons. One day is devoted to the antitank platoon, and the 37mm squad, section, and platoon, as well as the actual firing of the weapons. Particular emphasis is placed on offensive fire and movement and dismounted action for the horse classes.

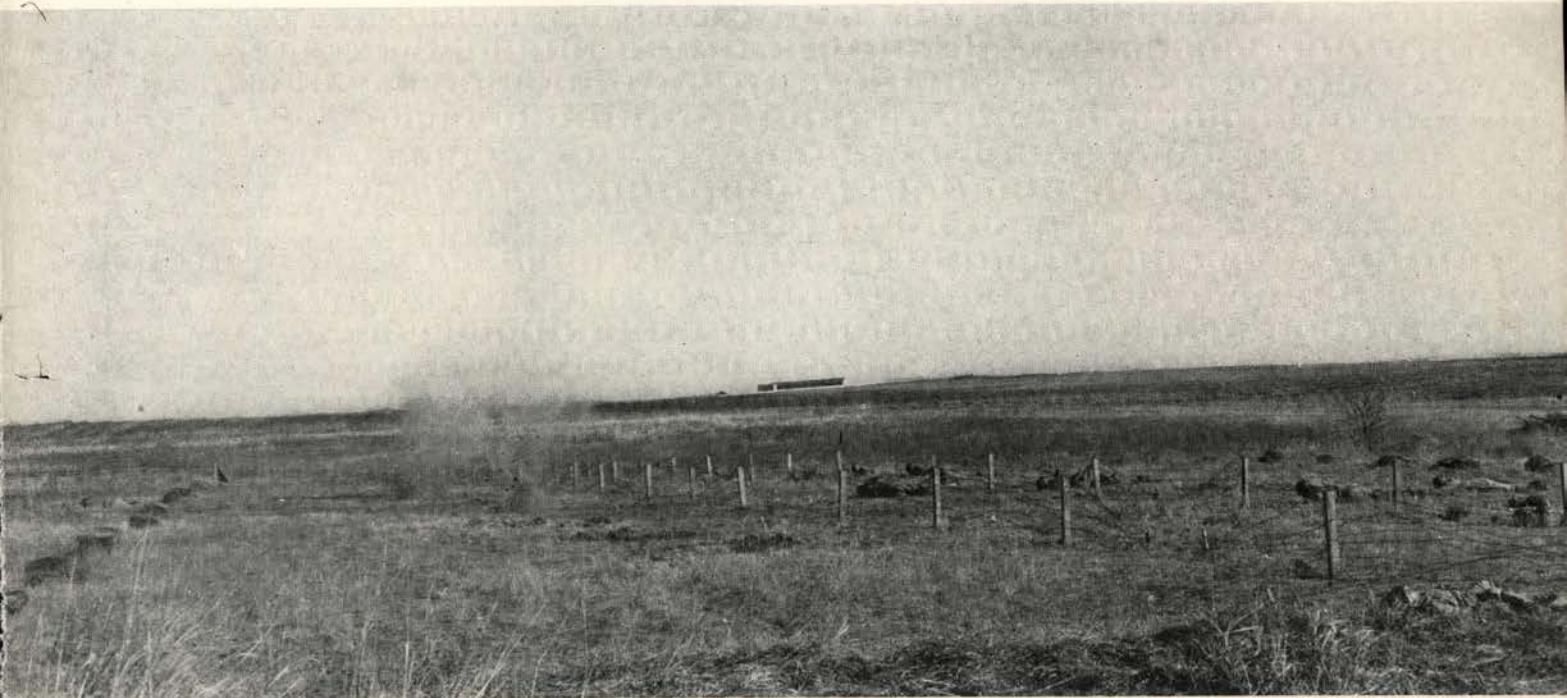
During this course, an attempt is made to develop leaders who are capable of commanding squads, sections, and platoons. It is the corporal, the sergeant or the lieutenant who, with his unit, makes the first important contact with the enemy. There cannot be too much detail in training that stresses small unit control.

CONCLUSION

The Weapons Department of the Cavalry School endeavors to bring more and more of battlefield realism into its instruction. One of the first requisites for leaders and their noncommissioned officers in combat, is a thorough knowledge and proper employment of their weapons. The use of live ammunition on small unit tactical problems has proved an invaluable means of increasing the effectiveness of combat instruction.

Undoubtedly, tomorrow will bring other changes and new lessons. Whatever they may be, whatever alterations in program they may impose, the Weapons Course will endeavor to give tomorrow's leaders a thorough knowledge of cavalry weapons, mechanically and tactically. It will stress the importance of such knowledge and will attempt to bring to the fore in each individual the qualities of leadership necessary for combat command.

Students of an officer candidate class infiltrating toward enemy position under steady burst of machine gun fire, time bombs, and smoke shells.



Rail Loading Training

by Lieutenant Donald G. Merritt*

A practical work course, in which student officers and officer candidates have the actual experience of loading a train with tank destroyer vehicles, is given by the Tactics Department of the Tank Destroyer School, under the heading of "Movement of TD Units by Rail."

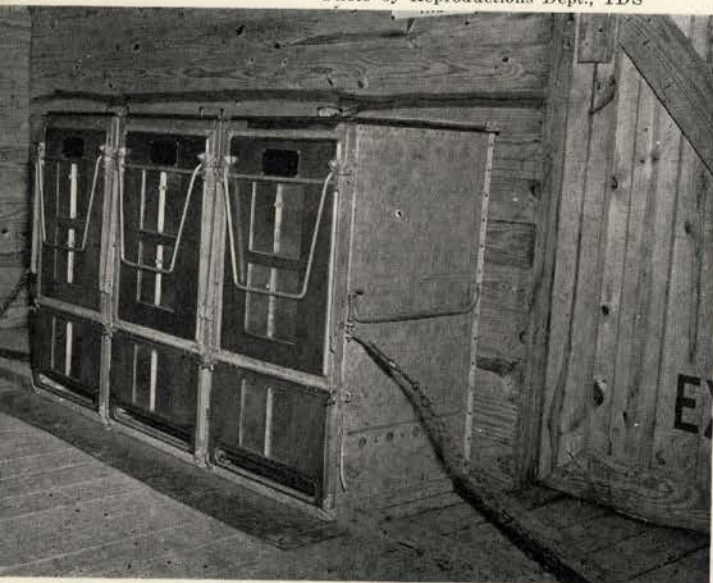
In comparison with the actual value of the instruction, the equipment necessary to present the course is both inexpensive and readily available at any post. The setup used effectively by the TD School consists of three dummy flat cars and one box car, labeled "TDS-RR." The construction of these cars is shown in Figures 1-4. The flat cars are used primarily for practice vehicle loading, while the dummy box car is used to illustrate the proper installation of kitchen facilities, including both the old Field Range No. 1 and the new Field Range, M1937, as shown in Fig. 1. Six representative TD vehicles complete the demonstration equipment.

The instruction includes a one-hour conference and three hours of field demonstration and practical work. The conference outlines briefly the general procedure for TD rail movement. In addition to the details of command and staff procedure necessary for all rail movements, emphasis is also placed upon points deemed especially pertinent. Pre-loading preparations are stressed. Timely issuance of warning orders, and their

*Tank Destroyer School.

Figure 1.—Installation of the M-1937 Field Range as demonstrated on the "TDS-RR." Students are instructed in the method of blocking ranges and securing chains. Requirements for refueling, size and gauge of sheetmetal apron and fire protection are also explained.

Photo by Reproductions Dept., TDS



essential details, is discussed. The instruction of picked unit loading crews in the early stages of their training is advocated to expedite movement in maneuver and in combat. The determination of a suitable vehicle loading order to meet any possible detraining situation is fully explained. Students are thoroughly acquainted with the loading sequence of personnel and equipment that will best provide for the type of operations necessary at the destination. Supervision and supply arrangements en route and at the detraining point, as well as counter-intelligence measures, are studied.

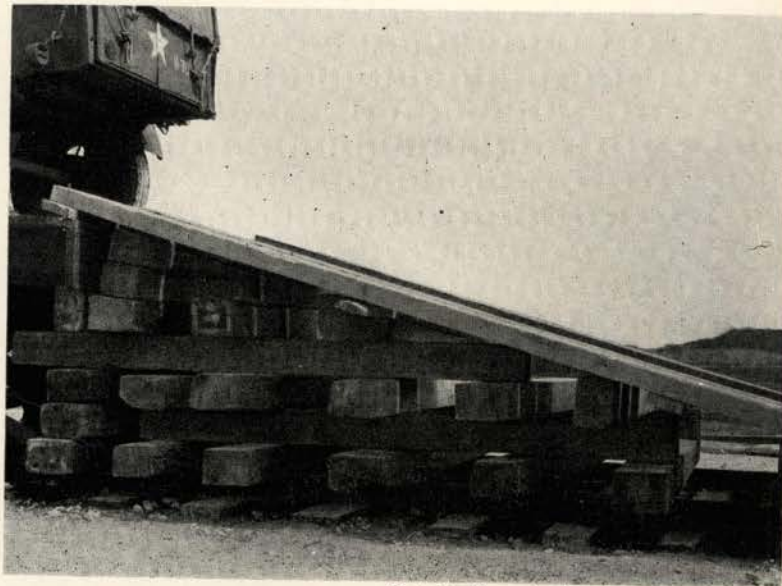


Photo by Reproductions Dept., TDS

Figure 2.—Vehicle loading ramp, showing details of RR tie construction for car of average height. Treads are 2" x 12" planking double width, spiked fast. Ramp easily supports heavy M10 Destroyer.

Suggested forms for entraining tables are distributed. These forms, drawn up by the class instructors, are designed to expedite entrainment and have proved invaluable aids to TD entraining officers. The tables are clearly and briefly drawn up to include the number and type of cars necessary, cars assigned to units and their personnel and equipment, officer assignments, and entraining times. Included is a worksheet showing car serial numbers, length and capacity, and the length, type, weight and parent organization of all vehicles loaded. Thus the loading order can be laid out well in advance and completed quickly upon the arrival of the train.

At the end of the initial class hour, the students move to the field where they are formed into small groups. One group is detailed to build the loading and spanning ramps, and one to prepare the lashing wire and



Photo by Reproductions Dept., TDS

Figure 3—Details of blocking and securing of motorcycle and M-10 Destroyer as completed by OC students. No. 5 patterns (padded) are used on cycle wheels, and Nos. 2 and 3 on M-10. Note inexpensive construction of "TDS-RR."

blocks and to secure the vehicles that a third group will guide into position on the cars. Another group is assigned to check the loaded vehicles, and the fifth to inspect the cooking arrangements in the kitchen car.

The loading ramp is designed to support the heaviest TD vehicle, the M-10 destroyer. The ramp, shown in Fig. 2, is made of old railroad ties, a supply of which should be available at all loading locations. Technical details of the construction of the ramp, spanning ramps, and block patterns are available in FM 101-10, and in the Association of American Railroads handbook, "Rules Governing the Loading of Commodities on Open Top Cars." Here will also be found the approved use of patterns for different types of vehicles.

Vehicles loaded for demonstration purposes are the M-10, the ¼-ton, the 75mm gun on the half-track, the 2½-ton truck with 1-ton trailer, the 37mm gun on the ¾-ton truck, and the motorcycle. The students guide the vehicles up the ramp in a predetermined loading order, and spot them in their proper places on the cars. The required amount of space is left for brake-wheel clearance. Using the approved materials and methods for each type of vehicle, the securing crews then lash their assigned vehicles. The eight different patterns for blocks are demonstrated (see references above). Five of them are used for the TD vehicles. The blocks are made of hardwood or straight-grained pine, and are fastened with 5-inch nails to ensure proper security without danger of splitting the block. Eight gauge black annealed wire is used for the lashing.

The lashing crew is broken down into teams, one to each vehicle, and there is spirited competition over the best and speediest job. The M-10 requires little securing because of its weight. It is blocked at the front and the rear of each track, with No. 3 patterns. Three No. 2 patterns are used along the side of each tread, as shown in Fig. 3. In this connection, full or

half-tracked vehicles must be inspected closely before blocking to ensure tightness of the track. Loose tracks may cause the vehicle to work clear of its blocks.

The ¼-ton truck, or passenger vehicles of similarly light construction, are secured by blocking all wheels front and rear with No. 3 blocks. No. 2 blocks, double height, are nailed along the side of each wheel, and all wheels are wired down. Burlap padding is inserted between the blocks and the tires to prevent chafing of the tire wall. Because of the light weight of this vehicle, a wire is also passed over the chassis, front and rear, to prevent sway.

The tracks on the 75mm SP gun are secured in the same manner as those on the M-10, except that a wire lashing is used from the suspension system to the flat car for additional security. The front wheels are blocked, using patterns 2 and 3, and are wired securely, as shown in Fig. 4. The 2½ and ¾-ton trucks, likewise, use the No. 2 and 3 patterns to block all wheels. Six wheels are blocked on the 2½-ton. Also wires are run from all wheels. The motorcycle is perhaps the most difficult to secure, because of its weight and construction. The wheels are blocked with No. 5 patterns. Four of these patterns are used, one on both sides of each wheel.

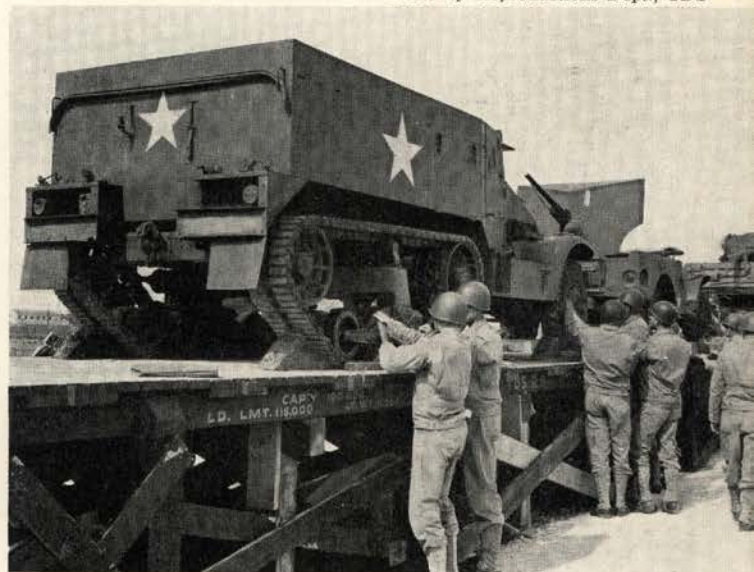
When the vehicles are fully secured, the inspecting group tests the job by checking the travelling preparations on each vehicle, the blocks, and the tension of the wire lashing. Its twisting and securing are also inspected.

The entire class then assembles and the whole procedure, particularly the securing, is critiqued by the instructor and students.

The above instruction has shown excellent results in the training of officer candidates and student officers at Camp Hood. Through them, the fundamentals of rail loading and movement have been effectively transmitted to training units.

Figure 4—OCs securing half-track, using patterns 2 and 3 and wire lashing on track. Same patterns are used on front wheels, with No. 2 patterns double height along side of wheel. Spikes not driven home for demonstration.

Photo by Reproductions Dept., TDS



Centralized Training

In the 3d Cavalry (Mecz.)

by Lieutenant Colonel Meredith C. Engel*

TRAINING of the individual soldier presents a multitude of problems in any branch of the service. But in the mechanized cavalry of today those problems are magnified beyond the comprehension of any but those who have been through the process of solving them. The volume of subjects and the number of weapons that a new soldier just introduced into the mechanized cavalry must master are so great that neither student nor instructor will have any idle time, and the ingenuity of the instructor will often be sorely taxed.

Drive — shoot — communicate are incidental fundamentals to the big job of reconnaissance, but each one is a big job in itself when it must be taught. As basic subjects in the mechanized cavalry, they constitute merely a background for every soldier. "Stables" have not disappeared—only a word has been added. "Motor stables" is quite an appropriate term, and it is surprising what an attachment the soldier can acquire for his mount. And so, to the three big jobs above, a fourth is added; combine groom, water, and feed and you have *maintain*—as essential to the vehicle as to the horse, if performance is expected when the going gets rough.

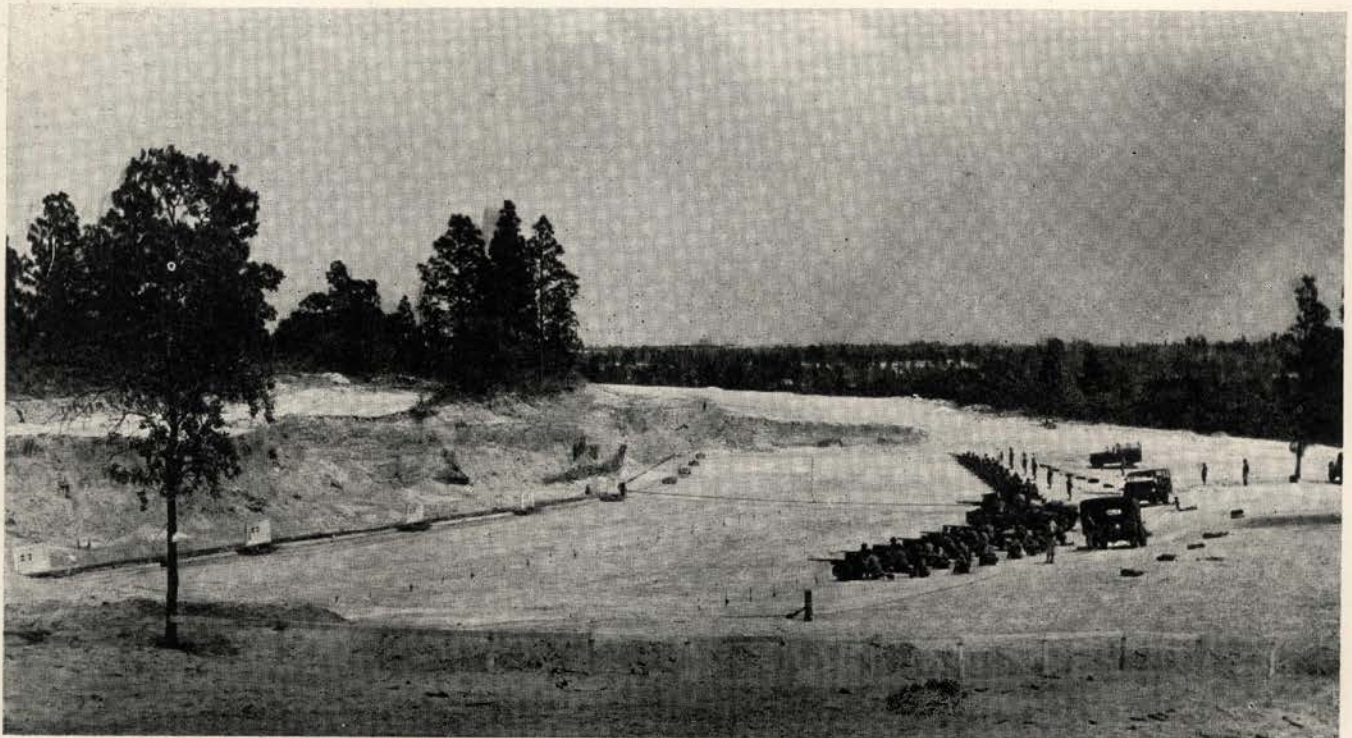
*3d Cavalry (Mecz.).

The instructors at the service schools are honest in their convictions when they each in turn advise that the best men in the outfit must be the radio operators, or the drivers, or the gunners, or the mechanics to keep the vehicles in operation. But when every soldier must be able to do at least two and sometimes all four of these things and do them well, it leaves little room for many at the bottom.

When there is much to be done and little time in which to do it, mistakes are costly. There are ways in which the task can be simplified without risking the set-back of costly errors. The expedient now being used successfully by the 3d Cavalry (Mecz.) is the system of *centralized training*.

The three big jobs about which every soldier in mechanized cavalry must have a basic knowledge—*driving, shooting, and communications*—are each centralized under the control of an officer who is especially qualified in that particular subject. It is that officer's job to plan, organize, and supervise his subject for the entire regiment.

The *Tables of Organization* provide a regimental motor officer and communications officer, who are



37mm Training on 1000-inch .22 Caliber Range



The Communications Classroom. All furniture and equipment were built by the men.

the logical officers to handle those particular jobs. For centralized training in weapons, a weapons officer must be detailed. All of these officers must have their specialized assistants, of course, and there again the *Tables of Organization* provide almost all that is needed. Each troop has its own motors officer and its communications (or radio) sergeant. Is there any harm in designating one of the troop officers as troop weapons officer, and making him responsible for all weapons instruction within that troop? "But," it is asked, "should not all officers be expert at all weapons and be able efficiently to teach them all?" Yes, and eventually they will, but the army today is being built with young officers, and they are not all efficient in everything at the start. So why not approach one thing at a time and become really proficient at that one thing? Therefore a weapons officer is selected in each troop, and the plans begin to take shape.

With this plan of centralized training, it might be suggested that the troop commanders are being robbed of their initiative. Not at all, they will have ample opportunity to display their initiative and a great deal more time to permit it to function, because the detailed schedule and the worry of procuring equipment will be lifted from their already overburdened shoulders.

Here is how centralized training works in a mechanized cavalry regiment. First, each of the three officers responsible for motors, communications, and weapons training takes his crew of assistants and thoroughly schools them for their job. There are classes for instructors at every opportunity that can be spared during the day, and then again at night, until they are sure that every assistant is qualified in the subject that is to be taught. Then the method that is to be employed is decided upon and understood by everyone. The training

program is broken up into lessons. All available equipment in the regiment is pooled, and the troops are staggered in the schedule under control of the Regimental Plans and Training Officer so that maximum utilization of the equipment can be obtained.

Except for communications training, which all personnel attends at the same time, the troops are rotated through a "classroom." All use the same equipment, but each troop studies under its own instructor, who takes over when his troop arrives. The instructor is thoroughly qualified to give the instruction, has the lesson planned and organized and the equipment set up, and yet is not lost to the troop at other times during the day for duty. The layout of equipment for the day is made by the first troop to arrive in the morning and taken in by the last troop to leave in the afternoon. This saves loss of training time for each troop, but to avoid having the same troops accomplish all of the work, the position of troops in the schedule is rotated daily. By keeping a particular phase of training in the same area throughout the day, the problems of supervision by the responsible officer and of inspection by the regimental commander are simplified.

Another big advantage in centralized training is that



Future Radio Operators at Work

the instruction is uniform. In order to make a change or correct errors, it is necessary to see only one officer instead of many. When the regiment is trained, every soldier will manipulate the trigger of the machine gun or clutch the vehicle or handle the radio key in the same way, instead of in as many ways as there are individual instructors. There is only one right way—that is in accordance with the Field Manual—but some units do establish peculiar habits of doing certain things; and when a regiment is organized with officers and non-commissioned officers from several sources, a variance

of methods is often encountered. Inasmuch as a uniform system is not only desirable but imperative, the centralized control can accomplish it. Then, too, all units will be at the same level of training in any one subject at all times.

There are other factors to be considered, minor perhaps compared to the big advantages already discussed, but important enough to be mentioned and examined. Training aids and training facilities are essentials that are often difficult to obtain. If individual troop commanders must spend time gathering by fair means or foul such things as sighting bars, cut-away models, charts, and many other aids so necessary in getting the instruction across, a motley and not too effective array is likely to result. And when it comes to obtaining classrooms outfitted with some kind of furniture, no matter how crude, ranges for firing (with the present congested condition of all army posts), and areas in general for training, the specialist instructor can do much toward getting the best use for the entire regiment out of the facilities available; because centralized training affords absolute coordination through proper grouping and rotation.

Every soldier must be at least familiarized with all individual weapons plus the machine gun, but before one new soldier can be started on his training, there are many things that must be accomplished. A building where indoor instruction can be given in the event of inclement weather is desirable but not essential, but some central place where equipment can be concentrated is necessary. For the rifle alone there must be sighting bars, sighting discs, rifle rests, and boxes of some character, none of which are items of issue.

Numerous small items such as targets, paper, thumb

tacks, pencils, waste, score books, score cards, sight blackening materials, and cleaning materials must be provided. Charts and simplified reference material such as pamphlets or mimeographs are helpful. Arms must be cleaned, and ammunition, both dummy and live, must be available when it is needed. All of this equipment must be provided for in advance, and yet rifle training begins in the first week of the MTP! A resourceful officer who knows how to get this equipment, whether it be issue or non-issue, given a few men to work with and that one job to do for the entire regiment, can get the job done. It is being done in the 3d Cavalry (Mecz)! Adequate equipment can be procured and that part of it that must be built can be constructed correctly and sturdily.

There are other subjects of individual training to which this same system can be applied. The pioneer and demolitions personnel, the cooks, the clerks, the buglers and messengers, the motor mechanics, and the armorers for the entire regiment can all be grouped under a specialist instructor for each subject and yet remain under control of their individual troop commanders for basic training.

Assume that the officer and enlisted cadre of a regiment just being activated arrive simultaneously on the date of activation and that the fillers begin to arrive only one week later, all from reception centers. That situation can and has occurred. Will a decentralized system of training be ready to operate under those circumstances? Can each individual troop commander be prepared for the details involved in all phases of training? No! But the *centralized* system of training will accomplish these results in the minimum of time and with the minimum of equipment!



Putting Round Pegs in Round Holes

*by 2d Lieutenant Claude D. Baker, Jr.**

THE present process of "classifying" members of the armed forces is intended to aid in placing each individual soldier where he may best utilize his technical specialty in furthering the efficiency of the complex mechanized war machine.

Army regulations state, "Classification is a process by which pertinent data concerning the enlisted man's education, intelligence, aptitudes, previous military experience, civilian work history, interests, hobbies, and other qualifications are validly obtained and correctly recorded to be used as a basis for an assignment in which he will be of the greatest value to the service and will utilize his acquired skills most effectively. It

will be borne in mind that classification is not in itself an objective, but rather a means to an end whereby no factor contributing to an enlisted man's value to the service will be overlooked."

In order fully to appreciate the present system of classification, it is necessary to dig into the records of 1917 when men were being recruited for the armed forces of World War I. Little thought was given either to the technical ability of the individual or to the need of a replacement for a specialized position where a technical vacancy might easily occur and be very difficult to fill. Radio men had to be replaced; laboratory technicians were needed; and in general, only archaic methods of replacement existed, because the need of a

*Personnel Officer, 3d Cavalry (Mecz).

system for the placement of men had not been foreseen.

In 1917, after costly tribulations, the War Department realized the need for a classification system, and in July summoned together skilled personnel administrators and psychologists who drew up a system and put it into operation.

In the latter years of World War I, men were being placed in organizations that could use their technical skills to the utmost advantage. This Placement Personnel System at that time adopted the Qualification Card System, with tests similar to those in use today.

Several years after the end of the first World War, the numbers of the personnel in the armed forces diminished to such an extent that there was little need for this personnel placement system, and it passed to a negligible degree of usage. But the wheels of the system were kept oiled, so that the idea might be used if the need ever recurred.

In 1940 the present system as modified was again put into motion. There was no doubt that the armed forces of today were to be highly specialized and technical. Consequently, to place an individual correctly and to realize the greatest profit from his skills, the placement plan had to work. The present forces are largely a collection of technical individuals, teamed together with other technical individuals in such a way as to utilize most efficiently the skills imparted to them.

The 3d Cavalry (Mecz) was activated at Camp Gordon, Ga., with a complement of officers and enlisted men as the basic cadre. The regiment had as its initial problem the task of placing all incoming recruits in their correct category, where, after basic training, they eventually could fulfill the desired job assigned them according to their civilian skills.

The new filler personnel arrived in groups of approximately 200 to 300 men each, and from War Department Qualification Form No. 20 of each group, it was learned among other things that the regiment

possessed a large number of 18 to 22 year old soldiers, with a major percentage showing a score of 110 or above on their Army General Classification Test. There were only 3 illiterate men within the entire regiment.

While the enlisted men were being put through a medical examination, the Personnel Section began the task of classifying and sorting the men into the technical vacancies of each troop. In order that each troop could be given the men that it required, each troop clerk from the cadre was supplied with a list of Table of Organization *job specialties* that existed within the troop.

After necessary preliminaries, the men were then equally distributed within each troop according to each man's *occupational specialties* as justified by T/O requirements and the Army General Classification Test score.

The theory of the entire procedure was to put the right civilian cog in the right military sequel in order to avoid future congestion and further transfer of enlisted men within the regiment. This system reduced administrative procedure to a minimum.

The determined effort of the 3d Cavalry to assign men to each troop equally according to classification test scores was intended to balance each troop in intelligence so that training programs would be balanced. If men had not been assigned equally, certain troops would have advanced further in training than other troops hastily thrown together without thought of equalization.

Troop commanders are now using the Qualification Card every day prior to assigning an enlisted man to any new position. The card system is working with the utmost satisfaction, and it is felt that thorough classification and the usage of the system has been and will continue to be a contributing factor in the final combat efficiency of any unit.



Large men for trucks . . . Small men for tanks

Training the Brigade Reconnaissance Platoon

by Captain James B. Scott, Cavalry*

WITH the advent of World War II, additional emphasis has been placed upon the already salient battle commandment—"reconnaissance." Adequate, accurate, and complete reconnaissance is now a "must" for every unit commander preparing for a campaign.

Needless to say, the most important reason for placing emphasis upon continuous and effective reconnaissance lies in the present trend of warfare, which has changed from the more or less static position battles of 1914-1918, to the development of a swift mobile offensive striving by its mobility to penetrate the enemy's weak points.

The general information required by commanders of large units when formulating their initial plans is furnished by distant reconnaissance. This information is usually obtained by the use of aircraft, which because of their speed can supply the commander with information of the enemy's main forces, bivouac, supplies, and the location of his reserves, before contact is made between the most advanced elements of the two combatant units.

As actual combat becomes imminent and the forces are within striking distance, specific information becomes a prime factor in the formulation of the unit commander's final decision and plans. This necessitates the initiation of close reconnaissance, which furnishes the commander with the desired information regarding terrain and capabilities of the enemy. Close reconnaissance then takes on a continuous aspect, and only by that means is it possible for a commander to stay well informed on the rapidly and constantly changing situation.

Reconnaissance is performed by integral parts of the cavalry brigade, such as the reconnaissance platoon, mounted, and dismounted patrols.

1. The *motorized reconnaissance platoons* are employed at the farthest distance from Brigade Command Post until actual contact is established. The operation of these platoons is outside the radius of the operation of the mounted patrols. When actual contact is established, the mounted and dismounted patrols then take over the duties of close-in reconnaissance and leave the motorized units free to capitalize on their speed and mobility to seek out weaknesses on enemy flanks and reconnoiter to his rear.

2. Once motor reconnaissance has established con-

tact, it works back to the radius covered by mounted patrols. The duties of the *mounted patrols* then become infinitely greater, and upon them falls the burden of furnishing a larger portion of the information needed by the brigade commander.

3. *Dismounted patrols*, of course, work when information is desired concerning enemy installations and positions where the distance between hostile forces is not in excess of 5 miles.

Primarily, there are two basic elements of information needed by a commander preparatory to issuing his orders. The first is *terrain information*; and the second is *enemy information*. Having a mission assigned by the division commander, the brigade commander knows what information he needs and covers this in his reconnaissance orders. Essential items concerning terrain are the availability of road nets, possibility of cross-country movement both for himself and the enemy, condition of bridges along the expected route, terrain features particularly adaptable for defense by himself or enemy troops, any terrain obstacles which might influence the brigade commander's decision, and the suitability of terrain for use by tanks or antitank units.

The plans and intentions of the enemy are always problematical. Consequently, the desired information concerning him covers a vast field, and varied and conflicting reports can be expected. The essential elements regarding the enemy are his location and strength, his troop dispositions, location of his reserve, position of his flanks, possible strong points or weaknesses, availability of reinforcements, and the type of weapons with which he is armed.

The unit that performs much of the reconnaissance work for the brigade, is the comparatively new reconnaissance platoon provided in the Tables of Organization for Cavalry Brigade Headquarters Troop.

Since a dead or captured reconnaissance element is useless, it is essential that combat be avoided except as a last resort or to prevent capture. Under unusual circumstances, however, in order to gain necessary information or take prisoners, it may be necessary for elements of the platoon to engage in actual conflict. Under such conditions, the fire power of the unit is such that, considering the element of surprise and mobility, the platoon or section of the platoon should be able to overwhelm a force equal or even superior to its own. This reluctance to commit the platoon to actual fire should

*Hq. 2d Cavalry Brigade.

not in any way detract from the aggressiveness of the unit.

In regard to large fire power, the German reconnaissance units are organized similarly and when necessary do engage in battle. Quote: "Motorized reconnaissance is well in front *when there is need to supplement air reconnaissance quickly, and when a clear picture of the enemy dispositions can be obtained only by fighting.* The reconnaissance unit is fitted for this because it is equipped with armored vehicles and *numerous automatic weapons to carry out reconnaissance in battle.* Against a strong enemy it must be reinforced."

The selection of personnel for the reconnaissance platoon should be given strict and conscientious attention. From the platoon leader down to the basic privates, the personnel should be hand-picked. Each man should be mentally and physically alert, aggressive, co-operative, and should have a high degree of initiative.

After the men for this unit have been selected, then begins the work of welding them into a solid and smoothly functioning organization. The entire unit should be brought along together in their schooling, and this schooling should follow the maxim—"explanation, demonstration, application and examination."

Consistently better results can be obtained by having the men actually do the work than by simply explaining it to them. Trial and error, with a constant check and correction, is the most satisfactory manner through which to gain information and retain it for future use.

In the conduct of a school for this unit, consideration should be given to the type of work that will be required of the platoon. Essentially, their's is one of the most rigorous aspects of battle, requiring of them stamina, endurance, and patience. They must be able to gain information of the enemy, interpret and evaluate it, and disseminate that which is essential to the brigade commander. They must conceal information of their own forces and then be able literally to "read between the lines" so far as the enemy is concerned.

During the *first phase* of instruction, all reconnaissance personnel should be familiar with the organization of our army, with emphasis placed upon the particular branch of the service involved—in this case the cavalry. In later phases of training, a review of this field in connection with work on the organization of enemy units is desirable.

With this perspective, the purpose and functions of the reconnaissance platoon should be considered. While the field is quite general, benefits of this orientation lecture are far reaching.

The *second phase* should be devoted to the specific designation of the duties of the personnel in the unit and familiarization with such terms as scouts, patrols and observers, as well as the duties of each. As the instruction proceeds, such terms as outposts, observation posts, command posts, main line of resistance and strong points should be explained. In this connection, it is beneficial to follow the explanation by laying these

things out on the ground, at reduced distances.

In the *third phase* study is devoted to the work of the reconnaissance element and the collection and transmission of information. It is possible at this time to work into a preliminary reconnaissance problem, such as laying out a particular enemy situation and then following the procedure necessary to get this information back to the command post. At this time, it is very helpful to use men or prearranged flag codes to indicate enemy patrols, command posts, outposts, main bodies, covering forces, reserves, truck columns and supplies. Additional incentive can be furnished by breaking the platoon into squads or sections and allowing them to compete with each other.

Having been on the terrain, in the *fourth phase* the unit can be introduced to map and aerial photographs. If available, maps of familiar terrain should be used, as features with which the men are already familiar help them in picturing the terrain on the map. Since in all probability, under actual war conditions, aerial photographs will be the main source of information, emphasis during this phase should be placed upon photographs. The use of the compass becomes increasingly important, and preliminary work can be used to supplement the map reading subject.

The *fifth phase* covers instruction in sketching. Little explanation should be necessary regarding the background and foundation of map reading and conventional signs. Basically, the work is simple, but considerable time must be spent in actually working on the terrain. The use of the compass is essential, and by painstaking and diligent work a successful criteria of previous work can be gained by the finished sketch. At the conclusion of this phase an apt student should have confidence in his ability and the use of his tools.

The final step in this phase should be consideration of overlays and a situation map. Every individual must understand the importance of, and have the ability to make an accurate overlay. A cleverly made overlay will usually demonstrate the situation more clearly and graphically than any verbal or written message. The men must be taught, however, that they must clearly remember what they see in order that they may clarify any situation when additional information is requested.

Having been taught to observe and remember what they observe, in the *sixth phase* the men learn to evaluate their information. This must be "sifted out" until only that which is essential is transmitted to higher headquarters. Many items may be of an informative and interesting nature, but unless they have a direct bearing upon the situation they should not be reported. Accurate evaluation of information requires a great deal of time and work. Instruction here can be simplified by setting up a system of flags, as suggested in the *third phase*.

The conclusion of this phase should be devoted to message writing and the method of transmission of messages. Both verbal and written messages should be clear, concise and adequate, and until a degree of per-

fection is achieved, verbal messages should be written out before being transmitted.

The *seventh phase* requires considerable preparation and work. Since the majority of information is transmitted *via* radio, it is essential that all persons in the unit understand the fundamental operation of the set. The goal should be for each person, or at least for each squad leader, to be able to send or receive 6 to 10 words per minute. Further, a basic understanding of map coordinate codes, pyrotechnics, panel codes, field telephones and cipher devices should be required. This is perhaps the most interesting but most difficult of all the work required in this course of study.

During the *eighth phase*, the men study the problems involved in examination of enemy personnel and the action to be taken in regard to them. Other men simulating enemy captives are first coached in what they are to say, then actually examined by members of the platoon, and the results recorded. Thus again, actual work is the basis for a successful completion of the phase.

The comparatively short *ninth phase* is devoted to the use of camouflage and concealment. The practicable aspect of camouflaging vehicles, weapons and personnel can be gained by using only the material at hand. If possible, aerial photographs of the resulting camou-

flage should be taken and used to demonstrate defects in the work.

The *tenth phase* is both technical and comprehensive. It deals with the identification of friendly and enemy aircraft, tanks and uniforms. The use of training films and other visual aids increase the interest of the work. If located near any army airport, friendly craft can easily be identified by actually watching them in flight and pointing out their characteristics.

At the completion of the course the success of the instruction can be determined from the results obtained from the *final phase*. The entire platoon should be run through a 36 to 48 hour reconnaissance course involving the necessity of making practicable use of all their previous instruction. If thought is given to laying out the course, all of the eventualities of combat, as well as the instruction covered, can be simulated. If a good foundation has been laid in previous phases, the result should be gratifying.

This outline covers only the essentials in the training of a reconnaissance unit. It can be compared to the bone structure of the human body. To put flesh upon this skeleton framework, it is necessary to have the judicious and patient work of an instructor and men desirous of developing a capable, well coordinated and adept reconnaissance platoon.

107th Cavalry Reconnaissance Regiment (Mecz.)



From a painting by Howard E. Smith.

Book Reviews

DEFENSE. By Field Marshal Ritter Wilhelm von Leeb. (Translated from the German). Military Service. \$1.00.

In *Defense*, published in Berlin in 1938, von Leeb offered his government a plan for the next war in which Germany might be engaged. He recommended that the war be opened with active defense, as a preparation for the offensive later. Von Leeb's plan, as outlined in *Defense*, was rejected by Hitler; but the same idea of active defense, developed simultaneously in Moscow, was successfully employed by the Russian army in its fight against the Germans in 1941.

This is the second book in the series of which Clausewitz' *Principles of Warfare* is the first. Those who found the first book of value will be equally as interested in this one.

SURPRISE. By General Waldemar Erfurth. (Translated from the German) Military Service. \$1.00.

Erfurth contributes to modern military literature the first treatise on surprise as one of the fundamental elements of victory in warfare. He was head of the German Military Commission to Finland in 1943, and previously chief of G-8, of the German General Staff, responsible for "basic planning."

In measuring the value of *Surprise*, it should be remembered that it was written prior to World War II, and that in it, Erfurth departs from the lines of traditional military thinking. The deduction to be drawn from his book is that the strategy of surprise is "nothing but an application of the principle of the economy of force."

In the opinion of the translators, General Erfurth underestimates the value of the surprise to be had in the use of new weapons and fighting techniques.

This is the third book in the series of which Clausewitz' *Principles of Warfare* is the first, and von Leeb's *Defense* is the second.

THIRTY SECONDS OVER TOKYO. By Captain Ted W. Lawson. Random House. \$2.00.

Captain Lawson, with the editorial assistance of Robert Considine, has given us a thrilling first-hand account of the raid of American planes over Tokyo.

Starting with the very beginning, Captain Lawson describes the selection of the men, the skilful planning, and the rigid training that went into the preliminary stage—all of which helped to cut the losses that might have occurred on such a dangerous mission. The Navy is given full credit for its magnificent work in getting the flyers as close to their target as safety and circumstance permitted.

These months of training were not only for "thirty seconds over Tokyo" but for developing the men to sustain themselves for whatever might come after. Plenty did.

Only men in perfect physical condition, with one hundred per cent of their wits about them, could have survived what they went through after they landed in China. Given these attributes, they still would have had little chance had it not been for the courageous assistance given them by the Chinese and the Missionaries into whose hands this crew was fortunate enough to fall.

Not the least important phase of this book is the ending—Captain Lawson's summary of the attitude of these men, in the light of subsequent events, toward the mission for which they had volunteered.

COMBINED OPERATIONS. THE OFFICIAL STORY OF THE COMMANDOS. By Hilary St. George Saunders. Macmillan Company. \$2.00.

Stranger and more thrilling than any fiction is this absorbing account of the accomplishments of the picked men from the Royal Navy, the British Army, and the Royal Air Force, who work with U. S. Rangers and other Allied men in what is known as Combined Operations.

Mr. Saunders has written a simple and direct account of the training and exploits of these men. Without giving out information that would aid the enemy, he retains for the reader the sense of being on the inside track.

BRIDGEHEAD TO VICTORY. By L. V. Randall. Doubleday, Doran and Company. \$2.00.

Written primarily for the layman, this book presents a general picture of invasion possibilities that, like all such analyses, must wait for history to evaluate.

The author bases his deductions on his familiarity with the geography and peoples of Europe and his knowledge of military tactics, acquired during five years service in the German army prior to and during the last war.

As Mr. Randall states in his preface, he may be very wrong. Apparently, he has offered an honest opinion and pretended to no more. As a whole, his analyses, deductions and conclusions regarding invasion routes seem to be more logical than the average.

Mr. Randall pointed out (prior to the fall of Tripoli) that of all the Axis satellites, Italy is most possible for invasion via Sicily. He suggests further that this invasion should be followed quickly with simultaneous attacks by the Red Army in the east and the establishment of bridgeheads along the European coast in the west.

While advocating the intensive use of airborne paratroops, the author observes that the only successful large-scale action of this kind to date was employed by the Axis at Crete.

As a sketch by which to follow future events, this book is of general interest.

Principles Of War

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THE WAACS. By Nancy Shea. Harper & Brothers. \$2.50.

Once again Mrs. Shea has come to the fore with an authoritative guidebook for women. Her *Army Wife* and *Navy Wife* were two of the most helpful books published for wives of men in the service. She now turns her attention to the women in the service.

The Waacs gives a brief history of the organization and the principal people who influenced its inception. It contains a thorough outline of the requirements for enlistment, a comprehensive account of the training given in each branch of the service, and a picture of what the Waacs are doing in the various fields.

This book will be an invaluable guide to women considering enlistment in the service. It will also be of interest to the families of Waacs, because it will give them a clear idea of what is being done by these women.

✓ ✓ ✓

THE ORDEAL OF SERGEANT SMOOT. By Louis Paul. Crown Publishers. \$2.00.

A number of books giving the reactions of draftees to the army have been published. This is a portrayal of the army's reaction to the draftee, as presented by Sergeant Smoot. It should have a salutary effect on the draftee, provide the sergeant with some amusing moments in retrospect, and entertain the rest of the world by providing some much needed laughter.

✓ ✓ ✓

THE SPY IN AMERICA. By George S. Bryan. J. B. Lippincott Company. \$3.00.

WHAT YOU SHOULD KNOW ABOUT SPIES AND SABOTEURS. By Will Irwin and Thomas M. Johnson. W. W. Norton Company. \$2.50.

The history and practice of espionage, especially during wartime, is of absorbing interest to most readers. These two books are excellent contributions to the collection of books on the subject.

The Spy In America is the first book to give a more or less complete history of the subject from the American Revolution to the First World War.

What You Should Know About Spies and Saboteurs is concerned more with the practice of spies and saboteurs than with their history. It does, however, give many concrete examples to illustrate the methods described. It is one of the most valuable of the "what-you-should-know" books.

✓ ✓ ✓

THE UNION OF SOUTH AFRICA. By Lewis Sowden. Doubleday, Doran and Company. \$3.00.

Lewis Sowden, a South African editor, endeavors to explain the paradox of the South African Union—an unstable union of a divided people—and the puzzle of its relationship to the British Empire and to the world at war.

While giving enough historical background to make South Africa's inner conflicts understandable, Mr. Sowden centers his attention on its recent past, its present, and, perhaps most important, the question of its future.

THE ARABS. By Philip K. Hitti. Princeton University Press. \$2.00.

This fascinating little book is a perfect introduction to a civilization that considerably ante-dates our own. It is a drastic and skilful condensation of Dr. Hitti's monumental *History of the Arabs* published six years ago.

The author covers the geographical, ethnological and religious factors that produced the Arab civilization. He then carries the reader through the period of ignorance prior to the birth of Mohammed, the conquests of the Arabs, and the ultimate fall of their empire which was greater than Rome's at its zenith.

This enlightening little volume should be of interest to all readers who wish to know more of the people who live at the crossroads of the world. It is to be regretted that it cannot be mailed out of the country at this time.

✓ ✓ ✓

MOTHER RUSSIA. By Maurice Hindus. Doubleday, Doran and Company. \$3.50.

One of the great contributing factors to the value of Maurice Hindus' writings is his own life. His early years were spent in Czarist Russia, his adolescence and early manhood in this country, and his mature years in the world at large. *Humanity Uprooted* and *Red Bread* were two of the first really comprehensive books on Soviet Russia to be published in this country. Hindus presented, as few other authors did, a clear, unprejudiced view of the problems that Russia faced and pointed out the good and the evil that might result from the policies being pursued.

Mother Russia is, after a fashion, a sequel to these earlier books. It is a magnificent picture of a nation awakening to a sense of nationalism, rediscovering its own past, and seeing new visions ahead.

The book begins with three stories of young Russian heroes—two girls and a boy. It is unfortunate that these stories are written in the manner of the propagandist; but after recounting these specific examples of what youth is doing, the author reverts to his usual excellent style and presents an interesting and comprehensive narrative of what is happening throughout the Soviet.

Mr. Hindus' deep knowledge of his subject, inherited and acquired, makes itself felt throughout the book.

✓ ✓ ✓

PRISONER OF THE JAPS. By Gwen Dew. Alfred A. Knopf. \$3.00.

Gwen Dew, only American woman correspondent in the Far East when the Japanese attacked, has written a graphic and valuable picture of her experiences during the siege of Hong Kong and in the prison camp where she was held until her return on the *Gripsholm* in 1942. She describes forcefully and well, not only the incidents of the war, but the sadistic brutality of the Japanese soldiers as a whole. She is not blind, however, to the fact that a few Japanese, principally newspaper men, tried to atone for the uncivilized attitude of the majority of their countrymen.

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MEN IN MOTION. By Henry J. Taylor. Doubleday, Doran and Company. \$3.00.

This book should prove of interest to a majority of thinking people. The more conservative group will find satisfaction in a great part of it. The liberals will find a little with which to agree and much about which to argue.

As a raconteur, Mr. Taylor is extremely interesting. His chapter on what happened when the Allies landed in Africa is particularly engaging as it is the first "hind-sight" view that has been presented. His travels took him from the Middle East to Egypt, Syria, Palestine and Turkey.

It is when he ceases to be a reporter and becomes a philosopher in the field of modern social trends that Mr. Taylor exhibits a marked weakness, to the point of ignoring many facts. His book, however, is good reading, whether you agree with his point of view or not.

✓ ✓ ✓

BUT SOLDIERS WONDERED WHY. By Frank Gervasi. Doubleday, Doran and Company. \$2.75.

This colorful book sweeps the reader through the vibrant political aspects of the South American scene—the influences of "sky trucks," politics and the war in Brazil, Argentina and Chile; then jumps (as did the author) to Libya, Cairo, Tobruk, the exchange ships, *Asama Maru* and *Gripsholm*; and concludes with comments on Willkie, Madagascar, South Africa, and the U. S. State Department. It is an account of one reporter's reactions to present world conditions as seen along the route of his assignments. The personalities of prominent men are drawn in swift strokes, interesting, but too vehemently partisan to be convincing. The author is sincere, but in books bearing on political and social subjects an impersonal view produces a more informative volume.

✓ ✓ ✓

ENGLAND'S ROAD TO SOCIAL SECURITY. By Karl de Schweinitz. University of Pennsylvania Press. \$3.00.

Social security will be one of the problems that we shall have to face in the postwar world. For that reason this book is of considerable interest. It is an account of England's social security endeavors and progress over a period of six hundred years from the Statute of Laborers in 1349 to the Beveridge Report in 1942. While England's problems may not be identical with our own, her experience can certainly be of value in our study of the needs of mankind in the struggle for security.

✓ ✓ ✓

ON YOUR OWN. By S. A. Graham and E. C. O'Roke. University of Minnesota Press. \$2.00.

This is an excellent manual for field and service men on how to care for themselves in wild country. There are chapters on the treatment and prevention of poisoning and infections, quicksands, quagmires, temperature extremes, parasites, and other problems confronted in primitive environments.

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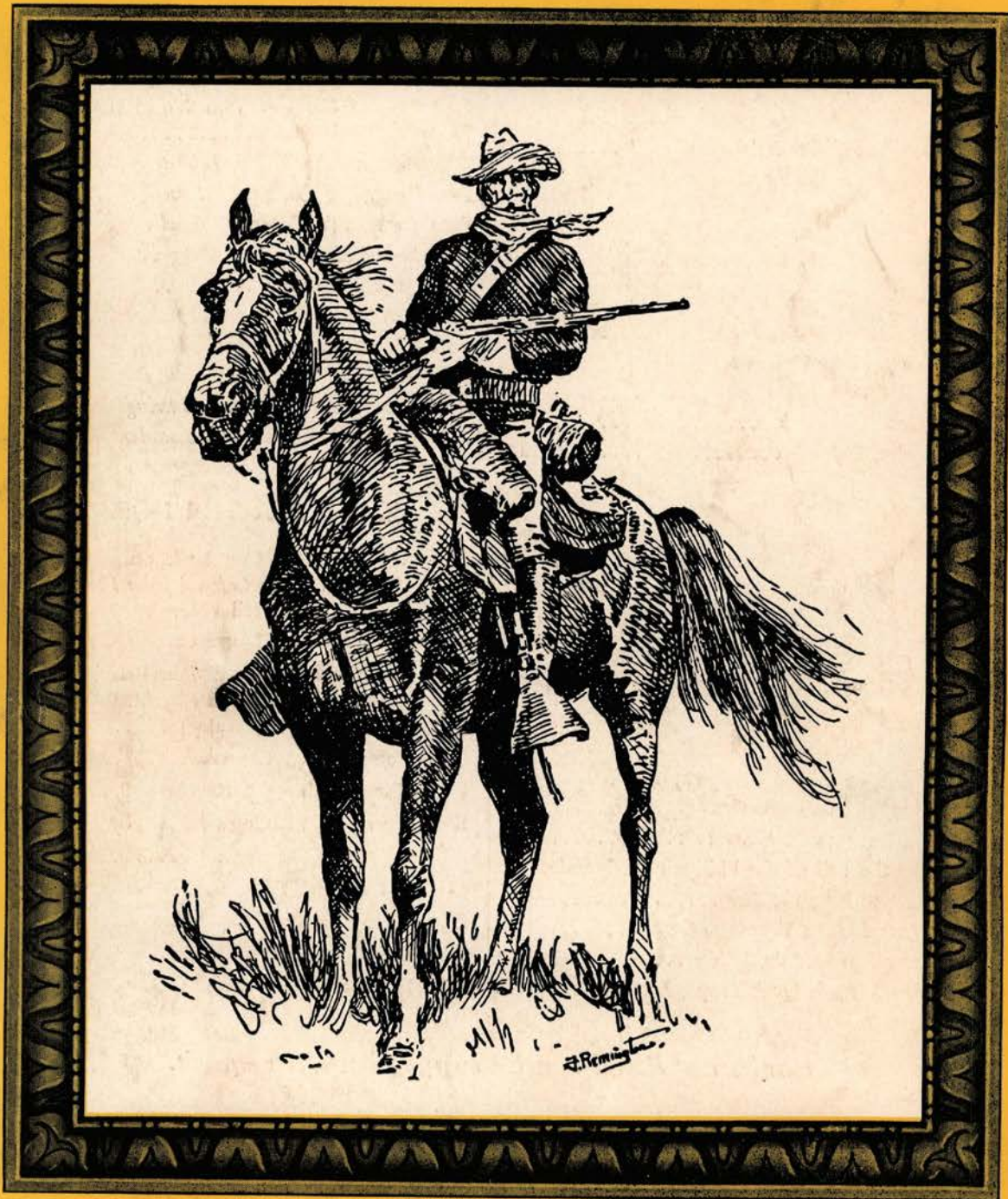
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THE JAPS DIG IN,

The Jap, once on the mad offensive, has been set back and forced to throw up a desperate line of defense in an attempt to conserve what he has gained.

Looking ahead, it may be assumed that with the ever mounting strength of Allied forces in the Pacific area, further offensive action on the part of the Japanese will be a rare occurrence. Furthermore, as the Allies turn more and more of their attention to the Far East, and as the march that will force the Jap back to Tokyo gets more strongly underway, it is the Japanese *defense* which will be encountered—and it is the Japanese *defense* with which we now must learn to deal.

Our knowledge of what the Jap will do on the defensive is sketchy up to the present. Guadalcanal, New Guinea and New Georgia are at present our only examples. In these campaigns, however, the Jap tactics have been practically identical. It is from the former that the writer has gained the direct experience upon which he has drawn in the preparation of this article. Examination of the other two campaigns reveals that practically identical situations have been encountered.

As is well known, the campaign of Guadalcanal resulted in the destruction of between 15 and 20 thousand Japanese who fought to the finish. From the initial landing of Marines on August 7, 1942 to the final phase conducted by the Army, which ended February 9, 1943, the campaign was a persistent combat against a series

of defensive measures. At first the Japanese tried to regain what they had lost; then they fought to save themselves from complete annihilation. Only the evacuation of a very small percentage of the troops by a suicidal task force of Jap destroyers prevented the latter.

During this period, it was truly demonstrated that the Japanese had the ability to defend with tenacity the ground he had been able to gain offensively. His basic philosophy of "do or die," which he so aptly expresses in an attack, applies just as strongly when he is forced to defend. It is this fact that leads us to our basic premise that each and every Japanese in a defensive position must be killed individually before the position can be taken. The best way of doing this, with the least loss to our own troops, can be discovered only through the combination of sound military principles and the few examples with which we have had to contend.

JAP DEFENSE TACTICS

The outstanding characteristic of all Japanese positions up to and including rear bivouac areas in Guadalcanal was that, in the strictest sense of the words, they were *dug in*. Fox holes, dugouts, slit trenches, pill boxes, deep artillery emplacements litter the entire area occupied by the Jap. In all of these illustrations the digging in was not merely superficial but solid and deep. Bivouac areas consisted for the most part of fox holes, covered with heavy logs, with entrances that were a tight fit to the average American soldier. In these holes (as evidenced by the great amount of personal possessions left behind) the most of the Japanese soldier's life was spent.

Defensive entrenchments on the front line varied with the terrain but were based primarily on the machine gun pill boxes sunk to a depth of two or three feet, securely buttressed, and covered with one and sometimes two layers of heavy logs. These in turn were covered with dirt and appropriately camouflaged. Facing the expected line of our advance, a small aperture was left for the muzzle of the gun. Because of the size of this aperture, the fire from guns thus protected was limited in both deflection and elevation. In most cases, this greatly decreased the effectiveness of the weapon.

Another type of emplacement often encountered was constructed under and between the roots of large trees. Often these emplacements were necessarily small since their method of construction involved digging directly under the tree, but they nevertheless afforded a maximum of protection and concealment.

Marines inspect a Jap machine gun emplacement on Guadalcanal Island.

Aeme.



by
Major Willard O. Foster, Jr., Cavalry

A third type of emplacement, encountered where the coral formations of the island made it favorable, was a short tunnel leading into the soft coral and amply protected at its exit by large blocks of the same material. Emplacements of this type when encountered caused difficulty in neutralization.

By clever disposition of these emplacements, the Japanese built up defensive lines whose strength caused severe trouble in their penetration. It was not long before our forces discovered that the fire lanes leading from them were often small, but neither was it long before they discovered that, in the majority of cases, each emplacement was amply protected by crossfire from other guns or from a well concealed rifleman in its close vicinity. The endless combinations of defensive setups thus constructed provided commanding officers just as endless headaches for every hundred yards gained.

THREE EMBLEMMENTS STALLED YANKS A MONTH

The following defensive position, encountered on Guadalcanal, perplexed and finally baffled all the Yankee ingenuity that was possible to bring against it for a period of close to a month. As was common throughout the campaign, the American troops held the top of a ridge line, often a grassy area, while the Japanese dug themselves in along the steep jungle-filled ravine directly over the edge of the American occupied ridge. In this instance, there were three strongly constructed emplacements, as well as the usual supporting riflemen.

One emplacement buttressed amongst the roots of a tree was on the steep forward slope of the ridge at the edge of the jungle. The other two emplacements were across the ravine on the slope of the ridge next ahead. These were also at the edge of the jungle but fired approximately across the top of the trees which filled the ravine. Exposing oneself over the crest of the American-held ridge drew fire not only from the emplacement directly beneath, but from the two guns on the opposite slope whose fire (coming through the trees) originally deceived us as to their location.

The first attempt to eliminate these positions was by mortar, but the strength of the emplacements and the

These captured machine gun emplacements indicate the thoroughness with which Japs dig in. At top, a U. S. soldier in New Guinea has difficulty getting his shoulders through the opening. Center, an Australian near Buna investigates a pill box still filled with smoke from a grenade explosion. At right, a logged emplacement is cleaned of Jap effects.

Top Photo: Press Assn. — Bottom: Aeme





Mounted near the airport on Guadalcanal is this .50 caliber Jap machine gun which was captured from the Japs. Here a U. S. gun crew gets ready to give the Japs their own medicine.

Acme

smallness of the entrance effectively withstood the mortar fire. A few of the supporting riflemen were undoubtedly eliminated, but they were promptly replaced from the rear. The actual small size of the emplacements and the trees and foliage which surrounded them made it almost impossible to make a direct hit by artillery fire on the two rear guns, while the position of the forward gun on its steep slope could not be reached by the highest angle fire attainable. Again, supporting riflemen were hit but were rapidly replaced.

Strong patrols, sent to each flank and up and down the ravine, were quickly fired upon by the supporting rifles and by the two rear guns, whose slightly wider aperture permitted them sufficient deflection. It was impossible to penetrate deeply enough with patrols to take this position from the rear; furthermore, it was evident that even had this been attempted, the same situation would have been met in the reverse. After three or four attempts with patrols—including using them at night—this method was eliminated.

It was at this point that ingenuity came into play. The forward slope was sufficiently steep for demolitions to be lowered over the edge close to the forward emplacement; although in doing this, it was necessary to be exposed to the fire of the two rear guns for the short time that it took to throw the demolitions over. Unfortunately, this fire, encountered while throwing, prevented the accurate placing of the demolitions. An attempted solution to this difficulty was a net of instantane-

ous cord with TNT blocks hung on it. Again the strength of the emplacement was sufficient to withstand this attempt. A last attempt at demolition was made when a fifty pound iron keg of TNT was lowered over the edge and suspended as close to the emplacement as hasty observation would allow. Following the resultant explosion, a concerted rush was made to the edge of the crest, but the first man who put his head over was greeted by a burst of fire from the besieged emplacement.

A final attempt at destruction was made by pouring gasoline down the slope and igniting it, but even this means failed. When the final drive commenced, this particular position was by-passed and surrounded. Five or six days afterwards the Japanese defenders were killed when forced out to seek food and water.

SEVENTY EMPLACEMENTS ON ONE HILL

A similar set-up on a considerably larger scale was encountered in the taking of a strategically important hill. In this case, a total of seventy-odd machine guns, both light and heavy, were emplaced in concentric triangles up the hill. Each gun was securely emplaced in a pill box, dug in only from six inches to a foot, but constructed with two or three layers of logs all around, buttressed, covered with about six inches of dirt, and carefully camouflaged. Inside with each gun were at least two riflemen, while more riflemen covered the emplacement from tree positions in the near vicinity.

This entire position was in dense jungle, through which the fire lanes were skilfully cut. It was a position which at first appeared to be nearly impregnable.

Much active reconnaissance was necessary before the entire picture of the position was gained. During this time, artillery concentrations helped to keep the enemy constantly harassed and under cover. At the conclusion of the reconnaissance, a hard jungle-march resulted in the almost complete encirclement of the area.

It was during this march, made over extremely difficult terrain, that the idea of using a plane to maintain direction was evolved. The constant obstacles in the form of deep ravines, dense jungles and the like, made it extremely difficult to follow a compass course. Therefore, at frequent intervals a plane flew over the route from the marked starting point to the terrain feature that was the objective. Each time the route was flown, which was about once every fifteen minutes, the motor was constantly gunned in order to provide a distinct signal to the forces below. The results were satisfactory.

Following the encirclement of the position, artillery fire was increased to some extent, and by one means or another the various emplacements were neutralized. The fact of the encirclement, plus the constant artillery, soon eliminated the riflemen not in the pill boxes, while occasional direct shell hits and results of accurate grenade throwing soon made channels into the position, which evolved into a "divide and conquer" situation.

During this period, it was discovered that in most cases a skilful crawler could get within twenty-five yards of a pill box before coming into the covering crossfire. This, of course, was due to the small apertures in the emplacements, and naturally takes into account the loss of the outside riflemen plus those inside ones who in most cases went into the tree positions as replacements. It was necessary, however, for the crawler to observe sharply for signs of prepared fire lanes as he closed in. The neutralization of the emplacement then could usually be effected by one or two carefully thrown hand grenades. Along this line, however, it is well to mention that grenades so used should be held for a second or two; for the enemy will take a chance on any grenade falling within reach and toss it back with extreme rapidity.

During this period also, an attempt was made to employ both AT grenades and the 37mm AT gun to reduce the pill boxes. The dirt covering over the emplacement, however, did not provide a sufficiently hard contact to set off the grenade; while the dense jungle made the setting up of the 37mm so difficult that the gun attracted enemy fire long before it could be brought to bear on its target. The few times that the AT grenade was effective, it did a complete job through the resultant concussion within the pill box. Given a more delicate detonation, the rifle grenade would be a highly successful weapon under these circumstances.

Toward the end of this particular operation, the position was reduced to one small but strong area with approximately eighteen guns. This final position was an example of an almost perfect defense. It was just too large to be rushed successfully, so well dug in as to make light artillery almost ineffective, and so skilfully concealed that an accurate reconnaissance was almost impossible. There was no thought of surrender on the part of the enemy as a whole, even though they undoubtedly realized the hopelessness of the situation. Completely cut off, the group was eventually reduced to complete collapse from starvation and exhaustion. Only toward the end was an attempt made by the enemy to escape from the encirclement. Several sharp and desperate night attacks were made without success. Finally with extreme difficulty, our forces succeeded in bringing a light tank up to the final position. Here, in the dense jungle, the armored behemoth blasted out all of the pill boxes that it could reach. The infantry soon overran the remaining positions and the operation ended.

STRONG POINTS AT CRITICAL LOCATIONS

The above examples amply demonstrate the outstanding features of Japanese jungle defense. All other situations resolved themselves into the same mold.

The Jap defensive line appears to consist of a series of strong points. These are apparently all situated at locations critical from the defensive point of view. Trail intersections, terrain features, river crossings are typical

strong point locations. The second of the two defensive operations described above, for example, occurred at one flank of the Jap defensive line and was at the same time a terrain feature that afforded excellent observation of practically the entire area held by our forces—including the all important airfield. Furthermore, it defended a trail leading around the entire American positions.

It is obvious that these strong points are prepared well in advance—and regardless of whether it appears likely that they will be used. The necessary troops are shifted from one point to another, depending upon the threat made along the line. Strong points known to be directly in front of our lines, if not kept under a constant siege, would be evacuated in favor of another point under our attack. A few of the enemy would remain behind for purposes of deception. These would strongly engage patrols and give the appearance that the area was still heavily manned. If, however, by the increase of patrols, artillery, or general activity on the part of our forces, it appeared that an attack was imminent at that point, enemy troops would quickly be shifted back into the area to meet the threat. Occasionally such strong points were occupied by our troops by taking rapid advantage of the fact that for the moment they obviously were defended by but a few of the enemy. If the existence of this particular Jap habit had been realized sooner, many of the strong points might have been taken with ease. The general difficulty of jungle reconnaissance proved a strong factor in favor of the Jap in this respect.

SUMMARY

1. The Jap digs, digs, and digs until he is thoroughly and solidly under cover.
2. His machine gun positions are strongly emplaced, and practically *every* gun is covered by crossfire and/or riflemen.
3. He uses fire-lanes extensively.
4. His line of defense consists generally of a series of strong points which, if he is outnumbered along the line, he will occupy only when necessary.
5. He will occasionally make fierce sallies from his defensive positions—especially when attempting to relieve strong pressure being placed against him.
6. Predetermined defensive positions, notably important terrain features, are prepared well in advance.
7. Defensive positions are carefully concealed. In this respect, the Jap has been known to allow a position to be overrun while he remained concealed. When this happens, he will remain completely out of sight until our unsuspecting rear echelons are surprised by the enemy rising out of the ground practically in their midst.
8. The Jap won't quit; *he must be killed.*

The Jap is good. *He has a crack fighting team, but until recently he has failed to take into account just one thing—in a trained American soldier, he has met a better man than he is!*

Sicily

EUROPE IN

by Major G. R. de Beer, British Army

THE invasion of Sicily is the largest amphibious operation yet carried out in the history of war. Conceived by President Roosevelt and Prime Minister Churchill at Casablanca six months ago, the scale and complexity of the operation has been a searching test, not only of the competence and efficiency of the planning staffs, but of the ability of the sea, land, and air forces of three countries—Great Britain, the United States and Canada—to coöperate for the common good of the United Nations.

The operations against Sicily consisted of five phases: first, the mounting of the operation; then, the preparations for invasion by means of air bombardment; third, the landing of troops and establishment of beach-heads; fourth, the engagement of the enemy's mobile reserves; and finally, the assault on the enemy's positions.

MOUNTING OF THE OPERATION

The first phase involved the assembly of troops, equipment and supplies, and of the ships, landing craft and assault barges to convey them. Altogether, some 3,000 ships were used. Some made the invasion direct from

the United States and Britain, others from North Africa. The ships had to be loaded in such a way that the first things wanted out of the holds were the last things loaded into them. The appropriate type of ammunition had to be available immediately at the right place for each type of gun, in the right quantities, and at the right time. The medical stores had to arrive with the doctors. Gasoline and oil had to be on hand for tanks and transport vehicles.

All this had to be planned and carried out in the utmost secrecy. Notwithstanding the magnitude of the distances to be covered, and the differences in distance between the various ports of sailing and the final goal, the ships all arrived approximately together at the spots selected for the attack on Sicily.

While the ships were being loaded and during their journey they had to be protected from attack by U-boats and aircraft, and from the possibility of attack by the Italian fleet. This was the task of the British and United States Navies, and the Allied Air Forces. It was perfectly carried out.

Before the assault on Sicily was launched, preparatory work was undertaken to soften the defenses by bom-

British Official Photos

Left: Just after dawn on July 10th. Men of the Eighth Army unload stores from British ships, while others build a beach-road for heavy and light traffic.



Below: A Hunt class destroyer engages shore batteries at Augusta, while Commando troops make for the shore in their landing craft. Note Mt. Etna in the background.



MICROCOSM

barding enemy airfields, forts, and communication centers. This was largely the work of the Allied Air Forces based on Northwest Africa and Middle East. Pantelleria, which had been captured, and Malta, the invincible island which had been developed into a first-class offensive base, provided airfields close enough to Sicily to enable bombers to be protected by fighter aircraft. Fighter-bombers also could operate against trains, road traffic, and troop concentrations.

The Allied Navies helped in this preparatory work by sinking enemy ships on their way to Sicily. Allied submarines went so close inshore that they were able to open fire with their guns on railroad installations on the mainland of Italy itself.

All this work was carried out with due regard for security, so that the pattern of the air and naval attacks should not disclose to the enemy the objective against which the attack was to be launched.

The assault by land forces was carried out by the 15th Army Group under General Alexander. This consisted of the British Eighth Army (which included the Canadian 1st Division) under General Montgomery, and the United States Seventh Army under General Patton. The entire campaign, including operations of the Navies under Admiral Cunningham, and of the Air Forces under Air Marshal Tedder, was under the supreme command of General Eisenhower.

LANDINGS

The initial assault force of 3,000 vessels consisted of 160,000 men—British, American, and Canadian—with 1,800 guns, 600 tanks, and 14,000 transport vehicles. This initial force was followed day and night by large reinforcements, which included some Indian and French units.

The sector selected for assault was the southeast coast of Sicily, which enabled landing operations to be carried out under constant fighter aircraft cover. Sicily is about the size of the Crimea. It was defended by 5 Italian coastal divisions, 5 Italian field divisions, and a number of German troops and air force personnel. Both the 15th Panzers and the Hermann Goering Divisions, last reported as surrendered in Tunisia, had been reconstituted from elements evacuated. Altogether, the enemy strength was estimated at about 300,000 men.

The assault began on the night of July 9th-10th, when British airborne troops in gliders landed near



This scene on a winding hill road shows Eighth Army troops as they advanced toward Catania.

Syracuse, and American parachutists landed near Gela.

At dawn on July 10th, the seaborne landings were made, under cover of the guns of the Allied Navies and of bombardments and a protective fighter umbrella provided by the Allied Air Forces. The British troops landed between Siracusa and Cap Passero, the Canadians at Cap Passero, and the Americans between there and Licata.

The weather was very bad with high winds and heavy seas, but in spite of these difficulties all the landings were successfully made, and the first enemy resistance was quickly overcome. Beachheads were established; further forces were landed; and within a few hours the British were in possession of the port of Siracusa, the Canadians of Pozallo, and the Americans of the ports of Gela and Licata. This was important, as it enabled further disembarkation to take place with the facilities of these ports. The Allies also lost no time in capturing a number of airfields and putting them into use.

The enemy had been taken by surprise both in regard to the time and place of the landings. It was some time before he reacted. On July 11th, the Axis forces attacked the Americans near Gela with tanks but were driven off. Similarly, on July 13th, a German attack near Augusta was driven off by British forces.

MEETING THE ENEMY

It was soon apparent that the main enemy concentration of strength was in the region of Catania, where most of his airfields were, while the rest of the island was occupied by enemy forces more widely distributed.

The British Eighth Army had been given the task of engaging the enemy advancing on Catania. The Canadians, forming the left flank of the Eighth Army, had the task of striking at Enna, the center of the island and of the enemy's communications. The United States Seventh Army was assigned the conquest of the western part of the island.

Throughout the operations, the Allied Air Forces maintained mastery of the air. By the fighter cover



which they provided, and by their constant bombardments of enemy positions, they afforded the troops the most valuable support.

British. The German positions south of Catania were protected by the largest river in Sicily, the Simeto. For the progress of the Eighth Army, therefore, it was of the utmost importance to secure the Primosole Bridge intact. For this purpose, British parachutists were dropped near the bridge during the night of July 13th-14th. They held the bridge against attacks by seven battalions of infantry until their ammunition was exhausted. Before this they had drawn the explosive charges from the mines under the bridge. When British reinforcements arrived, after breaking through enemy positions farther south, they were able with fierce fighting to secure the bridge intact and establish a bridgehead on the northern side.

Meanwhile, farther west, other British forces came up and secured crossings of the Simeto and Dittaino Rivers, ready for the final assault.

Canadian. On the left of the British forces, Canadian troops made rapid progress by hard fighting against desperate resistance. On July 16th, they captured Caltagirone, on July 20th Enna, on July 22nd Leonforte, on July 28th Agira, and on July 29th Catenanuova—which seriously threatened the enemy positions around Catania from the west.

American. The United States Seventh Army, on the

left of the Canadians, rapidly accomplished its task of overrunning the west of the island. Although Italian resistance was weak, the speed of the American forces was remarkable. On July 17th they captured Agrigento and repulsed enemy counterattacks near Barrafranca. On July 22nd their armored forces swept into Palermo. On July 23rd they occupied Marsala and Trapani. The whole of central and western Sicily was now in Allied hands, together with 70,000 prisoners and over 200 guns.

The Seventh Army lost no time in wheeling eastward and, covering the sector from the north coast to the center of the island, made contact with the Canadians and formed a continuous front.

MAJOR OFFENSIVE

On August 1st, the Allies opened a major offensive. The enemy's line of defense, looping round the southern and western slopes of Mount Etna, ran eastward to the east coast, south of Catania and northward to the north coast, west of San Fratello.

General Alexander's plan was to maintain pressure against each end of the enemy line while launching an assault against the enemy's center, southwest of Etna. In this region the enemy's lateral communications were dependent on a railroad and road from Catania through Paterno and Adrano to Bronte. The impassable barrier of Mount Etna was to serve as an anvil against which to

deliver a hammer blow that would sever the enemy's lateral communications and cut his forces in the forward positions in two.

This blow was delivered by the left of the Eighth Army and the right of the Seventh Army.

Canadian. On August 2nd the Canadians stormed their way into Regalbuto. On the same day British troops crossed the Dittaino River and captured Centuripe, and then crossing the Simeto River, captured Adrano on August 6th and pushed on to Bronte.

American. On the Canadian left, the American forces attacked Troina and, after furious fighting for almost a week, captured it against desperate enemy resistance and advanced farther to Cesaro. The center of the enemy's forward line was thereby broken, and he began to fall back on each flank.

British. On the east coast, British forces captured Catania on August 5th and Acireale on August 8th, while the Royal Navy, by bombarding the enemy's rear and lines of communication, constantly covered the Army's seaward flank.

American. On the north coast American forces, advancing from San Stefano, captured San Fartello by August 8th, while a seaborne force landed east of Santa Agata under the protection of the United States Navy. The landing was successfully accomplished, and the American troops quickly dealt with an enemy counter-attack and captured Santa Agata and 1,500 prisoners.

Again under the protection of the United States Navy, a second landing by American forces farther east on August 11th made possible a further rapid thrust along the north coast. Yet a third landing by American forces was made on August 16th near Milazzo, and the enemy was deprived of the use of this port.

British. Meanwhile the Eighth Army pressed onward from the south and captured Taormina on August 15th. In the following night, under cover of the Royal Navy, a landing by British Commando troops and armored forces was made at Scaletta, and the retreat of the enemy by the coast road to Messina from the south was cut. This close coöperation between the Allied Navies and Armies—enabling the latter to bypass obstacles by means of seaborne landings—contributed materially to the rapid success of the campaign.

CONCLUSION

From August 7th onward it had become clear that the enemy was straining every nerve to accelerate his evacuation of Sicily in small boats under cover of 500 anti-aircraft guns, mostly mounted on the Italian mainland. But in the evening of August 16th, the men of the U. S. 3rd Division swept into Messina from the north, followed next morning by British armor coming up from the south—and the campaign in Sicily was over.

After thirty-eight days of fighting in extremely difficult country—ideal for defense, ill-adapted for the use of armored forces—in spite of extensive demolitions and the use of mines, bridges destroyed and tunnels blocked,

the island of Sicily had been invaded and conquered.

Enemy casualties up to August 10th were 135,000 prisoners (7,000 of them German) and 32,000 killed and wounded (24,000 of them German). Approximately half of the German forces engaged were therefore destroyed. A further large number of Italians were lost to the enemy by their spontaneous assumption of civilian status.

In addition, the enemy lost over 500 guns, 260 tanks, over 1,000 aircraft captured on landing grounds, about 700 shot down, many thousands of transport vehicles, and great quantities of stores and equipment. These figures do not include the losses inflicted on the enemy in the last week of fighting, nor in the course of his evacuation, which was continuously harassed by light forces of the Royal Navy, the United States Navy and by the Allied Air Forces.

Sicily may be regarded as a microcosm of the Fortresses of Europe, and the rapid success of the Allied armies demonstrates a principle of strategy that will have its applications in the larger theater.

The enemy is strong, but since he does not know where the Allied blows will fall, he must distribute his forces. He cannot be strong everywhere, and not strong enough anywhere to cope with a determined assault by an adversary in possession of sea and air power. The Allies possess not only sea and air power but also the troops, equipment, and experience required to effect landings against opposition on enemy coasts.

Furthermore—and this is the latest appearance of an old strategic principle—when the Allies with their sea and air power have made a successful landing, it is they who now enjoy the advantages of interior lines from the bridgehead that they have captured.

That is the heartening lesson of the Sicilian Campaign, and the reward for the meticulous planning, arduous training, superior generalship and the indomitable fighting spirit of all the forces of the United Nations involved in the operations under General Eisenhower's command.

British patrol parties enter a Sicilian town after a heavy artillery bombardment.



CARDED U.S. Seventh Army IN SIC

LOOKING down at Sicily from the air, a major terrain feature in the east is the Catanian plain, cut by a net-work of rivers running from west to east. Then comes Mount Etna, canalizing the ground to a narrow five-mile strip between it and the sea. West of Etna two river valleys run to the sharp spurs of the mountains pressing close to the big volcano. Between them is a third valley about 3 miles wide that opens on the coastal plain at Taormina. The north coast is rimmed by mountains with a single road running parallel between them and the sea. The whole of the northeast corner, from Mount Etna to San Stefani to Messina is rugged mountain terrain. The one central pass at Randazzo furnishes the only outlet between the two coastal roads on the north and the east.

LANDINGS

At 2210 on the night of July 9th, while the Allied invasion fleet itself was still at sea, the first airborne troops were landed by glider. These were followed by parachute troops at 2320. Because of high winds, however, many were blown considerable distances, and the troops were landed in a much more scattered manner than had been planned. Many of them were unable to carry out their prearranged assignments; others, impro-

At an American beachhead in Sicily, prisoners are guarded while waiting to be removed. Supplies and troops are still being landed.

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vising their missions as they went, proceeded with the destruction of such enemy installations and communications as they found. In a few cases, the small groups able to unite, took and held fortifications until relieved later by other troops.

The first Allied troops beached at 0300 on the 10th, and by 0600 shore batteries had been shattered, beachheads established, and tanks, artillery and reinforcements were being brought ashore for the advance inland.

By the end of the first 18 hours, it had become clear that the Allied armies had succeeded in establishing a firm, broad beachhead that extended for over a hundred miles along the southwestern tip of Sicily.

On the extreme eastern end of the 100 mile beachhead the British Eighth Army, commanded by General Sir Bernard L. Montgomery, landed between Cap Passero and Siracusa and proceeded north along the east coast road against only slight immediate resistance. By the night of the 11th, British troops secured Siracusa and a few days later entered Augusta.

The Canadians, who landed at the southern tip of the peninsula, advanced inland through Palazzolo.

The U. S. Seventh Army, under Lieutenant General George S. Patton, Jr., landed at three points along the south-central coast. The 45th Infantry Division, under Major General Lloyd Middleton, pushed from Scoglitti to Vittoria, and within twelve hours secured the airfield there for the immediate use of Allied planes. The 3d Infantry Division, under Major General Lucien Truscott, landed at Licata, secured that important air base, and started north toward Caltanissetta. The 1st Infantry Division, under Major General Terry Allen, ran into the strongest opposition in its landings at Gela.

BATTLE OF GELA

The Axis defense was under the command of Italian General Alfredo Guzzoni, who ordered his 4th Division to attack toward Gela, and his 54th Division toward Siracusa. Each division was given a detachment of the Hermann Goering Panzers.

The 1st Division, which had established a beachhead at Gela approximately 7 miles wide and 2½ miles deep, was confronted on the morning of July 11th by one of

The 3d Division pushed triumphantly across Sicily in less than two days.

ILY

Acme

these Italian prongs, supported by about 100 German tanks.

A handful of American parachute troops who had landed in the enemy rear on the night of July 9th, made a valiant but hopeless stand along a road guarding the approach to the beach, but the tanks rolled over them and on toward the 1st Division, still in the process of landing.

The Italian 4th Division, plus the 100 German tanks, attacked from all three sides. Only three tanks from the U. S. 2d Armored Division had been landed at this time, and despite the efforts of the eleven artillery batteries, the enemy made considerable progress. The 1st Division was pushed steadily back. On the north, the enemy got within a half-mile of the beach, while on the east he made such unexpected gains in the direction of division headquarters that members of the staff grabbed rifles and fell to. Severe fighting continued all day.

The landing might have met with disaster, but at some point, word of the enemy attack reached a destroyer off shore, and the naval guns were turned into the tanks. It is not known how many tanks were knocked out in this manner, but the destroyer continued pounding the tanks until dark, when the division made a counterattack and pushed the enemy back. A later count disclosed that 84 enemy tanks, 14 of them "tigers," were knocked out in the olive groves around Gela.

THE FIRST TRIANGLE

After securing the two supply ports of Siracusa and Augusta, the British Eighth Army, advancing toward Catania, ran into a main Axis defense stand, flanked on the east by the Ionian Sea and on the west by the towering volcanic Mount Etna. For approximately three

by Christine Harbour

Associate Editor, *The Cavalry Journal*

Press Assn.

Spearheading the remarkable advance from Agrigento, the 2d Armored Division rolls through the battered streets of Palermo.

weeks it was blocked stubbornly in every effort to break through.

During this time, Montgomery consolidated his position, secured the outlying areas on his flank, and waited for sufficient ammunition to blast the enemy from his Etna base. Not until August 1st at 0600 did he make his all-out attack which sent the Germans reeling toward Messina.

Meanwhile, the conquest of the rest of the island broke down into several separate phases.

The American troops, having secured their bridgeheads to the east, spread out in two main directions. The 1st Division headed straight north from Gela. The 3d and 45th Divisions, plus the 2d Armored Division fanned out in a west-northwest direction. Against steadily increasing opposition, by the evening of the 15th they had fought their way to a line running roughly through Niscemi—Riesi—Canicatti—Girgenti.

From Canicatti, the 3d Division headed rapidly west toward Agrigento and after severe fighting, strongly supported by medium artillery fire on shore, moved into that city on the 17th. Ammunition for the American 155mm guns in this section was hauled through the hills by scores of Sicilian mules, captured and pressed

into service. It has been reported that the 3d Division used as many as 500 mules during its fighting in Sicily.

AGRIGENTO-PALERMO

Following the fall of Agrigento, there occurred one of the outstanding military events of the entire war—a blitz that outblitzed anything that the Germans pulled during 1939-40. The 2d Armored Division and the 3d Infantry Division, supported by the 82d Airborne Division, pushed from Agrigento to Palermo—a distance of 72 miles over hills rising as high as 3,000 feet—in less than two days. General Geoffrey Keyes, Commander of the II Corps of the Seventh Army, who headed this outstanding operation, arrived in Palermo and accepted its surrender on July 22nd.

In writing of this advance Quentin Reynolds said, "They moved so fast that often the German and Italian 88s, which they captured en route, had not been pointed around or set up to shoot against them. . . . They had some opposition not furnished by the terrain, which is hilly in some places and marshy in others, but they did something the Italians have never done—they *marched by night*. The Italians thought it not quite sporting for the Americans to barge into their camp just as they had got to sleep."

Palermo was taken a full week earlier than the General Staff had anticipated, and spearheads were immediately fanned out toward Marsala and Trapani, both completely cut off from any supplies or support. Because of the quick conquest of the western part of the island, insufficient attention has been given to the superb leadership and brilliant maneuver that cut the island in two before heavy resistance was fully organized.

THE NORTH COAST ROAD—BATTLE OF "BLOODY RIDGE"

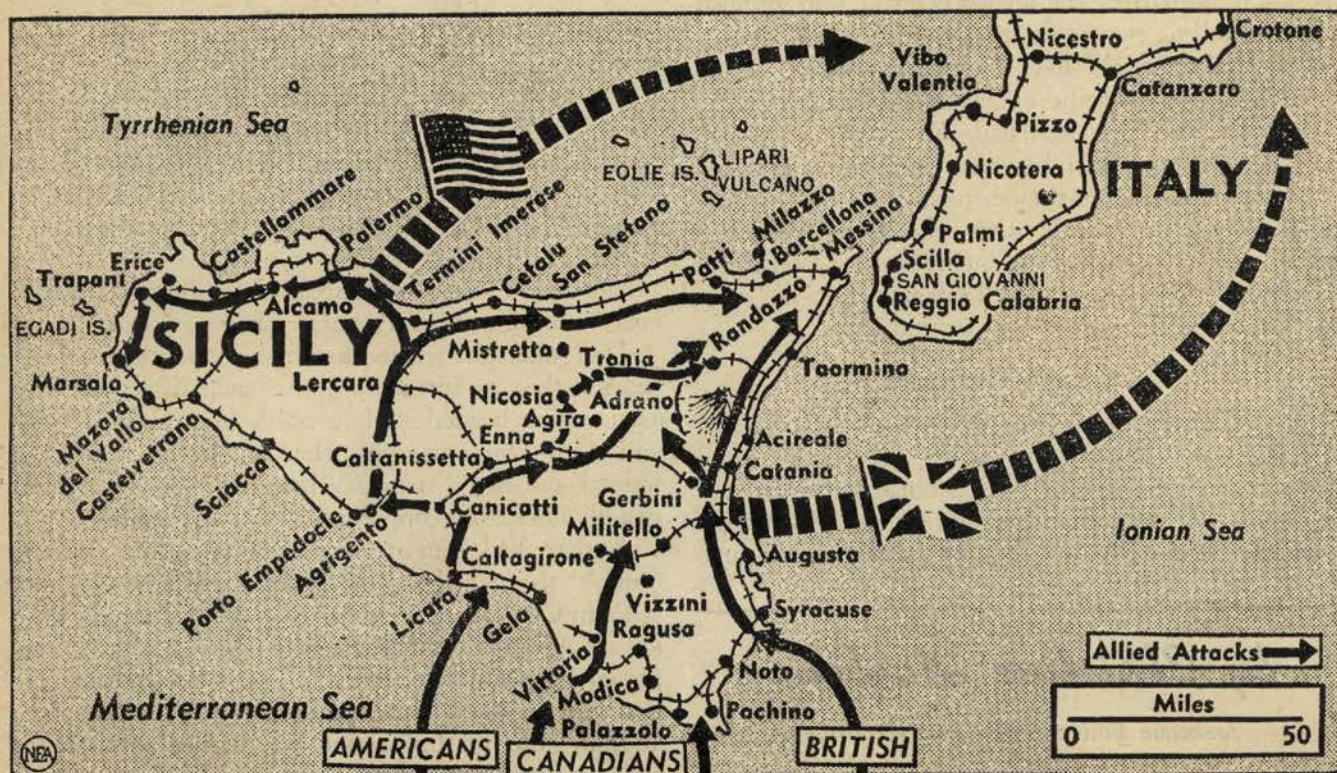
From Palermo, the main body of Americans turned east along the north coast road, a narrow strip flanked on the north by the Tyrrhenian Sea and on the south by a precipitous ridge, cut only by a few mountain passes to the central plain.

Al Newman in *Newsweek* describes this terrain very graphically. "The coast road winds over the tips of high ridges running down to the sea—driving as much as a mile inland to cross occasional wide, dry stream beds on multiple arched bridges of brick. It is of standard two-car width and has a macadam surface. Defending such a road, one of your flanks is secured by water and the other by your artillery placed on the reverse slope of a ridge a mile or two inland. Then as you retreat you blow up the bridges behind you, realizing that this will not hold up the enemy indefinitely but will delay him as he improvises a road through the boulders of the stream bed."

The 45th Division, spearheading the American advance along the coast road, ran into its first heavy opposition at the end of July in the Battle of San Rosso Hill—on the map Hill No. 335, but named by the men of the 45th, "Bloody Ridge"—which lies west of San Stefano.

From prisoners captured, it was learned that enemy troops contained elements of Rommel's former Afrika Korps and the 29th Motorized Division. Some of the prisoners had belonged to the 71st Regiment, which the German High Command had considered sufficiently valuable to evacuate from Stalingrad just before the Russians encircled that city.

Quentin Reynolds, who witnessed this battle, wrote





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From an elevated observation post U. S. soldiers watch the results of artillery fire as smoke rises from a shell burst on Troina. The town was later taken by units of the 1st and 9th Divisions.

in *Colliers*: "This hill was like a thousand other hills here in northeastern Sicily. . . . It was two miles ahead of us, and two companies of our 45th Division were trying desperately to hold it. They had lost it twice this day and now . . . our boys had regained it. A mile back of us our 155mm guns (the boys call them the Long Toms) were walloping away at a hill just four hundred yards beyond San Rosso. The hill was higher than San Rosso by perhaps a hundred feet. The Germans had a lot of artillery there and were pouring it down on the crest of San Rosso. They were throwing 88s, machine gun fire, and that six-barreled rocket gun they like so much—and that was bad. We could hear this and see the top of the hill crowned with white smoke, yet San Rosso had to be held at all costs, and tomorrow the hill beyond (where the Germans now were) would have to be taken."

After the capture of San Rosso hill the 45th Division was replaced by the 3d.

Hill by hill, the Germans were finally pushed back along the north coast road. The capture of San Stefano finally secured the mountain pass and opened the road leading southward to Nicosia, which had fallen to the 1st Division, fighting north across the southern plain.

THE LAST TRIANGLE

By August 1st, the Axis had been forced back into the rugged northeast corner of the island where their line ran roughly from Catania on the east coast, through Troina in the center to San Stefano on the north. From then until the final capture of Messina on August 17th, they bitterly contested every foot of rugged, precipitous ground, and ceded it only after

ample use of mines and demolitions assured them of a tedious Allied advance.

During the fighting in this mountainous terrain, there appeared on the flank of the 1st Division a regiment of French Moroccan cavalry known as Goumiers. These hard-riding, hard-fighting troops slashed around German road blocks and, fighting dismounted with long knives that beheaded the enemy in one single stroke, created havoc among the Germans. (See Pages 29, 30 and 31.)

Advancing on the flank of the 1st Division, the Goums captured the town of Capizzi, northwest of Troina.

BATTLE FOR TROINA

Troina, central point of the Axis line, was fiercely defended. The 1st Division, advancing from Nicosia, fought from crest to crest, through the hairpin turns of the highway at the Serra de Falco—Falcon Mountain—and finally closed in on Troina from three sides in what was probably the most bitter local contest of the Sicilian campaign.

Again quoting Newman: "Troina occupies a ridge 6 miles east of the ridge on which Cerami is situated. Troina is 500 feet higher, and the terrain between the towns is roughly a treeless bowl containing almost no cover whatever. Our problem was that of fighting our

Army engineers repair a mountain road in the wake of the German retreat. Heavy demolitions slowed the Allied advance through the mountains.



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way from the stage of a theater to the exit at the rear of the balcony with the enemy occupying mezzanine loges and boxes.

"At this time, the 9th Division was replacing the 1st, so combat teams from both divisions shared the honors. They were pinned down by mortar fire for nearly a week but managed to inch their way forward. Day and night our massed artillery behind Cerami played on the ridges like a hose, giving rise to the German legend of *Zauberfeuer*, or magic fire which haunts the mysterious peaks like something out of the Ring trilogy. A high officer who ought to know said it was the toughest action American troops have had yet anywhere. In the end our bombers smashed repeatedly at the outskirts of Troina, and the town fell on August 6th.

"At this point it looked as though the campaign would take far longer than it actually did. But Troina had broken the German will. There was plenty of mining and demolition between Troina and Randazzo, but nothing like earlier opposition."

RANDAZZO-MESSINA

After the fall of Troina in the center, and Catania to the southeast, the Germans employed every available demolition in their hasty retreat through the mountainous region to Messina. On August 10th United Press reported:

"The Germans are making scant effort to hold towns. The rearguard action works simply. At a particularly bad turn or vital bridge, the enemy wrecks the road and no detour is possible. Behind these blocks they set up small suicide outfits with machine guns and mortars. Mines are planted. Four such places were found south of Bronte. . . . Vehicles pile up in front of the demolitions and lay traffic wide open to German mortar crews and machine gunners hidden in the hills a few hundred yards beyond. . . . Many (of the Axis) may escape because mountainous battleground will prevent the Allies swarming in fast enough to compel mass surrender."



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A reconnaissance unit of the 3d Division searches for snipers in the streets of Messina, which they entered early on the morning of August 17th.

AMPHIBIOUS LEAP-FROG LANDINGS

During the same time, along the north coast road to the east of San Stefano, enemy demolitions also prevented any slashing armored thrust that might have outflanked the Axis positions. From the sea south to Troina, the fighting was strictly an infantry-artillery combat on the ground, while from the sky, fighters and light bombers screamed down against the Germans, dug into the hillsides.

At Cape Orlando the 3d Division, under General Truscott, launched the first of a series of brilliant amphibious flanking attacks that unhinged the Germans and sent them reeling back from the surprise. Before the enemy had fully recovered, a second unit landed at Brolo early on the morning of August 11th. Lacking the surprise of the first attack, the second force encountered more opposition, but most of it was able to get through to the top of a hill behind the town from where it fought off enemy attacks for some thirty hours.

"Because of the steepness of the heights, the tanks and tank-destroyer units had to be left at the base of the road, and for a time they (the task force) prevented attempts by the Germans to break out of the trap. Meanwhile, the main body of the 3d Division fought desperately to get through to this lost outfit and ultimately did so. Brolo was a shocking sight afterward. The road was littered with corpses and battered equipment. Burning tanks and tank destroyers lined the highway, while the whole hillside still smoldered.

"In spite of the fact that the bulk of the German forces broke out, Brolo was definitely worth-while. . . . The going became relatively fast. German demolitions were hasty and not as complete as before. From Brolo to Messina I counted seventeen road-bridge demolitions. Of these only eight were done with characteristic German thoroughness. Six good opportunities for demolitions were neglected entirely—a sure sign that Brolo rushed the defenders off their feet."—Al Newman.

SICILIAN FINALE

The Battle for Sicily—the first battle for Europe—was concluded on August 17th when British and American troops met in Messina on the northeast point of the island.

Along the three main roads of the Axis retreat—the north coast road, the east coast road, and the Nicosia-Randazzo-Messina mountain road—the Germans had fought a masterly rearguard action that prevented the Allied armies from overtaking and annihilating the main body of enemy troops. No units escaped intact, but an estimated 88,000 individual soldiers managed to cross the Strait of Messina to the Italian mainland in spite of constant strafing and bombing from planes.

Total Allied losses—killed, wounded, and missing—were estimated at 25,000. Of this number approximately 7,500 were American troops of the U. S. Seventh Army which had fought valiantly throughout the first campaign on European soil.

Right: Lieutenant General George S. Patton, Jr., Commander of the United States Seventh Army in Sicily, looks at a road sign in northern Sicily labeled "Messina."



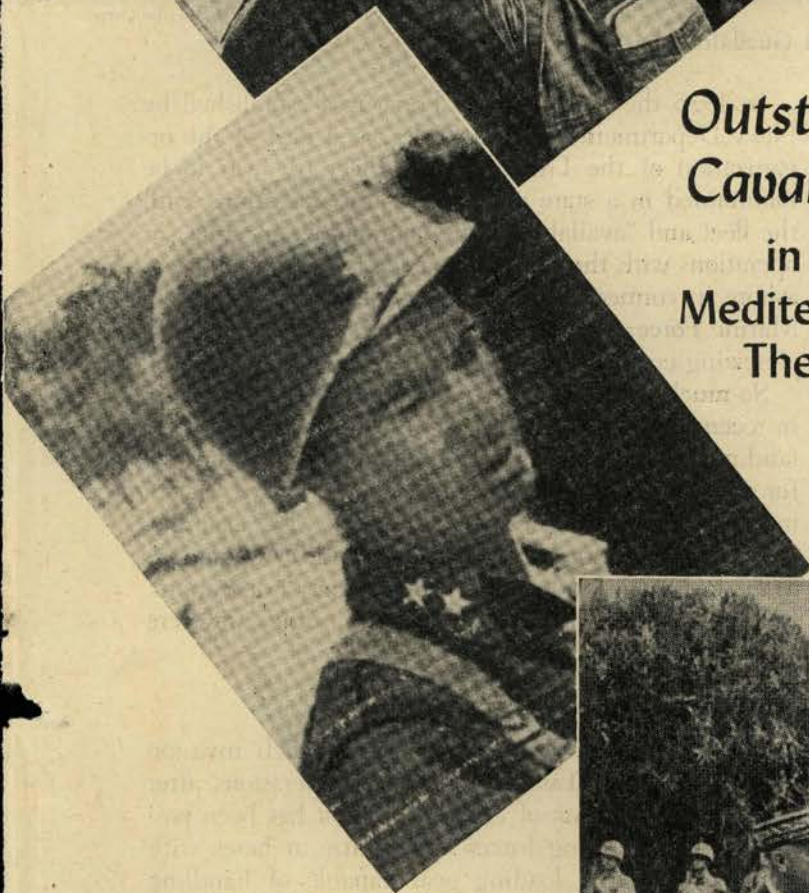
Below: Major General Lucien K. Truscott (right), Commander, 3d Infantry Division, studies a map with Lieutenant General Omar N. Bradley.



Left: Major General Ernest J. Harman, Commander, 1st Armored Division, helped drive the Axis from Tunisia.



Outstanding Cavalrymen in the Mediterranean Theater



Above: Major General Terry Allen, Commander, 1st Infantry Division, was one of the generals who directed American troops in both Tunisia and Sicily.



Above: Major General Geoffrey Keyes (right), Commander of a Corps of the Seventh Army, discusses with Italian General Molinari (left) terms under which Palermo, Sicily was surrendered to the Allies.



Left: Brigadier General Hobert R. Gay (right), Chief of Staff, Seventh Army, is shown with French officers at Fedala, French Morocco, prior to the recent Allied Campaigns.

Landing Operations

by Lieutenant Herbert N. Merillat, U.S.M.C.



U. S. Marines land on Guadalcanal Island.

Official Photo, U. S. Marine Corps

THE successful amphibious operations of this war—the landings in the Solomons, in North Africa, in Sicily, and many smaller islands—were born in the islands of the Caribbean.

During the 1930's the science of amphibious warfare was gradually developed from small beginnings until, at the present time, the United States and her allies are prepared for landing operations on a scale never dreamed of before the present war.

The magnitude of this accomplishment cannot be appreciated unless one refers to the period of the interbellum, when amphibious operations received little attention. The debacle of Gallipoli dominated thought on the subject. Landings on territory held in strength by the enemy were considered almost impossible. Moreover, it could not then be foreseen that the day would come when all substantial beachheads on the continents of Europe and Asia would be lost to the United States and Great Britain and that vast numbers of men and huge amounts of matériel would have to be landed on hostile shores.

EARLY DEVELOPMENT OF U. S. AMPHIBIOUS FORCES

The need for amphibious operations was clearer in the Pacific. As a part of any war between the United States and Japan, both belligerents obviously would have to move across the water to seize islands held by the enemy. To prepare for such an eventuality, the Navy and Marine Corps began training for joint action in the thirties, and units of the Army later joined in the program.

In 1935 the Fleet Marine Force was established by Navy Department General Order, as a part of the organization of the United States Fleet. It was to be maintained in a state of readiness for operations with the fleet and "available to the commander in chief for operations with the fleet or for exercises either afloat or ashore in connection with fleet problems." The Fleet Marine Force units were specially trained for missions of seizing enemy-held bases, then defending them.

So much has been heard of "amphibious operations" in recent months that it is easy to forget that each new landing operation is a unique problem—that no formula for success in amphibious warfare can be drawn, except in the most general terms. There are, for example, some striking differences between landing operations in the Pacific and in the European theater of operations. In general they call for different training, different planning, different forces.

DIFFERENCES IN BASES

There is the matter of bases from which invasion forces start. In the European theater of operations, after the initial occupation of North Africa, it has been possible for our landing forces to organize at bases with dock facilities and loading gear capable of handling large numbers of ships and landing craft and of loading much heavy equipment. It may be supposed that an immediate objective of the landing forces starting from such bases is to seize a beachhead which will provide similar dock and loading facilities.

In the Pacific, on the other hand, there are relatively

few bases with facilities comparable to those of a large European or North African port. Such bases as there are, in many cases, lie at great distances—hundreds, even thousands of miles, instead of scores of miles—from the invasion force's objective. The force which attacked Guadalcanal had to load at a South Pacific port far more than a thousand miles from the Solomons. As the Pacific war progresses, enemy objectives will be farther and farther from large invasion bases. However quickly islands which are seized from the Japanese are developed as bases for another push, they cannot be expected to compare with European bases in having large and elaborate facilities.

SHORE-TO-SHORE VS. SHIP-TO-SHORE MOVEMENTS

A second difference is related to the one just mentioned. Landing operations in the European theater are likely to be, in large part, shore-to-shore movements—movements from one well-equipped base to another base capable of handling large amounts of heavy equipment. The shore-to-shore movement also permits the use of types of landing craft which may not be suitable for the long hauls in the Pacific. There the landings must, in general, be from ship-to-shore, which means that the attack force must bring with it everything it expects to have during the first phase of the operation. A move-

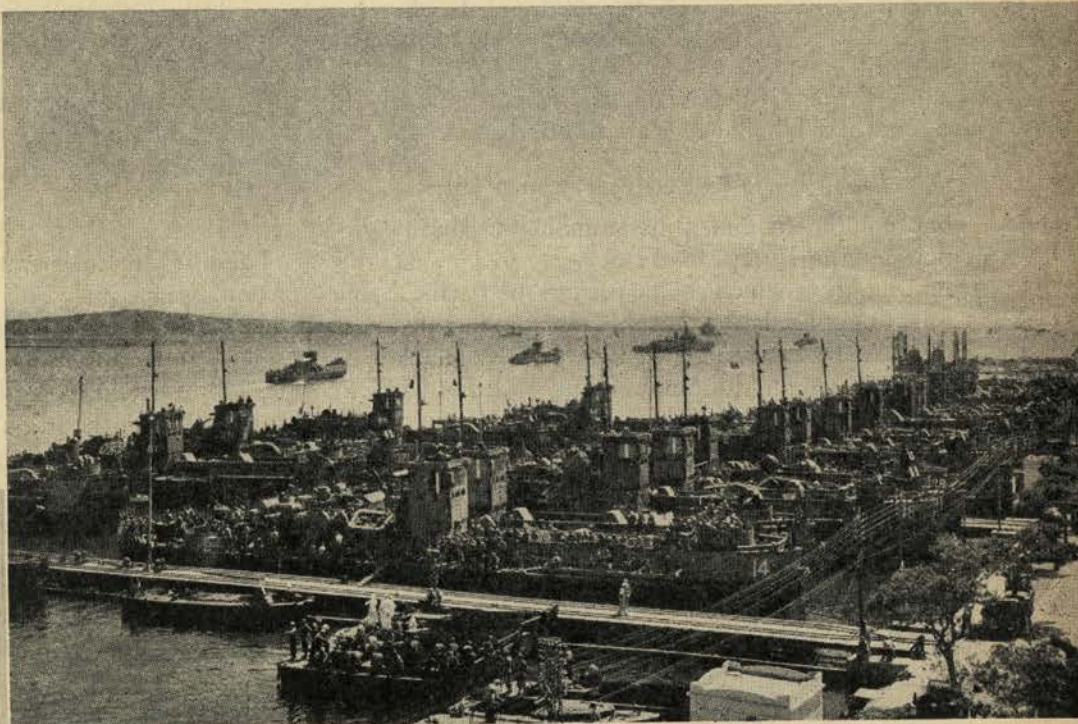
ment of troops and matériel from ship to shore calls for the greatest possible speed and skill, for the transports and supply ships are extremely vulnerable to air and submarine attack as they stand to unload. If ships are lost, the men and supplies that they carry cannot be replaced quickly from other bases.

In the Guadalcanal operation more than two weeks passed before any considerable amount of supplies were brought in to supplement those landed in the first three days. Meanwhile the landing force had to operate as a self-sufficient unit.

In Japan's third major effort to recapture Henderson Field, in October, 1942, they sent six transports heavily escorted by combatant ships. One was sunk by aircraft based on Henderson Field before it reached the shores of Guadalcanal. Three others were sunk by aircraft or set afire and forced to be beached while unloading, and two were driven off while engaged in unloading. A month followed before Japan sent another attack force, and then eight of the twelve transports which approached Guadalcanal were sunk by aircraft before they reached the island, and the remaining four were beached and destroyed soon after they reached the island.

These operations, and similar ones in other areas, demonstrate that heavy losses inflicted on an attack force operating as a separate unit far from base, unable

Right: At a North African port, assault troops board boats massed for the invasion of Sicily, July, 1943. This was a typical shore-to-shore landing such as can be expected in operations in the European theater.



Left: The soldiers unload their landing craft on Sicily's shore and shove their trucks and equipment through the deep sand. A shell has just struck the water beyond the landing barge.



Official Photograph, U. S. Marine Corps

U. S. Marines land on Florida Island during the first stages of the Solomons Campaign in which American forces blasted the Japanese out of their position. Landing barges are drawn up along the shoreline, and reinforcements are coming from the sea. Note the density of the vegetation.

to rely on quick reinforcements, serve completely to smash the attack. The eggs are in one basket.

DIFFERENCES IN EQUIPMENT AND ARMS

The equipment and arms suitable for landing operations in the European theater are, in general, different from those which can be used in the Pacific. Some reasons for this have already been mentioned—the fact that shore-to-shore movement permits more to be carried than ship-to-shore movement, and that bases in the Pacific are less elaborate.

Terrain in the Pacific islands imposes another limitation. There our forces will typically land on tropical islands covered with dense jungle and volcanic mountains, with no roads but native tracks and trails. On Guadalcanal, for example, the only roads capable of taking vehicular traffic were the Government Track along the coast, and a few roads cut through the coconut plantations by the Japanese to serve the air-field area. Other tracks had to be cut laboriously through thick jungle. Equipment such as heavy tanks and heavy trucks, which can be used where there is an adequate road net, are useless in the jungles of Pacific islands.

The coral reefs and numerous unbridged streams which abound in the Pacific impose a limit on types of vehicles that may be used. Rubber-wheeled amphibious vehicles, for example, would be useless on rough coral. On the other hand, amphibian tractors, which proved

to be very useful in such conditions, might be found too slow to be used profitably where a beach is smooth and where there are adequate roads and bridges.

NUMBER OF LANDINGS

Landings in Europe, apart from those for raiding or reconnaissance purposes, are likely to be on a very large scale. Once a beachhead has been secured, it will be used for funneling in men and equipment and supplies needed for extended land operations over a long period of time. When the initial landing operations have succeeded and an adequate beachhead or beachheads have been secured, operations lose the distinctive character of amphibious warfare. After a relatively few landings on a grand scale in the face of enemy opposition have occurred, then the amphibious force's job is done.

In the islands of the Pacific, on the other hand, landing operations are likely to continue until the day Japan is defeated. The forces landing on an island will be concerned typically with reducing one or a few enemy positions, as in the cases of the landings on Guadalcanal and Tulagi, the Japanese attempts to recapture Henderson Field, and the campaign for New Georgia. After a relatively short campaign, our forces will move on to repeat the operation on yet another island. In this regard it should be mentioned that the Guadalcanal Campaign ought not to be taken as typical of future operations in Pacific islands. The fighting during the first months of that campaign, after the

Marines seized the airfield, was the result of Japanese attempts to recapture the air base. In subsequent operations the Japanese are not likely to be able to deliver the repeated and powerful counterattacks which postponed the final mop-up on Guadalcanal for more than six months. As our strength in the Pacific grows, it seems reasonable to expect the island campaigns to grow progressively shorter.

THE TIME-TABLE

The Guadalcanal Campaign illustrated the benefits of long training in landing operations. The time-tables set for the operation, from the time of loading the ships and embarking the Marines until the time of landing, called for the utmost speed at every step.

Officers not thoroughly acquainted with the landing operations doctrine developed in the decade before the war would have been helpless to draw up the elaborate plans for the attack in the short time available.

Officers unfamiliar with the principles of "combat-loading" (i.e., so loading a ship that the equipment and supplies, according to an intricate schedule of priorities, shall be available during the landing operation) would have found it impossible to load the ships in time to meet the date set for the departure from base. Marines, working for days around the clock in a downpour of rain, were able to meet the tight schedule.

A rehearsal of the Guadalcanal-Tulagi operation had been planned in another group of islands of the South Pacific, and for four days the attack force went through

landing exercises. The rehearsal was only a partial success, for it developed that the site selected by hasty aerial reconnaissance had a bad coral beach where boats could not land without incurring substantial damage. In consequence, the rehearsal had to be confined to practicing going over the side, unloading supplies and equipment, assembling boats in rendezvous areas, moving toward the beach without actual landings, and coordinating naval gunfire and bombardment by carrier-based aircraft with the movements of the landing force.

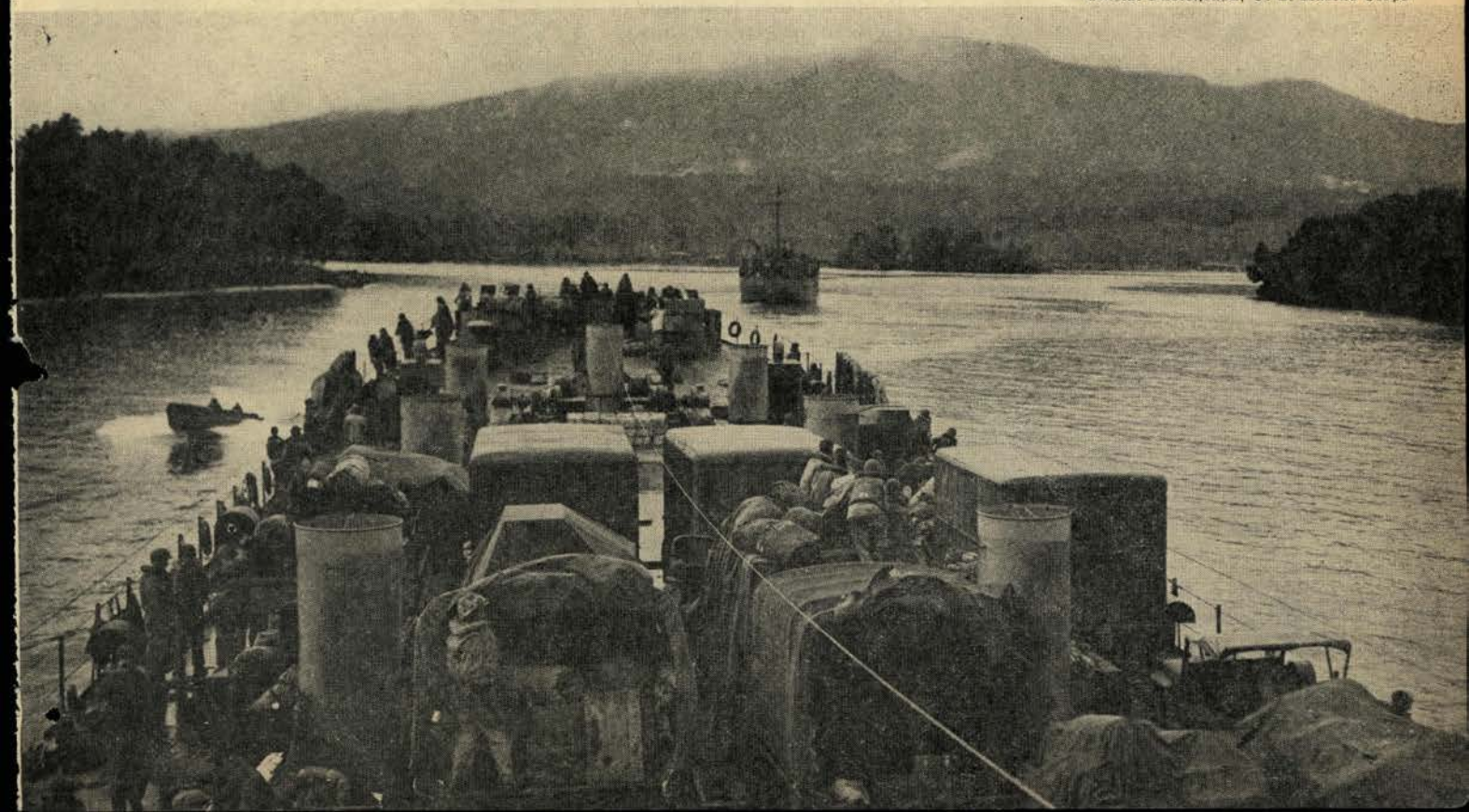
In such unpromising circumstances the months and years of training in landing operations proved their worth. Men did almost by habit what they might not have been able to do with less training, and the actual landing operation proceeded with model precision.

When the attack force arrived off Guadalcanal, in the dark early morning hours of August 7, 1942, its finished plan of operations was only a few days old. Roughly, half of the landing force had been at sea 39 of the previous 50 days and had spent the other 11 days in the cramped quarters of troop transports. The other half had been at sea for six weeks of the previous three months, had been quartered on troop ships for three more weeks, and had had only two and a half weeks in camp on land. This, however, was part of a highly trained force especially fitted for landing operations, led by officers thoroughly schooled in the doctrine.

The years of exercises in the Caribbean and study in the Schools had borne fruit.

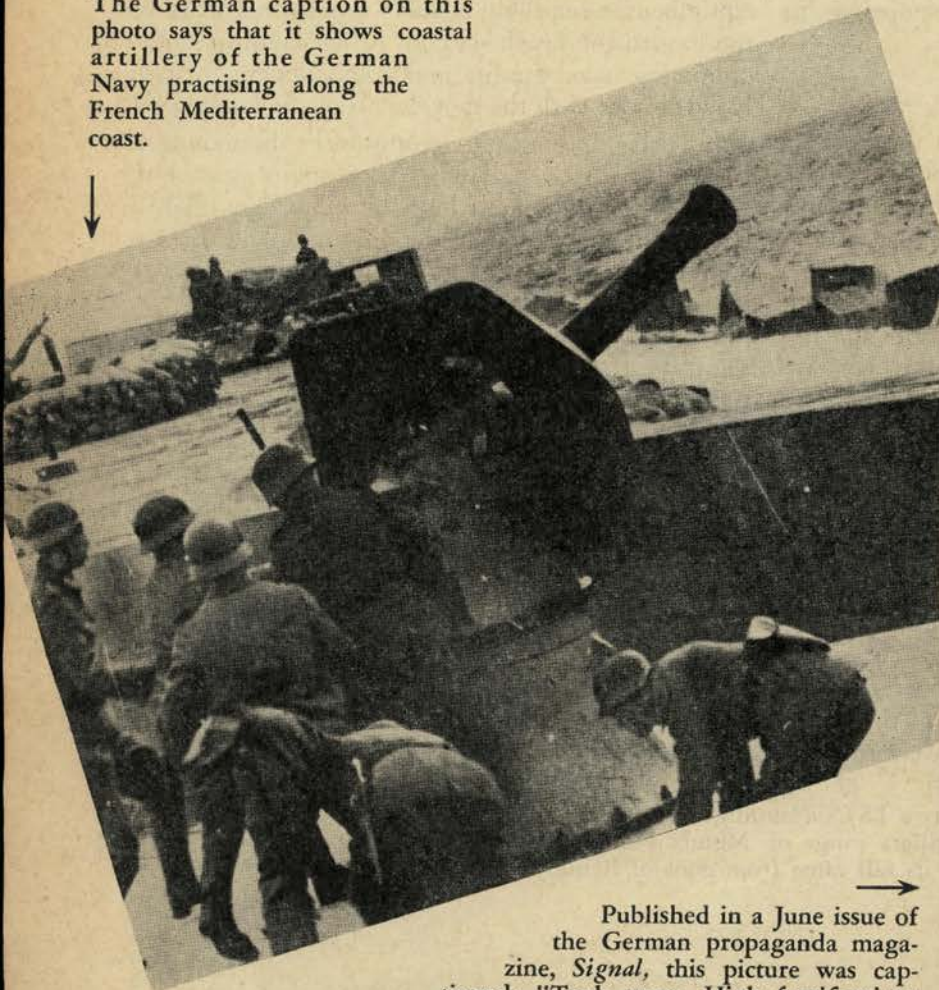
Packed with supplies within and without, two LST's (landing ship—tanks) approach Rendova Island, American base set up in the Central Solomons within artillery range of Munda Point. Much of the pounding Munda received before its fall came from guns of Rendova.

Official Photograph, U. S. Marine Corps



German Defenses in Europe

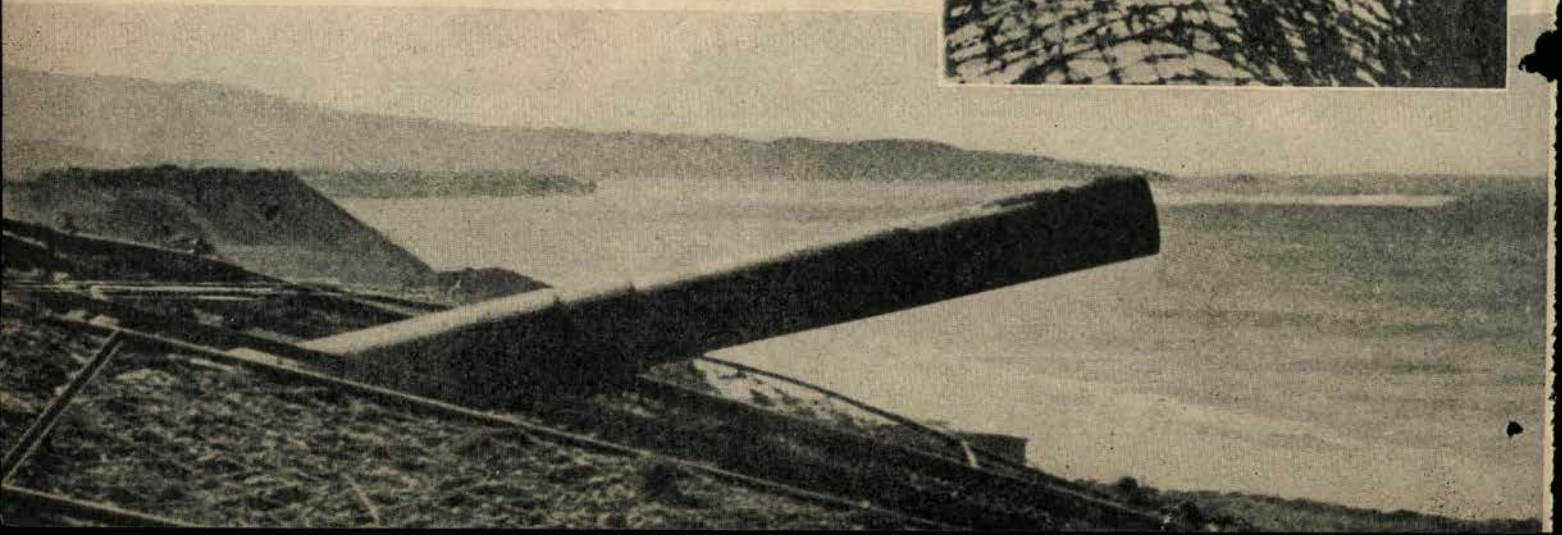
The German caption on this photo says that it shows coastal artillery of the German Navy practising along the French Mediterranean coast.



Photos by Press Assn.

Published in a June issue of the German propaganda magazine, *Signal*, this picture was captioned: "Tank traps. High fortifications such as this pinned the enemy down on the strand as early as during the retreat from Dieppe. . . ."

The caption which accompanied this photo from London says that it shows a German defense gun on the Gulf of Biscay. Source of photo unknown.

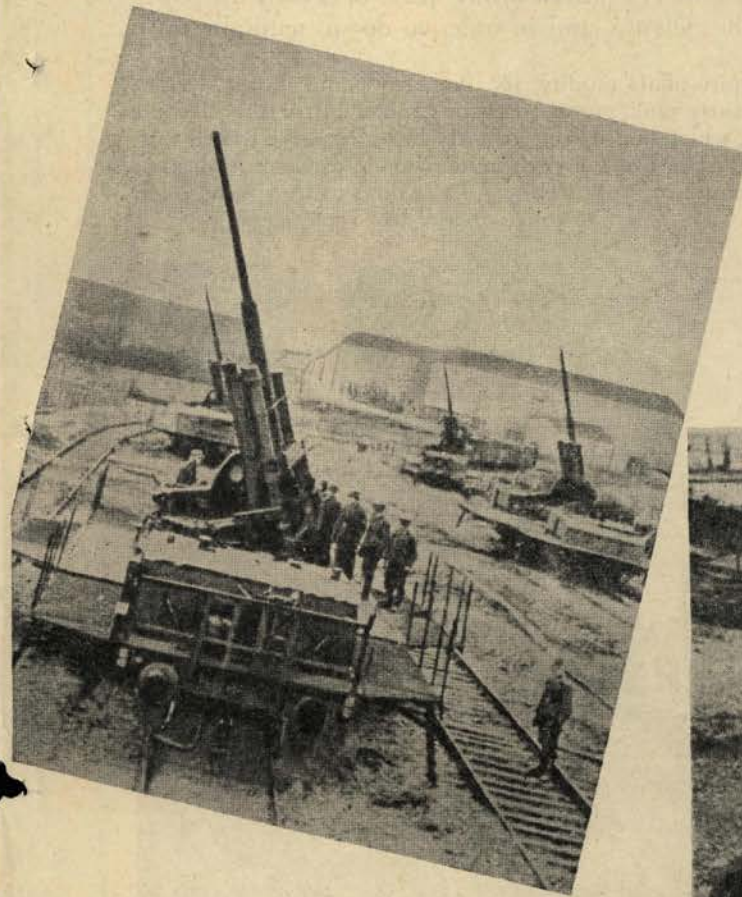




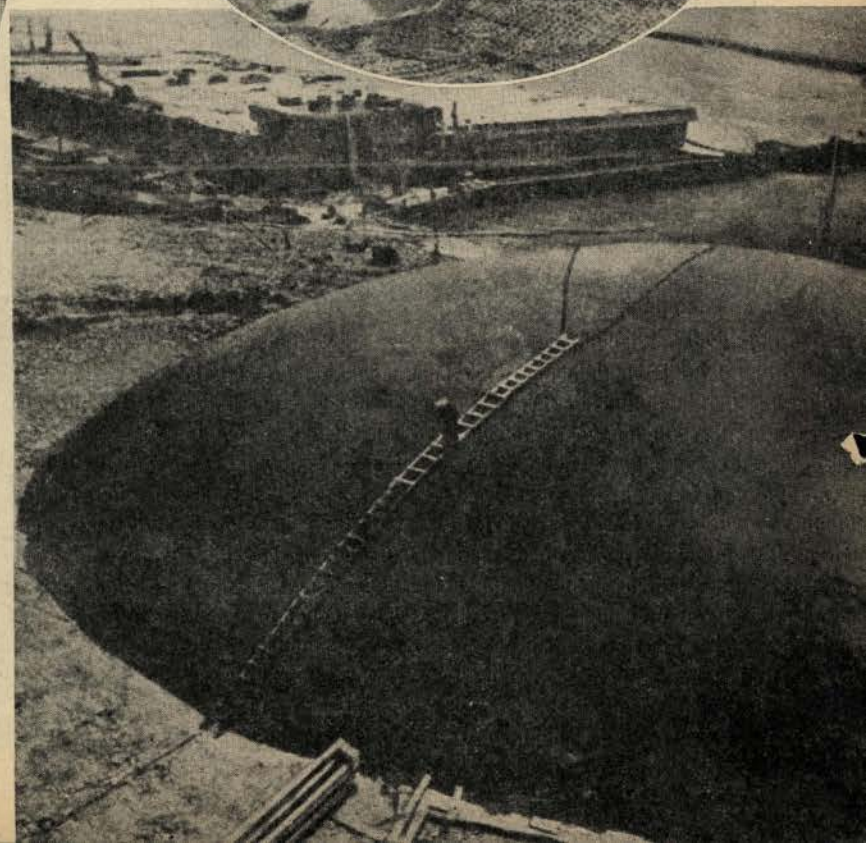
←
The Germans claim that thousands of heavy pillboxes such as this have been built along the Arctic, Atlantic, and Mediterranean coasts from Norway by way of France to Greece.

This picture appeared in the Munich *Illustrated Press* under the heading "A bunker of the Atlantic Wall." The German caption said it was the camouflage exit of an army bunker.

The Hamburg *Illustrated* published this picture under the heading "Railway Antiaircraft Unit." Four heavy antiaircraft guns belong to a battery which is stationed on two rails at short intervals.



→
The German caption on this photo says that this is a bombproof petrol reservoir, built into the earth as a fuel dump for submarines, airplanes and tanks. Each one is supposed to contain several thousand gallons of fuel.



THE ROLE OF THE TANK

WHETHER considered tactically or strategically, the proper employment of tanks is probably as controversial a subject as can be found. There are, however, many tank theories which cannot be justified if scrutinized logically.

First, it is necessary to trace certain tactical and technical developments of war that created the demand for a tank or similar combat vehicle—in other words, to determine the purpose for which the tank was designed.

★8th Armored Division.

U. S. Signal Corps Photos



This accomplished, it can then be shown where the employment of tanks in mass can be most effective. By such a process, some of the unsound doctrines or theories currently prevalent can be eliminated.

BASIC STRATEGIC PRINCIPLES

Many military people are too prone to think that scientific inventions, which usually manifest themselves in some form of weapons, change the basic principles of war. While it is true that there is a periodic ascendancy or decadence of various types of weapons which will tilt the balance of the scales to the advantage of one side or the other, this fact in no way alters the principles governing the employment of these weapons. The basic principles of war are immutable. Warfare has been and always will be a conflict between the offensive and the defensive. New inventions will often instill fresh power into the one or the other form of action. The offense always seeks to destroy the power of the defense, and in order to do so, naturally must

In spite of its crudity, its thin armor and motor defects, the early tank promised to be a nemesis for the machine gun, which had driven infantry into defensive trench warfare. At left is a French-built Renault used by Americans in France in 1918. Below, U. S. troops as they went "over the top"—in the last war.



IN THE WAR OF TODAY

by Brigadier General Edwin E. Schwien*

possess greater power—whether in cannon, maneuverability, or leadership.

The great masters of war have invariably applied correct principles in their successful operations, and these principles are the same whether applied by Hannibal, Alexander or Napoleon. An analysis of Napoleonic campaigns will reveal frequently recurring patterns that laid the cornerstone to success. First, there was usually a *rapid* and secret concentration. This almost invariable preliminary was often followed by the favorite Napoleonic maneuver from a central position designed to defeat opponents in detail. On the other hand, by means of *rapid*, secret marches, Napoleon would at times reverse the front by placing the bulk of his forces astride the enemy line of communication. He would then follow these strategic maneuvers by launching the tactical battle.

In either of these maneuvers, *rapidity* or *mobility* was the essence or key to success. Napoleon's first objective was to place his armies in a strategically advantageous position from which he could apply his superiority in leadership, weapons and morale in the tactical battle or battles to follow. The strategic stage set, the tactical battle was considered merely as a means to accomplish the final strategic victory. The speed or mobility which was so essential to Napoleonic maneuver was made possible by highly seasoned infantry and the mass employment of cavalry. The *strategic pursuit*, energetically executed with devastating and final results (until the failure at Ligny), was the principle rôle of the Napoleonic cavalry masses.

EXPLOITATION

Until the advent of the gas engine in the 20th Century, strategic exploration as well as exploitation belonged exclusively to large masses of horse cavalry. The turning of a front, the exploitation of a break-through in order to operate against lines of communication, the thorough pursuit—all required a speed which simply did not exist in anything but cavalry.

Up until World War I, all military authorities agreed on the desirability of waging fast offensive wars. Schlieffen and Foch believed firmly in this same basic doctrine of the rapid offensive. Even as late as 1914, both the Germans and the French had large masses of cavalry available for strategic rôles. Motor transport was in its infancy. The first World War certainly did not indicate that the rôle of these cavalry masses had become obsolete.

If anything, the lessons of the latter part of World War I, in the summer and fall of 1918, clearly proved

a very definite need for a powerful and fast exploitation force. At no time after the early stages of the war did such a force exist. Even had the numerous penetration attempts succeeded in effecting a break-through, there would have been nothing at hand to have turned the tactical victory into a strategic one by destroying the enemy's nerve centers well in rear of his armies. Nearly all of the large cavalry formations existing in 1914 had been turned into infantry before the end of the war. In other words, both sides lost sight of the fact that the break-through battle is merely a means to an end; that it is, in the final analysis, only a preliminary skirmish designed to place one force in advantageous juxtaposition relative to its opponent so that strategic maneuver will again be possible—so that rapidity, as envisaged by Napoleon, can again play its preponderant rôle in war.

There still exists and there always will exist the need for speed and maneuver in war, even though these factors were lost sight of in the latter stages of the first World War.

This résumé indicates that in the field of strategy a large exploitation force with great strategic mobility is absolutely necessary.

NEW WEAPONS AND TACTICAL DOCTRINE

In the tactical field, on the other hand, the appearance of new weapons on the battlefield has usually affected the *application of tactical doctrine*.

From time immemorial, the successful issue of battle has depended upon the presence and delicate balancing of three organizational factors—mobility, fire power, and the actual physical seizure and determined occupation of strategic and tactical localities.

Very early in the history of warfare, these factors took the form of cavalry, artillery and infantry. The early manifestations of these branches appeared as knights, catapults and archers. Various technical inventions throughout the ages caused apparent changes in the ascendancy or relative importance of the three. The early invention of armor and the mobility of the horse made the knight supreme on the battlefield of the Crusaders.

The invention of gun powder enabled the infantry to repel the shock action of the mounted and armored knight. Later, the invention of the machine gun and the parallel high development of the artillery gave to the infantry a defensive power heretofore unknown in the annals of war. This latter development reached its peak in World War I when the infantry, safely underground, and protected by huge masses of machine guns and artillery, successfully stood off an attack of ten-fold its

strength. The defensive power of infantry seemed definitely to be in the ascendency.

During the last three years of the last war, offensives on both sides were carried out with greatly increased fire power. Artillery seemed to be the only answer to the machine gun. Offensives requiring a laborious and tedious massing of matériel and munitions were undertaken. Enormous "groupments" of artillery were massed on narrow fronts for the purpose of literally blasting a path through enemy defensive resistance. In spite of meticulous care and methodical fire preparation, however, there always remained untouched isolated machine guns which always disclosed themselves after the lifting of the artillery preparation or the rolling-on of the barrage. These same surviving machine guns then proceeded to exact a terrific toll of the attacking infantry—a toll so heavy, in fact, that the attacking divisions were quickly disorganized long before a break-through had been attained.

The rhythmic pauses of the attack, designed for the forward displacement of supporting fire power, also served the defender well. They permitted him a breathing spell in which to reorganize his defenses, to bring up his reserves either for the occupation of "bretellos" or to switch positions, or for counterattack. The costly French offensives in Arbois and on the Somme, as well as the German holocaust of Verdun, furnished no answer to the problem of the attacker. The factor of fire power received a sudden impetus in the invention and first employment of toxic gas. This aid to the attack, however, was quickly overcome by the defense in its passive antidotes and in its own employment of this weapon.

During this epoch, all military thought, all inventive genius was directed toward the development of new weapons that might effectively neutralize the universally dreaded machine gun. It was not now a question of what to do in case a break-through was accomplished. The question at hand was *how to break through* the deep zone defense of the enemy. In addition to unbelievable masses of artillery, numerous accompanying guns, and other close support weapons, the attacking infantry obviously needed fire support that could stay right with it in its advance and beat down that omnipresent machine gun resistance.

Combat aviation was still a thing unknown, but even with its present efficacy, the dive bomber will never be able to remove in toto the menace of the concealed machine gun nest.

INTRODUCTION OF THE TANK

Sometime before the end of the war, the tank appeared on the battlefield. In spite of its crudity, its thin armor and motor defects, it promised to be the nemesis of the machine gun. Artillery barrages seemed unable to stop it, and it was vulnerable only to direct artillery fire. World War I then terminated and left the future capabilities and limitations of the tank to speculative

theory. Two lessons, however—one tactical and the other strategical—were learned. Both of these had a direct bearing on possible future uses of the tank.

Tactical Lesson. The machine gun was still master of the tactical battlefield. The tank, still largely experimental, might be the answer to the machine gun. All authorities agreed that the purely frontal operation stood little chance of success without a definitely improved fire support aid to the infantry.

Strategic Lesson. There still existed the need for a rapid, mobile force capable of extending the tactical rupture or penetration into strategic victory by a deep and devastating exploitation. This could be accomplished only by a complete paralysis of the enemy communications. Only large cavalry masses were available for this rôle. They had been so used in the American Civil War. If the tank masters the machine gun and permits the break-through, then there must be available a fleet mobile force that can quickly reach a vital strategic objective and exploit the fruits of the tactical victory.

The postwar period, therefore, found the tank sharing honors with aviation in the speculative theories of military writers.

The British perceived and announced their conception of the tank as the logical successor of the horse. They visualized the metamorphosis of the cavalry exploitation masses into fleet tank masses. Unfortunately, their thought processes did not go beyond the theoretical stage. The French, on the other hand, constantly aware of their terrific war losses, sought primarily an answer to the machine gun. Their conception of the future capabilities of the tank was more or less limited to its use in support of the infantry on the tactical battlefield. To them it was a fire power weapon designed solely for the support of infantry. Even they, however, made a distinction between their *chars d'assault* (assault vehicle) and their pitifully inadequate *force mechanisées*.

The Germans capitalized on both lessons. Not only did they recognize the tactical use on the battlefield of the tank versus the machine gun, but they also immediately perceived its capabilities in the more grand and vast strategic pattern.

THE TACTICAL RÔLE

First, a tank was needed to support the infantry attack. What characteristics must it have in this capacity? Obviously such a tank required fire power such as infantry cannon and plenty of machine guns. Next, it must have armor—plenty of armor, as it would be required to advance in the face of direct artillery fire (or antitank fire as at present). Did it not need speed? No, speed would serve only to separate it from its infantry, its *raison d'être*. Besides, speed and heavy armor were not compatible. How should it be organized? Should it be placed under the Inspector of Cavalry or Infantry?

Obviously, the Germans reasoned, this heavy tank had

nothing in common with the cavalry. Its two principal characteristics were fire power and armor, neither of which was possessed by the cavalry. In reality it was the old infantry accompanying gun, much improved and armored. If used in mass—in “groupements”—for the support of a particular infantry operation it might well be given to the Inspector of Artillery. This would again, however, detach it from the immediate support of the infantry. By a logical process of elimination, therefore, it must belong to the infantry. “Give unto Caesar the things that are Caesar’s.” Let the infantry train it; let it work with infantry. Call it the *infantry tank*. It was given a clear, definite task versus the machine gun.

THE STRATEGIC RÔLE

The Germans perceived the rôle of the tank not only in the tactical picture, but in the strategic picture as well. They understood how large masses of cavalry might have brought the first World War to a speedy conclusion had a break-through permitted their employment. And yet they knew that cavalry was fragile and delicate, that it was unarmored, that it lacked attack

power. If it could reach vital communication centers without encountering resistance in its path thereto, it could make its action felt in the strategic picture. If, on the other hand, the intervention of enemy reserves blocked its route to its exploitation objective, it lacked the “punch,” the fire power and shock action to push through. If only the cavalry mass could be implemented with fire power, with shock; if it could be made more impervious to enemy fire by means of armor—if all of this could be done, could it still retain its mobility, its speed? Would all of this be possible?

The answer to this question was given in the Polish and French campaigns. The problem was solved by the substitution of the light, fast tank for the horse. Even a mobile medium tank satisfactorily answered all requirements. Here, in this rôle, armor and fire power were and *still are* sublimated to mobility.

The result was the birth and organization of the panzer (armored) division. A new branch was created to administer and develop it—the Mobile Force. Under this branch was placed the horse cavalry. Their functions were fundamentally analogous. They belonged, therefore, under one titular head. The title of this force is indicative of its function, of its principal characteristic—*Mobile Force*. The principal function of the *gun* in the panzer division is to enable the latter to employ its *mobility*, so as to reach *quickly* a *vital strategic objective*.

If the division can reach this objective *without firing a shot*, so much the better, so much less the delay. If it were possible to stretch the imagination and visualize

Left: A heavy German tank crosses a Russian tank ditch during a recent attack on the Orel-Belgorod front. Here the tank is employed in its tactical rôle in support of infantry. The photo reached this country via Lisbon.

Below: German tanks and half-tracks, employed in their strategic rôle, advance on Soviet positions and fortifications in a counterthrust during the Orel-Belgorod fighting. Picture from Lisbon.

Press Assn.



the armored division, substituted for its weaker strategic brother, the lightly armed and unarmored parachute corps, and dropped on the strategic objective — that would be perfect!

When the Germans massed the bulk of their forces on the Belgian Ardennes Front in April, 1940, and ruptured the French Meuse Front north of Sedan, their maneuver was an exact replica of the Napoleonic maneuver from a central position. The operation, in a great many respects, bore a close resemblance to Napoleon's first Italian Campaign. The penetration of the front first separated the British and part of the French from the main French forces. This initial strategic advantage was then followed by rapid action against the entrapped Belgian army and by *rapid* exploitation by the panzer corps toward the channel ports. In the meantime, the main French forces to the south were contained during the annihilation of the combined French and British forces to north. This part of the campaign accomplished, the Germans turned their attention to the south and quickly broke the Aisne and Somme fronts and exploited their success across the rear of the Maginot Line to the very frontier of Switzerland. In this operation, as well as in those previously carried out in Poland, the *strategical exploitation* was executed by tank or armored division. The tank replaced the horse and did an effective job in *exploitation*!

The German infantry divisions also had their tanks. But, with the realism peculiar to Europeans, the Germans appreciated the vast differences between the two types of employment.

ARMORED MOBILITY

The armored division, therefore, is a far cry from the infantry tank. The tank battalion of heavily armored, slow moving fortresses must be an organic part of the infantry division or else attached thereto. There is, or should be, absolutely no connection between the two, either in training, administration or functions. In the *infantry tank*, the *gun* is primary. Even armor is secondary. Mobility plays no part.

There should be no confusion on this clear-cut issue. The *mobile tank division* of this war, when operating in a suitable theater, is as important, if not more important, than the Napoleonic cavalry of the early 19th Century or the cavalry masses of our own Civil War. If the theater of operations at anytime is of such a nature as to preclude the employment of *tanks in mass*, then the *horse cavalry division must be employed for the strategical exploitation*.

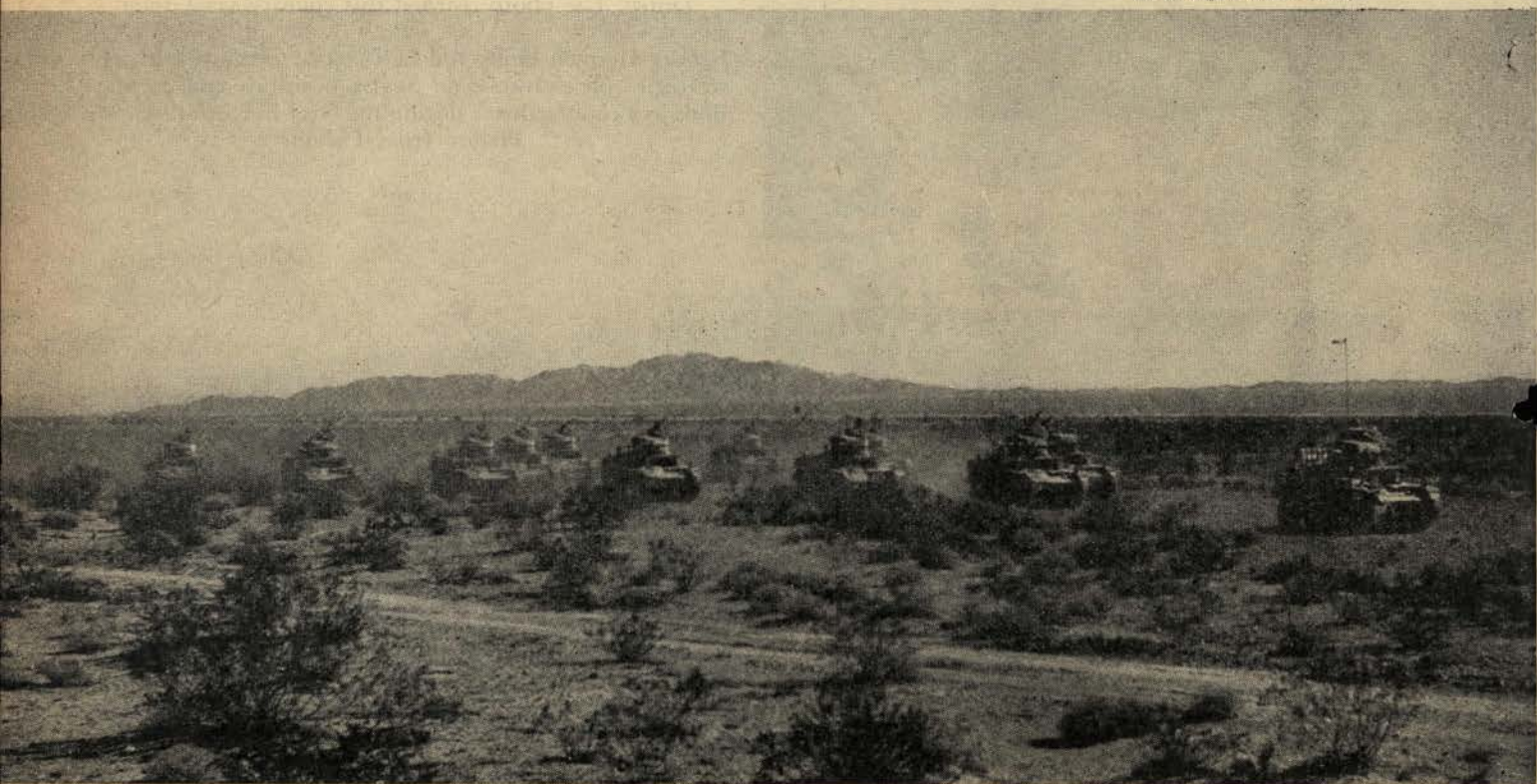
When the tactical or strategical break-through occurs in Europe, the war will be shortened considerably if there are sufficient armored divisions to capitalize and exploit the rupture gained so painfully and at such a cost of lives by our infantry and its organic tanks.

There must be no failure to exploit!

EDITOR'S NOTE: To this summary might be added the strategic pattern of the Russians as demonstrated at Stalingrad and more recently at Taganrog, where the successfully employed cavalry and tanks in joint operations for the complete exploitation of an earlier break-through. (See pages 32 and 33.)

At the Desert Training Center, this U. S. tank formation moves across the desert during maneuvers.

U. S. Signal Corps Photo



Principles of War Applied to Cavalry

by Major Benjamin D. Betts, Cavalry

MILITARY successes of history usually have been marked by adherence to certain principles of war—the principles of the *offensive*, of *surprise*, of *economy of force*, of *mass*, and of *simplicity*. These principles remain unchanged.

In the light of modern battle experience and by the use of the principles of war as a yardstick, what useful characteristics are found that are peculiar to cavalry? How can these characteristics be utilized best in modern war? How can they be accentuated further by organization, training, and equipment?

THE OFFENSIVE

The first unit of measurement is the principle of the offensive. *Field Service Regulations* state, "Superior hostile numbers may be overcome through greater mobility, better armament and equipment, more effective fire, higher morale, and better leadership." This statement seems to contain the essential elements of successful offensive combat: mobility, arms and equipment, training, morale, and leadership.

Mobility? Cavalry has it—a fluid, individual mobility practically unhindered by terrain obstacles, time of day, or weather, unequaled in the combination of speed and flexibility by any other branch.

Morale? Morale is not substance. It is hard to evaluate and hard to compare. There is a certain *esprit* in cavalry that is hard to find elsewhere. Give a normal man a horse, a little confidence in his ability as a horseman, and he becomes "the man on horseback." This type of morale may be atavistic, but it does breed individual responsibility and initiative, and a sense of being the better man in personal combat. The morale factor is the spark that initiates the offensive. Cavalry has it.

Other cavalry essentials—arms and equipment, training, and leadership—are not in themselves basic characteristics, but may be changed or modified to accentuate basic characteristics.

SURPRISE

The second unit of measurement is the principle of surprise. The elements of surprise are secrecy, deception, novelty, and accomplishment of the impossible. The purpose of surprise is to demoralize the enemy and thus defeat him. How does cavalry measure up? Secrecy in modern warfare calls for night movement. March by night, hide by day. In this manner even large bodies of cavalry can move great distances with secrecy. The horseman's mobility in cross-country operation is less diminished at night than any other soldier's, in that his mount, sensing dangers before the rider, is an asset rather than a liability. In terrain or weather where the enemy is limited to ground observation, cavalry, taking full advantage of its cross-country mobility, may move

with secrecy by day. This same mobility gives cavalry great powers of deception. The enemy normally overestimates the size of a force that moves on him unseen, strikes, moves off, and suddenly strikes again from a different direction. General Dovator's Russian cavalry, operating behind the German lines, was estimated as having up to thirty times its actual strength.

The very novelty of the tank was one of its most potent advantages when it came onto the battlefield in the last war. Its great power was its psychological effect. Today, against well trained troops, the tank has lost that power. The man on foot has built up a disdain for armor that enables him to stand coolly by his guns at its approach until he is assured that his weapon will have its maximum effect. How many men, on the other hand, are so familiar with horses as to retain their composure in the face of a mounted attack? The more mechanized and impersonal that war becomes, the greater will be the psychological power of horse cavalry.

Cavalry's final element of surprise is the accomplishment of the impossible. It seemed impossible to the Spanish Loyalists, holding the heights of Teruel, that any force could successfully storm their position, yet Monasterio's Moorish cavalry overran their position in a matter of seconds. In our own maneuvers, cavalry has shown what it could do in "impossible terrain." Surprise? Cavalry surely has its place.

ECONOMY OF FORCE

The third unit of measurement is economy of force. Since we are now engaged in total war, this principle can no longer be limited to the battlefield. Economy of force thus becomes *economy*—the utilization and management of resources. As a nation, we have a job to do and, in order to win the peace as well as the war, we must do this job with economy. Every tool used in war must show a profit; the end must justify the means. Every tool, whatever its classification, goes into battle showing a debit of labor and materials. While in the combat zone, maintenance is added to this debit. On the credit side may be entered the value of missions performed, enemy objectives gained. A careful analysis on the debit and credit basis should be made of *every* piece of matériel or equipment. Horse cavalry, as such, measures up. The horse goes into battle with a minimum on the debit side and with a maximum of potential credit.

It is inevitable that the horse is compared with his mechanical counterpart. In the complete acceptance of motorization and mechanization, one must accept two additional enemies—terrain and weather. These enemies immediately immobilize a large portion of potential forces—matériel, manufacturing facilities, and manpower. The challenges of terrain and weather must be accepted, and these natural enemies conquered, before

it is possible to strike the acknowledged human foes with full force. Even at this stage of development, it must be admitted that combat vehicles have a definite sensitivity to terrain and weather. The assurance of readily available horse cavalry in situations of difficult terrain and weather would eliminate these foes of mechanization to a large extent and release those forces now immobilized to aid in the defeat of the Axis.

THE PRINCIPLE OF MASS

The word *mass* used in its military connection conjures up a picture of almost anything but horse cavalry in modern warfare. Years ago, horse cavalry fitted into the picture—drawn sabers, the charge, the thunder of galloping hooves, wave after wave of horsemen riding boot to boot. That was mass, but what of modern war? The roar of tanks—the might of armor—has stolen the rôle of the charge, has taken the color, the glory, the spectacular rôles that once belonged exclusively to cavalry. But does this mean the end of horse cavalry? We think not. Once the dinosaur was formidable, but today the mosquito is more dangerous.

Our conception of mass should not be limited to the picture given above. The mass to be concentrated at any given point may be a solid mass like a heavy steel wedge; a resilient, smothering mass like a huge feather-bed; or a penetrating fluid mass. Each type is effective in warfare. The degree of effectiveness depends on the tactics and equipment of the enemy. The inherent characteristics of horse cavalry are those of the penetrating fluid mass. Given the terrain and weather that impose limitations on mechanization, horse cavalry can penetrate the enemy front lines like a swarm of gnats going through a screen door, organize in the enemy's rear areas, and strike rapid punishing blows at his rear installations and routes of communication to disrupt supply, to disorganize and demoralize him, and to draw combat troops out of the front lines.

SIMPLICITY

It is taught that a simple plan is most successful. What are the elements that are most likely to cause complexity and misunderstanding? Such ample emphasis has been placed on tactical simplicity that there is a natural wariness of the elaborate tactical plan. On the other hand, the ever-increasing types of specialized equipment that supply modern combat troops have complicated the logistical plan. Today, in military as in civil life, specialization is the keynote. There is a danger in over-specialization, a danger that can lead to disaster. In an army of specialists, the loss of one man may seriously jeopardize the success of an operation.

To move and supply this type of army it is necessary not only to plan on a certain number of men and a certain amount of equipment, but also on specific men with specific qualifications and training, on specific missions, and on the timely supply and resupply of

specialized expendable items. Is this simplicity of plan?

The basic characteristics of horse cavalry, on the other hand, both as to supply and employment, give the flexibility that facilitates simplicity of planning.

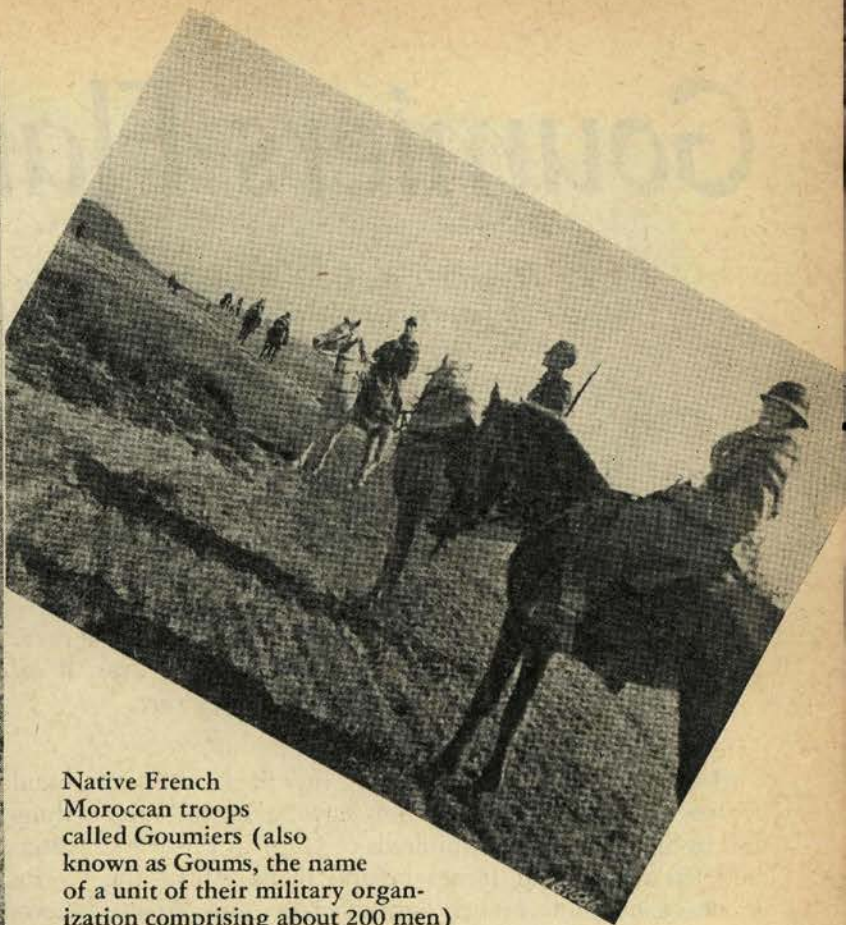
Using these standard basic principles, an analysis of horse cavalry shows certain characteristics inherent in the arm that can be used to great advantage in modern war. Cavalry furnishes an economical solution to the problem of cross-country mobility, a solution that gives the *individual* soldier the means to travel rapidly and comfortably over practically all types of terrain without perceptibly lessening his readiness for immediate action. Cavalry has the ability to disperse and thus present an unprofitable target to the enemy air and artillery without decreasing its mobility, and it can move with a maximum of secrecy in favorable terrain.

These characteristics perhaps are its most important assets, though others come readily to mind. Along with these capabilities, cavalry naturally has limitations. Its limitations have been enumerated often and are well known. A horseman presents a large target. He cannot creep and crawl and make use of small cover in a mounted approach. As soon as a mounted unit goes into dismounted action, from an eighth to a quarter of its manpower is lost to the commander in retaining some degree of mobility.

If horse cavalry is to regain its battle utility, it must go back to *basic* capabilities and limitations. These basic characteristics must be examined thoroughly, and training, organization, and equipment must be based on these fundamentals.

One approach to the larger problem is a consideration of cavalry logistics. Is it possible that modern cavalry bears a startling resemblance to the hunter who took too literally the slogan, "Be Prepared"? The hunter was out for a day of bird hunting, but before leaving camp started to pick up an item here and there to prepare for an emergency. Being endowed with an active imagination, the accumulation of these small emergency items made such a heavy load that he had to give up his mission. The danger of the woods made it a physical impossibility for a lone hunter to go out. The individual items of "emergency" equipment are not so heavy, but the accumulation easily becomes so great as to eliminate our greatest asset, mobility. Why not cut cavalry equipment to the *barest essentials* to carry out a specific mission and thus increase its mobility and efficiency? Why not follow the example of the successful hunter who leaves his heavy rifle in his base camp when out for birds, and his shotgun behind when out for bear?

No panacea is offered—only the plea to start with fundamentals, to suggest, improve, and correct—that one national asset, horse cavalry, may be used to the limit of its capabilities in achieving a common national goal. The day will never come when intelligent thought and planning will cease to show the way to a more efficient use of the means at hand. Today, *all* means must be used to insure victory.



Native French Moroccan troops called Goumiers (also known as Goums, the name of a unit of their military organization comprising about 200 men) fought with Allied armies in Sicily.

French Moroccan Cavalry in Sicily

Here a unit of Goumiers, commanded by a French officer, heads for the hills beyond the Sicilian central plane soon after their landing July 14th. Their capture of Capizzi on the American flank preceded the important battle for Troina.

Signal Corps Photos



CARDED

Goumiers Flanked U. S. Tr

Goumiers, the feared Berber fighting men of North Africa may be likened to an unorganized militia. They fight for the sheer love of fighting—and for the money they can earn by bearing arms for their friends against a common enemy. Under the French administration of Morocco, the Goumiers contracted to hire out their arms and abilities at stated intervals and upon official levy, as adjuncts to the French and French Colonial forces.

While the Goumiers fight under French officers, their methods are their own. They wear no uniform, rely largely upon cold steel for best results, and frequently supply their own arms. Working at night, they prefer to penetrate the edges of enemy-held territory by guerrilla tactics, at which they are most proficient.

Goumiers are members of the white race, with deeply tanned faces, dark brown hair and brown or hazel eyes. While blondes among them are not unknown, they are extremely rare.

August 11, 1943—Fighting on the flank of U.S. troops, French Moroccan Goums have taken hill after hill in Sicily, sent back hundreds of German prisoners, and left many dead Jerries behind them. All of the Goums can handle French light machine guns, American tommy guns, and 81mm mortars—but with a bayonet and a bunch of grenades they will charge any position, anywhere.

The Goums are all Mohammedans in religion and Berber in origin. The Berbers are natives of North Africa; the Arabs are not. Unlike the Gurkhas (British Indian Troops), who look like a bunch of kids, these Goums look as tough as they really are. Most of the men are lean, with close cropped kinky hair and a

braided pigtail. The pigtail is to give the Lord something to grab on to when he yanks them up to paradise, after they die.

Practically all of the Goums have beards. "They believe that a man who has not seen action and does not have a beard is not a man," explained a French lieutenant who had served with them for three years. "Goums are the best fighters I have seen anywhere," he said. "They just don't know when to quit."

On one occasion their objective was two hills just outside Misretta which were held by two companies of well entrenched Germans. Climbing as quietly as goats, the Goums got into position at night and hurled several dozen well aimed grenades, and then made a cold steel attack. When they were within 50 yards of the top, the Jerries opened up with machine guns. Instead of falling flat on their faces, hunting for cover, the Goums rushed straight in for some hand-to-hand fighting. For that, each Goumier has a ten inch knife—a *koumia*, which he uses to cut off heads. Now-a-days he does that only if he gets very mad, which sometimes happens. The Germans definitely don't like the Goums, but the Italians are scared to death of them. On one occasion, in the Mateur-Bizerte sectors, where the Goums were attached to the U.S. 9th Division, three Italian companies surrendered en masse as soon as they heard that the troops in front of them were Goums.

Back in 1912, when the French came into Morocco they absorbed the Goumiers into their army as a separate fighting force. The units, built up into *tabors*, the equivalent of a regiment, are made up of four Goums, 200 Goumiers to a Goum.

To every *tabor* of Goums there is a cavalry unit in which each man owns his own horse. All Goums fight on foot. Also attached to each section are several score mules to carry ammunition into terrain where jeeps cannot go. But the Goums like their jeeps. It makes a funny picture to see one of these Goumiers wearing his

Shoeing a wild mule is just practice for the more dangerous tasks to be faced after dark by Said ben Mohamed, Abdallah ou Ali and Mohan ou Hamoud.

U. S. Signal Corps Photo



oops in Sicily[★]

wool sack uniform, tearing along in a jeep, his pigtail flying in the wind.

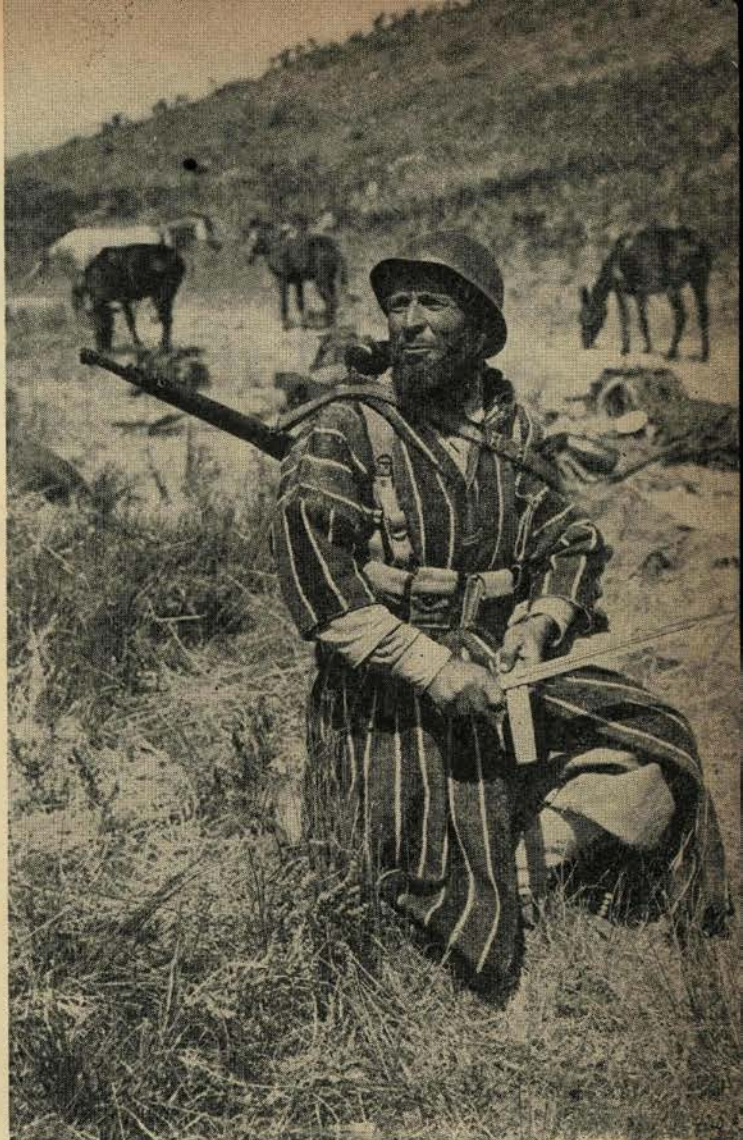
Besides their company commander, each Goum is staffed by one French officer and ten French noncommissioned officers. In addition, the Goums have their own native sergeants. They all eat the same food—C rations—which they do not particularly like. The Goums would much prefer a steady diet of bread and green tea, their national dish.

With Allied Forces in Northern Sicily, August 9, 1943★—Goumiers have been slicing their way with American and Canadian troops through German- and Italian-held towns in Sicily ever since they landed at Licata on July 14th. One of their outstanding exploits, made preliminary to the American assault on the German stronghold at Troina, was the capture of Capizzi, about five miles northwest of Troina. (Editor: The capture of Troina has been called the decisive point in the conquest of Sicily.)

It was almost by accident that I found these hardy fighters at Capizzi and learned of their capture of the town. We had just passed through Nicosia, where batteries of 105s and 155s were systematically shelling the Germans at Troina, and a British correspondent, two American colleagues and I had chartered a jeep for the run over to Capizzi.

On the road to the town, littered with burning Axis trucks, Sicilian prisoners from a Palermo artillery regiment were waiting to be transported to the rear. Reaching Capizzi, we found a *mêlée* of prisoners being loaded in trucks and townspeople searching for relatives and friends among them. It was then that I recognized the magnificent horses and long capes, which are the familiar badge of the Goumiers. They were getting ready to move in half an hour.

A sergeant major of the Goumiers took time off from his work to give me an account of the fighting that had led to the fall of Capizzi. "While American artillery laid down a barrage," he said, "the cavalry advanced to the entrance of the town. This was about six o'clock in the evening on Friday, August 6th. The Germans still had two companies at full strength holding the defenses. The Goumiers rode in formation into the town, and the Germans attacked from both sides of the main street with machine guns, tommy guns and hand grenades. Instead of breaking under this cross-firing, as the Germans probably expected, the Moroccan fighters spread out to engage the Germans in hand-to-hand combat. The battle went on for five hours until eleven o'clock. The enemy, after having been swept from every defense



U. S. Signal Corps Photo

Goumiers are well-known for their prowess with the knife. Shown here is Embarck ou Boujmaa, sharpening an American bayonet in preparation for his nightly foray. Note his American rifle and belt and French helmet.

line and after suffering heavy losses, finally withdrew.

"And you can say that our losses were very slight," added the sergeant major. "The cavalry has the *baraka* (all the luck). It is a fact that since we landed at Licata we have often been in some tight places, yet we always manage to get out of them with honor and almost without damage. Of course, we have to admit that the Americans' heavy artillery has something to do with our constant good luck." The officer smiled. "It pounds the enemy positions with remarkable accuracy and makes our job that much easier.

"The American officers are very friendly and the men are swell comrades," he continued. "Tell everybody that we are proud to be representing France in the Sicilian Campaign. This war isn't any fun. We have to fight hard and often, do not get more than two hours sleep a day, but the Goumiers are tough. This life of uninterrupted riding suits them, and their spirits are high."

With a wave of his hand, the sergeant major left me, promising we would meet again when the campaign was over.

★Text of a cable to The Free French Headquarters by Ralph A. Martins, *Stars and Stripes* Staff writer with American forces in Sicily.

Swift Thrust by Cavalry and Motor Units Captures Taganrog

London (Tuesday), Aug. 31.—A vast encirclement movement in which Red army mechanized divisions and Cossack cavalry drove to the Azov Sea coast 28 miles west of Taganrog led to the fall of that Nazi anchor city and the freeing of more than 150 settlements yesterday, the Russians announced today.

Horsemen and motor-borne troops were reported to have knifed from Donetsko-Amvrosievka, 40 miles northwest of Taganrog, to Veselo-Voznesenskaya, 28 miles west of Taganrog, to fix a pincer jaw complementing that of the Russian lines east of the town. Then the pincers closed.

The Nazi stronghold of Stalino, 70 miles northwest of Taganrog, was threatened. The surprise smash left the entire German right wing in jeopardy and apparently crumbling.

The Russian communique, recorded here by the Soviet monitor from a Moscow broadcast, said remnants of the Taganrog garrison "are being wiped out."

Southwest of captured Kharkov, where the Russians are swinging southward in an apparent effort to encircle the railway juncture of Poltava, "our troops continued their offensive and captured several populated places," the Russian bulletin said.

Premier Josef Stalin announced the capture of Taganrog late in the day, after the Nazis already declared they had abandoned the town in another of their so-called "strategic withdrawals."

Stalin's special announcement said:

"As a result of fierce offensive engagements our troops routed the Taganrog grouping of Germans and today captured the town of Taganrog . . . As a result of the operation carried out, our troops have completely liberated the Rostov region from the German invaders."

The capture of Taganrog was the sixth milestone in the Russians' victorious summer offensive. It cracked the German Donets Basin line in the southern Ukraine and ended German dreams of Caucasian oil for their war machine.



Germans were reported getting out of Taganrog as Russian advances on Poltava, Krasnograd and Stalino (arrows) threatened to trap the Nazi forces in the south.

STALINO MENACED

The Russian break-through threatened Stalino, German supply center 70 miles northwest of Taganrog and loosened the Nazi grip on the mines and wheat-fields of the Donets Basin.

Taganrog is the last stop on the important rail line from Kharkov, which was cut a week ago by the Soviet capture of Donetsko Amvrosievka, 40 miles north of the port.

Although the Germans tried to write off the loss of the city with the explanation that they evacuated it to shorten their lines, Stalin's order of the day said the new victory was achieved "as a result of a bold maneuver by cavalry and mechanized formations which broke through into the rear of enemy troops."

The victory was another major gain in the powerful Soviet offensive that has swept through Orel, Belgorod, Karachev, Kharkov and Sevsik since it began July 12.

Taganrog was captured first by the Germans in November, 1941, but they fell back later that month. They captured it again in the summer of 1942 and held it despite the threat of the Soviet winter offensive this year when the Russians retook Rostov, 40 miles east of Taganrog.

Stalin's Order of the Day

AUGUST 30, 1943

Order of the Supreme Commander-in-Chief to Colonel General Tolbukhin:

As a result of violent battles the troops of the Southern Front routed the Germans' Taganrog group and today, August 30, have captured the town of Taganrog.

This new victory, won by our troops in the south, has been achieved as the result of a bold maneuver of *cavalry and mechanized formations* which broke through into the rear of the enemy troops. As a result of the operation they carried out, our troops completely liberated the Rostov Region from the German invaders.

In the fighting for the liberation of the Rostov Region and the town of Taganrog, the following troops distinguished themselves: The Kuban Cossacks—cavalrymen under Lieutenant General Kirichenko of the Guards; the tankists, defenders of Stalingrad, under Lieutenant General of Tank Troops of the Guards Tanaschishin; and the troops under Lieutenant General Tsvetayev, Lieutenant General Zakharov, Lieutenant General Gerasimenko and Lieutenant General Khomenko, and the fliers under Lieutenant General of Aviation Khryukin. . . .

To mark the liberation of the Rostov Region and the town of Taganrog, the name of "Taganrog" shall be conferred on the 130th Infantry Division, and the 416th Infantry Division composed of Azerbaijanians, and henceforward these Divisions shall be named:

The 130th Taganrog Infantry Division and the 416th Taganrog Infantry Division.

In honor of the victory at Taganrog, today, August 30th, at 7:30 p.m., the Capital of our motherland, Moscow, will

salute our valiant troops which liberated the Rostov Region and the town of Taganrog—with 12 artillery salvos from 124 guns.

For splendid combat actions I express gratitude to all troops under your command which participated in the operation for the liberation of the Rostov Region and the town of Taganrog, and in the first place to:

The 130th Taganrog Infantry Division under Colonel Sychev, the 416th Taganrog Infantry Division under Colonel Syzranov, the 15th Mechanized Brigade under Major Tatirov, the 6th Tank Brigade of Guards under Lieutenant Colonel Shidkov, the 32nd Tank Brigade of Guards under Colonel Grinevich, the 4th Mechanized Brigade under Lieutenant Colonel Yepanshin, the 9th Kuban Cavalry Division of Guards under Major General Tutarinov, the 30th Cavalry Division under Major General Golovsky, the 31st Infantry Corps of Guards under Major General Utvenko, the Machine Gun-Artillery Battalions of Guards of the First Fortified Area under Colonel Sakseyev, the Second Artillery Division of Guards under Colonel Alexeyev, the 236th Fighter Air Division under Colonel Kudryashev, the 270th Bomber Air Division under Colonel Chuchev, the 9th Fighter Air Regiment of Guards under Lieutenant Colonel Morozov and the 31st Fighter Air Regiment of Guards under Major Yerechin.

Eternal glory to the heroes who fell in the struggle for the freedom of our motherland.

Death to the German occupationists!

(Signed) Supreme Commander-in-Chief,
Marshall of the Soviet Union *Stalin*.

RED CAVALRY—In Mounted Attack*

by Colonel Alexander Vasilyev

ACTION of cavalry in modern warfare is considerably hampered by large quantities of technical equipment on the battlefield, by numerous fortified works, and by powerful fire from all types of weapons. It would seem that in many cases cavalry could not be employed generally without risk of its being completely destroyed in its first attack. Experience has shown, however, that cavalry can act effectively even under adverse battle conditions.

Noteworthy in this connection is the operation performed by the Soviet guards cavalry regiment commanded by Colonel Shubin on a certain sector of the Soviet-German front.

It is a generally accepted Soviet opinion that a cavalry attack is effective only when launched by *large masses* of mounted formations against dispersed enemy troops. The action of this particular regiment, however, shows that small cavalry units also are quite capable of successful independent operations.

*By cable to THE CAVALRY JOURNAL, from War Department, U.S.S.R., Moscow.

"In the dead of the night, Colonel Shubin's regiment massed in the vicinity of the village on the river's northern bank without encountering any of the enemy."

Sovfoto



On one occasion the enemy was in possession of a group of villages situated on the north bank of the river. A Soviet cavalry division, stationed some twenty or twenty-five kilometers north of this area, was ordered to make a forced march to the river, attack, and drive the enemy southward. In conformity with these orders, Colonel Shubin's regiment was instructed to proceed southward and seize the heights at —. On his right flank another cavalry regiment moved forward with orders to attack simultaneously; the left flank was left uncovered. Some ten kilometers behind the two cavalry regiments there followed a tank regiment which was also to take part in the operations at the river.

In the dead of night, Colonel Shubin's regiment massed in the vicinity of the village on the river's northern bank without encountering any of the enemy. A little while later the commander received information from his scouts to the effect that the village was held by about two battalions of enemy infantry and several tanks, that the outskirts of the village were guarded by isolated sentries, and that there were no enemy troops in neighboring villages.

Colonel Shubin decided to attack the village by surprise simultaneously from north, west, and east, press the enemy to the river, and annihilate him. There was a considerable element of risk in this decision, but one of the characteristic features of cavalry action is not to lose minutes of time when in a most critical situation.

The main blow was to be delivered from the north by the regiment's second and third squadrons supported by a gun battery of twelve antitank rifles and two antitank guns, and two platoons of heavy machine guns. The first squadron and part of the third squadron, together with a platoon of machine guns, were to deal a supplementary blow from the west and east.

The bulk of the regiment's fire weapons were massed half a kilometer north of the village. These firing positions had been taken up secretly and noiselessly during the night, and by dawn all preparations for the attack had been completed. Meanwhile, reconnaissance scouts reported the disposition of the enemy's fire weapons and forces and indicated the most reliable approaches to the objectives of the attack. The squadron and platoon commanders carried out a brief reconnaissance and definitely decided on routes of action.

Promptly at the appointed time, 4:00 A.M., fire from weapons was opened at the village. It lasted ten minutes, and signs of panic were observed among the German garrison, which opened desultory fire in return. At a given signal at 4:10 o'clock, the whole regiment attacked simultaneously. The cavalry burst into the village, and in the ensuing hand-to-hand fight, the entire German garrison was annihilated.

By six o'clock the battle was over.

—FILLING A GAP*

by Captain Nikolai Paulou

RED cavalry has won a definite place for itself in Soviet-German fighting.

The successes gained by Russian horse-mounted troops have completely refuted the old arguments that cavalry would be useless in modern warfare. Horsemen, on the other hand, have come to realize that cavalry action can be effective only if troopers are able to fight equally well on horseback and on foot.

Soviet cavalry frequently has proved a stumbling block for the enemy. One outstanding example of this occurred during the fighting in August of 1942. The Germans had concentrated two tank and three infantry divisions on a certain sector of the front. Their air power, delivering a surprise stroke, first succeeded in cutting the railroad which was the only supply line for Soviet troops operating in that area, and made it possible for enemy infantry to break through the Russian defenses. This created a gap in the defense lines, and German armored units drove quickly into the breach.

A Soviet cavalry formation was immediately brought up with orders to close the breach and re-form the lines.

The terrain upon which this battle took place was a hilly plain, fronted by copses and cut by a winding river 5 to 8 meters wide with marshy banks. The area of the cavalry concentration was protected by a thick wood.

The cavalry advance guard, consisting of a regiment of guards commanded by Colonel Malinov, was assigned the task of forcing the river crossing and routing the German troops holding the village 5 kilometers south of the river.

Immediately upon coming out of the woods, the cavalry regiment was subjected to fierce Luftwaffe attacks. Stukas, in flights of 20, bombed and machine gunned the cavalymen, sometimes from an altitude as low as 200 meters.

Making use of the terrain folds, the cavalymen proceeded forward at a fast pace in dispersed formations. Upon reaching the river, *they and their mounts started swimming across*, while the guns were ferried or drawn over the bridge. The Germans then turned their artillery and mortars at the cavalry force crossing the river and at the same time began moving their tanks forward from the village.

In spite of heavy fire, the regiment succeeded in crossing the river and establishing a bridgehead on the north bank. Colonel Malinov then dismounted his troops and ordered them to entrench the swells if possible in the short time that remained. The horses were taken to a safe spot on the northern bank.

Fifty German tanks and an infantry battalion came up and attacked the cavalry's right flank, held by Captain Konovalov's squadron. The German plan evi-



Sovfoto

"Upon reaching the river, they and their mounts started swimming across, while the guns were ferried or drawn over the bridge."

dently was to crush Soviet resistance by a powerful artillery fire and air bombing and rout the cavalymen by a tank pincer movement. The German tanks, followed closely by automatic riflemen, kept up a steady fire as they crawled towards the Soviet positions.

Captain Konovalov's cavalymen, who were holding the strip along the river, held their fire. Then three yellow flares shot up from the enemy positions, and the tanks slowed down. Enemy planes in flights of six to nine machines appeared on the horizon. A moment later, three yellow flares were fired from Colonel Malinov's command post, and the German airmen, falling for this bait, circled and dropped bombs on their own tanks and infantry.

Withering fire from well camouflaged cavalry positions halted the German infantry, while supporting artillery rolled forward with their antitank guns firing over open sights. Several enemy tanks were put out of action. The few that did succeed in penetrating the Soviet positions were set afire by incendiary bottles and hand grenades. The enemy withdrew with heavy losses, but shortly afterward launched a series of fresh attacks with powerful air support.

Five hours had passed since the Germans had first assaulted the regiment's positions and the cavalymen were being hard pressed by a numerically superior enemy force, supported by a large number of tanks and planes. The right flank which was still held by the 1st Squadron under Captain Konovalov, continued to battle the enemy infantry. In the center, German tanks managed to break through the Soviet lines and fight temporarily inside the defense zone, but despite their numerical superiority and strong air support, they were unable to reach the river's northern bank. Although greatly outnumbered, the cavalymen held their dismounted positions until evening when the Germans withdrew to their initial positions.

The cavalry force, by the successful employment of their antitank platoons and supporting artillery, had crippled and destroyed a large number of German tanks and inflicted heavy losses during the five hour battle. By this action they successfully closed the gap and straightened the Soviet lines.

*By cable to THE CAVALRY JOURNAL, from War Department, U.S.S.R., Moscow.

New Battle Lessons on R

IT has been military usage from early times to put men on foot, or horseback, out in front of an Army to signal "enemy in sight." This duty has been entrusted to run-of-the-mill personnel. Such personnel, so long as ground reconnaissance remained a simple task, performed the duty as well as any other sort could. With the advent, however, of mechanization and long range weapons, ground reconnaissance has become a complicated and vital phase of military art.

Theoretically, at least, we place those with the greatest military talents in command positions, but no commander, no matter how fine his military characteristics or genius, can intelligently dispose his troops, strategically or tactically, without proper information of the enemy.

It has been fully demonstrated that men of the proper caliber can accomplish remarkable results in dissipating the so-called fog of war—our present alibi for mistakes in the operation of military forces.

It is plain that if suitable reconnaissance personnel can lift the veil from the commander's eyes (and unsuitable personnel cannot do this) reconnaissance personnel should be selected with the same care and with as much regard for its particular employment, as is the high command personnel.

A man performing a reconnaissance mission should have first, the intelligence to enable him to grasp general and special situations in order that he may seek the information which the high command most needs for evaluating conditions confronting it; second, knowledge of terrain, maps, military organization, and weapons; third, the ability to exercise good judgment under stress; fourth, bold courage; and fifth, physical stamina. In short, officer or noncommissioned officer material of the highest type.

It must be remembered that reconnaissance duty is continuous and never relaxed, that operations often will

be conducted by individuals or by individual reconnaissance vehicles, that all the men of a vehicle crew, or of a dismounted patrol, are subject to the unusual hazards involved, and above all, that the information returned by these vehicles is always essential and vital to the success of the whole operation. From these factors it is evident that all members of a reconnaissance vehicle crew must be capable men, each prepared to take over the duty of driver, radio operator, gunner, or leader.

TRAINING

Lieutenant Colonel Hoy comments on his experience in Tunisia as follows:

"First and foremost, I am positive that all reconnaissance personnel should receive uniform basic training and that training must be specialized. A properly trained reconnaissance unit can do reconnaissance for a corps, an armored division, or an infantry division.

"All the reconnaissance training you and I ever received is fundamentally sound. There are certain fundamentals, however, that I would stress. First, your information must be accurate, complete, and quickly passed. To be accurate you must always know your location; get expert in using map, compass and protractor to establish your position and the enemy's. Never surmise, embellish or exaggerate; inaccurate information is dangerous. Truth is war's first casualty, but reconnaissance leaders must protect it on the battlefield and fight rumors, lies and exaggerations with the same enthusiasm and ability that they fight the enemy. I cannot stress this too much, for I have found out that it is always the reconnaissance battalion that has to go out and check all rumors and all exaggerated reports. Never believe a straggler and seldom believe a casualty. The former lies to explain his absence from the battlefield; the latter, especially if he has been knocked out of his vehicle, is rarely rational. To be complete, report everything; and if no movement is seen, report that. That is information.

"To pass information quickly, we must use a definite sequence—a simple code, and I have found that when things are hot, I want to talk directly to the platoon leader who is actually in contact. I had all platoons and company commanders on the same net, ran as high as 13 or 14 sets in net. It worked fine after we got it rigidly disciplined. The company commander did not lose any of his prerogatives. In fact, he became more of a battlefield C.O. His place when things are hot is out there helping his platoons. With all of us on the same net, he and I could go bouncing off to any point and still be in communication. I had a 193 in a peep; it was worth a million.

A U. S. reconnaissance group moves forward in Tunisia.

U. S. Signal Corps Photo



Reconnaissance

by Lieutenant Colonel
Bruce Palmer, Jr.

"The reconnaissance personnel must be trained to handle their own mine sweeping. It's no mysterious science and most of the mines we have found were removed by us. Of course, the big areas were later swept by engineers, but our own paths were generally cleared by reconnaissance personnel.

"Reconnaissance personnel should attend a battle school and have mortars, artillery and antitank guns fired at them, not to make them braver, because I have my doubts about that, but to make them recognize the sound of the weapons. Everybody has a tendency to report anything bigger than a .22 caliber as an 88mm. I would not let my men report 88's, and we are the only ones who didn't. Let a mortar land, a mine explode, or an artillery shell land, and the report will be 88mm. This is dangerous, for if believed by higher command, it will denote German troops in an area which may or may not be so. (However, after we took Mateur I saw *beaucoup de* 88's). Now that we have so much of the enemy's equipment, all reconnaissance personnel should have an opportunity to see it. Don't put it in a motor park, put it out in a field.

"Last, but certainly not least, the best jobs that we have done have been where lieutenants with a small crew, through cunning and daring, get an OP deep in the enemy territory, or on his flank, and sit there for hours and report vital information. We used to say about such things, 'OK for maneuvers, but not in war.' This is not so. As an example, I had a lieutenant and three men go up on an OP about 4-5000 yards in enemy territory, stay there for two days with a radio set dismounted from a peep, and send back the information necessary."

TACTICS AND TECHNIQUE

Mechanized reconnaissance vehicles, when not employed in reconnaissance in force, should be used in small groups for the following reasons:

1. Larger groups are often tempted to fight, and unless such fighting is merely to protect themselves, or to escape, they are losing sight of their mission while so engaged.

2. A wider, deeper, and more closely knit reconnaissance may be effected by the employment of many small groups than by the use of relatively fewer large groups.

3. Mechanized reconnaissance duty is arduous and hazardous and necessitates frequent relief. Such relief is normally possible where small groups are sent out, and becomes proportionately difficult if the groups are strengthened.

4. Vehicles in a small group can operate in support of one another on a mission at considerable dis-

Interspersed in these notes are quotations from Lieutenant Colonel Charles J. Hoy, who commanded a reconnaissance battalion throughout the Tunisian Campaign. Colonel Hoy states that his experience has been further confirmed by that of Lieutenant Colonel Lawson, 11th Hussars, who has had five years service in Africa and three years of combat as a reconnaissance leader.

tances apart by simply watching what the others do. In a larger group, orders must be exchanged every change of purpose of the leader.

Colonel Hoy comments further:

"Beware of that misused word 'fire power.' Don't tie a reconnaissance unit down with tanks, 81mm mortars, 37 SP guns, because it makes the unit too unweildy, and few officers can take care of all those additions and still do the job of gathering information. Understand me, I am in complete accord with General Scott's statement that 'Reconnaissance capable of only observation is not worth the road space it takes.' The reconnaissance unit should have sufficient fire power, but too much is as bad as too little. Anyone in a reconnaissance unit who is not primarily a reconnaissance man must be there for a very good reason. If I get the armored car, then I don't want the light tank.

"For clarity, I give you my recommended organization at this time. Reconnaissance battalion of 3 reconnaissance companies and Hq. company; reconnaissance company to have 3 platoons and Hq. platoon; each platoon to have 2 sections. The section is the basic unit. Each section should have 2 armored cars and 3 peeps; the first section should have an assault gun; both sections should be commanded by an officer. We have tried it out by using the scout car in place of the armored car. We are sold on the assault gun. Our companies fired it more than anyone in North Africa. It gives us poise and confidence."

There is no theorizing in all this. In a command on the field which does not have a *professional* reconnaissance, the movement in a given direction is habitually a blind groping, or halting at a given place because of ignorance of the tactical situation. *Capable* reconnaissance personnel can return a flood of information that is remarkable—information that is never superfluous and is always valuable, and that enables the commander to know where he is going and why. If the Army invests only a small part of its most efficient personnel in reconnaissance units, its dividends in the form of increased fighting efficiency will be incalculable.

General Hawkins' Notes

Lessons from a Tank Battalion Commander in Tunisia

IN continuation of the subject of my Notes in the July-August issue of *The Cavalry Journal*, which were devoted to lessons from the Tunisian Campaign based on the observations of an experienced commander there, I now give in substance some ideas of a very distinguished tank battalion commander on principles developed or demonstrated in battle during the latter part of the same campaign.

1. Tank battalion commanders must fight with their tank tops open and their heads out. They can see to direct the fight in no other way. Although they may have to pull in their heads when things get too hot, this is usually necessary for only a few minutes at a time. The open top is good for the morale of the rest of the crew, too.

2. Talk about teaching soldiers to hate the enemy is all nonsense. The men hate quickly enough in battle, and between battles it does not matter.

3. Emphasize physical conditioning. It is necessary for many important purposes—marching, advancing to attack, using cover while advancing, digging in or entrenching a newly won position immediately so as to repulse enemy counterattacks, and resistance to all sorts of fatigue including loss of sleep.

4. Battle orientation, so that NCO's know the mission of their units, is important.

5. Discipline cannot be taught on the battlefield. It must be taught in training. Obedience to orders seems a simple thing to the average mind, but in campaigns an officer, or soldier, is often tempted strongly to disobey in small ways or only slightly, and the sum of these disobediences sometimes amounts to a great failure as a whole. Disobedience must be punished immediately and without fail.

6. Although men must dig slit trenches frequently and must get into them when necessary, they must not be allowed to halt and take to cover when they should be advancing. Many artillery shells can hit within fifty yards of troops without doing any damage. It is right to duck when you hear a shell coming, but not to let yourself be pinned to the ground indefinitely because of artillery fire. Men should be made to understand that a few shells dropping near by are not going to destroy a whole unit.

Of course when holding a fixed position, men should take advantage of cover or trenches, provided they are able to fire upon any advancing enemy at the right time. An advancing battalion should take to cover when the enemy artillery fire becomes very hot, but that is always for only a few moments. When the fire slackens a little, the battalion should be up and again advancing.

7. When holding a rise of the ground or hill against an enemy attack, dig your trenches for your main forces on the reverse military crest, even though that shortens your field of fire. Then, after the enemy artillery preparation fire is over, and his infantry advances over the top of the crest you can mow him down at short range with your rifles and machine guns. On the other hand, when you are attacking, have your artillery preparation fire made by air bursts showered on the forward and reverse slopes. Your artillery, when firing over your advancing tanks, should use ground bursts to keep the enemy antitank gunners away from their guns.

8. On your division front, concentrate your artillery fire on one point of attack at a time. Thus, let your whole artillery support one battalion of infantry or tanks at a time; and when this battalion has driven in, switch your artillery fire upon another enemy front which is being attacked by another battalion. Space the attacks of the various division units so that this can be done. Otherwise, attack on only one narrow front and with great depth of deployment—practically a column of battalions.

9. Tank battalions, as well as infantry battalions, should practice defensive bivouac formations—outguards, machine guns laid for final protective bands, and cannon in tanks, or otherwise pointed in directions toward which they may have to fire point-blank against enemy night attacks. Grenades for close fighting.

10. Move your bivouac a little before dawn so as not to be caught by fire of the enemy who may have spotted your position and be awaiting dawn to fire on you. Another advantage in moving before dawn is that when moving slowly forward, the battalion commander can more easily arrange the elements of his command in the order that he desires than he can when halted or under heavy fire.

11. Don't try to move infantry in trucks or armored carriers in daylight without powerful air cover!

12. Practice scrupulous economy of tank ammunition. If tanks are to fire preparatory fire before the jump off, have the ammunition stacked beforehand so that the tanks will not have to use any of the ammunition of their load for that purpose.

13. Each tank platoon should be equipped with necessary instruments to fire indirect fire missions as a battery.

14. A tank battalion, an infantry battalion, and a

cavalry squadron, all should have battle drill in which brief commands are issued and understood by all. These should be incorporated in Drill Regulations and provide a language common to all members of a command. Otherwise, it becomes necessary to issue instructions involving many words for each battle movement. Such lengthy instructions mean loss of time at a most critical moment and are often impossible to give under fire and difficult to understand thoroughly even if given. These "commands" can be given by radio, flag signals, arm signals and voice, or by a combination of these means.

Reconnaissance

ALTHOUGH much has been written on the subject of reconnaissance, many of these writings have been from a theoretical standpoint rather than from personal experience or even from careful study of the experience of others.

A very detailed narrative of all the experiences of an individual officer as commander of a small patrol which has had an extended experience of duty on reconnaissance in actual warfare would be worth its weight in gold. The same may be said of an account by an officer who has had command of a large force that has executed important missions of reconnaissance.

Such narratives, however, are rarely written and seldom available. Even when available, it too often happens that the narrator has left out many things or else that he lacked the ability for clear description and the imagination to understand the necessity for details—both so fascinating and instructive to the earnest reader. Of necessity we have to pick up bits of information from the personal experiences of others, and finally put it all together to make a pattern. If we form the habit of doing this, we can collect a lot of items which, taken together, make a fairly good picture.

The recent campaign in Tunisia should afford opportunity for certain officers to contribute much of value about reconnaissance. It must be remembered, however, that the lessons learned on this subject were learned on a very special terrain. Not all of these lessons may be applicable to other kinds of terrain.

The terrain of Tunisia is open—bare mountains, bare hills, both broad and narrow valleys without brush or woods or cover of any kind, except as may be found in gullies, ridges or reverse slopes of hills. Except when it is raining one can see clearly for long distances. Such terrain is ideal for vehicular and air reconnaissance, although motor vehicles can be ambushed even in that open country. Lessons learned in Tunisia, therefore, may be very misleading in a country like France where the hills are covered with trees and the valleys have patches of woods and some underbrush and small creeks. Reconnaissance in this latter kind of country is best done by cavalry.

IMPROPER RECONNAISSANCE METHODS

When any force of troops is sent on a mission of reconnaissance it should be in hand and under immediate control.

The old theoretical idea, taught for so many years, that the reconnaissance force or group should be divided into its separate subordinate units and spread out over the area to be reconnoitered, is wrong.

With this false idea in mind, a brigade of troops would proceed as follows: The area would be divided into two zones. The brigade commander would hold a small reserve under his personal control and then assign a regiment to each zone. Each regiment, holding out a small reserve, would divide its zone into two zones with a squadron or battalion assigned to each of these two zones. Similarly the battalion or squadron commander would divide his zone into two or more zones and assign a company or troop to each of these zones. Then a number of patrols would be sent out from each of these troop zones.

The whole command would be dispersed over the whole area and would have no real strength anywhere to break through the enemy screen of outposts or covering forces, or to meet any strong force of the enemy sent out on a similar mission. Thus the number of patrols became extravagant and dissipated the strength of every subordinate unit in the brigade to an alarming degree.

The idea seemed to be that the leaders of a few of these small patrols would obtain information that could be sent back to the army commander. But it never seemed to occur to any of these theorists that an army commander had sent out the brigade commander to obtain information which the latter himself had obtained and verified by various reliable means. Certainly an army commander was not going to act upon information obtained only by a few corporals or a few lieutenants. He wanted a report from the brigade commander himself. But, with this wide dispersion, how could the brigade commander verify the reports sent in from small patrols? Such information had to go through too many heads before it got to the brigade commander. It was all very well to say that the Army

G-2 could take all these various reports and evaluate them, but that was sheer nonsense.

Regardless of the value of information obtained by this method, it took too long to get it back. This whole system failed in every maneuver or actual campaign.

A PRACTICAL RECONNAISSANCE METHOD

The only true and practical method is as follows: The brigade commander keeps his force in hand and ready to fight. He sends out numerous small patrols with orders or instructions direct from himself. These patrols are his feelers, like the long hairs of a cat's whiskers. When they send in information direct to the brigade commander, he is thus able to judge the direction that his brigade must take to break through the enemy screen with his whole force, and find out for himself some important information that he can guarantee to his army chief as correct.

Once the brigade commander has found out something of the strength and location of the enemy, he remains in contact and never loses this contact unless the army commander relieves him of this duty for some other mission.

The mission of screening is performed in the same way—by keeping the command in hand ready to oppose an enemy reconnoitering force. The possible infiltration of a few small enemy patrols is of little importance. The enemy cannot obtain enough important information in that way. He can obtain it only by intruding a sizable force into contact with our forces as already described.

Small reconnaissance patrols may, indeed, be sent out by the army commander himself under some circumstances. In fact, every commander of a force of any size whatever, may use small patrols to get the information he wants for himself. But if he himself is charged with a mission of reconnaissance he cannot use this unverified information to send back to his chief.

TRAINING PATROLS

The training of patrols is difficult because there are so many of them to train, and it requires such a large extent of varied terrain. This training can be accomplished satisfactorily only by dividing it into three phases.

First, a certain amount of indoor training is necessary to explain to the men what kind of information may be required. Map reading and little problems on the map are necessary. Resection or the location on the map of one's actual position on the ground is very important.

Second, the patrol must be drilled to take somewhat variable formations at the will of the leader in order to use properly the different kinds of terrain that may have to be traversed. Also, from any formation the patrol must learn to obey the commands or signals of the leader for a certain number of purposes. Those are as follows:

To take cover, to the front, right, rear or left; to retreat rapidly without bunching but by a method of dispersion so as not to offer good targets to an enemy suddenly encountered in force; to move forward rapidly to attack the enemy suddenly and by surprise.

The patrol leader must practice his patrol in doing these things by well understood commands or signals.

Third, the patrol is taken out on the roads and across country and given different situations to meet and solve. This is best done by the commander of a company or troop by forming and instructing a patrol made up of the leaders of all the squads or sections or platoons which may have to function as patrols in maneuvers or actual service. After training such a patrol, the various individual members will be able to take over the training of their own units.

TYPES OF PATROLS

When a patrol is sent out on a mission of reconnaissance, there are certain things the patrol leader and members must be told. They will not be recounted here because they are prescribed in the regulations. It is desired, however, to warn the officers issuing instructions not to charge the patrol leader and his men with too many objectives—too many kinds of information desired. Give them a few simple orders as to what information is desired in particular, and leave it to the patrol leader to bring back certain other information that may have come to him accidentally or incidentally in the course of his operations.

Voluminous textbooks can be and have been written on the subjects of reconnaissance, security, and the different kinds of patrols used for these different purposes. For example, combat patrols and covering detachments for security purposes are very essential, and these security elements need a great lot of practical instruction. Combat patrols need as much instruction as reconnaissance patrols. Also important are liaison patrols to keep contact between elements of a command. Instruction in all of these three types of patrols can be and should be given to the same squads, sections and platoons, so that any one of these units can perform any of these different classes of patrolling that may be required.

The efficient conduct of a combat patrol is just as difficult as that of a reconnaissance patrol, and, indeed, to avoid surprise by flank or rear attack by the enemy, is perhaps even more important. Yet, instruction in this important duty is generally neglected. The modern battle of maneuver is very swift, and efficient combat patrolling is very vital. A Russian officer writes that there is no excuse for an armored force to be caught by an enemy attack on its flank or rear if it has properly trained combat patrols and knows how to use them. But there is the rub.

The same three-phase training indicated herein for reconnaissance patrols is recommended for combat patrols.

Editorial Comment

Sicily—First Battle for Europe

On July 10, 1943, the greatest invasion armada in all history successfully landed two Allied armies on the shores of Sicily. Masterfully planned and executed, this tremendous land-sea-air operation was protected by swarms of airplanes and units from the navies of Great Britain, the United States, Poland, Greece, the Netherlands, and India. Aviators returning from bombing missions over Sicily described the Mediterranean as "black with boats that stretched for more than forty miles."

The Allied invasion force, under the supreme command of General Eisenhower with General Alexander as his deputy, consisted of the British Eighth Army under General Montgomery, the U. S. Seventh Army under General Patton, and a Canadian division which had joined the invasion fleet at its North African base. The grand strategy for the invasion of Sicily was laid at Casablanca last spring. Details of tactical coordination were worked out and perfected from lessons learned during the Tunisian Campaign.

Because of the speed with which Sicily was conquered (from beginning to end—38 days) it is easy to overlook many of the important factors involved. They fall into two groups—Allied accomplishments and the strength of enemy resistance:

1. An enemy shore, proclaimed by the Axis as a fortified part of the *Fortress Europa*, was successfully invaded and, as a tribute to Allied air and naval superiority, only six of the 3,000 vessels were lost (as announced August 30).

2. Air, land, and sea forces were coordinated in a manner never before employed in warfare.

Naval guns, in addition to their normal missions of combating enemy sea power and transporting troops, shelled tanks at Gela, blasted a path for the Eighth Army into Augusta, and paced both the north coast and east coast advances.

Air power, after destroying enemy airfields and neutralizing enemy air strength (most of which was a pre-invasion job), turned to the assistance of the ground troops by blasting enemy infantry and dugouts, especially in the northeast mountain section.

Following the surrender of Axis troops in Tunisia, the Strategic Command of the Allied Air Forces had bombed and destroyed principal airdromes, communications, and key installations in order to weaken the enemy's resistance once Allied ground troops were ready for invasion. By the time of the invasion, therefore, enemy air power had been largely neutralized. Many Axis hangars lay wrecked, and the majority of planes were too severely damaged to rise. As the invasion itself

got underway, the *Strategic Air Force* moved up to bomb targets on the Italian mainland in a softening-up preparation for the future invasion of Italy; and the *Tactical Air Force* moved in to work in close harmony with ground troops in Sicily. This was another successful demonstration of the new air tactics, applied so effectively during the last two months of the fighting in Tunisia.

3. The Blitz across the middle of Sicily from Agrigento to Palermo was a fast maneuver, cutting the island's defenses so quickly that the brilliance of the maneuver itself is overlooked in the apparent ease of accomplishment. (Lieutenant General George S. Patton, Jr. commanded the American Seventh Army; Major General Geoffrey Keyes commanded the force that made the march; Major General Lucien Truscott commanded the 3d Infantry Division; and Major General Hugh J. Gaffey commanded the 2d Armored Division.)

4. The difficult mountain terrain and the enemy's extensive use of demolitions in his retreat from the Mt. Etna line to Messina seriously impeded the Allied pursuit. The dynamited hillsides and destroyed roads blocked motor traffic for many miles. Wherever available, Sicilian mules were employed as pack animals for the transport of guns and ammunition to difficult mountain positions.

5. Although Allied losses were comparatively small, the Sicilian operation was far from a runaway routing of the enemy. Many Italians appeared to have lost all heart for the war; a few were strong fighters and hard to beat, but not as hard as the Germans. German troops were well fed, well equipped, and fought hard and bitterly. The German army as yet has shown no signs of cracking or weakening. Instead, it seems to have determined to conserve men and machines rather than expend them on defending territory considered too costly.

Sicily—the first battle for Europe—was merely "the beginning of the end."

Stalin's Cavalry-Tank-Infantry Team

A careful analysis of the Soviet offensive during this past summer reveals the undisputed fact that the Red Army is taking advantage of its large force of cavalry to exploit its many successes. That fact in itself is significant because of the numerous opportunities that cavalry has had while being employed as a division or corps acting independently.

Even more important, from our standpoint, is the development of the Soviet cavalry-tank-mechanized infantry team. Coordinated by the high command, the operations of these combined forces have culminated in

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SECOND PAVLOV STOP IN AUGUST 1943 TROOPS SOUTHERN FRONT SMASHED
GERMAN DEFENCES NORTH TAGANROG MAKING THIRTY KILOMETRE THRUST INTO ENEMY
LINES STOP HERE GENERAL KIRICHENKO'S COSSACKS WENT INTO ACTION
ASSAILING ENEMY SOUTHWIS IN ORDER TO CUT HIS ROAD RETREAT EXTAGANROG
STOP COSSACKS ALSO COVERED OPERATIONS GROUP
AT NORTHWEST STOP STRIKING UNIT DASHED AT ENEMY STRONGPOINTS EGARRIS-
ONS HINTERLAND WISELY CROSSED ENEMY TERRITORY OVER TWO HUNDRED KILOMETRES
FOUR DAYS FIGHTING ALL TIME TO CUT ENEMY'S VITAL COMMUNICATIONS
LEADING EXTAGANROG WESTWARD IT EMERGED ON BANK MIEUSE ESTUARY THIS
WAY COMPLETELY ENCIRCLING GERMAN TAGANROG GROUP END

PAVLOV

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SEPTEMBER 15, 1943

In August 1943, Soviet troops on the southern front smashed German defenses north of Taganrog and made a thrust of about eighteen miles into the enemy's lines. At this point General Kirichenko's Cossacks went into action and attacked the enemy in the southern sector in order to cut off his road of retreat from Taganrog. Cossacks also covered the operations of the group in the northwest. Striking at enemy strong points and rear garrisons, one unit crossed more than 125 miles of enemy territory in four days of fighting. They cut off the enemy's vital communications leading from Taganrog westward and, emerging on the bank of the Mieuze River estuary, completely encircled the German troops in Taganrog.

brilliant victories for the Red Army and disaster to the German forces opposing them. From Orel, Belgorod, Kharkov, Taganrog, and now (as this is written) from Mariupol, communiques have been filled with accounts of the dominance of these combined arms on the battlefield.

As a Russian military expert stated to us a short time ago, "This is the result of months and months of careful planning and hard incessant training by military strategists who had the courage of their convictions." These Red Army leaders have welded arms of different strategic mobility into a strong offensive combat team that is taking its place in battle in such a manner as to utilize the maximum capabilities and minimize the limitations of each individual arm.

Some military men have long argued that the vast difference in mobility between the air, the tank, and the horse preclude their combined use as a hard hitting weapon of attack. But Stalin, in his "Order of the Day," frequently mentions the exploits of this combination in glowing terms. When conferring battle honors, he gives it much credit for the outstanding successes of the Red Army during the past few months.

Now that the value of the combined employment of the oldest and the newest of combat arms has been proven on the field of battle beyond any doubt, is it not worthy of emulation?

Bombing and German Morale—Dr. Goebbels' Admission

"Press policy cannot take into account only the actual international and military situation.

"It must, in contrast to England, take into consideration the mentality of the German nation.

"The power of endurance of the German nation is not as great as that of the British nation. . . ."

"Enemy air attacks on German cities will, in forthcoming months, create a most decisive problem in internal politics. It will become a decisive problem of German war policy."—(From instructions by Dr. Goebbels to Nazi editors on how to counteract the war weariness and discouragement of the German people. Sept. 23, 1942.)

"Nothing will turn us from our endeavor and intention to accomplish the complete destruction of our foes by bombing from the air in addition to all other methods.

"Loud and lamentable outcries are being made by the enemy now that this form of warfare, by which they thought to obtain the mastery of the world, has turned markedly to their disadvantage.

"These outcries will only be regarded by us as a very satisfactory proof of the growing efficiency of our attack."—MR. CHURCHILL, June 8.—*In Perspective*, June 1943.

Please Send Us Your Back Issues!

Certain issues of *The CAVALRY JOURNAL* have become "out of print." If you have such an issue that you have finished reading, will you send it back to *The CAVALRY JOURNAL* office, so that it can be placed with some library or organization that will put it to *multiple* use?

Following is a letter from the *Imperial War Museum*, London:

My dear Colonel,

I am pleased to inform you that we have received the (requested) copies of *The CAVALRY JOURNAL* with the exception of the *March-April, 1942, issue*.

We are very pleased indeed to be able to add this valuable publication to our collection of similar journals, and we very much appreciate your kindness in so generously responding to our request. We look forward with much interest to receiving the future issues of your journal which, I can assure you, will be preserved carefully in our archives for the benefit of future students of the war.

May I suggest that a paragraph in the journal itself may result in one of your readers presenting us with a copy of the missing number and so completing our file?

Yours sincerely,

LIBRARIAN.

Back issues particularly desired are:

January-February, 1941
March-April, 1941
March-April, 1942
May-June, 1942
July-August, 1942
September-October, 1942

Conservation of Supplies and Equipment

A sobering report from an active theater of operations states that some American soldier drivers, if they experienced trouble with their vehicle's carburetor, immediately demanded a new carburetor, or threw away the old one, even though the only trouble with the old one might have been malfunction of one small part. Also, if any vehicle was left along the roadside and not placed under guard, it was immediately "cannibalized" by every passer-by.

Our men are not vicious in intent, although the results of this waste are vicious. But the American soldier who fails to keep his equipment in good repair, who robs a vehicle of a tool instead of keeping an eagle eye on his own tools and making them last, is being dangerously careless.

It is possible that the fallacy of "present plenty" makes these men decide that "there's more where that carburetor came from." Of course there's more! But at what a cost of scarce manpower, scarcer metals, already overburdened shipping space, and prodigious labor is that stock supply kept up! It is a difficult thing to visual-

ize, and that is the whole trouble. The men see only the quantities of new carburetors, not the supply line that lies behind them.

Suppose as a hypothetical case, a lone American soldier is wandering over the stricken countryside of Greece. On every hand he would see the emaciated bodies of men, women, and of children too weak to cry any more—walking, stumbling ghosts of human beings. Then suppose he were admitted to a Red Cross storehouse, and saw there hundreds of sacks of grain, bottles of olive oil, and other food. Would he feel right about sitting down and helping himself to a lot of food, simply because he was in the midst of plenty?

The comparison is not fantastic. The soldier would know instinctively that every item in that storehouse was destined to fill a certain need. In the same way, every engine part, every tool and every piece of equipment produced by industry must fill a certain need. Their value to us is not calculable, because money will no longer buy them. Consequently, *nothing must be thrown away. Nothing must be lost. Nothing must be improperly used.*

The officers of our Army must impress upon their men as often and as seriously as possible, the fact that waste will make our situation even more critical.

The soldier of the United States Army is famous all over the world for his "tinkering" skill. He is mechanically minded. What he must now realize is that a good mechanic is a thrifty mechanic; he respects his machinery and tools, and makes them last. And by such careful practices he will know that he is actually shortening the war.—*Headquarters, Army Service Forces.*

Your Cavalry Journal Address

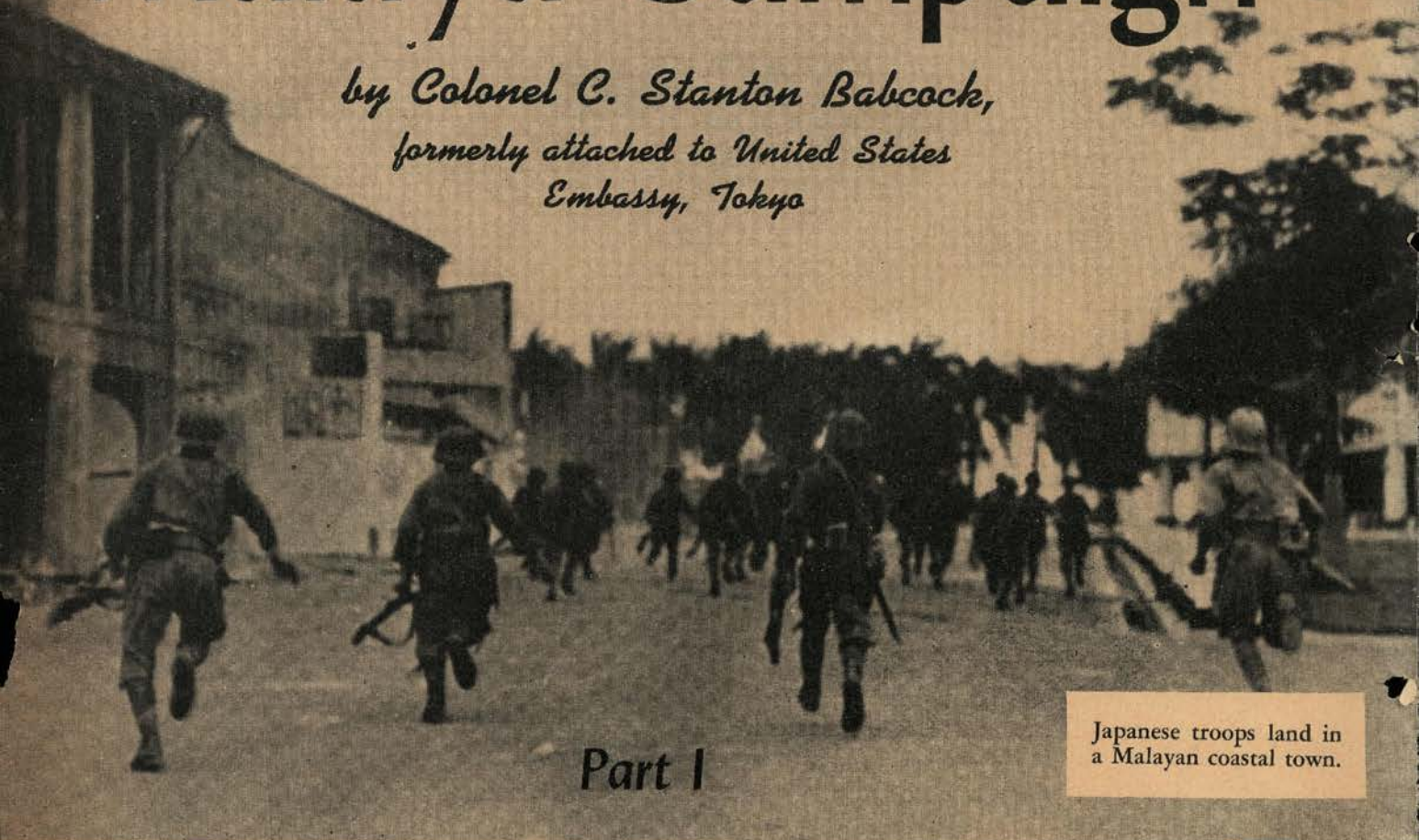
Immediately following publication of the July-August issue of the *JOURNAL*, we started keeping a record of all changes of address, and the source of information from which these changes were made. From August 15th to September 10th, we made changes of address for 14% of our subscribers! Of this number, only about 50% had themselves notified us of the change. The rest of the changes were obtained in various ways, often with inaccurate results.

Our circulation has increased more than 50% this year, and with so many changes being made it is difficult to keep our addresses up to date. If you move without giving us your new address, we know nothing about it until your mail is returned, or we receive a notice from the Post Office. This all takes time, and before we catch up with you again, several *JOURNALS* may have gone astray.

The *JOURNAL* is written for you. You are paying for it, and we want you to receive it. When you are transferred, won't you *please take a minute to fill out the card which is in each copy of the JOURNAL*? That is the only way you can be sure that each issue will reach you promptly.

Malaya Campaign

by Colonel C. Stanton Babcock,
formerly attached to United States
Embassy, Tokyo



Part I

Japanese troops land in
a Malayan coastal town.

JAPANESE PREPARATIONS

THE capture of Singapore was vital to the success of the Japanese campaign in the southwestern Pacific. Not only was the British fortress and naval base a material obstacle to operations against the Netherlands East Indies and India, but it had come to have tremendous psychological value in determining the attitude of the peoples of all southeastern Asia. Rightly or wrongly, these peoples felt that if Singapore were to fall their fate was sealed; and, similarly, the Japanese felt that as long as the fortress held out, complete success could never be achieved. Singapore was thus a symbol to both sides in this war—a symbol of the *Will to Victory*.

The Japanese, with their keen sense of psychological values in war, were more aware of this than were the British and Dutch. Plans for the campaign were worked out in minute detail, and the best troops and equipment designated to carry them out. Japanese accounts give only a hint of their years of painstaking surveying and espionage work throughout the Kra Isthmus and the Malay Peninsula, but they are quite frank in describing preparations made during the summer and fall of 1941. These included negotiations with Thailand for the landing of troops on the Kra Isthmus, for use of the Bangkok-Singapore railroad, and for arrangements to cache supplies for use of the expeditionary force.

The troops assigned to make the initial landings were selected officers and men, drawn from units that had had long service in China and organized into two divisions specially equipped for the work they had to do. All of the troops that were to be used in this campaign had been given exhaustive training during the fall in selected areas of Indo-China and Hainan Island, where the terrain approximated that over which they were to fight. When these units landed in Malaya, far from being unused to the climate and the country, as the British expected them to be, they were trained and seasoned jungle fighters, the equal of any troops with whom they were to come in contact. The divisions that made the landings had spent the month of September in executing landing operations on the South China coast in conjunction with units practicing for similar tasks in the Philippines.

As the time appointed for the attack drew near, the troops were withdrawn from their training areas and assembled on Hainan Island, where large forces could be concentrated in complete security far from the eyes of prying "foreigners." Here they were completely re-equipped with brand new guns, vehicles, and other (equipment) of the latest type. A few weeks' training with the new matériel, and the expedition was ready for its big test.

Transports and supply ships began to arrive at Kung-

European

chow, Taichow, and Yaichow, singly and by twos and threes, during the last half of November. The problem of loading this large expedition at these three ports with their limited harbor facilities was a difficult one. To make sure that the operation could be accomplished smoothly and within the time allotted, Lieutenant General Yamashita embarked his entire force twice in practice runs while awaiting orders from Tokyo to set out on the expedition. When the orders finally came, the troops were embarked quickly and without incident (the matériel having been left aboard ship after the last practice loading), and the transports put out to sea, where they were assembled by the navy into two large convoys, well off the beaten track of commercial traffic. Careful handling of the convoys resulted in their reaching their destinations at the appointed time (1:30 A.M., December 8th), without having been discovered.¹

LANDINGS AT KOTA BHARU

Singora, on the Kra Isthmus in Thailand, and Kota Bharu, on the eastern coast of Malaya near the Thai border, were the two points selected for landings. No resistance was encountered at Singora except for a couple of attacks from the air; but at Kota Bharu there occurred one of the fiercest fights of the campaign.

The convoy heading for Kota Bharu was divided into two parts: the first carried an advance detachment consisting of a regiment of combat engineers, a regiment of infantry, a two-company battalion equipped with 37mm guns and mortars, and a unit of light tanks; the second consisted of the remainder of the division and followed about six hours behind the first. The mission of the first group was to establish a beachhead to cover the landing of the main body of the division. A squadron of heavy cruisers and two aircraft carriers were detailed by the navy to support the operation.

The transports bearing the first detachment crept silently into the bay that dark night and dropped anchor without drawing any fire or eliciting any other sign that their presence had been discovered. The entire 15-mile stretch of beach with the dark forests behind was silent and appeared deserted, although the Japanese knew that at least a part of the British 9th Division was in the sector and probably manning the line of concrete pillboxes and entrenchments that had been constructed along the shore. From the decks of the nearest transports, the men could see the elaborate system of wire entanglements strung along the beach, and the obstacles built out into the sea, designed to wreck small boats.

The crews of the ships, working hard and fast, lowered the steel assault barges (each of which carried a tank), the motor launches, and the lifeboats, while each combat team quickly and without confusion loaded into the boat to which it was assigned. There was still no sign from the shore, though the presence of such a

large number of ships could hardly have remained unknown to any watchers on the beach. In less than an hour, the boats of the first assault teams were in the water and ready to make the dash for shore. Suddenly a rocket went up from one of the transports, and a few seconds later every cruiser and destroyer in the convoy opened up at almost point blank range on the entanglements and obstructions along the beach. Meanwhile, the assault boats, moving out on their long trip to the beach, were followed by motor launches towing strings of crowded lifeboats. Then, at last, the British lines came to life. From every pillbox, machine gun fire flashed out against the darkness, while the slap of shrapnel balls on the water showed that the beach defense batteries were laying down their barrages.

It was a long, slow trip to the beach through that rain of fire, and the attackers suffered many casualties. The Japanese themselves, in their accounts of this engagement, refer to their losses as "heavy." Most of the casualties occurred among the men in open launches and ship's lifeboats. In fact, the Japanese say that had they ferried the entire command ashore in steel assault barges their losses would have been materially reduced. A number of those barges were wrecked by obstacles on the shore and many men were drowned, but there were virtually no gun-shot casualties among their personnel.

The covering barrage from the naval vessels was heavy and effective. Thirty minutes after the attack began, the fire from the shore began to weaken, and gaps in the line of flashes along the beach indicated where a pillbox or other strong point had been silenced. Resistance faded rapidly at the southern end of the British line, where two heavy cruisers were concentrat-

The Conquest of Malaya from the Japanese point of view.

Like the two installments of "Philippine Campaign" and the account of the Hong Kong Campaign written by Colonel Babcock, this account of operations in the Malaya Campaign is based on information drawn entirely from Japanese sources: official bulletins, news reports, speeches, radio commentaries, magazine articles, and personal experience accounts written by officers and men at the front. The only Allied bulletins used were those quoted in the Japanese press.

Colonel Babcock says: "While confined to the compound of the American Embassy in Tokyo from the outbreak of war until June 17, 1942, I was cut off from any outside news. Consequently, the preparation of this paper has not been influenced by information received through any but Japanese sources. It should also be remembered that all dates are one day advanced over those used in the United States."

ing their fire. It was obvious that if the Japanese were to get a foothold on the beach, it would have to be at that point, since the attacks on the northern and central sectors had been repulsed with heavy loss. Two more ships switched their fire to the southern strip of

¹This Japanese claim was in error. Both of these convoys were reported to the American Embassy, Tokyo, as having rounded Cape Camau, the southern tip of Indo-China, on December 5th.

beach. The survivors of the attacks in the other two sectors were reorganized and moved over to support the regular combat team assigned to take this objective; and the division commander joined the assault to lead what was literally a "forlorn hope." Upon the success of this final attack hung the fate of Singapore—and perhaps the outcome of the war in the Far East.

The boats moved in slowly this time. There was no wild rush for the beach, in an attempt to avoid the defenders' fire, with a consequent piling up of boats and barges on the obstacles built out into the water. Instead, they picked their way carefully, looking for spots where the navy's barrage had cleared out the obstructions. Casualties were light, for the British fire, now smothered by the naval guns, was weak. Just as dawn was breaking, the first Japanese assault teams struggled ashore from their barges and ran their tanks up onto the beach.

Now ensued the most critical period of the battle, if not of the whole campaign. The Japanese had gained a foothold on shore in a weakened portion of the British defense line. But their reserves were used up, and if the defenders could organize and launch a vigorous counterattack, either with reserves or with some of the battalions in the neighboring sector, the exhausted troops on the beach would be driven back into the sea, and the main body of the division, which was just then steaming into the bay, would be deprived of its covering force and would have to attempt a daylight landing under fire. It was clearly a situation that called for resolution and aggressiveness—two qualities which have been characteristic of the Japanese in this war. The division commander, who was on shore with the landing party, directed the units on the beach to push on as fast and as far as they could to break up any counterdrive that might be forming, and sent word to the newly arrived convoy to rush men and matériel ashore into the occupied sector *as rapidly as possible and regardless of losses*. To the naval escort was entrusted the task of keeping down the fire from that part of the line not yet in possession of Japanese troops.

Orders were carried out promptly, and soon a steady procession of boat-trains, crossing from ships to beach, was carrying reinforcements of men and equipment. All branches and all units worked in excellent coöperation, except that *the carrier-borne bombers assigned to raid Kota Bharu airfield came over five minutes after the British planes had taken off, and that short delay cost the Japanese many lives and very nearly wrecked the expedition.*

The nine British Blenheim bombers, coming in singly, flew very low out of the east, where the rising sun shone in the eyes of the antiaircraft gunners. The transports lying at anchor in the bay presented an ideal target, and the damage inflicted must have been terrific. The official Japanese communiqué admits the "loss of four transports, without loss of army personnel, as all troops had already landed." But personal-experience narra-

tives tell of loaded transports being bombed and sunk and men swimming ashore. Antiaircraft fire brought down four British planes, and another was wrecked trying to land on the airfield, which had been heavily bombed by Japanese carrier-borne bombers while the British were away.

Forty Japanese dive bombers carried out the raid on the airfield, and left hangars, shops, and barracks a mass of blazing ruins. A second wave of attackers, which came over shortly after the British had landed from their raid, caught the Blenheims as ground crews were attempting to service them amid the confusion and wreckage of the bombed field, and destroyed all four of them. So, in one short hour, the Japanese deprived the British troops of their close-up air support. Until late that afternoon, when a squadron of bombers from some base farther down the peninsula came up and attacked the convoy, the British troops had to fight under a sky filled with unopposed Japanese planes.

AIR SUPERIORITY

Throughout this campaign, as in all their campaigns of this war, the Japanese made air superiority their primary consideration. Day after day their bombers, hammering away at all British airfields on the peninsula, paid special attention to those in the north closest to the advancing Japanese columns. At first, this work had to be done by naval squadrons operating from carriers off the coast, but within a very few days, bases had been established in Thailand from which both army and navy land-based heavy bombers and fighters operated to good effect.

Until the RAF in Malaya had been rendered virtually impotent, the Japanese devoted their entire bombing strength to the task of blasting the enemy's air bases, and never permitted a single air unit to be diverted to any other use. Once complete command of the air had been gained, they used their reconnaissance and dive bombers to strafe British ground troops and supply columns, and their heavy bombers for long-range bombing of bridges and similar important objectives. Twice the British sent air reinforcements to this area in an effort to wrest superiority from the Japanese. Both times, all Japanese air squadrons were called off their previous assignments and concentrated again on the job of smashing the British Air Force.

These tactics served them well. The prodigal use of masses of planes more than compensated for any technical superiority of the British machines; and, though losses were heavy, the Japanese won unquestioned control of the air in the first four days of the war. Thereafter, except for a few days during the fighting near the Selangor River, they never permitted their ground troops to be hampered seriously by any British attacks from the air.

BRITISH WITHDRAWAL

The British counterattack on the landing party at Kota Bharu came at noon, but by this time the Japa-

nese had established themselves so strongly in the southern sector that it was impossible, with the limited number of troops available, to drive them back into the sea. The British were occupying such an extended line that they had very few reserves and had to execute the attack with troops from the central sector who had been fighting all night. Although the invaders were not pushed back, the Japanese admit that their advance was

halted for the rest of the day by this attack and by subsequent "futile efforts lasting all day on the part of the British to drive our troops from their foothold on the shore."

In spite of the Japanese assertion, it would appear that the British purpose was to contain the Japanese troops in the southern sector in order to permit the main body of the British force to withdraw from a very



precarious position. Because the Japanese were in full possession of the southern sector of the British line, which ran north and south along the 14-mile stretch of beach, and were astride the only road leading to the south, the entire British force had to withdraw across the front of an aggressive and superior enemy force. In order to do this, it was necessary to sacrifice a part of their division in containing attacks so that the Japanese would not be able to cut them off entirely from their route of retreat.

The actual withdrawal, after dark, was executed in a masterly manner. While the troops in the central sector attacked the northern flank of the Japanese salient, the units which had been garrisoning the northern sector (the 18th Brigade) marched south through the jungle behind their own troops until they attained a position on some high ground about a mile south of the farthest point reached by the Japanese. Here they established a line facing north and straddling the road over which the remainder of the British division was to withdraw. As soon as this brigade was in position, the troops in the central sector broke off their attack, and, under cover of a barrage fired by the sup-

These Australian troops are shown in the Malayan jungle during training just prior to the Japanese invasion. Much of the early fighting was done in terrain similar to this.

European



porting artillery of the 18th Brigade, withdrew down the road and through the position established by the 18th. At the same time, the remnants of the 20th Brigade, which had originally occupied the southern sector and had been driven well into the jungle by the Japanese penetration of their position, attacked the point of the Japanese salient. Although repulsed with heavy losses, they succeeded in pinning down the Japanese long enough to permit the troops from the central sector to retire. All units had now been withdrawn from contact with the Japanese except the battalions of the 20th Brigade, and it looked as though they would have to be sacrificed for the sake of the remainder of the division.

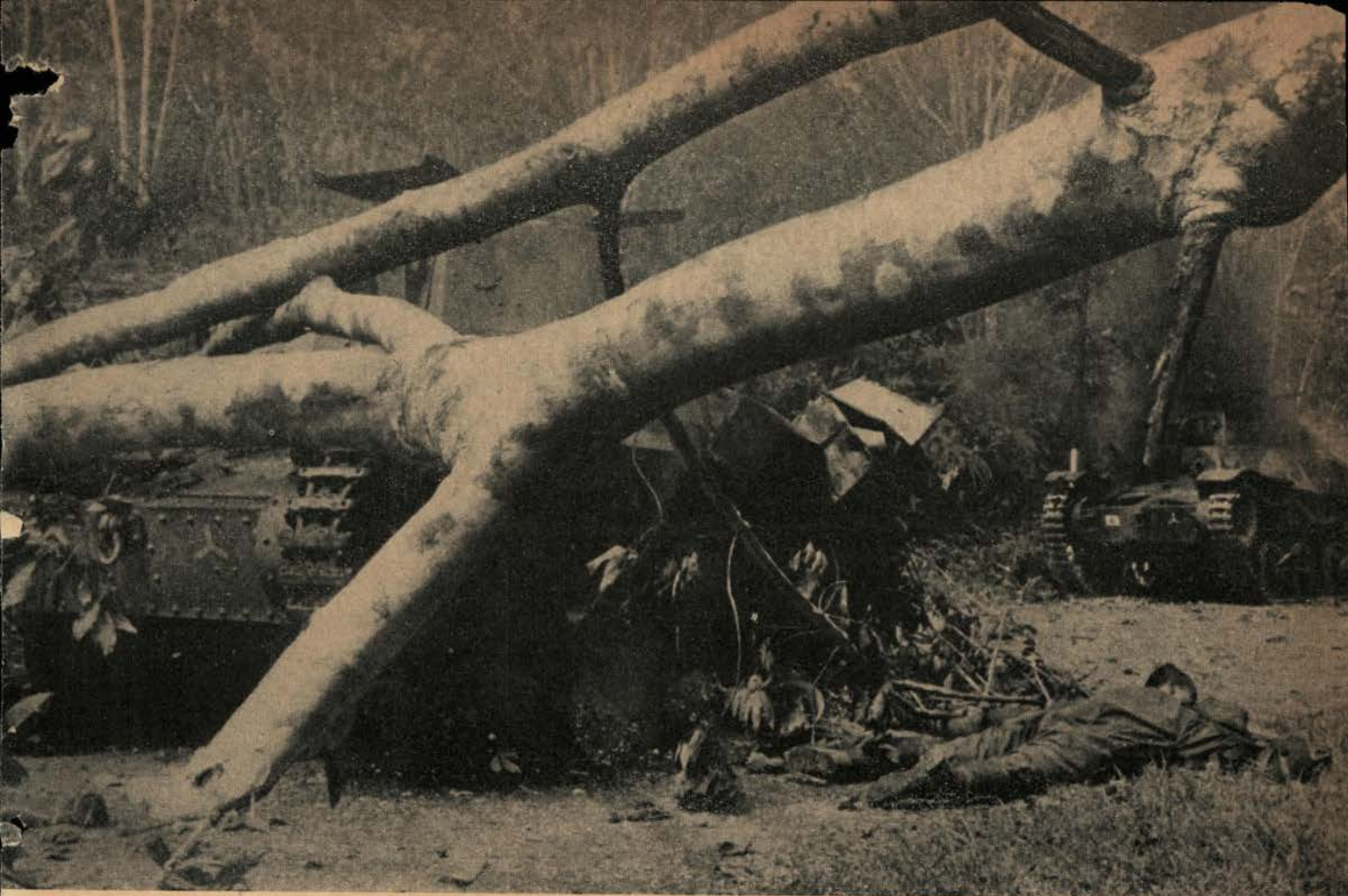
About 2:00 A.M., after twenty-four hours of almost continuous fighting, the commander of the 20th Brigade broke off the engagement and directed his battalions to make their way individually south through the jungle and to reassemble at Kota Bharu airfield, south of the position occupied by the 18th Brigade. These instructions were made known to the Japanese through the capture of the brigade commander and his staff. Many of the men of the 18th Brigade were lost in the jungle, and only two skeleton battalions arrived at the assembly point just before dawn. Nevertheless, in spite of the desperate position of these troops and the exhausted condition of officers and men, none surrendered as a unit; the only prisoners captured by the Japanese were a few stragglers who had become separated from their companies in the darkness.

The Japanese, worn out and disorganized by the continuous fighting, made no attempt to pursue the British, but spent most of the next two days in consolidating their position and reorganizing their badly mixed-up units. During this period, they lost ground contact with the British, but learned from their incessant air reconnaissance that the enemy had withdrawn and was marching south down the east coast road in the direction of Trengganu.

ATTACK ON THE WEST COAST—PARIT BUNTAR

On the evening of December 9th, the first of a number of convoys bearing the main body of the expedition arrived in the Kota Bharu Bay. Within ten days three infantry divisions, a mechanized division, and a number of corps and army troops were landed at this point and marched south in preparation for an attack on the reinforced British 9th Division, which during this time had taken up positions on the southern bank of the Trengganu River.

In the meantime, the second of the two initial Japanese convoys from Hainan Island had arrived off Singora in Thailand, just before dawn on December 8th. The landing of these troops was unopposed. In fact, the local Thai authorities did all in their power to assist them. Japanese accounts describe how their advance units found three empty railway trains standing on a siding in this out-of-the-way junction of the Bangkok-



European

Two Japanese tanks, smashed and fired upon by the Australian antitank gunners, are seen among the felled trees which were placed along jungle roads to form a blockade to the Japs. Many other tanks were destroyed by the Australians along this road with the help of blockaded roads. The Jap in the foreground was shot while trying to escape.

Singapore railway—and immediately appropriated them. To this detachment, which consisted of a motorized division reinforced with tanks, had been assigned the mission of cutting across the Kra Isthmus, following the railroad and the highway that parallels it, and entering British Malaya through the Province of Kedah on the western coast.

The debarkation was carried out in a most efficient manner. The first troops ashore were a specially organized mechanized regiment of armored cars and tanks, which set out at once for the Kedah border without waiting for the rest of the division to debark. Then, behind the protection of an outpost line established by the first infantry units, the division with all of its heavy equipment was brought ashore before nightfall. By the time that the division had moved into its assembly area, the commanding general had received word from his advance mechanized detachment that the Kedah border was lightly held by only a few frontier guards. Early the next morning the division moved out from Singora. At the same time, the advance detachment was ordered to cross the border into Kedah and push south until it encountered resistance which it could not overcome. As the last of the division was leaving Singora, the convoy carrying the advance units of the next division arrived off the port.

It was just about then that a strong British air attack took place. According to Japanese accounts, the raid was heavy and sank "several transports of the first convoy, which of course were empty." But in view of the time of the raid, it is likely that the planes intercepted the second convoy as it was approaching the shore. Before the British airmen could get away, they were engaged by fighters from an accompanying Japanese aircraft-carrier, and all but two of the eleven bombers were shot down.

General Yamashita, Commander-in-Chief of the Malayan Expedition, who had landed with the division at Kota Bharu, now flew to Singora to join his west coast column, because he realized that the most serious fighting would take place in this area.

The road along which these troops were marching ran through low, flat country, covered with such dense jungle growth that it was impossible to move more than a few feet off the road on either side. In spite of the large number of troops (a total of five divisions by the time they had reached the Perak River), the actual fighting was done by small units at the head of the column. Because of the narrow road and lack of maneuver space, the British as well could use only small bodies of troops. But by the clever use of demolitions, road blocks, and small rear-guard detachments armed



European

This road block, constructed by the Australian forces, was intended to cause damage to the Japs' motorized vehicles. The caption that accompanied this picture says that when the photograph was taken the invading Japanese were less than a quarter of a mile away.

with motorized antitank guns, they were able to slow up the Japanese advance in its early stages and to inflict heavy losses in both men and matériel.

The fighting in this area was similar to the mountain-pass fighting engaged in by the Germans in Norway and the Balkans, in that the troops were limited to a narrow maneuver space, and all targets could be located easily along the narrow route of advance. Profiting by the example of the Germans, the Japanese made good use of dive bombers in reducing the road blocks and centers of resistance which the British had established at frequent intervals. The Japanese say that these targets were easily located from the air, and that a few bombs dropped in the vicinity usually sufficed to clear the way for their advance units. During the first three days, the Japanese never used their artillery. Indeed, it would have been impossible to find a space wide enough to deploy a battery. Not until the leading motorized division reached the Krian river on December 11th did they encounter their first real resistance.

It was the advance mechanized detachment of the Japanese motorized division, traveling five or six hours ahead of the main body, that first encountered British resistance along the Krian river, at Parit-Buntar, where the highway and railway bridges had been destroyed. Because of the thick jungle on the British side of the river, the detachment commander was unable to deter-



Acme

An Australian antitank gun blazes away at Japanese tanks trying to pass trees felled across a road during fighting in Malaya.

mine by observation the extent of the British dispositions. He brought up his machine guns and riflemen and opened fire on the British lines in an attempt to draw answering fire and so gain some idea of the British dispositions and strength. But the British refused to open fire so long as no favorable targets presented themselves.

As soon as the Japanese reached the river, the detachment commander asked for dive-bombing support, and directed his engineer company to prepare to cross in rubber assault boats. At the same time, he sent the column commander a message describing the situation and reporting his action. The commanding general immediately issued orders halting all units of his column in place, in order to prevent his force from jam-

ming up on a narrow road within artillery range of the British position.

The Japanese column had been marching at widely extended intervals. The head of the main body was at Prai opposite Penang island, occupied by the Japanese only that morning; while the remaining divisions were strung out along the road to the north, with the last one still in bivouac at Singora. It is true that the Japanese force, stretched out in this way, presented an unfavorable target for bombing attacks. But the fact that General Yamashita allowed his command to become so strung out that it would require several days to assemble for battle, showed that he had little fear of any offensive action on the part of the British.

Immediately on receipt of his advance-guard commander's message, Yamashita drove forward to inspect conditions for himself. He arrived at the riverside just in time to see the engineer company (which had attempted a crossing by rubber boat under protection of a heavy dive bombing attack) driven back to its own shore before it was half way across. Realizing at once that crossing this river was a major task, he directed the advance-detachment commander to cease attempts at offensive action, to maintain his position until relieved by infantry which would be sent up later, and to reconnoiter up and down the river for a distance of 12½ miles to locate any fords or other places where crossings might be effected.

Patrols soon located two fords, one about 3 miles upstream, and one 6 miles down, and reported that both were strongly defended by the enemy. The jungle on both sides of the road leading up to Parit Buntar was extremely thick, but a narrow native track branched off this road to the west about five miles from the river and led to the western ford. For a distance of about 2 miles before reaching the ford, the path paralleled the river and was only five or six hundred yards away. Careful reconnaissance by officers' patrols during the afternoon of the first day and throughout the night had revealed that the British were defending the river bank between the fords and the bridge with only a few patrols.

The Japanese decided to attempt a crossing between the bridge and the western or downstream ford. During the night, the engineer regiment of the motorized division moved up close to the river and, with the assistance of some infantry detachments, cleared positions in the jungle for the division's artillery batteries and widened the footpath so that it could be traversed by wagons carrying the assault boats. Because of the difficult nature of the country on the British side of the river, this crossing would have to come as a complete surprise if it were to be successful. The Japanese therefore kept the air over Parit Buntar filled with fighter planes during daylight hours to insure that no British observation plane could get wind of their plans.

By the night of the 19th, artillery positions had been prepared, and the guns opened up a heavy fire on the

three British defense positions behind the fords and the destroyed bridges. At the same time troops, moved up opposite those positions in full view of the enemy, gave every indication that when the Japanese attack came it would be launched at one or more of those points.

On the morning of the 21st, just about daybreak, after almost twenty-four hours of continuous bombardment, two squadrons of Japanese dive bombers flew over and attacked the British positions at the eastern ford and at the bridges. Shortly afterwards, the Japanese infantry started out across the river in small rubber boats; but, in spite of the heavy bombardment to which the British had been subjected, they were able to bring to bear enough fire to stop this attack in its tracks. This, however, was all according to Japanese plan. Their main attack had gotten under way before dawn, when the engineer regiment crossed the river at an undefended point about one mile upstream from the western ford. Almost the entire regiment had reached the opposite bank before it was discovered by a small British patrol that happened to run into one of the Japanese companies. The entire patrol, however, was captured, so that no word of the successful crossing got back to the British commander until some three hours later, when the Japanese engineer regiment, after having forced its way through the jungle, attacked the flank and rear of the defensive position opposite the bridges.

In an attempt to save the situation, the British brought up a reserve battalion and executed a counter-attack. But by that time an entire brigade of Japanese infantry had followed in the footsteps of the engineers, and there were far too many troops on the southern bank of the river to be dislodged. The counterattack had succeeded, however, in delaying the Japanese long enough to permit all British troops to withdraw from their positions and to assemble in the vicinity of Taiping without serious interference.

Japanese shocktroops in Malaya take cover behind automobiles left by the British. Photograph received from neutral sources.



European

The Japanese did not take up the pursuit that night, and early the next morning the British withdrew along the railroad into the Larut Hills, where their rear guard established itself in the only pass where the railway and highway cross the mountains. The main body continued on and occupied previously prepared defensive positions on the eastern bank of the Perak River, which at this point runs south, parallel to and behind the Larut range.

THE FIGHT IN THE LARUT HILLS

The Larut Hills fight was a small one, for the forces involved on both sides were not large. It was important, because it held up the Japanese columns for two days. It is interesting, for it shows the extent to which the Japanese had studied the technique developed by the Germans for fighting in mountain passes in Norway and the Balkans.

Larut Hills Pass, which at the time of this engagement was occupied by a battalion of Australian infantry supported by two 6-gun batteries of light artillery, is an ideal position for defense. The road and the railway rise steeply out of the jungle and climb to an elevation of about fifteen hundred feet in the short distance of 6 miles. The thick jungle floor of the plain provides no space for maneuver or development; and as the road rises out of the forest towards the high land, the country becomes steep and rocky, so that it is extremely difficult to move more than a few yards to either side of the road.

The position occupied by the Australians was organized in depth, with mutually supporting strong points extending from about half way up the pass to the summit. Because of the nature of the terrain, the Japanese were unable to use more than one battalion of infantry in the assault, and had to direct their attacks straight up the road without having recourse to any outflanking maneuvers. In order to accomplish this, it was necessary to bring an overwhelming fire against the British line. Battery positions were cleared in the jungle at the foot of the pass, and a couple of 155mm gun battalions shelled the area for several hours prior to the assault. But the observation from the jungle floor was poor, and the assault troops would never have been able to advance had they been forced to depend on this support alone.

Here, for the first time, mention is made of self-propelled artillery. The Japanese description of this piece corresponds quite closely to what we know of the 105mm gun, mounted on a self-propelled tractor, used by the Germans in all of their campaigns since May, 1940. In the Larut Hills fight, the Japanese seem to have used a battery of six guns, which followed the infantry-engineer combat teams in close support and engaged the enemy's strong points with direct fire from positions on the road close behind the assaulting units.

The Japanese proceeded in the only way possible, by a series of direct, limited frontal attacks against each

strong point in turn. The objective each time was limited to the strong point immediately in front, and after its capture, fresh combat teams would be brought up to defend the area against counterattacks launched by the British from strong points in the rear. Because of the small size of the garrison, such attacks were never very large nor very heavy, but in the early stages of the fight there were frequent local counterattacks made by units the size of a platoon.

It was a slow, painful advance, and it cost the Japanese heavily in both men and matériel. Although they were able to use only one battalion at a time in the assault, this was constantly replaced, so that before the fight was over, four in succession had been moved up against the lone battalion of defenders.

The Japanese ground troops were aided in this attack by an almost continuous series of dive bombings. By the evening of the 22nd, two British artillery batteries mounted on the high ground on either side of the summit of the pass had been bombed out of action. Deprived now of all artillery support except that furnished by one howitzer battery firing from the valley on the far side of the pass, the Australian defense began to crumble. By noon on the 23rd, all but the last two strong points located in the summit of the pass had fallen to the Japanese, and it was clear that if the defending battalion was to extricate itself as a unit it would have to withdraw before the next onslaught. Probably under orders from his division commander, the British battalion commander withdrew his companies from their positions in the pass, loaded them into trucks behind the crest of the hill, and started down the road into the Perak valley in an attempt to rejoin the main forces which had constructed a defensive position in the hills to the eastward.

While the Bren gun carriers and trucks were winding their way down the steep mountain road, a squadron of Japanese dive bombers came over intending to deliver the preparatory bombardment for the final assault. Catching sight of the convoy, and realizing that the enemy had pulled out of their position, the squadron commander directed his attack on the column of vehicles. There appears to have been no antiaircraft fire, and the troops sitting in open trucks, moving down a narrow road at a snail's pace, suffered terrible losses. When the Japanese infantry passed the spot a few hours later, they found more than fifty charred and overturned trucks and gun carriers scattered along the road.

The capture of Larut Pass gave the Japanese possession of the entire range of the Larut Hills. From their position on the crest they could look eastward across the Perak River valley some 6 miles to the high ground where the British were entrenched. As the British had withdrawn to the left bank, the Japanese were able to use the entire area west and north of the river without opposition.

(To be concluded in November-December issue.)

Filipinos Train for Combat

The U. S. Army is proud of the First and Second Filipino Regiments—tough fighting men of the same mold as the 92,000 Filipinos who saw action under General MacArthur on Bataan, in Corregidor, and elsewhere in the Battle of the Philippines.

The Filipino regiments are an outgrowth of a special Filipino battalion created by the War Department in February, 1942.

The original Filipino battalion rapidly grew in size and soon expanded into the First Filipino Regiment. Subsequently, as more and more Filipinos came into the service, the Second Filipino Regiment was activated.



U. S. Signal Corps Photos

In the two regiments are serving a number of Filipino veterans who were among the 92,000 Filipino troops who fought beside General MacArthur's 14,000 Americans against the Japanese invaders in the Philippines. Typical of these veterans of the Philippine Campaign is Sergeant Eustacio Corpuz, who was wounded and crossed the Pacific to the United States on a hospital ship with both legs in plaster casts.

Fifty Filipino commissioned officers are on duty with the regiments, among them a number of West Point graduates.

—U. S. War Department Bureau of Public Relations.



BATAAN WILL BE

*by Major General Basilio J. Valdes**

ON December 7, 1941, without warning—at Pearl Harbor, Midway and in the Philippines—Japan attacked. Only 16,000 American troops were in the Philippines when the Japanese attacked 300,000 strong. Pearl Harbor lay shattered, a smoking, twisted mass of wreckage. The Japanese believed that the conquest of the Philippines would be a simple matter of a few days, strenuous only to the extent of wiping out a handful of Americans. Then, they believed, the conquest of the entire Southwest Pacific would proceed apace—there was Australia and New Zealand ahead, and later Hawaii, and then—who knows?—perhaps the American mainland.

But a bitter surprise was in store for them. The devotion of the seventeen million Filipinos linked them solidly with America. Ninety-two thousand Filipino soldiers leaped to the side of the Americans, all under the command of that great soldier, General Douglas MacArthur. Overnight, the Filipinos became a worldwide symbol of hard-hitting, dogged courage. Twenty thousand Filipino soldiers were killed in the Battle of the Philippines, and lie today in their jungle graves beside their American fellow-heroes. For months that battle raged, and when it was done the United States and the other United Nations had been given a precious respite in which to mobilize their far-flung Pacific defenses. On the bloodstained peninsula of Bataan had been fought one of the greatest delaying actions in all military history.

When the Filipino people resisted the Japanese invaders with their very lives, they gave final proof that here was a nation fit to be respected as the equal to any on earth, not in size or wealth, but in the stout heart and national dignity which are the true measures of a people.

—Franklin D. Roosevelt.

Those are the facts, simple, undeniable, understandable. They are the answer to those who do not have faith in international cooperation. They are an answer written in the blood of the Filipino and American martyrs to the cause of human freedom.

As President Quezon has said: "The Filipino people fought back because they knew that America had made a promise and that she would keep that promise. When

we fought for your flag, we knew we were fighting for our own freedom. When we resisted the invasion of our country, we did so because we knew the Philippines was our country, not only *de facto* but *de jure*. And we were loyal to you, to your flag, and to your country, not because under international law we owed you that allegiance, but because you have won our undying friendship and affection—because you did by us what no other colonizing power has done by the people who had fallen under their sway. The presence of your flag in the Philippines was a symbol of our freedom. It was there only to allow you to finish the work you had started to do—to help set up an independent Philippine Republic."

Much has been said and written about the magnificent stand made by the combined forces of the American and Philippine Armies in Luzon, Bataan, and Corregidor. I saw those boys fight, and they deserve fully every bit of the praise that has been given them.

The Congressional Medal of Honor was awarded to Sergeant Jose Calugas, Battery "B," 88th Field Artillery, Philippine Scouts. The action for which the award was made took place near Culis, Bataan Province, Philippine Islands, January 16, 1942. A battery gun position was bombed and shelled by the enemy until one gun was put out of commission and all of the cannoners were killed or wounded. Sergeant Calugas, a mess sergeant of another battery, voluntarily and without orders ran 1000 yards across the steel-swept area to the gun position. There he organized a volunteer squad which placed the gun back in commission and fired effectively against the enemy, although the position remained under constant and heavy Japanese artillery fire.

Paralleling Sergeant Calugas' gallantry on land were the exploits in the sky by Captain Jesus A. Villamor of the Philippine Army Air Corps, who was awarded the Distinguished Service Cross. In the face of heavy fire from strong enemy air forces he led his flight of three pursuit planes into action against attacking Japanese planes. His flight routed the attacking planes and prevented appreciable damage to matériel at this station.

On another occasion, during an attack on the air-drome at Batangas by approximately fifty-four Japanese bombers Captain Villamor led six pursuit planes and engaged the enemy. By this action against enormous odds, part of the attacking planes were driven off and one of the enemy planes was destroyed by fire from Captain Villamor's plane.

There is also the story of two Q-boats of the Offshore

*Chief of Staff, Philippine Army, and Secretary of National Defense in President Quezon's War Cabinet.

AVENGED

Patrol, which were on duty in Manila Bay off the east coast of Bataan when a group of nine enemy dive bombers appeared and began attacking nearby shore objectives. The commander, Captain Navarrete, maneuvered the boats of his squadron at high speed to positions from which he could attack the hostile planes. When subjected to dive-bombing attack, he continued the fire of his machine guns with such accuracy that at least three of the hostile aircraft were hit and badly damaged, and the enemy forced to discontinue the attack.

And then there is the story of that memorable battle of February 15, 1942, in which the Filipino soldiers from the Mountain Province especially distinguished themselves. General MacArthur's communiqué reads:

"During a recent enemy offensive, the 20th Japanese Infantry made an attack on a position held by a single Igorot company. To a man, the Igorots died in their fox-holes without flinching or thought of retreat but exacting a tremendous toll from the Japanese. To restore the situation, our high command ordered an immediate counterattack by a tank unit, supported by the infantry. The infantry soldiers were Igorots, eager to even the score of their lost tribesmen.

"The bamboo jungles and the heavy, irregular terrain of the section of the front were almost impenetrable and apparently made it impossible for the tanks to operate. Without a word the Igorot commander hoisted his men to the tops of the tanks in order that they might guide the machines through the matted morass of underbrush, thickets and trees. The exposed Igorot soldiers on top of the tanks served as the eyes of the American drivers. Each guide signalled his driver with a stick, and as the unit closed in on the enemy, the Igorots fired continuously with their automatic pistols. Bataan has seen many wild mornings, but nothing to equal this. No quarter was asked and none was given. Always above the din of battle roared the fierce shouts of the Igorots as they rode the tanks and fired their pistols. When the attack was over, the remnants of the tanks and of the Igorots were still there but the 20th Japanese Infantry was completely annihilated."

In recounting the story of the battle to a group of his officers, General MacArthur said, "Many desperate acts of courage and heroism have fallen under my observation on many fields of battle in many parts of the world. I have seen forlorn hopes become realities. I have seen last-ditch stands and innumerable acts of personal heroism that defy description. But for sheer breath-taking and heart-stopping desperation, I have never known the equal of those Igorots riding the tanks. Gentlemen, whenever you repeat this story, stand in tribute to those gallant Igorots."



U. S. Signal Corps Photo

Troops of the 1st Filipino Infantry Battalion train at San Luis Obispo, California, for anticipated action against the invaders of their homeland.

The young Filipinos and Americans who died on Bataan and elsewhere were brothers-in-arms in a battle that will live forever in the annals of gallantry.

I saw those men fight. I was with them through their terrible ordeal. I saw untrained Filipino soldiers, hardly out of their teens, turn into veteran soldiers overnight. I saw your American boys, most of whom had never been under fire, fighting like heroes. I saw the wounded suffering quietly, and the Japanese bombs dropping viciously on the field hospitals clearly marked with the red cross of mercy. I saw the Japanese planes roaring continuously overhead, and the shells from the Japanese artillery crashing everywhere, and the snipers' bullets whipping through the underbrush.

Twenty thousand Filipinos and three thousand Americans died for freedom on Bataan and other Philippine battlefields. Our Filipino soldiers willingly made their sacrifice for liberty—for they were the youth of a people who had tasted freedom and were determined never to give it up.

If democracy is to remain a living ideal, we must follow their example in our acts and in our thoughts. Unless we are wise in planning for a better, safer world—unless we apply, throughout the world, some of the lessons of America's relations with the Philippines, all of the fighting, suffering, and dying of this terrible war will have been in vain. I believe that we will meet that challenge, and that the heroic fight waged in the Philippines was only a prelude to ultimate victory—our victory.



←
Chinese infantrymen fire at Japanese lines on the Salween River front. Artillery shells explode at right. This action, from a newsreel, took place in Yunnan Province, when the Chinese broke up a three-pronged Japanese drive headed for the interior.

Photos by Press Assn.

↓
This Chinese sharpshooter is reported to have killed 100 Japs during the battle along the Hupeh Hunan Front which started late in May as Chinese troops defended the gateway to Chungking.



↑
Lt. General Kuo Tsai, Chief of Staff, (left) looks at a map with General Chen Chen, victorious commander of the Chinese armies in the Upper Yangtze battle.

→
Chinese troops, strung along a road in Yunnan Province, headed for the Salween River Front near the Burma border to relieve men in action against Japanese forces. This scene is from a newsreel.



← Constantly harrowing the Japs on China's "back door" Salween Front, these Chinese soldiers move up across a rushing mountain stream. A line across the river helps them keep their feet. Branches on their backs help them merge into the foliage.

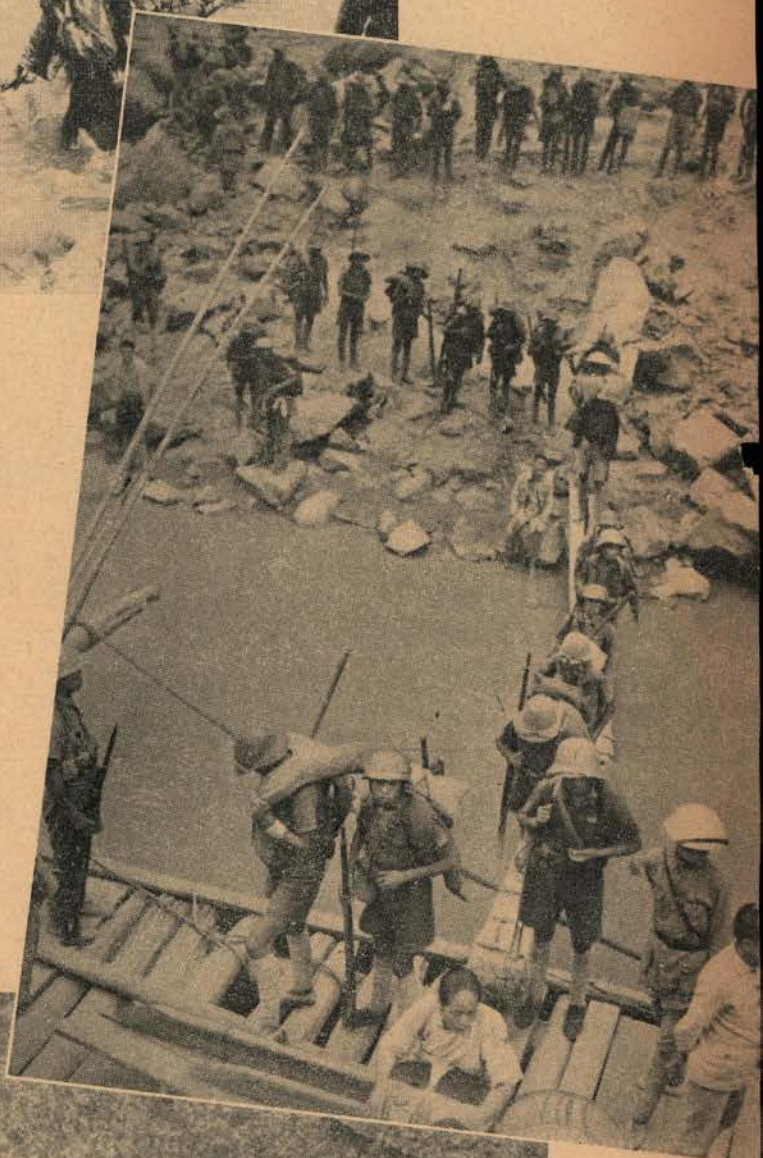
Chinese Defend the Gates to Chungking

In the Battle of the Upper Yangtze, between May 25 and June 6, 1943, victorious Chinese armies inflicted 40,000 casualties on the Japs.

→ On the Hupeh Hunan Front, during the battle of the Upper Yangtze, Chinese soldiers move up for battle.



← Victorious Chinese troops with some of their war booty which they captured from the Japs during the battle of the Upper Yangtze.





Tactics of Street

Military Lessons of Stalingrad*

In the ruins of Stalingrad, each building became a prize of war.

Sovfoto, from official film, City That Stopped Hitler.

IT IS wrong to think that urban fighting is in every case, and in the literal sense of the word, street fighting. When the enemy has entrenched himself in a town, urban fighting means fighting for a house, for a building, for a block. Operations develop along alleyways, inside houses, in ruins, underground. But the streets are empty, and so are the squares.

Military students, devoting ever increasing attention to the problems of urban fighting, are now studying this type of battle from every angle. Attempts are being made to summarize the tactical experiences of street fighting, to determine the rôle played by the various arms, and to elucidate the problems of coöperation.

We now have every opportunity to debate these problems intelligently, as we now possess the extensive experience amassed at Leningrad, Odessa, Sevastopol and Stalingrad, all of them large cities whose defenders demonstrated many new methods of fighting.

The men of Stalingrad especially were called upon to make a major contribution to the military art of urban defense. They held their city after repulsing the innumerable armored hordes of the enemy, ground 27 of his divisions to dust, and then took the offensive.

The struggle for the city of Stalin, for the stronghold on the Volga, taught us much and greatly enriched our store of tactical experience. One of the most important lessons learned at Stalingrad relates to commando action in cities.

SHOCK GROUPS

The defenders of Stalingrad created a peculiar type of shock groups as an instrument for street fighting. These groups, flexible, maneuverable, strongly armed, are equally valuable in active defense and in attack.

They are unlike the usual shock groups. In field conditions shock troops approach enemy blockhouses or firing points in order to destroy them completely. Inside a city, on the other hand, the shock group is required not merely to destroy the enemy but to use the conquered strong point for its own purposes, to turn it into a reliable stronghold, into a fort which can be used for a further development of active operations.

The thrusts of the shock groups are short, their actions bold and rapid.

The very nature of urban fighting determines the nature of these shock groups. All street fighting is at close quarters. An offensive inside a city means the storming of fortified houses which the enemy has turned into firing points, strong points or centers of resistance.

Here there is no opportunity for offensive operations by large units, conducted under usual field conditions. Here it is the small infantry group that dominates the scene. The small infantry group is best adapted for taking single buildings or blocks of buildings from the enemy step by step, i.e., for liquidating firing points or centers of resistance. Thus, it is a small group which is the spearhead of attack in urban fighting.

Let us begin by elucidating the conception "small

*From *Soviet War News Weekly*, June 24, 1943.

Fighting

by

Lt. General V. I. Chuykov
Red Army

group." The first stage of urban fighting arises when the enemy has only just seized a section of a city, and his defenses are still split up. At this stage a small group may operate independently without immediate organic contact with the larger group to which it belongs.

The second stage of urban fighting arises when the enemy has settled down in the city, has been there for two or three months, and has established an unbroken line of defenses, hanging well together and secured by serious technical works and a sufficiently developed fire network. Under such conditions, it is useless to imagine that a party of from three to five men has only to "go, see, and conquer."

Even in this complicated stage of urban fighting the shock group still remains numerically small, and the character of its operations, i.e., its job, is still the same. But under these conditions the group acts only as the spearhead of a larger unit striking a strong blow planned to the last detail.

[The success of the storming of the "Railwayman House" in Stalingrad was decided by three groups of six to eight men each. It was they who actually stormed the building, but they were supported by 82 other fighting men of various military specialties, all using a variety of weapons. It would have been impossible to operate in any other way against such a formidable enemy strong point.]

Consequently, the shock group cannot be considered separately from the conditions in which it operates and the peculiarities of the battle objectives.

In referring to the shock group, we shall assume that the objective is the typical one in offensive urban fighting, i.e., the taking of strong points or of centers of resistance in which the enemy has entire garrisons.

COMPOSITION AND STRUCTURE OF SHOCK TROOPS

[The experience of active operations at Stalingrad taught us that if an attacking unit is to fulfil its task, it must have storm groups proper, reinforcement groups, and reserves. These three battle teams, all tuned to fulfil the same common task, form the shock group.]

[The number of fighting men in each group cannot be stated as a hard and fast principle. It must be left to each commander to decide, after he has studied the



Sovfoto

A shock group advances through a trench to forward positions, whence the attack will be launched on this house, still occupied by Germans.

enemy's fire power, fire system and garrison strength. But the peculiar tasks of each component of the group need to be understood fully. These can be stated very precisely, and if they are not understood it is impossible to understand the tactics of the intra-urban storm.

[The actual storm groups are the basis of the whole shock group. They are not large numerically, but consist of about 6 to 8 men each. They are the first to force their way into the house or other building. They rush in, in most cases, from various points of their initial po-

sition. Each group has its specific task. The storm groups fight inside the objective, destroy the enemy, and go through the whole building with each group handling the section allotted to it. They are lightly armed. Their weapons are the grenade, the tommy gun, the dagger, and the shovel. The latter is used as an ax in hand-to-hand fighting.

[The groups have a common commander, who has at his disposal signal rockets, flares, and sometimes a telephone.]

[As soon as the commander of the storm groups signals, "I am inside," the reinforcement groups rush the buildings from various directions. They occupy the firing points and establish new ones, create a fire system of their own directed towards the enemy, and cut across all the enemy's attempts to come to the aid of his garrison.]

[The reinforcement groups are heavily armed. They carry light and heavy machine guns, antitank rifles, mortars, antitank cannon, crowbars, picks, and explosive charges. They necessarily include sappers and other men equipped with the most effective means of destroying the enemy.]

The reinforcement group is subordinate to the commander of the storm group.

[The reserves are used to fill up and strengthen the storm groups, to ward off lateral counterattacks by the enemy, and also, in case of necessity, as a blocking group. New additional storm groups can be formed quickly from these reserves and thrown into battle.]

Such was the structure of the shock group which took the celebrated "L-shaped house." This center of resistance was so strong that it permitted the enemy to dominate the Volga on a sector of the greatest importance to us, and also the approaches to the Volga in considerable depth. The commander, Lieutenant Sedelnikov manifested striking tactical gifts, and his operation has been incorporated in the battle experience of the Red Army as one of the most outstanding instances of this type of warfare.

"A house is, after all, more suitable for peaceful living than for battle operations," but every room in Stalingrad became a battleground, and gains were counted street by street and house by house.

There should be no special, permanent storm groups in the sub-divisions. Every Red Army man should be capable of acting in a storm group. Platoons, sections and companies should be trained in this maneuver, just as they are trained in any other infantry maneuver. What is more, it is important that any storm group should be recruited from the personnel of a single unit.

PREPARATION AND RECONNAISSANCE

However heroic a shock group may be, if the operation is not well prepared, the commander will hope in vain for success. [The storm must be prepared most carefully and calculated most accurately. Preparations are based on two things: study of the objective, and elaboration of a storm plan.]

[The study of the objective must provide a complete picture of the enemy's firing points and fire system. It must produce complete familiarity with the roads of approach and enable the commander to estimate the



Sovfoto

"Don't stay put in a house. Immediately begin again to establish routes of communication, new blocks and trenches. Work your way persistently nearer to the enemy."

best time for the storm. Reconnaissance also must give information on the nature of the defenses, the thickness of walls and obstacles, the position of entrances, concealed loopholes and ways of communication, on the directional sectors covered by enemy fire, on the obstacles in front of strong points, and on the position of the firing points of neighboring strong points which can keep the approaches under flanking fire.]

If necessary, the information supplied by reconnaissance must be checked up by battle patrols.

[When "Railwayman House" was stormed under the command of Yenin, all the data that I have mentioned were absolutely complete. His profound study of his objective enabled him to work out an accurate practical



Sovfoto

plan and to mislead the enemy. As a result, Yenin could use the factor of surprise at a time when the storm was, so to speak, already in progress. Opening fire from the south, he provoked the enemy to turn his main fire power in that direction, and then seized the objective by advancing mainly from the east, with his three groups of daredevils of whom I have spoken previously.]

It was careful study of his objective which enabled Sedelnikov, when storming the "L-shaped house," to direct his blow against a part of the house where enemy fire power was weakest, and where a dead space made it impossible for the enemy to attempt flanking fire.

Plans for a storm must be worked out on the basis of a thorough study of the objective. Careful reconnaissance will help the commander to solve his six main problems, which are:

1. Composition and structure of the storm groups.
2. Composition of the reinforcement groups.
3. The extent of reserves.
4. The tasks of the groups in all stages of the battle.
5. The degree to which the attack should be supported by fire from the rear; cut-off fire.
6. Signals and communications.

TACTICAL METHODS

The tactics of a shock group must be flexible. Speed, drive, great initiative and boldness are demanded of every man, if for no other reason than that all sorts of unexpected things are bound to turn up.

Hurry up, be on time, look sharp!

The fighting man finds himself in a labyrinth of rooms and foxholes, all full of danger. Never mind. Chuck a grenade in every corner. Go on. Put a tommy-gun burst into the remains of the ceilings; if that is not enough, then a grenade and forward again. The next room—another grenade. Comb it out with the tommy gun.

[Never dawdle!]

Inside the objective, the enemy may try a counter-attack. He knows how to fight as well as you. Don't be afraid. You have already taken the initiative and it is in your hands. Storm more fiercely, use your grenades, your tommy gun; then go for the dazed enemy with dagger or shovel.

Fighting inside a house is savage fighting. Blind your enemy by every means and then hit him out of the darkness. Be prepared for surprises.]

[Let me tell you what happened in one objective. The men had reckoned on a struggle in the basement, but it was later found that this basement had collapsed across the whole width of the building. In order to penetrate into the rest of the building, it was necessary to get through this same basement, which was under enemy fire to a considerable depth.

The second surprise was that the enemy had walled up the entrances to the building and left only narrow passages which led to the firing points through the basement.

"There must be two of you to rush a house—you and a grenade. Both of you should be lightly dressed—you without your haversack and the grenade without its shirt. This is how you rush a house. Let the grenade go in first, and then you follow. Go through the whole house the same way—first the grenade, and then you yourself."

The third surprise was that a blank wall divided the building in two. Beyond the wall was the enemy. The Germans shouted from the other side:

"Hi, Russ! Let's have a rest. We're tired."

That was when the reinforcement group went into action. Crowbar, pickax, and lead piping all came into play. Where the crowbar did no good, an explosive charge would help. The walls were pierced to permit the throwing of grenades and a subsequent advance in force through the building.

In the 26th hour of the battle inside the "L-shaped house," the remnants of the German garrison, who had escaped into the basement, were called upon to surrender. They refused. After this the reinforcement group did one of its specific jobs. The entire left wing of the six-floored house was blown up and the Germans were buried under a mountain of rubble.

[The reinforcement groups have worked out their own tactical methods, which have passed the severest tests. These methods include the careful consideration of every trifle as well as of major problems.

1. Machine gunners, mortar gunners, number ones of antitank rifle crews force their way into the building. Their number twos, carrying ammunition and food for 24 hours of battle, follow them.

2. Having forced their way in, they must immediately seize the upper or middle floors of the objective, in order to keep the surrounding terrain under fire and prevent the bringing up of enemy reserves.

3. Having occupied and established firing points in the building, supplementary firing points must first be established outside the building on the flanks and then moved forward towards the enemy, in order to come to close quarters as a prelude to further active operations. This is most important. A house is, after all, more suitable for peaceful living than for battle operations, and especially offensive operations.

Don't stay put in a house. Immediately begin again to establish routes of communication, new blocks and trenches. Work your way persistently nearer to the enemy.

SPEED AND SURPRISE ARE BASIS OF MANEUVER

Speed and surprise are the two factors on which the maneuver of the shock groups is based. These two factors are inseparable.

[*"Railwayman House"* was attacked at 10 A.M. The storming groups, commanded by Yenin, had three min-

utes in which to accomplish their task. No more than three minutes separated the last discharge of the guns, the last burst of machine gun fire directed against the enemy's firing points, and the moment when these points could be expected to spring again into life.

The storm groups made brilliant use of this period of time, so brief according to ordinary conceptions, and rushed the house before the enemy could recover from the murderous fire directed against him just before the storm. In 30 minutes all the firing positions of this strong point had fallen, the first prisoner had been taken, and the garrison—consisting of two infantry companies and one heavily armed company—was surrounded.

[Such is the effect of the time factor!]

The "L-shaped house" was attacked at night without previous fire preparation. The storm groups threw grenades into the house while still running forward and climbed through the windows one after the other without losing formation. The enemy had no time to fire a single shot. In 20 minutes the storm group had been through one-third of this enormous six-storied building sprawling over two blocks.

[Such is the effect of the surprise factor!]

Every commander who is given the job of storming an enemy strong point center of resistance above all must make use of both the time factor and the surprise factor, for both factors merge in hand-to-hand fighting.

The shock group is a product of hand-to-hand fighting. Its indispensable weapon is the grenade. The grenade dictates the distance of the storm—the nearer the enemy, the better.

If we consider from this point of view the more or less important storming operations carried out by our troops, we find that they present themselves above all as consisting of a persistent and concealed progress, aimed at bringing the attackers to close quarters with the enemy.

The forward area of the sector occupied by Sedelnikov's men was 180 yards from the "L-shaped house," but the daring shock groups of this remarkable commander stormed their objective from an initial position only 30 yards away. Our numerous shock groups have now made it their tactical rule to storm from such a distance.

The lesson of experience is that the enemy should be approached through trenches, or by crawling along while using shell holes and ruins as cover.

Such trenches must be dug at night and camouflaged. The men must gather for the storm rush without being seen by the enemy, without noise, through trenches, in shell holes and ruins. Tommy gun round the neck, ten grenades within easy reach, boldness in the heart! Now act! If you do this, speed and surprise will both be yours.

MUTUAL COÖPERATION

Commanders and men are working diligently to solve the tactical problems involved in mutual coöperation

between shock groups and artillery, tanks, and other arms. At present the position is quite definitely thus: if the enemy's fire-power is concentrated only inside a building or other objective which he has transformed into a strong point or center of resistance, the storm must be sudden, without artillery preparation. In such circumstances, artillery preparation would have no effect.

Nevertheless artillery must be brought into action in the course of the storm. Small caliber guns, supported by antitank rifles, brought forward at night or behind a smoke screen after detailed reconnaissance, can effectively belabor the enemy's firing points. These guns, moved forward suddenly to a previously chosen position, should give cut-off fire and paralyze the enemy's attempts to assist the garrison of the objective to be stormed.

One method of giving artillery support to a storm without sacrificing the suddenness of the attack may be noted here. Commander Korishny made an artillery attack on firing points in the depths of the enemy defense ten minutes after the storming groups had forced an entry into the objective—instead of before the storm or at its beginning.

Skilful support of the shock group by tanks which fire point-blank at the loopholes, or undermine buildings by their fire, considerably increases the force of the attack.

Other weapons must also be widely employed to give support to the shock groups.

Some commanders have raised the point: "Darkness or smoke screen?"

Our answer is: "Both." The important thing is that during operations under cover of darkness or behind a smoke screen, the commander should be sure to keep the directing of the battle in his grasp. That is the essential problem.

"Railwayman House" was stormed under cover of a smoke screen. The screen held for 13 minutes and hid the movements of our groups, storming from the south, from three German blocks pushed out on their flank. That was just what we wanted. The smoke did not interfere with the directing of the operations.

In the storm of the "L-shaped house," darkness made no difference to the direction of operations. Here the storm began at first light, but the initiative was ours, and the concentration was carried out in complete darkness. Flares were used.

Underground mine attacks are undertaken if an approach to the objective by other means would entail unnecessary losses. Our shock troops are employing this method with increasing frequency. There is only one thing to be said: *Be daring!*

The sapper is an important figure in street fighting. His place in the shock group is a place of honor.

Such, approximately, are the tactical problems relating to the operations of storming groups. They are born of the basic factors of all fighting—speed and surprise.

center of resistance and both flanks led to its destruction.

The point to be emphasized in an analysis of this particular battle is that various arms of the service coöperated according to a prearranged plan, but in such a way as to meet the requirements of each situation on the spot. Coöperation was organized swiftly, and fighting commanders made full use of such battle resources as were in their possession.

It must furthermore be noted that coöperation was effected by means of liaison tanks and ordinary runners. The momentum of the advance increased with the progress of the fighting until it had reached 20 kilometers on the day that the engagement described took

place. Despite this fact and the constantly changing situation, communications were never disrupted, because all arms of the service were well equipped with principal signalling means and were thoroughly familiar with the battle mission assigned to each. Not being in wireless communication with the tanks, the infantry transmitted its requests to the tank commander through headquarters or by means of liaison personnel and runners. The tanks, operating in close coöperation with the infantry, never drove too far ahead and kept constantly in touch with the riflemen. When the situation so demanded, liaison tanks were sent toward the infantry. Coöperation thus established between various arms ensured the successful termination of operations.

Tank Maneuvers on the Battlefield*

by Major A. Zuorykin

MANY tank commanders have shown that victory can be achieved by skilful maneuvering even when the enemy has superior forces and the possibilities of tanks are definitely limited.

During July of 1943 the Germans made a mad rush at a village on the Belgorod sector of the Soviet-German Front. Although their main drive consisted of a direct frontal attack, they attempted at the same time to use tanks to envelop the village from the flanks, and thirty of their heavy and medium tanks attacked on the Soviet left. On this particular sector Soviet artillery was not over strong numerically, and the Soviet commander, Captain Melnikov, with only six medium tanks under his command, had the task of repulsing the attacks.

With the enemy forces outnumbering them five to one, the tankmen realized that the situation was unfavorable for a direct counterattack. There was, however, nothing else to be done; so the success of the counterattack had to depend on skilful maneuver. Knowing the direction of the German attack, the company commander selected his own battleground, where it would be possible for him to deploy his tanks quickly from the road and where some of the tanks could reach the enemy's flank under cover of the hillside.

Timing their actions carefully, the Soviet tanks went out to meet the enemy, and the maneuver was brilliantly accomplished. Four tanks deployed from the road and, firing as they advanced, delivered a frontal attack on the enemy, while two others passed through the woods and approached unobserved from the flank.

The skilful maneuvering of individual tanks attacking from the front was one of the deciding factors in the outcome of the action. The tanks first maneuvered along the rear slopes of the hill, then appeared at the crest, fired, and again disappeared. This method of attack made the Soviet tanks invulnerable and created the impression among the Germans that they were being

attacked by a larger number than actually existed.

Another case of tank maneuver which resulted in the capture of an important enemy center was executed by Major Silchenko's tank battalion plus motorized infantry. Going into action, they wiped out a large number of enemy officers and captured guns, transport, and other stores. At that time the Soviet troops, conducting a successful offensive, were approaching a town situated on an important railway line. The enemy hurriedly began to fortify the town for defense by laying minefields on the eastern approaches, bringing up artillery reserves, and building a system of blockhouses.

Major Silchenko gathered all necessary information about the enemy and carefully worked out a plan for the capture of the town. The main feature of this plan was an extensive enveloping movement in which the tank battalion made a thrust from the direction that the enemy least expected—from the rear. The tank attack was both sudden and tempestuous, so that the Germans had no time to turn their guns in the direction of the Soviet tanks.

During the battle, the commander kept a close eye on the enemy. When the Germans moved their tanks to attack Soviet forces from the rear, the commander used his light tanks, which he had held in reserve, to deliver a counterblow. The railway station, which was the center of resistance, was captured in a few hours.

The art of maneuvering lies in the ability of the commander to select the method of action required by the concrete situation and to bring it swiftly into effect so that he may paralyze the enemy counterattacks in their embryonic stage. The best planned maneuver may collapse if carried out too slowly. The decisive factors in maneuver, therefore, are suddenness and speed of action.

In maneuvering, the commander often places himself in a difficult situation—opens his flanks, and cuts himself off from his base. For this reason, maneuver requires constant reconnaissance, good communication, and excellent direction.

*By cable to The CAVALRY JOURNAL from U.S.S.R. War Department, Moscow.

66
It was 3:30 P.M. Suddenly the AA platoons discovered, on the heights ahead of them, two tanks that at first they took for German tanks. They had no time for closer examination since a few Spitfires, which suddenly broke out of the clouds, attempted to strafe them in their positions with the plane weapons. They fired their first rounds, but German pursuit planes immediately rose and the "English ghosts" were driven away without being able to do much harm.

The troops were still searching the sky with their eyes. They still followed the flight of the German pursuit planes. Suddenly they saw a Messerschmidt 109 plunge down upon one of the two tanks and open fire on it. At the same moment they recognized about twenty tanks rolling down on them, broadly deployed and spaced in depth.

A cloud of dust hung like a smoke screen behind the advancing tanks. Six of them could be distinguished clearly. At about 1,300 feet they recognized the yellow star on turrets, the American airplane insignia, and immediately our guns began hammering out their exact, comforting tak-tak-tak against the earth colored, on-rushing tanks. They would not be stopped. They deviated not an inch from their course. "Hard boiled!" This thought went through the minds of the men, and "hard boiled," or so they thought they were, the frightful monsters continued to roll toward our men. The gun layers concentrated on certain tanks—they were perhaps some 600 feet away now—with accurate aim.

The first of them was soon on fire. It stopped; deadly black clouds of smoke covered it. The rest, firing from their gun turrets, continued to advance. The light AT cannon gave them all that their barrels could give, and that was no small thing.

A second tank caught fire. A burst of flame came from it. Two, three men climbed out of it. They were

German Account

AA Cannon vs. American Tanks*

swallowed up in the advancing cloud of dust. But the remaining tanks were getting dangerously close. Machine gun bullets were singing around the gunners, and shells from the tank cannon were bursting among them. But they remained unflinchingly at their posts and continued to fire, the steel of their shells striking the tanks at close range.

The American tanks were now but 200 feet away, and again one of them was brought to a halt. The leading tank then turned off and the second followed it. Finally seven other tanks recognized the hopelessness of their venture. In turning off, they displayed their sides with the gayly painted star-spangled banner on them.

In another place, however, with the second platoon, other tanks succeeded in rolling through our gun positions. But the guns, continuing on their heels with their fire, knocked out two tanks and forced the remainder to turn off their course. Only one of them roared senselessly toward the near-by highway, and our concentrated fire soon set it ablaze. It dragged its deadly trail of smoke behind it for some 150 feet and then stopped, helplessly exposed to the annihilating fire. The crew was taken prisoner.

That was our first encounter with Americans.

*Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a German article in *Völkischer Beobachter*, December 1, 1942.



PRESS ASSN.

The caption on this picture, received from a neutral source through London, May 3rd, describes it as a German gun post on the Tunisian front, with the famous Ksar den Khrdache in the background. The gun is a Flak 38 (rebuilt Flak 30) and fires a 20mm shell.

nts of Combat

First Day of Battle Along the Donez*

FRESH, well equipped enemy divisions with their ranks filled were at first to lead the attack on Kiev, but were now bending their efforts to the construction of a defense system such as would satisfy the desires of soldiers of their type. The land along the Donez River, beyond the gradually sloping east bank, is a labyrinth of marshy depressions, tributary streams, lakes and ponds. It is only in a few places that a successful attack is promised by the presence of bridges and solid land—an attack such as is necessary for the formation of bridgeheads as the prerequisite of successful operations between the Donez and the Don—and these places had been built by the Russians into key positions.

Neither the small stream nor the village are shown on large maps, but their names are burned in the hearts and memories of the infantrymen of the Lower Saxon Division which was to form the bridgehead that day. The village of M... had been made into the central supporting point of the Russian key positions in the knowledge that the German command would conduct one of the most decisive attacks in this place.

Now, forced over to the defensive, the Russians had thought out a new manner of employing their rolling, armored monsters. Around the village of M..., a fortification consisting of a circle of brown tanks was established. Their bastions were the artillery positions and their communication trenches and defense lines were represented by the field positions.

The Soviet command had not given up the thought of taking advantage of the mobility of their tank forces. Rather, they planned in case of a German tank attack (on which they certainly counted) that the Bolshevik tanks would come out of their earth positions and be used in a counterthrust against the infantry following our tanks. This was to be accomplished after the brown Soviet tanks, from their cover, had shot up our attacking tanks one after the other.

In place of this, there descended on the Russian key position, in the gray light of early dawn, a rolling artillery barrage that had not been anticipated in such intensity. In the concentrated fire of 130 guns the Soviet infantry was broken in this sector, and was beaten down by thousands of shells. But instead of the expected tanks, it was the German infantry that moved forward to the attack. The Soviets made one last effort. They rolled their tanks out of their pits and started a



Black Star

German SS troops move an antitank gun over a fascine road in Russia.

counterattack. The first six were shot to pieces by the antitank units of the division, and the second wave, consisting of five tanks, fared no better.

Because of this assistance, which had been provided in advance by the command, the infantry made good progress in its advance. What artillery the Russians had left, was held down by continuous employment of the Stukas. It was a great day of battle, such as the men had been wishing for during the months of the devastating winter operations and during the days of defensive operations east of Kharkov.

The thing that had to be done now was to form a bridgehead. If we succeeded in getting the bridge into our hands undamaged, it would mean not only a gain of many hours before the engineers could complete the war bridge, but also it would mean relief for those portions of the infantry that had already reached the far side of the river and whose flank was threatened by stubborn enemy resistance.

With the bridge in German hands, the armored forces, which were all ready for action, could dash ahead and be employed in crushing pursuit of the enemy. We succeeded. The regiment on the right was closest to the bridge. The engineers attached to the regiment were sent out ahead of all others.

When they were close to the bridge, which was all prepared for blowing up, a lieutenant gathered all available engineers and infantrymen together and risked the dash across. The Russian blasting detachment was still engaged in its work. The lieutenant succeeded in taking them prisoners and in cutting the detonating conductors.

While the lieutenant was getting ready to make the dash across the bridge, a sergeant from the same battalion of engineers sprang into the water and tore the explosive charges away from the bridge supports. Thus the bridge fell unharmed into German hands.

At 2:15 A.M., the attack began. At 10:00 A.M., both bridges and bridgehead were safely in German hands and tanks were rolling across into the country between the Don and the Donez.

*Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from the German article, "Was wir erlebten in diesem Jahr im Osten. Der erste Tag der Schlacht am Donez." From *Die Panzertruppe*, September 1942.

ENEMY PROPAG

"Hitler's most powerful ally, the very basis of his victories, has been the ease with which he could divide his enemies by playing upon the dislike and distrust of one nation, or race, or religion, or party for another."

THE Axis powers have declared that this is to be a total war, and we have every reason to believe that they mean it. Just what is a total war? It has been said that modern warfare rests on four pillars.¹ These include all of the elements of total warfare. They are:

- | | |
|-------------------|-----------|
| 1. Production | 3. Combat |
| 2. Transportation | 4. Morale |

It is apparent at a glance that production and transportation are essentially civilian tasks, combat is the primary military task, and morale is a quality required of both civilian and military personnel.

Production, transportation, and combat are factors which existed in all previous wars. In modern warfare we have merely specialized the several activities so that separate groups of individuals conduct each type of activity.

Our particular interest lies in the factor called "Morale." This has always been present in wars as it is today, but only to a relatively small degree. In present day warfare its importance exceeds probably any other single factor. The approach to the mind of the enemy takes on an importance it never achieved before. Wars are no longer merely physical in character, but psychological as well.² It therefore becomes the mission of the enemy to lower our morale and raise his own, as it be-

comes our objective to lower his morale and keep our own at a high level.

Morale may be said to be a state of mind which permits men, despite obstacles and defeats, to struggle on toward their goals. It is a form of faith in the ultimate victory of a cause, even though the individual or group may perish in the fight leading to the victory.

CHARACTERISTIC ENEMY PROPAGANDA

The greatest morale breaker in existence is enemy propaganda, aimed at destroying faith in cause, leadership, and possibilities of victory. Every difference, real or imaginary, is exploited by the enemy in his attempt to govern the mental reactions of our people. He has had certain successes.

One of the earliest pieces of German propaganda was concerned with selling to the world the thesis that German arms are invincible. The purpose of this is apparent. If the Germans are invincible, then why fight them? It is an effort to weaken the fighting will of the opponent by making victory appear hopeless. The armies of Russia have destroyed this myth so completely that further comment is unnecessary.

The Japanese have permitted us to view them as the great imitators of modern times. When Commodore Perry opened the Japanese islands to the Western world in 1853, he found a feudal and agricultural society. The Japanese adopted the easiest method of learning from us, that of imitation. They were then the great imitators. That situation long ago ceased to exist. The

¹The School of the Citizen Soldier, by Second Army.

²Methods of Psychological Warfare, by Lt. Colonel F. E. Gillette, Command and General Staff School, Fort Leavenworth, Kansas.

ANDA

by Major Fred Herzberg
and Captain Willard M. Wallace*

Japanese have become original in many ways, including some of their methods of fighting. It is as dangerous to look upon them as imitators as it was to look upon the Germans as invincible. The danger lies in accepting them as easy marks, and consequently not exerting our best efforts in opposing them. Underestimating the enemy is as dangerous as overestimating him.

That the Japanese are a dangerous and potent enemy has been stressed many times. Among the best authorities on the subject is former Ambassador Grew, who said, "Probably no other factor has contributed more heavily to the preliminary victories achieved by the Japanese in this war than the offensive spirit which permeates all of the armed forces of the Empire. This spirit, recognized by competent military men as the most vital intangible factor in achieving victory, has been nourished and perpetuated since the foundation of the modern Japanese Army."³ They are indeed formidable if this is true—as it appears to be.

"DIVIDE AND RULE"

It is the desire of the Axis that we and our Allies of the United Nations be separated from each other. A divided fighting effort on our part is of distinct advantage to our enemy and makes his task ever simpler.

The Japanese have adopted the anti-white technique in the Far East, and played upon all of the anti-white prejudice of that region. That they should use such propaganda is certainly understandable, but that we should help them is deplorable. They are trying to make this a race war, which it very definitely is not. How many of us have unwittingly helped them? Whenever we refer to them as "those little yellow bastards" we are encouraging the race war attitude. Expressions of that type should be eliminated. We are not fighting the Japanese because of the color of their skins. There are far more yellow-skinned peoples on our side of this war than on theirs.

Most of us have looked upon the Chinese as being "different." Our distance from them has prompted such an attitude. "Because the Chinese live on the other side of the globe; because they wear white instead of black for mourning; because their books begin on what would be the last page of ours; because their family names come first instead of their given names . . . they used to be regarded as people who stood on their heads."⁴ Any so-called "differences" between the Chinese and ourselves are certainly most incidental and of no consequence to the conduct of the war.

The effort to separate us from our Russian allies has met with considerable success in many places. Germany has actually had the crass nerve to say that she is the bulwark in Europe against the Russians. Too often we forget that the Germans attacked the Russians, not the Russians, the Germans. The Red Scare is an old technique, and the Germans will use it more and more with each mile that they are pushed westward by the Red Army. Wendell Willkie stated it well when he said, "Whatever our views may be about Communism, Russia stands today as the savior of democracy in Europe. Had her resistance been less stalwart, it is difficult to see how Naziism could have been brought to the defensive."⁵ We must not be fooled into non-coöperation with the Russians when our problem is fighting the Germans.

Name-calling and labelling with words are old propaganda techniques which have been used with great success. The scapegoat technique was born in antiquity and has been used routinely on all peoples and during all ages. Its purpose is to accuse a group, generally a minority, of being the cause of all evil. It works on the assumption that human beings will forget their difficulties if they can be persuaded to wreak vengeance on other humans. It has been used internationally by the German propaganda machine.

In France the people were told that they were fighting for the British and, of course, that "Britain would fight to the last Frenchman." This served the purpose of removing from many Frenchmen their reasons for opposing the Germans. They did not want to fight for England. Those Frenchmen who still fought the enemy were hampered by their fellow citizens and their talk and actions. France was thoroughly divided by this and other means. The results speak for themselves. The groups who argued so loudly are not able to speak above even a whisper now. They are no longer groups but rather isolated individuals. The Germans did a thorough job of division.

The same technique has been used on us. We have all heard the accusation that we are fighting to preserve the British Empire. The accusation itself is quite incidental, but the fact that we take time out now to argue the point is not at all incidental. While fighting amongst ourselves, we use energy which should be utilized to fight the enemy. That we are fighting to preserve the British Empire may be quite summarily dismissed by the reminder that Pearl Harbor, Dutch Harbor, Wake, and the Philippines did not belong to the British.

³*The Japanese Are Tough*, Radio Address, August 30, 1942, by the Honorable Joseph C. Grew.

⁴*The Thousand Million*, Office of War Information, Washington, D. C.

⁵*Friends for Tomorrow*, by Wendell L. Willkie, from *This Week Magazine* section, Chicago Daily News, February 13, 1943.

*Department of Training, Medical Field Service School, Carlisle Barracks, Pennsylvania.

OUR ALLIES

Who are our Allies of the United Nations? How many of them are there? What are their characteristics in combat? Our allies number upward of a thousand million people, representing every race, creed and color, and belief of mankind, and every area and continent inhabited by man.

The Chinese, for over six years, have fought against the Japanese. They have fought with bare hands and bamboo poles against a superbly armed enemy. They have not only fought but have inflicted tremendous losses and drained equipment and men on a vast scale. When the war started, the great bulk of Chinese industry, schools, and population was concentrated along the seacoast, and along the two great rivers. As the Chinese retreated into the interior of their great country they moved with them their industries and their schools. They walked hundreds of miles, and they carried their belongings on their backs and in their hands. They died like flies, but they marched and fought on. Today they have established industries and institutions of learning in the interior, and these on an unprecedented scale. They still fight on. They still die by thousands; but the Chinese will never be defeated. These people are our allies.

The Czechoslovaks were denied the opportunity of formally fighting their enemies. Their armies were demobilized and the country tragically occupied without resistance. Under such circumstances one would normally expect that the Czechoslovaks would have had their morale destroyed. But this reaction failed to occur. In fact, the very opposite happened. The soldiers fled, many of them, to other countries. But they fled to fight another day. Today they fight on many fronts with other United Nations troops. But the real heroes of Czechoslovakia may turn out to be those who remained behind to fight. The first group have at least a soldier's chance. The second fight alone. Under cover of the blackout they remove pieces of machinery to cripple the war production of the Nazis.⁴ Their sabotage, if detected, would lead to their death, at the very least. Reprisals on the family of such a person would not be at all surprising. Hostages have been executed for less cause than sabotage. It takes a peculiarly high type of courage to risk one's family. These people are our allies.

To describe the staying power of the Russians, their ability to take the offensive, and their high morale, can hardly be done in words known to us. President Roosevelt said, "Russian forces have destroyed and are destroying more armed power of our enemies—troops, planes, tanks, and guns—than all the other United Nations put together." These people are our allies.

While most of us were wondering whether or not we would ever be in this war, and whether or not it was proper to trade fifty over-age destroyers to England, the British were holding their islands, and much more, against the Axis. The bulk of the total casualties of the British Commonwealth of Nations came from the Brit-

ish Isles. The Axis would have us believe that only the Colonials did the fighting. The British held the Germans at bay across the Channel despite the terrific bombardments inflicted upon them. British morale and fighting spirit maintained itself against all odds while awaiting help from the outside. And these people are our allies.

THE TERMITE FROM WITHIN

The Axis finds it not only necessary to separate us from our allies but also to separate us from each other. The latter is an especially dangerous weapon in any country. Its intent is to play upon the prejudices, hatreds and various types of "natural" conflicting interests between groups. It takes advantage of all real and fancied grievances. By doing so, it gets the benefit of having the intended victim exhaust himself in internal dissension.

"Before Hitler attacks any country, his agents carefully sow seeds of hate and disunity—turning people against their own governments, governments against their allies, class against class. . . . In the early days of the war, before France was invaded, morale was lowered by professional weepers, clothed in deep mourning and wailing loudly, who wandered into subways and onto busses in Paris spreading the false belief that French casualties were enormous. Mothers received mysterious postcards informing them that their sons at the front had either been killed or were deathly ill. Soldiers received anonymous notes saying their wives or sweethearts were unfaithful and had run off with British soldiers."⁶

Group is set against group to produce as many subdivisions in the population as possible. The following quotation illustrates the system used: "For most evil, the Jews were to blame. Business is bad? Labor is to blame. Wages are low? Capital is to blame. War is hell? The British are to blame. Everybody was to blame *except* Hitler—the common enemy who would crush them all. National unity was destroyed by setting group against group. In Belgium, Nazis told the French-speaking Walloons that King Leopold was pro-German and was preparing to sell out Belgium to the Nazis; they told the Flemish that King Leopold had a secret treaty with the allies and was ready to declare war on Germany."⁶

Spreading terror is a vicious modification of the dividing technique. Its purpose is to put the victim on the defensive, to make him uncertain and afraid. It is the "War of Nerves." We all remember the system when it was used against Belgium. The newspapers reported the presence of large German forces over the border one day and their complete absence several days later. This process was repeated several times. Were they going to attack? The question was uppermost in the minds of the people. It is easy to understand the tre-

⁴*Divide and Conquer*, Office of Facts and Figures, Washington, D. C.

mendous tension generated by such uncertainty. Such tension could be, and was, easily released in the form of discussion amongst the intended victims. It helped to divide the population.

The tactics generally used against all countries attacked by the Axis are used against us, too, and are well summarized in a statement of the Office of War Information: "To destroy our national unity, create unrest in all groups of the population, and deflect us from the major purpose—the defeat of the Axis—Hitler is trying to set capital against labor, white against Negro, Catholic against Protestant, Christian against Jew. He knows that prejudice, in any form, plays his game."⁸ It would be well for each of us to remember this whenever we criticize others for their beliefs, their jobs or their color.

"Hitler's most powerful ally, the very basis of his victories, has been the ease with which he could divide his enemies by playing upon the dislike and distrust of one nation, or race, or religion, or party for another. Particularly have two 'hates' served him: anti-Semitism and Anglophobia. He is still making immense use of them. To meet this danger we must face it, study it, understand it, not deny its existence; must admit our liability to this kind of infection, our tendency to seek devils to hate as an emotional relief, and scapegoats to blame as a means of escape from recognition of our own faults and obligations."⁹

THE OFFICER'S DUTY REGARDING PROPAGANDA

It is the duty of every officer to see that his men are instructed in the methods and purposes of enemy propaganda. This is known to be done on a large scale by the Russians,⁹ and by the Germans, who have made a science of military morale.¹⁰ The men must be cautioned, in their own interests, to avoid picking up and distributing rumors.

Instruction in why we fight, including showings and explanations of the films entitled "Why We Fight" must be conducted. Explanations concerned with the subject matter of these films should be mandatory. Orientation talks should be given at frequent intervals. "War begins and ends, not with dive-bombers and tanks, not with equipment and supplies, not with maps and terrain, but with human beings."¹¹ These human beings want to know what is going on; they are intimately involved! Every effort must be made to indoctrinate the soldier so that he may evaluate for himself what he hears and sees.

That it is the policy of our army to safeguard our troops and the entire nation must be apparent. Circulars have been issued on the subject.¹² All officers must make it their purpose (morale is a function of command) to

instill a healthy respect for our country and a deep faith in our ultimate victory. To accomplish this, our soldiers must, above all, know WHY we are fighting, and what the personal and national consequences of our defeat would be.

Every American has been raised on the ideals of democracy. Each of us interprets this democracy with a somewhat different shade of meaning. But aside from the varying concepts, the basic principles of what each of us means are really identical. Our common ground might be accepted as being the abstract rights of free speech, free press, universal suffrage, freedom of religion, and a common set of traditions. We might reinforce these ideals by certain common, more tangible factors. The now proverbial Minute Man, the gruesome struggle at Valley Forge, the fight to preserve the Union, the freeing of the slaves, the opening of the great West are historic examples of the American's fight for his kind of freedom.

Another common ground often overlooked, is the fact that we are all the children of immigrants, differing here only in point of time of arrival. It might be safe to say that from the earliest colonists up to the present, the principles of the fight for freedom have always been present. We have with us the descendants of the oppressed peoples of almost every country in the world.

These have brought us the best of the human and cultural achievements of the Old World. These we have embellished with our own accomplishments. We have, in return, given to the rest of the world our distinct scientific, cultural, and industrial developments.

We have become renowned for the jealous defense of our attainments. This jealousy may at times have been so deep-seated that it defeated our own purposes and objectives. We have devised checks and balances and restrictions of many kinds, but their object has always been the greatest good for the greatest number. At various times in our history our vigilance has taken on different forms. The change of form was necessary in view of the changing conditions under which the world lived.

We may depend on our military forces, drawn from the ranks of the people, to preserve the rights of the people from whom they have risen.

It is significant that not only does our army represent every walk of life, but also the many nationalities which have gone into the making of our country. Our duty to bear arms, and our privilege of bearing them with men who have been reared in the traditions of human rights, offers us an opportunity to carry forward the best traditions of our own and other nations. At the same time we should be keenly alert to detect and counteract any attempts by enemy propaganda to disturb the unity which we enjoy as a people and as an ally of the United Nations.

There are many ways to win a war. Motivate the American soldier. This war will not be won by guns alone.

⁸*Let the People Know*, by Norman Angell.

⁹Leland Stowe, *Chicago Daily News*, November 16, 1942.

¹⁰*German Psychological Warfare*, Committee for National Morale.

¹¹*Psychology and the Soldier*, by Norman Copeland.

¹²*Training Circular 99, Safeguarding Military Information*, W. D., Washington, D. C., December 4, 1942.

Training While Testing

*by Major Franklin M. Davis, Jr., Cavalry**

THE BATTALION TESTS now being conducted in the II Armored Corps are checking the technique of small unit operations in combat situations, as well as providing higher commanders with an accurate index to the capabilities of troop leaders and to the prospective combat efficiency of the units concerned.

Based on Army Ground Force directives, these tests, drawn up by Lt. Colonel A. D. Surles, Jr. (Cav.) and Lt. Colonel James B. Quill (Cav.), have proven invaluable as a check on unit and combined training, and as combat practice for the troops concerned. Every effort has been made to maintain realism, keep artificial control at a minimum, and to permit all commanders actually to handle their troops throughout.

Scheduled for all units of the II Armored Corps, whether divisional or non-divisional, the tests are scaled according to the training status of the unit concerned. Thus far, battalion combat firing tests were conducted for the 6th Infantry Division, while battalion field exercises, involving no firing, were conducted for the 13th Armored Division, and reinforced battalion combat firing tests were run for the 6th Armored Division.

In the 6th Armored Division, reinforced battalion combat firing tests were staged at Camp Cooke for each tank battalion and armored infantry battalion of the division. Basically, the tests for the two types of battalions were the same, and only slight changes were necessary to fit the tank problem to an armored infantry battalion.

The battalion—reinforced with a company of infantry, a battery of artillery, a platoon of the regimental reconnaissance company, and a platoon of armored en-

gineers, in addition to the normal medical, maintenance, and service elements from the parent regiment—was acting as a flank guard for the armored division.

In the execution of the combat firing test, the battalion was required to make a short march to a rear assembly area, move at night to a forward assembly area, attack an enemy force occupying a hasty defensive position behind a minefield, rally, and reorganize.

Ammunition allowances were sufficiently liberal to permit an impressive display of actual fire—40 rounds per rifle, 150 rounds per machine gun, 10 rounds per heavy caliber weapon, and 16 rounds per battery of artillery. Ammunition was reserved from annual combat firing allowances.

PROBLEM AND SOLUTION

Situation (see map). At Camp Cooke, as the problem opened, the enemy was moving in force on Lompoc. The 6th Armored Division, with the battalion being tested as the right flank guard, was moving south, with the head of the battalion at Schuman Canyon. The battalion commander was directed to meet a liaison officer from division headquarters at Marshall at 1630. Upon arrival at Marshall the commander was given a message which read: Obsn. reports enemy force of two light tank companies reinforced with AT guns moving into assembly area half-mile SE Weser, as left flank guard larger force. Move to concealed assembly area in Oak Canyon. Attack and destroy the enemy. Sq. Bomb. Avn. on ground alert at Santa Maria available on call. CG, 6th A. D."

Enemy. The enemy referred to in the message was in position near Weser, behind a minefield that extended from Bear Creek Canyon to Lompoc Canyon. The high ground in the vicinity of Surf was actually occupied by a reconnaissance company, functioning as the enemy counterreconnaissance. Thus, before the battalion commander could reach the high ground to reconnoiter the position he was to attack, it was necessary that he use his reconnaissance platoon to make contact, and his attached infantry to drive in the enemy patrols. Distinctive uniforms and blank ammunition permitted the enemy to add considerable realism to the play, and it required decisive and convincing action on the part of the tested battalion to seize the high ground and permit reconnaissance.

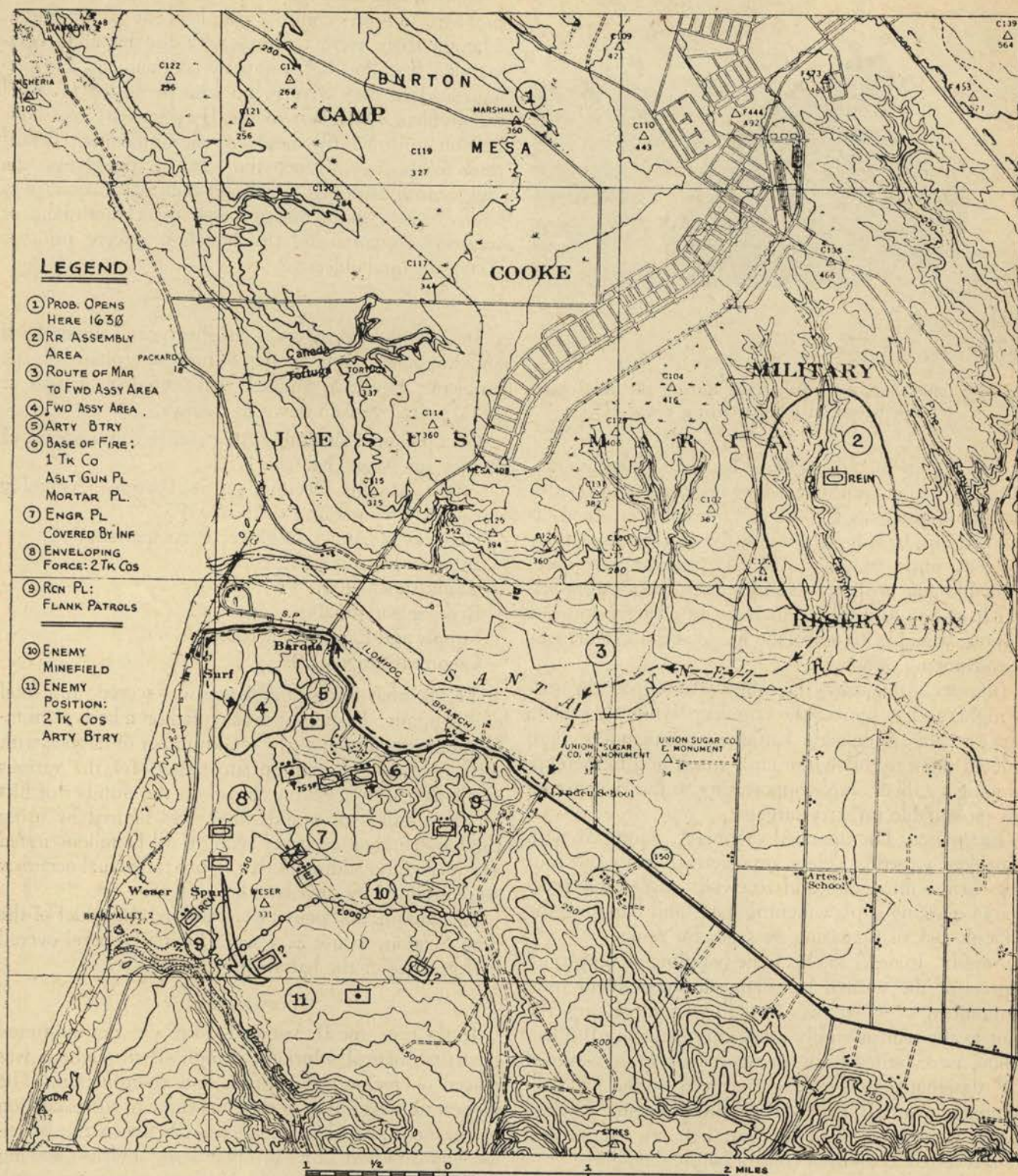
Enemy personnel was equipped with reasonably accurate overlays of the enemy assembly area and minefield, and when prisoners were properly searched and processed, the following information was revealed:

The targets, consisting of thirty tanks, ten trucks, and six antitank guns, in addition to two hundred E & F

*Hq., II Armored Corps.

At dawn a squad of attached engineers widens the gap in the minefield for the passage of more tanks.





targets, were disposed in defiladed positions on the high ground some 1500 yards south of the minefield. All vehicles and weapons were accurate silhouette facsimiles of foreign matériel, constructed by Division Trains, 6th Armored Division.

In addition, the 25th Armored Engineer Battalion, 6th Armored Division, constructed an elaborate demolitions system, which permitted enemy antitank guns to fire, sprinkled the minefield with booby traps to snare the unwary, and salted the terrain with innumerable

TNT charges to represent the enemy shell-fire during the attack.

Solutions. Moving to a forward assembly area at night, and scheduling an early morning attack, most battalion commanders elected to put a base of fire consisting of one tank company, reinforced with the organic battalion supporting weapons, on the ridge north of the minefield, and to envelop the enemy west flank with two tank companies.

Artillery. Artillery missions were initially counter-



An M-4 tank roars into the attack during the reinforced tank battalion combat firing tests.

battery fire on the enemy light battery located as indicated on the map, and thereafter on targets of opportunity, while the assault guns and mortars were used on the AT guns. In order to preserve the strict realism of the problem, only east and west safety angles were prescribed for the artillery. No minimum ranges were set, and in the nine tests conducted, the artillery forward observer was able to control the fire so as not to endanger the advancing troops.

Infantry. After using the infantry to outpost the area at night, and to protect the engineers while they blew gaps in the minefield, battalion commanders then ordered them to follow the tank attack and to mop-up, which gave them ample opportunity to use their weapons on suitable infantry targets.

Engineers. The attached engineers, equipped with bangalore torpedoes, blew anywhere from two to four gaps in the minefield, and received considerable practice in marking gaps, widening gaps, and handling the difficult task of preparing passages for tanks.

Supply. In order to check the handling of supply, all aspects of the normal battalion supply problem were maintained. "A" trains, initially accompanying the unit to the rear assembly area, after servicing the battalion, were pulled back for reservicing to an assumed DP, designated in a message received by the battalion commander at 2100 the day of the problem. Kitchen trucks were released to the battalion after dark, and then reverted to division control before daylight.

Ammunition supply was handled by causing the units to issue ammunition in the rear assembly area, and then, to requisition a resupply at the rally point.

Evacuation. Actual evacuation of casualties and vehicles was checked by issuing the umpires casualty tags, which were handed out during the course of the problem.

Communications. Normal communications were maintained, since the parent regiment provided a CW radio set to which SOP reports and other CW traffic was sent from the battalion. Messages ordinarily sent

by runner were handled by the umpires at the CP.

Control and Scoring. To preserve the realism of the problem, umpire control was kept at a minimum. Though there were umpires with the battalion commander, battalion CP, company commanders and platoon leaders, they were in no wise permitted to "run" the problem. Members of the II Armored Corps Test Section outlined the necessary administrative details prior to the tests. Once the test was underway, the only control exercised was that which was necessary to observe safety limits and to cause the commitment of company supports and the battalion reserve prior to taking the final objective.

SCORING

In scoring the problem, a cut sheet, carefully detailed and annotated, was prepared for each phase of the problem. The total problem was scored on a basis of 2,000 points, broken down as follows:

Occupation of Assembly Area and Reconnaissance of Routes for Night March, 175.

Night March, Occupation of Forward Assembly Area, and Preparation for Attack, 175.

Conduct of Attack-Engineer Participation, 100.

Infantry Participation, 200.

Tank Attack, 400.

Reorganization, 200.

Supply and Evacuation, 100.

Communications, 50.

The combat firing proficiency was scored on a total of 400 points. Dispersion was scored on a basis of number of targets hit out of the total number of targets, with reference made to appropriate targets for the various weapons. Accuracy score, based on the number of hits for the number of rounds fired, was figured by using the low battalion accuracy score of all battalions tested as a mean, and adding to that figure the actual accuracy score attained by each battalion.

In addition, 200 points were allotted the Chief of the Test Section, to use as a score for the general overall performance of the battalion.

COÖPERATION

In the tests, the II Armored Corps was not interested in actual tactical solutions. Emphasis throughout was placed on technique, control, and coördination. The biggest training value in the tests came in the execution of the necessary close coöperation between the battalion and attached units in operations, such as blowing and passage of the minefield, in the coördination of artillery and support fires, in close liaison between commanders and troops, designation of specific commanders of mixed units, in the use and control of reconnaissance elements, and in the actual practice of attacking an enemy position under conditions as close to actual combat as the exigencies of training conditions in this country will permit.

Each battalion feels that it will not make the same mistakes again, and is looking forward to another chance—a test, if there is time, or *the* test if there is not.

Battle Training at ARTC

by Colonel M. E. Jones, Cavalry

BATTLE TRAINING at the Armored Replacement Training Center is more than a casual Cook's tour of a combat area. It is, essentially, a down-to-earth application of all the lessons that are taught in the earlier days of basic training. It is theory put into practice—the field manual come to life. The instructional material issued by the Plans and Training Office is the script for this dress rehearsal for the "Big Show."

Trainees crawl beneath a hail of machine gun fire, drive buttoned-up tanks through exploding mine fields, crouch in fox holes while half-tracks rumble over their heads, sleep in pup tents, eat field rations, use the creeks for bath tubs and stay on the alert 24 hours a day lest the "German" platoon, an *ersatz* enemy, round them up and herd them into a concentration camp.

Throughout the area are scattered red-splotched, straw-stuffed dummies—"horrible" examples that graphically illustrate the fate of the soldier who makes a mistake in combat. One of the dummies lies in a coffin at the edge of the infiltration course. A crudely painted sign on the lid warns: "Here lies John Doe; he wouldn't keep low."

On this 60-yard course, trainees crawl toward three .30 caliber machine guns that weave a leaden canopy only thirty inches above the ground. Meanwhile, instructors explode firecrackers, whistle-bombs and small mines among the men who must maneuver around logs, through holes and beneath barbed wire entanglements.

The Armored Command's "fire and movement" method is practiced on the gunnery ranges. Buttoned-up tanks, advancing toward their targets one platoon at a time, just as they would in a real engagement, withhold their fire as they move forward under the protection of other tanks covering their advance.

In the close combat zone the trainees crawl through a wooded area while firing .30 caliber rifles at movable targets. When the targets are jerked from sight the soldiers start springing across a clearing and hit the ground as the targets reappear. Instructors explode mines that have been hidden in the clearing. The trainees learn that a mine is infinitely less harmful if they lie flat against the ground.

Trainees are taught to attain a remarkable degree of efficiency in such simple field expedients as extricating vehicles from mud and in floating a peep across a stream by wrapping it up in a tarpaulin.

Even when they aren't engaged in a field problem the trainees' way of life is that of the soldier on the battlefield. There are no "hours." It's an all-day, all-night schedule. The day doesn't begin conveniently at Reveille and end at Retreat—or even at Taps.

Clad in makeshift, swastika-decorated uniforms, the

"Nazi Platoon" impersonates the enemy with incredible accuracy. One of the platoon's missions is to keep the trainees on the alert. Having a half-track and a few motorcycles at its disposal, the platoon makes hit-and-run raids at all hours of the day and night. It may descend on three or four soldiers who are blithely repairing a disabled vehicle, lie in ambush for an unwary patrol or attack a segment of a bivouac area. The platoon likes to make a specialty of capturing cooks and mechanics to show the trainees how much they rely on them.

Captures are made by firing blanks from rifles and machine guns over the heads of the trainees. A referee usually accompanies the platoon to settle all arguments. Trainees avoid capture by firing over the heads of the "Germans." The platoon practices amazing feats of deceit and trickery, and makes effective use of booby traps charged with small amounts of explosive. Often two or three "Nazis" create a diversion and drive the startled trainees into the platoon's main body, hidden in ambush. The platoon, made up of volunteers, speaks German, and thus the trainee becomes accustomed to common battlefield expressions.

Prisoners taken by the platoon are questioned with Prussian thoroughness, and woe to the trainee who is intimidated into divulging more than his name, rank and serial number. The captives are detained in a miniature concentration camp and lectured on their mistakes behind a formidable 16-foot barbed-wire fence.

The mere presence of the "enemy" instills in the trainees the apprehension common to most soldiers when they come in contact with a hostile unit. The platoon's ceaseless patrolling and raiding develops a rare degree of alertness and encourages the adoption of fool-proof security measures.

"The 'Nazi Platoon,' clad in Swastika-decorated uniforms impersonates the enemy with incredible accuracy."



Night Tank Firing Can Be Accurate

*by Lieutenant Elmer F. Slovacek**

"**L**IEUTENANT, the Squadron goes into bivouac for the night here. You will outpost the area with your tank platoon plus the reconnaissance section of your troop."

There you are, a junior officer of a support troop of a mechanized cavalry regiment or squadron. What is your problem? Perhaps you reach into your dispatch case and pull out FM 100-5 to brush up on the principles of security. The colonel, of course, will be pleased to see that you carry your texts and will not mind waiting while you improve your mind.

On the other hand, having been taught that a cavalryman makes quick decisions, perhaps you immediately gather up the elements assigned to you and proceed with all speed to the same road by which you entered the area. There you dispose everything you have so that a panzer division couldn't come through. Logical, isn't it? You came that way, so the enemy is honor-bound to come the same way. And, of course, he'll never find that crooked little dirt road far over to the other end of the area.

Or, perhaps, you're neither bookish nor brilliant but simply sensible and know that your particular problem is to cover somehow, with something, any possible avenue of approach into your area. You've been given the tools with which to do it. Now, how can they best be used?

One batch of tools is the reconnaissance section. You're not too worried about it, for it works on principles that are tried and true. There are men in that section who may be dismounted to act as your observation posts. There are machine guns that may be dismounted to cover defiles, trails or roads. There are fast, light vehicles that may be used as liaison agents between your outposts. All this you learned while still at O.C.S. or at Officer's Basic. Or, perhaps you were originally in horse cavalry, and have done much the same sort of thing hundreds of times.

But now we come to our other batch of tools. You still have your own platoon—five light tanks. Surely you should be able to make good use of them. 37mm guns and machine guns galore are at your disposal. There is a road net around your area that must be covered and, in these days, you can hardly depend upon a couple of dismounted LMGs. You happily place your tanks so as to cover avenues of approach open to mechanization. To check our story so far against authority, let us look at FM 2-30—Cavalry Mechanized Reconnaissance Squadron. Paragraph 41C tells us that "For protracted halts, such as bivouacs, outposts usually are detailed from the support troop. . . . Obstacles are installed to block avenues of approach open to mechan-

ization. Armored vehicles are placed and their weapons laid so as to defend these obstacles."

Now, however, you begin to think of a dire possibility. Suppose, during the night, your tank weapons, which were laid on one particular spot, are disturbed. That 37mm gun and co-axial machine gun would then practically be worthless to you, for they have no way to relay accurately on a target hidden by darkness. Or, perhaps there are numerous avenues of approach. Perhaps there are three or four within easy range of one tank. Must you then assign a separate tank to each avenue? Obviously you must, since there is no way for that one tank to shift to other targets during hours of darkness. This, then, is the problem of the light tank on night outpost. Yet, surely there are a number of solutions.

In our unit, we went back to what we know about the machine gun to solve the problem. For years, machine gunners have been able to do what we, in the light tank, could not—namely, make out a range card and, using it, fire on any target they had plotted, even though it was obscured by fog, smoke or darkness. What enables them to do this? They have a graduated traversing dial and a graduated elevating mechanism. Very well, the light tank has a turret which has a 360° traverse. We elevate or depress our gun by means of a handwheel which operates a worm gear in the elevating arc. Here then we have all the essentials for evolving a system that will enable us to make range cards and to fire on plotted targets at night. We have only to work out a way to measure horizontal angles with our turret and vertical angles with our elevating handwheel.

Looking at our turret, we see that the gear teeth, which are engaged by the crank, are stationary at all times. The crank simply pulls the turret around on them. Now, if we get into the gunner's seat and look down at the gear teeth to our left front, we can see a zero mark stamped directly above one of the teeth. If, when the gun is centered so that it points directly to the front, a corresponding mark is made on the turret itself, we have something by which we can establish a constant relationship between turret and hull. In other words, we have a way to "zero" the turret on the hull. All of our tanks have long been marked in this fashion in order to enable the gunner to center his turret quickly and accurately.

If, then, we start from this zero mark, we can easily graduate our turret all around in mils. It is a simple matter to measure the inside circumference of the turret, divide that figure by 64, and get the exact measurement you will need for every 100 mils. We simply marked off the turret in hundreds of mils by painting lines and figures along the inside bottom edge of the

*101st Cavalry.

turret proper. We then further subdivided each 100 mil graduation into 20 mil graduations. The 20 mil graduations are far enough apart to permit accurate interpolation. We marked the entire turret off in halves, 3,200 mils right, and 3,200 mils left. The marking proved a bit awkward around the gun-mounting and, right there, the gunner must stretch a little in order to take a reading.

The second difficulty that we encountered is one peculiar to M-5 tanks. As soon as we move the turret of an M-5 to the right, we find that a plate along the bottom left edge of the turret, hides the zero mark on the gear tooth. We overcame this difficulty by simply soldering a pointer directly down from the zero gear tooth. This enabled us to read the azimuth circle all the way around. There is, however, one important thing to remember. With the pointer soldered to the gear tooth, it is not possible to turn the turret completely around since the crank, in engaging the gear, would immediately snap the pointer off. The turret can, however, be traversed at least 3,100 mils right or left, which certainly would provide a wide enough field of fire for any occasion. As far as the M-3 tank is concerned, the pointer might be desirable but is not essential.

Having solved the problem of reading horizontal angles, we turned to that of vertical angles. This we found to be very simple. Directly in front of the elevating handwheel is a stationary bracket which supports the elevating arc. On this bracket, we soldered a pointer that came directly to the rim of the elevating handwheel. Then, running our gun up to its extreme elevation, we painted a zero mark on the handwheel, directly opposite the pointer. We found that the elevating handwheel of an M-5, when turned through one complete turn, moves the gun through a vertical angle of 15 mils. It was then a simple matter to measure the circumference of the handwheel, divide that by 15 and,

using the resultant figure, mark the wheel in one mil graduations, from zero to fourteen.

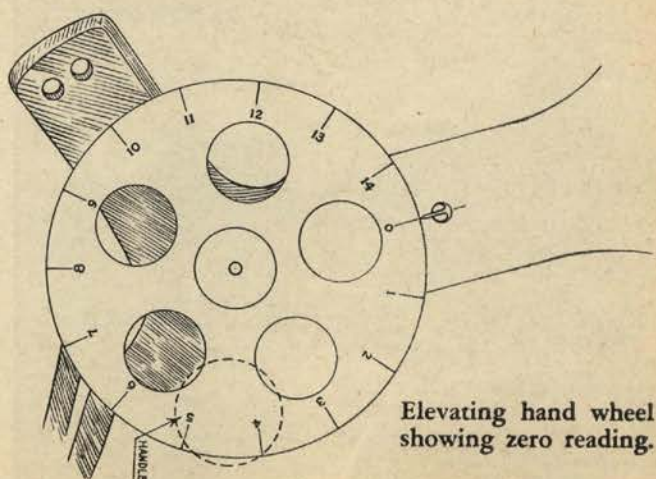
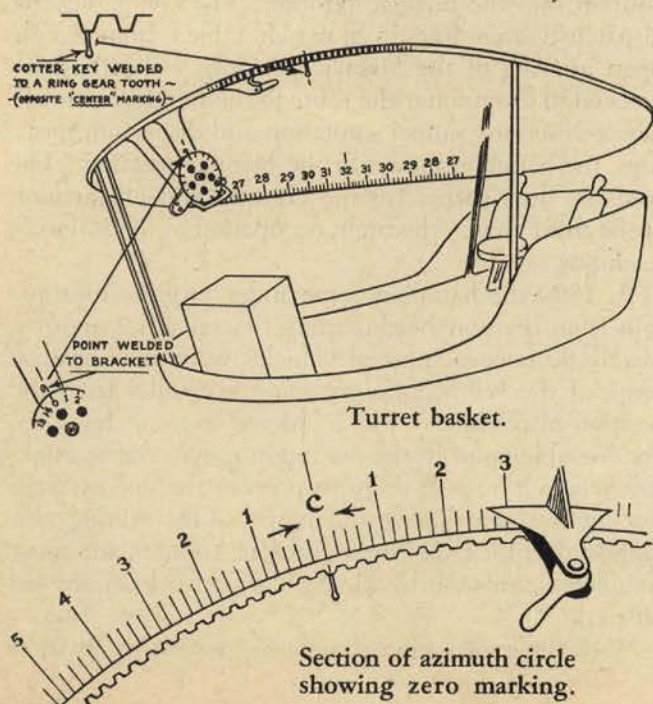
Now, in order to get the reading of a vertical angle for his range card, the gunner can simply run his gun up to its extreme elevation and then, turning slowly, count the number of complete turns plus the number of graduations that he must take in order to get on his target. At first we considered counting simply the number of complete turns plus a fraction of a turn. Graduating the handwheel insures much greater accuracy.

Data for a range card will then read something like this: "Cross Read—(800R)—(16-7M). The (800R) simply means that the gunner has moved the muzzle of his gun from center (or zero) to the right until his zero pointer corresponds with the 800 mil graduation on his turret. The (16-7M) means that he has moved his gun muzzle from its highest possible position, down 16 full turns plus seven mils on the handwheel. (Seven mils would be almost a half turn of the wheel, so that, if it were not graduated, one could say that the gunner had moved his gun down by $16\frac{1}{2}$ turns of his handwheel.)

To test the accuracy of this method, after countless dry runs, we fired at a range of 200 yards on panel targets 5 feet high by 8 feet wide. Having made out a range card for these targets, we took away the gunner's periscope, set off his gun, and had him relay and fire solely by his range card data. Firing the co-axial machine gun, he very satisfactorily riddled the targets. To the best of my knowledge, there is no reason to believe that this will not work equally well at greater ranges, using the 37mm gun.

This is our solution to the problem of tanks on night outpost. Once the azimuth circle has been painted in and the handwheel graduated, there is no reason why this device cannot be used for other purposes. Estimation of range by a section of tanks, using the mil formula is one. Adjustment of fire is most certainly another. Battery fire by a tank platoon is, conceivably, another.

Believing that the results more than justify the small amount of effort expended, I submit this suggestion to tank platoon leaders who may often have thought, as I have, "How in blazes can my tanks fire at night?"



Motor March Training

by *Lieutenant Andrew S. Robson**

THE problem on march technique, given by the tactics department of the Tank Destroyer School, is designed to give officer candidates practical experience in taking command in a day and night march during an assumed combat situation.

The tactical march is made as realistic as possible by using a TD battalion comprising three tank destroyer companies, two reconnaissance platoons, a pioneer platoon, and a medical unit, all commanded by students. The exercise includes the organization of the companies at the initial point, reconnaissance for the march halt, bivouac, and position in readiness, daylight marches, and occupation of concealed positions. The evening meal is cooked on the march, and messing takes place in concealed positions. In the final phase, a warning order is issued and plans made for a night march and the occupation of a position in readiness, without lights.

The daylight phases of the march initiate the candidates into the difficulties of march control (with emphasis on SM). Special attention is also paid to the occupation of march halt and bivouac positions, route reconnaissance, the concealment and dispersion of vehicles, and appropriate security measures, including the digging of foxholes. These points are especially observed by tactics department officers who accompany student commanders. The march and concealment are also observed from the air by an officer in a light observation plane. Each phase of the march is critiqued to

*Tank Destroyer School.

Three destroyer companies and two reconnaissance platoons are in a concealed bivouac position in this aerial photo, taken at the conclusion of the second phase. Marked improvement in concealment and dispersion is always noticeable.



smooth out these basic march requirements before the battalion embarks upon the final blackout march.

Prior to leaving the initial point at 1300, maps are issued, and a general combat situation is assumed. The size and location of fictitious attacking enemy forces is indicated. The battalion is then in mobile reserve at the initial point at Camp Hood, awaiting orders as to the first phase of their movement. The student commanders are given the first march order: "Move your unit into a concealed halt position at Point D (indicated on your map). The tail of the battalion column must clear the road by 1600."

During the completion of the first phase, special attention is paid to the more basic details of march technique. Forming the battalion, dispatching the reconnaissance elements, passing the IP, traffic control, and the use of SM are closely checked. Air observation aids in the control and criticism of the march. After occupying Point D, a critique is held and further orders are given.

The second special situation is an order from the group commander to move the unit by 1800 to the concealed bivouac position shown on their map. The commanding officer also must prepare a plan to occupy a concealed position in readiness at given coördinates between 2000 and 2200. This entails reconnaissance, security, and movement to the bivouac position, and daylight reconnaissance to the position in readiness.

The battalion is now moved from the march halt position into the bivouac position. The companies are dispatched according to a march table. Immediately upon arriving at the bivouac position, a detail is dispatched to reconnoiter the route to the position in readiness. Observing proper sanitation and dispersion measures, the battalion messes at the bivouac position. The students then gather for the critique and explanation of the third phase—the night occupation of a position in readiness.

At 1800 the battalion commander receives information from division headquarters that at 1730 approximately 80 enemy armored vehicles went into bivouac south of the Ivy Mountains, some five miles from the position in readiness. He is ordered to mine Ivy Gap, a vulnerable point in the mountain range, and to establish a march outpost there to prevent the enemy from forcing the gap during the night. This mining and outpost detail is to be limited to four vehicles and must complete its mission by 2130. Blackout restrictions are ordered.

With the explanation completed, the battle situation



Imprudent reconnaissance personnel attempt to remove a road block during the night march, without checking it for mines and booby traps. Dynamite charges, harmless but startling, show them their error.

is assumed realistically. Lights and smoking are prohibited, talking is curbed to a minimum, radio silence is ordered for all but the battalion reconnaissance net. The men move carefully through the darkness to their vehicles. Platoons and companies are formed and the battalion is moved out in the indicated order with reconnaissance, a pioneer detachment, and the traffic control party preceding the advance guard. The pioneer and reconnaissance groups are ordered to secure the position in readiness and continue on to mine Ivy Gap. The TCP marks the route and posts one guide for each platoon at the entrance to the position. The guides are equipped with lights, blacked out with colored plicofilm, in which the company designation symbol is cut. The cut-out symbol is covered with plicofilm of another color, so that no white light will escape.

During the third phase, it is evident that student commanders have more confidence and are more conversant with their duties as a result of the two daylight phases. With regard to judging time, passing the IP, and column control, the night march is technically much smoother, despite increased difficulties. During the night phase, special attention is paid to the placing of route markers, the various route marking expedients, and the use of the countersign and password. Emphasis is also placed on moving into the position in readiness, the use of dismounted guides for vehicles moving in the area, dispersion of the vehicles, and the use of security and outposts.

The roads selected for the march are barely discernible in daylight, usually lead through woods, open fields, creek beds, past bridges which must be inspected, and are broken by cross-roads and intersections. This route is selected purposely. These difficulties are in-

creased by parties of instructors and enlisted assistants who ably simulate enemy patrols and harass the column.

The "enemy" establishes road blocks, many of which are mined with light charges. Students who carelessly remove the blocks receive a thorough object lesson in caution. Road markers are captured and enemy substitutes, equipped with countersign and password, mislead platoons and necessitate an increase in the vigilance of the student officers. The individual platoons, usually traveling five minutes apart, are often attacked by enemy patrols at a favorable spot. Firecrackers are tossed into the vehicles, and flares and light dynamite grenades add realism. The platoon is forced to halt, dismount, and deploy in an attempt to round up the raiders.

The most realistic and effective ambush is staged at Ivy Gap when the combined pioneer and reconnaissance detail of four vehicles arrives to mine the area and to establish an outpost. An enemy patrol has preceded the detail and prepared a reception of flares, firecrackers, and dynamite grenades. In many cases, the vehicles barge imprudently into enemy hands. After the excitement is over, the instructor in charge of the ambush explains to the students how the ambush could have been avoided.

Meanwhile, back of the position in readiness, the battalion has moved in and taken cover. Guards have been posted and security measures taken. As soon as this is completed, the students gather for the final critique, held by firelight. The problem is concluded with an administrative march back to the camp area.

With an efficient motor march technique, especially under blackout conditions, becoming an increasingly important factor in successful combat, the tactical march exercise assumes an important rôle in the school curriculum. The instructor in charge of the exercise continually devises changes in route, situation, and enemy action to provide a more practical and realistic training.

The final critique is held following the night occupation of the position in readiness. Students check their procedure and note errors.



How to Prepare the 2½-Ton Cargo Truck As a Kitchen Vehicle

by 1st Lieutenant Arthur Paddock, Infantry*

THE truck, cargo, 2½-ton 6 x 6, is one of the most versatile vehicles in the service and never more so than as a rolling kitchen. No War Department or Army Ground Force directives appertaining specifically, the preparation of the 2½-ton cargo truck in troop or company is relatively simple if you are guided by the painful yet profitable experience of Lieutenant "A."

Ordinary tools and materials available in any troop or company are used, and the ordinary soldier with a smattering of hammer-saw-and-plane experience can do the work.

First, raise and secure bows. A hole drilled through each bow to accommodate a rivet or sawed-off nail will suffice for securing them.

Remove seats and secure on outside of body. This is easily accomplished by simply turning the seat clamps around. (See sketch 1)

Install the water tank against the cab. (See sketch 2). A convenient size is 14" x 52" x 79", which holds 292 gallons of water. Its length is such that the tank fits tightly in place and is secured by means of brackets welded to the tank to fit over the truck body. Lieutenant A used a third-class boiler plate obtained from a civilian junk dealer, but any substantial metal will do the job. An outlet can be installed in either or both ends, by means of a short ¾" pipe nipple and faucet to fit. This will necessitate drilling a 7/8" hole through the truck body. To obviate this necessity, an outlet may be obtained at the tailgate by extending the nipple along the bed of the truck body. The tank is filled through the gate at the top, as shown.

Perishability of foods, especially when the class A

*Armored Force School.

ration is issued, dictates use of a refrigerator. SFE funds may not be used to buy refrigerators, which on the civilian market are generally unobtainable anyway. Soft drink companies and post exchanges are usually reluctant to part with any of their patented boxes.

Perhaps the best plan is to build one yourself. This can be done with scrap lumber. Requirements are:

4 4"x4"x32" pieces

8 2"x4"x41" pieces

Sufficient 7/8" board to cover frame.

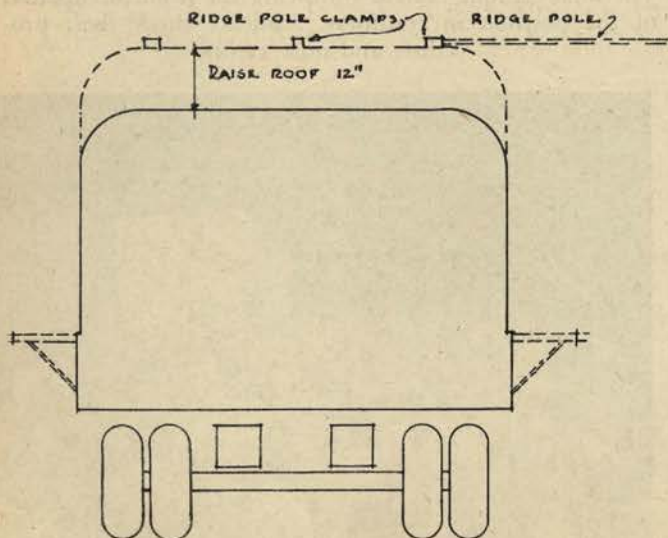
Hinges and nails.

The dead air wall, as shown in sketch 3, can be stuffed with sawdust, peanut shellings, cornstalks, or other non-conductor material. It should be dampened when filled. The box should be lined with zinc or galvanized iron and drained by means of a ½" pipe nipple soldered through one corner.

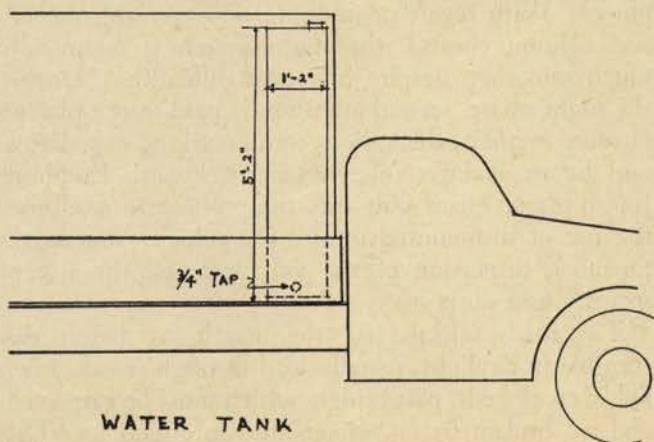
Ration B carried in the vehicle varies as to quantity. Most of it is in canned form, and must be stored, along with bread, in a secure chest. A practical chest is illustrated in Sketch 4. It can be built from scrap lumber. Note in the sketch how the shelves are spaced to accommodate No. 10, No. 6 and No. 2 cans. Note in sketches 4 and 5 that the position of the chest in the floor plan necessitates hanging the door from the right. The chest is fastened to the vehicle by means of clamps screwed or nailed to the chest and secured to the body.

Assuming that meals will have to be prepared on the move, and with work table space limited, the kitchen crew must be provided with "knock-down" work tables. One of these is shown in Sketch 4. Both table top and leg are hinged so that when the table top is raised to position the leg falls to the floor.

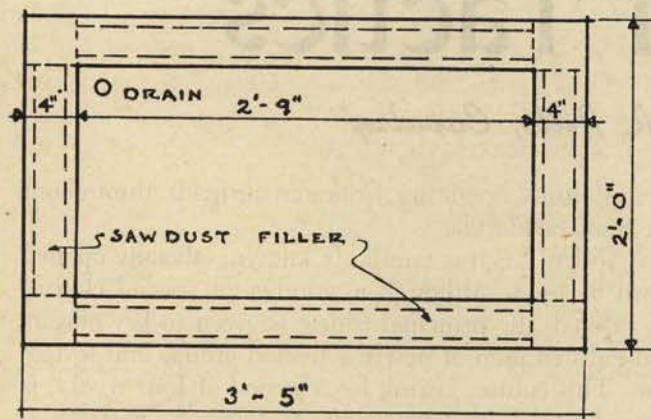
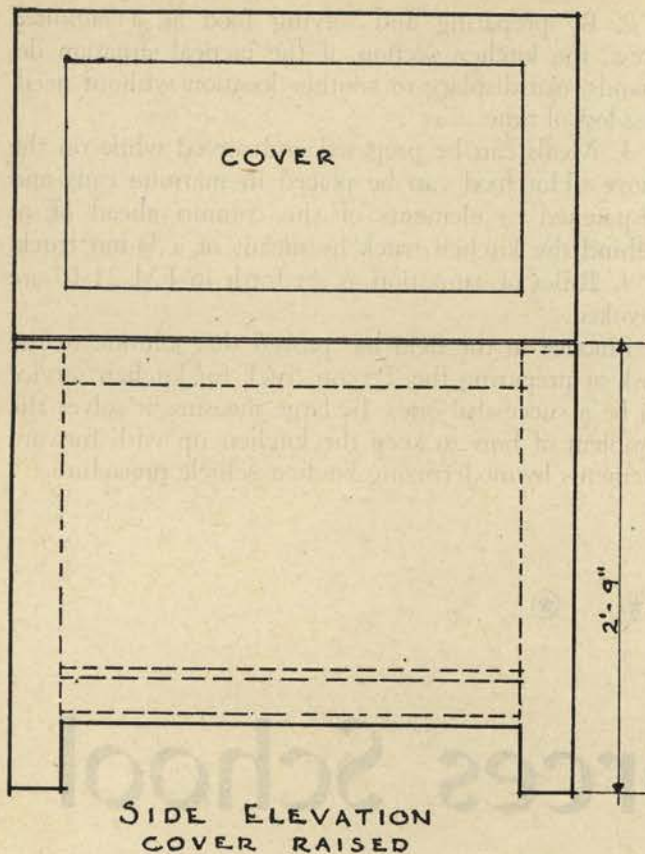
If the kitchen unit is halted for long periods, the crew may wish to prepare meals dismounted. An auxiliary work table may be stowed beneath the truck bed be-



Sketch 1



Sketch 2



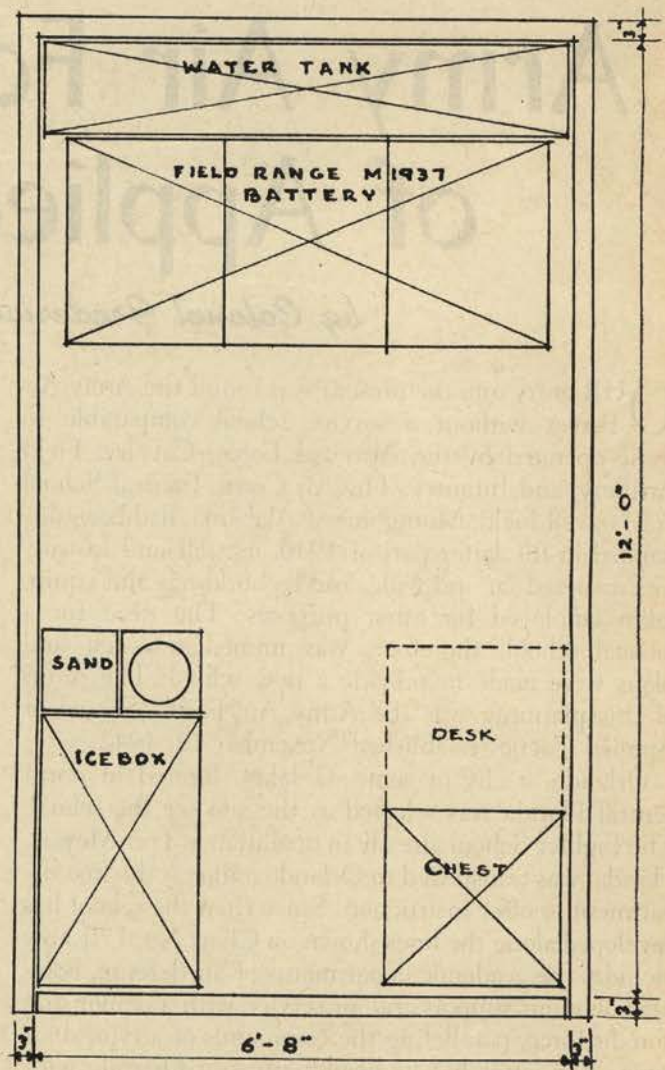
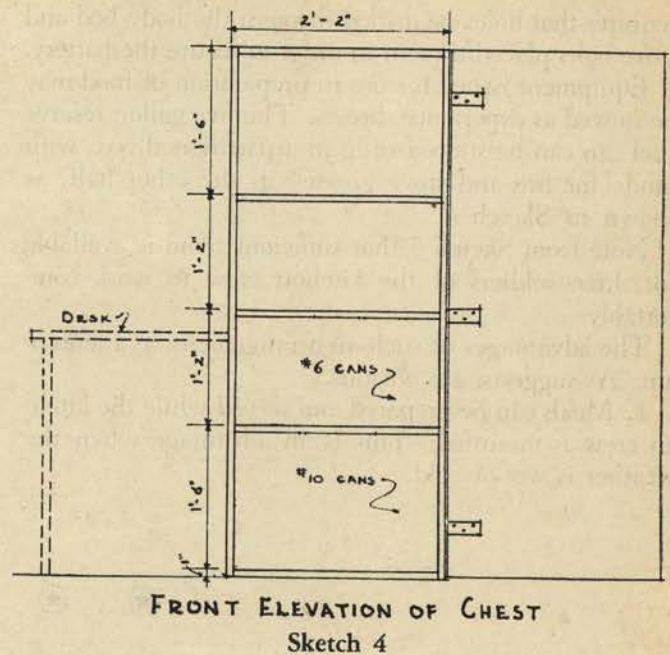
Sketch 3

tween frame and bed. This table, also built of scrap lumber, is of 2"x12"x14' stock cleated together with scrap iron and screws.

The kitchen fly on the march can be carried atop the cab on a rack equipped with straps or ropes for securing purposes. Ordinary suction cups affixed to the rack will hold it to the cab roof.

When halted, the fly is put up with speed by means of one upright and one ridge pole. The ridge pole is held in place at the truck end by a stove bolt secured to the bow with five inches exposed to the pole.

To install the M1937 Field Range battery properly



requires that holes be drilled through the body bed and stove bolts placed therein in order to secure the battery.

Equipment issued for use in preparation of food may be stowed as experience directs. The five gallon reserve fuel can can be stowed snug in a partitioned box, with sand (for fire and stove grease) in the other half, as shown in Sketch 5.

Note from Sketch 5 that sufficient room is available for three soldiers of the kitchen crew to work comfortably.

The advantages of such an arrangement, as Lieutenant "A" suggests, are obvious.

1. Meals can be prepared *and served* while the kitchen crew is mounted. This is an advantage when the weather is wet or cold.

2. By preparing and serving food as a *mounted* crew, the kitchen section, if the tactical situation demands, can displace to another location without needless loss of time.

3. Meals can be prepared and served while on the move. Hot food can be placed in marmite cans and dispatched to elements of the column ahead of or behind the kitchen truck by means of a ¼-ton truck.

4. Rules of sanitation as set forth in FM 21-10 are invoked.

Practice in the field has proved this solution to the task of preparing the 2½-ton truck for kitchen service to be a successful one. In large measure it solves the problem of how to keep the kitchen up with forward elements by modernizing kitchen vehicle procedure.



Army Air Forces School of Applied Tactics

*by Colonel Frederick R. Pitts, Cavalry**

OUR entry into the present war found the Army Air Forces without a service school comparable to those operated by the Armored Force, Cavalry, Field Artillery, and Infantry. The Air Corps Tactical School at Maxwell Field, Montgomery, Alabama, had been disbanded in the latter part of 1940, its staff and instructors scattered far and wide, and its buildings and equipment employed for other purposes. The need for a tactical school, therefore, was immediately felt and plans were made to provide a new school. The result of this planning was the Army Air Forces School of Applied Tactics established November 12, 1942.

Orlando, a city of some 31 lakes, located in north central Florida was selected as the site for the school. The Fighter School already in operation at Fort Meyers, Florida, was transferred to Orlando and was the first department to offer instruction. Since then the school has developed along the lines shown on Chart No. 1. It now includes the academic departments of air defense, bombardment, air support and air service with a demonstration air force, paralleling the commands of a typical air force. The latter has its headquarters at Orlando with

tactical units operating from ten airfields throughout the State of Florida.

AAFSAT, as it is familiarly known, officially opened April 5, 1943. Although a number of special courses are offered, the principal course is given to key officers and enlisted men of newly activated groups and squadrons. This course, lasting for a period of four weeks, is given by all four departments to selected air defense, bombardment, air support and air service personnel.

Recently another course has been added to the curriculum of the School of Applied Tactics, with its selection as a component of the new Army and Navy Staff College, together with the Command and General Staff School at Fort Leavenworth, Kans., the Naval War College at Newport, R. I. and Georgetown University in Washington, D. C. Operations of this college began in June as an agency of the joint chiefs of staff to train senior officers of the Army, Navy and Marine Corps in all phases of joint or coordinated operations involving land, sea and air. Approximately one month out of a total of four will be spent by these officers at Orlando undergoing instruction in air subjects.

In addition to the Army-Navy course and the courses offered by the Air Defense Department to antiaircraft artillery officers, the Air Support Department is con-

*On duty with Air Support Branch, Office Assistant Chief of Air Staff, Operations, Commitments & Requirements, Headquarters Army Air Forces.

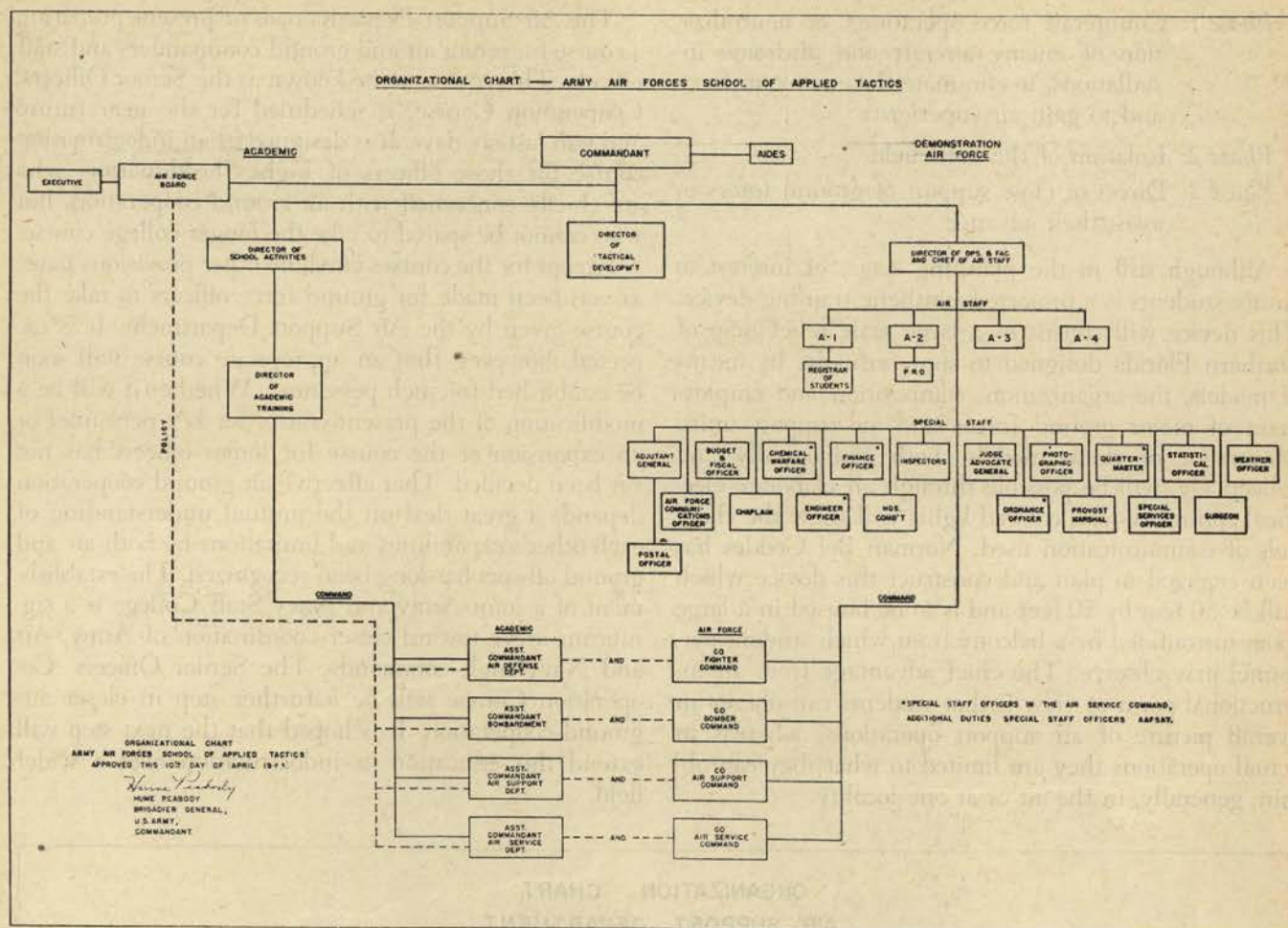


Chart No. 1

sidered of special interest to ground force officers.

The Air Support Department is headed by an Assistant Commandant, Colonel Morton H. McKinnon. It consists of two sub-departments, namely Academic and Tactical, organized as shown on Chart No. 2. The present course is divided into two, two-week periods. The first two weeks are spent at Orlando undergoing instruction given by the school and the department. The last two weeks are spent at the three satellite fields, i.e. Gainesville, Keystone Heights and Dunnellon, Florida, undergoing instruction in the field with the tactical units under the control of the Air Support Department.

At Orlando, students of all departments are given a series of Air Force orientation lectures. Air support students then receive a brief orientation on air support subjects after which they are divided into four main groups, according to the type unit to which they are assigned. Instruction is given by means of conferences, lectures, plays, demonstrations, map exercises and synthetic training devices.

At the satellite fields, students, still divided into four groups, receive instruction during the third week under direct control of their respective type units. This allows squadrons and groups to develop as a team and progress to the final week of tactical instruction under the direct supervision of the Tactical Sub-department, or Head-

quarters. During this final week, the Tactical Headquarters at Gainesville constitutes an Air Support Command and conducts air support operations employing the tactical units in attacks against an airdrome and supply installations and in close support of ground units. The latter operation, carried on in coöperation with ground units in training at Camp Blanding, Florida, is expected to develop into a proving ground to test the efficacy of latest air support methods of employment on close support missions.

Throughout the course emphasis is placed on tactics as applied to the individual and units, since students have completed their flying and technical training prior to coming to the school. All instruction, both at Orlando and in the field, is designed to teach the current methods of employing air support units in indirect and direct support of ground units. Because of the difficulty of coöperation between air and ground units in direct, or close support, considerable stress is placed on this phase of operation. In addition, new air support doctrine, gained as a result of lessons from the combat theaters, is interjected into the course as rapidly as possible. The soundness of the present doctrine was proven in the later stages of the recently concluded successful operations in Tunisia. This doctrine consists of three phases of tactical operations as follows:

Phase 1: Counterair force operations, or neutralization of enemy aircraft and airdrome installations, to eliminate the enemy air force and to gain air superiority.

Phase 2: Isolation of the battlefield.

Phase 3: Direct or close support of ground forces to assist their advance.

Although still in the planning stage, of interest to future students is a projected synthetic training device. This device will consist of a large scale relief map of northern Florida designed to show visually, by means of models, the organization, composition and employment of major ground forces and air support units. Movement of these models, both individually and collectively, will be possible through an elaborate electrical control system; colored lights will show the channels of communication used. Norman Bel Geddes has been engaged to plan and construct this device which will be 50 feet by 50 feet and is to be housed in a large room surrounded by a balcony from which student personnel may observe. The chief advantage from an instructional point of view is that students can obtain an overall picture of air support operations, whereas in actual operations they are limited to what they can obtain, generally, in the air or at one locality.

The Air Support Department is at present preparing a course for senior air and ground commanders and staff officers. This course, to be known as the Senior Officers' Cooperation Course, is scheduled for the near future and will last six days. It is designed as an indoctrination course for those officers of higher headquarters who are chiefly concerned with air-ground cooperation, but who cannot be spared to take the longer college course.

Except for the courses cited, no other provisions have, as yet, been made for ground force officers to take the course given by the Air Support Department. It is expected, however, that an appropriate course will soon be established for such personnel. Whether it will be a modification of the present course for key personnel or an expansion of the course for senior officers has not yet been decided. That effective air-ground cooperation depends a great deal on the mutual understanding of each other's capabilities and limitations by both air and ground officers has long been recognized. The establishment of a joint Army and Navy Staff College is a significant move toward closer coordination of Army, Air and Navy high commands. The Senior Officers' Cooperation Course will be a further step in closer air-ground cooperation. It is hoped that the next step will extend this education or indoctrination over a wider field.

ORGANIZATION CHART AIR SUPPORT DEPARTMENT ARMY AIR FORCES SCHOOL OF APPLIED TACTICS

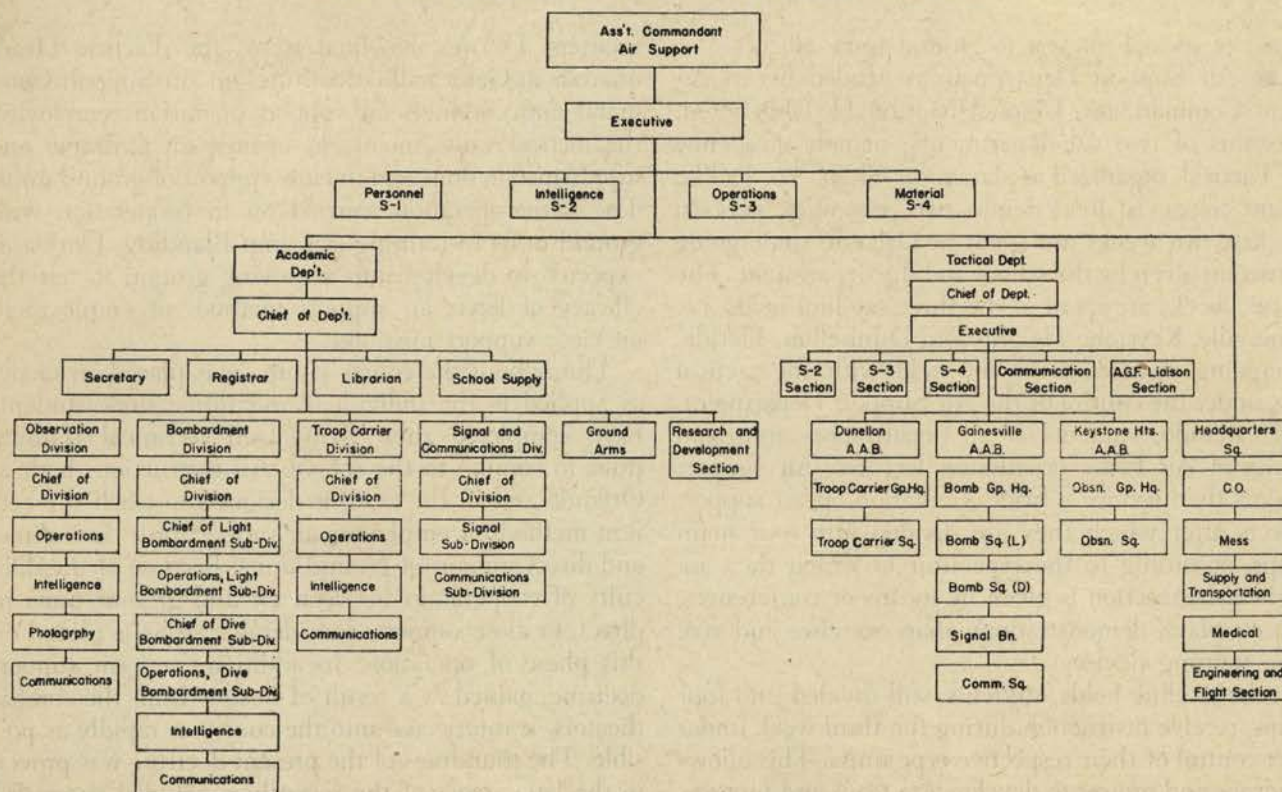


Chart No. 2

How Britain is Choosing New Leaders

by John Cashel

IN rating basic intelligence, irrespective of social standards, as the first quality in finding the right or better job for man or woman, the British Army is making a truly democratic effort that offers equal opportunity to all. This experiment could be called *Scientific Selection of Personnel*, but it is modestly designated simply as Selection of Personnel. Adaptable to many walks of life, its development will help in the stern days to come in making the most of the native ability of Britain's forty-five million population.

Not long ago, men seeking a commission would appear for a brief ten minutes before an old-style board, which on that short acquaintance would judge them fit or unfit for Officers' Cadet Training Unit.

Now three eleven-hour days, crowded with searching subjective and objective tests of men living in closest contact with their examiners, determine the ability of sixty men (the twice-weekly intake) to command.

As the candidates gather in the mess, the board's president, a progressive-minded Staff College "sapper" colonel still in his mid-forties, at once puts everyone at ease. "We'll know you here by numbers, not names," he says. "There'll be no ranks among you. You'll all be treated as officers. We'll all take meals together. We've no Gestapo here; no microphones in your rooms! So just be yourselves.

"We've no 'old school tie' bias. Every man has the same chance. Public and elementary schoolboys each have something the other doesn't have. We want to find out what it is so that we can help you."

The board consists of the president, his deputy (a colonel who devised some of this board's tests), three military testing officers, the medical psychiatrists, a psychologist, and a visiting member (a commander from a field unit). The final pass or fail, and grading, is based on their several opinions, all independently formed.

The president and deputy each take thirty candidates under their wing. Each military testing officer takes twenty, split into groups of ten. Where the psychiatrist's view is considered helpful, candidates are referred to him.

THE SITUATIONS TEST

The first series of tests are the outdoor military problems, which put *basic intelligence* as the first of the essential qualities of leadership—a capacity to think and observe quickly.

At a typical candidates' class the M.T.O. began by

saying, "*Spontaneous situations* first. I want any one of you to imagine a military situation you ten men can tackle, make a plan, put it into action."

In forty-one seconds the first leader had out of the blue invented an enemy attack, devised his plan to meet it, and was shouting his orders. Taking command, he put his plan into operation as if doing the real thing on the battlefield. Seven men in turn devised situations and plans and enacted them. Sometimes, varying or changing a plan, someone else took over from the original leader.

Three men hung back. One was so strung-up that his face twitched nervously. An incident was devised to help them. Five men were designated "looters," and the other five told to arrest them. A bit of rough-and-tumble horseplay resulted, with everyone tussling and rolling in the mud, laughing and relaxing. The effect was magical. The nervous man immediately led with the next situation, as then did another laggard.

Imagined by the men themselves, these unset situations are of endless variety. Constantly some plan is unsound, something goes wrong, something is forgotten. Whose quick intelligence spots it?

This method, by which England has found new officers to re-build her army since Dunkirk, can be a formula, not only for the selection of commissioned officers, but for the selection and promotion of non-commissioned personnel.

One by one are revealed flashes of leadership and command, imagination, common sense, planning ability, strength of personality, enthusiasm, alertness. If a future candidate does not have these qualities, it will not help him if he learns of the tests in detail from his pals. He will get his mind made up and fumble on finding that things are not working out the way he planned. Fluidity is the essence of these tests. Basic tests are much the same; but others develop individually as a man's abilities and weaknesses show themselves.

Next, each group is confronted with *practical situations*. With the aid of a few "props" such as might be found on the battlefield, such obstacles as a barbed electric fence and a twelve-foot-wide minefield are crossed without being touched.

Although some physical fitness is demanded, every-

where the probe is for the sharp eye of native intelligence. The probe demands speed, but not the perilous haste of impetuosity. Seconds matter, but the extra one well spent in thought or observation is not lost in the end. "Leap fast, but look before you leap!" is the best motto.

In one such probe in the semi-controlled *narrative situation*—a Commando raid on a radio station in search of a box containing a secret radio device—it was the *thinkers* who got the marks.

The same was true in an *individual situation*, where a man suddenly faced simultaneously with an enemy patrol and a burning house had to act swiftly before the enemy was on top of him.

Going over an ingenuity course (crossing a broken bridge, scenting a track, negotiating another minefield) calls for several qualities other than "from-the-book" knowledge. The same is true with an original tug-of-war, where a rope is a "front line," with two ten-men teams facing each other from either side of it. Each team concocts a plan, and by frontal and flank attacks or encirclement, push or pull the rope forward to force it over an object representing a town in the other's rear.

The Army's new examiners (who themselves are appointed on similar principles) are down to bedrock intelligence in these basic tests. The incapacity of many men to grasp their novelty is itself self-revealing.

The tests end with a scene probably unique till recently in military annals. The ten men, who are all able to observe everyone else's performance, sit down in their sleeping hut and secretly ballot for the candidate they would most willingly follow if they were in a tight corner surrounded by the enemy, and had to fight their way out or had a chance of getting away by skill and cunning. This double test of judgment—the highest aggregate vote giving the leader—is significant in showing what the men themselves think of each other; but it does not affect a candidate's chances.

THE PSYCHOLOGIST'S JOB

The second day the candidates are given the psychologist's reasoning and basic intelligence tests, and personality pointers. Singly these pointers seem meaningless, but they add up to a composite picture of certain qualities, good or bad, in a leader.

Similar self-revelation is sought when lantern slides, each of a "problem picture," are flashed on a screen. Candidates have to imagine and write down what led up to the picture, what the characters thought and felt, what was the sequel.

Next they write a brief appreciation and depreciation of themselves—what their best friend and worst critic might say of them. All are high-speed tests—their value lying in a quick, unstudied response.

The psychologist also has candidates fill the usual forms that carried such weight at the old-style board's ten-minute interview, but are now a fractional part of the exhaustive three-day trial.

In one questionnaire, a candidate sets down his name, regiment, age, what unit he wants a commission in, education. In another he answers confidential medical questions about his health, parents' ages or cause of death, occupations of father, brothers and sisters. By the time candidates come to be interviewed, the board has before them a detailed dossier on each man's performance.

President or deputy now adds to the general picture his own report on the man's personality and background, experience, military interests, knowledge of current affairs, officer-quality.

One-third of the men interviewed are bright to brilliant. A third average. A third so deficient that they might be considered as getting more than a square deal in being tested for officer training.

From one class there was a man who could not point on a map to the Mediterranean. Another located an enemy country in the heart of an Allied one. Another located a big British army on the Rock of Gibraltar, and said the Allies were advancing on a battle front where fighting ceased a year ago. Significantly, all three were the lowest-rated of their group in the psychologist's tests that aimed at discovering basic intelligence and not knowledge.

DISCUSSION

The president's "lecturettes," held in a room representing a company commander's office, bring out still another officer-quality angle. A candidate is seated at the commander's desk, and handed a slip of paper setting down a problem. Asked how he would deal with it and the man concerned, he is allowed to demonstrate his answer when another candidate enters and stands before him. Each man in turn takes the commander's place with a new problem; each has only seconds to think it out before addressing the entrant. This is "brains-trusting" to practical purpose!

There is more of this in the group discussions. During one distinctly novel discussion each candidate was asked to name any celebrity that he would like as companion on an imaginary train journey from London to Edinburgh in order to question him.

The first man said: "General Eisenhower. I want to ask him if he thinks America so far is pulling her weight in the war?"

"You be Eisenhower and answer his question," said the deputy president to another candidate.

Without warning, the candidate questioned had to project himself into Eisenhower's shoes and answer from his point of view. Easy? Well, try it in your own family circle!

It is just one of scores of devices Britain's army is employing to make sure that no half-wit, whatever his social standing, gets charge of the lives of his brothers on the battlefield.

THE MEDICAL PSYCHIATRIST

About a third of the men are interviewed by the medi-

cal psychiatrist. One candidate had some excellent qualities but a puzzling lack of leadership and aggressive spirit. Might this cause him to crack up under stress on the battlefield and let his men down? Was the defect superficial, due perhaps to nervousness, and quickly remediable? Or was it long-standing, probably incurable? All tests so far, while revealing the weakness, had failed to give the answer. Could the psychiatrist find it?

The candidate at once saw that his questioner wanted to give him his vote if he could, and most readily answered the questions, which were quietly put in a friendly way. They began with, "Tell me about yourself from as far back as you remember."

Bit by bit was built up the history of a small boy so devoted to a brother two years older than himself that he went everywhere with him till far into his 'teens. Though now in his mid-twenties, he didn't bother much about girls. He had one he once thought was *the* girl, but found he forgot her within a week of joining the Army. Since then he had taken two or three others out on occasions. He was not worried by that sort of thing and much preferred his new army interest.

The psychiatrist had found a double answer to the question set him. How it might affect a leader in battle, he and the military president jointly decided.

The Army's psychiatrists are specialists above reproach. They are headed by Britain's most distinguished exponent of this mind-healing science. These fully trained doctors are not to be confused with the unqualified "psycho-analysts" who prospered after World War I.

Never before have the military expert and the psychologist worked so closely together and so successfully, since nearly one hundred per cent of those they jointly select for training are graduated as officers.

FINAL JUDGMENT

The last hours of the three day tests are devoted to the final judgment. Before the president or his deputy is the complete data of every man's performance. Around him sit the military testing officers, psychiatrist, psychologist, and visiting military member. Each examiner has from his particular tests formed his independent opinion.

A candidate steps into the room, announces his name, rank and regiment. "You want a commission in light ack-ack, and your age is thirty-two?" asks the president. "Yes, sir," and number one goes out, is assessed and graded; then the next man comes in.

The judgment battle rages around the borderline cases (about a third of the total), for every examiner feels a grave responsibility in voting a "bad risk" for training to command men.

In one typical contest case, when the president asked for independent opinions, the fight went like this:

M.T.O.: "I pass him, despite his faults. There is

something in him, and incidentally, that is supported by eight men in his group of ten balloting for him as leader."

Psychiatrist: "I'm for him, too. He's had strong feelings of inferiority all his life, but has struggled to overcome them. I think he has too much guts to crack up under battle stress."

Psychologist: "Moderate intelligence."

Visiting colonel: "I gave him a D (doubtful)."

President: "So did I, but the strong support he gets from both the M.T.O. and the psychiatrist tips the scales in his favor. I'll pass him. He has a dull, dreary voice, but the Officers' Cadet Training Unit can do something with that."

A failed borderline case was summarized as follows:

"M.T.O. passes him," said the president. "I found him full of leadership and self-confidence. But his basic intelligence is well below average, and this is confirmed by the psychologists' tests. Pity, but we dare not take the risk of putting him in charge of men's lives. He'd probably blunder badly in a crisis. We must fail him. U (unsuitable)."

Another man set a different problem.

"Intelligent. Good appearance. One is immediately prejudiced in his favor," said the president. "But he lacks physique and wants a commission in the infantry. Ask him if he will consider going into a static unit. If so, we'll see what we can do for him. Decision postponed."

The biggest thrill was not over a borderline fight, but at a unanimous pass. A diminutive, insignificant-looking fellow, well over average age, entered the room, smartly announced himself and departed. He was Britain's *Little Man* in khaki, overflowing with fighting spirit.

"That's the little pay corps clerk," said one member. "Helped far stronger fellows over the obstacles; heaven knows how he did it," said another.

"Intelligent. Full of guts, his personal appearance belies him. Poor physique, but he wants a commission in a static unit and shall have the chance of getting it," summed up the president. "We'll BB him (as high a grading as given to any man of that intake of sixty) to help him at the O.C.T.U."

Most candidates feel that however they fare, the board does its utmost in the three days to find the best leaders among them. They are tested for basic intelligence and a combination of other qualities that make a good officer, but many good men have different qualities that fit them best for the jobs they are doing already. They feel that the Army has "got hold of something" unequalled for finding the right man for training for the right job.

Dunkirk re-started the British Army from scratch and left room for new ideas. To make the utmost of their man-power, the Army started scientific Selection of Personnel, offering, as never before, equality of opportunity. In this, the Army feels that it has evolved a distinctly British product.

DO'S and DONT'S

In Tactical Training

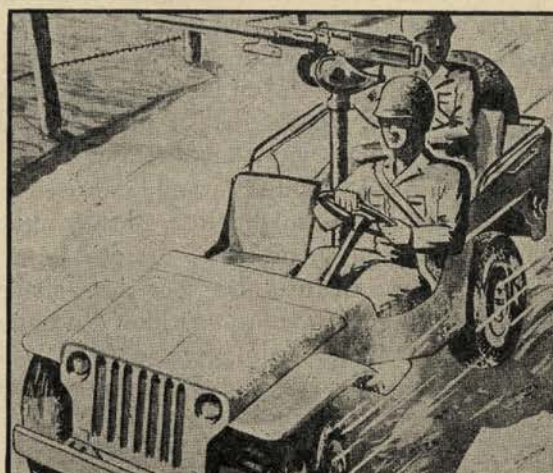
The following illustrations are taken from *Tactical Training Aid*, issued by the Headquarters of The Armored Force. We commend it for its simplicity of detail and thoroughness of purpose and submit it for your careful study.



PROVIDE BRIDGE GUARDS, CONTAMINATED AREA GUARDS AND OTHER DETACHED MEN WITH FOOD AND WATER. IN SOME INSTANCES MEN WERE LEFT FOR 48 HOURS OR MORE WITHOUT FOOD AND DRINK.

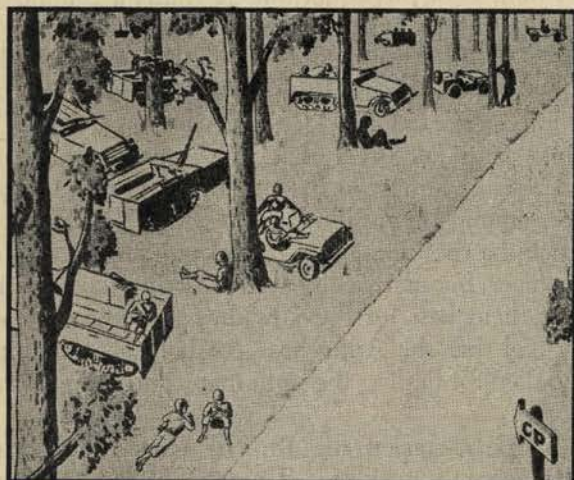


THIS WEAPON CANNOT BE PUT INTO ACTION QUICKLY.



THIS CREW IS READY FOR ACTION.

MAN THE WEAPONS. BE PREPARED AT ALL TIMES.



THIS INVITES DISASTER.



DISPERSE VEHICLES, DIG SLIT TRENCHES, AND MAN WEAPONS.

DO NOT CROWD VEHICLES AROUND THE CP, OR FAIL TO PROVIDE LOCAL SECURITY. DIG SLIT TRENCHES.



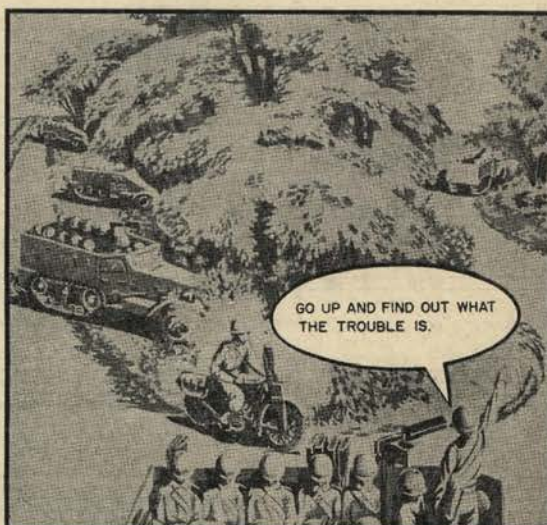
DO NOT LOCATE TRUCKHEAD AT PROMINENT INTERSECTION. THIS TRUCKHEAD IS OPERATING AT A CROSSROAD. IT IS DAYLIGHT. NO COVER IS AVAILABLE.



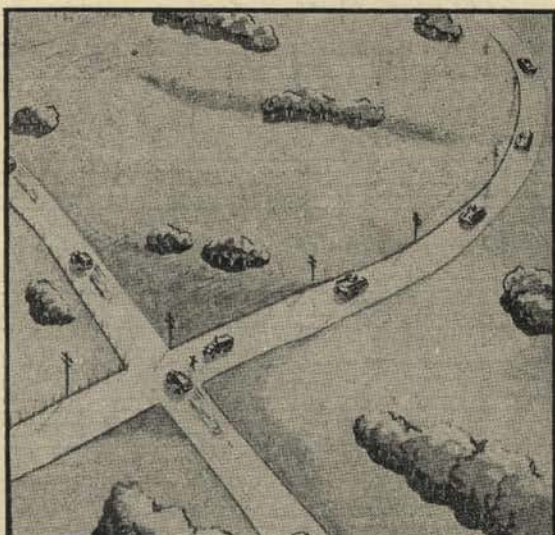
KEEP MEN AND VEHICLES UNDER COVER. HERE A MESS LINE FORMED IN THE OPEN.



THIS UNIT WAS FORCED TO HALT BY VEHICLES IN FRONT. UNIT COMMANDER MADE NO ATTEMPT TO FIND OUT THE TROUBLE. MAINTENANCE CREW DID NOT SIGNAL VEHICLES TO PASS. NO COVER TAKEN. VEHICLES JAMMED ON ROAD.



IF UNITS IN FRONT HALT SEND SOMEONE FORWARD TO DETERMINE THE TROUBLE. MOVE OFF THE ROAD TO COVER.



MAKE SURE ROADS WILL BE AVAILABLE WHEN MOVEMENT IS ORDERED. THIS COLUMN WAS BLOCKED BECAUSE SOMEONE FAILED TO CHECK ROAD



CHECK COORDINATES BEFORE SENDING CP LOCATION.

Dedicated to The Cavalry School at Fort Riley, Kansas

Hit the Leather

* Cavalry Song

Words and Music by

Capt. MEREDITH WILLSON, A.U.S.

Allegro

Piano It's a far cry — from San Juan Hill To the
gal-lant Twen-ty-sixth at Ba-taan — Now the spurs blend their jin-gle with the
clank of a tank; — Our scouts re-con-noi-ter to pro-tect the Yan-kee flank; — Our
mech-an-ized se-cur-i-ty is mon-ey in the bank! It's the Cav-al-ry roll-ing
on. — We're gon-na "Hit the leather" and ride, Take it all in our stride,
"Hit the leather" and ride all the way, — And though we're glad to know the Infan-try's be-
hind us; — They'll have to eat Caval-ry dust to find us. — Let eve-ry
son of a gal-lap-in' Yank Jump in a saddle or tank, — "Hit the lea-ther" and ride all the
way. — Tho' some are mechanized, you'll rec-og-nize the out-fit, — We're rid-in'
hell-bent for lea-ther to-day. — *Fine.* Let your spurs dig in! —
Let the charge be-gin! — Let the
or-der to ral-ly — Roll through the val-ley like the roll of
drums. — Let the hoofs ring true — in a wild tat-
too! — Col-onel Ted-dy — and Cus-ter —
know how we'll mus-ter when the great day comes — D.S.

Book Reviews

THE USE OF AIR POWER. By Flight-Lieutenant V. E. R. Blunt, R.A.F., with an introduction by Winston Churchill. Military Service Publishing Company. Appendages. \$1.00.

After serving for two and one-half years with the R.A.F., Flight Lieutenant Blunt resigned his commission in order to publish this book, which in 1941 the Air Ministry termed, "too controversial, too critical of Air Ministry policy, strategy and tactics" for publication.

To counteract the attitude of those who think that air power alone is sufficient to win a war, Lt. Blunt first lists and analyses the limitations of air power, then discusses the uses to which it best can be put. To back his conclusions, he gives a brief résumé of the employment of air power by Germany in the Battles of Poland, Norway, Holland-Belgium-France, Britain, Greece, and Crete in contrast to its use by Great Britain in the first and second Libyan Campaigns, Abyssinia and Syria. "The Germans," he says, "seem to have thought out the use of air power and its combined employment with land forces and to have trained on lines which have been a model to the rest of the world."

Lieutenant Blunt then analyses the established principles of war and superimposes them upon the capabilities and limitations of the air arm. He objects to the theory, originally practiced by the R.A.F., that any one branch—air, land, or sea—is or can be independent of the others in the efficient performance of their combined mission—destruction of the *enemy*. He recommends a coordinated attack force with a unified command—*three services, one head*.

Because many of the recommendations of this book have been successfully applied during recent campaigns in Tunisia and Sicily, it becomes of even more value to those who would understand new tactics in warfare.

✓ ✓ ✓

AMPHIBIOUS WARFARE AND COMBINED OPERATIONS. By Lord Keyes. Macmillan Co. \$1.50.

To those who consider that Combined Operations originated with World War II, this little book will prove most enlightening.

Lord Keyes, then Sir Roger Keyes, conceived, planned and personally commanded the heroic commando raid on Zeebrugge in the last war. He traces the history of Combined Operations from Wolfe's capture of Quebec in 1759, through the China War in 1900, the Dardanelles Campaign in 1915, operations on the coast of Belgium in 1918, to their present use in this war.

This timely book has most fortunately been bound in a small compact volume, light, and easily carried.

ARMORED WARFARE. By Major General J. F. C. Fuller. Military Service Publishing Co. \$1.00.

This book, fourth of the series of *Military Classics* being published by Military Service, is an annotated edition of FSR III. It was first published in English in 1932, at which time it received scant attention.

In Europe the book was highly acclaimed. According to a Czech officer the Germans regarded it as their bible. Timoshenko ordered that FSR III be made a "table book" to be kept at every officer's elbow for ready reference.

✓ ✓ ✓

HOW THE ARMY FIGHTS. By Captain Lowell Limpus. D. Appleton-Century Co. \$3.00.

This book should prove of considerable interest. It gives, in logical sequence and understandable language, an excellent coverage of the army of today, its weapons and training and the job it is being equipped to do. Captain Limpus points out the changes of technique necessitated not only by the last war, but even by the opening months of World War II.

His comments on cavalry are of particular interest: "Cavalry still isn't regarded as obsolete, despite a popular impression to the contrary—and we mean horse cavalry, not the mechanized variety. This is due to one inescapable fact: A horse can go a lot of places where a plane can't fly and a motor vehicle can't run. And he can go there faster than a man can walk—which gives the horseman a distinct advantage over infantry."

There are adequate maps for the important military areas mentioned and tactical diagrams for the problems discussed.

✓ ✓ ✓

AIRBORNE INVASION. By John Hetherington. Duell, Sloan and Pearce. \$2.50.

John Hetherington has seen longer service in the Middle East than any other war correspondent. He landed in the battle zone in February 1940, covered the Libyan Campaign under Wavell, the fighting in Greece, Crete, Syria, the Libyan Campaign of 1941-42, the retreat to Alamein in June 1942, the Alamein victory in November 1942, and then remained with the British Eighth Army until he returned to Australia in the spring of 1943.

Airborne Invasion is no observer's book. It is a participant's account of the defense employed in Crete against the only full scale airborne invasion carried through in this war. This book, written in a dignified form, will be read with more care and interest than is usually shown to correspondent's reports, because it has been written with the benefit of official records. The author has checked his facts with at least a hundred officers and men who fought in Crete. This small, compact volume should be of value to men interested in the problems of airborne invasion.

Officers' Guide

1943 Edition

Incorporates many of the developments and changes that have occurred during the past few months. . . . Contains advice on Uniforms, Equipment, Military Courtesy—much other inspiring counsel on the problems facing the officer on active duty today. 552 Pages; Index.

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No. C-3 on Cavalry Journal book list.

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Long recognized as an authority on Army paper-work, this book's usefulness is now further increased by numerous revisions and added matter.

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No. C-6 on Cavalry Journal book list.

How to Conduct Army Correspondence

By Henry C. Coleron and
F. Allen Burt

An easy and ready reference aid to authoritative procedure in all phases of the handling of Army correspondence.

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The Cavalry Journal

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Washington, D. C.

THE UNITED STATES AND ITS PLACE IN WORLD AFFAIRS, 1918-1943. Edited by Allan Nevins and Louis M. Hacker. D. C. Heath and Company, 1943. \$3.25.

Since it is no longer possible for the United States to insulate itself from the rest of the world, and since what happens to other nations affects deeply our own lives, a book like this one is important for the contribution that it makes to better international understanding. It differs from other surveys of this period by interpreting world events solely from the American standpoint—as they affect American ideas, aspirations, and interests. This clearly defined point of view helps to give the book unusual unity and coherence, in spite of the fact that a tremendous variety of matters are treated—political, economic, social, and moral.

Over a dozen different authors, all specialists in their respective fields, have made sound and realistic contributions of material. Although designed for Army and Navy courses, this book presents new perspective that makes it of more than current importance to the general reader.

1 1 1

MEDITERRANEAN ASSIGNMENT. By Richard McMillan. Doubleday, Doran & Co. \$3.00.

BACK DOOR TO BERLIN. By Wes Gallagher. Doubleday, Doran & Co. \$2.75.

In *Mediterranean Assignment*, Mr. McMillan uses the first third of his book to describe the battles in defense of Greece and Crete. The rest of the volume is given over to the Eighth Army in the Middle East and North Africa, with particularly interesting chapters on Bir Hakeim and El Alamein.

The author's extreme admiration for General Montgomery has led him to give a detailed account of this undeniably great military leader. He also brings out the fact, frequently ignored, that the less colorful but astute General Sir Harold Alexander was the major strategist for the Eighth Army's successful third campaign in Libya.

Back Door to Berlin is the story of the American expedition to North Africa, its planning and accomplishments.

Much space is given to the story of American-French negotiations. Although descriptions of the planning and accounts of the fighting are interesting, it is still too soon after the *coup* to expect all of the facts to be aired, and Mr. Gallagher is not entirely convincing.

These two books, however, give a good picture of the battle for North Africa from both the British and American angles.

1 1 1

TWELVE MONTHS THAT CHANGED THE WORLD. By Larry Lesueur. Alfred A. Knopf Company. \$3.00.

Mr. Lesueur's book is primarily a diary of personal experiences in Russia during 1942. The best writing in the whole volume is in the early chapters describing the convoy on its way from Scotland to Russia. It is interesting casual reading, but by no means an important addition to war literature. To those who have read *Journey Among Warriors* it will have nothing of fundamental value to offer.

250 TEACHING TECHNIQUES. By Lt. (jg) Edward C. Estabrooke, U.S.N.R. and Lt. R. Randolph Kardi, U.S.N.R. Bruce Publishing Co. \$1.25.

This concentrated but comprehensive book covers the following subjects: Qualities of a Good Instructor; How to Conduct Shop Activities; How to Plan and Present a Lesson; How to Conduct Demonstrations; How to Use Oral Questioning and Discussion; How to Use Motion Pictures; How to Maintain Good Discipline; and many other subjects of interest to the man instructing men. Under these chapter headings will be found the solutions to most of an instructor's problems.

KILL OR GET KILLED. By Major Rex Applegate. Military Service Publishing Co. \$2.00.

Much more than just another book on hand-to-hand fighting, this manual includes instruction in unarmed combat, disarming, knife fighting and methods of using inconvenient weapons.

A brief concluding chapter outlines the Japanese soldier's use of the bayonet and his close combat methods, based on reports of observers who have recently served in the Japanese army.

ADMINISTRATIVE & SUPPLY NOTEBOOK. Military Service Publishing Co. \$.75. 3½ by 5½ inches.

Two-thirds of this convenient pocket sized notebook contains handy digest of regulations governing unit administration and supply. The latter third consists of lined pages for personal notes.

THE OFFICERS' GUIDE. Military Service Publishing Co. \$2.50.

COMPANY ADMINISTRATION. By Lt. Col. C. M. Virtue. Military Service Publishing Co. Cloth \$2.00; Paper \$1.50.

About a quarter of the material in the new *Officers' Guide* has been rewritten to bring the book up-to-date.

Those officers who have used the *Guide* know how invaluable it is. New officers will find in it the answers to almost all of their military, social and personal problems.

Company Administration has stood for many years as a "bible" of its kind. This thirteenth edition has all of the latest information. It is the only adequate summary in print of the complicated maze of Army Regulations governing administrative detail.

These two new editions of old standbys warrant the welcome that they will receive.

A DEFENSE MANUAL OF COMMANDO JIU JITSU. By Irvin Cohn, B. M. Wilcox and Co. \$1.00.

Prepared by a Marine Corps instructor, this manual relies almost entirely on pictures and sketches to teach the art of hand-to-hand combat. It is a handy, brief outline of the essentials for self defense, presented in a clear, easily understood form.

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EARL C. O'ROKE

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1719 K Street, N.W.

Washington, D. C.

THE TOUGHEST FIGHTING IN THE WORLD. By George H. Johnston. Duell, Sloan and Pearce. \$3.00.

George Johnston has covered the New Guinea campaign and every battle front in the Pacific from Darwin to Buna. His account does not come under the heading of "pleasure reading." It claims to be an uncensored account, and as such, presents war as the Australian and American men have seen it in the Southwest Pacific. Victory and retreat are pictured vividly and with intimate detail.

We have had few books on the Pacific action since the fall of the Philippines, but this one is well worth waiting for.

✓ ✓ ✓

BLOOD FOR THE EMPEROR. By Walter B. Clausen. D. Appleton-Century Co. \$3.00.

Mr. Clausen has woven into a very interesting book, narratives of the war in the Pacific as told by men who participated in the various actions. The period covered is from December 7, 1941 to the present day. Chapters are given to the various phases of the war as fought by the land, sea and air forces.

The book does not pretend to be a military manual. It is intended to be a picture of the Pacific war as viewed by the men who are fighting it. Personal experiences make it a swift-moving and thoroughly readable volume.

✓ ✓ ✓

THE SPANISH LABYRINTH. By Gerald Brennan. Macmillan Company. \$3.75.

This book endeavors to explain the enigma of the Spanish civil war by a detailed account of the modern social and political history of the country. It is indeed a labyrinth, albeit an interesting one. The reader is left with the feeling that the only possible road to advancement is through complete rebuilding, from the ground up.

Mr. Brennan served through World War I in the British Army, and then settled in Spain to farm. He obviously knows his adopted country and its people. It is quite probable, however, that many readers will not agree with some of his deductions.

✓ ✓ ✓

STALWART SWEDEN. By Joachim Joesten. Doubleday, Doran & Co. \$2.50.

Joachim Joesten, with a background of six years as a foreign correspondent in Scandinavia, presents a timely and comprehensive study of Sweden's place in the war world of today.

Several years ago a number of books were written on Sweden's government, the ideal manner in which many of the social problems were handled, and the smoothness with which Swedish democracy functioned. Mr. Joesten outlines all of these political, intellectual, cultural and industrial phases of the national life, and the influence that they have had on Sweden's policies.

An excellent index enhances the value of this book as a source of information for readers interested in the Swedes and their potential war status.

Here Are This Month's New Books of Current Interest

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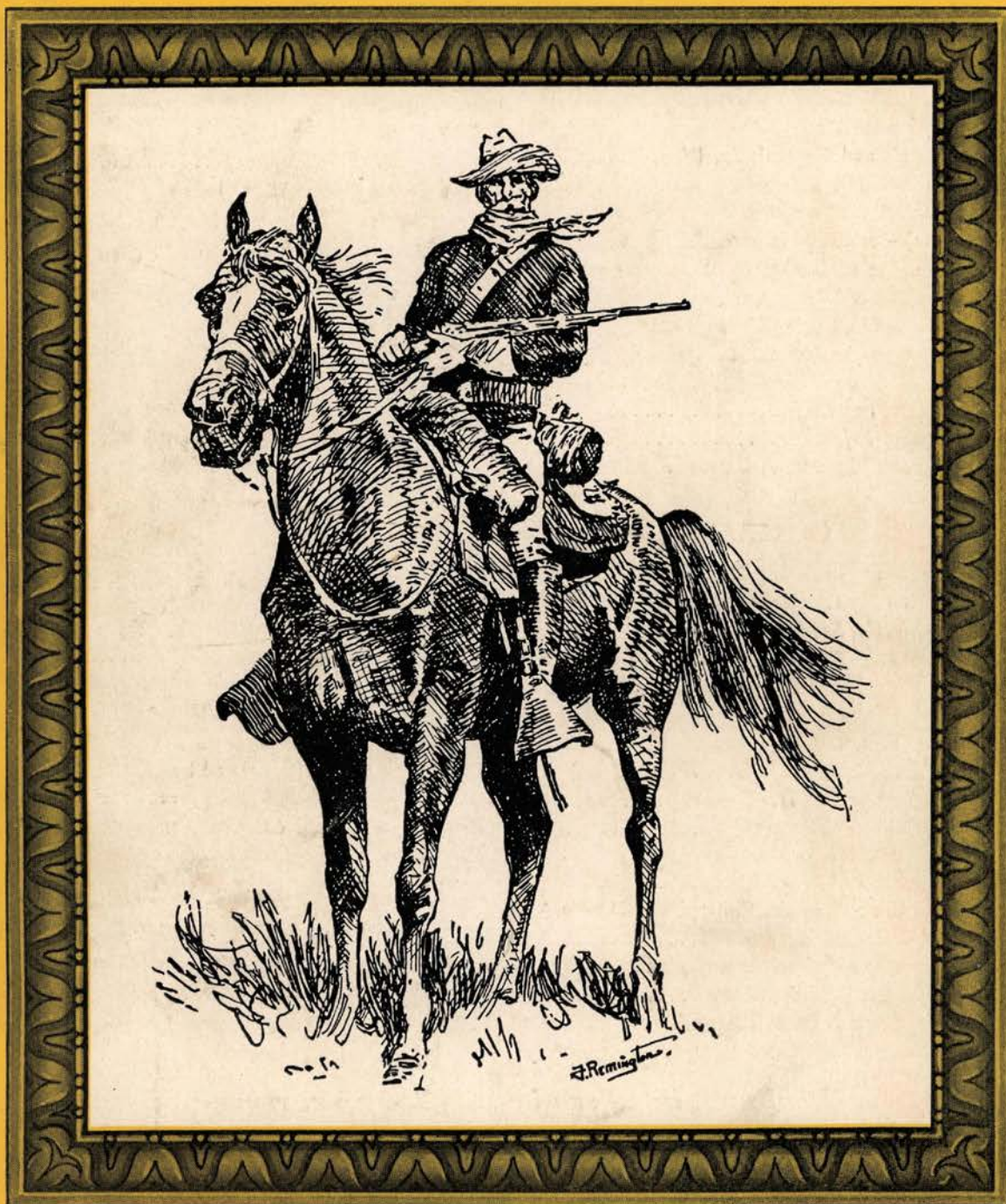
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Cavalry and Tanks

Capture Taganrog*

by Guards Colonel G. Valyushkin

IN the course of this war Soviet cavalry units have frequently acted in conjunction with tank groups and, jointly with them, have achieved not only tactical but also strategical successes.

One of the most instructive instances of coördination between these two mobile arms was the operation that ended in the encirclement and annihilation of the German army group at Taganrog. In this operation, large Soviet cavalry and armored forces broke through to the enemy's rear and, advancing rapidly southward to the Azov coast, smashed German resistance and contributed materially to the success of the operation. Throughout this difficult raid, cavalry and armored groups acted in closest coöperation. The result was that the German army group at Taganrog lost all of their communications and, in spite of desperate attempts to break out of the encirclement, were unable to do so.

FORMS OF COMBINED CAVALRY-TANK EMPLOYMENT

Coördination between cavalry formations and tanks may take diverse forms. Sometimes cavalry and tanks act independently while performing a common mission and merely maintain a general agreement. At other times, a tank group may be assigned to a cavalry formation and take its orders from the cavalry commander. Again, a situation may arise where it is found expedient to exercise both forms of coördination—strategical and

tactical—with a part of the tanks acting independently and a part assigned to cavalry. Naturally, on each occasion, a careful study of conditions must be made to decide which forms and methods of coördination are likely to be most effective.

TANKS ON THE CAVALRY'S FLANKS

How did cavalry and tanks coöperate in the Taganrog raid?

First, it was necessary to insure reliable protection for the flanks of the cavalry while it opened a breach in the enemy's defenses. Accordingly, armored formations were thrown out on both flanks.

The task of the right flank formation was to parry any blows that the enemy might deal from the west. It was highly likely that the Germans might try to stem the cavalry advance by attacking the right flank, or they might even attempt a breakthrough in the hope of rescuing their Taganrog army group. In fact, the Germans did make such an attempt. They brought up fresh reinforcements and attacked in force with up to two regiments of infantry and fifty tanks. This attack was made in coördination with an attack from the east by part of their Taganrog group, in the hope of closing the breach and enabling their surrounded forces to retire to the west. The presence of the Soviet armored detachments on the flanks of the cavalry frustrated the enemy's plans.

The armored formation on the cavalry's right flank then turned toward the enemy's Taganrog group, which possessed large numbers of tanks and self-propelled guns. Advancing somewhat ahead of the cavalry, this formation encountered the powerful German screening

*By cable to THE CAVALRY JOURNAL from the War Department, U.S.S.R., Moscow. The units involved in the Taganrog operation were not listed in this article, but Stalin's Order of the Day for August 30, 1943 (printed, September-October issue) commended two cavalry divisions and two tank brigades for action in the victory at Taganrog.

The Nazi defeat at Taganrog is second only to that at Stalingrad. In both cases, the Red Army victories resulted from the successful employment of combined cavalry-tank formations, used as great, mobile pincers which surrounded the enemy and brought about his complete annihilation.



By secret paths, through fields and forests and across swollen streams, Cossacks make their way behind the German lines.

forces, intrenched in favorable positions, and helped smash the enemy's resistance.

Thus the cavalry was reliably protected on its right flank and, in case of need, could have called for support on its left flank. In both cases, coordination presented a particular difficulty, as the tasks had been laid down clearly in orders from the higher command.

Mutual information and close cooperation were maintained by wireless and by liaison officers.

TANKS SPEARHEAD ADVANCE

In addition to these two tank units on the flanks, this particular cavalry formation had its own tank groups assigned to it. In such a case, of course, coordination was even closer and was maintained by different methods. For instance, it was clear in advance that the raiding cavalry would encounter strong resistance. This had to be broken without delay in order to allow the Germans no time in which to re-form their defense. For this purpose, Major General Tutarinov's division of cavalry guards was assigned a tank group, which took its orders directly from the cavalry commander. The tanks advanced in the lead and, annihilating small scattered enemy detachments, blazed a trail for the cavalry. Here, coordination was constant and uninterrupted. It was



Sovfoto.

Tanks, advancing in coordination with cavalry, may cover the cavalry's flanks, spearhead the break-through for cavalry to exploit, or act independently under the cavalry command.

further maintained by personal contact between the cavalry and tank commanders, by wireless, and by dispatch riders.

STALINGRAD, TAGANROG

— and now —

Soviet Tanks-Cossacks Seal Crimea

By Henry Shapiro (United Press Staff Correspondent) Moscow, Oct. 29—Cossacks, narrowing the Nazi escape corridor in the Dnieper-Nogaïsk bulge to less than 80 miles, smashed the main enemy stronghold southwest of the Dnieper bend and advanced through weak resistance today in an attempt to trap hundreds of thousands of fleeing Germans.

The Cossacks were pounding toward the lower reaches of the Dnieper and a junction with General Ivan Konev's armies battling in the streets of the mineral center of Krivoi Rog, halfway across the Dnieper bend, to close one of the biggest Russian traps since Stalingrad.

Moscow, Oct. 30—Thousands of demoralized German troops cast aside their arms today in frantic flight from Soviet forces which had driven halfway across the Nogaïsk Steppes to within 40 miles of the last land exit from the Crimea.

Cossack flying columns slashed into the enemy rear and rounded up prisoners by the hundreds.

The Russian spearheads also were only 15 miles east of Kakhova, where they were expected to force the Dnieper and drive almost due north in an attempt to link up with General Ivan Konev's forces at Krivoi Rog and encircle the largest German army since Stalingrad.

London (Sunday), Oct. 31 (AP)—The second battle of the Crimea began today with General Feodor Tolbukhin's steppe legions hammering at its northeastern gate and plunging down the last 22-mile lap toward Perekop to slam shut that northwestern escape door on huge German forces in the peninsula.

In the south, Tolbukhin's cavalry-paced columns spread over the great steppe like a flood, reaching the shores of the Sivash or "putrid" sea, formed by a thin bar of land between the eastern shore of the Crimea and the Sea of Azov.

One Cossack column swept into Dmitrievka, 16 miles from the Dnieper at Kakhovka. The Russians thus were swinging into position for at least two crossings of the river, at Kakhovka and near Nikopol where Russian forces were beyond Blagovyeschenskoe, only 5 miles from the river.

Such crossings would strike the rear of reinforced Germans defending Krivoi Rog and the last remnants of German-held territory in the Dnieper bend.

London, (Monday), Nov. 1 (AP)—Sweeping up 200 more villages and reconquering nearly all the Nogaïsk Steppe, a Moscow bulletin announced, General Feodor Tolbukhin's hard-riding fourth Ukraine army captured Chaplinka, flanking the Perekop door in the Crimea 15 miles to the southeast, and reaching a point only 8 miles from the railway itself, which leads to Kherson on the lower Dnieper River.

On the opposite side of the big Black Sea peninsula other floundering German forces were declared cut to pieces by General Tolbukhin's tank crews and Cossack cavalry which hurled them into a death corridor at the northeastern door of the Crimea.

As the cavalry advanced farther southward, however, resistance grew more fierce. The Germans realized that the noose was being tightened around their necks. They threw out strong screening forces and launched increasingly ferocious counterattacks in an attempt to withdraw their Taganrog group westward. The counterattacks were particularly fierce in one area, where Germans had approximately 12 artillery batteries of self-propelled guns, many tanks, and a large force of infantry. These forces were supported by bombers, which launched frequent mass attacks (as many as 1,200 sorties in one day).

Naturally, these conditions called for different forms of coordination between tanks and cavalry. The cavalry dismounted and fought on foot. The tanks, acting as the cavalry's direct support, helped it in the attacks by demolishing the enemy's fire nests with their guns and by crushing the Germans beneath their tracks.

The Germans' frequent counterattacks were parried by fire from Soviet troops, or else by the stubborn defense on some one sector combined with a vigorous outflanking move on another. In former cases, tanks would fire from one position, while from another they would act as a main shock force in an outflanking maneuver.

In one area, German infantry columns, accompanied by about 100 guns, attempted to break through toward the west, but encountered one of the Soviet cavalry divisions. Roads along which the German forces were moving were clearly visible for a considerable distance. This made it possible to inflict heavy losses upon them by concentrated fire and cause them to recoil backward. The cavalry divisional commander had all of his available guns moved into open positions. It was expedient to launch tanks into the attack, as the enemy possessed formidable artillery, including self-propelled guns. The tanks, therefore, were ordered to fire from position. The enemy's losses in lives and matériel were heavy. After the action, the roads were littered with enemy corpses, shattered guns, and vehicles.

TANKS AS BATTERING RAM—CAVALRY EXPLOITS

At last the Germans' Taganrog group was annihilated and the Soviet troops, overwhelming and pursuing the enemy, began to advance westward. German tactics at this stage were subordinated to one aim—namely, to stem the advance at all costs. The natural terrain favored this, as the Red Army route of advance was intersected by a number of rivers, along which the retreating Germans erected strong intermediate defense lines. One such line was erected on the western bank of the River Gruzkov Elanchik.

A careful study showed that these defenses could best be breached by a strong armored shock force. On orders from the commander of the cavalry formation, all tanks assigned to him were united into one group and placed under the commander of one of the cavalry divisions. This powerful armored force broke through the enemy's defenses. The cavalry division, in mounted

order, immediately dashed into the breach and was soon followed by the remaining forces of the formation.

This action demonstrated another form of tactical coordination between cavalry and tanks, with the combined force used as a battering ram to force a breach in the enemy's defenses for cavalry to exploit.

COMPLETE COÖRDINATION

In subsequent fighting, forms of coordination were likewise modified to meet conditions. In a number of cases, groups of tanks were assigned to cavalry units for the performance of separate missions. If it was necessary, however, to form a powerful assault force, the tanks united into one group under the direct orders of the formation commander. This technique of coordination presented no particular difficulty, as Soviet cavalry had had considerable experience in cooperating

with tanks under the most diverse circumstances; while tank crews, on their part, did their utmost to facilitate constant and efficient collaboration.

The most important conclusion to be drawn is that in each particular case, careful study must be made of the conditions and utmost effective methods of coordination chosen to correspond with them.

On the organizational side, there are no serious difficulties to be overcome so long as cavalry, fighting dismounted, maintains communication with tanks in the same way as infantry would.

If tanks and cavalry are cooperating in an operation to outflank or surround the enemy, efficient and uninterrupted liaison is of the utmost importance. This can be achieved in many and various ways—from wireless and aircraft to personal contact between the cavalry and tank commanders.

Sovfoto Radiofoto.



Cossack guardsmen commanded by Lieutenant General N. Kirichenko made their way through rushes to the rear of the enemy for a surprise attack. General Kirichenko and his Kuban Cossacks were commended by Marshall Stalin in his Order of the Day, August 30th, for outstanding service in the capture of Taganrog.

Sovfoto Radiofoto.

Behind the German lines near Taganrog, General Kirichenko's Cossack Guardsmen played an important rôle in the encirclement of large German forces.



The Cossack's Saber*

by Peter Paulenko



IN the early spring of 1942, there was a tremendous rallying to the Red Army of Kuban Cossacks of the older generation. Graybeards wearing the Cross of St. George, awarded for distinguished service in the Tsarist wars, gathered to volunteer. Many of their sons were already majors and colonels. They, the fathers, joined up as rank and file fighters.

Nikifor Natluck, a patriarchal old Cossack whose sons are prominent Red Army commanders, proposed that young Cossacks should be taught the immortal saber blow of the famous Zaporozhye Cossacks.

"The German must be slashed from the shoulder to the groin," he said. "Anyone can cut off a head or slice off an arm, but a Cossack must wield his saber as his great-grandfathers did."

Another of the instructors is Trofim Njegoduyko. At 54 years of age, he is a senior sergeant, a volunteer in the Red Army. He fought near Moscow with the immortal Dovator; and later, back home in the Kuban, in Tseplyayev's motor brigade.

Trofim's grandfather hewed through a Turkish horseman from shoulder to waist. All the papers were full of it at the time. In 1914, near Gumbinen, Trofim's

"If the Germans don't like it, they should have stayed at home in Germany."

father cut up a German in six parts with two blows of his sword. It was the famous "criss-cross" blow, and the fame of it drew young officers to study with Alexander Njegoduyko. He showed them how to cut a calf in two, or a piece of cloth thrown up into the air.

Trofim Alexandrovich has upheld the honor of his family. Back in the days of the Civil War his comrades presented him with an old, silver-hilted sword with an Arabian inscription on the blade: "I serve the eagle-hearted." The silver hilt is now covered with 131 copper dots like freckles. That is Trofim's score of killed Germans. Trofim Alexandrovich says that eight dots are missing; they dropped off by accident.

Not all of the 139 Germans were cut up. Many of them tasted lead bullets; others were destroyed with the rifle butt or crushed under Trofim's horse. With his sword he killed 43 Germans. One of his slashes he dedicated to his grandfather. "Even Grandfather Petro would have approved of it." It was near Rostov . . . With one blow he cut a German officer in three parts—head and shoulders, half the body and an arm, and the rest of the body.

Now he has been invited to show young Cossacks the art of sword play. Upright on his horse, he gallops spiritedly up to the clay figure of a German with outspread arms. The young men have been hacking away unsuccessfully at this "German" since the early morning. But their swords have got stuck in the moist clay at the level of the heart, or they have struck off only the head, which of course cannot be considered a decent stroke. Even a child can strike off a head.

So 54-year-old Trofim Njegoduyko, with set teeth, dashes up on his russet horse. The sword glitters brightly in his hand. He rises in his stirrups, raises the blade, and the clay German falls in two pieces.

Trofim, reining in his horse, explains: "The hardest thing, my lads, is to cut clay. I can feel no hatred for a clay figure, and therefore there is no heat in doing it. Why do I cut it? Only for the sake of your education. But my heart's not in it. I feel no anger. The conclusion to be drawn from this is that it is easier to strike at a German. In the first place, he usually turns tail. So if you stick a sword into him he'll run up it himself. He'll cut himself up. In the second place, you've got to apply pressure along the length of the blade, not downwards. It's not the same as chopping wood.

"Use your imagination. Pretend that the German is very broad and you're cutting him open like a cake. Don't hurry. Take it easy.

"Of course, psychology plays a part, too," adds Trofim mockingly. "But it's none of our business if a German yells.

"If the Germans don't like it, they should have stayed at home in Germany. But once they've come onto our territory, friend, crying won't help. Run, damn you, run up the blade!"

"Die Kossacken Kommen!"

by Henry Shapiro*

SABER-SWINGING Cossack horsemen brought the Dnieper Estuary within their grasp and sent the greatest rout of a German army since 1916 into its final stages today with the slaughter of thousands of fleeing survivors of the Reich's once crack Grenadiers on the western Nogaïsk Steppes.

Hordes of Germans plunged into the swift Dnieper in a frantic effort to escape the Cossacks, only to be cut down by Russian machine-gunners and low-flying Soviet aircraft. Front dispatches said the river was filled with German corpses.

The whole western tip of the Nogaïsk Steppes, from the Black Sea to the great sand wastelands below the Dnieper had become a veritable graveyard of smashed and abandoned tanks, six-barreled mortars and armored cars.

Not since General Rusilov's destruction of an Austrian army in 1916 has there been a Russian victory to compare with the smashing of German Marshal Erich Van Manstein's army of the Nogaïsk Steppes.

As in the First World War, the cry, "Die Kossacken Kommen"—The Cossacks are coming—spread through the enemy ranks, sowing the seeds of a terror such as even the 300,000 Germans killed or captured at Stalin-grad never knew.

The Don and Kuban Cossacks, who dislike taking prisoners, literally slashed the fleeing enemy columns to pieces. While sabers were their main weapons, some

carried tommy guns which they frequently fired from beneath their horses' bellies in Hollywood cowboy style.

A dispatch to the Communist newspaper Pravda said Russian infantry following the advance guards of Cossacks and tankmen were moving across the steppes in a solid wall along the 27 miles between the Black Sea and the Dnieper. Their escape cut off, thousands of Germans perished in the dunes and lagoons at the western end of the dyrrprd. Other thousands surrendered and trudged eastward in endless columns paralleling similar lines of civilians returning homeward after being freed from German guards who were herding them westward for slave labor.

Advance guards were within 12 miles of the Dnieper Estuary port of Kherson.

Only below Nikopol were the Germans making any organized resistance. There they were counterattacking in a desperate effort to permit a fraction of their forces to escape to the north bank of the Dnieper.

The army organ *Red Star* said the Germans threw a considerable air force into the battle of the river crossings.

The extent of the German rout was reflected by the Cossacks' 25-mile advance yesterday—the biggest Russian gain in a single day since the start of the war. More than 80 towns and villages were overrun.

More than 2,000 Germans were killed in one sector of the Nogaïsk Steppes, while in another a German infantry regiment—normally 3,000 men—was dispersed and partly wiped out and its entire armament captured.

*United Press Staff Correspondent, Moscow—Reprinted from *Washington News*, Nov. 4, 1943.



"Die Kossacken Kommen"—The Cossacks Are Coming.

MORE POWER FOR B

FROM the successive tragedies at Pearl Harbor, Bataan, and Corregidor, the United States has been able to recover and build its war machine to an unprecedented size that will continue to increase until every vestige of Axis resistance has been overrun and crushed. Every day adds new parts or means, found necessary during the participation of our forces in major operations under all the extremes of climate and terrain of this global war.

In the beginning, the urgency of the situation dictated that precedence be given to building up certain particular arms and services. To a degree, that condition will persist in order to meet unforeseen eventualities. To a large extent, however, the stage of preparation has been reached where attention should now be turned to balancing the machine. Other parts can now be developed that will increase the efficiency and, in turn, decrease the time that it will take to win the war.

One part of our war machine, which could not have

by
*Brigadier General Rufus S. Ramey**

precedence during the early phases of the war, was cavalry. The many immediate needs for other types of units justified a temporary deferment of the organization and training of cavalry units at that time. But that urgency is past. Now, the test of the need for any organization, item of equipment, or other means of warfare is the degree of its contribution to victory.

If our present war machine and our general situation are examined dispassionately and the lessons from our recent combat experiences are projected into the future, a scientific, practical analysis reveals, not only the urgent need for cavalry on the future battlefields of this war, but also the practicability of providing such units in sufficient strength to be a valuable asset to our combat forces.

COMBAT PROGRESS THAT OF THE MAN ON FOOT

Two major changes have occurred since our entry into this war—changes in the whole concept of ground organization and tactics, which have been brought about by experience in the conflict.

The first of these factors is the recession from the extremes of motorization of our ground forces. Influenced by our own peacetime tendencies, by deductions from the Spanish Civil War, and the German speed of conquest in Czechoslovakia, Poland, France, and the Balkans, we came to the conclusion that anything less than the speed of a motor vehicle on the ground was archaic, and, therefore, had no place in our system of organization of ground units. Proceeding on that premise, we motorized everything—our infantry, cavalry, field artillery, and the units that supply and service them. At the time, this appeared to be sound and justifiable. With our entry into active combat, however, we found that we had been too optimistic regarding the manner in which operations would proceed.

Our visualization of the speed with which units could move on the battlefield was rudely changed by the enemy. We found that once contact was made, progress normally was that of the man on the ground. The advance became a struggle for every foot gained. We found that the enemy stopped or slowed the operation

*Commandant, The Cavalry School.

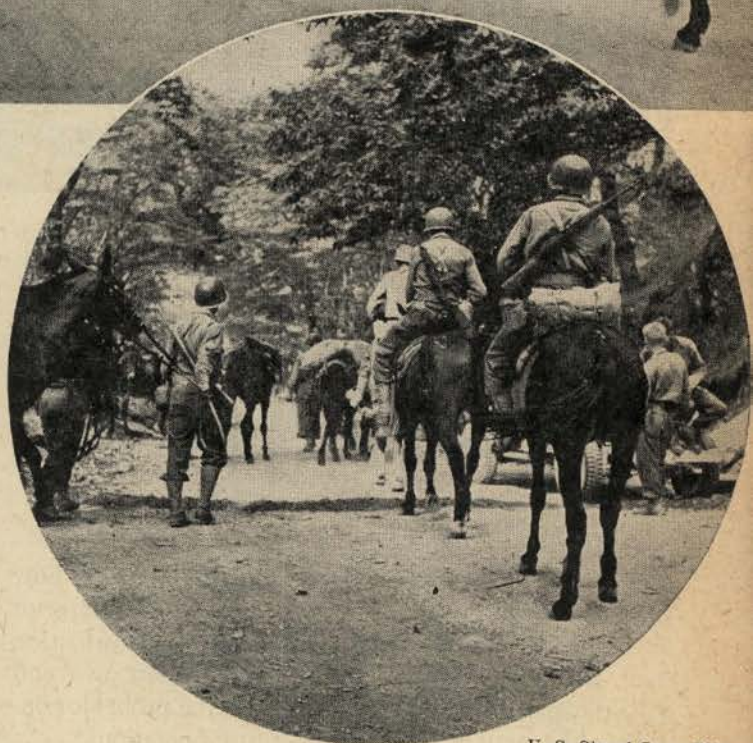
A unit of the 26th Cavalry moves into Pozzorubio, Dec. 20, 1941. The 26th Cavalry, the only U. S. cavalry regiment to participate actively in this war, covered General MacArthur's withdrawal into Bataan and made possible the valiant stand that enabled the United States to gain time to arm.

U. S. Signal Corps Photo.



ATTLE

"Provisional Mounted Reconnaissance Troops," organized in Italy and mounted on captured German and Italian horses, have been aiding the Fifth Army's advance toward Rome. A United Press dispatch says that "most of the troopers were cow punchers or farm boys who have been riding from youth. One or two were star rodeo performers."



U. S. Signal Corps Photos

of our motorized and mechanized units by the use of guns on the ground and aircraft above. In addition, that devilish development of this war, the land mine, has infested every area where a motor or mechanized vehicle could reasonably be expected to operate.

Foot elements were able to advance under such conditions, but this advance was usually laboriously slow, and often at the expense of units getting beyond their supporting weapons and supplies. Such weapons, ammunition, and subsistence that have gotten forward have often had to be moved by the hands and backs of men.

The picture is not complete with only a consideration

of our experiences in the African and European theater of war. Our operations in the Pacific area have been on terrain where the motor and mechanized vehicles either cannot operate or are restricted to operation around the beaches and on trails hacked through the jungle. Here again, to an even greater degree, movement of weapons, ammunition, subsistence, and evacuation of casualties have had to be made by soldiers on foot.

It may be claimed that this will continue to be true in the jungles of the Pacific islands. True, except that it has already been found that pack horses and mules have contributed immeasurably to lessening the burdens of fighting units and to increasing their effectiveness. It



Sovfoto.

Red Army scouts in the Caucasus reconnoiter difficult terrain during the winter campaign of 1942-43 that climaxed in the fall of Stalingrad.

is imperative that we look to the future when we must operate on the mainland of Asia—in Burma, India, China, and elsewhere. Even there, the ability of motor and mechanized vehicles to operate will still be tremendously limited by terrain seriously lacking or completely devoid of roads.

NEED FOR CAVALRY

Wherein does cavalry enter into the picture; how can horse units influence present day operations or facilitate them? To answer that double-barreled question, it is necessary to examine critically our own and Allied experiences to date, along with the probable conditions that will confront us in future operations.

In line with our extensive motorization and mechanization, we have converted much of our cavalry to mechanized reconnaissance units. Some have already proved their value in Tunisia, Sicily, and Italy. They have sought out and furnished the vital information necessary to enable the higher commanders to maneuver and employ their units. Inevitably, however, in terrain that denied the use of vehicles, in areas where enemy mines and demolitions predominated, the mechanized reconnaissance units have had to leave their vehicles and proceed on foot while examining terrain and removing mines or bridging demolitions to pass their vehicles. In such a case, the mechanized reconnaissance unit was slowed to the speed of the units for which it was seeking information. These conditions

adversely affect its value. Not only is the reconnaissance unit's progress slow, but so is that of the other combat elements. Under such circumstances, the enemy has the initiative.

Under these conditions, which such enemy action enforces, we have one degree of mobility—that of the dismounted man—against an adversary who retains several degrees of mobility. No matter what the nature of his intended operation—defense, delay, retreat, or attack—he forces our troops to conform to him. Eventually, we must reverse the picture. Tactically, as well as strategically, we must force the enemy to meet the situation that we dictate.

Wherein and how can horse cavalry *change* the picture, improve our situation, give us battlefield initiative over the enemy?

Two factors operate to deny us the initiative. First, wherever possible, the enemy takes advantage of the terrain which can neutralize our mobility—vehicles. Second, his use of mines, demolitions, and weapons force us to a time-consuming advance—the rate of men on foot. This applies both to reconnaissance units and the combat elements for which the information is sought. Cavalry can supplement or augment mechanized reconnaissance and dismounted combat units.

The horse-mounted rifleman, scout, gunner, radio operator, ammunition carrier can usually go wherever a man on foot can go, with the important difference of moving much faster. How radically this would change

many situations. What a difference a few cavalry units would have made in Tunisia, Sicily, and Italy! These thoughts projected into the future can be applied to the difficult terrain of the Balkans, Norway, other parts of Europe, India, Burma and China. The need for horse cavalry units, both as reconnaissance to supplement mechanized cavalry reconnaissance and as combat units, will become more pressing as our operations progress in almost every theater. In addition, we shall need pack units in many theaters to serve not only the cavalry units but all other ground units.

This reasoning is not purely speculative, or hypothetical. In the course of their operations, commanders in various theaters have felt the serious need for cavalry units—reconnaissance, combat, and pack.

MacArthur, Eisenhower and Patton are all reported to have recognized many uses for cavalry, but this recognition was qualified by the critical need for shipping space, which at the time outweighed the advantage that would have accrued. Many subordinate commanders in the African Campaign improvised horse units both

for supply and other tactical uses. Many others are reported to have felt the serious need and lack of such units. During the campaign in Sicily, cavalry would have been most valuable for maintaining contact with the enemy and exploiting successes. In many cases, it would have denied the enemy the time to install weapons, demolitions, and mines.

BRITISH AND FRENCH EXPERIENCE

From reliable reports it appears that the British in

Press Association.

Right: Canadian soldiers in Sicily use mules purchased from Italian farmers.

Below: A pack transport unit in New Caledonia is trained by U. S. cavalrymen for operations in the South Pacific.

U. S. Signal Corps Photo.



Tunisia made frequent use of horse reconnaissance and supply units. These units had to be improvised on the spot out of requisitioned animals mounted by men without special training. How much more effective would they have been had trained units been available! Yet it appears that these hastily improvised units rendered invaluable service.

A portion of the Free French forces, in both North Africa and Sicily, were native French Moroccan troops, mounted on native horses and commanded by French officers. These Goumiers assisted both U. S. and British units in Tunisia. From there they entered the campaign in Sicily, where one of their outstanding contributions was the capture of Capizzi. This action contributed materially to the fall of Troina, which broke the German

resistance and opened the way to Messina. In typical American cavalry fashion, Goumiers use their animals for transport to the point of combat, then dismount to fight on foot.

LESSONS FROM RUSSIA

Experience on the Russian front has added even more impressive and convincing testimony of the part that cavalry is playing in this war.

Although a large part of Russia's most productive area was overrun and ravished, and her armies pushed back to the Volga, she has not only reconstituted her fighting forces and factories, but has trained and equipped new armies to the point where, from a precarious defense, she has turned and launched the most powerful, successful sustained offensive of any of the Allies against the major weight of German might.

At the outbreak of the war with Germany, information credits the Russians as having from 30 to 40 cavalry divisions. During the dark days of 1941 and 1942, the Russians might have dismounted those cavalry divisions to reconstitute other critically needed units. But they did not. Rather, they used the mobility of their horse cavalry to prevent the disaster that threatened.

While their depleted and disorganized forces were being reconstituted and reequipped, Soviet cavalry played havoc with the German lines of communications and rear installations. With the launching of the great

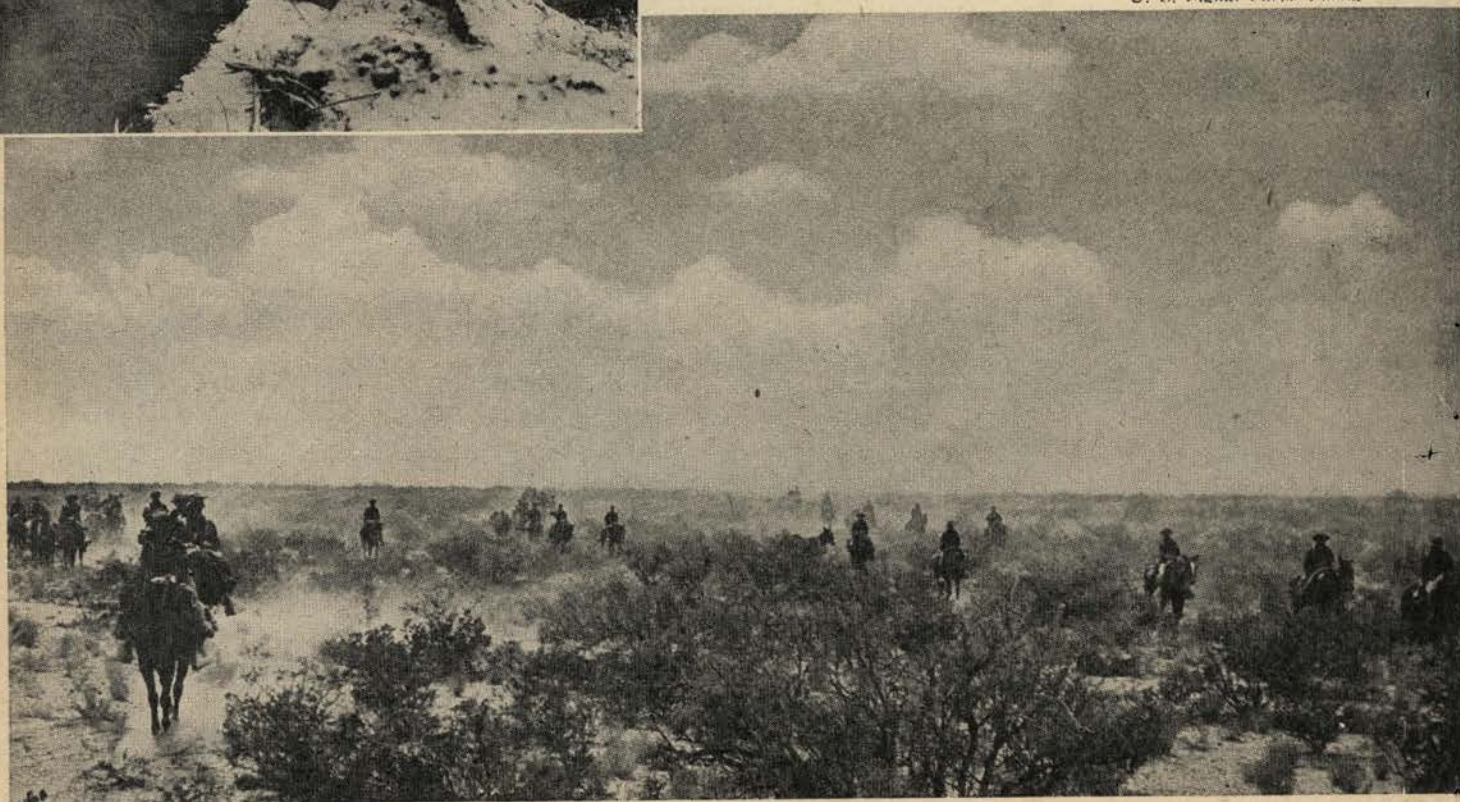
Left: A U. S. Cavalry patrol on a reconnaissance mission training at Fort Riley, Kansas.

Below: A unit of the 56th Cavalry Brigade participates in maneuvers near Fort Bliss, Texas.

U. S. Signal Corps Photo.



U. S. Signal Corps Photo.



Soviet counteroffensive, which has driven the German armies implacably back toward the German frontiers, the Russian cavalry has vindicated the wisdom of the leaders who retained it during the dark days when there must have been strong temptation to dissipate the horse units by dismounting them.

The value of the work of the cavalry may be judged, to cite only one major instance, on the occasion of the clearing of the Rostov area and the recapture of Taganrog. In an Order of the Day on August 30, 1943, Stalin cited two cavalry divisions—the 9th Kuban Cavalry Division of Guards and the 30th Cavalry Division. In other Orders of the Day Stalin has frequently cited cavalry units as a part of what appears to be a strictly Russian team combination—"the Soviet cavalry-tank-mechanized-infantry team." The coordinated efforts of this combination have brought brilliant victories for the various Red armies and disaster to the Germans.

NATURAL DEDUCTIONS

In addition to appreciating these historical facts about the Russian cavalry operations, one other fact must be underlined. The Russian operations in 1942 and 1943 were carried out under circumstances and conditions very similar to those that will confront United States, British, and French armies in Italy and elsewhere in Europe when other fronts are established.

Already there is confirmation of this. A United Press dispatch from Italy on September 25, 1943 reported: "A new type of American cavalry, known as the Provisional Mounted Reconnaissance Troop and composed of volunteers who are experienced horsemen, has gone into action on the Salerno front." The superficial part of the dispatch—"new type of cavalry"—can be overlooked. The pertinent fact is that a horse cavalry unit was improvised to meet the demonstrated urgent need for the special capabilities of horse cavalry.

The time has come when we should provide any available means that will speed or increase the effectiveness of our existing forces in current or future operations. Although there was a shortage of shipping space in the beginning that prohibited the use of cavalry overseas, that situation is rapidly changing. Under date of October 6, 1943, we are informed that the United States alone has exceeded our most optimistic expectations by some three million tons of shipping and that we now have reached the point where shipping will become increasingly more available. We should now be able to provide ships to move all the means that are required by our commanders in the various theaters of war.

OUR HORSE SUPPLY

We have in our Remount Depots at various points in this country already trained animals sufficient to mount a reasonable force of cavalry. They were trained in horse units that have been changed to mechanized units or transferred to other activities. In addition to those trained animals, we could procure in this country,

CAIAZZO, Oct. 21— . . . The general, a doughty former cavalryman, had had his camps shellacked by German artillery some time before we saw him, but he was as dapper, businesslike and pleasant as ever. Most of his outfit has been in steady action since the Volturno crossing—fighting in perpendicular country and winning all the way. He was somewhat relaxed at the moment because he had gone just as far as he could without capturing the town assigned to his colleague on the right.

He indulged, as is his wont, in bemoaning the absence of a cavalry division in Italy. The great disappointment of this man is that he hasn't been able to coop up and capture a large number of Germans and he blames it all on the fact that his men have had to move on foot through the wild mountain country in which they have been fighting.

He has managed to piece together a pint-size pack-mule and mounted infantry outfit, but it only whets his appetite for some first-class horse stuff.—William H. Stoneman, *The Louisville Times*.

within a period of 60 to 90 days, as many more suitable mounts for the training of the troopers.

If it appeared advisable to train cavalry units in this country, then move them overseas without their animals, and there remount them with animals procured in the overseas theater, numerous sources exist where the requisite animals can be procured. Australia alone has available sufficient highly suitable horses to mount several cavalry divisions. India, Iran, Syria, and other countries of the Middle East, can provide animals for operations in the Balkans, Italy, Burma, India, or China.

There are several advantages to procuring animals in the general area of the world where the operations are to take place: the added burden of ships is avoided; the animals are already acclimated; and the forage to which they are accustomed can be furnished—all without necessity for transport from the U.S.A.

CONCLUSION

There is a demonstrated need for cavalry in this war. The need will undoubtedly increase. Its effectiveness has long since been established. However, we do not have a sufficient amount of cavalry at the present time. Organization of new cavalry units presents a double training problem—both horse and man must be trained, and this requires time.

If cavalry will add to the effectiveness of current or projected operations, if it will hasten our ability to destroy the enemy in any theater, then we should no longer defer the formation and training of new units. Individual commanders should not have to improvise such units—as has happened in Tunisia, Sicily, and Italy.

→
Two soldiers of the U. S. Fifth Army crouch in undergrowth in the Salerno area of Italy. Scene is from a newsreel film.

German Mark IV tanks, destroyed by Allied mortar fire, line the roadside near Cava—between Salerno and Naples. Note spaced armor on sides of turret.



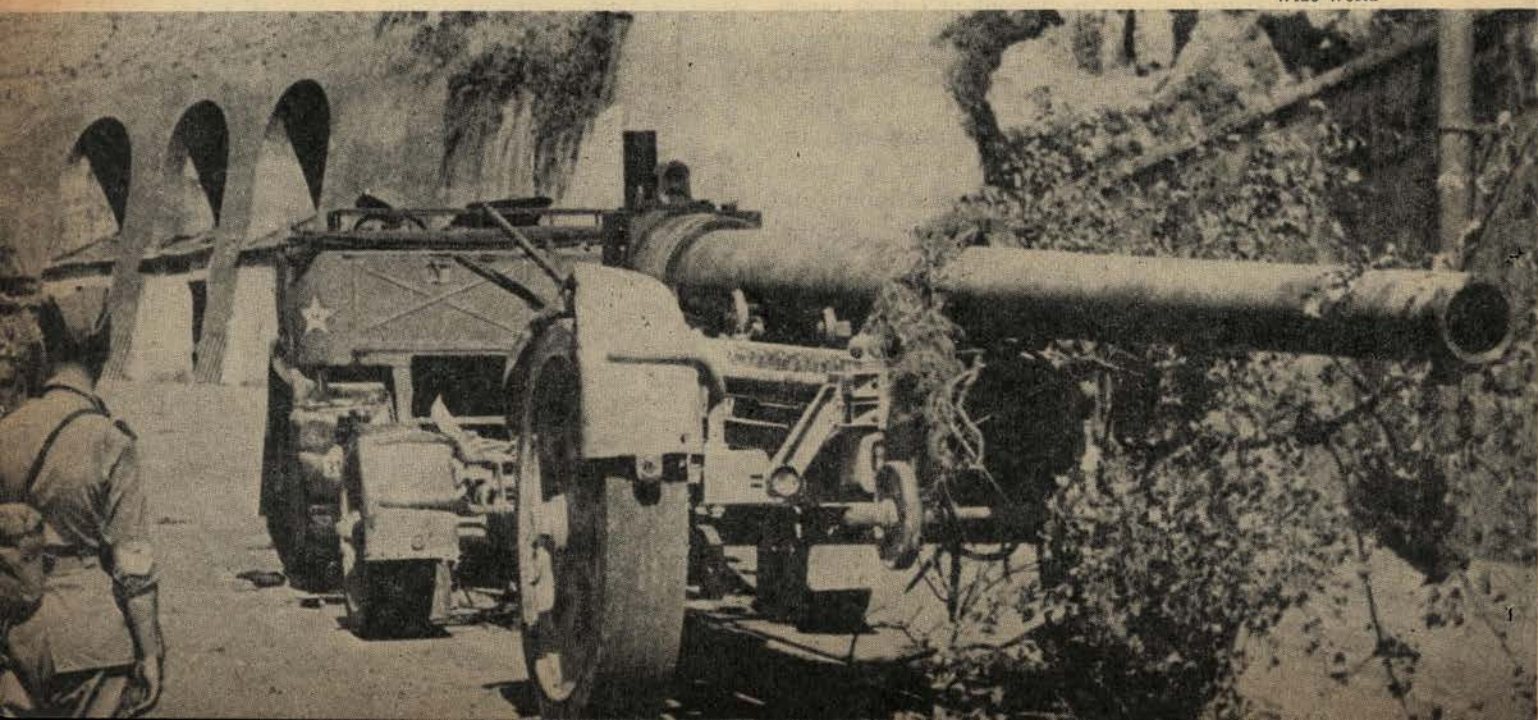
Press Assn.



U. S. Fifth Army On Italian Front

This German 210mm field gun barrel on limber drawn by half track vehicle was intercepted by Commandos while on the road to Vietri, northwest of Salerno, and the crew were killed.

Wide World





Press Association.

American infantrymen advance on a German observation post within sight of Mt. Vesuvius. The OP was established in a castle near the mountain.



An armored reconnaissance car captured from the Nazis by U. S. troops in Italy is being driven back to the rear. Soldiers tie white cloths to their rifles to avoid being fired upon by their comrades.

Press Association.

Press Association.

Engineers begin construction of the main ponton bridge which spanned the Volturno River in the central sector of the front in Italy. The bridge was used for heavy equipment such as trucks and tanks.



RECONNAISSANCE LE

by Lieutenant Colonel Charles J. Hoy*

The cavalry has been given the job of training and providing troops for all reconnaissance units. This is a traditional cavalry rôle that is a part of cavalry heritage.

Cavalry has always been trained in the art of reconnaissance—"to look far afield, to be inquisitive, and to take nothing for granted."

THE 81st Reconnaissance Battalion of the 1st Armored Division had more battlefield experience in Tunisia than any other American reconnaissance battalion or squadron. It first went into action against the enemy on January 15, 1943, and did continuous battle reconnaissance duty until the end of the campaign May 9.

The information contained in this article is based upon more than four months' combat experience, during which time the battalion was called upon to do all types of reconnaissance—over terrain that varied from the desert in the south to the green rolling hills of the north; under tactical operations that varied from withdrawal and defeat to pursuit and victory; and against an enemy that changed from a determined foe to a beaten one.

The battalion made its share of mistakes, but learned to benefit by them. Training was continuous, even under combat conditions. The training received in the United States, Ireland, and England was sound, but constant training during battle was imperative.

INFORMATION

Information is the most powerful and most important weapon a reconnaissance unit can furnish the higher commander. To have its full effect, it must be accurate, complete, and quickly passed.

Inaccuracy. It is the duty of every reconnaissance leader to fight rumors, lies, and exaggerations with the same enthusiasm that he fights the enemy. A good rule to follow is, "Never believe a straggler, and rarely believe a casualty." The former generally lies or embellishes to explain his absence from the battlefield; the latter is seldom rational. Inaccurate information is dangerous. Men should be impressed with the necessity for guarding the integrity of their reconnaissance.

Accuracy. To be accurate in his information, a man on reconnaissance must always know his own location. He cannot pinpoint the enemy correctly unless he knows this. If he is mounted, a constant check on his vehicular odometer, maps, and air photos is necessary; but once he halts and moves dismounted to an observation post, he must pinpoint himself by the use of the alidade method or by resection.

All reconnaissance personnel must be able to identify quickly and *accurately* both friendly and enemy vehicles, weapons, personnel and aircraft. This is most difficult to do at long range or when visibility is poor; therefore, if there is any doubt of the correct identity of either personnel or matériel, they should be reported as *unidentified*. A "guess" is hazardous.

All enemy guns are not 88mms, nor are all enemy tanks Mark VI's. Almost everyone at first is prone to report all enemy large caliber weapons that they hear or whose projectile they see strike, as an 88mm. In fact, they will sometimes report a large mortar shell that explodes near them as an 88, too. Everyone should be able to tell the difference between a high velocity, flat trajectory weapon and a low velocity, high angle artillery piece. For example, the muzzle blast of the antitank gun has a distinct, sharp crack and a never-to-be-forgotten whistle as it zips past. The artillery piece has a comparatively dull boom and a droning sound as it sails over.

Some information will be secondhand. When it is, its source must be reported in order properly to evaluate it. Unfortunately, much of the information gotten from civilians is embellished, either by their political feelings or by their excitement or fear. Some of it, however, is extremely valuable.

Native Guides. For six weeks during the Tunisian campaign, the 81st Reconnaissance Battalion had about 30 native French troops (Goumiers) attached to it. Each platoon had three or four of these soldiers and

*Staff and Faculty, Cavalry School. Formerly, Commander 81st Reconnaissance Battalion.

LESSONS FROM TUNISIA

used them as guides and interpreters. They were of great value and assistance to the reconnaissance platoons. They knew the country and the people. They functioned just as old American Indian scouts did for troops in the West. On one occasion, they saved a platoon of Company B, which had been cut off by the Germans during the Kasserine phase of the campaign. Goumiers with that platoon guided them over an unguarded pass that the Germans had considered impassable. An effort should be made to get native troops or guides with all reconnaissance platoons.

Completeness. For information to be complete, everything, however small, must be reported. What seems insignificant up front may mean much more farther back. The complete picture is made up from the supposedly unimportant small details. This must be done without becoming verbose or jamming the radio with a lot of unnecessary babble.

Here is an example of what is meant by completeness of enemy information.

One reconnaissance platoon took an enemy 88mm gun that had been abandoned. Upon examination, it was found that the gun had been prepared for destruction, with a pull-type igniter. The enemy had left in such haste that he had failed to pull the igniter. If the reconnaissance platoon had reported "enemy 88mm gun captured," this would not have been complete information. Instead, the report correctly said that the gun was abandoned, prepared for destruction, but not destroyed.

Evaluation. Further consideration of this situation brings out another point—the platoon leader's reaction when he found the gun. He had been working forward with difficulty that morning, against a determined enemy. This abandoned undestroyed gun, unless it had been planted as a ruse, was one of the first indications that the enemy was beginning to crack. The lieutenant had to evaluate this information for his own use, and decide whether he should continue to reconnoiter cautiously or rush boldly. The more battlewise a reconnaissance soldier becomes, the quicker and easier it will be for him to make this decision. He should be trained to recognize signs that indicate an enemy changing from an orderly withdrawal to a rout.

Code. For information to be passed back quickly, a permanent sequence or form should be used. This enables the same message to be passed from platoon to corps without the asking of endless questions, and also insures speed and accuracy. Complete familiarity with proper voice procedure on the radio is mandatory. Each squadron should have a simple code that is clear, brief and somewhat secret.

Observation. In Tunisia, it was found that most of the collecting of information was done dismounted.

Observation posts were used extensively. These posts were gained for the most part by stealth. It must be understood that in a war of movement there is no front line, and it is quite possible for a small crew to go dismounted deep into enemy territory and establish an observation post. This was generally accomplished as follows:

The reconnaissance platoon, moving by bounds, comes under accurate enemy fire; it has gained contact. Long range antitank and artillery fire cannot be considered contact with the enemy. The platoon must get in under this fire. Usually it can be done mounted, but once under accurate short range fire, the men will generally have to dismount. The platoon takes cover from the enemy fire, and the leader, after a short terrain study, will pick the best place to establish an observation post.

The observation team is picked, with the minimum number of men selected to establish and maintain it. A radio is dismounted. (The 510 was found to be fairly reliable, but it is believed that the 511, if available, would be much more satisfactory.) The leader normally will accompany the observation team, as the person most qualified in reconnaissance should be where he can see best. While using all cover, concealment, and camouflage possible, the men move stealthily to the observation post. Because of the situation, they may sometimes have to wait until darkness to get there.

Once established on the observation post, the leader pinpoints his position and notes his range of vision in all directions. He reports this information and the situation back to his commanding officer.

The good reconnaissance leader must possess, in addition to many other military attributes, an insatiable curiosity. He should always try to improve his position so that he can see more—a sort of a "yonder-pastures-are-greener" attitude. Several times in Tunisia it was possible to maintain observation posts behind the enemy position, or even on top of hills held by the enemy. Tall buildings were sometimes used as observation posts.

Reports. In addition to regular and emergency reports, the observation post commander must make a "last light" and "first light" report. Just before darkness he searches his area with his field glasses, notes any enemy information, negative or positive, and transmits it back to higher headquarters. This is called the "last light" report. Its value and necessity can readily be seen, and it should be SOP for all reconnaissance units. The "first light" report is similar, but is accomplished at dawn.

Listening Post. The observation post is of little or no value at night, so a listening post is the night substitute. The listening post is established so as to cover the probable avenues of approach open to the enemy, such

as a main road, a pass, or important road junction.

Assume that a reconnaissance platoon is organized into three teams, each team having an armored car and two bantams. The first team establishes the observation post, while one of the other two prepares to establish the listening post. Routes to and from the listening post are reconnoitered in daylight if possible. Movement to the listening post is generally made during darkness.

In Tunisia a team of three men was found to be sufficient to man the listening post. The vehicles of the team were brought up as close as possible and bivouacked there for the night. When necessary, the 510 radio was dismounted and carried forward to the listening post team. Reports were made at least once an hour.

Once informative contact is gained, it must never be lost.

COMMUNICATION

If information is the most powerful weapon of the reconnaissance unit, then certainly communication is information's vehicle. The 81st Reconnaissance Battalion had SCR-193's and SCR-510 radios. Later on, it was issued the SCR-536 radio. During the first half of the campaign, when the battalion was covering a very wide front, the 193's never failed; voice communication was possible over long ranges. The 510 was used quite frequently as the dismounted set at an observation post or a listening post. It is believed that the 511, which is much lighter, will be more reliable.

Nets. The assigned nets used in the beginning (one for each company in addition to a battalion net), did not prove satisfactory. First, the platoon leader, reporting the information, called his company commander; then the company commander went to the other set and sent the message to the battalion commander. Quite frequently, the battalion commander would find it necessary to ask the lieutenant a question—not always because his message was incomplete, but rather because of new developments arising during battle. Much time would then elapse before the answer was received. Not only was this delay objectionable, but these radio nets tied the company commander down to his CP. Instead of using his ability as a battlefield commander, he became a glorified message center clerk. He could not leave his CP in order to visit his advanced platoons. After a few weeks of this, all the platoon and company commanders' sets came in on the battalion net.

There were two possible disadvantages to using a single battalion net. First, there was the danger of having too many sets on the net. (Sometimes there would be more than 18 sets on a net.) The other objection was that by having the battalion commander deal directly with the platoon leaders, the company commanders' prerogatives were usurped.

Discipline. It was found that the first problem could be solved by rigidly disciplining the net. The men quickly realized that there could be no extraneous "bull" or chatter; the radio was to be used only for business. It was further found that, although there might be 18

sets on the net, seldom if ever, were there more than two or three platoons in actual contact with the enemy at any given time.

Orders. The other disadvantage can be solved by the battalion commander following the chain of command, in issuing orders. This does not mean that he should not be able to deal directly with the platoon leader in asking questions or advising him. For example, in Tunisia the 18th Army Group usually kept a "phantom group" at battalion headquarters. This "phantom group" was commanded by an officer who had a radio in direct contact with General Alexander's headquarters. Given a copy of each message sent back to divisional headquarters, this "phantom set" would then send it back to 18th Army Group headquarters at the same time that it was sent to division. Group headquarters never issued an order to the battalion commander, but it did ask questions and gave information and advice that was of great help.

Check. In addition to the many sets on the battalion net, a set from the division artillery would sometimes come in. If men are trained in radio discipline, however, an additional set is not too much to handle.

Another advantage in the use of a battalion net is that it gives the battalion commander a closer check on the proficiency of platoons. A single net also enables all the platoon leaders to know the battalion situation at all times. This is essential. It is strongly recommended that the squadrons train to operate, if necessary, with all platoon and troop sets on one net. Once they become proficient with this net, all other nets are easy. The 506 radio set with its push buttons should make the squadron nets very flexible.

Commanders should visit their advanced elements, but they should not leave their CP unless they have communication with it. The driver can operate the radio (a 193 set in a bantam), so that there need never be a time that the commander is out of communication with his headquarters.

ADMINISTRATION

In Tunisia, it was found that administrative functions could be carried on even under the most difficult conditions, such as existed during the early days of the campaign when it was impossible, because of tactical conditions, for the reconnaissance battalion to be pulled back to a rear area to rest and refit.

Reserves. Each company tried to keep a platoon in reserve at all times. During the time that a platoon was in reserve, the company maintenance section worked on its vehicles; the communication sergeant checked the radios; and the platoon as a whole worked on the vehicles and weapons. The mess truck usually stayed with the company headquarters so that it was possible to feed the reserve platoon hot meals. After the platoon was refitted and resupplied, it would go out and relieve one of the other platoons. Then that platoon would come back, refit, and resupply, and go out to relieve the

third platoon. In this way, it was possible to relieve a platoon at least every five days. Whenever it was possible to bring a company back in reserve, the battalion maintenance section would come up from the trains and work on the company vehicles, and the communication officer and noncommissioned officer would supervise the radio repair.

It was during these times that the men washed their clothes, got haircuts, took baths, wrote letters, and were visited by the chaplain. The company commander, first sergeant, and the supply sergeant caught up with their paper work. This paper work would include special requisitions for clothes, reports necessary for citations, and entries in the morning report with respect to killed, wounded, missing and captured.

Quite frequently the company in reserve was busier than the other two companies, for in addition to administrative and maintenance duties, training had to be conducted during this period. One of the hardest jobs that a company commander has during this time is to keep from letting up. It is granted that the men are tired and weary, but it is criminal to let them loaf during this period in reserve. By that, it is not meant that they should not be allowed to rest, but it should be made certain that they are ready to go back into action better trained than when they came out.

The Wounded. Of course, some administrative functions continue right up on the battlefield. Medical evacuation is one. The T/O for the battalion called for three medical officers and one dentist. Permanent medical teams were made up for each company. The battalion surgeon stayed with battalion headquarters. One doctor with a half-track ambulance and bantam and medical crew went with A company; one with B company. The dentist with a similar team went with C.

Evacuation of the wounded generally was accomplished as follows: The wounded man was immediately treated by his comrades. First aid kits in each vehicle contained bandage, sulfa, and morphine. The platoon leader would notify company headquarters and tell them whether he could send the wounded man back, or if he wanted the ambulance sent forward. If the ambulance was sent forward, the medical officer would accompany the ambulance. He had to know how to read a map and know the situation on his front because since there was no front line, he had to be sure of his location. The medical officer would treat the patient. Many times a plasma transfusion was necessary, and it would be done on the spot. The wounded man would then be taken back and, depending on the situation and the condition of the patient, the battalion surgeon would determine whether the man was to be taken to the company command post, to the battalion CP, or back to the division collecting station.

Usually, the battalion surgeon would pick up the patient at the company CP and take him back to the division collecting station. Sometimes the company medical officer, because of the patient's condition, would

take the patient to the division collecting station himself. The medical battalion of the division kept their stations pushed well forward.

If the man was wounded at an OP, dismounted litter bearers would bring him back where he could be picked up by the medical bantam, or by the ambulance.

The Dead. Another administrative function that must continue on the battlefield is the evacuation of the dead. This is a very important command function. The morale of an outfit is greatly affected by this. Bodies of former comrades should not be allowed to lie for any length of time where they will have to be seen. They should be gotten back at once. There are many solutions to this problem.

In Tunisia the company commander generally would get some kind of transportation out to pick up the body. Quite often this would be the ambulance. This vehicle was used only when it would not interfere with the evacuation of the wounded. Usually, battalion headquarters would learn about this death at the same time that the company commander did. The chaplain would be notified. If he were at the trains, he would report out to the battalion CP and find out what transportation was available to bring the body back to the graves registration unit. The supply truck that took supplies out to that company would most likely be available; and further, it was empty and had to go back to the dumps for refilling.

Casualties. All units are prone to exaggerate their casualties at first, but this is a dangerous practice that too often spreads rumors on the battlefield. Nine out of ten times, a reported "50% casualties" will turn out to be not over 5%. Casualties should not be reported by percentage anyway; they should be verified and then reported exactly. When the battle casualty report is exaggerated, it causes the same effect as if those men were actually incapacitated, because the commander believes the report received, and his immediate battle decision is often influenced by it.

Supplies. The resupplying of a reconnaissance battalion, especially when it is in operation over a very wide front, is most difficult, but the 81st Reconnaissance Battalion never failed to accomplish its missions because of inadequate supply. Corps and division dumps were pushed well forward. The battalion S-4 always knew where these dumps were, and worked very closely with the headquarters company commander who commanded the trains. The battalion trains were kept about two hours distance behind us—between the dumps and the battalion CP. A small truck train of about five trucks with gas, oil, ammunition, and rations under the command of the S-4 stayed up front close to the battalion CP.

On receipt of the daily report, necessary supplies would be sent to the companies, usually at night. If the S-4 used a truck of gas and a truck of ammunition one night, the train commander would send another truck of gas and another one of ammunition on up to the S-4.

The empty trucks would continue on back to the train commander, and then on to the dumps for replenishment.

The companies must make accurate reports for replacements and replenishment.

MORALE

The *esprit* of an outfit is one of the greatest contributing factors to its success in battle. A soldier fights primarily for his unit. He knows that he is in any particular battle because his unit is; therefore, he will be influenced by what his buddies think of his actions on the battlefield. If his unit has a good *esprit*, he will give a good account of himself on the battlefield. If the men in an outfit are proud of their unit, the unit can be said to have good *esprit*. The pride should not be false—it should be warranted. The soldier is proud of his outfit if he knows that his outfit has a reputation among the battlewise troops as being battleworthy; that is, obedient and determined under fire. He will never want to disgrace his outfit by his actions, attitude, or appearance. There are some few who seem to believe that undisciplined and unmilitary troops are the best for battle. The men who fought in Tunisia know that they would rather have fought that kind of an enemy.

TACTICS

- ▲ *Fluidity.* Tactics must be fluid, so that the unit is capable of operating successfully against a determined enemy as well as against a cracking or cracked one. Platoons must be trained to react immediately to any signal or order from the platoon commander, or to any normal set of circumstances.

Mines. These are usually the worst obstacle with which reconnaissance units have to deal. Each platoon of the 81st Battalion had a mine detector. The primary purpose of mine-laying is to delay. To effect casualties is secondary. Unfortunately, when a reconnaissance unit is pursuing, it must take chances. It cannot creep along behind the mine detector. Speed is essential. The 81st, therefore, led with its heavier vehicles and generally discovered mines by the explosion, cleared a small path through the field, marked it, reported it and went on. Reconnaissance leaders must develop a sixth sense in locating mine fields. The enemy cannot lay them everywhere, so he generally lays them in bottlenecks, by-passes around a blown bridge, or on the shoulders of a road. His tactics of mine-laying must be studied constantly. Here again is an example of why training on the battlefield is absolutely necessary.

Purpose. Ordinarily, a reconnaissance unit will not fight for its information. This does not mean that it need not be aggressive. It takes "guts" and drive to slip past the enemy, get behind him, and stay there transmitting information. But reconnaissance by fire should not be used promiscuously. If the enemy's morale is high, firing is likely to be nothing but a waste of ammunition; however, if it is low, a shot into the bushes may flush him.

One thing that reconnaissance personnel must remember at all times is that no matter how much is seen, it may not be the whole picture. They cannot expect, for instance, to have artillery always sent up to shell any target designated.

A reconnaissance unit is out there to furnish information—not to make plans.



Personal Notes from Battle Experiences

*As Told by Captain Maurice H. Harris**

To Lieutenant L. R. Barnhill

OFFICERS entering combat zones must make drastic revisions in what they consider personal necessities if they are not to be loaded down with useless equipage that will hamper their efficiency on the battlefield.

In most instances officers' needs at the front can be met by government issue items. Because many officers in Africa were not cognizant of this fact, by the time that they went into action they had personal clothing and equipment scattered all the way from North Ireland

to their base at Constantine. Even bedrolls were either stowed or lost during the early stages of action.

Officers in Africa learned to get along with the same items as their men. This entailed leaving bulky bedrolls behind and using GI blankets.

"When you leave for a combat zone, leave your personal sidearms at home along with your other trinkets. They will be next to useless to you in battle where you cannot get ammunition to fit them.

"Leave rings and jewelry at home, and toss the fancy dog tag strings into the ocean. A shoestring or piece of

*Captain Harris commanded the Reconnaissance Company of the 701st TD Battalion in Tunisia.

cloth tape is suitable for the front lines. Get a GI watch if possible. There's no watch repair shop at the front to pamper your favorite timepiece.

"Allot all your pay except a minimum of perhaps \$50.00 a month to your nearest of kin, and do this well in advance of the time you leave this country. Money is a nuisance at the front and there is neither time nor opportunity to sign pay vouchers once you are in action. Money is received only at such times as the unit returns to divisional headquarters.

"Have a shoulder holster made for your .45 caliber automatic. The regulation hip holster is in the way and is easily snagged when working around tank destroyer vehicles.

"Learn to shave with toilet soap to eliminate another item from your personal gear. Get a small metal case for your toilet articles. The usual leather cases used by officers in the area of the interior are too bulky for battlefield use and are easily lost."

Organizational equipment, even the company CP tents, were stored at the Constantine base along with the officers' uniforms. Wool underwear, fatigue suits, Red Cross knitted sweaters, when available, and combat suits were worn in battle. After the early stages of the fighting, three-quarter length leather boots were provided to replace leggings and regulation shoes.

Officers using field glasses fitted small leather caps over the eye pieces to keep out water and dirt and prevent reflections that might give away their positions. The caps are so made that they slide back on the carrying straps when the glasses are in use. They are easily slipped back in place when the glasses are not in use.

Every officer must know the characteristics of every weapon within his unit.

In some cases, French-type sets on radio equipment were replaced with headsets after it was found that calls were frequently missed when the would-be receiver had the French set lying on the seat, out of hearing distance. By wearing headsets the men were always ready to hear call signals. This proved efficacious in battle.

It is suggested that noncommissioned officers' schools might be set up on the order of the officer candidate schools, except that the graduates would be considered prospective NCO's. In battle each vehicle becomes a combat unit within itself, and the NCO must take charge. Weak NCO's can be the biggest failing in battle.

A unit frequently employed on night security missions is hindered in its ability to conduct daytime reconnaissance. Such crippling can be minimized by using the pioneer platoon for night security missions.

Protection of march units against aircraft fire was gained by some outfits through the use of a warning screen and employment of a cone of fire. Warning of approaching aircraft was sounded by jeeps running from two to three miles on the flanks and to the front

of the column. (This distance varied with the terrain situation.) Through prearranged signals, these outguards warned the main body of approaching aircraft. The column units immediately fanned out in a rough oval—even numbers to the left and odds to the right—and threw up a cone of fire with every available weapon. In most instances this beat off attacking aircraft.

Reconnaissance vehicles were used only to transport observers from one observation point to another. Actual observation was done from the ground. Orders to reconnaissance units from higher headquarters should indicate how it wants negative, as well as positive, information reported. In Africa, men at the front were prone to ignore transmittal of negative information to their commanding officers unless ordered to report in a specific manner. Positive information, as a general rule, was transmitted upon receipt, and negative information at predesignated intervals.

Through two field expedients, improvement was made in the effectiveness against aircraft of the .50 caliber machine gun mounted on the M2 half-track skate mount. In one case, a lateral extension, built inward from the skate mount, allowed a greater field of vertical fire. In another case, the regulation ammunition box, which holds only 50 shells and is fastened to the feed pawl pin, broke off during cross country travel and was replaced by a strap-iron basket holding 100 rounds. The original issue box on the gun had been the cause of many failures to feed.

A few minor adjustments greatly increased the stowage capacity of jeeps. If the entire rear seat, including the frame is removed, the metal liner of a .50 caliber ammunition box can be stowed in this space to increase the ammunition carrying capacity of the vehicle. Men's packs, placed on top of the box provide an expedient seat. Bolts and straps can be fastened to the front fenders so as to hold additional packs on the fenders.

In Africa it was learned early in battle that the Germans seldom fire at jeeps. The enemy has a high regard for the tough little vehicles and prefers to capture them undamaged, if possible.

As for half-tracks, those jack-of-all-trades vehicles, the Germans always fire upon them, for as a Nazi prisoner put it, "We never know what to expect on a half-track—a .30 caliber machine gun or a 105mm. howitzer—so we take no chances and fire on all of 'em."

A final warning to young officers subject to call for overseas duty might be summed up as follows: "Get all you possibly can out of your training in the United States. See that your noncoms give you more than lip service. Demand that they know their jobs and determine as nearly as possible if they will be capable of handling men while under fire.

"Fighting today breaks down into small groups, and only the thoroughly trained soldiers led by quick-thinking NCO's come through front-line action in physical and mental condition to assume their rightful place in civilian life once the fighting is finished."

Russian Summer Offensive*

THE whole of the Russian front remained completely quiet throughout the spring and the early part of the summer. The delay in the opening of the German attack was accounted for in part by: the uncertainty of the direction and weight of the next Allied blow after the unexpectedly rapid Axis collapse in Tunisia, the necessity for a period of rearming and retraining after the late winter operations, and the need for organizing and incorporating the new manpower collected in the recent comb-out of industry.

The German attack was finally launched in the first week of July, against the Russian salient west of Kursk. Thirty-eight divisions, including a high proportion (nearly half) of armored divisions, took part in it, and it took the usual form of a converging double drive against the northwestern and southwestern forces of the salient.

The northern drive against the forces between Orel and Kursk made no headway at all, and was broken off as soon as its complete failure was recognized.

The southern drive, aimed between Kursk and Belgorod, at first fared better, and a wedge about 25 miles deep was driven into the Russian lines, which for a time gave the Russian High Command cause for serious anxiety. However, the advancing enemy troops eventually came to a standstill in the heart of the Russian defenses, which were very deep and closely knit. Repeated counterstrokes at the flank and rear of the intruders finally forced them to relinquish most of their gains.

By July 17th, the Russians had regained all their lost positions, and it was clear that the long-expected German summer offensive in Russia had been everywhere completely repulsed.

The Germans, perhaps because of the general decline in the fighting efficiency of their infantry, perhaps because of the great confidence placed by them in their new heavy "Tiger" tanks and self-propelled guns (nicknamed by the Russians "Ferdinand"), reverted during

this offensive to the old tactics which had served them so well in Poland and France, but which they had been compelled to abandon early in the first Russian campaign. In this Kursk battle a wedge of the new heavy tanks, followed by self-propelled guns, usually led the way. The second line was formed by motorized troops supported by infantry of the normal slower moving type. The former close coöperation of arms, of which every campaign of the present war has emphasized the paramount importance, was far less constant and effective than it had been in previous German offensives. This was one of the principal causes of the costly failure of the Kursk operations.

The new tanks and self-propelled guns did not come up to the high expectations placed on them and by no means proved invulnerable to the Russian antitank gun weapons. The whole affair showed that though there might be little noticeable deterioration in the fighting spirit of the German army, its efficiency and technical skill had definitely declined from its former high standard.

While the German attack at Kursk was still in progress, the Russians in their turn passed to the offensive farther north, and launched a three-fold blow against the salient in the enemy line covering the approaches to Orel. The axes of these three drives were the railways leading to the city from northeast, east and southeast, and the task before the Russians was formidable.

The defenses had been progressively built up during the twenty months that Orel had been in German hands, and comprised belt after belt of works, interconnected by numerous switch lines of defense to curtain off and contain any flank attacks. The Germans conducted, as is their custom, an active and resilient defense. They launched frequent counterblows to regain any lost ground, and their garrisons fought with stubborn and bitter persistence.

Nevertheless the Russians pressed steadily forward day by day. Their method was to nip off segments of the defenses one by one by means of encircling movements

Sovfoto.



These 70-ton "Ferdinand" tank destroyers (mounting 88mm gun) were captured on the Orel front. Armor runs from about 8 inches in front to 3 inches in rear. The "Ferdinand" has two 300 h.p. motors, makes about 12 m.p.h. on a highway, and carries a crew of six. It is steered by periscope; must stop to fire. Hole in side of right vehicle is observation post; plug sealing it is missing. Poor visibility for crew makes this new German weapon particularly vulnerable to attack by infantry.

*The Tank (London).

cutting deep into the German front. The separate garrisons in the area thus isolated were then reduced by attacks from all sides.

Mobile forces, including tanks, motorized infantry and mobile artillery, working in close conjunction as a team, carried out the preliminary encirclement, and left the task of clearance to the troops of the normal type formations following closely behind them.

The most important of these local yet inter-dependent victories was the storming of the Bolkhov defended area, 35 miles north of Orel, which was the prelude to a menacing thrust southwestwards aimed at the Briansk-Orel railway, on which all the hostile troops in the salient depended as a line of supply and route of escape. From that moment, the Russian advances along the railways to the east and south of the city began to accelerate and close in, and though the bulk of the garrison of Orel probably made its escape before the net closed about it, the rearguards left to cover the withdrawal suffered severely, and the captures of arms and matériel, vehicles and stores by the victors attained large proportions.

The rapid and complete success of the Russian Orel operations received a fitting but somewhat unexpected supplement on August 5th by the capture of Belgorod, on the southwest of the Kursk salient. This was the result of a sudden coup de main, which took the Germans completely by surprise and overran their defenses before their reserves could arrive to meet the assault.

The Russian figures of German losses during this eventful month from July 5th to August 5th included 112,000 men killed or captured, 5,000 tanks, 2,300 guns, 11,000 motor vehicles, and 2,500 aircraft destroyed or taken.

The strategic gains were also of considerable importance. By the capture of Orel and Belgorod, the Russians came into possession of the great trunk line from Moscow to the Donetz basin along the whole length of 600 miles, and thereby gained much improved facilities of supply, and lateral transfer of troops and matériel for purposes of maneuver. The possibility of economizing forces—theoretically open to the enemy by the elimination of the Orel salient and the reduction of the length of this front by 100 miles—was probably more than counterbalanced by his heavy battle casualties, which on the basis of the Russian figures can hardly be put below 250,000 men—the equivalent of some 20 divisions at their present strength.

More important than these tangible results may prove to be the fact, made clear by these operations, *that the Russian army as a fighting machine is now superior to that of Germany*, even in the summer fighting in which hitherto the enemy has always been at his best. Russian aircraft are capable of wresting from the *Luftwaffe* local command on any selected battle zone. Russian artillery, which has always been better than its German counterpart, has still further improved its armament, its methods, and has now attained undisputed supremacy on the battlefield. The new medium-heavy Russian tanks are heavier and more formidable than the ponder-



Sovfoto.

The newest type Russian KV tanks maneuver into position on the Orel-Belgorod front.

ous and clumsy "Tigers," which have failed to come up to the high hopes placed in them. Soviet antitank weapons, which include a number of the American-made Bazookas, have been considerably stiffened and are now highly effective. Russian generalship's staff work, too, is now fully up to, if not above, the best German standards, and quite equal to making the best use of the Red Army's superiority in numbers and armaments.

The victory of Stalingrad, great and epoch-making as it was, was primarily due to German over-confidence and errors which the Russians were able skilfully to exploit, and to the weakness of the Axis satellite formations left to hold vital areas on the flank of the German spearhead.

The victories of Kursk, Orel and Belgorod were gained in a stand-up fight between the two armies, able to employ all their available forces and resources on a fair field with no favor to either side. The triple Russian victory, clear-cut and complete, affords not only a criterion of the respective military efficiency of the two armies, but a happy augury for the future course and final result of the duel between them.



Sovfoto

This Mark IV Special, captured on the Orel front in July, has the new "spaced armor" plates around sides of turret and sides so as to burst shell between outer layer and main armor. 75mm gun. Note attempt to dig tank in.

German Armor from

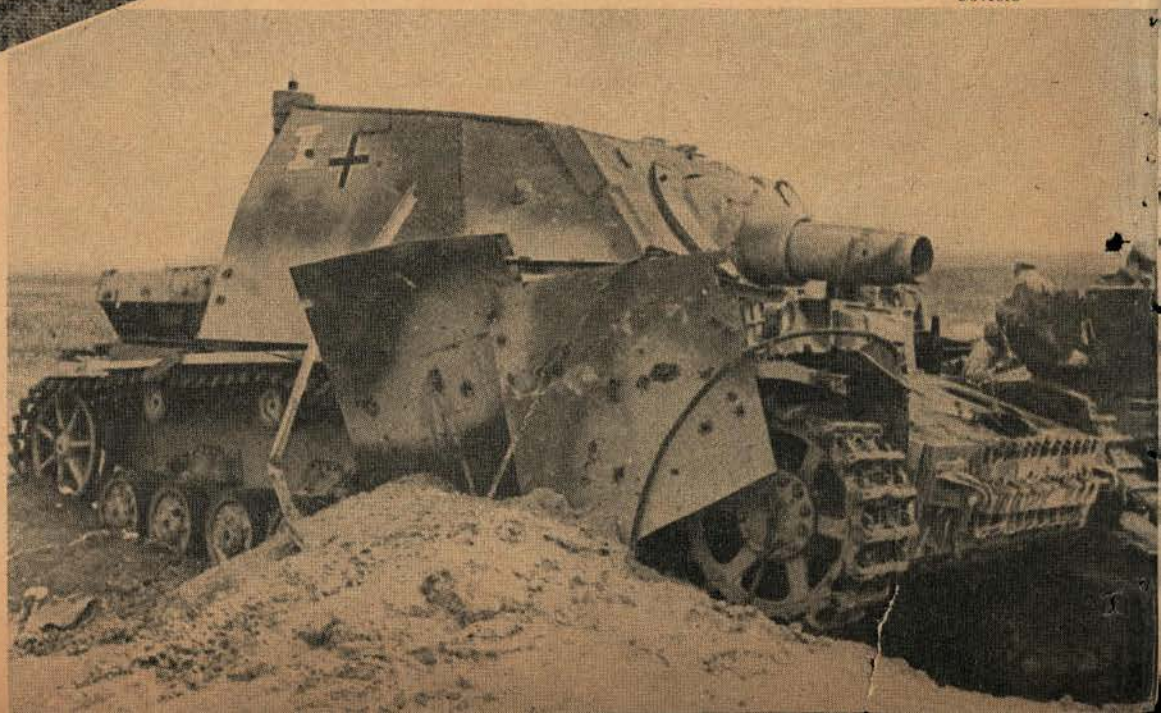


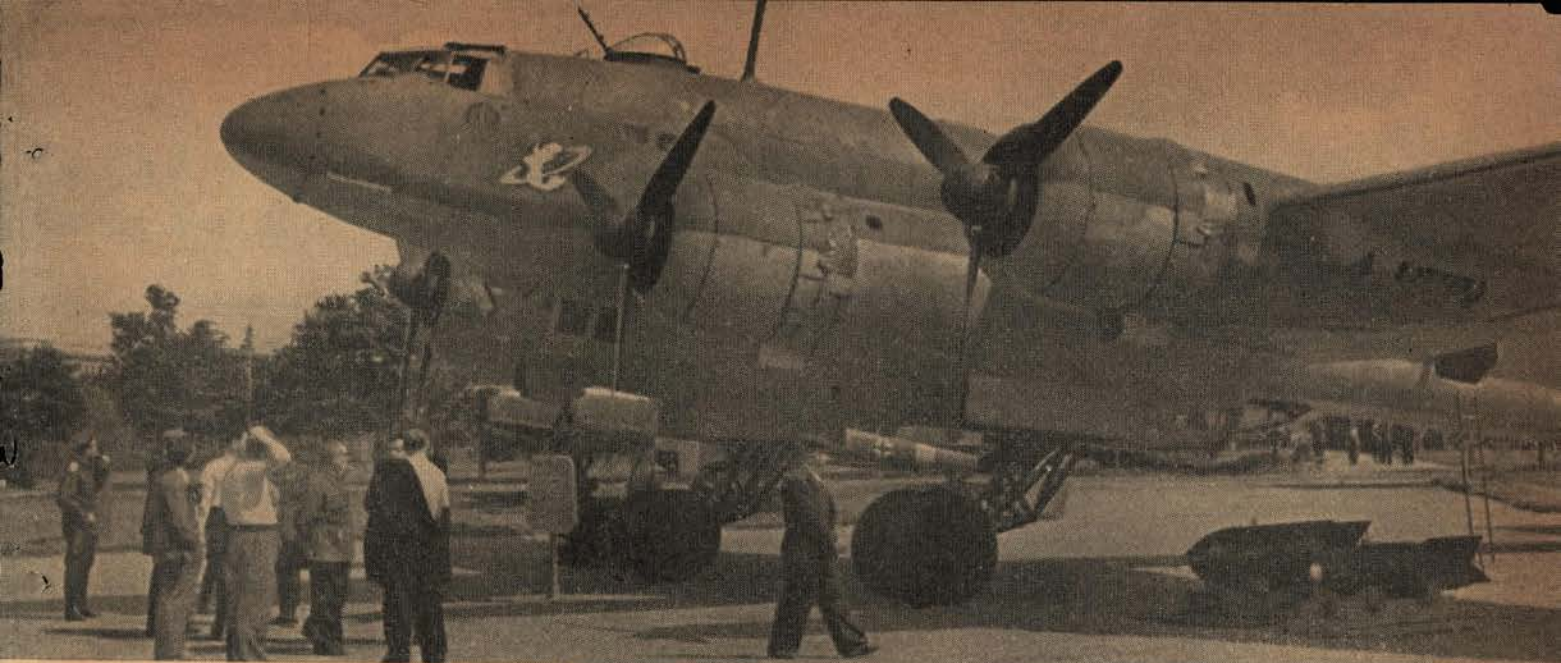
Sovfoto

This late type assault weapon has long high velocity 75mm gun with muzzle brake. Pictured here in recoil, the gun is longer than it appears. Slabs of armor have been fastened over sides of suspension as protection against AT rifles and grenades and to detonate shell.

Sovfoto

Mounted on a Mark IV chassis, this new assault gun is about 150mm. The tube is missing—only the outer jacket is left. Note remnants of side spaced armor and the ground hole in front where the crew apparently tried to dig in.

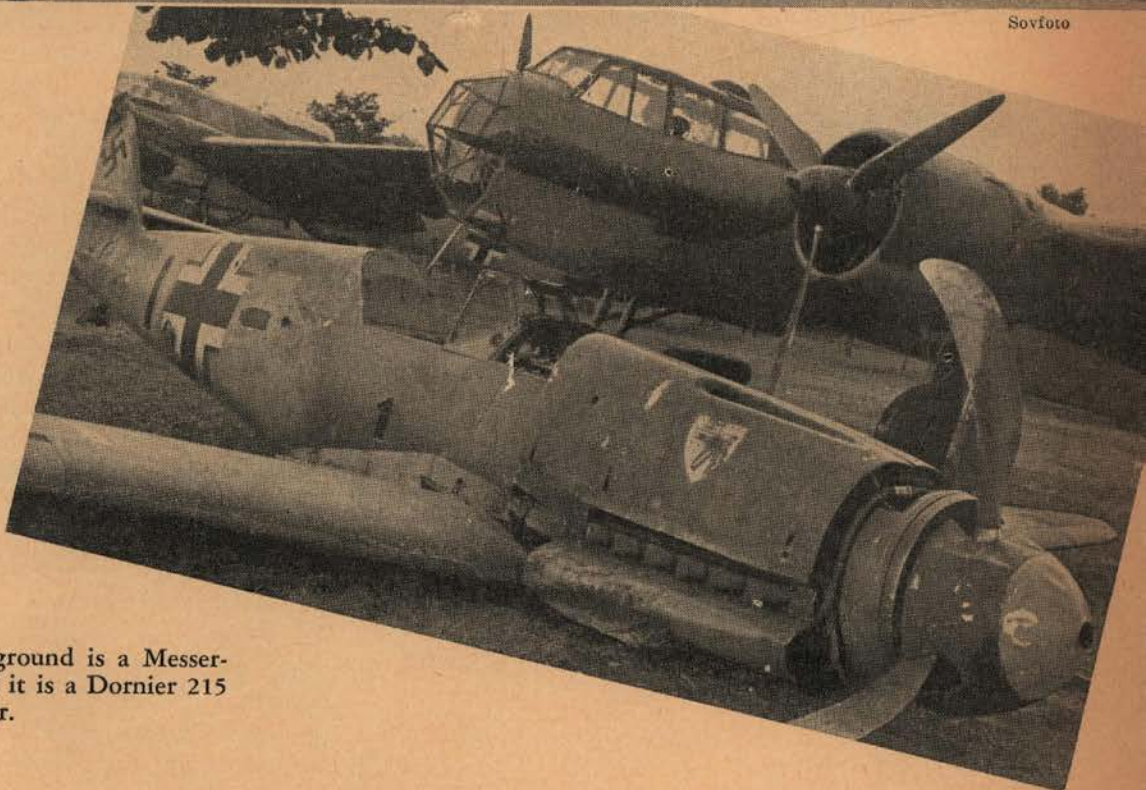




This heavy bomber shown at the Moscow exhibition of trophies captured from the Germans, is a "Focke Wulf-200." Russia claims that the Axis lost 43,000 aircraft on the Soviet-German front during two years of war.

Sovfoto

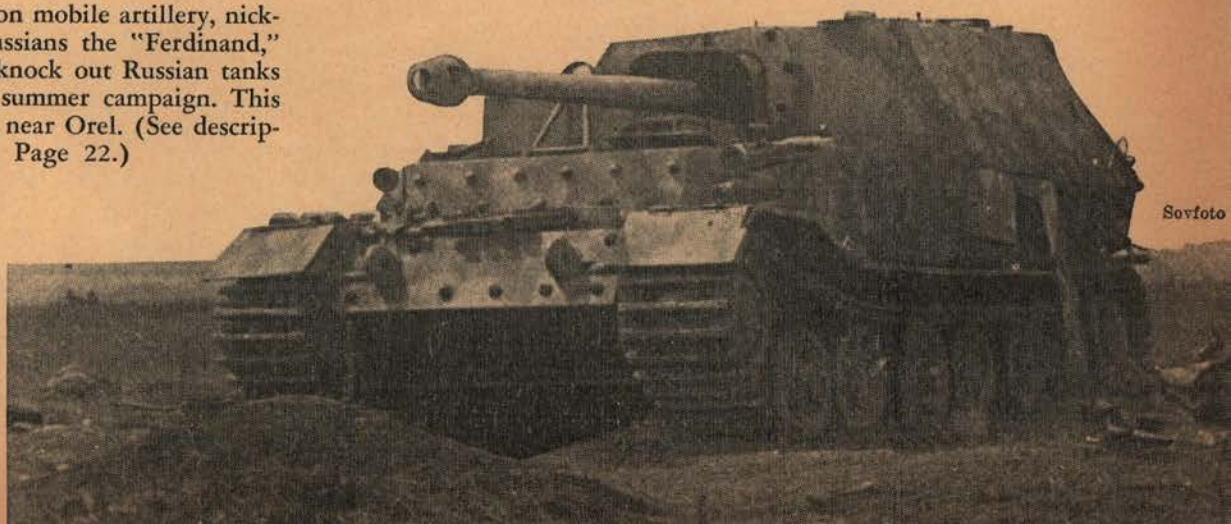
the Russian Front



The fighter in the foreground is a Messerschmitt. Directly behind it is a Dornier 215 bomber.

Sovfoto

The German 70-ton mobile artillery, nicknamed by the Russians the "Ferdinand," was designed to knock out Russian tanks during the 1943 summer campaign. This one was captured near Orel. (See description, Page 22.)



Sovfoto

Second Life of Russ

IT is a universally accepted idea in tactics that every tactical action, every combat, if analysed, is found to consist of three elements and three only: *fire, movement, and security*.

Mechanized warfare, however, with its tremendous use of matériel, on a scale ever increasing in volume and complexity, tends to create a fourth tactical element, the importance of which is becoming more and more obvious: *recovery*. The best tank commander can gain only an illusory, Pyrrhic victory if he confines his actions in battle only to hitting, moving and guarding. He has also to salvage. True, this problem always existed in warfare; but never had it such importance as it has acquired in mechanized warfare, which practically raises the act of recovery and salvage to the point of being a separate tactical function—although inextricably interwound with the other three elements.

One of the keenest Russian tacticians of the younger generation, Colonel P. Kolomitzev, expressed it well, when enumerating the main tactical principles in tank battles:

"In battles in which much matériel is used, the problem of evacuating and repairing is of primary importance. If evacuation is accomplished speedily, a large percentage of damaged machines can be repaired quickly and returned to active duty. In order to insure success in this field, in the final analysis, you, and not the enemy, must remain master of the battlefield on which the tanks have fought. Even when compelled to withdraw you should hold the field long enough to allow removal of all damaged tanks. Otherwise, the fighting strength of your tank units becomes rapidly exhausted."¹

EARLY GERMAN SUPERIORITY OF TANK SALVAGE IN AFRICA

Numerous cases on record demonstrate the truth of this principle. In the practice of it, the German Army, apparently, had a lead on its opponents, which is only recently being overcome. The excellence and thoroughness of German methods of salvage and repair has been noted by many observers on Allied fronts. In his well informed and convincingly told accounts, Allan Moorehead, war correspondent of the London *Daily Express* who spent a year with the British Eighth Army, emphasized the important rôle played by German initial superiority in salvage and repair methods during the early setbacks of the British tank units in Libya.²

Describing the battle of November 18-19, 1941, at which he was present, Moorehead writes: "... By six o'clock it was too dark to see any more, and one after

The author, a former captain in the Russian Imperial Army, is an expert military analyst of Red Army tactics and matériel.

another the guns hiccupped into silence. Both sides drew off. Through the sharp cold of the night, the Nazi recovery units crept forward onto the battlefield. . . . Working at speed, they hitched up the partly damaged vehicles, both British and German, and dragged them off to repair shops. . . . The German losses were unknown because so many of their tanks had been salvaged in the night.

"This first day of battle then had revealed the two great disadvantages which were to handicap the British for the whole of this campaign and for many months to come. It was known on this first morning that all our tanks were outgunned and that regardless of how many vehicles the Germans had lost, they were going to get a far greater number back into action than we could because of their efficient recovery system. Their huge tracked and wheeled tank transporters were actually going into battle with the tanks themselves. Even while the fighting was still on, the men in the transporters were prepared to dash into the battle, hook into damaged vehicles and drag them out to a point where they could start repairs right away."

When the tide changed and the British swept forward, they were much impressed by the lavish equipment and the repair shops captured from the Germans at Gambut, within comparatively few miles behind the front line. "The tank workshops eclipsed anything we had in the forward area. Bedded in concrete and under canvas were big lathes and a heavy smithy. Cases of tank precision instruments worth many thousands of pounds lay about. One was full of periscopes. Several huge boxes contained new 50mm guns which apparently could be fitted to damaged tanks in this place. There were sheets of armor, new tracks and tires, a mass of woodwork and steel parts. It almost seemed that they could have built a tank here in the desert by the sea."

When the full story of the African campaign is written, it will be interesting to follow the gradual improvement and development of British methods of saving wounded tanks and returning them to the battlefield, and the influence it had on the performance of their mechanized units. Parallel to that we probably will be able to trace the gradual deterioration and collapse of German recovery. Here, as in many other in-

¹THE CAVALRY JOURNAL, page 58, November-December, 1942.

²Allan Moorehead, *Don't Blame the Generals*. Harper and Bros. New York and London, 1943.

ian Tanks

by Nicholas Corotneff

stances, we shall probably find an additional proof of this strange aspect of the German tactics, which some observers fail to perceive. Their brilliant flexibility and versatility blossom out in "fair weather"—and shrink and stiffen under the chilly breath of defeat. British and Russian tactics showed the opposite tendency; adversity spurred them to development.

EARLY GERMAN SALVAGE IN RUSSIA

In the beginning of the war, the German superiority in retrieving damaged vehicles, and thus maintaining the fighting strength of their tank units, was naturally due to actual war experience, accumulated in their 1939-1940 campaigns. It was heavily enhanced by the fact that throughout the summer and fall of 1941, the constantly advancing German Armies usually had the possession of the battlefield after the engagement. The Russian losses in tanks, therefore, were exceedingly heavy—almost crippling.

The first reversal of form came with the German defeat at Moscow. Nothing better disproves the theory of the "strategical retreat according to plan" than the indisputable evidence of hundreds of tanks that littered the roads of German retreat. Under this first blow of adversity German salvage technique underwent an almost instantaneous collapse.

On the other hand, the bitter experience of these first months of reverses and retreats, showed the Russians the decisive importance of recovery and quick repair in mechanized warfare. Immediately, they set to work on improving their technique and devising new means and methods.

COMBAT TEAMWORK NEEDED IN SALVAGE

As far as Russian mechanized forces are concerned, we have at least some material on hand, which enables us to form a general picture of the gradual development of Russian methods of tank salvage and repair. Although lacking details, it is still clear enough to show what far-reaching effects the improvement in these methods had on the operations of Russian mechanized formations in 1942, which culminated in the brilliant performance of I and II Guard Tank Corps during the Stalingrad encirclement and, later, of these and other units in the successful annihilation battles on the banks of the Don.

The general setup at the beginning of the war left the problems of salvage entirely to the tank units themselves. Then, the battlefield recovery, following the dominating tendency of modern tactics, gradually developed into a combat team operation, in which infantry, engineers, mortars and artillery assisted and

A Red Army maintenance crew at the battle front is working on the axle of a rear bogie on a 42-ton KV tank.

Sovfoto.



protected tank and maintenance crews engaged in salvage.

Careless planning—or lack of planning—in carrying out recovery operations, often results in added tank casualties. Last winter, *Red Star* reported several examples, among them the following one:

"Several German tanks attacked a fortified position, held by the unit of Captain Soukhotin. The Soviet anti-tank riflemen opened fire and almost immediately disabled one of the attacking tanks. The rest turned back. In about fifteen minutes two tanks appeared, with the obvious intention of taking the disabled machine in tow. The antitank rifles again opened up. The German tanks, zigzagging all over the field, made several attempts with the result that one more tank was hit.

"Several hours later another attempt was made, this time in force. About ten tanks, with tommy gunners riding on top, led the attack. They were followed by infantry, strongly supported by mortar fire. The anti-tank riflemen, supported by machine guns and snipers went into action again. The engagement lasted about an hour, and the Germans succeeded in towing away one tank—but at the price of losing two more tanks and about 40 men killed and wounded.

"Another attack followed several hours later, in the last attempt to salvage the three machines. This time the Soviet unit, supported by reserves, counterattacked and finally captured the disabled tanks."

The mistake here was obvious. A strong artillery preparation directed against the antitank rifle nests would have greatly helped the recovery attempt.

Lack of teamwork—constant, closely knit coordination between all arms—nowadays always spells tactical failure. Even the most gallant and determined attempts by individual units fail in the long run, if they represent only disjointed and isolated attempts to reach a tactical solution which should be achieved by a concerted action of a combat team.

DEVELOPMENT OF RUSSIAN SALVAGE

In tracing the development of Russian methods of salvage and repair, no attempt is made herein to present a complete outline, as the information available at this time is insufficient. The general tendencies, however, and the new viewpoints developed in the last year or so are quite clear, and all Soviet reports put the emphasis on the same features.

The first clearly indicated trend is to place the advance units of maintenance battalions closer and closer to the battle line, whether in offense or defense. In the defensive battles of the summer and fall of 1942, just as in the following winter offensive, the supporting maintenance units, in the majority of cases, were located within approximately a mile from the combat units—sometimes within a thousand yards, and only in exceptional cases as far back as two to two-and-a-half miles.

The second important development is a greatly in-

creased range of important repairs undertaken by the advance units—the tendency to transform them into real "field tank hospitals," able to perform complicated surgery on disabled machines in the immediate vicinity of the firing line. In the beginning of the war, the Russian viewpoint was identical to that expressed in Article 39 of *Armored Force Manual* FM 17-58, which states that "only the most minor repair operations will be undertaken in forward positions." In actual battle practice, the Russians have abandoned this idea. As a matter of fact, the trend now runs in the opposite direction. One of the most outstanding maintenance men in the Russian army, Colonel Bormotoff, who was in charge of field repairs in Stalingrad, summarized it as follows:

"The slogan of our maintenance units can be formulated thus: Only burned-out machines are to be sent to the rear shops. In all other cases, including the most seriously wounded tanks, repairs can and must be carried out on the spot."^a

This statement is probably too far-reaching to be applied in an average case and rather reflects a successful experience of crack units, who proved to be pioneers in effecting complicated repairs in field conditions, but efforts are made to make this practice general.

NEW TECHNIQUES

Of the new techniques applied by forward maintenance units in repairing tanks, which in the early period of the war were invariably sent to the rear, the repair of wedged-in turrets seems to be one of the most frequently encountered. An actual description illustrates the procedure:

"A KV heavy tank, badly damaged by artillery fire, was towed to the collecting point. Two repair crews of the maintenance unit established the necessity of lifting up the wedged-in turret and repairing the transmission. For the latter job, it was necessary to take off the armor plates, get the gear shift out, and replace the clutch. The situation was such that evacuation to the rear was out of the question, and the order was given to start repairs right there, immediately after dark, and complete the job by dawn. One crew of three men worked on the turret; another one, simultaneously on the transmission. Using ordinary automobile jacks, the turret crew, after five hours of Herculean toil, succeeded in lifting the five-ton turret to the height of 250mm (10 inches). This clearance was large enough to take out the damaged separator-ring (on which the turret rotates) but was not sufficient to put in a new one. The repair crew decided to try a new expedient—to throw out the separator-ring altogether and add 50 ball bearings in its place. The scheme worked and the turret began to rotate easily.

"In the meantime, the second crew completed its work on the transmission and put the armor plates back. The whole job took eight hours. The tank was ready

^a*Pravda* December 17, 1942.

before dawn and took part in a combat attack early in the morning."

Another important improvement concerns motor repairs. In the beginning, all tanks with disabled motors or motors needing general overhauling, were evacuated to the rear. Now, as a rule, the motor is taken out, a spare one put in its place, and the tank returns to the battlefield immediately. In the beginning, difficulties were experienced by field maintenance units in taking out the motors, especially in the case of heavy KV tanks. Last year, a machinist of one of the large tank factories, Gvosdeff, invented a special crane, called the "arrow crane," which greatly facilitates this procedure. The crane, described as being exceedingly simple in construction and operation, is fitted on top of the turret. It easily lifts the motor right out, and after the repairs are completed, puts it back. Apparently, all maintenance units are now using the invention.

MOBILE REPAIR SHOPS

Considerable development has also taken place in the range of activities of repair and maintenance. These included battalions attached to army commands and so-called mobile repair bases of army and frontal commands.

Some of these mobile bases are completely motorized, some only partially so. They usually operate within 20-25 miles of the front line. In stabilized warfare, the repair equipment is installed in suitable buildings and specially constructed dugouts.

Conspicuously successful seem to be the so-called "repair trains" or "mobile railroad shops," introduced since the beginning of the war. This train is a miniature tank arsenal, installed in ordinary box cars, with a full assortment of lathes, a heavy smithy, and a power station. The train carries a set of special tents. Whenever conditions at the front are stabilized, a part of the equipment is detrained and installed on the ground. These trains, attached to army commands, operating within a few miles of the front line, are frequently under enemy fire. "Being completely self-supporting," states a Soviet account, "they often carry on for weeks, far away from populated centers, in the deserted steppes, on snow-bound, blizzard-swept plains."

The most valuable contribution that the mobile shops have made to the maintenance problems of Soviet tank forces is the ever-growing number of spare parts that they manufacture. This saves immensely valuable time in reconditioning tanks. At the same time, it relieves the great tank factories in the rear of a great deal of stress and allows them to concentrate on the production of new tanks. According to reports, some of the mobile bases have completely mastered the manufacture of over 200 different parts and details—sometimes "achieving, in field conditions, a production of spare parts and details which exceeds the pre-war output of large tank arsenals."

The results of these improvements in recovery and

repair methods proved to be far reaching and constituted a most important factor in the greatly increased strength and incomparably better performance of Russian tank forces in the winter of 1942-43. The Soviet tank experts estimate that the life span, or as they say "the battle life," of their tanks increased over 100%. In the beginning of the war, this battle life was considered to be between 120 and 150 hours. Now the average is between 240 and 280 hours. Some "Methuselahs" reach a life span of over 300 hours. As one of their maintenance experts said, "The Russian tanks got a new lease on life as a result of better recovery, exploitation, and repair methods. They have two lives now and are on the way to getting a third one."

DISSEMINATION OF EXPERIENCE

Perhaps one of the most interesting developments in the field of exploitation and repair of tanks is the Russian method of generalizing and standardizing the immensely valuable front experience—pooling the innumerable improvements in technique, minor inventions, short cuts and new skills developed by maintenance units, repair shops, individual technicians and mechanics, and then disseminating it through the whole army.

There is a great deal of evidence on hand to lead to the conclusion that probably no other army has achieved such results in a systematic, intensive study of battle experience, and in creating means and methods of making this cumulative experience available to the whole army. There is no doubt that this is one of the main factors in the constant improvement of Russian tactics since the beginning of the war.

The military press, a real syndicate comprising several hundred divisional and army newspapers, topped with the now world-famous *Red Star*, is, of course, one of the most powerful mediums of dissemination. Service magazines, of which there are ten or twelve, are kept constantly informed by the army commands of all new developments (except, of course, those of secret nature).

TANK DESIGNS AND CONSTRUCTION

There is a well-established liaison between the frontal commands and the tank constructors. The design and construction of tanks, as well as planes, is organized in Russia along unusual lines. The ordnance department is operated rather like a federation of separate construction bureaus, each one headed by a constructor of established reputation. Closely supervised and coordinated by the Ministry of Defense, which gives each bureau its assignments, they still seem to have a certain leeway, and assignments are given according to the proved capacities and inclinations of the constructor heading the bureau. The most noted of these constructors at the present time is Josef Kotin, the designer of the KV tank—the pride of the Russian army. A constant stream of information is pouring from the front to the construction bureaus, and frequent

trips to the front units are made by the members of their staff.

TANK SALVAGE EXHIBITION

A new method of collecting, standardizing and disseminating the huge amount of technical experience accumulated by the maintenance units, repair shops, and bases in the front line was inaugurated in Moscow last December. Under the guidance of a well known tank technician, General Sosenskov, an exhibition was held in the Polytechnical Museum, where all the new inventions, short cuts in production methods, and repairs were fully represented and illustrated. The exhibition was made into a real clearing house for everything new in salvage, exploitation, repair and production.

The exhibitors included the frontal commands, which demonstrated the achievements of their units, as well as the tank factories and repair shops of the rear. Although at this time the winter offensive was at its height, maintenance men and technicians of the front units, who distinguished themselves by inventing or working out new technical processes and procedures, were sent to Moscow to give explanatory talks and conferences during the exhibition. Army commands were instructed to send their representatives to study the collected material. Several Soviet accounts give us interesting details and highlights of which we can note the following:

To make a stronger visual impression, huge panoplies displayed the wornout, broken and damaged parts; and immediately next to them, the same parts restored and reconditioned. One panoply illustrated the new way of saving metal by converting the badly worn-out spare parts of large models into spare parts for tanks of the same design but of smaller size.

Another highly praised expedient, born of front line experience, which was prominently featured, was the so-called "grafting." A drive sprocket, for instance, badly torn by a shell, is repaired by having the damaged part cut out and the corresponding part of another damaged sprocket "grafted in."

This way of effecting quick repairs in field conditions, on more complicated parts, which are manufactured only by fully equipped tank factories, proved to be a great time and material saver. Naturally, it necessitated carrying an assortment of damaged parts, so that the "field surgeon" could have a wide enough choice for grafting operations, but the results seem to have been well worth while, and the parts repaired in this way were found to be as good as new.

Another expedient of the same kind is the "gear dentistry," when crowns made of a special alloy (sormite) are applied on the broken gear teeth. It is claimed that teeth thus repaired have an even longer life than new ones.

Gvosdeff's "arrow crane" was also exhibited, as well as a machine for automatic valve-grinding, new improved stands for assembling motors, etc.

The exhibition created a great deal of interest and elicited enthusiastic comments from officers and technical personnel of armored forces, who acknowledged the valuable aid and information which they received. Apparently, it is now planned to create a permanent "clearing house" of technical information along the same lines, not only for the armored forces but also for motorized units, and perhaps eventually for the whole motor industry. The beneficial results of such practical demonstrations seem to have been proved beyond doubt.

American officers and Russian seamen at the Moscow exhibition of trophies inspect re-built German tanks. The Russians claim that 42,400 tanks were lost by the Germans and their allies on the Soviet-German front in the course of the first two years of war.

Sovfoto.



Tank Battle at Prokhorovka^{*}

by Major K. O. Sukovsky, Red Army

THE battle fought at Prokhorovka in July, 1943, proved to be the turning point in the German offensive and Soviet counteroffensive in the Belgorod-Kursk direction. Just as in 1942 German shock troops that endeavored to break through to Stalingrad were routed on the Kotelnikovo battlefield, so at Prokhorovka, picked German panzer forces were stopped, then smashed and thrown back in their thrust toward Kursk.

This was not the first time that the area around the railway station of Prokhorovka had served as an arena for severe fighting and serious German defeat. There, during the first winter campaign in 1941, Russian tanks and artillery surrounded two German infantry regiments. Again last winter in the Prokhorovka-Byelenikhino triangle, as the result of a successful pincer movement, Soviet tank forces and motorized rifle troops annihilated a counterattacking group of German mobile troops. During the German counteroffensive this last spring, German tanks sent against Prokhorovka were pressed back to Belgorod Heights. Again in July, the Prokhorovka battlefield became the scene of important events but on an even larger scale. (See map, Page 32.)

During the early part of the fighting at Prokhorovka the situation was as follows: Having lost hope of a break-through along the Belgorod-Obayan highway, the Germans began to regroup their tank forces and bring them up to the right side angle of the wedge. Their purpose was to launch a thrust northeastward in the direction of Prokhorovka. Then, extending this thrust further along the railroad, they hoped to pierce the entire depth of the Soviet defenses and accomplish what had failed on the highway—namely, make a break-through toward Kursk, or even east of Kursk.

Meanwhile, fighting was in progress southwest and southeast of Prokhorovka. In the southwest, Soviet tank forces, in flanking counterattacks, localized the German attempt to widen the wedge; whereas in the southeast, the Germans launched an auxiliary thrust in an effort to join with their main body. This presented a peculiar situation. On two sides of the Prokhorovka-Byelenikhino triangle active engagements were in progress, while a decisive state of the operation was coming to a head in the area of Prokhorovka itself. There, at the base of the triangle, German tanks were going to strike massed blows from two sides. A Soviet tank formation was sent to parry the enemy attack in this area. Its mission was to counterattack the German main group and paralyze its activity by determined action on the right flank.

A small stream separating the antagonists, at first glance did not appear to be an obstacle, but reconnaissance revealed that the rugged woodland terrain along

its banks was extremely inconvenient for tank action and in places was entirely inaccessible to tanks. To attack the enemy from this side would jeopardize the advantage of surprise and swift action. Tanks impeded in maneuvering were liable to sustain losses without achieving success. Greater advantages were offered by the section between the railroad and the other stream flowing parallel to it. Wide fields with small gently sloping declivities, gullies and groves provided tanks the necessary space and freedom for maneuvering during the course of attack. Soviet tanks, therefore, took up initial positions in the area of Prokhorovka.

At the same time, events that were to determine the nature and progress of the impending battle were also taking place on the enemy's side. The German command, apparently guided by the same desire to avoid a position unfavorable for tanks, sent its panzer divisions to the same section near Prokhorovka. Coincidence occurred not only in the place selected but also in the time. These two avalanches of tanks simultaneously headed toward each other and met at close quarters only three kilometers from Prokhorovka, where near the state farm of "Komsomoletz" there followed one of the biggest tank battles of this year.

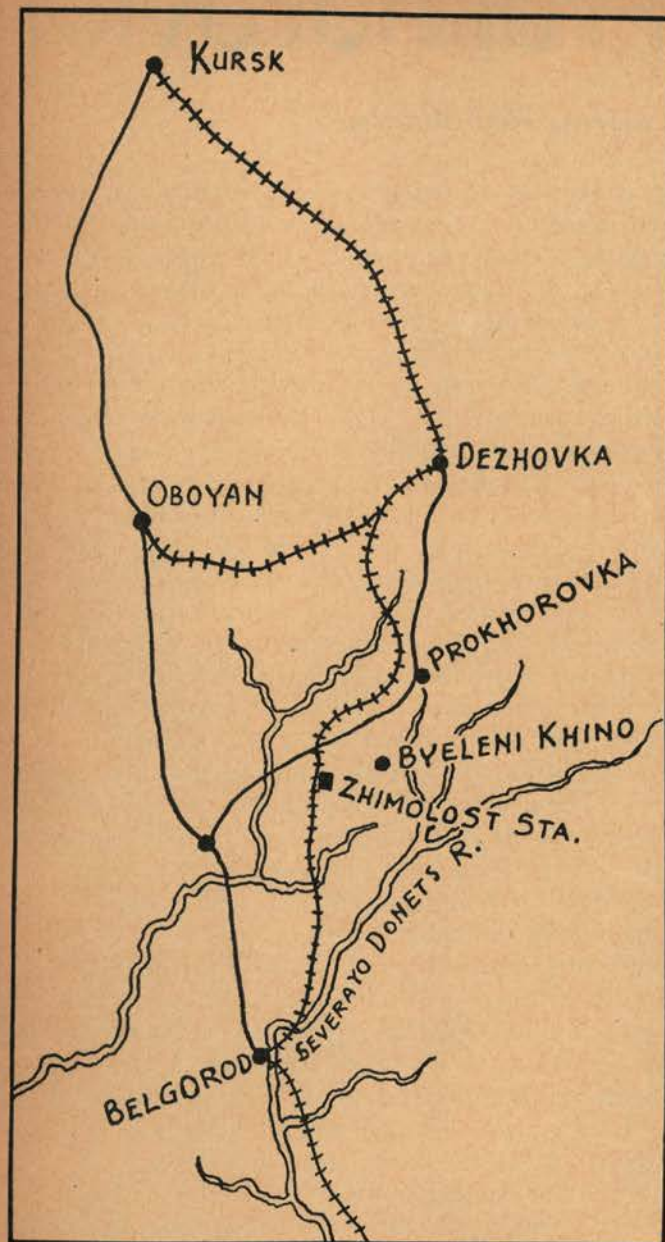
The appearance of Soviet tanks on the battlefield took the enemy by surprise. Their secret advance *during the night* and their skilful regrouping while taking up initial positions had escaped the enemy's notice. The enemy had been confident that he would have to deal only with Soviet infantry and artillery, and had not expected to encounter the large tank forces.

From the very beginning of the battle, the Germans betrayed indecision and yielded initiative to Soviet troops. The first echelon of attacking Soviet tanks crashed at full speed into the battle formations of the German tank column. Ranks became confused, and at close quarters the German heavy tanks, deprived of the advantage of their armament, were fired on at almost pointblank range by Soviet T-34 tanks. The attack was so swift that the first rows of Soviet tanks penetrated the entire enemy formation and reached the tail end of the enemy column.

The extensive field proved too small for such a vast mass of fighting tanks. The German force, consisting of shock troops—divisions belonging to the SS Panzer Corps—comprised about 400 heavy, medium and light tanks, accompanied by large numbers of self-propelled guns. During the battle, which continued until late evening, heavy turrets were shot off of many of the German tanks, and shells pierced holes in the armor of many others. More than a hundred enemy tanks and self-propelled guns burned on the battlefield.

In the counterthrust against the panzer divisions,

^{*}By wireless from the Military Department Press, U.S.S.R., Moscow.



the Soviet tankmen gained a great victory. The spearhead of the enemy's tank wedge, which cracked in the area of the Oboyan highway, was definitely broken at Prokhorovka, whence the Germans had expected to make a leap toward Kursk. The battlefield remained a No Man's Land, and for several days afterward was littered with black scorched skeletons of tanks.

Meanwhile, on a neighboring sector somewhat to the right of the tank battle, during a similarly fierce battle fought by the infantry, a Soviet rifle formation counterattacked the enemy and stopped him on a river west of Prokhorovka.

The same day (July 12th) Soviet troops at the village of Rzhaveta, southeast of Prokhorovka, met another German tank column en route to join the main forces. The fighting which ensued at this point was characteristic of the successful countermaneuver effected by Soviet antitank, field artillery, and flanking counterattack accomplished by the tanks. The enemy attacked

the center of the defense positions, where over ten batteries were concentrated. By a powerful fire barrage, the massed attack of enemy tanks was repulsed with heavy losses to them. The enemy then fell back to his initial positions and re-formed, but did not repeat the assault against the center. Instead, by massing in gullies, he tried the neighboring village.

All batteries then transferred their firing positions from the center to the flank. Such a countermaneuver, involving all available artillery, necessitated a considerable risk. Had the enemy detected it, he might have either anticipated it by an assault or else shifted his forces from the center. A further risk was involved in moving the guns under the observation and attack of enemy aviation, but the calculations of the Soviet command proved to be correct.

Skillfully accomplishing the maneuver, the batteries, which had taken up previously prepared positions by the time that the Germans launched a thrust against their flank, now again repelled the enemy. The German attempts to find the junction points between the units and break through simultaneously on both flanks were likewise thwarted by the countermaneuver of the artillery. The batteries maneuvered their fire and made dashes along the front to meet the German tanks.

A crucial moment of the battle occurred when the Germans, after their aviation had managed to silence one section of the Soviet artillery, drove a wedge into Soviet defenses with a large group of their tanks. The commander of the Soviet tank regiment was then ordered to assail the exposed enemy flank and restore the *status quo*. In this unequal engagement, the regiment sustained heavy losses but stopped the advance of the enemy column and filled the gap.

Fighting on Prokhorovka field and near the village of Rzhaveta represented the last stage of the German offensive in the Belgorod-Kursk direction. The worn down enemy was compelled to give up his concentric attacks towards Prokhorovka and go on the defensive. But fighting on the Prokhorovka battlefield did not end there. Several days later, fighting was resumed—this time on the initiative of the Soviet troops which launched a counteroffensive in the area of Prokhorovka and west.

The Germans entrenched themselves on a line formed by Prokhorovka Heights and in strong points on both sides of the railroad. At two points they were somewhat wedged into the front line. Soviet tank and rifle troops which attacked from the right cut off both salients, and by flanking counterattacks that captured key positions, broke down the resistance of the German troops.

Fighting for the heights southwest of Prokhorovka was most stubborn. The Germans had brought up a large number of artillery and trench mortar batteries and had managed to set up in this area a system of co-operating fire centers. Roads and gullies were mined. German infantry made use of old trenches as well as

new ones and reinforced them with a network of blind-ages equipped with machine gun nests. The Germans located their batteries on the back slopes and crests of hills, with a view for both frontal and flanking fire.

The main issue of this important counteroffensive was decided by Soviet tanks acting in cooperation with aviation in breaching the battle formations of the German infantry and reaching the area of the artillery positions. German antitank centers were crushed largely by Soviet artillery fire. At a section west of Prokhorovka a rifle formation broke through the German defenses on the river line and, by vigorously pressing their suc-

cess, advanced southward. The enemy's strong points to the left of the railroad were attacked by other rifle troops. As a result, the German forces, hard pressed in the triangle, were compelled to fall back southward to Belgorod.

Picked German panzer troops and infantry suffered severe defeat in the fighting on the Prokhorovka battlefield, where the superiority of Soviet maneuver tactics was fully manifested. This battlefield will go down in history as the scene of large scale engagements that determined the failure of the entire German 1943 offensive.



Artillery Support of Cavalry and Motorized Infantry at Stalingrad

IN surprise blows dealt the Germans in the Stalingrad area, an important part was played by the Soviet mobile troops—cavalry and motorized infantry. Some of these units made fighting raids of 200 and 300 kilometers in the enemy's rear and achieved important victories, in which they suffered quite inconsiderable losses.

Cavalry and motorized infantry, supported by artillery, went into action after the enemy's defenses had been pierced.

During the months preceding the Red Army offensive, the Germans at Stalingrad had succeeded in erecting very solid defenses. They had created a wide network of strongpoints, a large number of pillboxes, blockhouses, dugouts, deep intrenchments, and barbed-wire entanglements. All of these were shattered by the Soviet artillery at the very beginning of the offensive. After the enemy's defenses had been pierced, activity of the artillery increased and continued to operate as the infantry carried the fight into the enemy's positions.

The most responsible task of all was that of the guns escorting cavalry and motorized raiding parties. The movement of the Soviet mobile troops was swift and vigorous, but the artillery kept pace with them. The raid was begun by the artillery units commanded by Lieutenant Colonel Sergeyev. Their traction machines were thoroughly overhauled and brought into good shape, with the result that, as never before in all of these long marches, not a single machine was let out because of breakdowns. The artillery units did not lag behind the formation to which they were assigned. During the raids, they acted in close coordination with the cavalry and motorized troops. Because of good liaison work, the artillery commanders were kept well informed about all changes in the situation and were able at once to give artillery a good support when it was needed.

Near one of the villages the enemy rendered stubborn resistance to the Soviet cavalry formations. It was

essential to neutralize enemy fire nests without delay. Major Kotlovsky advanced his regiment into an open space, deployed it in battle order, and commanded the guns' fire over open sights. This powerful artillery attack came as a surprise to the enemy. His fire nests were destroyed, and the Soviet cavalry was able to advance.

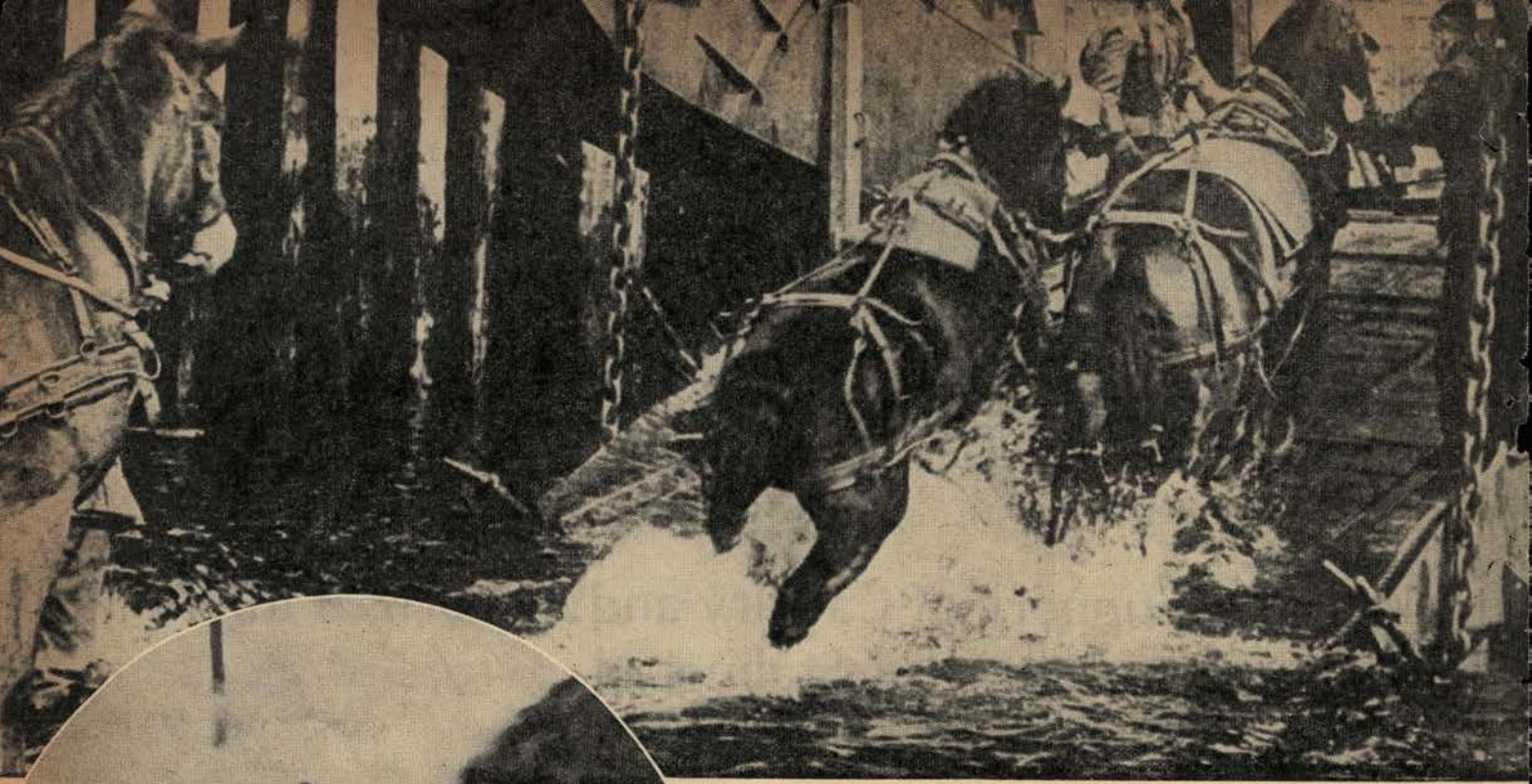
The Soviet troops launched a sudden attack on the enemy airdrome. Major Kotlovsky's guns opened fire at the enemy's fortified points, while the cavalry completed the rout, captured the airdrome and several dozens of planes.

During this raid Kotlovsky's regiment destroyed tanks, motor vehicles, fire nests, and forced about a regiment of the German infantry to flee. The regiment distinguished itself by a great mobility and vigor of action.

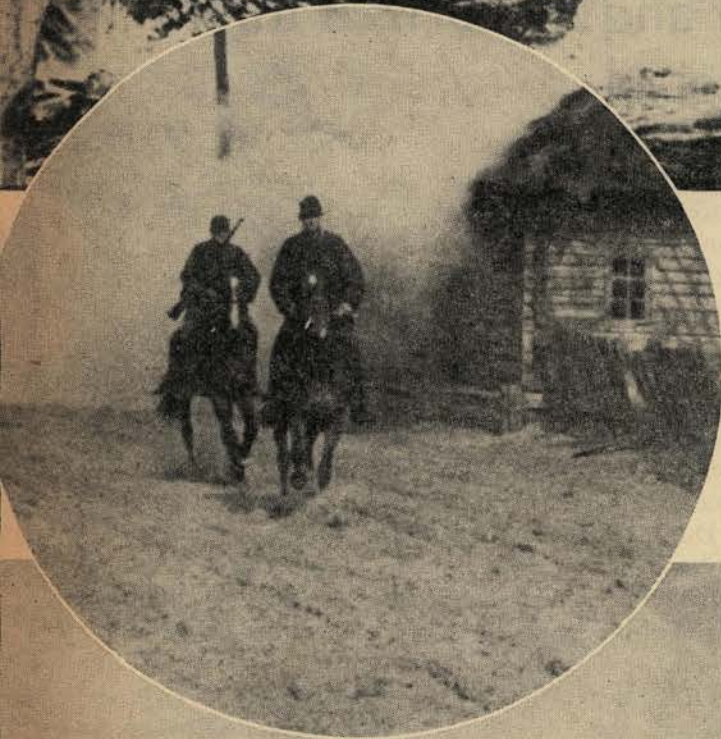
Other heavy losses were inflicted on the German tanks by the artillery regiment commanded by Lieutenant Colonel Zybkov. Endeavoring to stop the Soviet advance, the enemy hurled two groups of tanks into a counterattack. Zybkov's guns deployed straight from the marsh and opened fire. One enemy tank after another was put out of action, and the counterattack collapsed. Several dozens of damaged and shattered tanks were left on the battlefield.

The artillery cooperated with raiding units in a consolidating capture of inhabited places. Often enough the Soviet troops had organized an all-round defense task of the artillery and in such cases kept the enemy points of concentration and lines of approaches under fire. No less important was the part taken in the repulsing of the enemy's counterattacks and combating his antitank weapons. In a number of battles supporting guns followed in the wake of the Soviet tanks and opened fire as soon as the enemy's antitank guns betrayed themselves.

One regiment alone commanded by Lieutenant Colonel Sergeyev destroyed 16 German antitank guns.



It is said that German occupation troops in Norway are busy with exercises on how to transport horses. Above, German Army horses are shown entering flat-bottomed transport boats.



At left, soldiers of a German shock troop of cavalry leave a burning Soviet village. German caption claims that the village had been a guerrilla stronghold.

Below, horses, bought (or stolen) from Russian peasants, are transported to the German lines.

Press Assn. Photos



Horses in the
German Army

General Hawkins' Notes

Evaluation of Armor

MODERN mechanical equipment for the army is becoming an amazing, almost bewildering thing. American ingenuity, stimulated anew by U. S. entrance into this war, has caused the creation and production of astonishing mechanical devices.

Some of these devices are in the form of weapons such as the new cannon for field artillery, the antitank guns of various sizes and different principles for their application, and the antiaircraft guns. Other devices apply to transportation of all kinds—both for men and for supplies; others to communications.

It is difficult to say which of these new devices has had the greatest effect in the modification of tactics. For a time, the transportation of men and weapons in armored vehicles had the greatest effect, and this effect was increased by improved forms of radio communications. To a considerable extent, however, these devices have neutralized each other. For example, the new types of antitank guns and tank destroyer weapons have neutralized, partially at least, the great power developed in 1939 and 1940 by the armored combat vehicles.

There is a profound truth in all that. It is that new mechanical means of warfare seem overpowering and wonderful until other mechanical means are devised to oppose them. This does not mean that we can do without these new mechanical developments for either offensive or defensive operations. An army without them is seriously handicapped. It does mean, that since one device checks another, we must continue to study, develop, and use the tactical principles that have been proved throughout the history of warfare.

One of these principles is that *tactical success comes from the combined use of all arms and services under a unified command*, and not by too much reliance on any one branch or separate element, however new or old it may be.

To be useful, a weapon or a form of transportation or branch of the service must be such that it furnishes the best means of accomplishing certain necessary tasks. This does not exclude old weapons or any old means of defeating the enemy simply because they are old.

Another old and proved principle is that the *separate forces or units which have different tasks in a tactical operation must be kept within supporting distance of each other*.

There are, of course, other old and tried principles for tactical success, but particular reference is made here to the two just mentioned.

In the years 1939 and 1940, the Germans were able

to violate these principles in their application of the *blitz*. Their armored divisions hurled themselves through the gaps created by other troops, or by themselves, and exploited the break-through by attacking hostile reserves or reaching vital strategic areas without waiting for the support of any other troops. Running wild through hostile communications and headquarters posts, they created terror, confusion and utter demoralization in the rear of the hostile front lines. Their mechanical devices for attack were, at that time, unopposed by any devices for defense. The necessity for careful combined action of all branches of an army, in accordance with the first principle, did not exist.

The armored forces were invincible. The Allies had not only failed to equip themselves with mechanized devices of defense against armored vehicles, but had suppressed the maintenance of the only old branch in their services able to cope with the enemy in cross-country mobility—the cavalry. The Allied ground forces had no coördinated support from their air forces until the evacuation at Dunkirk.

During the conquest of Poland, Norway, and the Low Countries, the German armored forces, supported closely by their air forces, had no need for cavalry and ran no danger from their failure to observe the second principle mentioned above—that of keeping task forces within supporting distance of each other.

When the Germans attacked Russia in 1941, however, they found it necessary to modify their tactics. They could no longer apply the *blitz* as they had done in France. The Russians were too numerous and fought too stubbornly. Furthermore, the Russians had learned the lessons of 1940. They had begun to equip themselves with antitank guns, although they had not had time to produce enough of them. They had trained their artillery to oppose tanks; they had increased their own armored forces; and they had maintained large forces of cavalry. The Germans, therefore, had to be more cautious and were quick to resume the application of the two principles we are discussing.

The *blitz* was modified into the famous "wedge and kessel." The *wedge*, formed of armored forces backed up by deep columns of infantry, broke through the

Russia proves that mechanical devices do not change the most important principles of war.

Russian's lines and then turned to the right or left on a wide arc, and, doubling back upon their own lines, encircled and enclosed great masses of Russian troops. But it was found necessary to support the armored forces very closely with infantry. The motorized infantry belonging to the panzer divisions was not enough. Marching infantry in great numbers was called upon to follow closely after the panzer divisions in the wedge. This made it necessary for foot troops to march 30 to 35 miles per day in order to keep up.

It was here that the Germans should have realized the great mistake they had made in suppressing most of their cavalry. Modern cavalry would have had no difficulty in keeping up with the panzer divisions and would have formed a vital link between the armored divisions and the slower moving infantry.

A recent proof of the ability of modern cavalry to operate with tanks was demonstrated by the Russians in their defeat of the Germans at Taganrog. There, tanks formed the spearhead of advance, and cavalry instead of infantry was rushed into the breach to exploit the success. See Page 2, this issue.)

Following brilliant successes made early in the campaign, the "wedge and kessel" plan of tactics began to break down. This was due largely to the fact that the Germans had no large forces of cavalry. Their cavalry had become *"the missing link."*

It became difficult to protect the flanks of German troops employed within these wedges. The Russians began using defensive formations of great depth. Thus, the deeper the wedges thrust themselves through the Russian lines, the more bitterly they were opposed. The bottom or base of a wedge would be attacked by Russian armored troops combined with cavalry and followed by infantry. The campaign slowed down, the winter of 1941-42 followed, and the Germans were stopped.

When the spring and summer campaign of 1942 opened up, the Russians were better equipped with antitank weapons organized into units, and with armored forces and increased numbers of cavalry. In a desperate mood, the Germans hurled themselves forward, without regard for losses or for protection of their lines of communication. The Russians backed away and the Germans reached Stalingrad and the Caucasus by concentrating their power on the southern areas of the far flung battlefield. By this time the German lines of communication, under harassing attacks by Russian guerrillas and cavalry, began to falter in their tasks of supply, which grew increasingly difficult as the tenacity of the Russian defense prevented the fall of Stalingrad. In the Caucasus, the German advances eventually came to a halt.

Finally, it became the Russians' turn to take the offensive. They attacked the German army in front of Stalingrad. Great flank attacks and encircling movements around both flanks (led by armored troops supported by cavalry and followed by infantry) trapped the Germans in a vise that resulted in their surrender.

The decision of the German army leaders to diminish their cavalry forces in this war, and to rely so much upon mechanical means of transportation and combat, has proved fatal; whereas, the part played by the Russian cavalry in all these operations, and particularly in the successful operations of 1943, has been of great importance. The Russians, while taking every advantage of mechanical combat vehicles and new devices in guns, transportation, and communication, have also retained and used the old and tried branches of the service, and in so doing have gained a decided and permanent ascendancy over the German armies in Russia. In other words, the Russians have adhered to the two principles selected for this discussion as the two most important tactical principles in war. It would be well for the British and Americans to do likewise.

Many persons have wondered about the success of the Russians in defeating and driving back the great invading German armies. This success cannot be ascribed to any one thing. It was due to a combination of several things, but the possession of large forces of cavalry and its proper use is one of the important reasons. The failure to establish, maintain, and use large cavalry forces has cost armies dearly in the past and up to the present war.

The reasons for the Russian success and the German defeat can be stated briefly as follows.

1st. *The stubborn fighting spirit of the Russian soldiers.* They preferred to die rather than surrender. This delayed the German advances and caused them great casualties even in victory. Many victories became Pyrrhic.

2d. *The Russian adherence to all tried tactical principles and their ability to apply them in a flexible manner.* When a tactical operation failed, they were not upset and demoralized, but relied upon the resource and initiative of the leaders on the spot to make the best of the situation.

The Germans, in contrast, had written some new and untried principles into their books to fit into their new ideas of mechanized warfare. They relied upon these to bring them a quick victory in a short war against unprepared and ill equipped enemies.

Premier Stalin has written, "The Germans apply their tactics in accordance with textbooks and endeavor to fit events at the front into paragraphs of their regulations. The Germans are accurate and exact in their operations when the situation allows the requirements of their regulations to be carried out. This is where their strength lies."

"The Germans become helpless when the situation gets complicated and does not correspond with this or that paragraph in their regulations but requires adoption of an independent decision not provided for in the regulations. It is here that their main weakness lies."

3rd. *With their new ideas of mechanized warfare, the Germans thought that they could do without large forces of cavalry.* They did very well in Poland and

France when their enemies were unprepared to oppose mechanized force. As soon as they met enemies who had made some preparation to meet the armored divisions, the need for cavalry became very great.

In contrast to the mistake of the Germans in regard to cavalry, the Russians have maintained and used many divisions of cavalry throughout the war to date.

4th. *The strategic operations of the Russians in falling back into the depths of their vast country and gaining time to mobilize, equip and train their great manpower.* This operation was made possible by the tactical operations of their armies in fighting delaying actions over a period of nearly two years. This strategic plan also brought about the Pyrrhic victories gained by the Germans and the over-extension of their lines of supply.

5th. *The unpreparedness of the Germans for coping with the severe Russian winters and the ability of the*

Russians to use those winters to carry out harassing operations.

6th. *Close cooperation between air and ground forces.* In accordance with the principle of employing all means of warfare in close cooperation with each other, the Russians have used their increasing airforce in close cooperation with their ground troops, and as one branch of their army organization rather than as an independent force.

As should be apparent without question, however ingenious, amazing and astonishing our modern mechanical devices may be, there are certain old principles of warfare and certain old branches of the army—cavalry, infantry, artillery, etc.—that must be maintained. They must be modern, but they must also retain their principal characteristics, if we wish to win in modern warfare.



Change in Breden March Formula

FOR those accustomed to using the Breden March Formula, the change from the 9 mile to the 8 mile trot, as prescribed in C2 to FM 2-15, merely simplifies its figures and its use. For those not previously accustomed to its use, it gives an accurate and easily determined way of figuring how to get somewhere on a horse on time, without memorizing a lot of march data.

The Formula:

15 times rate (or distance) less the marching time in minutes equals the minutes of trot, or simply $x = 15R - t$

Example 1. It is desired to cover 5 miles in the first hour of a march, marching 45 minutes and halting 15.

Solution: $15 \times 5 - 45 = 30$ minutes trot

Example 2. It is desired to reach an initial point 3 miles distant in 35 minutes.

Solution: $15 \times 3 - 35 = 10$ minutes trot.

Example 3. It is desired to march 24 miles in 4 hours, halting 15 minutes the first hour and 5 minutes thereafter.

Solution: $15 \times 24 - 210 = 150$ minutes trot
 $210 - 150 = 60$ minutes.

Ratio = $\frac{150}{60}$ or 5 minutes trot to each 2 minutes of walk.

The original formula, based on the nine mile trot, was derived from an article in THE CAVALRY JOURNAL in 1936. General Wainwright directed that it be taught at The Cavalry School. It has also been included in the instructional data in FM 2-15 (par. 187, (7), dated April 8, 1941).

For those interested, its mathematical accuracy is demonstrated as follows:

The Derivation:

Let x = minutes of trotting time in march period.

y = minutes of walk.

R = rate of march in miles per hour.

t = march period in minutes.

$$4 \times \frac{5280}{60}$$

The walk = 4 miles per hour = $4 \times \frac{5280}{60} = 352$ feet/min.

The trot = 8 miles per hour = 704 feet per minute.

$$\left. \begin{array}{l} 704x + 352y = 5280 R \\ x + y = t \end{array} \right\} \text{Relationship Equations.}$$

Solving: $x = 15R - t$

For anyone desiring to substitute any other rate of march, for either the walk or the trot, it is simply necessary to change the figures in the Relationship Equations above and solve. The 2nd Cavalry Division has been using the $6\frac{1}{2}$ mile trot, in which case the formula becomes $x = 24R - 8\frac{1}{5}t$.

The Gallop Formula:

C2 of FM 2-15, referred to above, says "The gallop is used only under exceptional circumstances or when required by the tactical situation." Under those circumstances, it is a good thing to have something usable at your finger tips—one that resembles the trot formula.

Formula: $z = 10R - t$

Minutes of gallop = 10 times rate (or distance) less marching time. The remaining time to be equally divided between walk and trot.

Example: It is necessary that you march 5 miles in 30 minutes. How can you do it?

Solution: $z = 10 \times 5 - 30 = 20$ minutes gallop, 5 minutes trot, 5 minutes walk.

This formula is based on 12 mile gallop, 8 mile trot, and 4 mile walk.

HEADQUARTERS
ARMY GROUND FORCES
OFFICE OF THE COMMANDING GENERAL
ARMY WAR COLLEGE
WASHINGTON, D. C.

TO THE OFFICERS AND ENLISTED MEN
OF THE ARMY GROUND FORCES:

Our third War-Christmas is here. Our first one plunged us into a grim defensive battle on all fronts. With our meager shipping we rushed our partly trained troops here and there in a desperate effort to close the gaps as best we could. We hung on. German submarines were sinking our ships within sight of our Atlantic Coast.

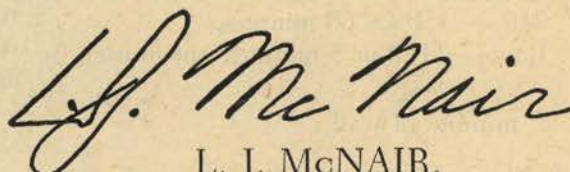
Our second War-Christmas found us invading Africa and striking back in New Guinea and Guadalcanal. We had the measure of the Japanese Navy, but German submarines still were inflicting heavy losses on Allied shipping. The worm was beginning to turn, but not too fast nor too fully.

This Christmas we really have much to cheer us. We are conducting successful naval operations in both the Atlantic and the Pacific. We have the mightiest battle fleet ever known, and it is growing. Military operations are in progress in nine theaters all over the world. Africa is rid of the enemy. We can strike on land and sea wherever we elect. We have the initiative. The enemy is on the defensive everywhere. Our superiority is becoming more decisive month by month. One-third of our army is overseas, and shipments are being speeded. Victory may not be in sight, but it is certain.

The soldier's Christmas during war perhaps cannot be too merry in the usual sense, but everyone can be proud of America's war effort, and proud of being a fighter in the biggest and finest Army we have ever had.

I have watched our war Army in training for over three years. My admiration for the American soldier increases all the time. I believe in him, and am certain that, led properly, he is invincible in battle.

My best wishes to you all, and my gratitude for your devotion and fine accomplishments.



L. J. McNAIR,
Lieutenant General, U.S.A.
Commanding.

Editorial Comment

Faith In God—A Powerful Weapon

Once again time ticks its way through the Christmas season and into the dawn of a new year. Two years have now passed since the attack at Pearl Harbor—two years of valiant effort—two years of almost miraculous accomplishment by a nation banded together in a national faith in God to defend the liberties that are American tradition.

The work of these two years has been an uphill fight and the end is not yet in sight. Although the military situation is far different from that of two years ago and eventual victory now seems assured, a terrific struggle still lies ahead for the coming year. Our enemies are not yet beaten. To make certain that they will be, it is necessary that both the national effort and national faith constantly be renewed and ever strengthened.

There are many reasons that have brought this nation steadily out of the perilous odds of two years ago and to the cumulatively powerful position of the present. Not the least of those reasons is the national faith in God—faith in the destiny of America—faith in the principles of each man's right to "life, liberty and the pursuit of happiness." Faith is one of the nation's most powerful weapons—a weapon which cannot be captured by the enemy—and must never be lost even when everything else seems gone.

To those on the battle fronts—at home or overseas—THE CAVALRY JOURNAL once more sends its Christmas and New Year's Greetings:

May we never lose faith in God or country. It is that faith which will speed us to a righteous victory so that once again a war-torn world can return to "Peace on earth, goodwill toward men."

1 1 1

Cavalry Journal Policy and Red Army Strategy

From the early fall and winter of 1941—while even military men contended that "Russia could not possibly hold out" against the German Army—THE CAVALRY JOURNAL has consistently extolled the fighting power and sound strategy of the Red Army, which from the beginning employed large masses of cavalry in *coördination with other arms*.

In June, 1942, THE CAVALRY JOURNAL cabled the War Department, U.S.S.R., Moscow, and requested an authoritative article on the Russian employment of cavalry and its value in modern war. The War Department responded promptly by cabling an article by Colonel General Gorodovikov, in charge of training cavalry reserves. This article, published in the July-August, 1942, issue was the first of many Russian articles on the employment, not only of cavalry, but of

tanks, motorized infantry, artillery, maintenance crews, and other arms and services.

CAVALRY JOURNAL policy regarding the Red Army was not a mere happenstance. It was based on a careful analysis of early Russian victories. As pointed out by General Hawkins in his Notes in this issue, the leaders of Russia's armies, unlike many modern extremists, did not overlook certain fundamental principles of warfare, but ably coördinated and employed both *old and new arms* in the application of *sound well-tested principles*.

During the days of the Red Army's withdrawal, Russian cavalry frequently operated behind the enemy lines—interrupted supplies and communications, harassed reserves, and destroyed staff headquarters. The cavalry struck quick, sharp, devastating blows; then quickly withdrew and melted into the forests and countryside. It was in this manner that General Dovator's cavalry fought in the defense of Moscow in 1941. His surprise thrusts were so penetrating and disastrous that the German command credited him with having 300,000 men. The Red Army later announced his command as 3,000.

The first employment of cavalry in a strategic rôle in modern war occurred at the first battle of Rostov, which was won on November 28, 1941—nine days before Pearl Harbor. That was also the first defeat of a Nazi army in Russia. A cavalry force dispatched by Colonel General Cherevichenko to the flank of General von Kleyst's crack First Armored Tank Army caused a complete rout of the German force comprising three tank and one mechanized division.

A few days later, December 6th, the Third Guards Cavalry Corps under General Kryuchenkin, accomplished the first great double envelopment of Nazi forces on the Russian Front. By joining another cavalry pincer under Colonel Kuliev, they surrounded three German infantry divisions (the 45th, 95th, and 134th) which were striking toward Moscow from the Central Front.

The following day, between Stalingorsk and Venyev on the approach to Moscow, the First Guards Cavalry Corps under General Belov struck at the foundation of another German wedge aimed at the Soviet capital and reportedly "wiped out" three divisions of General Guderian's Second Armored Tank Army.

These successes, which followed quickly one upon the other, first turned the German tide of conquest and, as early as November and December of 1941, presented the pattern for victory recently employed in the great Soviet offensive of 1943.

The earlier Russian offensive suffered reverses in the spring and summer of 1942, but from a study of recent



Russian successes it appears logical that those reverses were due more to the difficulties of production and the consequent shortage of matériel than to faulty strategy or tactics.

Beginning with the Battle of Stalingrad, the Red Army has had an astounding series of victories that have pushed the Nazis back from the Volga to the borders of Poland. Of particular interest to *The Cavalry Journal* is the definite pattern that appears to run throughout—great double envelopments by large forces of cavalry and tanks in coördinated attack.

In the Battle of Stalingrad, where the German Sixth Army was completely encircled and annihilated, two pincers—one from the north, one from the south—met at Kolock on the bend of the Don. Early reports indicated that the southern pincer comprised a tank corps and a guards cavalry corps; and the northern pincer, a tank corps. Later reports confirm that both pincers were spearheaded by tanks, and the breakthroughs exploited by cavalry. This same strategic pattern was employed more recently at Taganrog and in the battles of the Nogaisk Steppes and the Dneiper Estuary. (See articles, this issue.)

Even as *The Cavalry Journal* goes to press, new victories, following the now familiar pattern, are reported:

"London, November 13 (AP). The Russians, throwing their cavalry into their semicircular offensive from Kiev yesterday, reached to within 15 miles of the rail junction of Zhitomir and captured 100 towns as they steadily pushed the Nazis nearer to the prewar Polish border. The early morning

communiqué broadcast by Moscow said cavalry was used to by-pass and surprise the Germans as the Russians captured Korostyshev on the main road from captured Kiev to the rail junction objective of Zhitomir."

"London, November 15 (AP). The horse-plus-armor sweep of the Russians toward the Polish and Rumanian borders moved ahead with about the same speed that carried the Russians 85 miles from Kiev to Zhitomir in a week of steady fighting.

These successes of Red Army cavalry have proved that, far from having been displaced on the battlefield, the horse has risen to new and higher standards of value. Even the most skeptical military analyst must now admit that the employment of cavalry by the conquering armies has been fully justified.

The *CAVALRY JOURNAL* is proud of its unflinching policy—proud of its steadfast and undiminishing faith in the ability of cavalry; its unbiased analysis of the means and methods of warfare, regardless of arm or army; and its early recognition of the strategic pattern of the Red Army, now culminating in the outstanding victories.

From the Text of the *Moscow Pact*

Statement signed by President Roosevelt, Prime Minister Churchill and Premier Stalin regarding atrocities.

"The United Kingdom, the United States and the Soviet Union have received from many quarters evidence of atrocities, massacres and coldblooded mass executions which are being perpetrated by Hitlerite forces in many of the countries they have overrun and from which they are now being steadily expelled. The brutalities of Nazi domination are no new thing. . . .

"What is new is that many of these territories are now being redeemed by the advancing armies of the liberating powers and that in their desperation, the recoiling Hitlerites and Huns are redoubling their ruthless cruelties. . . .



—Drawing by William Gropper
from "Your Brother's Blood Ories Out."

"Accordingly, the aforesaid three Allied powers, speaking in the interests of the 32 United Nations, hereby solemnly declare and give full warning of their declaration as follows: At the time of granting of any armistice to any government which may be set up in Germany, those German officers and men and members of the Nazi Party who have been responsible for or have taken a consenting part in the above atrocities, massacres and executions will be sent back to the countries in which their abominable deeds were done in order that they may be judged and punished according to the laws of these liberated countries and of the free governments which will be erected therein.

"Lists will be compiled in all possible detail from all these countries, having regard especially to invaded parts of the Soviet Union, to Poland and Czechoslovakia, to Yugoslavia and Greece, including Crete and other islands, to Norway, Denmark, Netherlands, Belgium, Luxembourg, France, and Italy.

"Thus, Germans who take part in wholesale shootings of Polish officers or in the execution of French, Dutch, Belgian or Norwegian hostages or of Cretan peasants, or have shared in slaughters inflicted on the people of Poland or in territories of the Soviet Union which are now being swept clear of the enemy, will know *they will be brought back to the scene of their crimes and judged on the spot by the peoples whom they have outraged.* . . ."

LETTER FROM ITALY

"X" Replacement Battalion, Fifth Army

Editor, The Cavalry Journal
Washington, D. C.

4 November 1943

Dear Sir:

In absence of a copy of The Cavalry Journal and having complete faith in your selection, I am inclosing a money order for ten dollars (\$10) for which I would like as many books and pamphlets as possible on horsemanship and horsemastership.

We are training mounted units and are at a loss for material on riding and care of the horse. Tactical information is not necessary, because our horse units here in Italy are making their own tactics.

Ask General Hawkins to write some of his very helpful notes on horse reconnaissance in mountains for us. . . .

2nd Lt., Cavalry.

Annual Meeting

The annual meeting of the United States Cavalry Association will be held at the Army and Navy Club, Washington, D. C., at 8:00 P.M., Monday, January 24, 1944.

Formal notification, together with proxy cards, will be sent to all active members of the Association within the continental limits of the United States. All members are requested to execute and return proxy cards promptly to the Secretary, U. S. Cavalry Association, 1719 K Street, N.W., Washington, D. C.

Those officers stationed in the vicinity of Washington are urged to be present in person.

No Comment!

THE NEW YORK TIMES,

NEW TYPE U.S. CAVALRY IN ACTION AT SALERNO

Reconnaissance Troops Prove Valuable in Tough Terrain

SOMEWHERE IN ITALY, Sept. 25 (Delayed) (U.P.)—A new type of American cavalry, known as the Provisional Mounted Reconnaissance Troops and composed of American volunteers who are experienced horsemen, has gone into action on the Salerno front.

They came into being as the United States Fifth Army began meeting tremendously difficult terrain as it pushed forward steadily in Italy. The mounted troops have shown special ability in wiping out enemy machine-gun nests and hidden mortar and artillery groups. They have also attained grand results in knocking out German artillery posts in mountain positions inaccessible to almost anything but a horse.

Most of the troopers were cow-punchers or farm boys who have been riding from youth. One or two were star rodeo performers.

"Only a few of our horses have been brought from America," said Pfc. John F. Meglich of St. Louis, Mo. "Actually most of them are German and Italian cavalry horses that were captured in Sicily."

"We do almost everything, from delivering food, water and supplies to outlying posts where trucks and even tanks can't go sometimes to knocking out machine gun nests."

"We are pretty good with the use of these little yellow golf balls," he said. Then he held out some plump, yellow-painted hand grenades which the troopers carry attached to their saddles.

Meglich said he had been a cow-puncher before the war, mostly on ranches around Pierre, S. D. Pvt. John Backiel of Northampton, Mass., another trooper, said he learned to ride horses on his father's farm.

"We also use a large number of mules as well as horses," said Backiel. "Mules are used to carry packs like food and ammunition."

An aerial photograph of a wide river, likely the Perak River, filled with numerous small, dark-colored boats. In the background, a city with various buildings and structures is visible along the riverbanks. The title 'Malaya Campaign' is superimposed in large, bold, black letters across the top of the image.

Malaya Campaign

*by Colonel C. Stanton Babcock,
formerly attached to United States
Embassy, Tokyo*

Part II

THE PERAK RIVER CROSSING

The Perak River runs south from Kuala Kangsar, the site of the first of the British positions, where the highway and railway cross the river, for nearly 62 miles as far as Telok, where it turns west and some 12½ miles farther on empties into the Malacca Straits. After crossing the river at Kuala Kangsar, the railway and highway climb the hills on the eastern bank, then turn south, and roughly parallel the river at a distance of one or two miles. They pass through Ipoh, the site of the second British position, and from there run west close to the river until it flows through Telok, whence the roads continue south towards Kuala Lumpur.

Air reconnaissance had informed the Japanese that the British were preparing to defend the river line at Kuala Kangsar, at Ipoh, and at Telok, and that the field fortifications at the last two places were so arranged that they were capable of defense against any force coming down the road from the north as well as against any attempts made to cross the river from the west.

All three of the British positions were strong and would be difficult to take. The line that they were trying to defend, however, was very extended, and, as it

faced west and their line of retreat was to the south, it was extremely vulnerable to any attacks made at its southern extremity—namely, Telok.

General Yamashita had been unable to use more than about one division at a time in any engagement thus far, because of the narrow front on which his troops had been operating. Now, however, with a 62-mile front to attack, he was in a position to use the major portion of his force, and with plenty of room in which to maneuver he could use his troops to greater advantage than merely having them slug their way down a narrow road.

All of the artillery of the motorized division which had been leading the column was placed in position on the Larut Hills and brought to bear against the British forces at Kuala Kangsar. From the summit of the pass, however, the road wound down the mountain side to the river for about 3 miles in full view of the British batteries, and it was impossible to move any large bodies of troops down this road to positions where they could come into contact with the enemy on the far bank. All that the Japanese could do was to send down small detachments at night, when by moving rapidly and at ir-

regular intervals they could traverse the road without suffering too heavy casualties from the interdictory fire of the British batteries, which kept pounding this road throughout the hours of darkness.

The British guns were well protected, and in spite of the fire of the motorized division's artillery and a number of dive bombing attacks, the Japanese were unable to silence them. It became clear that it would be impossible to cross the river at this point. The Japanese determined to attempt a crossing at a point near Ipoh, about 12 miles downstream from Kuala Kangsar. The British positions at this point were every bit as strong as those farther upstream, but the flat, thick jungle, which extended right up to the bank of the river, enabled the Japanese troops to approach much closer without being seen.

The "roads" through this area were scarcely more than native paths. The Japanese used three regiments of engineers over a period of four days in improving the road from Taiping to the point on the river bank opposite Ipoh that they had chosen for their attack. By the morning of the 26th, the artillery of the division selected for the task was in position in the jungle, and the infantry units and engineers, in assembly areas close to the river, were prepared to move forward when the time came, launch their rubber assault boats, and cross to the opposite bank.

All day long the artillery fired a heavy bombardment against the British lines. The actual crossing was set for the morning of the 27th, and in the early morning hours before daylight, three combat teams composed of engineers and infantry moved up to the river bank and waited for the signal to launch their boats. Just after daylight, bombers came over and rained high explosives on the British lines for nearly half an hour. As the last plane disappeared, the assault teams shoved off from the bank of the river and started paddling across.

Because of the heavy bombardment, the Japanese thought that they were going to be able to cross the river with very little opposition. But the British positions had been so well hidden in the jungle that neither the artillery nor the bombers had succeeded in accurately locating them. As a result, there were enough machine gun nests and batteries in action that morning to turn such a hail of fire on the Japanese as they paddled slowly across the river that the attack broke down almost before it started. Japanese losses must have been very heavy, for there were no further attempts that day to renew the advance.

Although this attack was itself a failure, it did succeed in ultimately getting the Japanese across the Perak River. The British apparently realized that if and when the Japanese ever did cross at Ipoh, the troops at Kuala Kangsar would be cut off from retreat, and therefore they withdrew the garrison from its defense of the bridges at that point and moved them south to join the troops at Ipoh. This evacuation, of course, enabled the Japanese to cross at Kuala Kangsar. By the afternoon of

the 27th, General Yamashita had a division on the eastern bank of the Perak River ready to move on the British at Ipoh from the north, as well as a division which was ready to attempt a crossing from the west bank.

The attack was launched again on the morning of the 28th, and concentrated fire from the batteries of two divisions plus some additional heavy artillery was directed against the defenders. For the first time in the west coast campaign, two complete Japanese divisions were employed simultaneously. But in spite of all that they could do, they were unable to dislodge the Australians from any but the most advanced positions.

During the day three onslaughts were repulsed by the defending troops. Late in the evening, after having repulsed the third attack, the British command suddenly retired and, leaving only a small rear guard in the lines at Ipoh to cover their withdrawal, moved rapidly down the road in the direction of Telok. The cause of this retreat was the sudden appearance of a strong Japanese force at the mouth of the Perak River near Telok. This was a third division which the Japanese had moved south through the jungle until it reached the coast at a small town called Lumpat. There, after assembling a number of knocked-down motorboats which they had brought with them, they embarked two specially organized assault battalions, which moved down the coast

The Conquest of Malaya from the Japanese point of view.

Like the two installments of "Philippine Campaign," and the account of the Hong Kong Campaign written by Colonel Babcock, this account of operations in the Malaya Campaign is based on information drawn entirely from Japanese sources: official bulletins, news reports, speeches, radio commentaries, magazine articles, and personal experience accounts written by officers and men at the front. The only Allied bulletins used were those quoted in the Japanese press.

Colonel Babcock says: "While confined to the compound of the American Embassy in Tokyo from the outbreak of war until June 17, 1942, I was cut off from any outside news. Consequently, the preparation of this paper has not been influenced by information received through any but Japanese sources. It should also be remembered that all dates are one day advanced over those used in the United States."

some 19 miles to the mouth of the Perak River, where they headed upstream towards Telok.

The plan was to surprise the garrison at Telok before daylight, capture the town, straddle the road coming south from Ipoh, and so bottle up the retreating British



troops. A small British river patrol, however, discovered them about 6 miles downstream from Telok and gave the warning in time to alert the garrison. The British were ready when the Japanese boats arrived, and as the attackers had no artillery or aviation support, the defenders had no difficulty in repulsing them. But the appearance of Japanese troops virtually in rear of their lines alarmed the British High Command to such an extent that it was apparently decided to abandon the defense of the Perak River and to withdraw to the vicinity of Kuala Lumpur where the next defensive line was being prepared.

BATTLE OF KUALA LUMPUR

The defense of Kuala Lumpur consisted of a series of gallant fights in which the British time and again repulsed the most desperate Japanese attacks, only to be forced ultimately to give up their positions because of Japanese landings behind their lines. By this time, the British had received both air and ground reinforcements from India, and the 11th Division, after withdrawing from Telok down the road toward Kuala Lumpur, passed through the lines of the recently arrived 45th Indian Brigade, which was building a defensive position in a defile just north of Trolak.

The terrain at this place is somewhat similar to that encountered by the Japanese in the pass through the Larut Hills, and they were forced to employ the same tactics in their attempts to overcome British resistance at this point. Now, however, the British forces consisted of a full brigade of fresh troops supported by a mountain artillery brigade, and the repeated frontal attacks which had overcome the lone Australian bat-

alion in the previous fight were unable to wear them down. The British had enough troops available for the defense of this pass to enable them to rotate the battalions in the trenches, so that when the Japanese brought up fresh troops, the British also were able to bring reinforcements up into the line.

The Japanese unit involved in this action was an infantry division, which up until then had not seen any serious action. The motorized division, which had led the march ever since the landing at Singora, had been pulled out after the Larut Hills fight and had withdrawn to Taiping for rest and reorganization. For some reason or other, the Japanese did not press their pursuit after the British abandoned Ipoh and Telok, probably because the troops which had marched south through the jungle and attempted to land at Telok were scattered between that town and the mouth of the Perak River and Lumpat.

The logistics problem involved in supplying the Japanese division on the coast was a difficult one. Some time was required to work it out and to reassemble the division at the mouth of the Perak River preparatory to resuming operations along the coast. As the advance of the main column down the highway depended on the success of the landing operations to be carried out by this unit, the entire Japanese force was held up for several days, while the necessary supplies and boats were being assembled in the vicinity of Telok.

When all preparations had been made, the Japanese advance division moved out of its bivouac south of Ipoh and headed down the road towards Trolak, where an advance detachment had been in contact with the Indian Brigade ever since the 28th of December. The march of the division was timed so as to arrive at the defile early on the morning of January 4th. The division commander had preceded his troops and had his plans ready when the first of his units arrived at the scene of battle.

As in the Larut Hills fight, the only way for the Japanese to advance was for the troops to force their way through the pass by sheer superiority of fire power. All of the division's artillery was brought to bear on the narrow British front. While the bulk of the infantry remained well behind in assembly areas, one battalion at a time, aided by a few flame-throwing tanks and specially trained engineer teams, attacked the strong points in succession and fought desperately against the Indian counterattacks until the next assault battalion passed through it to assail the strong points in rear.

For three days the Japanese, using fresh troops every day, attacked unceasingly with all the modern weapons at their command. By the end of the third day they had succeeded in penetrating only the first line of the defensive position. Had the British been able to bring up fresh troops, it is very likely that they could have deprived the invaders of even these small gains. The Japanese say that their air reconnaissance on the afternoon of January 7th showed that a motorized column was in fact proceeding up the road from Kuala Lumpur

towards Trolak, where they believed the British intended to use it in a counterattack to drive them out of their position.

That morning, however, the Japanese division, which had been assembling at the mouth of the Perak River, embarked a detachment of troops in its motor boats and in a number of native boats that had been commandeered up and down the coast, and effected a surprise landing just south of the mouth of the Bernam River where a road runs east through the jungle for about 37 miles and joins the west coast highway at a point between Trolak and Kuala Kubu. In spite of the fact that this was the second time the Japanese had made use of this maneuver, the British seem to have been caught completely unawares.

As the Japanese pushed along the jungle road which led eastward from their landing point on the coast, they encountered no resistance until a detachment of Australians, which had been rushed down the road, intercepted them less than 10 miles from the main highway. Unfortunately for the Japanese, their advance units were lacking in artillery and were unable to push through the Australians to secure a position across the highway south of Trolak. Had they been able to do so and to hold the position until the arrival of the remainder of their division, the Japanese would have been able to trap the 45th Indian Brigade as well as a brigade of Australians, which was still in the vicinity of Trolak. By the time that sufficient troops had come up to drive the Australians back towards the highway, the British troops from Trolak had succeeded in effecting their retreat and were well on the way to Kuala Kubu.

At Kuala Kubu a part of the Australian division was astride the road in a position of some natural strength, but as the country was more open than that farther north the defense of the area was going to be more difficult than that of the narrow defiles and jungle passes which the British had thus far been holding. The Japanese spent two days, the 9th and 10th, in launching fierce attacks against the Kuala Kubu defenses. All of these onslaughts were repulsed, and at no time did the Japanese succeed in penetrating even the outer lines. But they did succeed in pinning the British to their position and in making them use the bulk of their troops against the forces moving down the highway. By this time the British realized that the most serious threat to their defense of the Malay Peninsula lay in the Japanese units proceeding down the west coast and landing behind the defensive lines.

In an attempt to block this maneuver, the British had sent a force to Kuala Selangor, at the mouth of the Selangor River, where the next attempt at a landing logically could be expected. A railway runs southward from Kuala Selangor as far as Klang, where it joins the east-west line from Kuala Lumpur to Port Swettenham. It was therefore vital to the defense of Kuala Lumpur for the British to hold Kuala Selangor and Port Swettenham, and they garrisoned these coastal points with

all the troops that could be spared from the defense of the main position.

The heavy attacks by the main Japanese forces engaged so many troops that the British were unable to send an adequate force to defend the coast. They did succeed, however, in repulsing two Japanese attempts to land in the vicinity of Kuala Selangor, but the credit for this set-back must go to the RAF. A number of new squadrons had been sent out from India and the Middle East about this time, and the British very wisely employed their bombers in breaking up attempts to land along the coast. The Japanese could not have known of the arrival of these new air reinforcements, for their first attempt to land at Kuala Selangor was not protected by fighter planes. When the British bombers came in to attack, the Japanese were caught about three-quarters of a mile offshore, crowded into open boats which were easy marks for bombs and machine guns. It seems certain that few if any of this force escaped, for in Japanese accounts of this fight there are many references to the gallant way in which men died without attempting to retreat.

Next day another landing was attempted at the same place, and that time the troops were protected by a squadron of fighter planes which inflicted heavy losses on the British bombers when they swooped in to attack. The second attempt also must have been a failure, for it was not until the third day that a successful landing was made. On this occasion, the Japanese filled the air not only with fighters but with dive bombers which battered the beach defense so badly that the troops encountered very little resistance as they came ashore. The Japanese lost no time in pushing south down the railway towards Klang, while the main body of their coastal division was brought down the coast in transports and landed at Kuala Selangor to reinforce the advance detachment. The successful landing of a large force south of the Selangor River sealed the fate of Kuala Lumpur, and on the 11th the Australians pulled out of their positions at Kuala Kubu and, moving south, abandoned the city and the entire district to the Japanese.

From that time until they reached the Muar River on January 18 there was no serious fighting; the British rear guards merely delayed the Japanese columns sufficiently to enable their own main forces to retreat without serious molestation.

THE EAST COAST COLUMN

In the meantime, the Japanese column on the east coast had been able to advance at about the same rate as the main Japanese forces in the west, without any particularly heavy fighting. After retreating from Kota Bharu the British had held the line of the Trengganu River, but after the piercing of the Perak River defenses these troops had withdrawn south and taken up new positions along the Pahang River in order to keep contact with their forces in the west. The fall of Kuala Lumpur and the retreat south to the Muar River on the

west coast again exposed their left flank and they were forced to retreat once more, in spite of the fact that they were perfectly capable of holding indefinitely the forces with which they themselves were engaged.

THE CONQUEST OF THE SOUTHERN PLAIN

When the Japanese penetrated the southern part of the state of Negri Sembilan they came out of the mountains on to the flat plain of the southern tip of the Malay Peninsula, and for the first time in this campaign had sufficient room to employ all of their units at once. The lines that the British intended to hold paralleled the Muar River through Gemas and then ran roughly eastward to Endau on the east coast. Here for the first time, the two armies faced each other as units, for until this line had been reached the high mountain range which runs down the center of the peninsula had separated the armies into two, independent columns.

The Australian defense of Gemas was one of the bright spots of the campaign for the British. The Japanese say that it was the fiercest fighting they had on the entire peninsula, and that they suffered their heaviest losses in attempting to break down the stubborn defense of this town. But, gallant though the defense was, it was nullified by another landing south of the Muar, when a Japanese unit embarked in boats at Malacca town and after moving down along the coast, captured Batu Pahat south of the river. At the same time the main Japanese forces crossed the Muar at Bakri, a few miles downstream from Gemas.

This engagement was one of the most disastrous of the campaign for the British, for it caught them just as they were withdrawing from their positions as a result of the landing at Batu Pahat. Losses were heavy, and the troops were so badly disorganized that no further attempt was made to stop the Japanese until they reached Johore Bharu, across the straits from Singapore. The retreat of the troops defending the Muar River line forced the withdrawal of the east coast division, which had been successfully defending Endau for

nearly a week. Although the British abandoned any attempt at general resistance after the Japanese had forced the Muar River, and simply marched their main columns south as fast as they could go, they left behind two strong rear guards that fought a number of fierce engagements during the retreat and held up the Japanese sufficiently to allow the demoralized army to get to Singapore in safety.

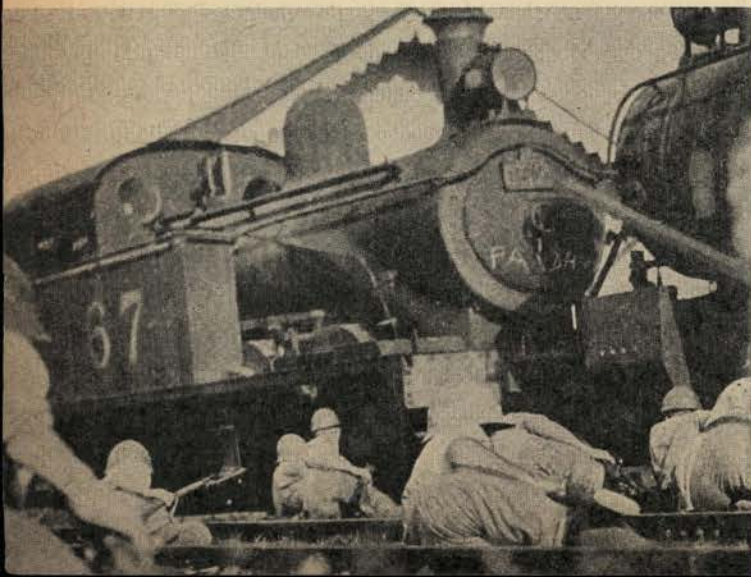
THE CAPTURE OF SINGAPORE

When the Japanese occupied Johore Bharu on January 31st, they secured complete possession of the Malay Peninsula mainland, and found themselves within less than a mile of the great British naval base at Seletar and within artillery range of the whole island of Singa-

In order to stem the tide of Japanese aggression, the British dynamited the dam connecting the straits of Johor with Malaya. But this did not stop Jap progress, or the final conquest of Malaya. This photograph, received from neutral sources, shows the Japs using prisoners of war to reconstruct the dynamited dam.

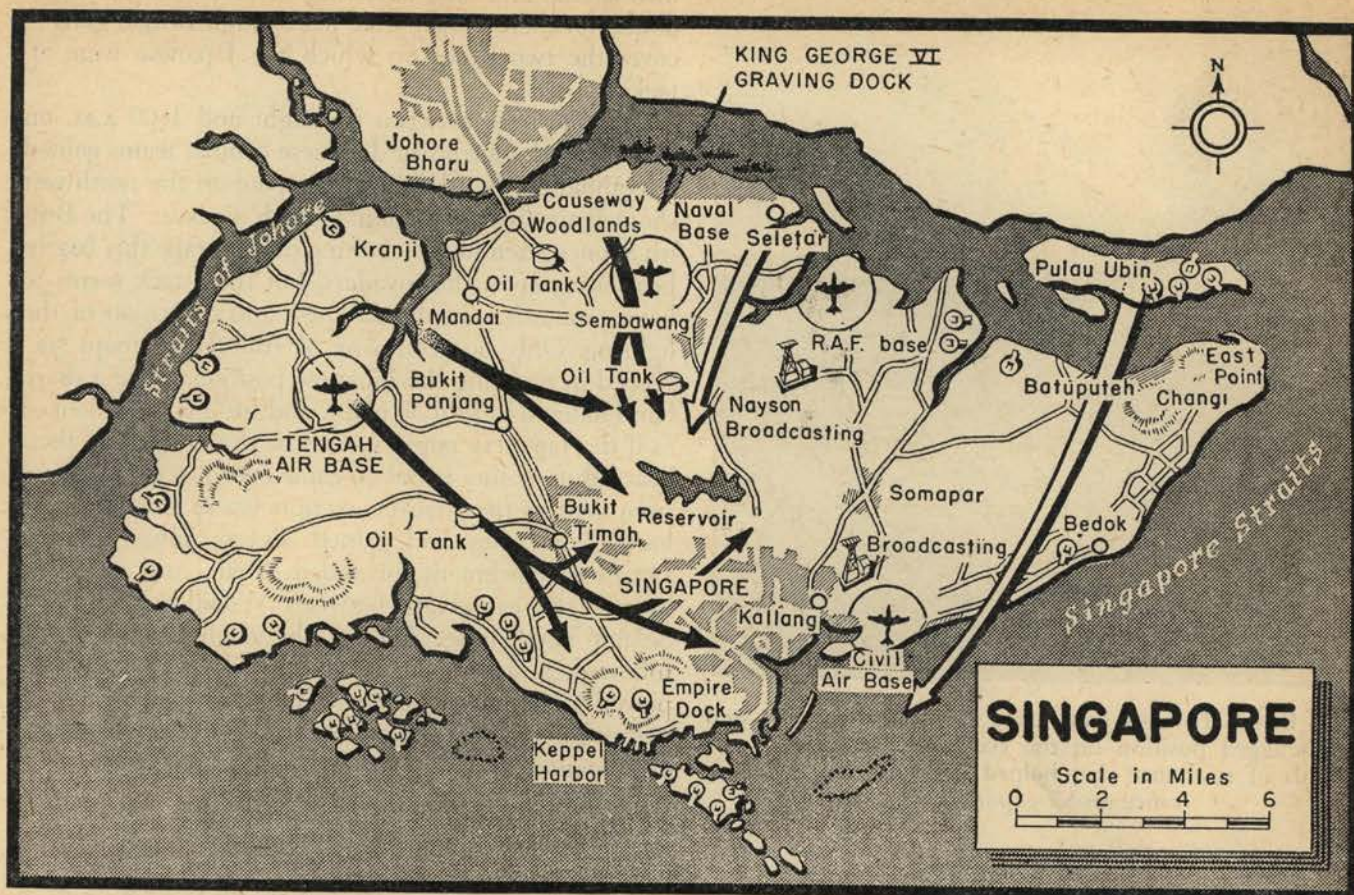


Japanese infantry fire from behind a train during the attack on Johore Behru. Photograph from neutral source.



pore. They had entirely eliminated Singapore as a useful enemy base, and probably could have reduced it in a couple of months by means of a blockade and a continuous artillery bombardment. But a number of factors operated to influence their determination to adopt the more expensive and quicker method of direct assault. The moral effect of an early fall of this so-called impregnable fortress upon both their own people and their enemies was one important point, as was also the desire of the navy to secure possession of the naval base, and thus obtain free passage for their ships through the Straits of Singapore.

These straits, besides being heavily mined, were under the control of the guns of the British fortresses on Singapore and its neighboring islands. Moreover, the Japanese troops engaged in the siege of Singapore were



badly needed for the campaign against the Netherlands East Indies, which was now well under way, and for the campaign in the Philippines which was not progressing according to plan. The Japanese High Command, therefore, had determined to capture Singapore as quickly as possible, and for this purpose had sent down into the Malay Peninsula large quantities of heavy siege artillery. These guns, which were sent by rail from Thailand, began to arrive in the peninsula soon after the break-through of the Muar River defenses, when it had become evident that the next real fight would be the assault on Singapore itself.

From January 31st until February 5th there was very little activity on the front, as the Japanese spent those six days installing their big guns and disposing their troops for the final attack. Two fresh divisions, composed of veteran soldiers of the China campaign who had received special training in river crossings in preparation for this very task of storming the Straits of Johore, were now brought up to relieve those divisions that had fought their way down the peninsula. These troops were assembled in covered areas some 6 miles behind the Japanese artillery positions so that they would not be subjected to bombardment by the big guns in the British fortress during the artillery fight that necessarily would precede the actual assault. Special parties of officers and noncommissioned officers from all of the infantry and engineer units of these divisions made almost daily trips up to the very front lines on the banks of the

Straits of Johore in order to become thoroughly familiar with the terrain over which they would later have to operate in the dark.

The bombardment, which began at 6:00 P.M. on February 5th, is said to have been the heaviest concentration of fire ever put on by the Japanese army. The guns used were of all calibers, but the main punch came from modern 240mm howitzers, which had been specially built for this very purpose.

The backbone of the British defense consisted of the great coast defense fortresses at Pulau Ubin, Changi, and the outlying islands. In addition there were a number of recently constructed field fortifications that extended around the northern and eastern shores of the island facing the Japanese across the Straits of Johore. These were not permanent fortifications and consisted almost entirely of trenches and earthworks, but they had been constructed to an average depth of some 6 miles and presented a formidable obstacle when manned by resolute troops. The shore of the island was a mass of wire entanglements and other obstructions, and a number of concrete pillboxes had been constructed for shore defense. The range to every point within the Japanese lines had of course been well plotted, and all Japanese accounts speak feelingly of the accuracy of the British artillery fire in the early stages of the fight, before the overwhelming weight of the Japanese fire had eliminated it as a decisive factor.

For three days the artillery duel went on, and all the



This British Fortress gun, firing from an extremely well camouflaged position on the coastline, was one of the islands of resistance that helped delay the Japanese advance on Singapore Island.

while Japanese bombers droned overhead in successive waves, unopposed by any enemy airplanes, and, after the first day, with little if any antiaircraft fire to bother them. Day by day, the fire from the British lines grew weaker, as battery after battery was put out of action, and it soon became obvious that the time for the infantry assault was at hand.

On the afternoon of the 7th, the infantry-engineer assault teams were moved up to their jump-off positions, and the Japanese light and medium artillery began concentrating their fire on a 300- or 400-yard strip of ground running along the north shore of the island from Kranji to East Point. Observers who watched this final phase of the preparatory bombardment say that the land across the straits was a solid mass of smoke and fire and that it looked as though nothing could live under that rain of shells. That night, however, when the assault teams shoved off in their rubber boats and assault barges to make the dash across the kilometer-wide stretch of water, there was ample evidence that a good many men had lived through that hail of fire.

As soon as the British realized that the attack was actually at hand, they flooded the Johore Straits with searchlights and turned loose the fire of all the machine guns and mortars that were still in action. The few remaining artillery batteries, not wiped out by the Japanese barrage, also joined in and concentrated their fire on the waters of Johore Straits.

The Japanese had not expected that so many British guns would still be active and their losses were unexpectedly heavy. In fact, the first wave was repulsed, and very few survivors succeeded in returning to their

own shore. The final outcome, however, was never in doubt, for there simply were not enough British guns to cover the two fronts on which the Japanese were attacking.

At some time between midnight and 1:00 A.M. on February 9th, one of the Japanese combat teams gained a foothold on the island of Singapore on the northwest shore about five miles from Tengah air base. The British at once attempted a counterattack to take this beachhead away from the invaders, but the attack seems to have gone astray in the darkness and confusion of the fighting. Only one company of Australian troops succeeded in reaching the Japanese position. Here a sharp hand-to-hand fight took place, and for a while it looked as if the Japanese might indeed be driven back to their boats. But another battalion came over just in time, and from then on the attackers were never in any danger of losing what they had gained. Before dawn, another Japanese detachment succeeded in effecting a landing east of the causeway, between Woodlands and the Seletar naval base. During the daylight hours that followed, a steady stream of reinforcements was employed in enlarging these beachheads sufficiently to permit the organization of a new offensive on the island of Singapore itself.

A third landing was effected that same night on the island of Pulau Ubin, less than a mile from the fortress of Changi. By the afternoon of the 9th, these troops had gained complete control of the little island and of what was left of the British batteries located there. Before the surrender came, the Japanese trained the one remaining serviceable gun in the fortress of Pulau Ubin against Changi and had the satisfaction of bombarding the British with a gun from one of their own batteries.

As soon as the Japanese had firmly established themselves on both sides of the causeway and, by the fire from these beachheads, had eliminated that of the defenders of the causeway, a party of engineers set about the task of repairing the kilometer-long bridge, which had been destroyed by the British after the last of their troops had crossed from Johore Bharu. Either the Japanese engineers performed an incredible feat (which is what they claim) or else the British did a very poor job of demolishing the causeway (which is what photographs would seem to indicate), for by noon on the 8th the bridge had been repaired sufficiently to enable foot troops to cross, and by evening of the same day, wheel traffic was pouring across the causeway in a continuous stream.

From this time on, the battle was merely a matter of time. Actually, the ensuing six days saw the fiercest kind of fighting, but the result was never in doubt. The Japanese used the German so-called spearhead method of attack: that is, the fighting was done by two columns which penetrated the British line and then fanned out behind it to the east and west. So that before the battle was over they had broken the British army up into a number of islands of resistance, the principal ones of which were located at the RAF base at Seletar, the

fortress of Changi, the high ground north of the reservoir, and the high ground around Bukit Timah. This last-named place was defended by what was left of the Australian division, and the defense of the town was considerably aided by fire from the guns in the batteries off the south coast, which shelled the Japanese to good effect during the three days that it took them to drive the Australians out.

The last four days of the battle were marked by great confusion, with isolated groups of British almost completely surrounded, fighting desperately in the hope that conditions might not be so bad in some other part of the island and that aid might reach them before they were forced to give in. Even the Japanese troops were badly disorganized, and the direction of the fighting seems to have been pretty well decentralized. Each regimental and column commander seems to have changed the direction of his attack as circumstances required.

One by one the British centers of resistance collapsed, and by the morning of the 15th, Japanese and British troops were fighting in the northwest suburbs of the city of Singapore itself. It was obvious then that further resistance was useless. General Percival, the British commander, sent word to General Yamashita that he was prepared to negotiate for the surrender of his troops and of the island fortress. The two officers, together with a few members of their staffs, met at the Ford Motor factory at 7:00 o'clock on the evening of February 15th. By 7:50, General Percival had signed the document which unconditionally surrendered one of the greatest naval bases and fortresses in the world.

Natives remove debris in one of Singapore's less bombed streets.

In little more than two months the Japanese had traversed "impassable" country, had engaged repeatedly in heavy fighting against well trained troops, had marched more than 600 miles, and had, in a two-weeks siege and assault, reduced an "impregnable" fortress. Singapore, the center of the defense of the ABCD powers in the Far East and the base vital for their "punitive blockade" of Japan, had fallen. With it, those powers had lost most of their sources of rubber and tin to the very nation from whom they had hoped to withhold those commodities. Soon, largely as a result of the fall of Singapore, they were to lose the Netherlands East Indies and some of the richest oil fields in the world.

As the Japanese authorities did not fail to point out, Japan had broken through the "ABCD encirclement ring" and was now in a position to institute a counter-blockade of its own.

General Sugiyama and General Yamashita, conqueror of Singapore, confer during an inspection of the fallen city.



When the Green Light Flashes

by Lieutenant P. A. Young, Parachute Regiment, British Army

IT was immediately after the fall of France that paratroop training began for volunteer personnel of the British Army. The moment was psychologically exact. We had come back from the beaches at Dunkirk with one desire—a chance to meet the Germans on equal terms with first class weapons and equipment.

We settled down to train and harden ourselves—to repel invasion if and when it came, but above every-

electric plants and practised sabotage. We fired every conceivable type of weapon from a pistol to a 25-pounder gun. We learned all about explosives, and we practised with all types of German and Italian weapons until we knew them as well as we knew our own.

We grew into a team. We worked together, swore together, ate together. I had a happy knack of cooking and so when I could spare the time I usually turned into platoon cook on maneuvers.

Also, we learned parachuting. Starting with exercises in the gymnasium, we worked up to leaping from trucks, practising from a parachute tower, and jumping from a captive balloon. Then we jumped from all types of aircraft until we were experts and could have an entire company landed and formed up ready for action within ten minutes of dropping. We studied German methods.

RAID ON THE COAST OF FRANCE

At last the day arrived. One December day in 1941 my company left the battalion for a secret destination, and there we trained for action. We were not told for some time that we were going to raid the coast of France, but we guessed something was brewing. We trained in close coöperation with the Navy and the Air Force and, after a few heart-breaking days of waiting for the right weather, we climbed aboard our aircraft—

British paratroops break away to go into action after grabbing arms from the container dropped with them.



British Official Photo

British paratroops and their supply chutes make a massed descent during training.

thing to prepare for the day when we would return to Europe. Most of us had been in France. All of us were filled with a new spirit, and it was with delight that we realized that the old days of defensive tactics were gone. Our training, even in those days of imminent invasion, was for attack!

TRAINING

For long weary weeks we toughened and hardened ourselves. We did away with transport and, carrying full equipment and avoiding roads, we marched for miles across country. We dashed over assault courses while bullets whined and sang overhead. Everyone became expert at map reading, compass work, small arms, unarmed combat. We practised night work, full scale attacks, small raids and patrols. We learned to forage for ourselves, cook our own food, read the stars, and read the country. We drove every type of car, stood at the controls of railroad engines, inspected coal mines and



British Official Photo

all of us armed to the teeth and carrying explosives.

Our object was to blow up the German radio location station at Bruneval, near Le Havre. It was situated on the cliff top, and we were to land in a field 500 yards behind it. The first party to land was to be a platoon of 40 men, heavily armed with rifles, Bren and Tommy guns and grenades. They were silently to surround the beach defenses and wait for a signal to attack. Then would come the main objective group, including engineers, armed for close combat with Tommy guns, pistols, knives and grenades. My section would lead this group, go straight to the set itself, and hold it until the arrival of the others who were to deal with a house (the Nazi headquarters) on the way. Finally was to come another platoon which would provide a covering screen. We were to get away by boat.

Tracer bullets from the defenses flew past as we came over our field. The Red light flashed. I was No. 1. I swung my legs over, winked at my men, and waited. Green light! I dropped.

Shadowy figures floated to earth beside me. Machine guns chattered below, and the bullets sang past. Ah! Here we were. I dashed to our container and collected my men. "All correct!" I led the way, and we sprinted for a gully to our front. The beach attacking party were on their way; the covering group were touching down behind us. The ground was familiar—we knew it by heart from models and photographs. I reported to the C.O. He looked at his watch. "Get going, Peter!" I ran back to the section. "O.K., boys, this is it. Off we go!"

We ran lightly across the snow towards the set. A shot rang out, and another. We skirted the house and made for the set. I had a bomber on either side of me—fingers around grenade pins. My automatic was ready, my knife in my left hand. We were 200 yards away. No sign of the Germans yet.

Wire! We three in front covered our faces and flung ourselves upon it. The rest ran over our bodies and lay down on the other side. The last men pulled us clear. We re-formed and moved off. A machine gun opened up on our left, and a group of bewildered Germans appeared to our front.

"Grenades!" I yelled. Out with the pins—throw! We flung ourselves down as they burst among the Germans. Some fell. Others ran. The man on my left dropped one right in the machine gun pit. The gunner pitched over the edge of the cliff. The gun was blown to bits. We sprinted forward, firing as we went. My sergeant dropped on one knee and aimed at a running German. Crack! The German pitched on his face. Now we had the set. From all around came the rattle of fire and the crash of explosives. The others were attacking! The German beach defenses were firing madly out to sea. They did not realize that they were being attacked from the rear. We began clearing the dugouts.

A British paratrooper with full equipment and parachute. He is armed with a Sten submachine gun which is tucked underneath the parachute harness on his chest.



British Official Photo

The engineers arrived and we were reinforced by the other group. We covered the engineers while they prepared their charges. The fire grew in intensity. One of them dropped; another took his place. At last they reported "All ready!" The C.O. led the way and, dragging one bewildered prisoner with us, we began to withdraw towards the beach.

The set exploded with a roar behind us. Warning shouts greeted us as we topped the rise leading to the beach, and machine guns opened up.

The beach defenses were still in action. The C.O. rapidly explained his plan. We had to get to the beach without delay so that the boats could come in. Contact was made by radio with the group down there around the pill boxes and, dropping flat, we wormed our way forward.

We attacked together by throwing grenades in teams. About 25 grenades exploded simultaneously among the German trenches and pill boxes. Then we charged, the Scotsmen among us shouting their battle cries. There was no fight left in the Germans. They surrendered.

We then contacted our landing craft by radio. They were waiting three miles off shore. The other groups closed in, and we formed a defensive ring around the beach and waited. Except for desultory sniping and a little shelling, the Germans made no attempt to stop us.

At last our boats came chugging in, pouring a hail of fire from their guns to the cliff top. They couldn't come right in so we had to wade and swim out to them. At last we were all aboard and off we went. The return trip to England took 14 hours and during that time, while destroyers circled around us and Spitfires droned overhead, we saw no sign of any Germans, though we were specially equipped with antitank rifles to deal with their E-boats should they appear.

The raid had been a total success. The Germans had been taken completely by surprise. They had lost over 60 dead. Their radiolocation station was completely destroyed, and we had three prisoners. Out of our original 120, we had one killed, seven lightly wounded, and five missing. We had lost no aircraft, and our ships remained unattacked. We had learned valuable lessons. We knew now that our grenades were effective against anything the Germans had, that our training was correct, that toughness and physical fitness were as essential as mental alertness. We knew, too, that we had been right to insist upon the strictest discipline while on the job, and comradeship between officers, N.C.O.'s and men in our leisure hours.

MORE TRAINING

After a brief period of leave we started training again. We passed on the lessons that we had learned to others, and once again went at it full blast! This time we worked on a bigger scale together with American parachute troops recently arrived in England. Their transport aircraft were better suited to our purpose than

our own bombers. They were a fine crowd of fellows, and keen good-natured rivalry developed between us.

As the numbers of American transport aircraft and equipment increased, more volunteers were admitted. For nearly a year we carried on—fighting imaginary battles all over England, studying new methods, practising new ideas. New weapons were introduced—high explosive charges that could be converted into grenades that would blast any tank the Germans had. Also, a new type of Tommy gun, new uniforms, equipment and steel helmets appeared.

When our formation sailed for the invasion of North Africa in November, 1942, it was a highly skilled and technical body of men, in the pink of condition, splendidly equipped and yearning for action.

TUNISIA

A few days after landing, we were once more in our aircraft—flying over the bare mountains and arid plains en route to Tunisia!

Our objective was an airfield just inside the Tunisian border, and here we were lucky. The whole battalion baled out and landed unopposed. The French received us with open arms and provided us with food and transport. Thus equipped, we headed for Tunis.

We did not know where the Germans were. Our orders were to push ahead as far as possible until we could advance no farther, then to hold the enemy until the First Army came up. Thus began our first campaign as paratroops. We met the Germans just outside Mateur, destroyed seven of their tanks, and dug ourselves in.

We held on for over two weeks. In that time the Nazis threw in attack after attack but gained no ground. Then other troops came up. We remained in action until April—fighting as shock troops. The campaign was long and arduous. Conditions were tough, and we were glad that we had trained for them. Fighting was vicious and raged up and down the line for months, without either side gaining ground.

Many of the Nazis had come from the Russian front. They were badly shaken and demoralized by their terrific defeat at Stalingrad, and we resolved to try and equal it in Africa.

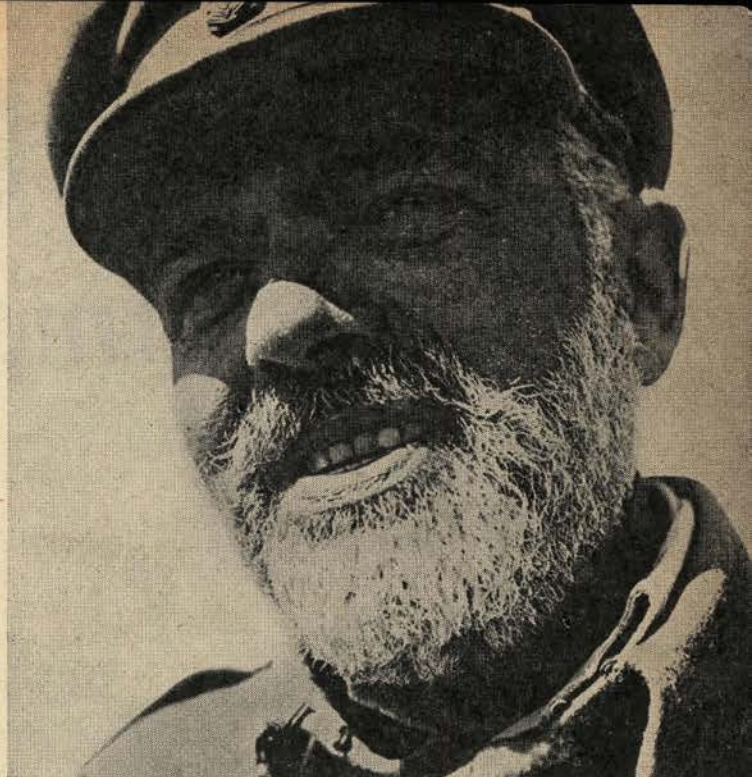
Because we wear red berets, the Nazis called us the "Red Devils," and when the men realized this they threw away their steel helmets and attacked wearing their berets!

I was eventually wounded during the battle for the German-held strong point on Djebel Mansour. Sadly depleted, we came out of the line in April and went to the rear. It was estimated that my battalion had killed over 7,000 Germans and captured another 2,000. The battalion was reinforced, enlarged and re-equipped, and somewhere in the African desert, before the final victory in Tunisia, training started once more.

Back in England, I heard the news from Sicily. Once again the "Red Devils" had struck.

The Greeks Have a Word for It— "AERA"

by George Haniotis



Colonel Christodoulos Tsigantes, commander of the "Sacred Brigade" of the Greek Army, attached to the British Eighth Army across Libya, performed invaluable service on advance missions from Alamein to Tunisia.

RANKING with the British commandos and the fierce Moroccan Goums, the Greek "Sacred Battalion" was one of the most picturesque fighting units that took part in the North African Campaign. This battalion, a unit of about 500 young Greeks, eighty per cent of them former officers in the Greek army, was formed in August of 1942.

Many more officers than enlisted men were able to escape from Greece following the Axis occupation. As there were not enough troops for them to command, a number of these officers conceived the idea of banding themselves into commando-like units. They chose the name "Sacred Battalion" after a volunteer group of selected Thebans in a war with Sparta. During the Greek War of Independence in 1821 the name was resurrected and given to a group commanded by Prince Alexander Ypsilanti.

The present "Sacred Battalion" has adopted as its insignia a spear and laurel wreath with shield on which is inscribed, "With this or on it," after the advice of the Spartan mother to her son as she handed him his shield.

The men of the Greek battalion were distinctive in the polyglot Allied armies because of their full beards, dark red balaclava wool helmets, and commando boots. The commander, Colonel Christodoulos Tsigantes, is a strict disciplinarian who insists that all candidates for his unit go through special qualifying tests, difficult in the extreme.

There is no second in command. All other ranks, regardless of their shoulder insignia, serve on an equal basis, and are chosen for special tasks according to their qualifications.

The "Sacred Battalion" first saw action with the Fighting French troops under General Leclerc and later fought alongside the New Zealanders under General Freyberg. It was the first unit to push forward ahead of the French in the initial move to out-flank the

Mareth Line and was among the first to enter Gabes. It is reliably reported that the Italian troops particularly lost all stomach for fighting when they heard the Battalion's battle cry of "Aera."

While the "Sacred Battalion" is perhaps the most picturesque, it forms only a small part of the Greek forces in Africa and the Middle East. Two brigades, three air squadrons and a number of specially trained parachute troops are ready and waiting for the day when they can return as avengers to Greece.* A Greek navy composed of some 35 units has been constantly in action since the initial onslaught of the Italians against Greece on October 28, 1940. These units took part in the recent action in the Dodecanese and Aegean Island area.

Greek armed forces, composed principally of volunteers from Greek communities abroad and persons escaping from occupied Greece, are not the only ones who have been carrying on the fight. Inside Greece there are approximately 30,000 guerrillas who are active. Lacking proper arms, mechanized units, or air support, they have been forced to operate in small bands, harassing the enemy by every means at their disposal. Many a supply and troop train, destined to reinforce Marshal Rommel in Africa, was derailed by these guerrillas and sent to the bottom of some ravine in Greece. These small groups have recently been joined together under a centralized command in constant touch with Middle East headquarters, and they may be counted upon to render signal assistance to the Allied forces when the time of invasion comes.

*Recent dispatches state that paratroops of the Sacred Battalion have landed as reinforcements on Samos Islands.

CAMOUFLAGE

For Armored Forces

TO each fighting man, camouflage means just one thing: a way to stay alive, to live, to shoot and to kill.

The soldier needs to forget such pedantic phrases as, "If you want to come back alive, practice camouflage," and "Camouflage is the greatest insurance a soldier can have to stay healthy." That type of non-aggressive attitude is not going to win. It is not going to kill Germans or Japs. The soldier's job is to kill the enemy—not hide from him—to kill him with every weapon at his disposal; and the man is a fool who disregards the deadliest weapon of all—*surprise!* This is the weapon that camouflage gives the soldier and *against which it protects him.*

WHAT IS CAMOUFLAGE?

Camouflage must be thought of as any aggressive form of deception that will enable the soldier to approach within killing distance of the enemy. It is any means of disguise that will mislead the enemy regarding position, strength, and intention—that will confuse him so that he will waste his blows and fall into ambush.

Camouflage is not an insurance against death. It is an *assurance* for having the maximum striking power, whenever and wherever it is needed. In nature, many of the smaller creatures are camouflaged against aggression, but the tiger and the leopard are camouflaged for aggression. That is the camouflage for the soldier—an aggressive action designed to liquidate the enemy!

There is a tendency to think of camouflage as highly specialized work done only by experts who are called upon to make conspicuous objects disappear by some magic known only to them, rather than as the simple, common sense precautions which any soldier can take. Concealment of large installations in the rear areas, such as airdromes, factories, and munitions plants, does require specialized training; that side of camouflage can be left to the specialists. The concealment of troops and equipment in the field requires no camouflage expert—no artist skilled in color theory and manipulation—but rather a practical man, who sensibly recognizes a few basic principles and applies them. Nevertheless, the problem is a terrific one.

TRAINING MUST BEGIN EARLY

The ground patterns of man's peacetime work and activities are unlike his work and activities in war. In peace, he is concerned with cultivated fields, orchards, villages, and towns. Man's major activity is restricted to

the existing road nets. Few changes occur from year to year in the general appearance of the terrain.

With the advent of war, however, the army moves in and everywhere scrawls its signature on the face of the earth in the form of encampments, convoys, artillery layouts, and a bewildering maze of tracks from tanks, troops, and motor transport. (Fig. 1) All these signs are peculiar only to the army, and are easily identified. To the enemy who has been trained to read their meaning, these signs tell a whole story. The location and strength of a carelessly concealed unit and its intentions are obvious to him. This information enables the enemy to lay his plans to gain victory for himself and visit destruction upon his opponent.

These marks or signs are not necessarily great scars on the terrain, nor always a maze of tracks. They may be the apparently unnoticeable ones made every time a tank is driven or a man walks across a field of grass, or digs a prone shelter in the ground. One of the soldier's chief aims, therefore, is to hide the marks he makes, or to find ways of making them less conspicuous, or to disguise them so that they will not disclose so much valuable information to the enemy.

The German and Japanese armies have no camouflage schools as such. The art of concealment is taught to the soldier as a necessary part of his basic training. He is taught to use it not for passive defense alone, but also as a weapon of offense—as the tiger does—to creep up unseen and gain the advantage of surprise; to conceal his fighting power long enough to provide an opening for a knockout blow.

Training in camouflage must begin as early as possible, and it must continue. It is too late to learn under fire. The soldier will not have the opportunity to profit by his own mistakes there. The result of a mistake in battle is final! Obviously, then, the practice of camouflage must become instinctive, as much a part of the soldier's life as sleeping, eating, and breathing—as powerful a weapon for him as it is for the jungle animal who *lives and fights* by it. So must the soldier. How is he going to make use of this powerful weapon? What are the camouflage principles to be followed?

FUNDAMENTAL PRINCIPLES OF CAMOUFLAGE

Camouflage is not difficult. Basically it is so simple as to be disappointing to one looking for an impressive bag of tricks. It's nothing more than good, plain, common sense! Camouflage measures can be simple but extremely effective.

by
Lieutenant S. Daniel Cavallero, CE

Grimly enough, however, the only test of the success of a camouflaged position is the "ordeal by fire." Only when the enemy sniper finds no target in his sights; when the antitank gunner scans the landscape in vain; when the bomber passes over without releasing his devastating load, is camouflage successful.

In modern streamlined warfare, armored combat is characterized by great mobility, fire power, armor protection, and shock action. Positions, supplies, and equipment, formerly safe because of their location far behind the lines, now are subject to swift and complete destruction by roving armored vehicles or enemy bombardment.

Camouflage technique for the fast-moving, hard-hitting armored unit can be resolved into a practice of the most basic principles and strict adherence to these principles through discipline.

In brief, camouflage can be reduced to:

1. The recognition and intelligent use of existing natural concealment.
2. Camouflage discipline—avoiding or neutralizing signs of activity that may reveal information to the enemy.
3. The disruption of characteristic outlines and shadows, and the toning down of reflective surfaces, which enable the enemy to locate and identify a position.

The motto, "Hide—then HIT!" was coined for tank destroyer units. During the closing phase of the Tunisian campaign, tank destroyers did just that, and they were death to the Axis tanks. Cleverly concealed, they caught the Axis tanks in traps and fired on them from the flanks.

The concealment task for the armored forces will vary. For troops in touch with the enemy it will be a matter of choosing a concealed position from which the mission of the moment can be accomplished, and then exercising proper camouflage discipline and the principles of scouting and patrolling. In many cases, the dominant consideration may be speed of movement and wide dispersion.

At any rate, the problem normally will be one of individual tanks or small units. It is here that the camouflage training of the individual soldier will play an important part. If he has been impressed with the thought of camouflage as the deadly fighting weapon of *surprise*, then his every move will be made with that objective in mind—to reach the enemy with all his fighting power unimpaired, and to pounce on him unawares, with the full force of a knockout blow.

NATURAL CONCEALMENT

Since camouflage is only a means to an end—not an end in itself—the amount of work it involves should be kept to a minimum. There will be many other duties



Fig. 1. Signs of military activity often give away valuable clues to the existence of an installation. Some typical examples of revealing traces are shown above. Tank tracks are different than those of other vehicles, hence, the presence of an armored unit in an area may be determined by these tell-tale traces alone.

and problems that must be handled, so simple logic makes it plain that shortcuts should be looked for.

One of the best ways to eliminate unnecessary camouflage work is to choose a good position. Fifty to one hundred per cent concealment can be obtained some-

times merely by choosing a location with plenty of natural concealment and shadow, or by cleverly blending with existing ground patterns.

Artificial materials, such as drapes and field expedients, should be used only when there is no natural concealment, or too little. When concealment is unavailable, siting a vehicle on a line of a terrain feature will make it much more difficult to pick up from the air. (Fig. 2) If that same vehicle is placed several feet away from that line, which may be a hedge, the side of a road, or only the line between two types of fields, it is an object separate from that line, and is distinguishable from it. On the other hand, parking it on the line or touching it, makes it a part of that line and therefore less noticeable.

Since the basis of concealment is the constant use of the background, the aim is to match that background in pattern, color, and texture. A distinctive contrast will be seen quickly.

Concealment is not only against ground, but also against air observation; hence, not only the background behind must be considered, but it must be remembered that the ground underneath is the background from the air observer's point of view. Ability to conceal involves recognition of the value of natural materials as con-

cealment. A soldier can become so much a part of his surroundings that, although able to see and act against an enemy, his location will be unknown to him.

The regulation OD paint was too dark for the average North African terrain. For better blending, vehicles were never washed while in frontline areas. Dust and mud collected on them and, by using a little distribution of the dirt and additions of sand and mud, their color and texture were developed quite satisfactorily to match the color and approximate texture of the terrain background. Crankcase oil made a suitable binder to hold the dust and sand in place on the vehicle surfaces. The topsides of vehicles so treated should be somewhat darker than the sides. As more vegetation appears in the terrain, some of the mud and sand can be washed off in irregular patterns to give a mottled effect. It is rather amazing to see the effective vehicle camouflage obtained by these crude expedients.

SHADOWS

An object is recognized by its form or outline, and its shadow. Therefore, after moving into the most favorable position, the soldier's first job is to break up the outline and shadow of his tank. (Fig. 3 and 4.) This may be done quickly by placing natural material about

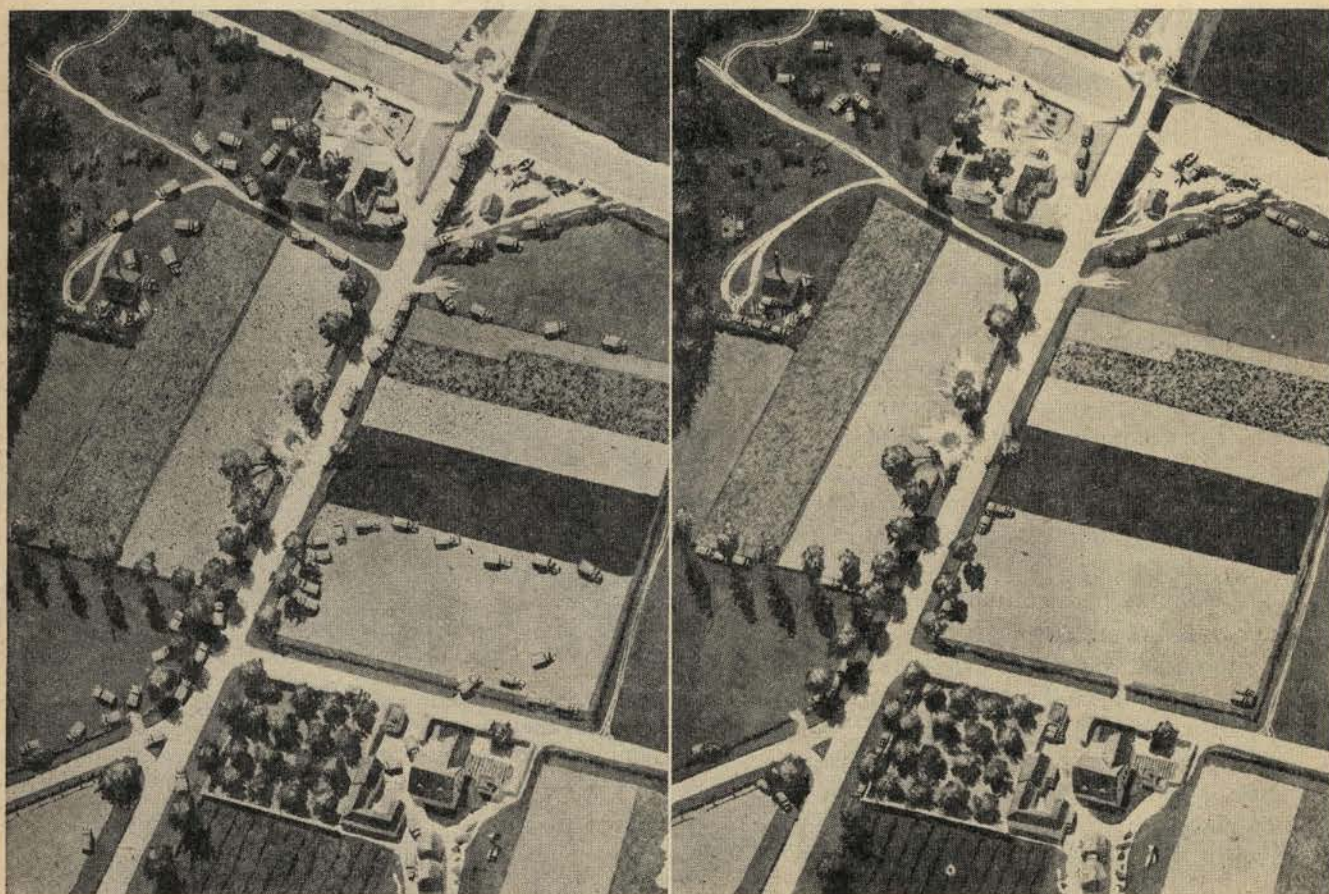


Fig. 2. In the picture on the left, shadows, regular spacing, and careless parking reveal the positions of 67 vehicles in the above illustration. The picture on the right tells the story of what careful parking and elimination of shadows mean. How many vehicles can you find now? This area is short on wooded terrain but long on line. Lines are the elements in terrain which must not be tampered with, but which offer a refuge in seemingly open terrain.



Fig. 3 and 4. Before and after. Outline, shadow, and reflections are broken up and concealed with natural materials.

and on the vehicle, with care not to mass it too heavily. It is the work of a moment, yet it may be the difference between the accomplishment of a mission or an end in smoking ruins!

Shadows can be either friends or enemies. With proper use, they will help to conceal; but also they can be a dead give-away.

The shadow of an object is very noticeable, particularly on aerial photographs; therefore, the object may be located by the contrast of its shadow on the ground, and identified for what it is by the shape of its shadow. In many cases, the object itself may be so well toned

down in the proper color that it is practically invisible, but its cast shadow reveals its characteristic form. (Fig. 5.) That is all that the enemy airman needs.

On the other hand, the natural shadows of trees, houses, scrub growth, hedges, sand dunes, rock outcroppings, etc., found in the terrain can be used to excellent advantage for concealment. An object in shadow is more likely to be overlooked.

If a tank is parked on the shady side of a large tree (Fig. 6), the shadow of the tank is lost in the shadow of the tree. When the shadow moves, the tank must be moved with it!

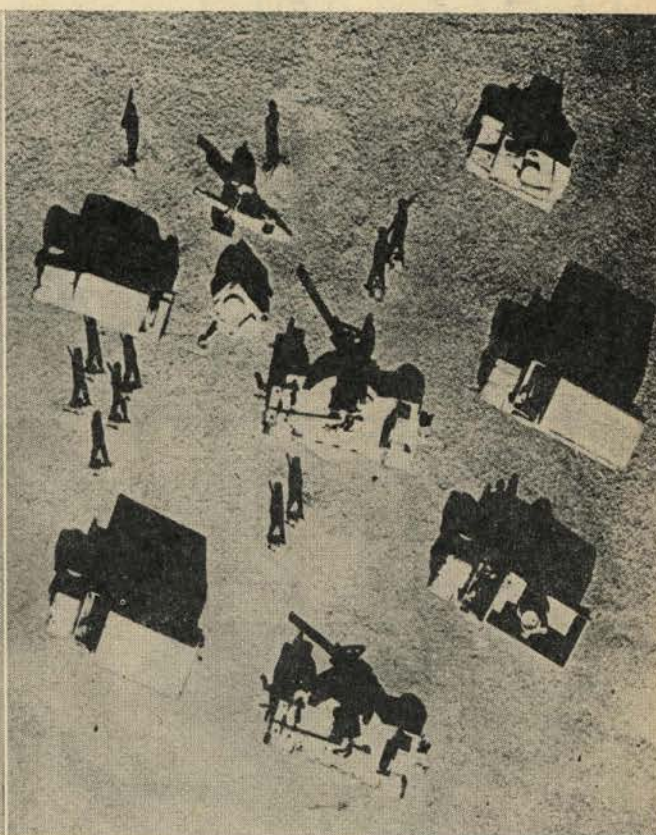
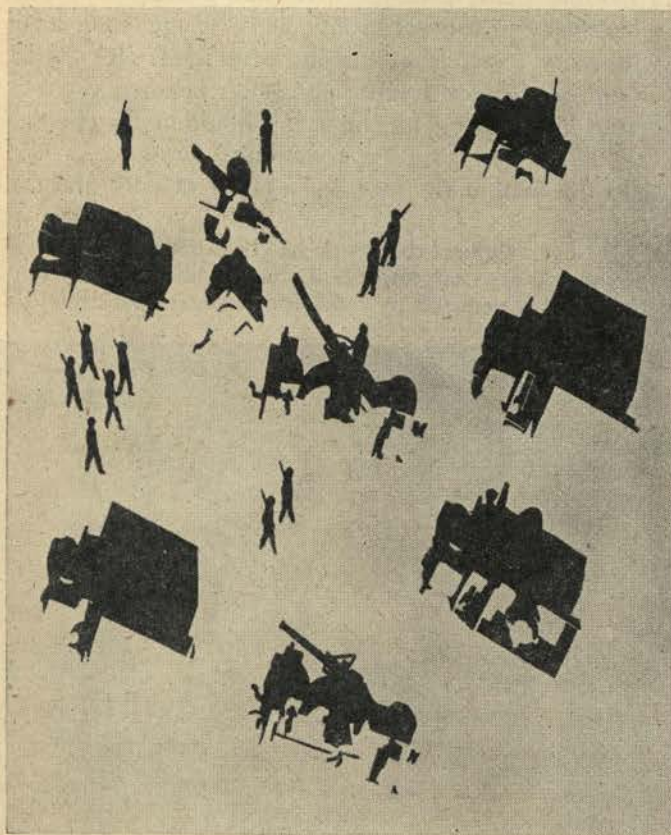


Fig. 5. Not only are the shadows themselves conspicuous, but from their shape one can identify the smallest object. The left half of this picture shows a group of military objects with their shadows. On the right, the objects themselves have been removed and only the shadows remain. These shadows give the enemy desired information.

If nothing but scrub growth lower than the tank is present, the tank should be parked on the sunny side so that its shadow falls upon the scrub growth and is distorted by it. (Fig. 7.) This at least makes the vehicle

less conspicuous. In desert terrain the shady sides of sand dunes, wadis, and rock outcroppings offer a measure of concealment sometimes unrecognized.

SHINE

The enemy is looking for little mistakes. He knows what he is looking for, because he makes errors too. The windshield of a truck, the headlights, and the various surfaces of the vehicle—because of their smoothness and regardless of their color—can cause a shine that can be seen for a considerable distance from the air. An old piece of burlap, an army blanket, a shelter half, a jacket, or any natural material should cover loosely the reflecting points. This should be done even when a drape is being used. It is a simple measure but one which, if neglected, can nullify all other concealment measures. One quick flash and the enemy observer has spotted his target. (Fig. 8.)

CAMOUFLAGE DISCIPLINE

The term "camouflage discipline," one of the most important of the fundamentals, might be expressed "camouflage—by behavior!" It means simply this: A unit must take care not to change the appearance of the surrounding terrain in such a way that signs of activity are relayed to the hostile observer. Is it good sense to maneuver into an excellent fighting position, in the hope of catching the enemy off guard, and leave a definite track leading to the new location—or conscientiously to conceal a tank with foliage, then let it wilt so that it stands out in contrast to the fresh material around it? Obviously not! The smart boxer never telegraphs his punches. The first shot should be the enemy's first inkling of a unit's or individual's presence.

In the final analysis, war is a battle of wits, and the

Fig. 8. Even though this truck has been backed into foliage-covered area offering good shadow and concealment, the truck is detected by reflection from its windshield.



Fig. 6. Vehicle parked on the shady side of a large tree is lost in its shadow. Move the tank with the shadow!

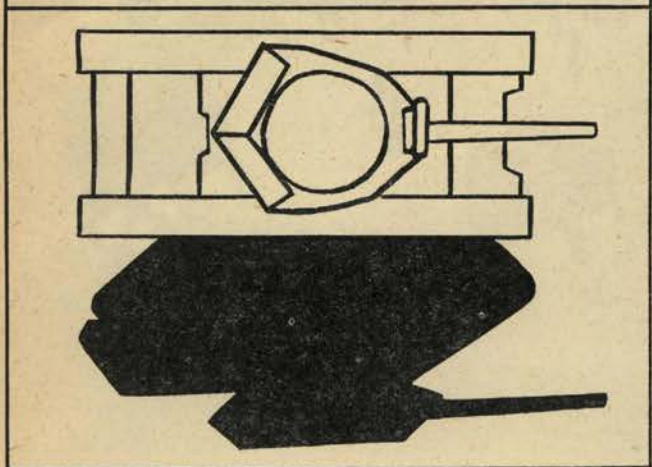
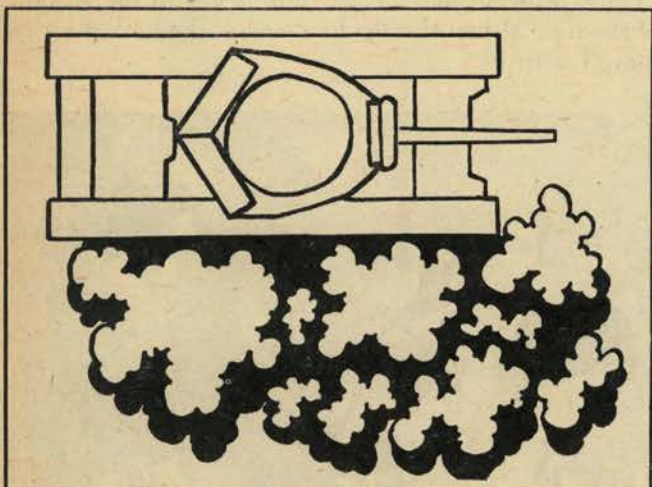
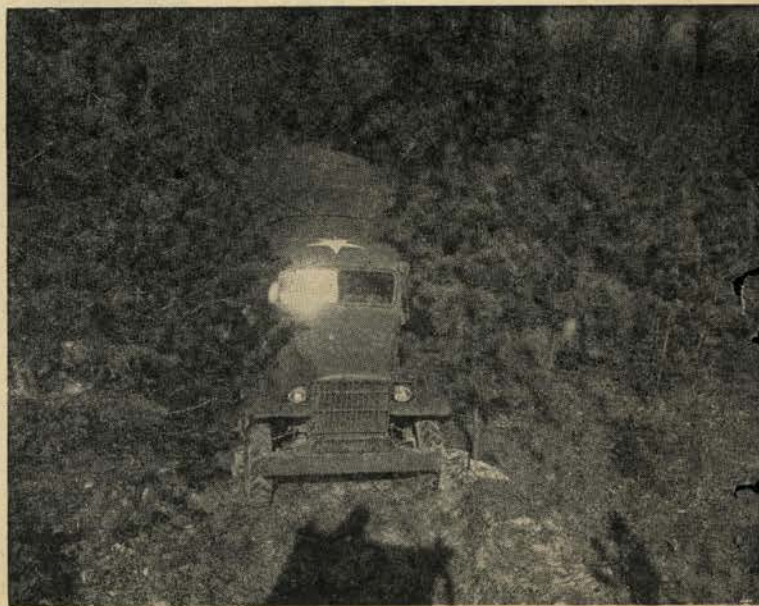


Fig. 7. Compare the parking of these two tanks. Scrub growth distorts shadows and aids concealment only when the vehicle is parked on the sunny side.



loser gets few second chances. A new path across a field; an old road which, over the course of a few days, suddenly becomes wider—these are signs that tell the enemy observer a whole story. He is trained to read the meaning of such signs, and within a few hours he may be sending his respects in the form of high explosive bombs or shells!

If tracks are on hard ground, sometimes they can be brushed out by dragging branches back and forth over them, or leaves and grass can be scattered over them. (Fig. 9.) Tracks on soft ground, however, are difficult to eliminate. The necessity for a controlled track plan is obvious. Several tanks in single file leave only one set of tracks, whereas the same number of tanks, unless directed properly, can leave individual sets of tracks. By the time a whole patrol has moved in, the appearance of the ground has been so changed that nothing can restore it. (Fig. 10.) Each tank should follow the one ahead—using its footsteps, so to speak—and cut off sharply into concealment. Not all tracks can be concealed, but they certainly can be minimized.

By following the natural lines of terrain features—along hedges, fence lines, the edges of woods and fields—tracks can be blended into those natural lines and be made quite inconspicuous. Tracks which cannot be so concealed should continue past the position to an existing road or other logical terminus. (Fig. 11.) Planning of traffic does more toward track elimination than all subsequent efforts. Necessary tracks are *planned*; all others are avoided.

DRAPES

Since certain combat elements such as tanks are particularly important to the success of attack missions, they are always sought by enemy observation. It is most important to reduce their visibility and conceal their type identity to gain a tactical advantage. This can be done effectively by intelligent selection of ground patterns, utilization of proper natural materials, net cover,

Fig. 9. Concealing tracks by covering with leaves and brush.



REVEALING PATHS



SINGLE PATH

Fig. 11.

and, to a certain extent, disruptive patterns.

In the absence of good overhead concealment, and when time will not permit more elaborate construction, the drape is an excellent method of concealing identity

Fig. 10. Result of uncontrolled track plan. Ninety per cent of these tracks could have been avoided. Concealment measures following this are futile.





Fig. 12. Drape over tank in rocky, desert terrain.

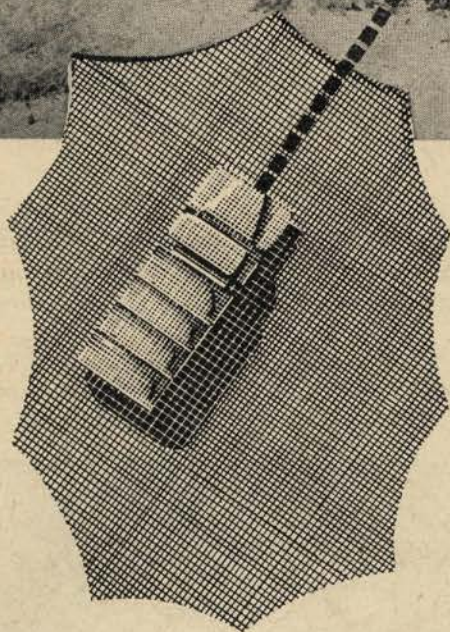
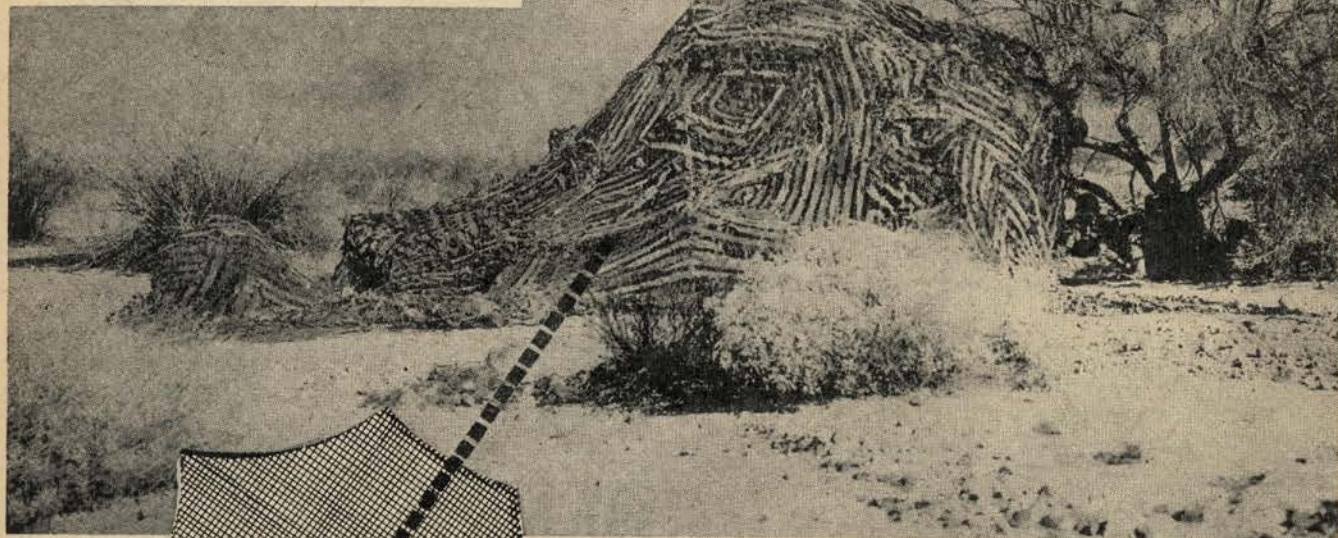


Fig. 13. Tying drape into existing terrain feature aids in better blending.

quickly (Fig. 12), if the tracks are carefully regulated to prevent their revealing the nature of the concealed tank. The standard drape is either a small mesh net, ungarnished, or a large mesh net, garnished. It must be remembered that the latter type is totally ineffective unless heavily garnished to approximately 70% coverage of the voids. Too often, the net without garnishing is considered as the proverbial "magic veil." The garnishing does the concealing. *The net itself is merely a support for the garnishing.*

The draping, however, is likely to be worthless unless a proper site is chosen. A position should be picked where the net can be related to some natural or man-

made feature—bushes, or small trees, rock outcroppings, fences and houses, or even an irregular ground pattern made by soil, vegetation, or shadow changes. (Fig. 13.) Open sites such as plowed fields, clearings, or wide streets should not be used. In the presence of ruins, debris can be piled on the net for better blending, while in vegetation, foliage can be added to make the drape a part of its surroundings.

The object of using the drape is to break up the characteristic form and shadow of the vehicle. Obviously, if the drape is merely thrown over the vehicle and allowed to rest on it, the vehicle's form is unchanged and its shadow is the same as before. (Fig. 14.)

The net is held away from the surface of the object by supports, which may be saplings or poles or perhaps branches and bushes. (Fig. 15.) In the desert terrain of North Africa, tanks carried poles or boards from Arab tents to support their drapes. Thus an irregular form is presented. To minimize the shadows, the drape is drawn out and staked to the ground or held down by weights, or the edges may be thrown over low bushes.

In erection of a drape, the folded net is placed on top of the vehicle and opened out. Supports are placed, and the edges of the net are pulled outward and staked down in an *irregular pattern*.

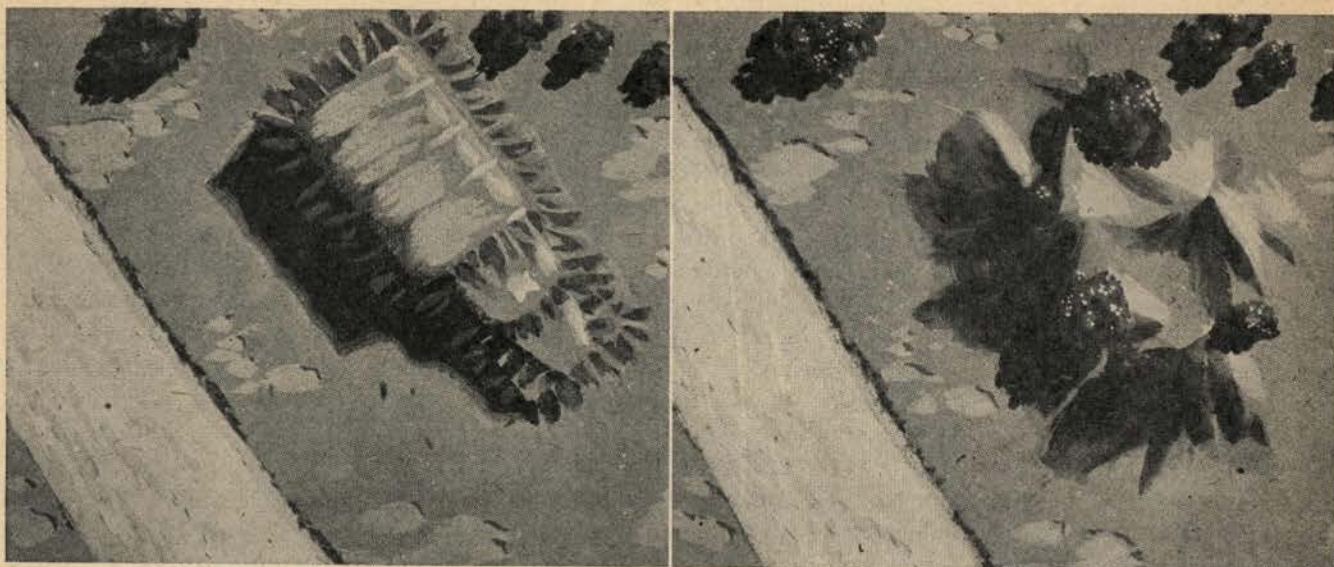


Fig. 14. Drape laid loosely over the vehicle at the left accomplishes nothing. The form and shadow are unchanged. At the right, the drape has been propped up with branches to distort vehicle outline and shadow.

BIVOUAC CAMOUFLAGE—THE 1ST ARMORED DIVISION IN AFRICA

A combat unit actually spends only about ten per cent of its time in actual combat. The remainder of the time is spent in assembly areas, or in moving up to or away from the front.

Bivouac camouflage is an important normal activity in all combat theaters. The careless unit can either lose most of its personnel and precious equipment or keep them in fighting trim at the crucial point at the critical time.

Prior to the movements of the 1st Armored Division during the North African campaign, a preliminary advance party was always sent ahead to select the new bivouac or concentration area, and perhaps several alternate areas. This was done as soon as the division

commander decided to move, usually several days prior to the actual movement. This party consisted of officer representatives from G-3, and the engineer camouflage officer. Upon completion of this phase, they returned to the division.

A day prior to the division move, the unit advance party, consisting of officer representatives from division headquarters and each unit of the division, proceeded to the selected area to reconnoiter and lay out the area for occupation. One-quarter-ton trucks were used in order to move rapidly and without attracting attention. Accompanying the group were an engineer officer and selected personnel (camouflage-trained) from the engineer component of the division, who were charged with the duty of selecting the most suitable areas for concealment and establish-

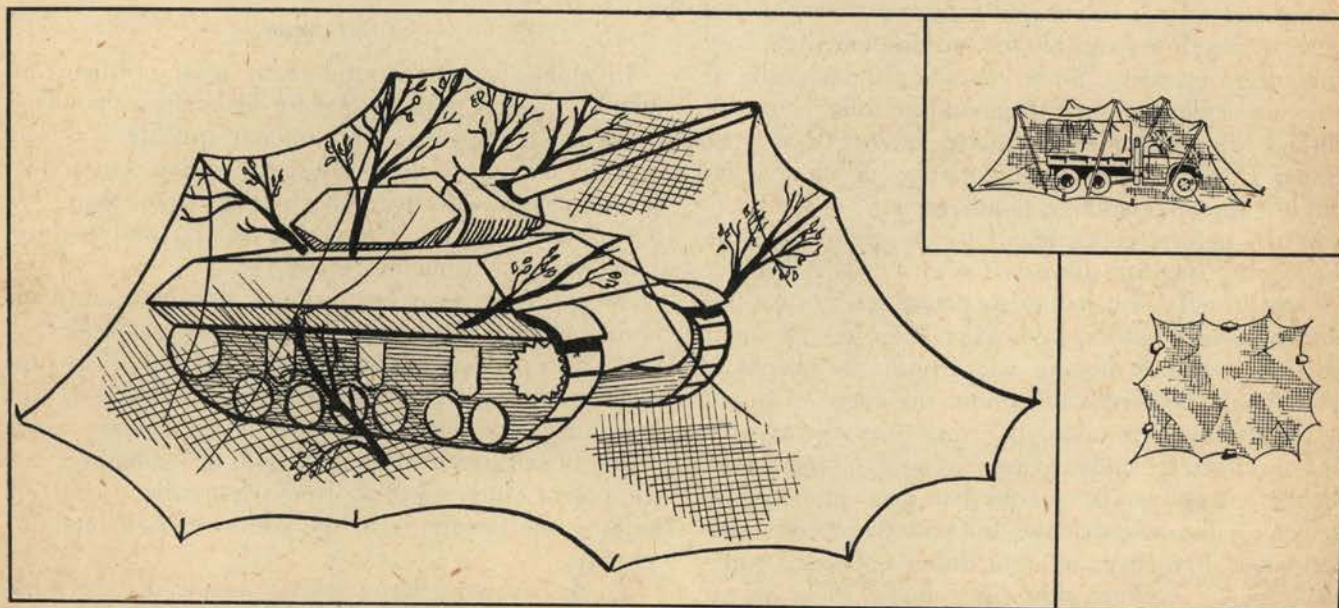


Fig. 15. Net held away from tank by brush and saplings.

ing a track plan and unit locations in the locality approved for the bivouac by the division commander.

This was the second phase, and the party remained in the area overnight.

When the division moved, it was met several miles outside the new area by the advance party personnel. Each of the party then led its respective unit into the new area in accordance with the prearranged unit location and track plan. By this method, reshuffling of units and vehicles and tracking of areas that would be impossible to obliterate, were avoided. For better coordination and greater efficiency, the same officers were always sent out in the advance parties.

If the division had to move with no more than a few hours notice, the preliminary advance party and the unit advance party would move out together and perform their tasks in the time available. It was in cases of this kind that the use of the same personnel facilitated operations the most.

In brief, the successful occupation of a bivouac area consists of three phases.

1. Preliminary reconnaissance by the advance party, and layout of the unit locations and main track plan.
2. Occupation of the area, quickly and inconspicuously, under the control of guides.
3. Rapid concealment of all personnel and equipment.

A FEW BASIC RULES

In a bivouac or concentration area, certain basic camouflage principles are rigidly enforced. Vehicles are always widely dispersed to take utmost advantage of natural concealment and in north latitudes they are placed on the north side of trees or other objects to obtain the maximum shadow period during the daylight hours. When natural concealment is not complete, vehicles are dug in as much as possible, the extent depending upon the type of vehicle, cover, and time available. If nets are necessary, they are placed and draped immediately. Each driver and assistant driver, or tank crew, is directly responsible for carrying out these basic camouflage practices. Since movements practically always are made at night, all camouflage must be accomplished before daylight, no matter how tired the personnel. Daylight means enemy planes and observation, and it is then too late to camouflage.

When natural concealment is not complete, prone shelters are sited on the north side of available cover. All spoil is either carried away, placed under trees and bushes, covered with leaves and grass, or resodded with turf saved before digging was begun. No banks of spoil should be permitted around the edges of dug-in or shelter-trench installations, since they increase the shadow effect. In sandy, sparse-cover areas, sand-stained shelter halves can be placed flat over prone-shelter trenches to decrease shadows and provide protection for personnel. The edges of sand dunes or wadi (gully) banks make excellent sites for vehicles to be dug-in partially, and the sandy brown nets effectively draped.

Practically no shadows result, and the installation will not be discernible even from close view. This is particularly recommended for larger vehicles which are difficult to camouflage in areas of limited overhead cover.

Personnel must not congregate; mess groups must be scattered; and all reflecting surfaces, personal clothing, and equipment must be carefully concealed from view. Laundry must not be left in the open. Tracks can be brushed out sometimes with bundles of branches, but everyone must be warned against making unnecessary tracks. They are difficult to conceal and are always sought for by the enemy. Personnel and vehicles must follow at all times the set track pattern established for the particular bivouac area. *Violators must be disciplined.*

AIR OBSERVATION

The possibility of air attacks is always present at the front. Camouflage, therefore, must cover the aerial view as well as the lateral or ground view. The effectiveness and the discipline maintained in the camouflage of all units must be checked constantly. If there are any high points for observation in the locality of the installation place, an air OP should be placed there and his air observer's duties combined with camouflage check-up. He should report each evening on the day's violations of the unit's camouflage plan; also, any violations of the track plan by either personnel or vehicles. These OP's should be maintained by all units in an area of bivouac or concentration.

The unit in bivouac is especially vulnerable to enemy aerial observation and attack. Except for its security elements, its men are resting and much less on the alert than in the field of battle. Moreover, the elements of the unit are more concentrated than usual. It is at a time like this that camouflage must be at its best, and camouflage discipline must be enforced rigidly. The carelessness of *one* soldier may result in the annihilation of the entire unit or the failure of the operation.

CONCLUSION

In mobile situations—and today most of them are mobile—there is seldom time for elaborate camouflage construction. Bivouacs are entered quickly and left quickly. Obviously, little else can be done but follow the simple yet effective rules of dispersion, siting for better concealment, use of natural material and shadows—and the establishment of a *track plan*.

Troops who have been under fire have a much keener appreciation of camouflage. They are aware that it is a very personal proposition. Stripped of all its supposed mystery, it is at the same time a means of approaching within killing distance of the enemy, and a matter of self-preservation; a method of saving precious equipment and supplies from destruction, and of bluffing the enemy as to the unit's strength and intentions.

To the weapons that a soldier already has, he must add another—*surprise*.

Are You a Tank Destroyer?*

It's great for a man's ego. It makes him feel infallible. Sit him behind the controls of a 30-ton tank and he's sure to feel powerful. "Yah! nothing can stop me." Jam it in gear. Push that accelerator down to the floor. Drop out the clutch. Feel the lurch of the tank as the tracks bite. Give it hell. Pick out the roughest, toughest obstacles. Ram right into or over them. "Nothing can hurt this vehicle—it's a tank."

Yes, it's a tank. And because it's a tank, it's subject to more mistreatment than any vehicle in the Army. It's mistreated because lots of men don't realize that a tank is made up of the same type gears, pistons, and bushings as those in any other vehicle—and need the same care.

From the toughest proving ground in the world came reports that our American tanks are as good as anything our enemy has—or better. In Libya and on the Russian front they proved that they could stand up under the worst conditions nature could provide. But even the best materials and engineering can't stand up under the murderous treatment of a careless tank driver.

You may have your own ideas on how to destroy a tank but here are a few samples of how some green-guards destroy tanks and then blame it on the materials or design.

STARTING RADIAL ENGINES

Just crawl into the first radial-powered tank you see and start it up—that's all. If the tank's been sitting still for 12 or more hours it's possible for you to break the engine up as effectively as a German 88 could.

Radial engines have a number of cylinders pointing down (Fig. 1); the combustion chamber in each of these cylinders is *under* the piston (Fig. 2). While the engine isn't running, oil and gas may drain from the crankcase into the lower combustion chambers. If the engine is started *without* removing the liquids from the combustion chambers, the pistons are forced to compress the liquids just like air. But, you know that liquids can't be *compressed*. Wham, when the piston hits the oil and gas, something has to give—and it's usually the piston or the cylinder head.

To prevent this tank-busting, a seasoned tank driver will crank the engine by turning the hand crank over 50 times before starting it (if the tank has not been

run overnight). Cranking the engine forces the pistons to go through the exhaust strokes which pump the liquids out of the combustion chambers. If you have trouble cranking, you may have to remove the spark plugs so the liquid will have a means of escaping.

If you're ever in doubt as to whether the tank has been cranked over or not, don't take a chance—crank it.

IDLING SPEEDS

Blowing cylinder heads apart and breaking pistons is an effective but crude way of destroying tanks. Some GIs with a more delicate touch have developed more subtle methods—idling speeds for example.

These boys stop their tanks and allow the engine to idle at 400 to 500 rpm's while they're eating their field rations or calling up Mabel. Somebody said that the smooth ticking of the engine aids their digestion. But this fine, smooth idling of the engine is the calm before the storm. Prolonged low idling speeds on radial engines cause extremely high temperatures in the cylinder walls and low temperatures in the spark plugs. Also, there's very little oil circulation. First thing you'll notice is misfiring and smoking, caused by fouled plugs. Later as the oil on the moving parts burns off—pistons and cylinders score, bearings wear and in general the engine gets shot.

Radial engines should *never be idled at less than 800 rpm*. When you have to idle an engine, set the hand throttle to run the engine at 800 rpm. The low idle

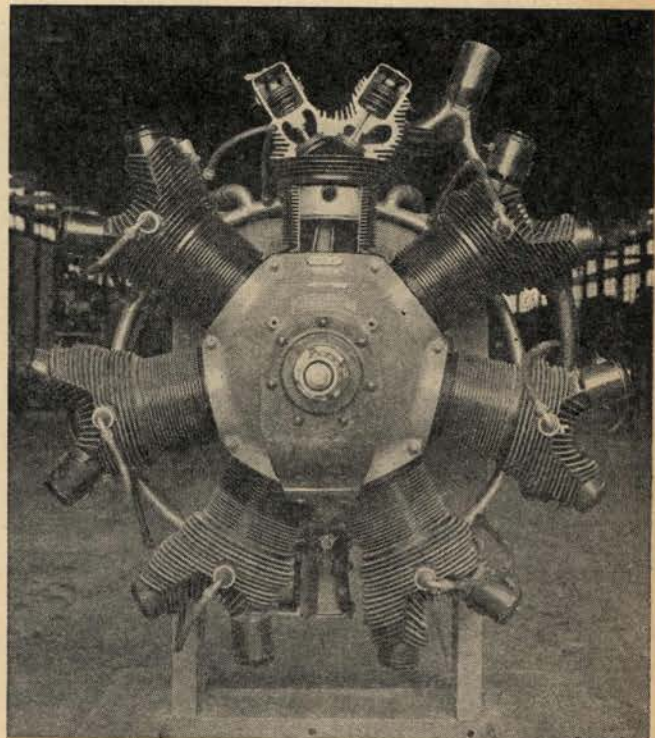


Fig. 1.—It's easy to see by this light-tank radial-engine that four of these cylinders are pointing down.

*Courtesy Army Motors.

If you've got to bust tanks, break up those Nazi Mark VI's — not your own M4's.

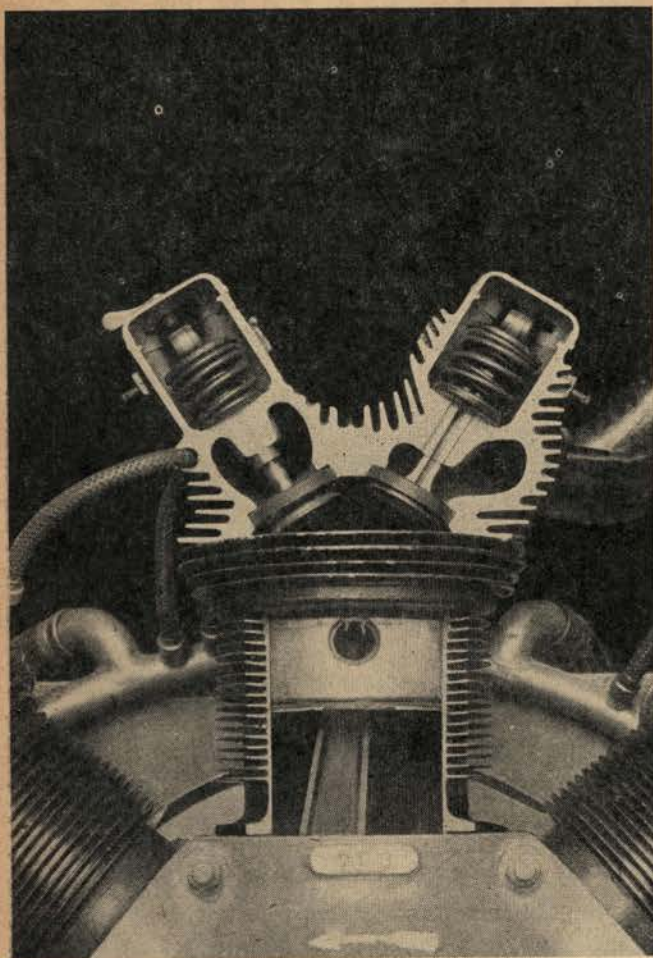


Fig. 2.—Cut-away view of an upside-down cylinder.

speed (400 rpm) controlled by the carburetor is only to be used for shifting gears.

Diesel engines are also damaged by low idling speeds. If you have to idle them, set the hand throttles to idle both engines over 600 rpm.

And while we're on the subject of engine speeds, another way to finish off a good engine is to "lug" it. Lugging a tank means to continue driving it in a high gear after the speed of the engine has slowed down. This generally happens when you're driving in a high gear over smooth terrain and suddenly go into heavy mud or up an abrupt hill. Some greenguards do the same thing by slowing the engine speed in order to slow the tank speed. When the engine rpm's drop, the engine can't develop enough torque (twisting force) to keep the tank moving. The engine loses speed rapidly. You can almost hear each cylinder firing individually. During this time the engine is knocking itself apart, the pistons vibrate in the cylinders, power is applied in jerks, the tank shivers, shakes and gasps. Plenty of parts are being ruined while all this is going on.

A good driver *never* allows the terrain or tank speed to slow up the engine rpm's. He shifts to a lower gear as soon as the tank slows up or if he wants to reduce the tank's speed.

Radial engines, especially, are mutilated by low engine speeds. These engines were designed to run for long periods between 1800 and 2200 rpm. For short periods, they can be run at 1500 rpm. When operated at these speeds they'll give very little trouble. But lug a radial-powered tank along in 3rd, 4th or 5th gear at 1200 or 1300 rpm, and you'll have to change engines at 50 hours.

A good thing to remember is this: whenever you're in a gear higher than 2nd, no matter how slow the tank has to travel, your engine speed *must be kept above 1500 rpm*. If this causes the tank to travel too fast, shift to a lower gear. *Don't ease up on the throttle!*

OVERSPEEDING

Gunning a tank too much is bad business too. Every tank has a top governed engine speed, which is the greatest number of rpm's it can stand in prolonged operation. For short runs it can take a little more, but not much. See your manual for details.

We won't go into the methods of getting the rpm's to exceed the legal limit, but we've seen it happen, and you probably have too. Some guy roars his engine like a bat out of Hell—then it starts to cough and sputter, won't run smoothly. It's suffering from "valve surge," which means the valves can't keep in step with the rapid cam action and therefore go into a fluttering motion of their own. At first there's no permanent harm, but after a while the valve lock washers give up all hope of controlling the crazy valve action; they break and drop the valves into the cylinders. After a piston has beat on a valve a couple of times, you'll have a cylinder full of first-class scrap.

If this doesn't happen first, chances are the engine will overheat, and you know what *that* means—the lube



Fig. 3.—This guy defied the law of gravity—but he broke his rear idler housing doing it.

film in the engine breaks down, and you get scored pistons or bearing failure.

Overspeeding is especially apt to happen when going downhill. Don't forget you have brakes to take a load off your engine. Maybe it would be a good idea to dig out the June *Army Motors* from the bottom of that pile of *Breezy Stories* and read the article on "Give Your Tank a Brake."

CLIMBING HILLS

Even our tanks have limitations and a good tank driver learns them. While watching a tankman putting his medium tank through its paces, we saw a rear idler housing sheared off neatly as if it were done with a cutting torch.

All this driver did was to try to climb the tank over an abrupt hill. But not knowing the right way to handle such a hill, he didn't get over it—but he did put his tank out of operation.

Here's how:

He approached the hill at a sharp angle with the tank transmission in third gear. When the tank hit the soft stuff at the base of the hill it lost speed. By the time the nose of the tank found its way up on the hill (Fig. 3), there was too much load on the engine. It stalled.

Next, the driver started the engine, shifted to creeper gear (1st gear), braked the left track to straighten up and gave her the gun.

Here's what happened:

In trying to run the tank up the hill at an angle the driver was forcing the right track to do all the work. The engine itself develops enough torque in 1st gear to pull the tank up such a hill, but in this case the torque is not applied equally to both tracks. It's being applied mostly to the right track.



Fig. 4.—This tank could have licked a dozen Nazi tanks—but one careless driver put it out of action.

Naturally, this pull centered on the right idler housing, and because the housing was never designed to take all the torque necessary to pull 30 tons up a steep grade—it broke (Fig. 4).

Had the driver known his tank thoroughly, he would have charged up the hill at an angle which would allow both his tracks to take part of the load. But, if by chance he found himself in the position shown in Figure 3, a good tank driver would have backed the tank down and changed direction before trying to go over the hill.

A tank is big, all right—and it weighs plenty—and you can knock over a house with one. Just remember, though, that it needs loving care and lots of it.

Baby yours.

Cavalry Journal Prisoner of War Fund

An unsolicited donation of \$197.19, to be used for prisoners of war, has been received from the 3d Cavalry (Mecz.), commanded by Colonel F. W. Drury. This sum, which has now become the nucleus for *The Cavalry Journal Prisoner of War Fund*, has been turned over to the proper authorities for immediate use.

American Red Cross packages recently carried by the *Gripsholm* to prisoners of war held by Japan contained the following items:

4 handkerchiefs, 3 hand towels, 1 wash cloth, 1 comb, 12 safety pins, 4 cakes of soap, 2 toothbrushes, 1 4-oz. container of tooth powder, 1 chess, checker, and Chinese checker set, 2 pencils, ½ lb. cheese, ½ lb. malted milk, 1 lb. prunes, 1 lb. raisins, 100 army formula vitamin tablets, 1 polo shirt, 2 prs. socks, 1 steel mirror, 4 pack-

ages of double-edged razor blades, 1 shaving brush, 1 stick of shaving cream.

In many cases, the Red Cross is allowed to act as "next of kin" to prisoners and internees. The *Prisoners of War Bulletin* for November reports:

"... the Red Cross was able to complete the work (for the *Gripsholm*) on time, and even to include in the 2,892 adopted prisoners and internees, several hundred previously unreported prisoners of war in the Philippines whose names were obtained by the War Department only a few days before the loading began."

For prompt and efficient handling, send your contribution for prisoners of war direct to

The Cavalry Journal

1719 K Street, N.W.

WASHINGTON 6, D. C.

Tank Radio Communication

by Lieutenant W. E. Felty*

66 **T**IGER 2, this is Tiger 3. Enemy AT gun located 300 yards west of Hill 34." This was the message received by the C.O. immediately after he had given the "Move Out" in his attack order to the platoon leaders.

The attack could not be halted. The enemy AT gun was waiting for the first tank to come into effective range. The C.O. quickly sent a message to the leading platoon: "Destroy AT gun, 800 yards to your left-front."

The platoon leader made a quick decision and directed his platoon sergeant: "Cover my advance to Hill 34."

Fifteen minutes elapsed between the time that the AT gun was reported and the time that it was destroyed. Had it not been for radio, the AT gun might have destroyed a tank.

CONTROL OF TANKS

Modern tanks are fast and very effective in battle—if properly controlled. This control is greatly improved by efficient use of radio communication. On the other hand, improper use of the radio by undisciplined or poorly trained operators can often result in serious errors and unnecessary delays in the communication system. These unnecessary limitations are usually traceable to their source, and in the majority of cases the faults go back to the training of operators—many times, as far back as the first class in basic radio procedure.

Much of the malfunctioning of radio communication is caused by (1) the tank commander who, because he is poorly trained in radio telephone procedure, invariably throws the net into confusion; (2) the one who does not know the phonetic alphabet and consequently pronounces a difficult word so that it cannot be understood by those concerned; (3) the man who speaks too fast and must repeat a number of times; (4) the one who tries to give commands to his driver without realizing that he is on "Radio" instead of "Interphone," and "cuts in" on a station sending an important message; (5) and the two who are just "chewing the fat."

Thorough training is often lacking where it is most needed—within the company and platoon. A regimental, battalion, or even company commander may not be concerned directly with the message, "Jones, (Section Leader) cover my advance to that ridge," nor will it necessarily change the plan of attack just because Jones, whose radio was on the wrong channel, failed to cover the platoon leader's advance. But it may have *unnecessarily* caused the loss of two tanks.

In the final analysis, the success of the higher unit must depend on the effective employment of its sub-

ordinate units. It should be borne in mind, therefore, that each subordinate unit must have carefully supervised training in radio operation and radio telephone procedure.

Radio personnel in battalion, regimental, and higher headquarters are usually highly trained specialists and are picked for such jobs because they are experts at this work. In the company and platoon it is different. The tank commander, in addition to his other duties, is the radio operator. As such, he is responsible for seeing that the message sent from his radio is in the prescribed form, that words are clearly spoken, the message complete, and that the station to which it is sent receives it. In order to be capable of carrying this responsibility, the tank commander must have thorough training and practice in radio communication.

TRAINING

In the Army, an individual's ability to accomplish his work efficiently is usually based upon his initial or basic training. There is no exception to this regarding radio operators. If the initial training is thorough, the operators will be fast and accurate in their work. On the other hand, if a high standard of efficiency in the initial training is not maintained and classes in procedure are few and far between, the unit commander will not have the efficient radio communication that is so vital to that unit in the stress of battle.

During their first basic class, students should be made to realize the important rôle of radio telephone communication and the vital necessity of learning and following proper procedure. In subsequent classes, they should spend many hours training, drilling, and practicing under the tutelage of competent instructors and assistants.

Training in radio communication should include (1) basic classroom radio telephone procedure, (2) complete instruction in the use of the radio set to be used, (3) advanced training in radio telephone procedure, and (4) complete training in the performance of 1st Echelon of Maintenance. None of these should have training priority over the other as they are all of equal importance.

BASIC CLASSROOM PROCEDURE

Basic classroom procedure is usually the hardest to instill.

Although radio is generally regarded as a subject requiring the skill of experts, student radio operators should be taught in the beginning that their responsibilities in handling radio procedure do not involve long formulae and intricate theories. Operators need know only the purpose of a few controls on the radio set and a few procedure phrases. *But this knowledge*

*748th Tank Battalion (M) (SP).

must be exact. It is much worse to use a procedure phrase incorrectly than not to use it at all.

Each classroom should have a blackboard available so that adequate illustrations can be given of each item in radio telephone procedure. After students have learned the basic procedure, they should be drilled by having them write it on the board. An even better training practice is to have four or five students stand in front of the class and call words as if they were using a radio net. Other students then have the opportunity of correcting mistakes. Constant drilling in this practice-method will train the student to think of what he is going to say before he starts talking. It will save a lot of time as well as damage to radio sets, when the class reaches a more advanced stage. New men on the radio often have a tendency to forget what to say after the transmitter is turned on. This blocks the air and may also cause damage to the radio equipment.

INSTRUCTIONS IN USE OF RADIO SET

Before a tank driver is proficient he must know the tank—its capabilities, limitations, all necessary driving regulations, etc. Likewise, the radio operator must have a thorough knowledge of the radio and its controls in order to get the most efficient use of his set.

From the viewpoint of the operator, the radio sets used in tanks today are simple. They require no knowledge of their complicated interior.

ADVANCED TRAINING

Just as the tank driver must have much practice in driving a tank, the radio operator must have continued practice in radio operation and procedure.

Throughout all instruction and practice, the student operator should be taught to use up-to-date procedure consistent with current regulations. Many difficulties arise from the use, by some operator, of his own procedure or some obsolete procedure. Neither of these is ever understood by the new man who is familiar only with prescribed regulations. This causes loss of much valuable time and achieves nothing but confusion on the radio net. Men must be taught to realize this early in their training period.

During the advanced training phase, radio nets should be monitored occasionally in order to ascertain that the proper procedure is being used, and that operators are not getting into bad habits of making ground rules and short cuts in the use of procedure.

If time permits, it is also advisable to have practice nets in radio procedure. These should emphasize the use of all items of procedure that have been taught, in order to keep the men from forgetting certain parts, which they may have had little or no occasion to use during the normal course of training in other duties.

1ST ECHELON OF MAINTENANCE

Nothing will continue to function properly if it is not maintained. The radio set employed in the tank is a delicate piece of equipment, necessary to the fighting

efficiency of the whole tank crew. Tank commanders, therefore, should perform a 1st Echelon check on the radio each time that they check the tank and other equipment. If the set needs repairs, the repairman should be so informed. A routine check in itself, however, is not sufficient. The tank commander must also have enough knowledge of the radio set and how it works to make an accurate report on the failure of any radio equipment.

SUMMARY

In order to have fast and effective use of tanks, it is first necessary to have fast and efficient radio communication. In order to have this there are but a few necessary rules to follow:

1. A definite plan for the training of tank commanders as radio operators will increase radio efficiency.
2. None but authorized procedure should ever be used on a radio net.
3. Frequent practice nets are valuable aids in training.
4. Well planned 1st Echelon of Maintenance is necessary.

Report on German Radio Equipment

by U. S. Signal Corps Officer, back from Africa

German radio equipment is "five years behind our own." This inferiority in design, components and construction appears to be due to the fact that the Germans standardized their radio apparatus during 1934-1938 and have not attempted further improvements.

"German sets are well built and have a great deal of strength, but those tested in Africa were certainly not made for service there. They lacked waterproofing and were not dustproofed. In many cases, stop-gap measures were used. For instance, we have noticed that tape and various sealing compounds were used in an attempt to make sets resistant to corrosion and to exclude dust. An obvious fault was the lack of impregnation of coils and transformers to keep out moisture."

Although fairly good operators, German signal prisoners do not appear to be very well trained on technical lines.

"In many cases, German radio sets have been found intentionally sealed to prevent tampering so that German operators could not attempt their own repairs. 'Yankee ingenuity,' on the other hand, makes it possible for American boys to repair or improvise their own equipment if they have the tools and parts."

Captured damaged enemy equipment is "cannibalized" for coils, condensers, resistors, tubes, batteries and meters. These are used to repair U. S. equipment, and also enemy apparatus to be used by the Allies.

United States forces have not yet had to resort to use of captured equipment.—*Bureau of Public Relations, War Department.*



British Official Photo

At sunset, British tanks in Sicily move up to new positions north of Rammacca.

DECISIVE battles in this world war will probably be fought in the dark. That is the text for modern armies, according to the military gospel of General Montgomery who, while training troops in Britain, always insisted that great results could be achieved in night fighting by troops rightly and adequately trained. And at El Alamein he proved it.

In World War I the general scheme was to assemble the troops under cover of darkness, and to launch the attack at dawn. During the present war, German commanders adopted such tactics in Poland, France, Russia and Africa; and Generals Wavell and Auchinleck in the Western Desert did the same.

New weapons and new methods, such as the laying of vast minefields containing hundreds and thousands of mines have, however, multiplied the cost of a close approach in daylight to strong positions held by large numbers of fully armed, resolute troops.

Marshal Rommel at El Alamein believed that the British would not be able to penetrate the defenses he had constructed during three to four months of ceaseless work.

General Montgomery solved the problem by an immense concentration of artillery on a front four to five miles wide, which flung shells on the enemy at the rate of 1,800 tons an hour; and a thorough system of mine detection and clearance, followed by infantry night attacks.

Despite the advantage of holding prepared defenses, covered in places by minefields five to six miles deep, the Axis troops were beaten both in defense and attack. All the major British attacks were launched at night.

All the enemy's chief counterattacks were attempted during the day.

Night fighting is peculiarly difficult. It calls for careful planning and careful training, for individual intelligence and strict discipline.

Commanders in the past, warned by examples in military history, as a rule have restricted their night attacks to assaults on besieged fortresses, where the ground has been familiar and the position of the breaches unmistakable. But even under the most favorable conditions, the attempt to coördinate the movements of several columns of troops has often broken down.

General Montgomery's main assault at El Alamein on October 23, 1942, was made in the north on a front six to seven miles wide. He employed four divisions. At first their common direction was east to west. Later the troops on the northern and southern flanks struck northwest and southwest to broaden the wedge they had driven into the Axis defenses.

With more than 50,000 troops moving at night across monotonous desert on different lines of march towards different objectives, the risks of confusion were great. Any unit might easily go astray, and for the success of the operation, every movement had to be coördinated with all the rest. Each unit had to know its own position and the positions of its neighbor units. This knowledge also embraced the air force, the artillery and the engineers.

Thanks to the tireless sorties of Britain's R.A.F. and the excellence of their innumerable photographs, together with daring and persistent ground raids by all

British formations, the attacking troops knew the exact position of the enemy's guns and defended localities.

Throughout the eleven days' struggle at El Alamein, General Montgomery never interrupted his plan of night attack. Despite all the risks of confusion, he was never held up by the dark; and, attacking in the dark an enemy whose numbers were little less than his own, he inflicted four times the casualties that he suffered.

Two means to Montgomery's success were (1) the thorough training of all ranks in night movements, and (2) the selection and instruction of pace counters in every unit.

Finding the way in the dark is partly an innate gift and partly an acquired skill. Some men are hopelessly bewildered in the dark. They are even confused by a strange countryside in daylight, and such men cannot be taught.

While only a few men seem to possess that remarkable sense of locality which enables them to find their way in the dark as if by instinct, the large majority have an aptitude, more or less pronounced, that is capable of surprising development.

Much attention is given to fieldcraft in the training of Britain's new Army. Men learn to find their way about in all kinds of country, in all kinds of weather, and at all hours of the day and night. Once the puzzles of map reading have been mastered, and the habit formed of noting natural signs and features, and making mental pictures, the dark dwindles from an impenetrable obstacle to a mere hindrance. In the Western Desert, the brilliant stars act as sign posts in the sky.

The ordinary Briton is seldom given to watching

Montgomery's defeat of Rommel demonstrated that unless a general is prepared to forego large and perhaps decisive advantages, he must often move and attack in the dark. With this conclusion, a new theory in military tactics is born.

the night sky. In the Middle East he has discovered that some attention to its pattern will show him the points of the compass and tell him the hour.

Something much nearer than the stars, however, was required at El Alamein to guide Britain's Eighth Army, and keep its different parts in position. This was provided by an ingenious and elaborate system of light.

The first stage in the advance was the clearing of gaps in the minefields. Where each gap was to be made, an officer of the Royal Engineers had placed himself at the entrance with a telephone and wireless set. He was followed by other engineers who marked the route with colored lights. Through the minefields, troops were still helped by the use of lights to keep direction. Thus troops fighting their way forward were able to answer for themselves the question: "Where are we," and to announce: "Here we are."

A medium gun of General Montgomery's Eighth Army opens the night barrage on the Mareth Line. This was another application of the tactics that broke the enemy defenses at El Alamein.

British Official Photo



Training in Night Firing

At the Cavalry School

FIELD MANUAL 23-60, Caliber .50 Browning Machine Gun, prescribes methods of night firing which are pertinent to all small-caliber weapons. These methods are based on the registering of fire during daylight hours and the recording of pertinent data upon range cards while using sight or instrument readings and deflections relative to an aiming stake or a lighted aiming box. They are sound and afford excellent training within the scope of their application.

Such methods, however, are not always feasible. They may be used only when time and the tactical situation permit prior registration of fire and the preparation of range cards. They do not cover the occupation and the hasty preparation of defensive positions at night, where effective fire may be required without prior registration on the target. This type of action can be expected to be used frequently in every theater of operations. The registering of weapons in a defensive position indicates to an observing enemy the location of the position. If alternate defensive positions can be occupied and an effective fire delivered without prior registration, the defense will gain an element of surprise that may well prove decisive.

SETTING UP THE "FLASHER" SYSTEM

To provide training applicable to these latter situations, the Cavalry School has developed a training aid which simulates an enemy night attack. This is achieved by a flasher system of vari-colored lights representing the muzzle flashes of hostile weapons.

Twenty-four lights are installed in the firing area. Each light is controlled from behind the firing positions by switches. White lights flashing at the rate of 30 flashes per minute simulate rifle fire, while red lights flashing at the rate of 100 per minute represent enemy machine-gun support. To represent mortar targets in a certain area, blue lights are placed in the extreme corners of the area indicating enemy reserve or support troops. Amber or yellow lights represent enemy mechanized vehicles or tanks.

The flasher proper consists of two rectified and filtered power supplies, two vacuum tube flasher circuits, and a control panel. The source of electrical power is a generator on a sound truck. Each flasher circuit consists of a vacuum tube, a relay, and a time-circuit. The time-circuit consists of a condenser and two resistors, one charge and one discharge. The rate of flash is controlled by the value of the resistors, with the time "on" relative to the time "off" being dependent upon the proportionate value of the charge and discharge resistors. The flasher used at the Cavalry School was constructed

from salvaged parts and material from junked radio sets. If salvage is not available, all parts may be purchased commercially.

Four conductors are brought from the flasher unit to a switchboard. These conductors are: one common, one slow flasher, one fast flasher, and one continuously hot lead. The switchboard consists of a panel containing as many switches as there are targets that are to be controlled.

The flasher lights are controlled by one operator at the control switchboard located just in the rear of the firing line. The operator begins by closing switches on slow flasher circuits whose lights are closest to the firing position to simulate an enemy skirmish line fire. At an appropriate time, lights representing enemy machine-gun support are operated. For a diagrammatic sketch of the wiring system, see Figure 1. This figure is diagrammatic only; lights should be placed so that they represent suitable targets on particular terrain.

In addition to the lights representing the location and particular types of hostile fire, silhouette and other ground targets are placed in the immediate vicinity of the lights to correspond with the probable disposition of the hostile squads, sections, and other units. Targets are arranged to show as nearly as possible a true representation of the attacking or assaulting force. Tank and/or mechanized vehicle targets are constructed to outline the forward silhouette of the vehicle, with the amber or yellow blinker light being placed in a position on the target which corresponds to the actual position of the principal weapon on the vehicle. Lights for other targets are placed within the limits of the group, with not more than two lights per group.

REALISM

To simulate hostile artillery and mortar fire, heavy explosives are placed in the immediate vicinity of the firing line prior to the conduct of the exercise. Prone shelters are started by students as soon as they reach their positions. These shelters are not fully completed during the exercise because it is not desired to devote more than the minimum time to this practice, since it is fully covered in other instruction. It must be included, however, to emphasize to the student that as soon as he moves into a position he must start preparation of individual cover.

For further emphasis, hostile artillery fire is simulated. To warn the students of the approach of enemy shells, No. 2 artillery whistle fireworks are used. (These resemble firecrackers and when lighted give off a peculiar whistling sound resembling the shrill noise of an

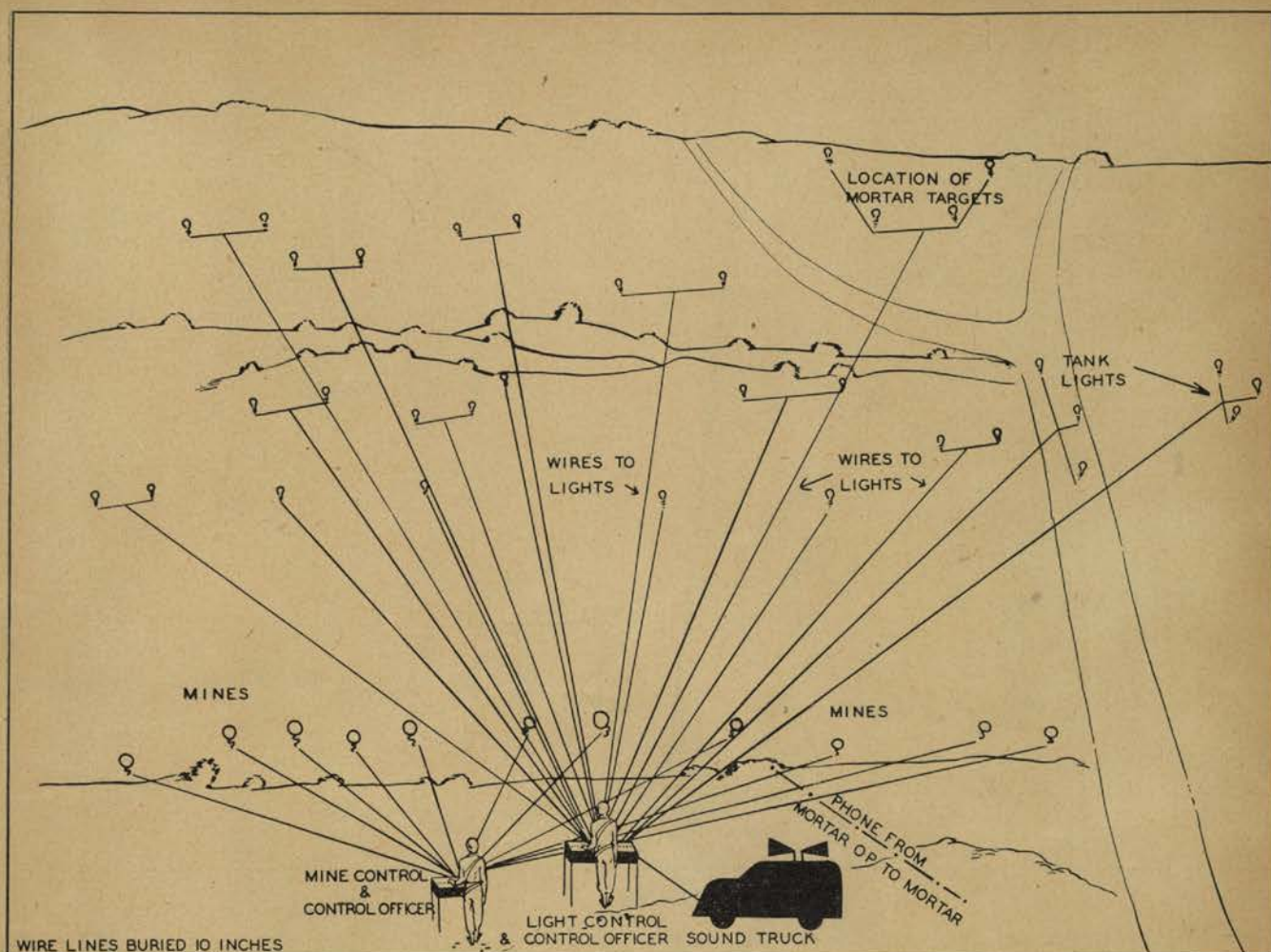


FIGURE 1

A SIMPLE WIRING SYSTEM FOR USE
AS A NIGHT FIRING TRAINING AID.

artillery shell in flight.) When one of these whistles is heard, students must insure that they take maximum advantage of the prone shelters which they have started. By means of a switch on the control box, an explosive charge is set off to simulate the impact of the artillery shell. Further battle noises and effects are obtained by a variety of air-bursting fireworks.

DAYLIGHT PREPARATION

The practical exercise and the night firing for the students at the Cavalry School start at 1500. The students first emplace their weapons in a position which they expect to occupy until after dark and which they may be required to defend.

All weapons are registered, range cards prepared, and aiming stakes and lighted aiming boxes located. When this is completed, the students are required to reconnoiter an alternate position located approximately 400 yards to the flank. They are told that it may be necessary to occupy and defend that position during darkness. They are directed to select positions for their particular weapons and mark those positions in an unobtrusive manner so that enemy ground reconnaissance would not observe the markings.

At the time of this instruction, the students have not

received instruction in defensive tactics other than the type of fires used. The period is intended to cover only the technique of night firing and hasty cover. For these reasons and for safety precautions, all weapons except the 37mm guns and the mortar are on a general line.

Most of the precautions are dictated by range limitations at the Cavalry School. As far as possible, however, these regulations have been subordinated to tactical dispositions. Covered routes of approach to the position are also reconnoitered and thoroughly understood. During this reconnaissance, possible target areas or routes of enemy approach to the position are discussed by the instructor.

This operation is concluded approximately one hour before darkness. The students are then assembled in an area defiladed from the alternate position, where supper is fed and additional instruction given. During this time, targets are set up in front of the alternate position and the lighting system installed and connected.

NIGHT PRACTICE FIRING

At dark the students occupy the previously prepared position and fire a series of problems requiring approximately two hours. They are then given an order to move to the alternate position and prepare to repel an

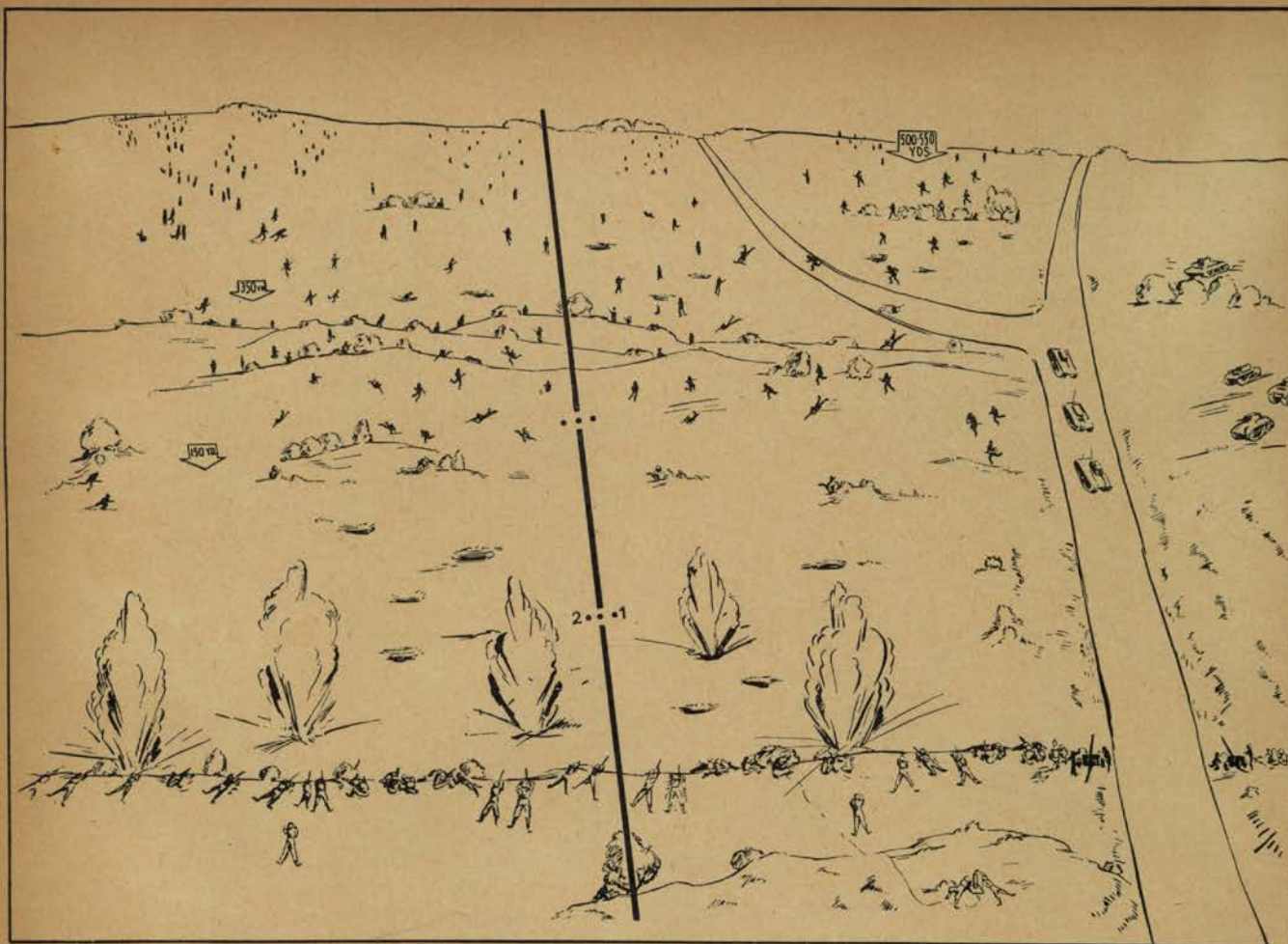


FIGURE 2

enemy attack which information indicates is being organized. The class moves, under blackout conditions, into the alternate position. Noise is to be kept to the minimum. Exposure on skylines is avoided. The position is occupied and prone shelters are started.

Students act as commanders under the guidance of instructors. All are made familiar with the tactical situation. Student unit commanders are required to report when their units are properly disposed. Instructors then check all weapons and all personnel to insure adequate safety precautions. Platoon sectors are prescribed by direction with respect to the firing line, with sufficient overlap between platoons to insure no uncovered areas to the front.

Since the safety precautions already mentioned permit fire in only one general direction, all-around organization of the position is impracticable with the Cavalry School facilities. Except for the width of the sectors assigned to each platoon, however, the conduct of the problem in complete darkness obtains the same effect as though all-around defense were organized.

The targets and the lights are placed in the best avenues of approach for the particular enemy force represented. They are dispersed over the entire front so that the fire of each platoon must extend into the sector of the adjacent platoon in order to insure complete coverage of all targets. The students are required to orient themselves on the general direction of their

platoon line. They are then told to fire only at targets appearing to their front or slightly to their flanks in order to insure overlapping fire. Again, range limits prohibit enfilade fire on targets in adjoining sectors.

Some artificiality must be introduced into the targets upon which the mortars can fire in order to avoid destruction of the lighting installation. Obviously, the advancing enemy personnel should be their primary target. Instead, the fire of the mortars is restricted to areas which the enemy might use as assembly positions. The observers for the mortars are located on the front line and preferably on the flank, since axial observation during darkness is not efficient for range determination.

The first loading of all weapons is accomplished as quietly as possible. Machine gun and rifle bolts are eased forward by hand and are not permitted to be actuated freely by the spring. At this time instructors caution the students upon the following points: Since they are confronted with an attack from a direction which was not clearly foreseen, the enemy situation is certain to be obscure. Therefore, thought must be given to the conservation of ammunition. Indiscriminate firing must be avoided.

Adjustment must be made by observation of their tracers. Since a tracer shot which is over the target gives no accurate indication of its point of strike with relation to the target, it is better to shoot low and work up to the target initially. It must be assumed that all enemy

personnel is not concentrated in the lights representing firing weapons. Therefore the area in the vicinity of each light should be searched. Students should not fire except when the lights are actually flashing or when a flare illuminates the target.

Only a limited number of flares of short range are used. It is pointed out to the students that, except in open terrain where flares can be fired well to the front, their use may also disclose some of the defensive dispositions. Students are also told that the supply of flares is limited. Therefore, they must depend upon other means of adjusting their fire.

ADAPTABILITY OF THIS TRAINING AID

Remarkably efficient results have been obtained from the use of this training aid and the methods of fire adjustment herein described. As high as 70 per cent of the total number of ground targets have been struck. The lowest percentage of targets hit to date has been 45 per cent, and a steady improvement has been noted since this low mark was made on the first use of the aid. The number of vehicular targets hit by the 37mm guns has ranged from a minimum of 30 per cent to a maximum of 80 per cent.

This training aid can easily be modified to meet the training needs of tactical platoons and squads. For example, the system of flasher lights can be scaled down to include only one target or an appropriate combination of rifle, machine gun, mortar, or antitank gun targets. They may be supplemented by trip wires on which tin cans are hung. These should be installed by the unit personnel prior to darkness and their general direction from the position marked unobtrusively by small stakes or large nails.

Before the unit moves into the position in darkness, prone silhouettes may be set up generally along the trip wire. A cord is attached to the wire and led to a point on the flank or rear of the position. The cans can then be made to rattle as desired. Machine guns then open at assured short ranges which are increased gradually until low grazing fire is being delivered in the direction of the sound.

More realism can be added by close-in trip wires with similar targets and by requiring the use of hand grenades against them. This restrains the "trigger-happy" soldier and emphasizes the fact that the enemy may be trying merely to locate automatic weapons.

The effectiveness of the method of adjustment, as indicated by the percentage of hits obtained, would appear to make this type of training extremely valuable. It should be followed, however, by a critique to stress the importance of observing the strike of *each* tracer, and the fact that it must be determined before fire is opened whether or not the enemy attack is merely an effort to locate our automatic weapons, in order that they may be neutralized prior to an attack on a larger scale. It should also be pointed out that the use of tracer ammunition will make it easier for enemy observers to locate such weapons.

More About the Kitchen Truck

Like Topsy, kitchen trucks are too often "just growed." The article on this subject in the September-October issue of *The Cavalry Journal* offers an efficient solution to this important problem and should do much to alleviate haphazard arrangements by directing thought along these lines in the proper direction.

As in most military situations, a solution is not necessarily *the* solution. In this connection, two supplementary suggestions are offered.

If any cooking is to be done on the march—which is perfectly feasible, and practical, in that it is a great time saver—certain precautions in the interest of safety of the mess detail are important.

1. Some means of communication between the cooks and the driver should be provided so that in the event of fire, the truck may be brought to a halt immediately. One such device that has proven satisfactory is a 6-volt buzzer or door bell in the cab. This is connected to the truck battery and controlled by a stop light switch actuated by either one of two wires strung through eyes screwed into the top of the bows on either side of the truck. The wires should extend down the rear bow to the tail gate so that wherever in the truck a man is—even if he is driven to hanging over the tail gate—he can pull a wire to signal the driver.

2. With the stoves arranged across the front of the truck, a sudden emergency stop may cause the cooks to be precipitated into the hot stoves with painful results. This dire possibility has been prevented by rearranging the stoves along one side of the body and placing the ice box across the front. This further permits a larger ice box and a longer work bench locker opposite the stoves.

JOHN T. SNODGRASS,
Lt. Col., C.A.C.

In the article, "How to Prepare the 2½ Ton Cargo Truck as a Kitchen Vehicle," in the September-October issue of *The Cavalry Journal*, it seems that one small but important safety precaution has been overlooked. If the unit is to be used on the move, some means should be provided to anchor the leg of the "knock-down" table to the floor. Unless there is such an anchor to prevent up-and-down as well as side-to-side movement, the jostling of the truck is likely to cause shift of the leg to such an extent that the table will lose its support and fall to the floor.

Any number of obvious methods could be used to lock the leg in position.

HOWARD M. COLLINS,
M/Sgt., DEML.

Dismounted Reconnaissance

A Training Problem from the 2d Cavalry

by Major Thomas B. Hargis, Jr.

66 **Y**OU can't see anything sitting in a vehicle." The truth of that statement is self-evident, but to get the present day soldier to believe it is another story.

Mechanized reconnaissance units have been often and bitterly criticized for their failure to obtain vital information. The criticism was justified without question, but very few units ever did anything to avoid it except to ride their vehicles harder and faster than before.

THE 2D CAVALRY LEARNS TO MARCH

When the 2d Cavalry was reactivated in January of this year, the commanding officer was determined that the regiment know how to walk as well as ride. During the early phases of our training we out-marched many infantry units—a practice not common to mechanized units. Our marching culminated in a dismounted march from Columbia, S. C. to Charleston, S. C., a distance of roughly 150 miles. This included one march of 25 miles in 8 hours with full pack.

After the troops had learned to march and had become well hardened, the training progressed to dismounted scouting and patrolling in large doses. All men in the regiment received this training. Later, in August, as a final test of their proficiency, all troops participated in a dismounted patrol problem that lasted for two days.

This problem took place in the area bounded on the south by U. S. Highway 1, on the north by Wateree Pond, on the west by Highway 21, and on the east by a N-S line through Lugoff. An area roughly 25 miles square. (See sketch.)

The patrols were composed of not more than seven men, led by an officer or N.C.O. The men carried full field equipment, including "C" rations for one day.

The following situation was given to all patrol leaders just prior to the beginning of the problem. (A thorough check was made before starting patrols to see that they thoroughly understood the situation as given.)

SITUATION

General Situation: Red forces advancing between Wateree and Congaree Rivers have reached the line of Highway 1 and have established a strong counterreconnaissance screen. They are believed to be concentrating armored and infantry units on their left flank.

Blue forces are retiring slowly to the southeast but still hold the east bank of Wateree Pond.

Special Situation: The 2d Cavalry has been ordered to discover strength and composition of enemy forces in Longtown, Bloomingdale Church, Blaney, Highway 1, Highway 34.

Information: The following essential information was required:

1. Strength and identification of units, particularly armored units.
2. Ammunition dumps.
3. Highways. Are the following roads being used by armored units:
 - a. Highway 34 Ridgeway to Junction Highway 1.
 - b. Highway 213 to Junction Highway 270. Highway 270 to Blaney.
 - c. Road from Oak Grove School to White Oak Church to Highway 213. Highway 213 to St. Johns Church.
4. Creeks and Bridges.
 - a. Are bridges over Sawney's Creek between Ridgeway and St. Johns Church intact?
 - b. Is Sawney's Creek fordable for foot troops between bridges?

Instructions: Patrols were ordered to reach observation points by daylight of the next day and to remain in observation all day. At 2300 that night they were to move north to Wateree Pond where boats were to be available. Identification was to be established by giving "whip-poor-will" call 3 times answered by boat commander with "hoot owl" twice.

All information was to be turned in upon reaching the other side of Wateree Pond.

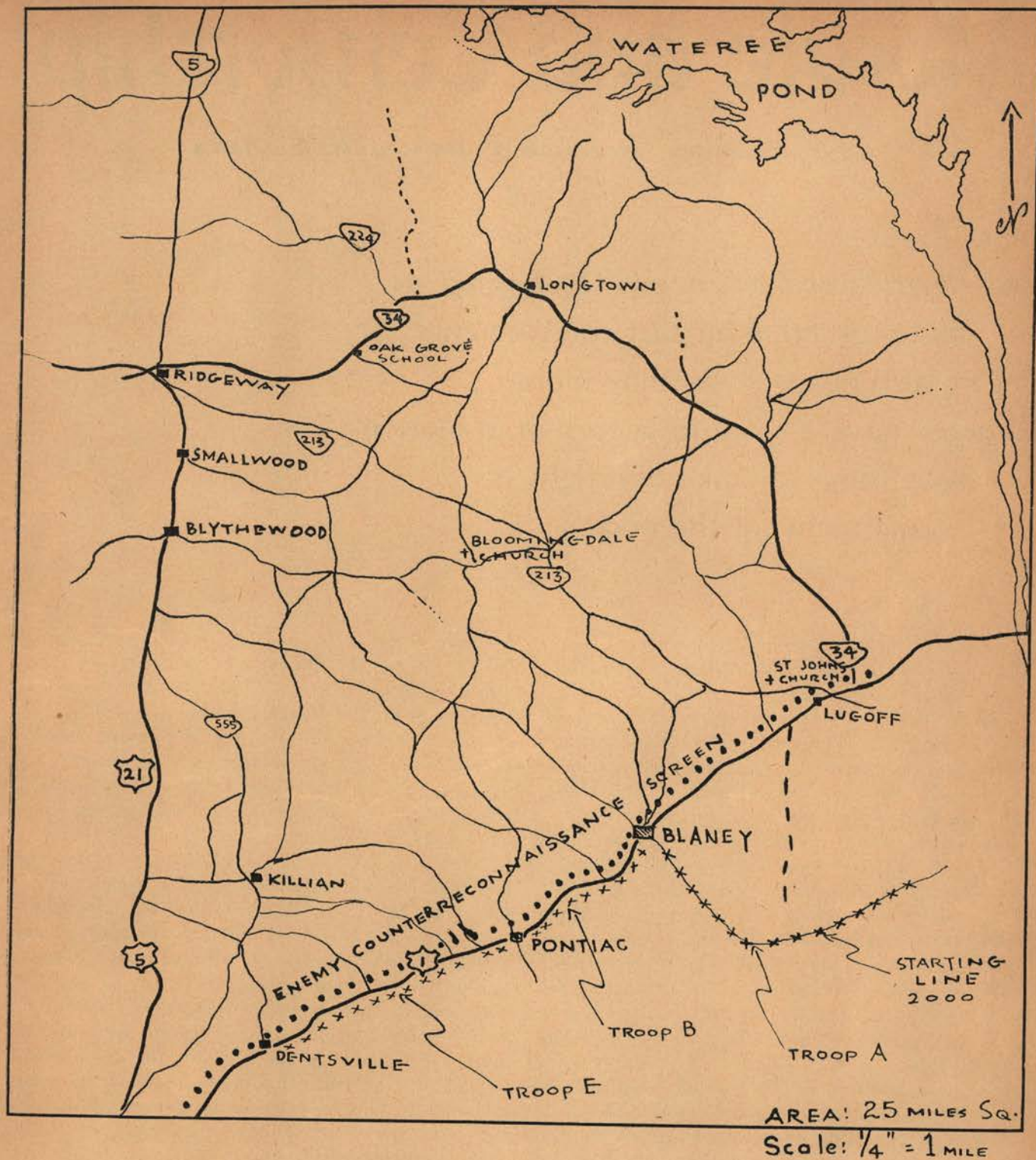
Controls: The enemy was represented by large signs placed in the area indicating location of various sizes and types of units. In addition, vehicles with similar signs were dispatched along roads to simulate movement of armored and motorized elements.

Aid stations were established throughout the area to care for any men who were hurt or became ill during the course of the problem.

The area was patrolled throughout the problem by staff officers and squadron commanders to insure proper movement and concealment of patrols.

Operation: The line of Highway 1 was divided as shown on sketch, and zones were assigned to each troop. To avoid bunching, patrols were placed on a starting line at intervals of $\frac{1}{4}$ mile. All patrols started at approximately 2000.

The patrols moved on roads during darkness, and numerous checks by staff officers revealed that only a few were careless. By daylight the next day, most of the patrols were in position to observe the roads in their area and to continue their attempt to secure information. At about 0100 the next morning patrols began arriving at Wateree Pond, and the call of the "whip-poor-will" and "hoot owl" could be heard. By daylight



all but a few patrols had been ferried across and information was beginning to reach Regimental Headquarters.

Results: The information obtained by the patrols in most cases was excellent. All installations or enemy columns represented were found and reported, and a very complete picture of the represented enemy was obtained. The results were in general excellent and the problem was considered a very successful one.

Conclusions: From this problem the 2d Cavalry has become thoroughly convinced, not only of the practicability, but the absolute necessity for dismounted patrols

by mechanized units. In no other way can a complete picture of the enemy be obtained. When counterreconnaissance screens cannot be penetrated, patrols on foot must go forward to get the information required by Regimental Headquarters.

Communication for these dismounted patrols will be difficult. One solution may be carrier pigeons. The 2d Cavalry is now on maneuvers in Tennessee, and our dismounted patrols are to carry pigeons. If they are successful, then we shall have mastered one drawback to dismounted patrolling.

You cannot get information sitting in a jeep.

Morale and Censorship^{*}

by Commander Frederick J. Nelson, U. S. Navy

The American soldier needs food, weapons,
and protection against the elements.
But he also needs something more!
He must have a spark to keep him in motion—
something to make him fight on,
no matter what the odds.

AS INDIVIDUALS, members of our fighting forces require certain well established elements to keep their morale at a high pitch.

The first is food. Man is an engine, and he must have fuel to operate. Reduce the ration and you reduce fighting efficiency. Cut it drastically for a considerable period, and a man loses the will to fight. Starve him, and he weakens to the point of submission.

The fighter requires weapons. For years the officers of our Army and Navy have said that if the lawmakers gave them as good weapons as their enemies, they would do a creditable job, and recently, where this situation has been true, they have made good their boast.

Food and weapons are not all. The fighter requires protection against the elements, warm clothing for the winter campaigns, suitable garments for tropical service, and no matter where the fighting may be, comfortable shoes.

But even if you feed a soldier or sailor well and provide him with good weapons and clothing, you still do not have an outstanding fighter. He needs a spark to keep him in motion—something to make him fight on, no matter what the odds.

The American fighting man is not a mercenary. Of itself, the recent pay increase did not do much to raise the morale of the fighting forces. What it did was to enable our men to supply their own personal needs, to pay for insurance, canteen purchases, movies, etc., and still have enough left to send some money home to mother or father or to other dependents.

It is always advisable to explain what men are fighting for in terms of the things that they hold most dear.

Freedom is an abstract sort of something to the man behind the gun, but he will understand if you reduce it to terms of his right to sell the farm, to vote without coercion, or to take the job he wants. And if you put the reason for requiring his services in words relating to his family life, his mother, younger sisters and brothers, his wife and children or his girl, you are then talking about the things he cares about and for which he is always willing to fight.

Leave is a big morale factor because it performs beneficial mental readjustments. It is necessary that the fighter be able to see for himself what his efforts will attain. We hear it said, "If I could only be home with my folks for a week end—if I could just talk to my girl again." He wants to see how things are going at home with his parents, what his girl thinks about him. And if everything is all right, if his girl still waits for him, or if his wife and children are still safe and comfortable, he will return from leave a better fighter, and nothing can stop him in his enthusiasm to get the war victoriously over.

With our forces on many fronts, leave for the majority of the soldiers and sailors is now out of the question. Most of our men realize this, and they will not grumble too much, if only they can hear regularly from their kin. Even though letters are a poor substitute for leave, it cannot be denied that mail is their biggest single morale booster. The proverbial wine, women, and song are secondary, and *often a substitute for what the mail failed to do.*

Not only does the fighting man want mail, but he wants it regularly. In addition, he likes to get it as soon after it is written as circumstances permit. Some months ago, the Congress passed the free mail privilege

^{*}U. S. Naval Institute Proceedings, April, 1943.

for the personal correspondence of soldiers and sailors, but a letter is seldom sent "free" for any distance if an air-mail stamp will get it there sooner.

Unfortunately, the morale value of regular fast letter correspondence has not been fully impressed upon certain groups who exercise control over the delivery of mail to men in the service. I refer to our censors.

Fighting men all agree that censorship is a necessity in time of war. All that they ask is that it interfere as little as possible with the free flow of their correspondence—not an unreasonable request. And they think that once a letter has been censored, it should be sent promptly to the addressee.

There are three groups of censors who pass on soldiers' and sailors' mail. They are Army censors, Navy censors, and national censors.

Service censorship is carried out by the Army and the Navy within their own organizations, but the systems used in these two branches of the services are not alike. Soldiers' mail is censored by their company officers, who rotate this unpopular duty. Army officers censor their own personal mail, but it is subjected to spot censorship by U. S. Army censors. Mail of enlisted men in the Army, once passed by an officer, is not censored again. To facilitate prompt receipt of mail from the States, the Army has established a system of "A.P.O.'s" (Army Post Offices). Thus, a soldier stationed abroad has his mail addressed to A.P.O. 694, c/o Postmaster (of some Eastern, Western, or Gulf port). In that way no information is given about his location, and his mail is not censored before leaving the country because it has a United States address.

In the naval service, all the personal mail of both officers and enlisted men is censored by a designated censor, invariably an officer. Only a few senior naval officers are permitted to censor their own mail—captains, executive officers, flag officers, and members of their staff—but all may be spot censored at any time. These differences in the censorship regulations between the Army and Navy for officer's mail must not be construed as being indicative that our army officers exercise superior discretionary powers in their correspondence. It is just another difference between these two services.

National censorship is a factor in the life of the armed forces because it is this organization that censors the mail going to the soldiers and sailors. Here we find a group of individuals—mostly women, with but a smattering of training, and with no military background—dictating, in a blundering way, what members of the armed forces may read in their letters about the thoughts of their family, the sentiments of their kin or the conditions of their country.

If a strike is called in the home town, some censors will snip any mention of it from letters to the armed forces, although clippings from the local paper enclosed in the same envelope, and carrying the news in greater detail, will be passed. Some censors object to criticism

of national policies, others to mention of restrictions or inconveniences on the home front. If rising prices or scarcities are commented upon, it is a safe bet that they too will be deleted.

Not so long ago, an officer received from his wife, a letter that had been unusually slow in reaching him. Noting that there was about two weeks' difference between the date on the letterhead and the cancellation on the envelope, the officer made a few inquiries. In the course of the investigation, he learned that this letter, which contained a general discussion of conditions in his home town, was returned intact to his wife by one censor with the statement that it would be bad for the morale of the recipient. The writer, upon receiving the returned letter and mindful of the inconsistencies among national censors, did not alter one word but simply addressed the letter to her husband in a new envelope. The censor who received it on the second trip, presumably having different ideas about what was good for a fighter's morale, passed the letter in toto.

In the great citizens' Army and Navy that we are building today, there is an alertness and consciousness of community and national problems that differs greatly from the German or Jap fighters, who are unconcerned with national issues in their blind obedience to a dictator. For this reason, censorship of things that the man in the service is thinking about anyway, and upon which he dearly desires home comment, is apt to enrage him. He feels that he is being treated as a schoolboy, not as a voting citizen of the country. After all, it is his own country—in a peculiar democratic sense, the one for which he is fighting, possibly dying. His morale is strong enough to take the plain unadulterated truth. A badly "snipped" letter or newspaper may lead the recipient to imagine that matters are far worse or more serious than they are, and this will have a distinctly unfavorable reaction on his morale.

Possibly much censoring and snipping could be avoided if the general and specific directives to censors were published for the country at large to understand. If the rules are clear and reasonable, they can stand the light of public scrutiny and will aid the home front in excluding questionable matters from their letters. Voluntary coöperation in this distasteful matter would doubtless lighten the censor's burden and speed up the mail deliveries.

It is in the censorship of weather that censors make themselves ridiculous. Every schoolboy knows that in certain parts of the world weather migrates. A comment by a sports announcer that it is a beautiful clear autumn day at Chapel Hill is priceless information to the submarine command off the Virginia Capes. Similar information that a hurricane has swept over Martinique tells a "wolf pack" in the Caribbean that visibilities will be low until the storm blows itself out.

But weather does not migrate in all latitudes; in some, not at all; and in others, only during certain seasons. For a sailor stationed in the Canal Zone to remark

in a letter that it was raining there in August, is to reiterate common knowledge. To say that it was raining hard, is also common knowledge. In fact there is nothing anyone could write about the weather in Panama that isn't in every textbook on climatology. The same thing holds true for most tropical latitudes, but the national censors will slit a letter to ribbons that makes any reference to weather anywhere. And should you begin a paragraph by saying that you are low and dreary, and feel as dull as the day, you may be assured that the addressee will never read that. Believing that you are transmitting secret weather information, the national censors will pounce on your sentence with a poised indelible brush or open scissors. More common sense directives could eliminate such inconsistencies.

The question logically arises then, why should incoming mail to our soldiers and sailors be subjected to national censorship? Are there any people anywhere more anxious than our soldiers and sailors to bring the war to successful conclusion as soon as possible? Is there any group more anxious than our officers to deny information to the enemy and in a better position, by virtue of their training, to pass on what may be said in personal correspondence? It is they or some part of the military organization itself, rather than clerk censors, who should be given the responsibility of deletion. It must be borne in mind that it is not the censorship of incoming mail that members of the services dislike, but only the inconsistencies and the delay incident thereto, a delay that often neutralizes any advantages in time gained through the use of air mail.

"V" Mail has done much to improve the regularity of correspondence to the armed forces. But, while it gets the word back and forth, it lacks the personal element. In short, it is coldly mechanical. Men would like to receive their letters intact, to read from the stationery on which the letter was written. And of course, they all would like to feel that what was sealed in that envelope was for their eyes and for no one else. It has long been recognized that people bare their souls in their letters, and private correspondence to members of the fighting forces should be kept as private as consistent with the interests of security.

Complete Addresses are Necessary to Get Mail to Soldiers Overseas

In addressing mail to a soldier it is necessary to give his rank, name, Army serial number, organization and Army Post Office number. By organization, the War Department does not mean the Army or division to which the soldier belongs, but rather the unit. Following is a model address:

Pvt. John Doe, ASN 1234567890,
Troop E, 112th Cav.
APO 502 c/o PM,
San Francisco, Calif.

Censoring mail is an irksome task. To make the job as light as possible some officers discourage their men about writing too often or putting their thoughts into too many pages. The post-card check-off list, as a substitute for letter correspondence, must be an answer to the indolent censor's dream, for to discourage letter writing by insisting that such brief post-card forms be used or to encourage brevity in personal correspondence is to shake the keystone of morale.

A fighter must have an outlet for his sentiments. He needs some vehicle to get his thoughts to those he knows will value his opinions and who have a sympathetic understanding of his type of human nature.

Sometimes, of course, a man just likes to blow off a little steam. Letter writing is the least harmful way to reduce high internal pressure, for mental complications arise only when men are unable to get the load off their minds. Besides, when a man is writing letters, he is using his powers of concentration and expression—a development most useful in his daily work. Writing helps to crystallize thinking, and when men are writing letters, their conduct is always exemplary.

Censors have two important missions. One is to *preserve the security of information*, and the other is to *promote rapid delivery of correspondence*. It is in this second category that many censors are deficient.

When a soldier or sailor deposits his mail for censorship on his post or ship, he knows that his officer-censors will make an effort to get it out in the next mail. He knows that the officers realize the morale value of regularity in personal correspondence. He knows, too, that his officers have a full understanding of what should be deleted. And if inadvertently some information indiscreetly slips from the point of his pen, he will be cautioned personally about his carelessness. Furthermore, his letter would not be delayed to insure that time would render the suspected information valueless. The officers and men of the Army and Navy know that the primary mission of service censors is to get "the mostest mail through fastest." The national censors must learn that too.

Censorship is an indispensable, unpleasant feature of modern warfare, and the necessity for censoring the outgoing mail of the armed forces cannot be denied, but if censors strive to get the mail through as quickly as possible, the men in the field and on the high seas will not complain.

"Morale is a lot of little things," as a popular advertisement quite truthfully states. Without doubt, letters may be the greatest wartime morale builder in both service and civilian life. A service community is stimulated into renewed activity after a big overseas mail comes in.

A commander in the Solomons writes that he wishes all battles could be fought after "mail day." Letters supply the spark that we all need to win this war. Encourage them, clarify the rules of censorship, and speed them to their destinations!

Mountain Cavalry[★]

by

Captain D. Ernesto Castaneda Araoz

CHARACTERISTICS of mountain terrain entail a special form of operations so diametrically distinct from preconceptions of warfare in flat country that precepts established by ordinary regulations are often broken in order that other rules may be applied especially for mountain action.

The great distances to travel, plus the enormous differences of elevation, demand an excessive endurance of mountain troops. This must be augmented by efficient and adequate means of transportation.

If certain characteristics of mountain warfare are taken into account, it is easy to arrive at the conclusion that in order to conserve energy, speed up the operation, and exploit surprise, an element more mobile than infantry, mounted on mules or mountain horses, is necessary.

"Rough and broken fronts, dispersion of action and *maximum value of time* are the characteristics of this type of warfare."

"Movement more than concentration of fire, is the essence of mountain combat; silence of operation, therefore, is necessary."

"This maneuvering type of warfare, inspired by the economy of means and of energy, profits to the utmost by surprise. It is particularly fruitful in results, because the mountains lend themselves to it in its widest application."¹

RECONNAISSANCE

The lack of roads and communication facilities in this type of terrain make it imperative that the command be supplied with accurate data. For this, the commander must rely on mobile units that can supply opportune information from ground reconnaissance—the mountain cavalry.

"Good and timely reconnaissance supplies sure and practical data."

"Careful reconnoitering expedites sure and positive data about the terrain."

"In the high mountains, more than anywhere else,

¹Information Bulletin of the Military Forces, No. 14, 1941.

★Courtesy Revista Militar (Argentina).



Three Lions

In the lake district of southern Argentina at Bariloche, the glacier of Tronador adds to the difficulties of the mountain terrain.

the service of reconnaissance constitutes an important task. It is difficult and often decisive. It has intimate contact with the commander's plan of operation, and when brought forward to the adversary's position is of such importance that it has a direct bearing on the future development of the action."

"An efficient reconnaissance performance should be a great distance forward, with the object of supplying the necessary information to complete and perfect the operation."

The above paragraphs, transcribed from one of our training manuals, lead to the conclusion that as far as speed is concerned, reconnaissance can best be executed by mountain cavalry. In this way, the mass of the infantry can be held until the last moment in order to arrive at the scene of combat with all of their shock force, to seek the decision. This reconnaissance mission, given to the mountain cavalry, must be complemented whenever possible by aerial reconnaissance.

COMBAT MISSIONS

In mountain terrain, it is advantageous to gain as much ground as possible before reaching the defiles in order to effect an uninterrupted advance and thus prevent the enemy from getting the advantage of that terrain. Because of its mobility the mountain cavalry has a decided advantage on this type of mission.

Frontal attack in the mountains offers very little

probability of success. Consequently, the decision will usually be sought by means of action against the flanks and rear of the enemy, in which case, cavalry can be put to good use executing a full and rapid action against the least expected point.

Once the mountain infantry has broken the hostile resistance and commenced its pursuit, it becomes necessary to attempt the annihilation of the enemy. Mountain cavalry, because of its greater mobility, can flank the retreating enemy and hold him until the annihilating force of the infantry arrives.

A more frequent mission for which the mountain cavalry possesses a special aptitude, will be that of delaying action. The terrain almost always offers cover for the mounts immediately behind the delaying positions. Thus, a position can be occupied until the last moment; then, by moving rapidly to occupy the subsequent delaying position, cavalry can again use its mobility to make its action felt in the intermediate territory.

By its characteristics, mountain cavalry can successfully carry out guerilla warfare, and enter deep into the enemy lines in order to operate against enemy supply lines or hostile reserves. For this, the terrain is well adapted, particularly if sufficient capacity of movement is maintained.

MOUNTAIN MOBILITY

What is the rate of march of mountain cavalry on mule- or horseback? During recent trials in the big mountains, mounted troops have been able to march an average of 6 to 7 kilometers per hour—an impossible speed for a foot soldier to obtain. It is clear that this speed could not be sustained for more than five days marching, even if part were at forced march, which means a great wear on the animals. When this effort is necessary, there must be no hesitancy in putting a forced march into effect, if by it a successful action can be realized, a surprise perpetrated, or a retreating enemy flanked.

The normal speed of mountain cavalry in the high mountains is from 4 to 5 kilometers per hour, which provides an advantage over the dismounted men, both for combat and reconnaissance missions.

If the fatigue of mountain infantry, even though better trained, is taken into account, a long march in mountain terrain will necessarily lessen its combative strength at the moment of battle. But if the troops which must carry out this operation are transported on mule- or horseback, they can arrive at the combat with full combative strength, even though the mounts have suffered great fatigue.

Mountain cavalry is not presumed in any way to replace the mountain infantry, as infantry will continue to have the most efficient shock strength and will decide all definite action. Cavalry is intended only to provide the infantry with a valued element of mobility and to cooperate with it in a united effort, without the

least idea of self-glory and in the spirit of sacrifice which must animate the soldier, especially when it is necessary not only to defeat the adversary but to surmount the difficulties of the terrain and to endure the severity of nature.

ORGANIZATION

According to the characteristics of the terrain and the form of mountain warfare, the units of cavalry specializing in this type of operation must have a particular organization. The organization of regiments is plenty large enough. (Brigades or divisions are not considered necessary.)

First, the unit must be extremely mobile, possess heavy fire power, and be divided easily into self-sustaining subunits. Consequently, it is necessary that the subunits (squadrons) count on a strength of fire capable of maintaining a combat of prolonged duration in isolated missions.

The regiment could have the following organization:

Staff, with communications section provided with radio-knapsacks, telephones, and blinkers on pack horses.

Three squadrons of riflemen organized as before mentioned.

One squadron of machine guns of 3 sections of 3 pieces.

One section of light mortars of 3 pieces.

One section of sapper-destructors.

Pack animals.

This organization, though it does not appear fast, is necessary for reasons that will be seen.

Only rarely will the regiment act together, but will act most often as subunits over an extensive front. This necessitates subdivision, that naturally decreases the apparent lack of speed of the remaining portion of the regiment.

There will always be squadrons in the different combat missions that must operate on a front where the difficulties imposed by the enemy may be greater. This will make it necessary to give them additional fire power, which the commanding officer of the regiment will be able to do, as he has a squadron of machine guns and a section of light mortars on which to rely.

In the mountains, mortars will prove very valuable, whether used to silence a nest of automatic arms cleverly placed or to scout blind spots, so frequent in this type of terrain.

Lastly, whenever the complete regiment must be used in combat, either in attack or for resistance, its fire power makes it able to operate with success.

Regarding proper cavalry missions, such as offensive and defensive patrols, an organization of this kind affords the fire power necessary to accomplish them. The detached patrols would be relatively strong without weakening the nucleus (reconnaissance detachment) too much. This detachment will always have arms capable of acting as auxiliary of the patrols, which can be put

into action at convenience or held in strength at their post when this is best suited to the situation, or when their mission is considered complete.

The advantages of this arrangement also fit into reconnaissance missions, since, while most reconnaissance patrols have only the mission of *seeing*, they will also have to do battle, either to drive back another patrol in a narrow pass or to try to open a roadway if they have fallen into ambush—which can happen easily in mountain terrain.

EQUIPMENT

Personal equipment can be similar to that of the mountain infantry of our army.

As for mounted equipment, the saddles now used by our troops are not the most appropriate for mountainous country.

In San Juan, as well as in Mendoza or Neuquen, the mountaineers, whatever their financial resources, use a saddle which in certain mountainous regions is called a *casco chileno* ("Chilean cask"). This consists of two packsaddles of hardwood, with two saddle-trees of iron, relatively high, attached to the saddles with rivets or screws. From one saddle-tree to the other runs a wide leather strap, attached to these and also to the packsaddles by means of halters. It is much lighter than our "lowland" saddle.

The difference in weight is so appreciable that it is possible to carry an additional blanket, not only useful but at times imperative in the low temperatures of the mountains. Moreover, for the convenience of the rider, a small cushion can be used to make the saddle softer, necessary on long marches that will be frequent and almost normal in the mountains. This cushion can be substituted for the saddle padding with the advantage of furnishing a warm seat that does not have to be filled with straw, so difficult to obtain.

The use of the breast strap and crupper is highly necessary in the mountains where steep slopes must be descended or climbed. With these elements, frequent delays to adjust equipment are avoided. The breast strap is not a capricious innovation with respect to the breast covering, but works in a more balanced way than the latter, for in passing around the breast of the animal it is joined to the two rings of the cinch.

SPECIAL TRAINING FOR THE MOUNTAIN CAVALRYMAN

In effect, training of the soldier to acquire the lung capacity and adaptation of the circulation to the fatigues of the mountains is of highest importance. Marching exercises and races over varied terrain, combined with respiratory exercises, should be given. Races and marches in ascending ground, obstacle courses, climbing ropes, trees and rocks will prepare the soldier to run and march in the mountains. Relay races while carrying certain weights will train soldiers for handling ammunition supply in combat. Weight lifting also will prepare the soldier's muscles to carry and lift loads on the horses.

Instruction in skiing and marches in snowshoes are indispensable, as on many occasions the mountain cavalry will have to leave their mounts and make prolonged runs across snowy fields to places where the situation requires them.

CONCLUSION

Mountain cavalry is not a new theme for us, and it is not believed that anyone will be surprised by this article. But if the idea is not new, it is still an obligation to us who have had the fortune of knowing the mountains to offer suggestions, not for adaptation in totality or even in part, but to awaken a professional anxiety in our comrades, especially those younger.

Mountain Fighting in the Caucasus

DURING fighting for mountain roads and passes in the foothills of the Caucasus, entirely new and successful methods of coordination evolved between cavalry and artillery.

When the Germans attempted to advance against a populated place, they were suddenly counterattacked by Red cavalry. Recovering from their surprise, they opened artillery fire first on the horsemen, then on the Soviet artillery battalion. The Red Army men kept maneuvering their guns, installed on a narrow mountain plateau, from one point to another and got the upper hand in the artillery duel.

Meanwhile, the cavalymen dismounted and made their way to the German position. They were accompanied by mobile artillery which tackled the enemy gun positions and took them by surprise from the flank. The Germans hurled into action a company of automatic riflemen who were soon completely wiped out.

The Nazis had to divide their forces to combat the artillery and the dismounted cavalymen, and this gave the Red Army men a chance to make a devastatingly successful cavalry charge.

The Red Army men in the Caucasus were supported strongly by the mountaineers themselves, who detailed their best guides to lead the Red Army to the enemy's rear and show them advantageous positions for ambushes and traps.

The forest-covered slopes were very favorable ground for Red snipers. Dozens of them hid among the rocks and bushes. In one sector where the Germans launched an attack, a Soviet sniper, taking up a position on an overhanging cliff, picked off eight Nazis with eight shots.

The Germans detailed a special detachment of 50 automatic riflemen to hunt for him. In a few hours 17 more soldiers had dropped to the sniper's bullets, and the Nazis were forced to give up their efforts. The Soviet unit holding the height threw the enemy back to his initial positions.

—Soviet Information Bulletin.



British Remount Depot Trail

In the mountainous parts of Abyssinia and Eritrea, particularly in the campaign leading to the capture of Keren, the Royal Army Service Corps Pack Trains carried ammunition and food where no other means of transport, apart from men on foot, could possibly have gone. Likewise in Tunisia—it has been said that the only fault of the pack transport there was that there was not enough of it. The same tale is being told also of Sicily.

NEAR Melton Mowbray, down in "the Shires," the heart of the English fox-hunting country, there can be found the sole remaining remount depot of the British Army.

Until about six years ago Melton was only one, and not the largest, of a number of remount establishments whose primary function was to furnish troop horses for the cavalry, and chargers for the mounted officers of all arms. Now, of the "old" depots, only Melton is left. Its business today is the provision and training of horses and cobs for pack-carrying in mountainous or trackless countries, and for draught work at stations at home, with a few mounts for officers in mountain artillery and pack units on special field duties.

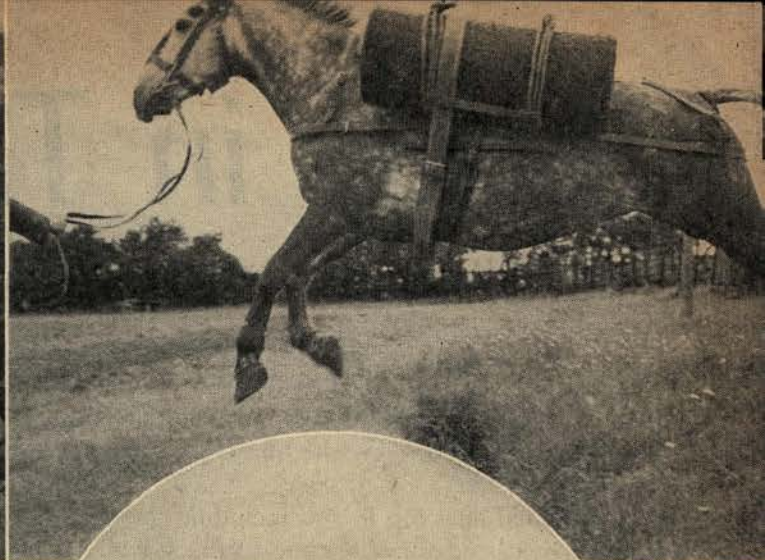
In the old days, Melton and the other remount centers supplying the British Army were run as semi-civilian concerns, under the general supervision of a Director of Remount Services at the War Office. Now the whole matter is under the control of the Director of Veterinary and Remount Services, at the War Office, and the white metal badge of the Royal Army Veterinary Corps, with the figure of Chiron at its center, is the military emblem most in evidence at Melton.

Out of the town the depot lies at the top of a gentle rise, surrounded by what in England is regarded as an extensive grass farm—though miniature by American standards of space—in pleasant undulating country.

The central brick buildings were, long ago, a stud farm in the midst of the Quorn, the Belvoir and the Cottesmore Hunts countries. There are also rows of hutment stables of later construction. Altogether a few hundred horses can be accommodated, in boxes, and there are always many others out on the grass farm.

The Commanding Officer, Lt. Colonel J. J. Plunkett, O.B.E., of the R.A.V.C., travelling over the length and breadth of the British Isles, buys horses at a fixed maximum price, for the War Department. He knows every dealer and every farmer who has horses to sell in England, Wales, Scotland and Northern Ireland. He buys cobs mostly, from Yorkshire and East Anglia and, still, from that most fruitful horse-recruiting ground for the old cavalry, Ireland—but also many cobs from Wales, a few from Scotland, and just a sprinkling of ex-hunters from various parts of the Kingdom.

The horses are bought strictly with an eye to the particular work that they will be required to do, and on purchase must be known to be reasonably quiet to ride or drive. No initial breaking-in of horses is done at Melton in wartime. In these days they are usually wanted for pack work (the right size is between 14 and 15 hands) but because of the vital interests of economy of rubber, motor fuel and oil, and the release of motor drivers for service abroad, there is also an increasing demand for draught animals for short-distance cartage around static Army establishments up and down the country.



ns Pack Horses

*by Captain E. E. Phillips**

At Melton the newly-bought remounts arrive in batches of perhaps twelve to twenty at a time, many of them very "green," poor and nervous, like new boys at a school. They need time to be conditioned, and for the best results should spend several months at the depot before going to their units to begin their real work. This conditioning consists almost exclusively in giving the horses light daily exercise and practice at the work for which they are intended. They are walked and trotted around for so long each day and kept on a good regular routine of feeding and grooming.

Cobs and ponies, already quiet under a rider, are usually quickly trained to carry packs. Near the depot is a little area of grassy mounds and gullies which represents hilly country for this sort of practice. Now and then a beginner, especially if his pack slips and drags a bit, will kick up his heels trying to buck it off, and there is some fun for a few minutes; but normally this training goes on uneventfully enough.

Horses destined for draught work are started with a heavyish log to pull, and a walking driver with a long rein. Then they learn to go in pairs—an experienced horse paired with the learner. They learn to draw one of the old Army general service wagons, on long reins, or an old limbered wagon with a rider riding-and-driving, postillion fashion. They all take their turns in carting around the district loads of forage and other stores connected with the depot.

Finding and keeping a staff, sufficient in number and of the right sort, in the face of the all-round demand for man-power and woman-power, is a major problem at Melton. The subordinate staff are all civilians, though many of the men have had their share of horse soldiering—some in India or Egypt or South Africa as long as 40 years ago. Most of the men are in fact elderly, or



Commanding Officer, Lt. Colonel J. J. Plunkett, O.B.E. (left) and his Adjutant, Captain Hart, make their morning round.

downright old, with the long-lined and leathery faces that seem to belong to old horsemen everywhere, for the younger ones have gone into other forms of war service.

About half of the staff now are women and girls, who, as the colonel warmly acknowledges, have produced a very fine war effort. "Believe me," he says, "the winter here is hard for them." Each one does the same sort of work as a man in the depot. The girls, like the men, are taken on as either riders or stable hands, and usually they stick to the side of the work in which they start. Most of the riders now are girls, some of them quite young. They wear workmanlike, well-used riding kit, including either jodphur trousers or breeches and puttees, and velvet hunting caps. Those about the stables favor gay-colored bands or handkerchiefs as headwear. Most of the girls sport the badge of the R.A.V.C., backed with a crimson cloth patch embroidered "Remount Depot."

There is about Melton a quiet air of friendly discipline between all officers and subordinates which makes for smooth and efficient working. In fact, the remount depot is another sphere of the British war effort in which women, and some old men, are doing a great job!

Riders in Three Months?

by Lieutenant James Vaughan, Cavalry*

THE life of Riley! The Cavalry School's Department of Horsemanship preserves that tradition. In deadly seriousness it carries on with the spirit that made the legend.

In the old days, up to and including the year 1940, the average student who came to the Cavalry School was already a good rider. Then, too, he knew more than a little about taking care of his animal in garrison and in the field. The course made horsemen and horsemasters of good riders.

While continuing with the responsibility of the Basic and Advanced Officers' Courses, the Department of Horsemanship accepted the challenge of officer candidate instruction. The directive which established the officer candidate school course was just that—a challenge. What previously had been taught in nine months now had to be taught in a third of that time. It called for new viewpoints and techniques of instructing. It demanded a new objective.

With requirements in tactics, weapons, communications, and administration to be met, all departments of the school had to concentrate subject matter and intensify instruction. The Department of Horsemanship no longer could hold by its previous standards of perfection. Its goal no longer could be accomplished horsemen capable of top performances in jumping, polo, and dressage events. Its mission was clear.

The product of this instruction had to be new officers for horse cavalry units, who could set the example and conduct road and cross-country marches so as to preserve the condition of both men and horses. Further, young officers with limited previous experience had to be prepared to teach new soldiers the fundamentals of horsemanship and horsemastership.

The first few officer candidate classes to train at the Cavalry School were composed for the most part of picked men from horse regiments. Nearly all of the candidates had had several years of service. Quite a few were graduates of the Cavalry School's noncommissioned officers' course. Experience was a common characteristic. With these classes, the Horsemanship Department took advantage of the opportunity to try out new methods and techniques of instruction. Schedule sequences were changed, and the effects on the progress and efficiency of the average student carefully noted and evaluated. Each horse was studied to determine his suitability as a class mount.

As time went on, the experienced cavalry soldier became the exception among candidates for commis-

sions. There was more enthusiasm than experience in these classes. Here and there among the students was a man who had ridden, owned, and shown horses previous to his induction. To even a man of this background, the military seat and the army horse were revelations.

Since learning is the process of acquiring experience, the Horsemanship Department felt keenly its responsibility for giving each individual student the maximum of experience in the limited time allotted. It was concluded that horsemanship, as it was to be taught, briefed down to four factors: *confidence, seat, hands, and experience*. Each instructor was directed to instill his students with the first, teach them the second and third, and advise them on the fourth. In the following paragraphs the six essentials of the Cavalry School method are described.

First: Care is taken to assign mounts with temperaments and manners appropriate to students' temperaments, capabilities, and previous riding experience. Difficult horses, or those unsuitable to individual students, delay instruction and retard the development of confidence in the student rider. A tractable, even-tempered horse teaches the student almost as much as the instructor himself.

Second: Many hours in the riding hall and sand ring are devoted to work at the walk and trot. The rate of improvement determines the extent of this phase of instruction. The hands and seat are given special attention. The progress of each student is noted carefully.

Third: Constant supervision by the instructor in charge of the class is a department doctrine. Assistant instructors see to it that the most minor faults in a student's body position, legs, and hands are corrected. Repetition of constructive criticism impresses the student with the importance of an erect but supple spine and of a seat firm but without tension. Experience has shown that it is easier to teach the military seat to men of limited or no riding experience than to those who have developed incorrect practices in their civilian riding. The completely inexperienced student normally heeds all instructions, and unless he is decidedly inapt, progresses rapidly because he entertains no preconceived ideas of his own capabilities.

Fourth: Work without stirrups at gaits other than walk comes only after the instructor has assured himself that his students have that "in the saddle" feel. The average individual, not being allowed to use his stirrups, "tenses up" the first few times his horse moves out at the trot. If he falls off, the next time that he is required to take up the trot without stirrups, he stiffens and becomes insecure in the saddle. A kind of rigor

*Department of Horsemanship, The Cavalry School.

It Can Be Done

mortis sets in. The man's confidence must not be shaken by too premature work without stirrups. Real balance must be acquired gradually.

Fifth: Suppling exercises are given regularly. They are great builders of balance and confidence. Instructors are cautioned not to employ them excessively. The fundamental suppling exercises are best given during periods of work at the slow gaits without stirrups.

Sixth: Students learn and are required to perfect riding hall movements. No equitation exercise of comparable value has been devised to teach men how to handle and ride their horses. They produce alertness, quicken and make more precise responses and the use of aids. Progressively, the students are required to perform riding hall movements at all gaits. The riding hall and its adjoining sand ring are the classrooms of horsemanship.

The ability to ride at controlled gaits outside of the hall and ring is the test of preliminary instruction.

Fort Riley is ideal for mounted work. Terrain of all types is available. The banks of the Republican River offer sand comparable to the desert's deep, difficult footing. For the cross-country gallop there are rolling plains. Remember Morris Hill, Machine Gun Ridge, and those far stretches over which the drag hunts were laid? The rimrock and stone quarries make for treacherous footing. So do the rock-strewn canyons, like Jug and Wildcat, with their deep swamp grasses. The ruggedness of the reservation provides many good slides which try the man-horse team.

At almost any time the instructor, who has reconnoitered his training areas well, can lead his class to mud of practically any depth and consistency. Work over this varied terrain gives a student confidence in himself and in his horse. He doesn't get it all at once. The first few times out, he rides over easy rolling coun-

The completely inexperienced student usually progresses rapidly because he entertains no preconceived ideas of his own capabilities.



Individual instruction is stressed, and the progress of each student is carefully noted.

try at the walk and trot, with the instructor emphasizing control of the horse and choice of footing. As the class progresses, rougher country is taken in stride at the trot and gallop.

Every opportunity is taken for bringing the student and horse together and welding them into a true man-horse team. Almost all of the field problems conducted by the Department of Tactics require students to be mounted.

Concurrent with equitation, other equally important and related subjects are included under horsemaster-ship. Students receive thorough classroom and laboratory instruction in care of the animals in the field—conditioning, horseshoeing, marching, packing, and transporting animals by truck, rail, and ship.

During the last three weeks of instruction, the student is provided a generous amount of mounted work over obstacles. Jumping develops the rider's control of his horse. Mounts are selected carefully for these periods. Instructors make sure that all horses assigned are willing and able jumpers. At first, obstacles taken are just high enough to give the student a feeling of flight and are channeled in a chute to prevent runouts. The experience of going through the chute without reins and stirrups teaches the student that to remain mounted he must use his balance and his legs alone. He must not seek to support himself with his hands.

The course for officer candidates offered by the Department of Horsemanship ends with a Training Exhibition over a course of varied jumps not exceeding 3' 6". Some of the best performances have been turned in by candidates who learned to ride after they arrived at the school.

The horsemanship and horsemastership instruction that an officer candidate receives at the Cavalry School is comprehensive, intensive, fundamental. It produces riders who can advance to higher degrees of skill in horsemanship by adhering to the only immutable rule of this art—the daily application of the seat of the breeches to the seat of the saddle.



Remington's Cavalryman

THE subject for Frederic Remington's masterpiece was a very live and active cavalryman—Corporal, later Sergeant, Jack Lannon of Troop G, 3d Cavalry, commanded at the time by Captain Francis G. Hardie. The sketch was made in the early summer—about June—of 1898, during the period of the army concentration at Tampa, Florida, just prior to the sailing of the expeditionary forces under General Shafter for Santiago, Cuba.

At that particular time, several cavalry regiments, including the 3d, were in Tampa, engaged in various maneuvers under the command of General Joseph Wheeler, the ex-Confederate cavalry general who had been appointed by President McKinley to command the cavalry in the U. S. forces destined for operations in Cuba.

During those maneuvers, the troops would be deployed in long lines, with extended intervals, on assumed tactical positions. Carbines were generally advanced and carried resting on the forearm, as shown in Remington's picture. In these positions there would be halts for considerable periods of time, while General Wheeler, accompanied by his staff, would ride along to make observations and then issue further instructions. It is probable that Mr. Remington may have been a member of General Wheeler's party on one of these exercises, which extended for close to a month in Tampa, and that while so riding, the characteristic pose of Lannon came to Remington's attention.

It is well known that artists usually idealize their subjects, but Remington's portrayal of Lannon is almost a replica of his appearance in actual life. I knew Lannon personally for about two years. During this time I was a sergeant in Troop C, 3d Cavalry, which I later commanded as a first lieutenant. Troops C and G occupied adjoining barracks in garrison and were together in Tampa. I knew Lannon in both places and his likeness could not be mistaken for any one else. His person was most distinct. He was a man who would attract attention anywhere. About 6 feet 2 inches tall, he was lithe, agile and wore a sweeping white mustache. At the time that the picture was made, Lannon had already completed more than 30 years of enlisted service and was eligible for retirement. This would indicate that his first enlistment could not have been later than 1868. All except three years of his service was spent in the cavalry and most of it in the west.

The uniform and equipment depicted by Remington were equally as accurate as the characterization of Lannon. The campaign hat shown in the picture was at the time the standard article of issue for field service. The army had not yet adopted khaki uniforms, and participants in the Cuban Campaign wore blue shirts and blue trousers. Riding breeches had not come into

vogue but made their appearance shortly after the Cuban Campaign. It was customary for men and officers alike to use trousers that had been cut off above the ankles and a slit made for a few inches on the side, with buttons attached. In the field, men wore leggings, and officers wore black boots. The McClellan saddle with wooden stirrup was standard. The overcoat was rolled in front, while the bedding was rolled and strapped to the cantele.

Lannon is shown wearing a kerchief blowing in the wind. This was possibly a red handkerchief, as considerable latitude was allowed in such matters when men were serving in the field. Lannon could not have worn this article in garrison, but there seemed to be no objection under conditions as stated. At that time neckties were unknown for field wear, and many men often had the top button of their shirts open. The necktie for field wear commenced to make its slow appearance in the days of protracted tours on the Mexican border. At first a few, then many, troop commanders serving at detached points encouraged the informal wear of a black four in hand tie until gradually this article of adornment was incorporated in the uniform regulations.

The belt across Lannon's shoulders was the sling belt, which was standard equipment at the time. It terminated in a snap buckle hooked into a movable ring adjusted to the middle of the stock of the carbine. When a man was dismounting in the field he

The Cavalry Journal Cover

For almost forty years—from January, 1903, until August, 1942—Remington's etching of "The Cavalryman" was printed on the front cover of each issue of The Cavalry Journal.

At the time that Frederic Remington made the etching, it was a realistic portrayal of a U. S. cavalryman—his uniform, his manner, his equipment, his mount. It represented, not only the spirit, but the outward appearance of the cavalry, which had ridden in the vanguard and protected the flanks of a great nation moving westward across the plains and mountains amid Indians and wilderness.

Times have changed, and so has the cavalryman's uniform, his equipment, and sometimes his mount. The cover of The Cavalry Journal, in keeping with the trend of the day, now carries photographs of modern battle, new equipment and current heroes. But Remington's cavalryman still remains a symbol of the spirit of the cavalry. As such, he has been placed in a frame, on the back cover, where, it is hoped, he will remain indefinitely as representative of the courage, the stamina, the loyalty, the strength that was and is fundamental in the cavalry spirit.

by Colonel C. A. Secane, U.S.A., Retired

would draw and snap the carbine at the end of the sling belt and, throwing the carbine over the right shoulder, he would dismount, then return the carbine to the hands, unsnap the buckle, and have free use of the weapon.

The carbine in use at the time was the Springfield caliber .30, which had been issued to the cavalry not more than one year before to replace the old .45 caliber carbine. The infantry had had the .30 caliber Springfield rifle for a longer period, but the new carbine for cavalry came later.

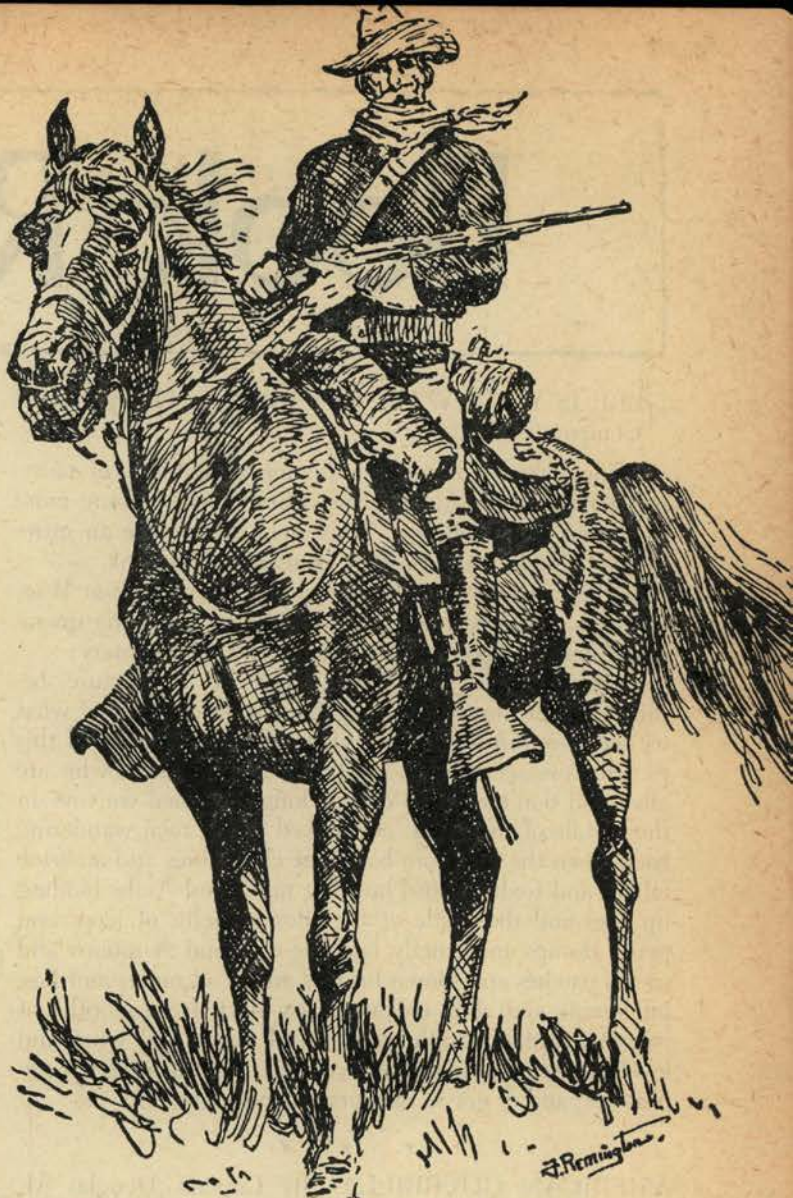
Carrying the new .30 caliber carbine on the horse was a problem that took several years to solve. The old carbine boot, in which the .45 caliber carbine was carried, was adjusted to the cantle on the saddle. Inclined forwards, it gave a very comfortable and easy position for the weapon. But the new carbine could not be carried there because of the bolt which projected against the side of the horse. A new carbine boot had been provided and adjusted in a forward position attached to the pommel. In most regiments this boot was carried on the right side, and the saber was left in its old position on the left side, as shown in the Remington picture. The new boot elevated the position of the carbine so that the bolt did not strike against the horse's flesh. In some regiments, however, where the bolt problem was seen in a different light, the carbine was transferred to the left, and the saber to the right. Finally, this arrangement became the standard practice.

In the field, the halter was worn under the bridle, and the halter strap was tied to the left pommel ring. The old style shoemaker curb bit and the buckskin leather gauntlet with cuffs were standard items of issue. Another article of equipment was the lariat and picket pin, carried by all cavalymen. These were relics of Indian Campaign days in which the practice of picketing horses at night in lieu of long forage was customary.

The Cuban Campaign was very short, but the Philippine insurrection, which came quickly afterwards, created many changes in equipment and uniform. Step by step, the army threw off the old and adjusted itself to the new.

I did not see Lannon pose for Remington. If I had, no one would have considered that important at the time, nor would it have established an infallible link between what I might have seen and what exists today. The important point is that in this sketch, those who knew Lannon recognize him beyond any doubt. It must be appreciated that, after all, Remington did not go to Tampa to make a rendering of Lannon. He was an artist, and like the newspaper men, went to Tampa to search out material covering the war. Undoubtedly, he made many sketches. That was his business.

As so often happens with the work of artists, time



seems necessary for full appreciation of their work. Today, all can see that Remington in this particular sketch left a memento to the cavalry that will increase in value as time removes it in distance. In this particular case, it was not until some four years later that Remington's etching first appeared on the cover of *THE CAVALRY JOURNAL*, at which time everyone in the 3d Cavalry was able to recall that it was Lannon's likeness that was represented. Lannon died while with the occupation forces in Cuba but I recall talking at that time with the Adjutant, Captain (later Lt. Colonel) Henry L. Ripley who, prior to the first appearance of the picture on *THE CAVALRY JOURNAL* cover, remembered Lannon posing for Remington. Some years before these events Remington, in gathering material for his book, "The West from a Car Window," had visited with Hardie. It is possible that in renewing the acquaintance in Tampa in 1898, Captain Hardie may have directed Remington's attention to this particular trooper as a subject for a sketch.

Since I remained in the 3d Cavalry until 1914, all this information is impressed very clearly on my mind.

As depicted by Remington, Sergeant Lannon was an outstanding product of his day—a figure worthy to be symbolic of the cavalry in any day.

Book Reviews

HERE IS YOUR WAR. By Ernie Pyle. Henry Holt & Company. \$3.00.

Ernie Pyle needs no introduction to millions of newspaper readers who turn to his column before doing more than scan the headlines. Those who do require an introduction should waste no time in reading this book.

Columns could be written to review *Here Is Your War*, but they would be inadequate beside the following quotation from the book itself—its own best commentary:

"I haven't written anything about the Big Picture, because I don't know anything about it. I only know what we see from our worm's-eye view, and our segment of this picture consists only of tired and dirty soldiers who are alive and don't want to die; of long darkened convoys in the middle of the night; of shocked, silent men wandering back down the hill from battle; of chow lines and atabrine tablets and foxholes and burning tanks and Arabs holding up eggs and the rustle of high-flown shells; of jeeps and petrol dumps and smelly bedding-rolls and A rations and cactus patches and blown bridges and dead mules and hospital tents and shirt collars greasy-black from months of wearing; and of laughter, too, and anger and wine and lovely flowers, and constant cussing. All these it is composed of; and of graves and graves and graves."

1 1 1

AMERICAN GUERRILLA. By Captain Douglas M. Smith and Cecil Carnes. Bobbs Merrill Co. \$3.00.

Underlying this very readable and extremely interesting book is the important story of a new type of warfare, or, more exactly, a newly organized technique of a very old method of warfare.

An American by birth and heritage, Captain Smith served in the French Foreign Legion as a second lieutenant in the first World War. Before he re-joined the Legion in 1941, he made a thorough study of what he believed would be an important phase of this war—trained guerrilla fighting.

In *American Guerrilla*, Captain Smith tells of his belief in the efficacy of trained men working behind enemy lines. When his own desire to organize such a group was frustrated, he joined David Stirling's "Bunch" in Middle East, culled from French and English volunteers. The story of what these men did makes exciting reading. But more than exciting are the practical lessons learned by the author during his participation in this type of warfare.

Captain Smith was sent to America to survey and collect equipment suitable for use by guerrilla fighters. It was while on this trip that he gave his story to Cecil Carnes, who has done a splendid job of presenting a vivid picture of a hitherto unrecorded phase of modern military activity.

CAVALRY JOURNAL readers will recall that the Bengazi raid was written up by Captain Smith for the May-June, 1943, issue.

MAKERS OF MODERN STRATEGY. Edited by Edward Mead Earle. Princeton University Press. \$3.75.

This book is an outgrowth of the famous seminar on military affairs which began several years before the outbreak of the war, and was conducted at the Institute for Advanced Study by Mr. Earle.

The important figures influencing military strategy, from Machiavelli to Hitler, are ably analyzed by authorities on the men and their eras. The authors of the various chapters include Crane Brinton, professor of history, Harvard; Gordon A. Craig, assistant professor of history, Princeton University; Hajo Holborn, professor of history Yale University, Hans Rothfels, author of *Carl von Clausewitz, Politik und Krieg*, visiting professor of history, Brown University, and others of equal note, both American and European.

The material congregated in this book could be obtained only by the careful and thorough reading of a voluminous library—an act requiring more time than any active man has today. It is here carefully selected and presented by men eminently equipped to sift the material and preserve that which is essential.

This will probably prove to be one of the most valuable books compiled for students of military strategy.

1 1 1

NAPOLEON AND MODERN WAR. By Colonel Conrad H. Lanza. Military Service Publishing Co. \$1.00.

The Military Service Publishing Company is to be highly complimented on the excellent series of small, inexpensive, and splendidly prepared books now being issued as *Military Classics*.

The latest addition to this series is an annotated copy of Napoleon's Maxims. Colonel Lanza has prepared a book that all military men familiar with the earlier books in the group will want to add to their collection. He has wisely not neglected to give a chronology and ample index to enhance the value of the book.

1 1 1

THE FRAMEWORK OF BATTLE. By Lt. Colonel John G. Burr. J. B. Lippincott & Co. \$3.00.

Colonel Burr has written this book as a guide for laymen. He explains the technique of warfare, how campaigns are planned, why certain strategy is followed, and what goes on in the minds of officers in command of armies.

In view of the number of treatises written in recent months by amateur and armchair strategists criticizing the planning and conduct of the war, it is to be hoped that this book will be widely read. It should enable civilians to grasp more intelligently the mechanics of warfare.

THE SHARPS RIFLE. By Winston O. Smith. William Morrow and Company. \$3.00.

There is increasing interest on the part of marksmen, historians, and collectors, in the firearms of the Nineteenth Century, particularly in the first successful breech-loading rifle invented in 1848 by Christian Sharps.

Going to original sources and discovering much material hitherto unpublished, the author presents the complete story of the Sharps rifle. He gives its background, traces its development through the various manufacturers responsible for it, and discusses its use as a military weapon.

Of interest to collectors today are charts on the identification of models and considerable material on care, operation, maintenance, manufacturers of cartridges, and table of loads.

The sketches are excellent and the index and chronology as well as the appendix provide important references.

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THE DUKE. By Richard Aldington. The Viking Press. \$3.75.

The fact that by defeating Napoleon at Waterloo, the Duke of Wellington closed the career of the greatest military genius of his era would have been enough in itself to attract biographers. Added to this was an ability, displayed throughout his life, to make the best of any military situation—an attribute which commands respect and admiration from any generation of soldiers. This ability was the result of his misfortunes as well as his personal qualities.

Constantly held back in rank, Wellington made a careful study of the needs of each command that he held. The knowledge thus acquired stood him in good stead, when in later years, as a general, he knew each detail of his army and was able to do what many of his generation could not do, see the picture in detail down to its finest point, and utilize his men accordingly.

Unlike most novelists turned biographers, Mr. Aldington has not allowed his imagination and command of English to run away with facts. He has used them to enhance a life, interesting in itself, and has produced a fascinating and delightful biography of the man who started his career with little hope of advancement, and ended it as one of the most essential figures in the life of the British Empire.

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MOTHER AMERICA. By Colonel Carlos P. Romulo. Doubleday, Doran & Co. \$2.50.

Colonel Romulo, winner of the Pulitzer Prize for newspaper articles on the Orient, and author of *I Saw the Fall of the Philippines*, has written another arresting book. Men through the ages have said in many ways what Burns stated most simply, "Wad God some power the giftie gie us, to see oursel's as ithers see us!" Colonel Romulo offers the white race the unpleasant privilege of viewing itself in the mirror of Oriental opinion. It is not a healthy image reflected there.

The author gives a brief history of the Philippines and the milestones in their fight for independence. He holds American colonial policy up as a model for all nations with possessions in the east, and points out that of all colonials in the Pacific area, only the Filipinos fought as a people united beside their rulers.

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THE BATTLE IS THE PAY-OFF. By Captain Ralph Ingersoll. Harcourt, Brace & Co. \$2.00.

Having enlisted, taken his basic training and gone to O.C.S., Captain Ingersoll writes as a soldier, and not as an observer, of his own reactions to his baptism by fire.

In speaking of the American public, the author states, "I have found out two things about you since I got back from Africa. One is that the gaps in your knowledge of the Army are big, obvious, and unnecessary; and, two, that you really want to know." It is to fill in these gaps, and satisfy this desire to know, that he has written the story of El Guettar as he saw it, from the time that orders were issued to his company of combat engineers. He tells what they did, and how they did it, and how they felt under fire. There are few little personal anecdotes, but there is much forceful writing on the subject of the army and the way it works.

Although this book is written primarily for the civilian, in order that he may understand some of the whys and wherefore of the army, soldiers will also find it both interesting and important.

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NEW ZEALAND. By Walter Nash. Duell, Sloan & Pearce, Inc. \$3.50.

Americans have always been strongly attracted toward New Zealand and Australia. A number of books have been written to familiarize us with the latter, but correspondingly few have been published on the other island country.

Mr. Nash rounded out his mission as New Zealand's minister to this country by writing this book. Comprising a complete picture of New Zealand's resources, men, history and life, this book makes a valuable contribution to our national knowledge.

✓ ✓ ✓

BRIDGE TO VICTORY. By Howard Handleman. Random House. \$2.00.

Mr. Handleman has written in thoroughly good newspaper style a graphic description of fighting in the Aleutians. He has successfully captured the atmosphere of these bases—cold, foggy and miserable.

His greatest weakness is his desire to quote the dough-boy's point of view. Had he given his own reactions more fully the reader would indirectly have got as full a picture with less choppiness.

✓ ✓ ✓

THIS IS INDIA. By Peter Muir. Doubleday, Doran & Co. \$2.50.

Although this book contains much material based on fact, it falls far short of being among the first run of books on India. Its value as an "unbiased" book can best be judged by the fact that the first four chapters are sarcastically condemnatory of the Indian people.

✓ ✓ ✓

WORLD WAR II. By Major Frank Monaghan. J. G. Ferguson and Associates. DeLuxe Edition, \$7.50. Trade Edition, \$5.00.

Watch the next issue for review of this fascinating history of World War II.

WEATHER AROUND THE WORLD. By Ivan Ray Tannehill. Princeton University Press. \$2.50.

Weather Around the World, as its name implies, describes weather conditions on land and sea, in all quarters of the globe. Although intended for laymen, professionals will find this book of value if only for the descriptions and charts of weather data in 185 key places in the world.

The photographs not only well illustrate the text, but are excellent examples of camera art.

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ANIMAL REVEILLE. By Richard Demperwolfe. Doubleday, Doran & Co. \$3.00.

Stories of animals have always had a certain appeal, and Mr. Demperwolfe has filled his book with many interesting anecdotes. Many of them, however, are amusing incidents rather than examples of the practical use of animals in the war.

There are passages of excellent description, such as the account of General Dovator's use of cavalry south of Moscow. Even these portions of the book are weakened by statements of questionable veracity, such as: "Taking a tip from Russia and Germany, America concentrated on cavalry, buying up the best animals the country had to offer."

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YOUR BROTHER'S BLOOD CRIES OUT. By William Gropper. Portfolio. The ACA Galleries. \$5.00.

Gropper has again turned his talents to war and produced an excellent series of drawings, which those interested in propaganda art will find equally as valuable as the series by the same artist on the Spanish Civil War.

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THE ARMY PLAY BY PLAY. By Members of the Armed Forces. Random House. \$2.00.

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With one possible exception, they are good theater.

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BEST CARTOONS OF THE YEAR 1943. Edited by Lawrence Lariar. Crown Publishing Co. \$2.00.

Just as the name implies, this book brings to cartoon fans a collection of the cleverest examples of the year. Cartoons always provide an amusing commentary on the life of an era, and the past year has offered ample material with which to work.

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