COMPARISON OF GERMAN MACHINE GUNS

The following comparison and photographs of the German machine-gun model 34, 34 (modified), 34S, 34/41 and 42 are based on data received from the Aberdeen Proving Grounds.

The MG 34 is a familiar weapon, and model 42 has already been described in Tactical and Technical Trends no. 20, p. 28 and no. 31, p. 37. This report is of interest because of its comparison of the variations of model 34 and the excellence of the detail of the illustrations.

* * *

a. MG 34 Modified

The MG 34 (modified) is used principally in armored vehicle hull mounts and differs from the MG 34 in the following:

(1) Heavier barrel jacket adapted to fit in ball type hull mounts
(2) Absence of antiaircraft sight bracket
(3) Simplified and easily operated firing pin nut lock
(4) Bipod clamps for attaching bipod for emergency use.

This model can be mounted on the antiaircraft and heavy ground mounts.

b. MG 34S and 34/41

The MG 34S and MG 34/41, are identical in appearance except for the perforated operating handle of the MG 34/41 (see figure 2) but are named in this report separately only because a definite effort was made to make them as distinct models. The reason for this is unknown. One description will suffice for both weapons. They differ from the MG 34 in the following:

(1) Provision for full automatic fire only instead of full or semiautomatic fire;
(2) Simplified trigger group with extensive use of stampings;
(3) Barrel 3 1/2 shorter with enlarged muzzle end to accelerate recoil;
(4) Simplified bolt and bolt-locking sleeve eliminating many machining operations;
(5) Elimination of firing pin lock nut and substitution of a simple, easily operated, plunger type, catch recessed in the bolt carrier;
(6) Larger and stronger ejector assembly located in the left receiver wall;
(7) Larger and stronger buffer group;
(8) Heavier recoil spring constructed of two lengths of woven wire;
(9) Addition of a cocking lever catch to secure cocking lever in the forward position;
(10) Modified feed mechanism providing a more secure trip on the cartridge.

Both models can be used on the antiaircraft mount and although they appear to have been designed for mounting on the heavy ground mount, the clamp, fitting over the rear end of the barrel jacket cannot be secured when the gun is in place. A different trigger actuator is also required. The MG 34 and the models described above may be mounted flexibly in tank hulls.

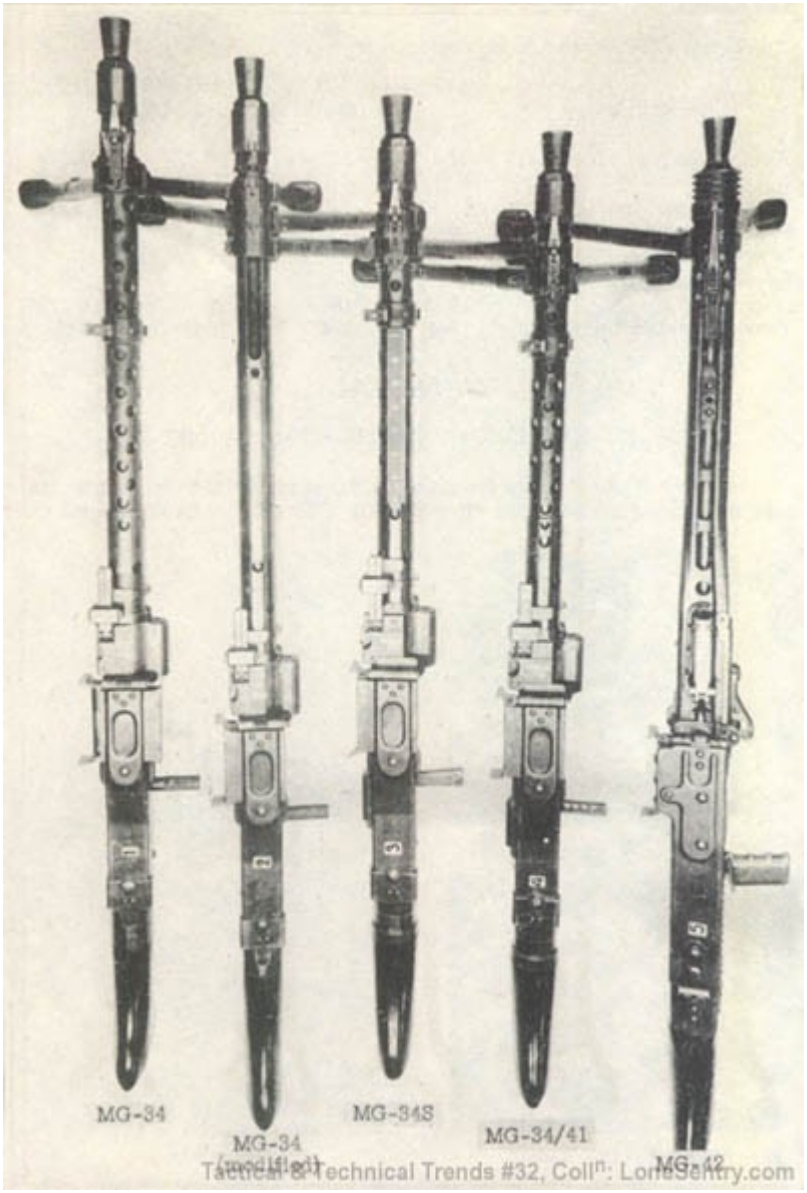
c. MG 42

The MG 42 is a new design but has the same tactical employment. A few of the outstanding characteristics will be listed here. The MG 42 differs from the MG 34 basically in the following:

(1) Extensive use of stampings in receiver, barrel jacket, cover assembly, and trigger group;
(2) Provision for full automatic fire only;
(3) Simplified bolt assembly allowing rollers to lock bolt to locking sleeve and eliminating locking lugs. The bolt carrier is a forging;
(4) Simplified buffer mechanism with a very heavy spring;
(5) A new and simplified quick change barrel is provided;
(6) A more flexible feed mechanism is provided making for smoother operation.

Bipod, antiaircraft and heavy ground mount are provided but these mounts are not interchangeable with those used with the MG 34.





d. Tables of Weights and Measurements:

Characteristic	MG 34	MG 34 (Modified)	MG 34S MG 34/41	MG 42
Weight w/o bipod (pounds)	24 1/2	26 3/4	24 1/4	23 1/4
Weight of barrel (pounds)	4 3/8	4 3/8	3 3/4	3 7/8
Weight of bolt (pounds)	1 1/16	1 1/16	1 5/16	1 1/16
Overall length (inches)	48	48	44 1/4	48
Length of barrel (inches)	23 1/2	23 1/2	19 3/4	21
Free length of recoil spring (inches)	18	18	22	15 1/2
Year of manufacture	1941	1942	1942	1942

ENEMY MINEFIELDS AT EL ALAMEIN

Information concerning the type, layout, and marking of enemy minefields in the El Alamein area has become available from British sources. There is as yet no information as to whether this general method of mine laying was also followed in the Axis retreat from El Alamein.

a. Pattern and Spacing

The minefields were laid in belts, each belt consisting of two to eight rows of mines. Shallow minefields might have only a single belt of mines consisting of from two to four rows; deep fields might have several belts of mines with considerable distance between belts.

The belts themselves might be anything up to 200 yards deep, with an additional danger area consisting of widely scattered mines up to 250 yards in front of the belt. The back of the belt was usually marked with a fence; the distance from this fence to the front fence (if any existed) was anywhere from 100 to 800 yards.

No standard pattern for laying mines in the belts appeared to be used. However, from the mass of data that was available, it was found possible to classify the patterns broadly as follows:

(1) Regular Pattern

This is the most common. Mines in a given row are spaced at equal distances; there is an equal distance between rows; and the mines of one row are equally spaced between the mines of the previous row. A variation in this method is to vary the distances between rows. In no reported case, except for scattered mines, has the distance between mines in a row been unequal.

(2) Regular Pattern Offset

By a system of pacing, a certain variety is introduced into the regular pattern. The distance between mines in any one row is equal, but one row is slightly offset from the previous row, and the next row is again offset by a different distance. Once a few mines have been located, the pattern soon becomes apparent and mines will be found where expected.

(3) Random Mines

In front of most regular minefield belts, and particularly in front of gaps, there may be found mines scattered at random and unmarked. These are either continuous, with very wide and irregular spacing, or in clumps more closely spaced but laid to no pattern inside each clump.

The above patterns usually resulted in a density of a little less than 1 mine per yard of front. Densities up to 2 mines per yard were generally not found except when blocking roads, trails, or defiles.

The spacing between the mines in a given row is from 3 to 10 yards, with the average spacing being 6 yards. As noted in (1) above, in no reported case, except for scattered mines, has the distance between mines in a row been unequal.

The most common spacing between the rows themselves is reported to be usually about 5 yards or 10 yards.

b. Marking of Field

The front edge of forward minefields is often not marked. The rear edge normally is marked, usually with a trip wire on short stakes, though cattle-fence, concertina wire, and stone cairns are sometimes used. Cases have been reported of the rear edge being unmarked.

A common marking is a single row of concertina wire running along the center of a field parallel to the rows of mines. in a large minefield there may be several rows of mines in front unmarked, then a row of concertina wire, more mines, then concertina wire, and so on, finishing up with a row of concertina wire on the rear edge.

The marking of fields by furrows, commonly used at Tobruk, has only once been reported at El Alamein, and in that case the field was a dummy one.

Only one case has been reported of continuous wire running irregularly within a field. It is believed that skull and crossbones indicate the presence of antitank mines or booby traps.

In the rear areas, enemy minefields may be expected to be well marked with cattle-fences and warning notices in German and/or Italian.

c. Marking of Gaps

Little information is available about gaps through minefield; but the following data have been reported.

(1) Width

10 yards in one case, and in another.

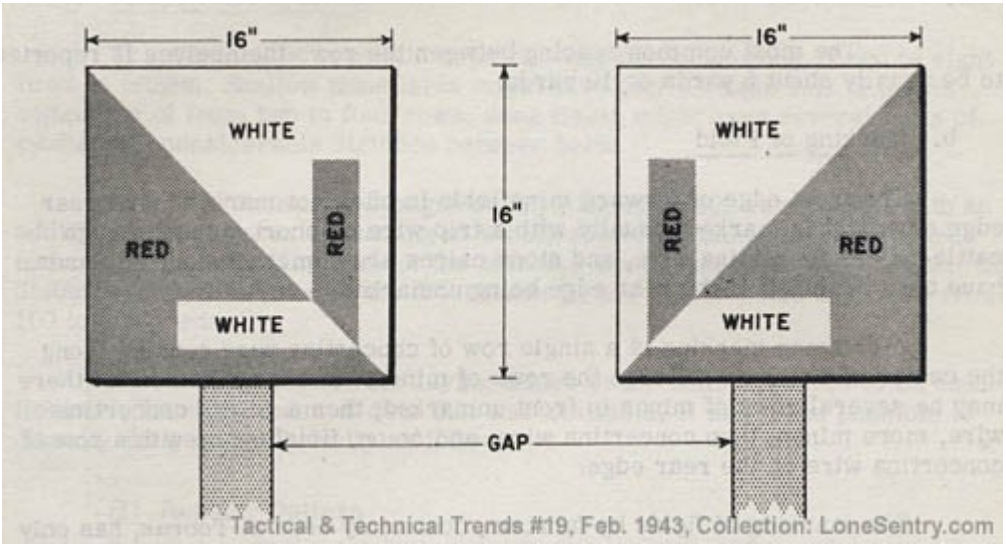
(2) Method of Closing

Usually two or three rows of Tellermines (antitank) with boards placed on one or all of the rows to insure detonation of mines if a vehicle attempts to pass through the gap over the boards, which are normally concealed by a shallow cover of soil.

(3) Marking

In the northern sector, two types of gap markers have been found:

(a) Painted signs, as in sketch, on either side of the gap.



(b) Luminous tubes 1 inch long placed on the tops of mines to mark a route for patrols. These tubes are visible 3 yards away.

(4) General

It is reported that gaps are a favorite place for laying Tellermines without any marking wire or signs. Gaps are sometimes covered by groups of scattered mines laid up to 2,000 yards in front of the gap, and unmarked.

d. Types of Mines

German, Italian, French, and British mines were all used by the enemy at El Alamein. Relatively few booby traps were found in the minefields, and the traps found were almost invariably attached to German Tellermines. Antipersonnel mines (usually Italian B4's) were found at times, generally as a single row laid in front of the outer wire of a minefield. The antipersonnel mines were spaced from 7 to 10 yards apart, with wooden pegs driven between the mines, these pegs being used to attach the trip wiring from the mines on each side of the pegs.

e. Tactical Siting

One report states that the minefield is usually 200 to 300 yards in front of the MLR, and covered by fire and listening posts. In another report the distance from the MLR to the main minefield is given as varying from 200 to 1,000 yards. A listening post was also located by a patrol 100 to 150 yards behind a minefield. It can be definitely stated that it is the enemy's practice by day to cover all main minefields with small-arms fire from close range, and by night to maintain antilifting patrols, as well as listening posts often located within the minefield itself.

Comment: It should be realized that the above information applies to the enemy mine tactics at El Alamein. It is to be expected that his tactics will change from time to time as a result of experience, expediency, change in terrain, or change in command personnel.

GERMAN AND ITALIAN INDIVIDUAL ANTIGAS EQUIPMENT

The following information briefly outlines the antigas equipment carried by the individual German and Italian soldier; it is based on the most recent information available.

a. German Army

(1) Gas Mask

The gas mask is always on the soldier's person, both in active theaters of war and elsewhere. German regulations give clear instructions to this effect. There has been some evidence that German soldiers in occupied countries only carry them when on duty. Recent information, however, indicates that German soldiers in Paris always carry gas masks.

(2) Personal Decontaminant

This consists of a box containing 10 tablets of Losantin carried by every soldier in the pocket of his uniform.

Losantin tablets are stabilized bleach, with an available chlorine content of 39.8 percent. They are used for treating skin contaminated with a vesicant. A tablet is made into paste with water or saliva which is then applied to the affected part; after 10 minutes it is washed or wiped off. The example of the incautious experimenter who ate several tablets under the impression that he was eating "[German] food tablets" should NOT be followed.

(3) Antigas Sheet

The so-called antigas sheet it is carried in all operational theaters by every soldier in a satchel slung on the chest. These sheets, about 6 by 4 feet, are made of a rubberized fabric. They are designed primarily for protection of the person in surprise attacks with liquid vesicants.

b. Italian Army

(1) Gas Mask

The gas mask is always carried on the man.

(2) Personal Decontaminant

An "antivesicant packet" is carried by every soldier. It contains absorbent pads which are saturated with carbon tetrachloride from an ampoule which has to be broken. The contamination is then dabbed off with the moistened pad.

(3) Antigas Sheet

There has been no reference in any Italian manuals or orders to the existence of an antigas sheet, and none have been reported as having been captured. It is presumed that none have been introduced.

GERMAN ATTACK AT EL ALAMEIN
AUGUST 31-SEPTEMBER 5, 1942

INTRODUCTION

After the British attempt to penetrate Rommel's lines on July 27, 1942 had failed, the Egyptian front settled into a more or less stagnant period for a few weeks. During this period, outside of the constant artillery fire, night patrolling, and usual air activity, little in the nature of active military operations took place. Most of this time was utilized by both sides in preparing defensive positions and building up strength in personnel, equipment, and supplies.

During the month of August the British reached a new high in morale. This change in attitude was attributed by observers to three main factors. First, the complete turnover which had taken place in the supreme command. General Alexander, a World War I veteran, noted for his aggressiveness and the leader of two brilliant actions of World War II, had replaced General Auchinleck as High Commander in the Middle East. Now under Alexander and in direct command of the British Eighth Army, was Lieutenant General Montgomery, a veteran of the fighting in France in World War II, and a soldier's soldier. Second, the quantity and quality of rations, which in the past had left much to be desired, had increased to a point where the British Tommy was not the underfed and under-nourished soldier that Rommel's troops had previously faced. Third, the British had gained a much-needed and well-deserved rest.

The British, in particular, were very thorough in their plans for the anticipated battle with Rommel's forces. About the middle of August it became evident, from the nature of the position that the British were taking, that they did not intend to attack, but instead that their strategy was based on the fact that Rommel could and would. With this thought in mind, the British prepared their position for defensive action only. By restricting themselves in this fashion, the British hoped to be able to keep their armor from falling into antitank ambush, similar to that which had caused their defeat a few weeks earlier. Since they planned to remain on the defensive, the British were also able to site their guns so as to have immediate antitank and artillery support, which had been lacking in the earlier attack.

After the British command had committed themselves to the defensive, they spared neither time nor labor to make certain that no possible contingency could arise which would frustrate them. Every man had been instilled with the feeling that he, and he alone, might mean the difference between victory and defeat. The line that they would be defending was commonly known as "Egypt's Last Hope"; with its fall, Egypt was lost. During the period from the June 27 attack to the latter part of August, every conceivable defensive position had been tested all along the entire line. Terrain exercises and maneuvers were going on constantly, testing and improving the defenses. All tanks had been moved in and out of pre-selected battle positions, actually dug in, and placed in hull-down and gun-down positions. All drivers and all gun crews were thoroughly familiar with their duties and positions. Likely targets had been registered upon, and gun and tank crews had gone to their positions in darkness.

GERMAN PLANS

Of Rommel's general plan little is known. It is known that he was preparing a strong position and his armored strength increased in tanks, both German and Italian. German and Italian parachute troops made their appearance on this front, as well as elements of the German 164th Division. Despite continual bombings by British and American planes, the port facilities at Benghasi,

Tobruk, and Matruh were still open, and through them, some supplies still reached the forward elements. The railroad from Tobruk to Daba also remained open, although traffic was severely hindered by the continual bombing by Allied planes.

Allied air reconnaissance showed that Rommel was regrouping his forces, with a large part of the German and Italian infantry, and the Italian armor, identified on the southern flank of his line, and with the bulk of the German armor behind the center although in a position to join overnight a thrust on the south.

About August 25, the Axis air force began to build up its strength in serviceable planes.

BRITISH PLANS

The British general plan was to prepare several contiguous fortified areas along the coast and to hold them at all costs, and also to cover the high ground of Ruweisat Ridge and the ridge immediately south of it. They also planned to hold the New Zealand "box" covering the western edge of Deir El Hima. The armor was to take up defensive positions along the foot of Alam El Haifa escarpment and maintain this position, thereby intending to force the German armor to fight them on ground chosen by the British. The southern sector was to be defended by two parallel mined areas extending to Himeimat, which is along the edge of the Qattara Depression. The bulk of the British armor was to be held in the south-central sector and well behind the minefields. In support of the infantry defending the fortified areas was an armored brigade (British brigade approximates U.S. regiment). Portions of the light armor and elements of the motor brigade patrolled and guarded the minefields. The light armor on the south would harass any advance, and the armored reserve (another armored brigade) was to be held in readiness to the east.

In the absence of any specified missions, the Royal Air Force, combined with the American Air Force, was to bomb continually and strafe the Axis ports, supply lines, and troop concentrations day and night.

British Intelligence fully expected the Axis offensive to get underway during the full moon on the night of August 25/26. For some reason, said by some to be a lack of fuel, the attack did not materialize at this time. However, on the night of August 30/31, just prior to midnight, Rommel launched the long-expected attack which he hoped would bring him victory, and drive the British from North Africa.

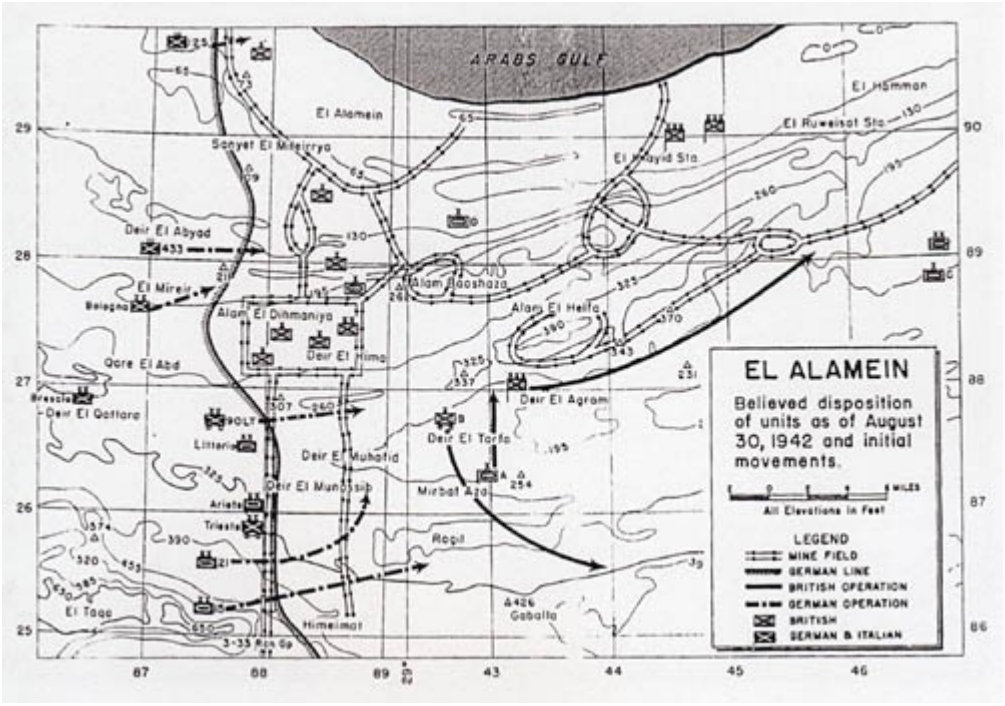
OPERATIONS: AUGUST 31

Rommel's attack on the strongly prepared British El Alamein line commenced at 2320, August 30. At that time German engineers and infantrymen commenced clearing a passage through the western section of the British minefield between the 25th and 26th east-west grid lines in the vicinity of Himeimat.

An interesting sidelight on this preliminary operation, and the subsequent tank penetration, was that the British fully intended to shell the Axis armor while they were confined and restricted in movement during passage through the minefield, but due to a misinterpretation of orders, this was only lightly done. As a result the Axis tanks managed to get through the minefields comparatively unharmed.

The German 15th Armored Division, with approximately 140 tanks, came through the minefield just north of Himeimat practically unharmed, then turned due east. Around noon they were in the vicinity of the 43rd north-south grid. At

this point, for some reason not fully understood, they halted their advance, and formed up as though they were expecting a counterattack. When the expected counterattack did not materialize, they formed up in the area east of Deir el Ragil, and proceeded in a northeasterly direction at about 1600. At the same time they detached about 40 tanks, which remained in the area of Deir el Ragil as security for the southern flank. It appeared that the German armor would bypass the principal British position, and, in order to prevent this, and to draw the Germans northward, the British commander sent a detachment composed of two tank battalions south to make contact, and, if possible, draw the Axis tanks north. This move was successful, as the British detachment returned to its previous position closely followed by the 15th Armored Division. A patrol of the 15th Armored Division closed in on the left flank of British Armored Brigade "A"* defending the main position on the southern side of Alam El Halfa, and a short engagement followed. After dark the 15th Armored withdrew to the south, leaving about 13 tanks behind in a wrecked or burning condition.



The German 21st Armored Division crossed the minefield with the 15th Armored, then turned in a northeasterly direction. It reached the area north of Deir el Tarfa at 1700. At this point it came under the fire of the right flank of British Armored Brigade "A" southwest of point 337. As the Axis tanks closed in, a brisk fight followed which lasted till dark. The 21st Armored then withdrew to the vicinity of point 254, leaving approximately 15 tanks burning or totally destroyed.

The German 90th Light Infantry Division which was on the north flank of Rommel's southern group, had difficulty in crossing the minefields, but by evening had succeeded in reaching the area north of Deir el Muhafid.

South of the 90th Light were the Italian divisions, Littorio, Ariete, and Trieste, in the area Deir El Munassib. Of these latter three outfits, only the Trieste completely crossed the minefields during the engagement.

German Reconnaissance Groups 3 and 33 advanced east, and then turned south towards the area Qua El Labin.

In the central sector a localized Axis thrust by the German 433rd Infantry Regiment and the Italian Bologna Division against the Indian outfits (aided by the South African and the New Zealand brigades) on Ruweisat Ridge, advanced as far as point 211, but was later driven back by counterattack.

In the northern sector, another localized Axis attack by the German 125th Infantry Regiment was momentarily successful near Tel el Eisa, but was later driven hack to its original position by the Australian brigade occupying that sector.

Patrols of British Motor Brigade "B" were active in the east and also in the Himeimat area. The remainder of the British Eighth Army held to their defensive positions, and only fought that part of the Axis forces that attacked them. Allied air support was continuous and intensive, as was the British artillery support, given from the area near Alam el Halfa where it was concentrated.

In a review of the day's fighting, two points stand out. First, the Axis attack did not come as a surprise to the British. Second, the British held rigidly to their preconceived defensive plan. They did not counterattack but waited, as planned, and met the Axis tanks on ground of the British choice.

During the night of August 31/September 1, British Armored Brigade "C", then in reserve, was ordered to advance and tie in with the left flank of Armored Brigade "A" to form a line along the foot of the Alam el Haifa escarpment.

OPERATIONS: SEPTEMBER 1

Just prior to daylight, the Axis tanks formed for the attack. The 21st Armored Division with approximately 50 tanks was along Deir el Agram facing the center of the main British position.

The 15th Armored Division, with about 100 tanks, formed southeast of the left flank of Armored Brigade "A".

At daylight, severe fighting broke out and continued until 1100. During the first hour of the fight, Armored Brigade "C" fought forward from its position in reserve, made contact with the left flank of Armored Brigade "A" on the main position, and formed as directed. This advance by the British armored reserve prevented the envelopment of the left flank of the principal British force.

It should be pointed out that the Armored Brigade "C" had been ordered to the position it eventually took during the previous night. However, the orders were not received until late at night, and execution was not as rapid as was expected.

The engagement was resumed in the late afternoon and continued until dark when the Axis withdrew to point 254 ridge, leaving behind 25 burning or totally destroyed tanks.

During the day a third Armored Brigade "D" went into position between the right flank of Armored Brigade "A" and the New Zealand box.

OPERATIONS: SEPTEMBER 2

During the night, the Axis formed up along the ridge at point 254, on the defensive behind a screen of antitank guns.

After daylight, small and isolated groups of Axis tanks felt out positions occupied by Armored Brigade "D" which had been moved up the previous day, but no attack developed.

The 90th Light Infantry Division commenced withdrawing from its position east of the minefield. It was replaced by the Trieste, supported by the Ariete and Littorio. The Italian Brescia Division moved forward from the area Deir El Munassib, and took up a position facing the southwest corner of the New Zealand box.

Allied bombing and artillery fire was continuous and heavy, both by day and night. Armored car patrols had gone around the Axis line and were harassing Axis supply lines far to the rear.

OPERATIONS SEPTEMBER 3

The day of September 3 was comparatively quiet. Axis motor transport commenced withdrawing westward along its axis of advance.

During the day British light armor, and patrols from Motor Brigade "B" intensified their harassing activities from the east and south as far west as Himeimat.

Artillery elements joined these patrols and shelled the Axis motor transport from comparatively close-up positions, then withdrew in face of enemy pressure.

The British heavy armor remained in place along Alam el Halfa.

It appeared at this time that Rommel was still undetermined as to his course of action. He had failed to draw the British armor away from its support, or into antitank ambush; in fact, the British failed to play the game the way he wanted them to play it.

OPERATIONS: SEPTEMBER 4

During the early morning hours, the New Zealand Division, composed of the two New Zealand brigades, which occupied the box, assisted by a brigade of another infantry division, laid down an artillery barrage and followed with an infantry attack. This attack advanced south and along the trails in square 88-27.

The attack advanced 3 miles, but with the coming of daylight the Trieste, Brescia, and the 90th Light Division, supported by the Ariete, and Littorio Divisions, in a series of three counterattacks, forced the attacking troops back nearly to their original positions.

This effort served one great purpose, however, in that it was evidently the deciding factor in causing Rommel's withdrawal. The force of this attack prevented him from using the 90th Light in a coordinated attack with the German armor.

The air and artillery attacks were continued on the same large scale as heretofore.

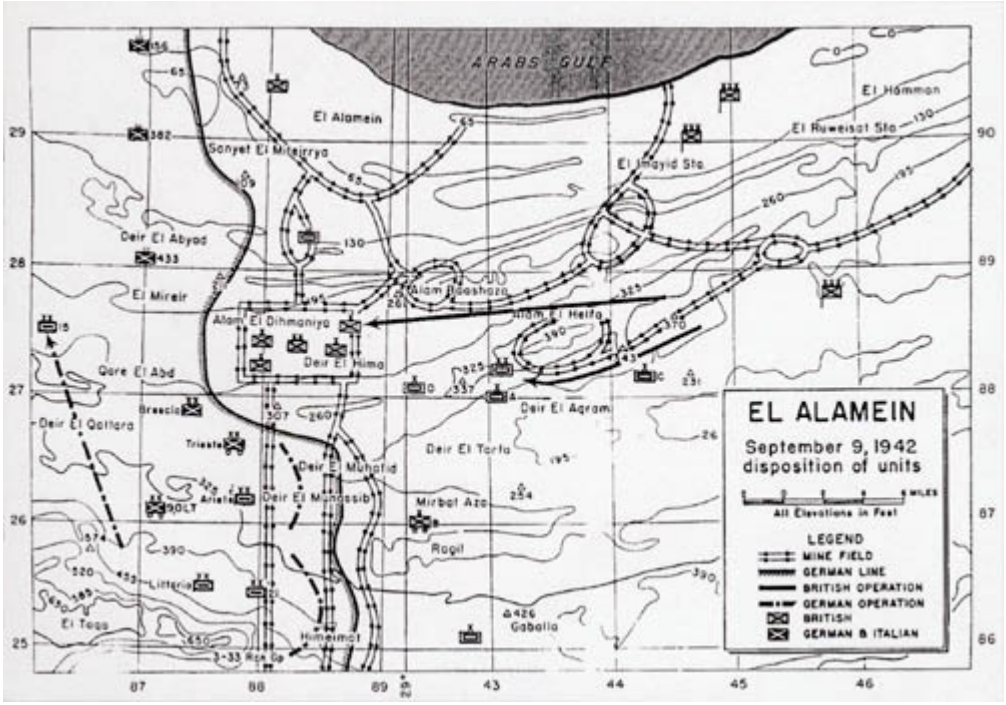
OPERATIONS: SEPTEMBER 5

The bulk of the Axis transport was withdrawn west of the minefields. The 90th Light withdrew off to the west. An antitank screen, supported by tanks, was set up between Himeimat and Deir el Munassib.

This was a slow withdrawal, with Rommel utilizing to the full extent his old scheme of leaving tanks visible as bait for British armor. These tanks were well protected by antitank guns. Formerly the British had always pursued them, and frequently had lost rather heavily. This time, all British armored forces remained in their battle positions, with their artillery continually firing on the retreating Axis forces.

Whenever the pursuing British infantry gun-carriers came within range, the Axis antitank guns picked them off. Rommel withdrew carefully, sustained only a minimum of losses, and eventually halted very close to his original position, retaining only about 2 miles of the ground he had won on the first day.

The Axis line in the southern sector was formed by the Italian Brescia and Trieste Divisions in the northeast part of square 87-26. The Ariete Division was at Deir el Munassib. The 90th Light Division was about 7 miles to the rear of the Ariete, as a mobile reserve. The German 21st Armored Division, the 3 and 33 Reconnaissance Groups, and the Italian Littorio Division covered the area around Himeimat and west to El Taqa.



While the Axis motor transport was retreating through the minefield area, the Axis air force managed to put up a fighter covering force which prevented Allied bombings. This protective covering "umbrella" was only local, however, and Allied bombing of the Axis rear areas continued on an undiminished scale.

When Rommel took up the position mentioned above, he immediately prepared strong defenses, and the El Alamein battle of August 1942 was at an end.

LOSSES

The Axis withdrawal was orderly, and since none of the previous engagements had been on a large scale, the loss of equipment throughout the entire battle was not unduly large.

Observers estimate that the Axis lost not more than 70 of their total of 440 tanks; of those lost, 55 were German.

Approximately 100 Axis motor transport vehicles, of which the majority were captured British vehicles, were destroyed and left on the field.

Judging from the empty cans lying about the areas that the Axis troops had occupied and then given up, the Axis forces appeared to be completely rationed with previously captured British supplies.

The British entered the battle with a grand total of 546 tanks of all types, and lost or had disabled a total of 67 tanks, which included British mediums and American medium and light M-3's. Of the total number of tanks lost, it was estimated that not more than 20 were completely destroyed and beyond repair.

British personnel losses were relatively light. A British corps commander estimated that the Axis losses were greater than the British in a proportion of 2 to 1.

SUMMARY

Rommel first advanced with his entire striking force, but there was no indication that a full-fledged, all-out assault had been launched. It is believed that he hoped to engage the British armor on grounds of his own choice, defeat it and then occupy Ruweisat Ridge which commands the coast road and the avenue to Alexandria.

When the British tanks refused to come out of their hull-down defensive positions, and away from their antitank and artillery support, Rommel was not quite sure of his ground and was afraid to risk his full strength. He spent 2 days feeling out the British position, losing rather heavily in tanks and motor transport while doing so. In view of later developments, it is also believed that he underestimated British tank strength.

Rommel was not able to bypass the principal British position along Alam El Haifa and then proceed eastwards to the Delta (El Hamman) because of the constant danger to his supply line by the British armor, plus the constant interference from Allied bombing and artillery.

On realizing the full extent of the British strength, Rommel withdrew to his previous line and occupied the strongest defensive position in the Western Desert.

The British success was due to: security; the well-planned defense which had been thoroughly tested by many tactical exercises; a thorough knowledge among troops and unit commanders of what was expected; proper execution and coordination among higher echelons; and the continual artillery and air bombardments. The effect of these bombardments, while not producing great material damage, must be accounted as a decisive factor.

In the employment of armament the most outstanding points were: the British static use of tanks; the effect of antitank guns; and complete utilization of field artillery mobility.

The only notable achievement of the German Luftwaffe was their ability to maintain a protective fighter-umbrella for several hours during the withdrawal of motor transport through the minefields, despite over-all Allied air superiority.

*For security reasons the British units cannot be referred to in the text by their exact designation. The armored brigades and the motorized brigade which played main roles in the action will therefore be designated by letters (A, B, etc.). By reference to the accompanying maps, the position and movements of these units can be easily followed.

GERMAN HEALTH PAMPHLET FOR NORTH AFRICA

The German pamphlet translated below contains information on general health precautions, which are not only of interest and value in themselves, but also because of their close similarity to official U.S. Army medical instruction and principles of sanitation. While the pamphlet has reference to the North African area, much of it is applicable to all areas and is therefore of general interest.

The pamphlet was issued by the office of the German Army Surgeon General and is dated 1942. As is apparent from the context, it is intended for the individual soldier. Instructions accompanying the pamphlet state that it is to be carried in the inside flap of the paybook.*

The translation of the pamphlet follows:

* * *

The climate of the country is quite different from that of your homeland. The days in summer are hot and sunny, in winter, warm; the nights, on the other hand, are cool in summer, in winter, very cold. Throughout the entire country, water is very scarce. The German soldier must, first of all, accustom himself to the climatic peculiarities. The population of the country has different customs, ways of living, and practices, than our people. They have a different religion. Do not disregard all this in association with the people of the country. You will get on much easier. There are illnesses there which we do not have in Germany. You must, therefore, know the dangers which threaten you in this particular country.

Observe the following:

(1) Water

The virus of many different kinds of diseases can come from the water of this country. Therefore, never drink unboiled water, also do not rinse out your mouth with it, as long as your superior officers do not designate the water pure! Boil your water! It is best to drink tea or coffee and use the portable filter apparatus. It makes all fresh water potable!** Drink no mineral water and no lemonade as long as it has not been expressly designated as harmless by your superior. Ice in restaurants and ice-cooled drinks, which are offered for sale on the streets, are not prepared under sanitary conditions and, therefore, are harmful to your health; avoid them, even if you are extremely thirsty. Do not wash yourself in dirty water, do not bathe in streams, lakes, ponds, pools. Bathing in the sea is permitted. Do not bathe when in an overheated condition.

(2) Nutrition

You will receive the best food from your unit. Do not eat raw meat. Never drink unboiled milk, especially not goatmilk! Wash all fruit in purified water or peel it before eating. Do not buy quarters or halves of melons when they are offered by street merchants. Buy only whole, uncut melons. Do not pick up any food from the ground, especially meat, fish, and sausage; in the heat, foodstuffs perish quickly and contaminate! Protect your rations from flies. They carry disease.

(3) Dress

Always wear a stomach band.*** You protect yourself against catching cold. Always wear your sun helmet out of doors during the heat of the day. Otherwise, wear your field cap. It serves no purpose and is harmful to the health to run about in warm countries with the upper part of the body naked. It is a mistake to believe that one is cooled off in that manner. When the air-temperature is greater than 38 degrees Centigrade [100 degrees Fahrenheit] the wind has a heating effect on the skin.

(4) Bivouac

Avoid particularly the dwellings of natives. Before you take up quarters in houses or barracks, clean the area thoroughly. Excrement and refuse are the breeding places of flies, and these carry to food-stuffs or direct to people the germs of dangerous illnesses (especially dysentery). Therefore, latrines must be free from flies. The trench-latrine serves the purpose.

(5) Vermin

Besides flies there are body lice, ticks, mosquitoes, snakes, and scorpions in this country. Mosquitoes are carriers of fevers, and malaria. Combat the mosquitoes in the morning and in the evening in your barracks by continuously killing them. If you burn a light in your barracks, keep the windows closed when possible; mosquitoes are attracted by burning lights. Use your mosquito net when you go to bed. Be careful, however, that when you lie under your mosquito net that there are no mosquitoes in the net and that the net is carefully tucked in under the bed and no openings are left for mosquitoes to enter.

If you have body lice, report it immediately: body lice and ticks carry spotted fever and relapsing fever, and both are serious illnesses. The snakes in this country are poisonous. They hide themselves in the sand. Scorpions are often found under loose rocks. Therefore, do not run about with bare feet and naked legs. Inspect your sleeping-bag daily for snakes and scorpions. Shake out your boots before putting them on. They are a favorite hiding-place for scorpions. It is frequently maintained that a drink of liquor is beneficial after you have suffered a snake bite. This is foolishness. Alcohol, under such circumstances, is harmful. If you should be bitten by a snake, apply a tourniquet directly above the wound on the side toward the heart. The pressure applied to the tourniquet should not be great enough to cause the wounded part to swell and turn blue. With a disinfected razor blade, make a cross-like incision at the wound. Each cut should be at most about 1 inch long and not deeper than 1/2 inch. Allow the wound to bleed for 3 minutes; sucking the poison from the open wound is frequently recommended. This should be undertaken only by one who has no open sores or cavities in his mouth. With the blunt side of the disinfected razor blade, rub several potassium permanganate crystals into the wound; bind the wound and remove the tourniquet. Then report to the unit surgeon or medical officer immediately.

(6) Venereal Diseases

Women who solicit freely are usually infected. You should visit those houses only which are approved by the military authorities. Always use a condom. Follow orders, and take a prophylaxis after having exposed yourself.

(7) Concerning Animals

Dogs and cats are frequently carriers of diseases, e.g., rabies, serious worm and blood diseases. Do not handle dogs, cats, or monkeys.

(8) Vaccinations

The vaccinations prescribed by the military authorities protect you from serious diseases. The unvaccinated person not only endangers himself, but the lives of his comrades as well!

(9) Prevention of Malaria

Do not hesitate to take tablets to prevent malaria, when they must be taken! You do not know the danger to which you and your comrades are exposed.

(10) Skin Irritation ("Red Dog")

"Red dog" (roter Hund) is an annoying skin irritation, which is caused by excessive heat and attended by extreme perspiration. Frequent bathing in warm water and lathering with medicinal soap (when available) is the best protection. If you have "red dog," lather yourself with medicinal soap, and allow the lather to remain on your skin for 15 minutes. Blot yourself dry--do not rub. Dry yourself especially carefully in those parts where the conformation of the body causes skin wrinkles and between the toes.

(11) Slight Injuries

If you receive a slight wound on the calf of your leg from a thorn, or from striking against a sharp rock or from insect stings, apply a sterile bandage. If you allow such apparently trivial wounds to go unattended, they can develop into annoying and slowly healing sores.

*The paybook is carried by all German soldiers and is often found on German prisoners; aside from containing the pay record of the individual, the paybook also includes the soldier's unit, although it may not be up-to-date in this respect, and such miscellaneous personal data as gas mask size, blood type, etc.
**If this statement is correct, the filter probably includes an element to chlorinate the filtered water.
***Stomach bands are not believed to serve any useful purpose and are not recommended by the U.S. Army Medical Corps.

GERMAN INTERROGATION OF PRISONERS OF WAR

The following report on interrogation of prisoners by the Germans is from a German document on that subject. It is believed that a knowledge of the type questions which might be asked of prisoners of war will be useful to unit commanders for instruction on safeguarding military information.

a. Printed Form

The printed form shown on the following page is required to be completed regarding each British prisoner of war. It is issued in pads.

b. Further Questions

Further questioning may include one or more of the following questions:

(1) Have there been any alterations in the Order of Battle as printed in the [German] handbook? Are alterations in progress, particularly with regard to armored formations?

(2) How far have infantry and other units been equipped with antitank and light antiaircraft units?

(3) With which units are there signal units which do not belong organically to the division?

(4) What is known about the Air Corps or the airborne divisions (parachute and airborne troops)? What is known about the strength, organization, training, equipment, and armament of Commandos and Special troops?

(5) What is the effect of our [German] weapons and tanks, technically and with respect to morale? What about losses in personnel, weapons, and equipment?

(6) What is known of the Amphibious Command, new weapons, new tanks, or new armament, and of armor on known types of tanks?

(7) What is known about active and passive chemical warfare preparations?

(8) What rumors are there about future operations?

(9) What is the situation at home concerning the formation of new units, movements overseas, supply and food situations, opinions as to the prospects in the war, and general morale?

No. 01061 FORM FOR INTERROGATION OF BRITISH PRISONERS

(Interrogating Unit) (Place) (Day)

To.
CHIEF OF THE GENERAL STAFF OF THE ARMY.
Dept. Foreign Armies. - West
To be transmitted by the quickest means.

Name:	Taken	Unit	
Christian Name:	At	Name	Army Corps
Year of Birth:			Div
Rank:	On		Brig
			Bn
Number:			Type of Co

Regular Army or Territorial Army.			Mobilization and transport overseas.				
	Place	Command	Date	T.O. of Unit	Embar-kation Place Date	Dis-embark-ation. Place Date	Route taken (places & dates)

Unit arrived in the line.	What units in the same Div?	Other units known.
At From To		Name Div Place Date

Particulars of weapons, tanks, equipment, antigas equipment.

Morale: (Losses)	Other important items.

Remarks:

1. Important papers (diaries, orders) are to be attached to the copy sent direct to the Chief of the General Staff.
2. Items of only local interest are to be put on a special sheet for interested units.

GERMAN MEDICAL SERVICES

The efficiency of the medical services of an army is reflected in the morale and combat effectiveness of that army.

The following details concerning the organization, equipment, and supply system of the German army medical services are taken from an Allied source.

* * *

a. Organization

(1) Infantry Division

2 medical companies, motorized or partly motorized.
2 ambulance platoons, motorized.
1 field hospital, motorized or partly motorized.

(2) Mountain Division

2 medical companies, partly motorized.
2 ambulance platoons, motorized.
1 field hospital, partly motorized.

(3) Motorized Division

2 medical companies, motorized.
3 ambulance platoons, motorized.
1 field hospital, motorized.

(4) Armored Division.

2 medical companies, motorized and armored.
3 ambulance platoons, motorized and armored.

(5) Airborne Division.

3 paratroop medical companies.
1 field hospital (airlanding).

b. Equipment

(1) Of the Individual.

(a) The Combatant.

One large and one small packet first field dressing wrapped separately in black, rubberized fabric 1 box anti-vesicant tablets

(b) The Stretcher Bearer.

In the combatant units - 2 stretcher-bearer's haversacks containing:

1 pair of scissors
1 pair of dissecting forceps
6 packets dressing

3 triangular bandages
3 strips of gauze 16 ft x 2 3/4 in
6 squares of gauze
1 roll of adhesive tape
1 waterproof bandage 18 x 20 in
1 tourniquet
20 safety pins.

In the medical units - in this case, the stretcher bearers are not all equipped with the haversack as above, but each group of four has a haversack (Verbandtasche) containing:

1 pair of cloth-cutting scissors (Kleiderschere)
1 tourniquet
12 strips of gauze
10 squares of absorbent cotton
6 triangular bandages
2 "Brandbinden" (absorbent gauze treated with bismuth for burns)
1 waterproof bandage 36 x 40 in
4 rolls rubberized adhesive tape
35 safety pins
4 small splints with cradle
2 slings, 12 x 5 in
Each stretcher bearer also carries a mug and a bottle with about a pint of cordial.

(c) The Medical Service N.C.Os. and Medical Orderlies.

Each carries a bottle of cordial, a case of dressing material and two medical haversacks, the first containing medicines such as salicylic acid (2%), formaldehyde, ticture of iodine, cardiazol and opium; the second containing much the same dressing material as the stretcher bearers' haversack on a smaller scale.

(d) Officers of the Medical Services.

Each carries the officer's haversack, the contents of which are extensive, including a number of surgical instruments such as probes, lancets, ligature forceps, cannulae, vaccinostyles and the like; a certain quantity of dressings; a tin plate case for tablets containing among others, pyramidone, veronal, acetylsalicylic acid, codein phosphate, tannalbin, opium, cocain chloride, atropinemannite and calomel; and also a box containing ampoules of, for example, caffein sodium salicylate, superarenine chloride and morphin hydrochloride.

(2) Of a Combatant Unit.

The medical equipment of battalions and regiments is identical. It comprises:

(a) Box No. 1. This is the "Battlebox" (Gefechtskasten) and is marked with two white strokes the form of a cross. The contents are miscellaneous but include much dressing material, anti-tetanus serum, medicaments and two 6-in atomizers containing ethyl chloride.

(b) Box No. 2. Medicaments of all types (Arzneimittelkasten).

(c) Box No. 3. Dressing Equipment. (Verbandmittel).

(d) Box No. 4. Supplementary box. This is like No. 1, but on a smaller scale.

(e) Box No. 5. Contains 280 flasks of tetanus anti-toxin 3000 units per c.c.

(f) Two medical haversacks containing medicaments and dressings rather on the scale of the M.O's haversack. Two empty rucksacks are also included, with blocks of labels for wounded and for sick.

(g) One set of equipment for fractures, including cardboard splints, metal wire splints and aluminum splints.

(h) One unit medical outfit - like an M.O's haversack.

(i) One set of oxygen apparatus - the flask contains 275 quarts of oxygen.

(j) Four stretchers.

(k) Twelve woolen blankets.

(l) One filter apparatus.

(m) Anti-vesicant, and gas protection caps for those with head wounds.

c. The Evacuation of Casualties

(1) Units under Divisional control. There are no medical units allotted to corps normally.

(a) Battalion aid station (Verwundetennetz) as close to the fighting line as possible. The station may or may not be under cover. Treatment is restricted to first aid. Occasional blood transfusions may be done. Evacuation is by stretcher bearer section of medical company.

(b) Ambulance Station (Wagenhalteplatz). This is established only if the ambulances cannot go forward to the battalion aid station.

(c) Field Clearing Station (Hauptverbandplatz) is established by the Medical company. It is intended for serious casualties requiring resuscitation, adjustment of dressings, splints etc, arrest of hemorrhage or blood transfusion before further evacuation. Emergency operations may be done here.

(d) Lightly Wounded Collecting Station (Leichtverwundetensammelplatz) for walking wounded and sitting or reclining cases requiring only minor treatment before evacuation. There is a skeleton staff from medical company. The remainder of the medical company is normally in reserve -- available to assist in handling a sudden rush of cases or assist in bombed areas, etc.

(e) Division Field Hospital (Feldlazarett). Capacity 200 beds. It is intended for the reception and retention of casualties who require urgent operation or resuscitation and a few days rest before further evacuation. It has a surgical team and is fully equipped to handle any casualty.

(2) Hospitals at Home or in Occupied Countries. (Reservelazaretten)

(a) Casualty Collecting Station (Krankensammelstelle). It is established by an Army ambulance unit at a railhead or other traffic center, normally and is for the retention of casualties awaiting evacuation. Only minor treatment is possible.

(b) Army Field Hospital (Kriegslazarett). For more serious casualties. Capacity 500 beds. Fully equipped hospital with all specialist departments.

(c) Army Field Hospital for lightly wounded cases. (Leichtkrankenkriegslazarett) Takes casualties who will be fit for duty in 3 or 4 weeks. Capacity 1,000 beds; fully equipped. Normally located in back areas of Army zone and away from all large towns.

(3) Capacity and time of erecting or dismantling of various units.

(a) Army Field Hospital. Capacity 500 beds, 24 hours to set up or dismantle. Set up by Army medical detachments.

(b) Army Field Hospital for slightly wounded cases. Capacity 1,000 beds. 24 hours to set up or dismantle. Set up by Army Field Hospital detachments.

(c) Field Hospital. Capacity 200 beds. 3 hours to set up or dismantle. Set up by Army Medical detachments.

(d) Casualty Collecting Station medical railhead. Capacity limited only by the available accommodation. 3 hours to set up or dismantle. Set up by motor transport ambulance company.

(e) Field Dressing Station. Unlimited capacity. 1/2 to 1 hour to set up or dismantle. Set up by Divisional medical company.

(f) Slightly Wounded Collection Station. Unlimited capacity. A few minutes to set up or dismantle.

(g) Motor Ambulance. Capacity of 4 lying and 10 sitting. Has four driving wheels and double differential for cross country performance.

(h) Hospital Train. The 2- or 3-axled coach train with heating coach has 358 lying capacity, and 385 sitting capacity without heating coach. The 4-axled corridor coach train with or without heating coach has a 364 lying capacity. 2 to 6 hours to set up or dismantle.

(i) Hospital Train for Slightly Wounded. 920 sitting capacity. 1 to 2 hours to set up or dismantle.

GERMAN METHODS OF CAMOUFLAGE

Modern methods of air operations--including developments in aerial photography--have enormously increased the importance of camouflage.

In the last war the air was used more for reconnaissance than for bombing, and consequently troop movements were more important to conceal than factories and airdromes. It has needed the intense bombing attacks of this war to develop the art of concealing large structures such as railway stations and hangars.

The Germans have evidently studied the problem very closely, and with their usual thoroughness have resorted to elaborate schemes of concealment and deception wherever they consider such measures justified by the importance of the target. Thus it is now becoming the rule rather than the exception to see landing fields and airdromes presenting from the air the most convincing impressions of woods, roads, ditches, hedges and cultivation patches. Brown, light green, and yellow substances are sprayed over the ground to give the effect of plough or vegetation. Dummy farms and other buildings are disposed around airdromes to conceal workshops or isolated aircraft outside their hangars, while papier-mache cows and beds of real flowers are used to add a convincing note. Dummy cottages are erected or painted on the tops of hangars, the vertical sides of which are sloped off by a lattice of steel wires garnished with green-dyed jute, sometimes shaped possibly to resemble trees. Great attention is always paid to changing the color of the garnishing by spraying so as to correspond with the changing colors of the seasons.

It is well known that Berlin has been extensively camouflaged, not only the city itself but also the outskirts. One example is the most important distinguishing landmark in Berlin, namely the wide avenue running east and west through the city and called the "Axis." The pavement of this avenue has been sprayed with a dark green paint to blend with the trees in the Tiergarten (a large park), along the avenue and throughout the western section of the city. The Victory Monument (Siegesäule), in the center of a circle on the Axis, has been painted with a dull color so as not to reflect light. An overhead cover of wire matting, interwoven with green materials to resemble vegetation, covers the avenue for a considerable distance. The wire netting is about 18 feet high and is interspersed with artificial shrubs and trees. About every 30 yards the coloring and texture of the greenery has been changed. To eliminate shadows, netting has also been hung from the sides at an angle of about 20 degrees.

To create an opposite effect namely to simulate a street where in fact there is none, wire netting has also been used. These dummy streets are frequently connected with the real ones which then disappear into artificial woods. In one instance it is reported that a "woods" was created by fastening artificial sprigs about 1 foot high and about 1 to 2 inches apart to a wire net. Through these "woods" a system of "roads" was painted in brown on the mesh of the net.

In Berlin many important buildings have been camouflaged by covering them with nets, and by placing artificial barns, farm buildings, and trees on the roofs.

It has also been reported that dummy installations on a very large scale have been erected at a distance of about 40 kilometers from the center of Berlin in an area about 400 kilometers square. These dummies include not only structures simulating railway stations, etc., but also installations to give the effect of city lights, and for causing fires to give the impression of effective bombing.

The principal railway station at Hamburg had a complete false roof built over it in the shape of a small hill. This false roof was completely covered with material resembling green grass, and artificial paths were made over the "hill". A hangar at Rheine in Northwest Germany had no other form of camouflage than two dark patches painted on top of the northern edge. These patches combined with the shadow to break up the regular shape of hangar and shadow together. Painted disruptive camouflage of this type is very simple, and surprisingly effective when viewed under favorable lighting conditions.

Camouflage of a landing-field surface is begun at the earliest possible moment, even when extensive construction work is still going on. A good example of this is at Laval, south of Cherbourg, where the excellent camouflage of that area of the landing ground which is now finished could only have been carried out under considerable difficulty, in view of all the other levelling and drainage work involved.

Water is recognized as an easily distinguishable landmark, and lakes and canals in important industrial areas are covered by rafts and netting, painted to blend with the surroundings.

The importance of avoiding regular outline is appreciated, and applied not only to the breaking up of the form of large buildings, but also to the parking of motor transport.

Though considerable effort is apparently devoted to training the individual soldier to camouflage himself by the use of whatever material he may find, comparatively little information has come in concerning the methods adopted by German troops in European campaigns. There are two reasons for this: first, they have almost always been on the offensive, so that the necessity of constructing and concealing defensive positions has not arisen very frequently; and second, they have, at least until recently, enjoyed air superiority, so that the need of concealing themselves from air observation has hardly been felt.

Considerable ingenuity was shown in Poland and France in concealing minefields and artillery, but disruptive painting of motor transport and armored vehicles was apparently little practiced. The use of dummy positions appears to have been very common. Field guns were concealed in dummy haystacks, antitank guns and limbers were disguised as carts and even driven by soldiers disguised as civilians. On the other hand parachutes with straw dummies attached and canisters with bogus instructions were dropped to create alarm. There appears, in fact, to have been a frequent offensive use of camouflage to enable all kinds of ruses to be carried out.

German practice in Libya was affected by lack of unchallenged air superiority and by the fact that they have had to engage in positional warfare. Much ingenuity in concealing weapons, war materials, and minefields has been shown, aided very frequently by the favorite German method of using dummies.

In the desert more attention has had to be devoted to concealment from the air, which has been achieved in two ways. Either vehicles and war material are camouflaged with nets or local material, or else resort is had to wide dispersion. At first dispersion was bad owing to lack of training, but lessons have been quickly learned and dispersion is now generally excellent. The use of dummies is very frequent and popular.

In Section II of this publication, the report of the encirclement of Kiev mentions the use of this stratagem and its importance in the tactics adopted. Here, it is to be observed that dummies simulating boats and bridging equipment were constructed by the Germans in the crossing of the Dnieper in order to deceive the Russian observers as to the area chosen for the initial crossing.

Near Capuzzo in July 1941 guns were located among abandoned Italian artillery which had been left there from previous battles. These guns were not noticed until they opened fire. It is reported that at Derna planes destroyed in previous fighting had been recovered and placed on the airdrome as dummy targets. Dummy motor transport parks and coast defense guns had been constructed. A minefield was recently camouflaged by tracks made with a spare wheel between the mines, and a British armored car was lured into it. In an Italian sector a post was found manned with straw-filled dummies in German uniforms stripped from corpses.

Most important is the use of dummy tanks. According to a prisoner these are cardboard structures built over a motorcycle, but a photograph has been captured showing one mounted on a light Volkswagen. Probably both are used. They are, of course used only at a distance, and their purpose is to draw fire, to confuse the enemy as to the probable point of attack, to conceal the fact that a real tank unit has moved, or to give an exaggerated idea of tank strength.

Disruptive painting of guns, vehicles, motor transport, and tents is apparently not very much used. There has been a report that both motor transport and tanks are painted light khaki and sometimes smeared with grease and sand. There have, however, been reports of armored cars painted dark green with yellow turrets. This, however, may have been some form of unit marking. Tents are reported to be the standard dark green color. Guns are painted yellow; the only concealment is provided by their sun-covers. Nets have recently been reported in use by the Germans, stretched over vehicles, and either pegged down or else extended outwards on poles. These nets are garnished with small bushes, and the like. A net or screen has also been used to disguise the presence of armored cars lying in ambush. Food and fuel dumps are concealed in pits about 18 inches deep, which are dug well away from any landmark, are well dispersed, and covered with nets and brushwood.

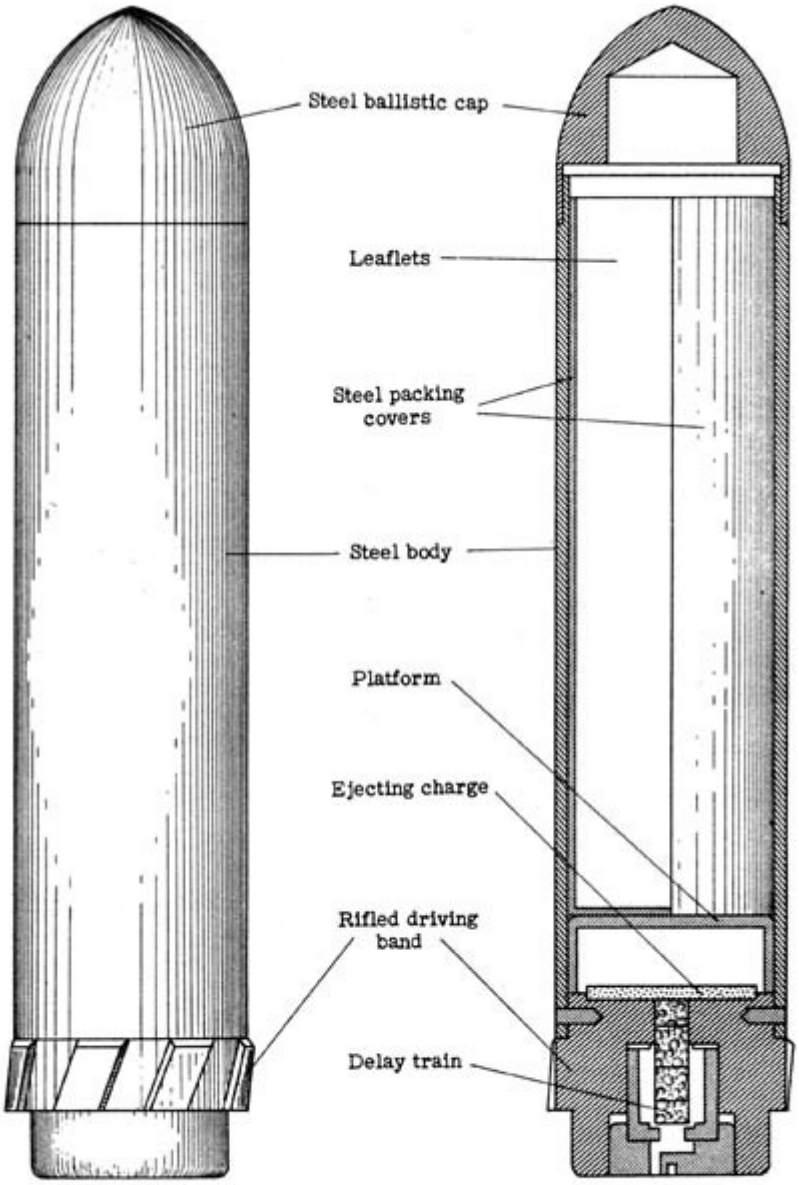
A recent report mentions a large gasoline dump camouflaged by a net or screen, behind which an enemy patrol, consisting, it is thought, of three trucks mounting guns, lay concealed. When the gasoline was fired on, the screen disappeared and fire was returned.

A report written by the commanding officer of a German infantry battalion throws interesting light on the difficulties caused by excessive orderliness of mind and lack of practice in individual concealment. He complains of the necessity of combating the herd instinct--"Not only man and beast fall victim to it, tents and vehicles do so also". He enlarges at considerable length on both the bunching and symmetrical dispersal of tents and motor transport, practices to which the Germans are addicted. He also gives careful instructions on the construction of narrow and deep trenches, which must have no parapet and must be covered over, citing British positions as examples to be imitated.

GERMAN PROPAGANDA RIFLE GRENADE

For the purpose of distributing propaganda leaflets among enemy front-line troops with whom they are closely engaged, the Germans have in use a propaganda rifle grenade (Gewehr Propaganda Granate).

This grenade is similar in appearance to the Germans' small hollow-charge grenade. It is fired from the normal cup launcher. The grenade sight, however, is not used. Range is reported to be approximately 500 yards.



GERMAN PROPAGANDA RIFLE GRENADE

Tactical & Technical Trends #43, Jan. 1944, Collection: LoneSentry.com

The propaganda rifle grenade is about 5 1/2 inches in length. It consists of a steel case with a rifling pre-engraved on the base and containing a delay fuze and a small ejecting charge, a removable cap and two covers for the leaflets. The propelling charge, Gewehr-Kartusche Für Gewehr-Propaganda-Granate

(rifle cartridge for rifle propaganda grenade) is distinguished from other propelling charges by a red band painted on the cartridge case. The weight, filled with leaflets, is 8 ounces.

The grenades are packed 40 to a box with 41 propelling cartridges and a supply of leaflets. They are, not issued generally to troops but are handled by the sector propaganda officer.

GERMAN RATIONS IN LIBYA

The following German food and water situation in Libya has been reported as a result of PW interrogations. The information showed that until July 1, 1942, no food or water difficulties had been experienced in the unit concerned, and after the fall of Tobruk canned fruit and vegetables had been added to the normal rations.

The battalion rations officer was responsible for the collection of rations (requisitioned every 3 days by companies) from the supply dumps, and for the delivery to companies. For distribution to companies there were four 3-ton trucks, never loaded to more than half capacity. Thus for 3 days' supplies, a 6-ton truck capacity per battalion was necessary. Bread was collected separately from the field bakery. Apart from the regular 3 days' supply, companies carried 6 days' and each man 1 days' iron rations. Rations included one hot meal each day, always prepared in the field kitchen, which is brought as far forward as possible.

Rations per man per day actually issued were:

Coffee	Bread	Water*
1/2 oz real coffee	1/2 lb at rest	About 5 pints at rest
1/4 oz substitute	1/3 lb in battle	

GERMAN SALVAGE PROCEDURE IN THE DESERT

It has been stated that Marshal Rommel, in planning his campaigns, puts great emphasis on the capture of British equipment and supplies, and that the acquisition of large quantities of such booty has been one of the important factors in the success of his past operations in North Africa.

The importance of captured materiel in the German supply system is illustrated by a field order issued by Rommel on May 23, 3 days before the start of the German spring offensive. The order states: "The shortage of raw material and supplies in Africa makes it necessary to take every opportunity of seizing enemy equipment and supplies. Units may take with them only such amount of captured materiel as will not impair their operational readiness; all other booty will be dealt with by a special Salvage Section (Beuteberge-Abteilung) of Panzer Army Headquarters.

"A guard is to be left over all dumps and stocks. The Salvage Section will make arrangements for the security and removal of all dumps and will provide technical personnel and transport. It is to be in direct communication with the forward troops. Captured supplies are to be marked in light blue paint with the words 'Tedesco' (Italian word for German) and 'Erfasste Beute' (captured booty). Strong disciplinary action is to be taken in the event of any misuse or destruction of salvage."

On several occasions during the course of the offensive, it was observed that, at the conclusion of an engagement, enemy salvage parties appeared on the battlefield and began recovery of transport and antitank guns before the evacuation of prisoners of war had been completed.

On the other hand, the Germans are equally thorough in measures taken to prevent their own materiel from falling in serviceable condition into British hands. For example, German vehicles used in the desert are equipped with demolition or incendiary bombs, and drivers are instructed to destroy their vehicles prior to capture. Similarly in a recent visit to the El Alamein battlefield, it was noted that captured Axis tanks, motor vehicles, artillery, and anti-tank guns in large numbers had been destroyed prior to capture.

GERMAN TACTICS IN NORTH AFRICA

A knowledge of German tactics and methods may serve the dual purpose of turning the lessons to good account both against the Germans and against the Japanese. It is already apparent that the latter have studied and applied German methods of warfare.

In the German offensive operations in North Africa which began on May 26, 1942, the main feature of the German tactical methods, as reported from British sources, were:

(1) Employment of practically the whole of the German forces on the same axis of attack and on a comparatively narrow front, followed by the Italian armored and mobile forces. Italian infantry divisions supported by a small number of tanks were used for diversionary operations. The principle of concentration of force at the decisive point was, as usual, given primary importance, and must always be expected of German commanders.

(2) A night approach march followed by a very rapid advance and direct attack by tanks, after short reconnaissance and preparation against any opposition encountered on the axis of advance.

(3) Forward deployment and offensive employment of all guns of all types, including 88-mm guns, in support of tank attacks and against British counterattacks. Reliable observers report that practically every vehicle, even staff cars, in the enemy's leading columns was towing a gun or a trailer. A senior British commander reports that the German column with which he spent 8 to 9 hours before escaping consisted of:

8 armored cars
6 tanks
two platoons of motorized infantry
4 105-mm guns
4 88-mm guns
12 50-mm antitank guns
12 37-mm antitank guns
4 assorted self-propelled guns.
All vehicles towed guns or trailers.

(4) The enemy was quick to cover his front with antitank guns when tanks were brought to a standstill or stopped to refuel, and to protect his flanks at all times with an antitank screen. A threat to the enemy's flanks by British tanks was immediately met by the deployment of antitank artillery, while the enemy tanks continued their movement. It was useless to expect that British tanks would not encounter strong antitank defense in any offensive movement. The enemy appeared to have a rapid "follow the leader" deployment drill, and a system of visual control by means of colored disk signals.

(5) The efficiency of the enemy's recovery, repair, and maintenance generally was evidenced by the speedy renewal of his offensive after his first effort had failed to achieve his object, and the maintenance of the offensive for so long and over such great distances. The tactical advantages derived from a highly efficient system of recovery, repair, and maintenance are obvious.

(6) Enemy control was quick and personal. When an objective had been captured, the next move followed without delay, and it was usually action by the whole available force, not by reconnaissance elements or detachments only. This was evidenced in the advance east after the capture of Bir Hacheim, and again after the capture of Tobruk.

(7) Defensive positions were reduced by concentrating against them in turn. This is obviously the way to deal with positions that are out of supporting distance of each other when the complementary armored formations, for which the defensive positions serve as pivots, have themselves been forced on the defensive. This is another example of the firm application of the principle of concentration.

(8) Every effort was invariably made to draw the fire of the defense, especially the fire of antitank weapons, by the deployment and advance of some tanks. The tanks which had advanced were then withdrawn, and the enemy concentrated his artillery and mortars on all the defenders' weapons that disclosed themselves. After a thorough preparation of this kind, the real tank attack was launched.

(9) A case has been reported of mine-lifting being carried out in the following way: detachments of tanks advanced to the edge of the minefield and engaged all of the defending weapons they could see. Engineers then debouched from the tanks and proceeded to clear mines on foot, covered by the fire of the tanks. Tanks that were hit were pulled out by other tanks and then replaced, or the whole detachment withdrew and renewed its activities at another point. (Offensive use of small arms is the obvious answer.)

(10) Officers who have been in enemy hands, and enemy prisoners, report that ground-strafing aircraft were always engaged with intensive fire from every available small-arms weapon, including rifles. No one who was armed "went to ground" on such occasions.

GERMAN TELLERMINES

Land mines are not a new development, but their use in astronomical numbers, as in recent campaigns, is new to this war. The mine is normally associated with war at sea. But the pre-eminence of the tank, or "land battleship," in battles on land has emphasized the importance of the land mine and made its use mandatory around any well-defended position. Among the most widely used antitank mines is the German Tellermine. The four known models of this mine are described below.

a. Tellermine No. 1

The 1935 model or Tellermine No. 1 is circular in plan with a diameter of 12 3/4 inches. It has a convex top, a flat bottom, and a maximum height of 3 1/4 inches. The total weight of the mine is 19 1/4 pounds. In a fully armed condition the mine is equipped with a main pressure igniter in the center of the top cover, and one or two standard pull igniters in its base as secondary firing devices. The principal features of this mine are shown in the accompanying sketches (figure 1). The body of the mine is a circular metal box (1) with a dome-shaped top surface containing 11 pounds of high-grade pressed TNT. A "floating" cover (2) is held down by a heavy metal ring (3) attached to the body and is supported in the center by a heavy spring (4). The spring fits into and bears on a metal fitting (5) which fits into the top of the body. The fitting also acts as a receiver for the detonator (6). Directly above the detonator are the two metal collars (7) and (8) (which screw into a recess in the fitting), a compressible rubber ring (9), and the igniter (10). The lower collar (7) is a retaining collar for the detonator; the upper collar (8) is an adjusting or positioning collar for the igniter. The compressible rubber ring serves as a cushioned seat for the bottom of the igniter. The upper collar is screwed into the proper position in the fitting by means of a special tool. The small, headless set-screw (11) holds the collar (8) in position. The igniter is screwed into the mine cover (2) until it bears firmly on the rubber washer (12) and the rubber ring (9). The body of the mine has two receptacles (13) and (14), threaded to receive secondary firing devices. One receptacle is usually located in the side of the body opposite the handle, and the other in the bottom between the handle and the center of the mine. The mine has a metal carrying handle (15). A rubber strip (16) seals the junction between the cover and the body of the mine against the entry of water and dirt. The washer (12) seals the joint between the igniter and the cover.

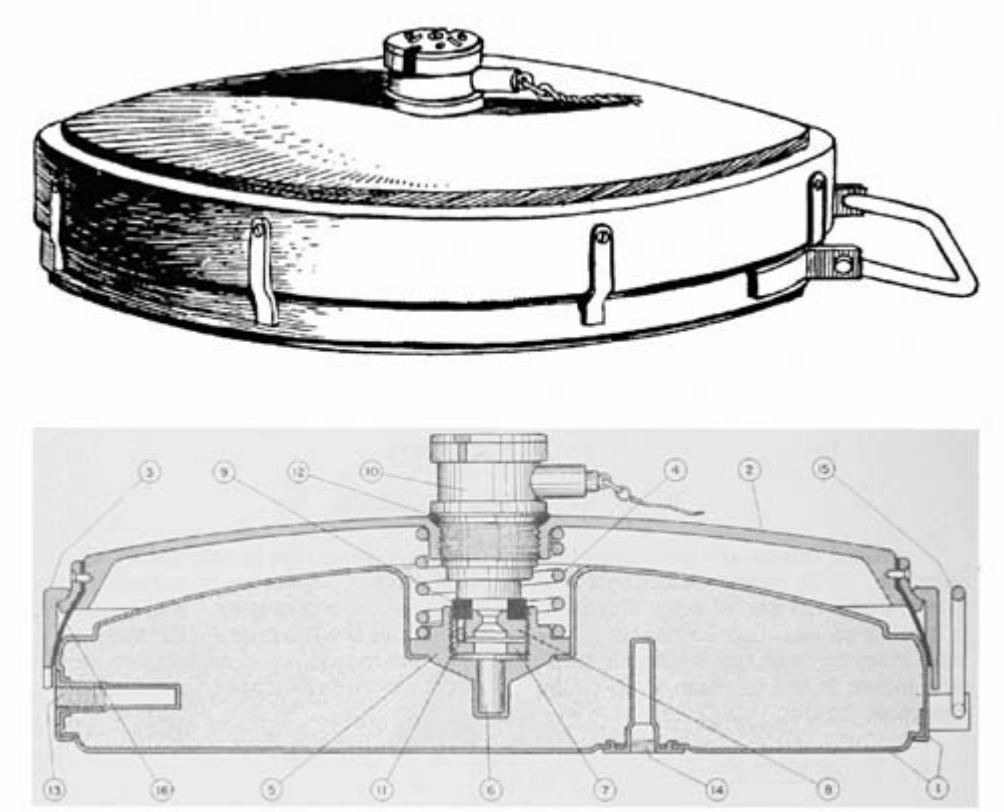


FIG. 1

b. Tellermine No. 2

This mine thought to be the 1942 model, is similar in size to the 1935 model or Tellermine No. 1. Its main dimensions are:

Maximum diameter (at base)	12.75 in
Maximum height	4.1 in
Diameter of pressure plate	5.7 in
Total weight of mine (filled)	19.3 lb
Weight of filling (TNT plus three penthrite detonating charges)	12.0 lb

The mine consists of a body (1) (see figure 2) fitted to a circular base plate (2). The base plate is turned over along its edge to make a press fit over the flange of the body as indicated at (3). A carrying handle (5) is attached by means of a T-strip (4) which is welded to the body.

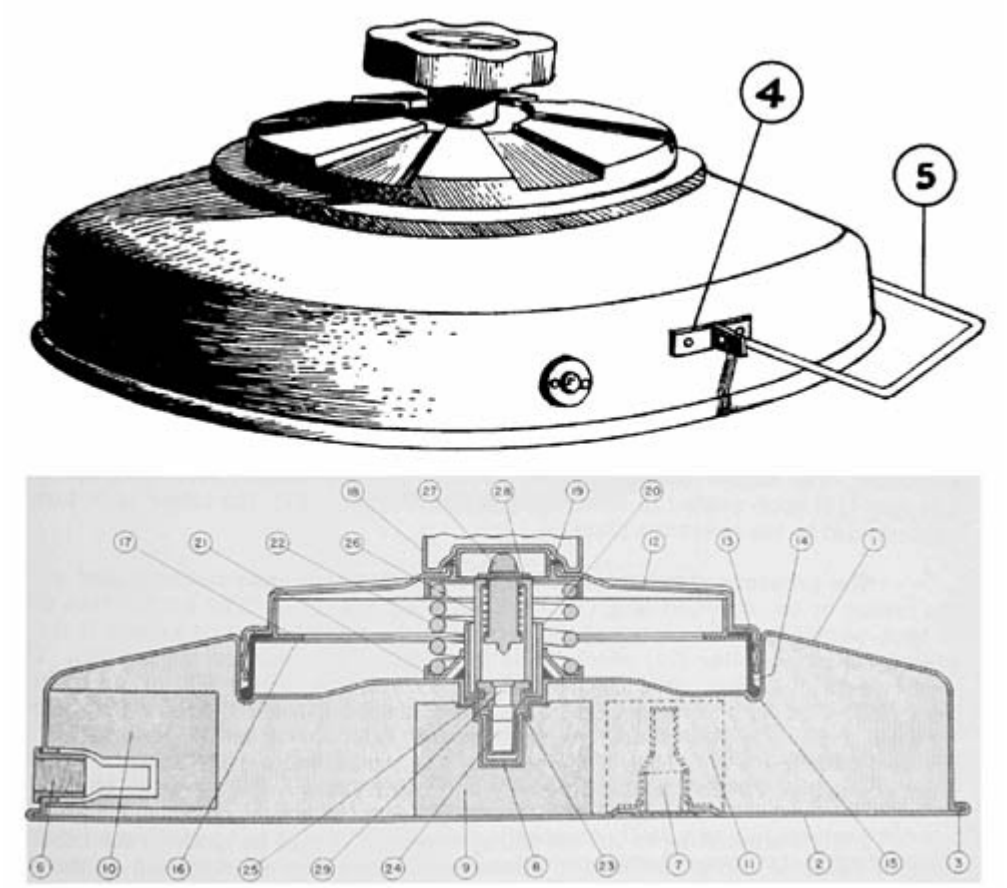


FIG. 2

The mine is fitted to take two additional igniters. One is located in the side of the mine 4 inches from the handle at (6), and the other is in the base of the mine at (7). The pocket or receptacle (8) for the main detonator protrudes into the mine filling, and is surrounded by a cylindrical penthrite detonating charge (9). Cylindrical penthrite detonating charges (10) and (11) also surround the screwed-in pockets for the additional igniters. The details of these detonating charges are as follows:

Detonating Charge at	Length	Diameter	Weight
(9)	1.6 in	2.38 in	0.36 lbs
(10)	2.3 in	1.6 in	0.25 lbs
(11)	1.6 in	1.6 in	0.11 lbs

The pocket or receptacle for the base igniter (7) is fastened to the circular base plate (2), its center being 2 1/4 inches from the center of the base plate. The base plate is pressed on and crimped to the circular body (1) without regard to maintaining a fixed position for the base igniter relative to the main igniter-detonator assembly. As a result, the base igniter may lie with its center at any point on the perimeter of a circle with a radius of 2 1/4 inches from the center of the base plate (i.e., also from the center of the main igniter-detonator assembly). This should always be borne in mind in searching for the position of the base igniter. The pressure plate (12) is held in the body by means of the collar (13), which is a spring fitted into the recess. The pressure plate has a rubber skirt (14) which fits into the depression (15), so that when assembled the operating mechanism under the pressure plate is protected from the entrance of dust and moisture. The rubber is held between the rim of the pressure plate (12) and the flat ring (16) spot-welded in several places to the ring (17); the latter is in turn spot-welded to the pressure plate.

The pressure plate is shaped to prevent local collapse and is closed at the center by the screwed plug (18) with a rubber seal (19). The igniter tube (20) is spot-welded into the center of the recess in the mine body, and around it is placed the loose collar (21) which holds in position the pressure spring (22). The screwed collar (23) secures the detonator (24) to the base plug (25) of the igniter body (26). The igniter mechanism consists of a spring-loaded striker (27) held by a shear pin (28). Pressure on the pressure plate, acting on the head of the striker, causes the shearing of the pin (28) and the release of the striker. This fires the cap (29) which in turn fires the detonator (24).

Before attempting to lift the mine, a search should be made around the edge of the mine and in the base to discover the presence of additional igniters. If any are found they should be neutralized and the attached wires cut. The screwed plug (18), when unscrewed, can be removed, thus revealing the igniter below. When the igniter is lifted out, the mine is disarmed since the detonator is attached to the igniter. The additional igniters should then be unscrewed, and the detonators below them removed.

c. Tellermine No. 3

A third type of German Tellermine has been reported (see figure 3). This mine is 12 1/2 inches in diameter, with a maximum height of 3 3/8 inches. It has a total weight of 21 pounds and is painted a matte gray. It has the following markings:

On the top, in white paint	T. Mi S31 Tvii. 2.42
On the top, in black paint	S 88 12 42A.
Stamped on the top	WO 42

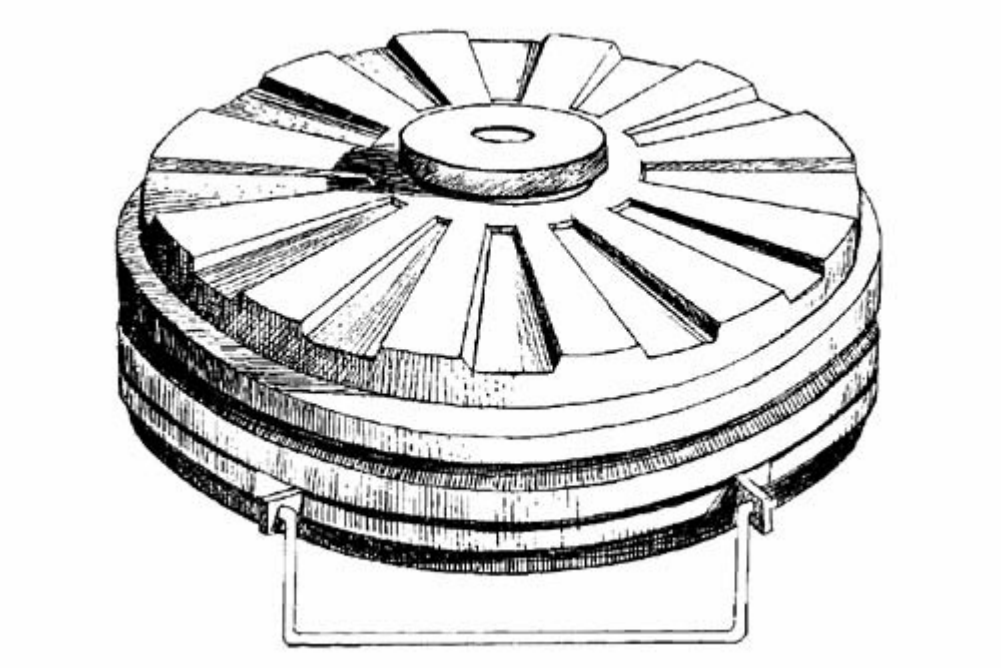


FIG. 3

In this model, the pressure plate extends over the entire top of the mine, and is fluted or grooved, probably to prevent sand being blown off when the mine is buried. In the center of the pressure plate is a threaded socket, closed by a screwed plug with, a milled head. This socket will take the standard brass igniter assembly as used with Tellermine No. 1 but the mine can also be used with igniter assembly of Tellermine No. 2, the igniter being inserted through the central socket and the screwed plug then replaced. Both types of igniters

have been found in the field. The subsidiary igniter sockets are located on the bottom and side of the mine in the same places as in Tellermine No. 1.

d. Tellermine No. 4

The details of a fourth type of German Tellermine have recently become available. Tellermine No. 4 is circular in plan (see figure 4) with a diameter of 12.25 inches and over-all height of 3.4 inches. The base is flat and the cover slightly dome-shaped. The total weight of the mine is approximately 18 pounds. The mine is painted field gray, and the pressure plate black. Stencilled on the top of the mine in white is: "T. - Mi. - Pilz 43/T. - Mi. - Z42 13A"

There are two screwed holes for additional igniters, one in the side of the mine 4 inches from the carrying handle, and the other in the base, offset from the center--as in Tellermine No. 2. It has been reported that this mine has also been found with the holes for additional igniters located in the side of the mine opposite the handle and in the base between the handle and the center--as in Teller mines Nos. 1 and 3.

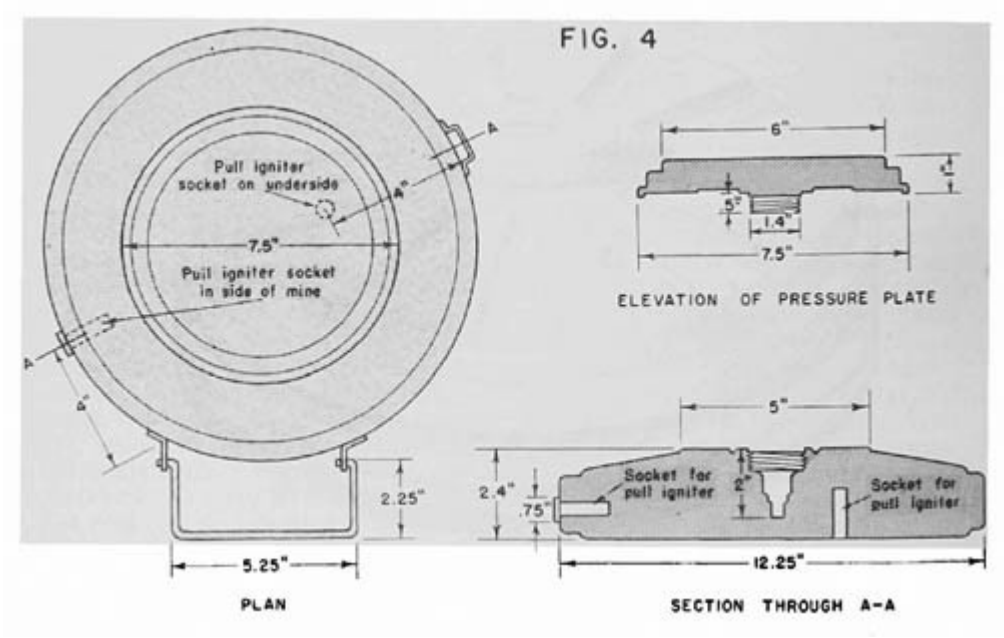


FIG. 4

The pressure plate is a flat metal plate 7 1/2 inches in diameter, which screws complete into the central socket over the normal Tellermine No. 2 igniter. Neither the pressure plate nor the body of the mine is fluted.

The mine functions when pressure on the pressure plate causes the latter to descend and shear the igniter shear pin, thus releasing the spring-loaded striker.

To neutralize this mine the sides and bottom of the mine should first be examined. If additional igniters are found, they should be neutralized. The pressure plate should then be unscrewed and the igniter removed.

e. Comparison

The pressure plates on Tellermines No. 1 and No. 3 extend over the entire top of the mines, but the pressure plates on Tellermines No. 2 and No. 4 cover only the center portion of the mine. Accordingly a tank might pass over the edge

or rim of Tellermines No. 2 and No. 4 without detonating the mines, whereas the same load passing over the edge or rim of Tellermines No. 1 and No. 3 would detonate the mine. It is possible for a spread-out load of fairly low intensity covering the whole top of Tellermines No. 1 and No. 3 to detonate them, while a more heavy, concentrated load is necessary to detonate Tellermines No. 2 and No. 4.

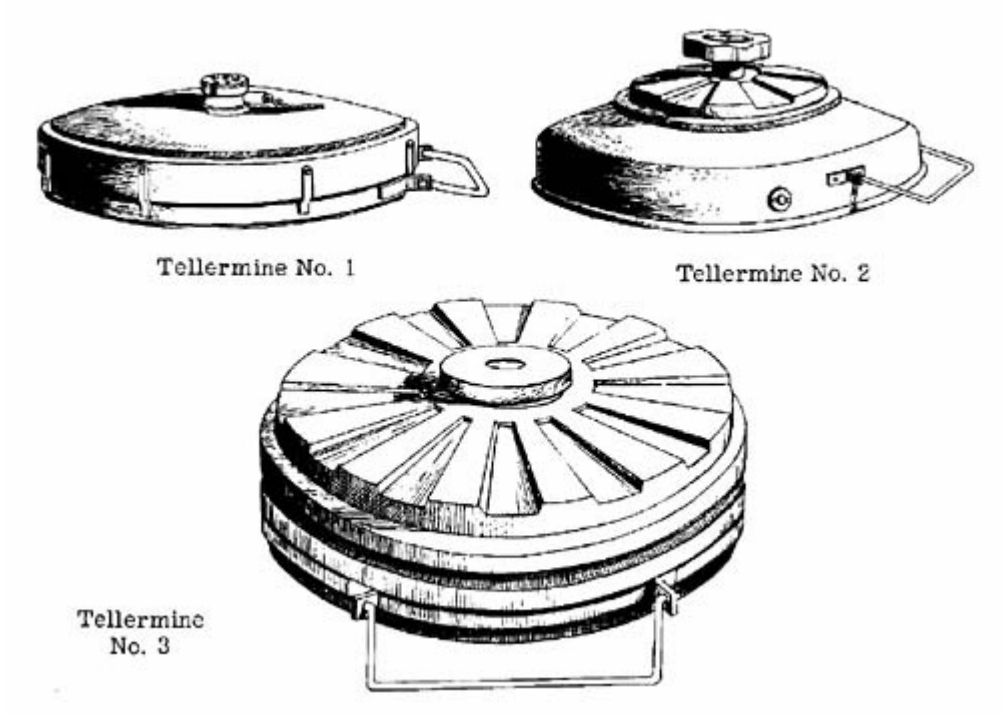


Fig. X

The pressure plates on Tellermines No. 2 and No. 3 are fluted or grooved, but the pressure plates on Tellermines No. 1 and No. 4 are smooth.

In Tellermine No. 4, by adopting a simpler form of pressure plate and utilizing the simple igniter found in Tellermines No. 2 and No. 3, the considerable production difficulties, which were entailed in the manufacture of Tellermine No. 1, particularly its T. Mi. Z35 igniter, have now been largely overcome.

GERMAN WIRE COMMUNICATION IN NORTH AFRICA

The following report was made after observation and inspection of the system of wire nets used by the Germans in North Africa.

a. General

The German use of wire communication is very flexible, and the extent of use varies according to the time available, conditions, and the tactical situation.

At periods when the troops are not engaged in active operations, a complete wire net is laid, and radio is used only by forward patrols and as an emergency means in case of interruptions and excess traffic over the wires.

Wire is not used as a means of communication during periods of inactive operations when mounted messengers are available. In forward areas, the Germans take every precaution against interruption of messages sent over the wire nets.

It is definitely known that in at least one German battalion, the orders issued to it specified that operational traffic was to be sent by telephone or telegraph until the latest possible moment: i.e., until the lines were cut by enemy action, and only then was radio to be used.

The following notes concern the wire network of the German Afrika Korps from June to October 1941. During this period there were no important operations; hence, what follows probably shows the fullest extent to which wire has been used in Africa by the Germans.

b. Wire Nets

The wire nets for a large unit like the Afrika Korps may be divided into four classes.

(1) Local lines to the individual staff officers, corps headquarters, and communications personnel.

(2) Lines direct to lower units, corps troops, corps artillery etc., which are controlled directly by corps headquarters.

(3) Lines to the main units (divisions) under the command of the corps headquarters. These units themselves had large switchboards, through which corps headquarters could communicate directly with the regiments and battalions of the particular division.

(4) Lines to large centrals at fixed geographical points, such as Capuzzo, Gambut, and Gazala. These centrals were not in any unit headquarters, but provided a medium whereby corps headquarters could contact organizations not directly connected with it.

It must be noted, however, that there is no very clear distinction between (3) and (4) above. There are frequent instances of division switchboards acting as intermediaries between corps headquarters and non-corps divisions, or even of fixed centrals doing this, in addition to their normal function as the central exchange for their own regiments. Thus, in July and early August, the Trento Division switchboard carried the Afrika Korps communications to the Afrika Korps headquarters' switchboard at Gambut and Acroma, and to other Italian divisions such as the Brescia and Pavia (none of the Italian divisions belonged to the

Afrika Korps.) In June, the Afrika Korps actually had no direct wire to the German divisions under its command. These were contacted through the Trento switchboard. Similarly, in September, the Bologna Division had nearly all the German heavy artillery units as subscribers, while at the same time the Afrika Korps headquarters' switchboard provided wire to the XXI Italian Army Corps, the Brescia and Littorio Divisions, and fixed centrals at Acroma and Gazala.

Furthermore, no distinction is made in the circuit diagrams between unit switchboards and fixed centrals.

Another interesting fact about the function of unit switchboards is that comparatively minor units frequently had more important units as subscribers. In August, for example, in the 15th Armored Division's wire net, the 1st Battalion, 33d Flak Regiment was the central for both the 15th Motorcycle Battalion and the 104th Motorized Infantry Regiment.

c. Extent of Afrika Korps Wire Communications

The comprehensive wire net developed after a period of static warfare can be shown by taking each of the four categories separately.

(1) Local Switchboard

In July there were some 21 lines from the Afrika Korps staff switchboard. The subscribers were either individual staff officers, or the officers of the various sections of the staff. Five or six additional lines were used for communications personnel (wire maintenance sections, etc.).

(2) Lines Direct to Corps Switchboards

The number of these lines varied according to circumstances. At one period in December, the Afrika Korps seems to have been acting as a fixed exchange for the Italian division at Bardia, and this involved a number of extra lines to installations and detachments. Normally, however, there were about six of these lines, and the units served were AA batteries protecting the headquarters, corps signal battalion, the intercept company, the air cooperation headquarters, and at some periods a reconnaissance unit and an airfield.

(3) Lines to Unit Switchboards

These lines again varied considerably. In June, 1941 the Afrika Korps had no direct lines to its own divisions. Instead, these were contacted through the Italian Trento Division. In October, there were direct lines to switchboards of all three German divisions, and the corps headquarters, while all Italians units were contacted through fixed centrals.

(4) Lines to Fixed Centrals

Early in the period the Trento Division acted as the most important fixed central in the network, and the corps had direct lines also to central exchanges at Gazala and Acroma. During July and early August, the Trento Division and Capuzzo were the only centrals (apart from those of the German divisions) to which the Afrika Korps was directly linked. In mid-August the Bologna Division took over the complete role of the Trento Division. But in September and October, Afrika Korps had direct lines to two fixed centrals, Gambut and Capuzzo, which acted as intermediaries to all units not on the German division exchanges. These centrals correspond with the "North" and "South" sectors into which the Germans divided their main defensive area.

In the final stage of development of this network, after 3 months of position warfare, Afrika Korps had local lines for its various staff sections and staff officers, direct lines to six or seven corps troops units, lines to the switchboard of the corps headquarters, and of all three German divisions, whence lower echelons and units could be called, and finally lines to two large fixed centrals at Gambut and Capuzzo through which they could contact the main Italian units, smaller fixed exchanges, and other German units not covered by the corps wire net.

d. Divisional Wire System

A similar development is shown by the circuit diagram of the 15th Armored Division for the same period. There was a staff switchboard with up to 20 lines: direct lines to small units (AA, communication, medical companies, etc.); lines to main units, whence smaller organic units could be contacted; and lines to main exchanges like the Afrika Korps, or to Gambut for rear and lateral communications.

e. Subsequent Examples

Another circuit diagram showing the communications of the 155th Light Infantry Regiment from April 20, 1942 is interesting as an example of the German wire system.

The Afrika Korps had moved shortly before the date mentioned above, and from the new position had communications only with the 15th Armored Division, 109th Motorized Infantry Regiment, and an Italian division. The old switchboard had not been moved, and was connected to the new one through a fixed central. This central and the old corps switchboard together provided the new installation with a means of communicating to the 21st Armored Division and other units.

The 90th Light Division, the unit to which the 155th Light Infantry Regiment was attached, had communication to the rear only to the XXI Italian Army Corps, to which command it was at this time attached. No lines to the front were shown from the 90th Division, and a radio net including the 155th Light Infantry Regiment is shown on this circuit diagram.

The 155th Light Infantry Regiment was amply supplied with forward wire lines, but had none to the rear except indirectly via a battery of the 611th Antiaircraft Battalion to the 104th Motorized Infantry Regiment, and thence to the Afrika Korps. The 155th Light Infantry Regiment had the following wire circuits:

(1) A staff switchboard with lines for the regimental commander, adjutant, signal detachment, observation post, etc;

(2) Lines from the switchboard terminating at telephones to the supporting artillery troops and antitank units;

(3) Lines to switchboards running to the two battalions of the regiment simplexed for telegraph.

The battalions had their own local staff lines and lines direct to company headquarters.

f. Forward Wire Communications - Infantry Battalion

Two circuit diagrams of the 1st Battalion, 115th Motorized Infantry Regiment, dated May 27 and June 16, 1941, respectively, show the wire net of an infantry battalion in the front line in Libya.

The earlier diagram shows rear and lateral lines from battalion headquarters to regimental headquarters, a neighboring battalion, and an artillery battery. On the later diagram there is an additional line to the 2d Battalion, 115th Motorized Infantry Regiment. On both dates, the line to regimental headquarters was simplexed for telegraph.

Communications within the battalion were, at the earlier date, as follows: lines from battalion headquarters to 1 and 3 Companies, and radio communication to 2 Company. Both 1 and 3 Companies had lines to 2 Company, and each company had a line to an attached mortar Or machine-gun section. In addition, battalion headquarters had lines to two observation posts manned by elements of the heavy weapons company, and from one of these, there was a line to a platoon of the cannon company.

By June 16, the three companies had been compressed to two, a "Left" Company and a "Right" Company, each with one platoon in front. Lines to platoons and sections of the heavy weapons company no longer went back from company headquarters, but forward from rear observation posts, and an additional line was provided from battalion headquarters to an engineer platoon. The radio net from battalion headquarters to 2 Company was no longer shown.

The 33d Artillery Regiment's wire communications were shown in a circuit diagram to be as follows:

(1) A switchboard with a line back to division headquarters, and local lines to the staff officers;

(2) A second switchboard with lines to each of the three battalions and to the observation posts.

Radio was used for communication between command vehicles of the regiment, and the battalion commanders and observation officers in tank-supporting artillery units; wire cannot be used for these purposes

INTELLIGENCE FROM GERMAN PRISONERS OF WAR

The following article on methods of dealing with German prisoners of war consists of excerpts taken from a personal letter written by a British Intelligence Officer in the North African desert. This officer's notes are based on his work at headquarters of the British XXX Corps during the winter campaign of 1941-1942. A few changes have been made in unfamiliar British military terminology, but otherwise the excerpts are presented verbatim.

Of particular interest both to U.S. Intelligence officers and to any U.S. soldiers who may be taken prisoner are the illustrations of the tremendous amount of information which is unintentionally divulged by prisoners of war.

"In static warfare evacuation of PW [prisoners of war] was easy, because they went back through the normal supply channels to the cage and thence to railhead. The great advantage was that they could be intercepted at any point, and there was always a little transport to spare for carting around a few who were specially interesting.

"In the armored battle, when movement was generally very rapid, it was impossible to arrange anything cut and dried. Interrogation could not be done forward of the FMCs [field maintenance centers] because IO [intelligence officers] at Div Hq and below were much too busy with other duties. My own view it that a second IO is essential at Hq of an Armd Div.

"The shortage of tactical interrogators is very marked. The cages at FMCs and railhead were manned almost entirely by CSDIC [sic] personnel. This is not satisfactory, except in a few cases, because CSDIC people know nothing about tactics, and, with respect, nothing about tactical interrogation either. It is essential to have interrogators who can do the job without calling in gunners, etc., to be present at the interrogation and telling them what questions to ask. The idea that interrogators need not be soldiers should be buried forever.

"Arrangements for interrogation were haphazard. Sometimes a tent was provided for the interrogators at the cage, sometimes nothing. Some form of cover is essential at the cage even in mobile warfare, and in a campaign like this where two foreign languages are involved, the arrangements should be duplicated. It would be a great help if each pair of interrogators could have one car, driven by a batman-driver; this car should be of the Humber staff-car type with an office table in place of the rear seat. A typewriter is an enormous asset.

"During the armored battle, liaison with interrogators was almost non-existent (a) because the intelligence staffs of higher echelons were too busy with other jobs, and (b) because there was no direct means of communication. During the static operations, it was very good, because (a) intelligence staffs had more time; (b) the FMC, though not the cage itself, was on the end of a line, and we put the interrogators in the picture at least once a day; and (c) we sent the interrogators our intelligence summaries daily. Results in this case were first-rate, and each day we gave the interrogators a list of the points which were of most immediate interest.

"The technique of tactical interrogation as taught at X [in England] seems to me, if I may say so, to be excellent. German PW have run true to form. They nearly always respond (a) to someone who shouts at them, and (b) to show of knowledge. Many of them are comparatively secure about tactical information, but most of them will at least admit their units.

"The 'show of knowledge' worked with one Pionier, who unlike most of his countrymen had no Soldbuch [paybook] and no Erkennungsmarke [identification tag] . He refused to give his unit and was asked 'You don't imagine that we don't know what German sapper units are in Libya?' - he said 'Yes, I do', but gave the name of his unit straight away as soon as the list of sapper units was reeled off to him.

"Other points which I have had a chance of verifying or discovering are (a) Never ask a leading question, (b) Don't ask too many questions one on top of the other, (c) If the PW doesn't answer a question immediately, always leave a longer pause than you think necessary; he usually says something in the end which will help the interrogation even if it doesn't give you any information, (d) Don't expect too much from interrogation. Training courses inevitably present interrogation as something a little spectacular. If a chap does produce a spectacular piece of information, go to great pains to check it; for this purpose it sometimes helps to deny what he says, so that he is obliged to give the reason why he knows, (e) Maps: out here at any rate it is practically useless to show a prisoner a map. The Germans apparently make little use of them; an Obergefreiter never has anything to do with one. If a PW starts to point out a route or a position on a map, he nearly always gets the scale wrong. It is best for the interrogator to have the map or the air photograph and to take some well-known reference point and then say 'You are standing here with your back to so-and-so. Now what do you see?' It is most important to cross-check any estimate of distance that a PW gives.

"I have held two parades of German PW, one of 16 men, and the other of 95. The words of command taught at X worked very well, and so did the idea of calling out the senior NCO and making him do the work. Here again a show of knowledge and authority helped a great deal. It was a good scheme to line them all up, tell them to place all their belongings on the ground in front of them and hold ready their Soldbuch and Erkennungsmarke. On the first occasion the old trick worked of saying 'Everybody in the 104 Lorried Inf Regt fall in over there'; on the other, after the fall of Bardia, I told the senior NCO, that rare specimen, a Hauptfeldwebel, to fall in the 95 other chaps according to units and, to my great surprise, he did it like a lamb.

"The Soldbuch was on the familiar pattern. Very occasionally a PW said he had handed it to the company office, and sometimes pages 3 and 4 were torn out. But practically always it gave the necessary information. All officers carried Soldbücher.

"During the operations at Bardia, Salum, and Halfaya, many PW did not carry paybooks. These had been taken away and kept with the Wehrpass at the company office, where, in many cases, they were duly found later on. Instead of a Soldbuch, PW carried a temporary certificate of identity giving the following particulars:

Rank, Christian name, Surname,
Date and place of birth,
Home address,
Date of arrival in Africa.

"The certificate was signed by the company commander and was stamped with the field post number. Identification was therefore possible in most cases.

"The certificate was typed on any piece of paper. When folded it was much the same size as a Soldbuch. A facsimile is reproduced below. Occasionally particulars of pay were entered on the back of the certificate, and in these cases the company commander's signature and field post number were repeated.

Vorlaufiger Personal-Ausweis.

Inhaber ist der _____

(Dienstgrad, Name, Zuname)

geb am _____

wohnhaft in _____

(written in) Am . . . . . auf afrikanischem Boden eingetroffen

(Official stamp) . . . . . .

(Unterschrift)

"Erkennungsmarken were of three kinds (1) showing the man's present unit - this was comparatively rare, (2) showing the man's ersatz unit - this was the most common, (3) giving a number, usually so far as I remember of five digits but not the field post number - this is evidently a new kind; very few PW have it.

"The field post number was invaluable as a means of identification. From quite early on, Army compiled a fairly extensive list, and this must have been of great help to regular interrogators. I think that in the first few days of a campaign it is most important that field post numbers should be reported with identifications.

"Documents were almost fantastic in their quantity and their value to us. Examples are (a) the capture by 30 Corps on D2 of a map showing the dispositions of all German units before D1; (b) the capture by 13 Corps of a valuable operation order, and (c) by far the biggest capture, the complete signals office of 21 Pz Div during the first week of the offensive. Minor examples are legion: war diaries, code names, photographs showing new weapons, training pamphlets, intelligence summaries, personal diaries, casualty returns and so on. Two things stand out from the IOs point of view; he must know Schrift as well as possible, and he should have a very good knowledge of German conventional signs; the Germans use them for marked maps, orders of battle, operation orders and vehicle markings, in fact wherever possible. If an IO knows them by heart he will save himself an immense amount of time.

"Out here almost all the organizations have something peculiar about them; but a knowledge of the normal organization helps a lot. I believe that it would be a good aim to have everyone leaving X knowing the organization of the German Inf and Armored Divs backwards. An IO who knows his way about enemy weapons is invaluable.

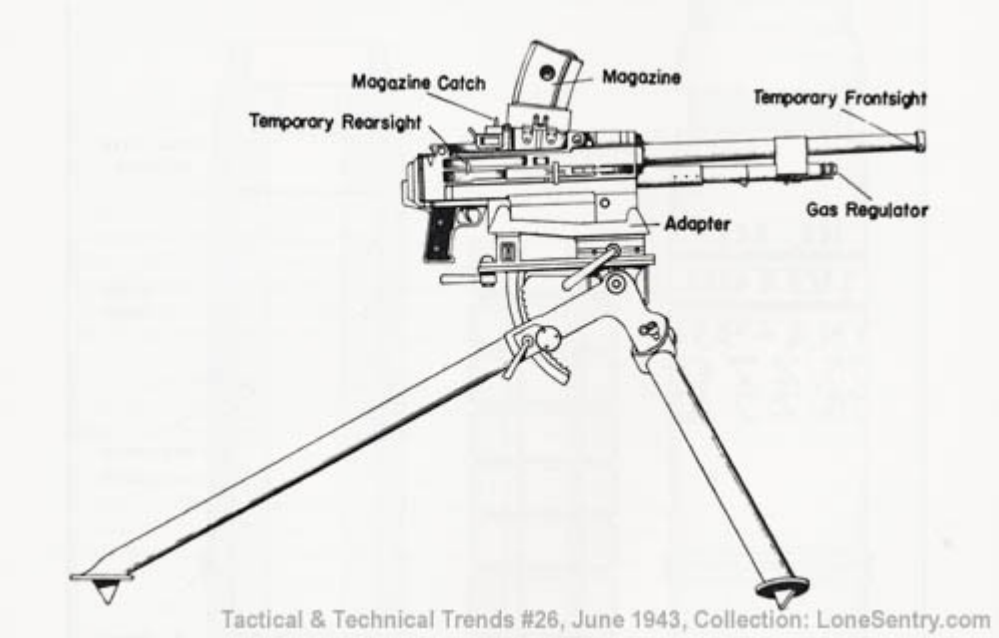
ITALIAN 8-MM BREDA MEDIUM MACHINE GUN, MODEL 38*

This weapon is a tank-pattern machine gun, and is fitted as standard in the following Italian tanks: the 6 1/2-ton Light (1940), the 11-ton Medium (1939), and the 13-ton Medium (1940).

The Italians have also adapted it for use as an infantry machine gun. For this purpose the gun is mounted on a machine-gun tripod (as shown in an accompanying sketch) by means of an adapter, and is fitted with a temporary rear sight on the right of the body and a temporary front sight on the right of the barrel at the muzzle. These temporary open sights take the place of the optical sight used when the gun is tank-mounted.

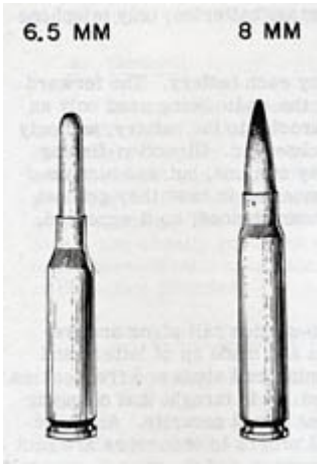
The gun is also sometimes fitted with a "cartwheel"-type AA sight and arranged either alone or with another "twin" gun on an AA mounting.

The gun is air-cooled, gas-operated, and magazine-fed, and has a quick-change barrel. Its operational features are simple, and it is extremely easy to field-strip or disassemble completely. The barrel is sufficiently heavy (9 7/8 pounds) to enable it to fire a large number of rounds in quick succession without overheating.



The following are some of the characteristics of this weapon:

Weight of gun	33 7/8 lbs
Weight of barrel	9 7/8 lbs
Length of gun (over all)	35 1/2 in
Length of barrel	23 in
Feeding device	24-round vertical box magazine
Maximum (cyclic) rate of fire**	600 rpm
System of operation	Gas piston
Rifling - uniform, RH twist	Concentric
No. of grooves	4
Cooling system	Air



With ball ammunition, the maximum accuracy range is 800 to 1,000 yards, and the muzzle velocity is estimated to be about 2,600 feet per second. In addition to ball, the following types of ammunition are known to exist:

Armor-piercing	Green tipped
Armor-piercing tracer	Red tipped
Incendiary	Blue tipped
Tracer	Red or green tipped

It is believed that this ammunition can be used only in automatic weapons. Of the various standard Italian automatic weapons, in addition to this Breda 38, two other 8-mm medium machine guns, the model 35 Fiat (Revelli) and the model 37 Breda***, are known to use this 8-mm ammunition. The ammunition cannot be used in the standard Italian infantry rifle, carbine, and light machine guns, the caliber of which is 6.5 mm, nor can it be used in the Italian 7.35-mm Breda 38 light machine gun**** or the German 7.92-mm weapons. For a comparison of the external appearance of the 8-mm and 6.5-mm ammunition, see accompanying sketch.

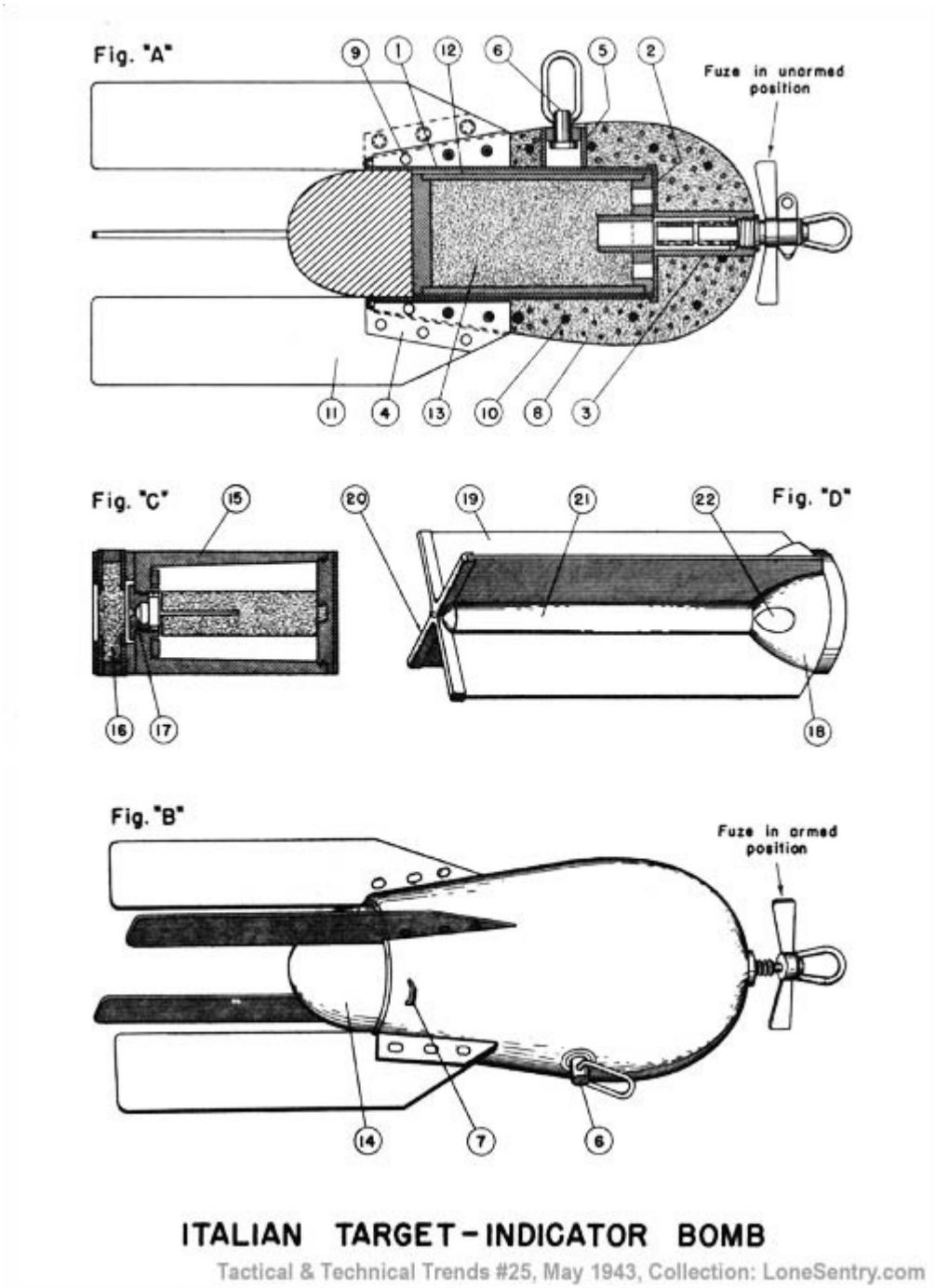
* Extracted from a recent Aberdeen Proving Ground report.
** This information has not been checked by U.S. test.
*** See Tactical and Technical Trends, No. 23, p. 25 for a description of this gun.
**** This weapon has not been encountered in combat.

ITALIAN 5-KILOGRAM TARGET-INDICATOR BOMB

The report on this particular type of bomb, known by the Italian name of bomba vento, gives the following dimensions:

Total weight	11.5 lbs (approx)
Over-all length (without fuze)	15.2 in
Over-all length (with fuze)	17.4 in
Length of body	8.9 in
Length of tail	9.2 in
Maximum diameter of body	5.2 in
Diameter of tail	7.0 in

The bomb is formed on a thin, sheet-metal cylinder (1) - see figure A - 6.7 inches in length and with a diameter of 3.1 inches. The lower end is closed by a thin steel disk (2) which has a central hole 0.9 inch in diameter. The fuze tube (3) is fitted over this hole and pressed into the disk (2). The four supports (4) for the vanes are spot-welded to the side of the cylinder. The short tube (5), 1 inch long and threaded at its outer end to receive the suspension lug (6), is also spot-welded to the cylinder (1). (For vertical suspension the lug in the fuze is used.) Four additional short tubes of small diameter are welded over four corresponding holes near the open end of the cylinder. One pair of these short tubes, which are 0.9 inch apart, lies symetrically between two vanes, and the other pair directly opposite between the other pair of vanes. They are intended as guides for the wire*(7) (see figure B). The bomb body (8) consists of hard concrete in which steel pellets are embedded. Two sets of spiral reinforcing are provided. Three turns of wire (approximately 16 standard wire gauge) are wound clear of the cylinder (1) near the open end. The wire passes through holes (9) in its vane-supports (4) and is welded at its end to the cylinder. Five turns of heavier reinforcing (about 8 standard wire gauge) are wound as shown at (10). This wire is welded to the cylinder (1) at one end and to the tube (3) at the other.



ITALIAN TARGET-INDICATOR BOMB

Tactical & Technical Trends #25, May 1943, Collection: LoneSentry.com

The vanes (11) are made of aluminum alloy and are riveted to the supports (14).

The cylinder contains the bomb filling, which may consist of a cardboard tube (12) filled with a smoke composition (13). The cylinder is closed by a cork plug (14, in figure B) held in position by the wire (7). The smoke composition is labelled Luce e Fumo Bianco, which indicates that a flash as well as a white smoke is emitted from the bomb.

An alternative filling which has been found consists of a 1-kilogram incendiary bomb (15, in figure C) with a black-powder charge (16) placed between it and the fuze when assembled in the vento bomb. When so employed, the incendiary bomb has the usual transit plug (21) drilled to take the flash from the charge (16).

An alternative tail has been recovered in which the cork plug (14) is not used to close the bomb, but instead a wooden plug of the shape shown at (16) figure D performs the double function of closing the bomb and supporting the vanes. These latter, shown at (17), are 8.7 by 2.6 in. and made of three-ply wood. They are inserted in slots in the plug (16) and are strengthened by a metal binding (18) and by four level strips (19) running the whole length of the vanes. There are four holes (20) passing through the plug located halfway between each pair of vanes. The plug (16) is attached to the bomb by four nails inserted through the concrete body. The fuze employed in this bomb is type S.

From specimens examined it would appear that the concrete bombs, which are fitted with wooden tails, have no fuzing arrangement. In one case, there was no metal cylinder (1) or fuze tube (3). A single suspension lug was cast in the bomb at the nose. It is thought that these may be the Italian practice bomb, Bomba 5E.

It is learned from Italian sources that the vento (wind) bomb is designed to be used in conjunction with the 500-kilogram gas bomb (Bomba 500 0). The purpose of the bomb when dropped is to indicate the force and direction of the wind at ground level. The former is estimated from the angle the smoke makes with the ground, and the latter from the direction of the smoke trail.

During the day, the "smoke" filling is used, while as an alternative at night, the incendiary filling would be effective.

*i.e., to provide a passageway through the concrete body of the bomb for the wire.

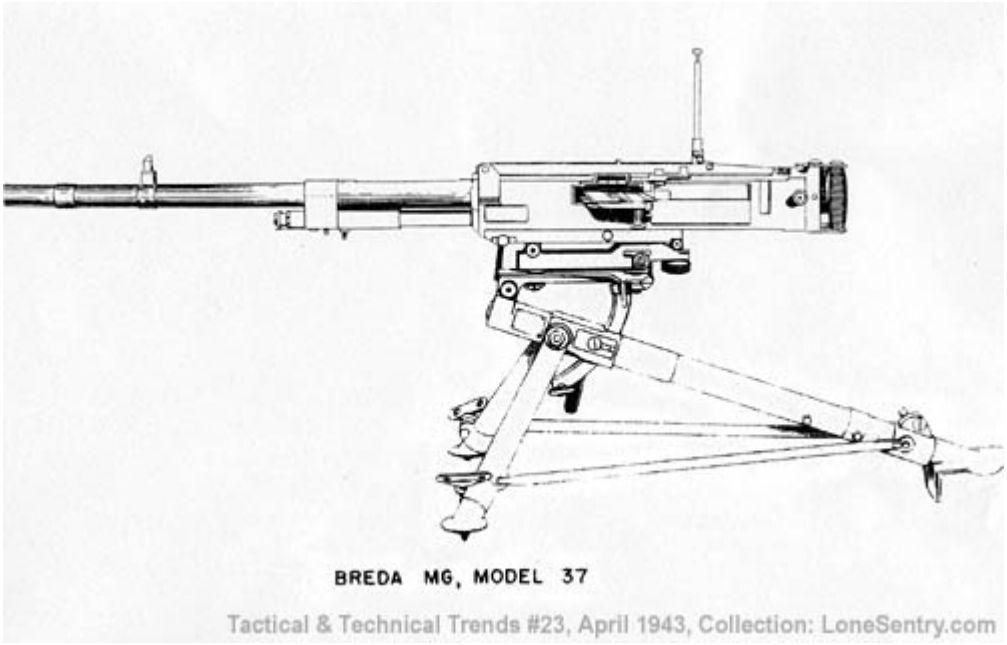
ITALIAN 8-MM BREDA MEDIUM MACHINE GUN, MODEL 37

a. General

This machine gun is not dissimilar to the French Hotchkiss, with the exception of the thumb trigger, like the British Vickers. From the following report, prepared at the Aberdeen Proving Ground, it appears to be an excellent gun.

The gun is gas-operated, air-cooled and has a quick-change barrel. The cartridges are fed from plate chargers holding 20 rounds, each round being housed in a separate compartment (see sketch). After firing, the empty cases, instead of being ejected, are replaced in the compartment of the plate charger.

The gun uses ammunition very similar to our own with the exception of the case which is shorter and the caliber which is .015 of an inch larger. It is made in ball, tracer, and incendiary tracer armorpiercing. The German 7.92-mm ammunition can also be used.



b. Description

Following are characteristics of this gun:

Caliber	8 mm (.315 in)
Weight	44 pounds
Length over-all	50 in
Weight of barrel, complete	17-3/4 pounds
Length of barrel, complete	33-1/4 in
Rifling	4 lands, right hand twist
Rear Sight:	
Elevation	300 to 3,000 meters
Windage	0 to 8 mils plus or minus (0 to 2-1/4° plus or minus)
Cyclic rate of fire (maximum)	450 rounds per minute*
Effective rate of fire	Unknown
Muzzle velocity	2,600 feet per second*
Maximum range	6,500 yards*

Cooling	Air
Mounting	Tripod
Feed	20-round plate charger
Provision for single-shot fire	None
Safety	Shift safety catch on top of rear cross-piece to S for "safe" and to F for "fire".

The accompanying range table covers the Breda Model 37 and also the Fiat Model 35.

c. Tripod Mount

The mounting is provided with elevating and traversing gears, which can be used in conjunction with the open sights for direct laying, or with the elevating and traverse scales for indirect laying.

Elevation is adjustable from 360 mils (20 degrees) depression to 360 (20 degrees) elevation, with a micrometer adjustment from the 46 mils (2 degrees 30 minutes) depression to 36 mils (2 degrees) elevation.

The main traverse scale is graduated from 450 mils (25 degrees) to 1,150 mils (65 degrees) in 10 mil steps, the central position being at 800 mils (45 degrees). An additional 150 mils (8 degrees 30 minutes) traverse is provided by an independent micrometer adjustment.

RANGE TABLES FOR ITALIAN 8-MM MGs--FIAT MODEL 35 AND BREDA MODEL 37, FIRING MODEL 35 BALL AMMUNITION

Range (yds)	Fiat 35 Elev. (mils)	Breda 37 Elev. (mils)	Range (yds)	Fiat 35 Elev. (mils)	Breda 37 Elev. (mils)	Range (yds)	Fiat 35 Elev. (mils)	Breda 37 Elev. (mils)	Range (yds)	Fiat 35 Elev. (mils)	Breda 37 Elev. (mils)
100	1	1	1200	19	19	2300	68	66	3400	150	148
200	2	2	1300	22	22	2400	74	72	3500	159	158
300	3	3	1400	25	25	2500	80	78	3600	168	168
400	4	4	1500	29	28	2600	86	84	3700	178	179
500	5	5	1600	33	32	2700	93	91	3800	188	190
600	6	6	1700	37	36	2800	100	99	3900	199	202
700	8	8	1800	41	40	2900	108	107	4000	210	214
800	10	10	1900	46	45	3000	116	114	4100	221	226
900	12	12	2000	51	50	3100	124	122	4200	234	239
1000	14	14	2100	56	55	3200	132	130	4300	247	253
1100	16	16	2200	62	60	3300	141	139	4400	261	286

Standard conditions: barometer 750 mm (29.5 in) of mercury, temperature 15° C (59° F), humidity 0.5 (half-saturated air).

Comment: The gun is quite simple in its operational features, and is extremely easy to disassemble. The breech is positively locked at the moment of firing, the breechblock being forced up (without tilting) by the action of inclined surfaces on the piston extension, so that a projection on its upper surfaces engages in an opening in the top of the body. The barrel is sufficiently heavy (17-3/4 pounds) to enable it to fire a large number of rounds in quick succession without overheating.

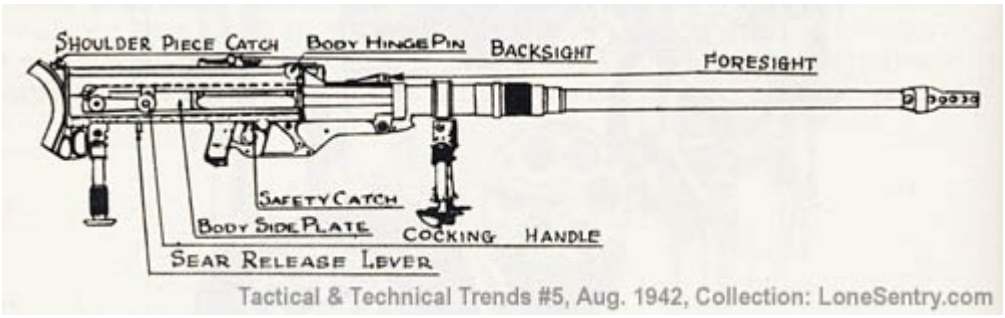
*This information has not been checked by U.S. test.

ITALIAN 20-MM. ANTITANK RIFLE (SOLOTHURN)

This antitank rifle is a self-loading, single-shot weapon. The rifle can be set at "safe" or "fire" by means of a thumb-operated catch on the pistol grip. (See accompanying sketch.) It is fired from the shoulder off the bipod. Some of its specifications are as follows:

Caliber	20 mm. (.79 in.)
Weight with empty magazine	120 1/2 lbs.
Overall length	7 ft. 1 in. (including recoil reducer)
Rate of fire	10-20 aimed r.p.m.
Sights (a)	Blade foresight, leaf backsight, leaf backsight graduated to 1,500 meters
(b)	Telescopic sight mounted on bracket
System of operation	Recoil. Breech positively locked on firing by rotation of locking lugs
Feed	Magazine capable of holding 10 rounds, but normally loaded with 8 rounds only
Weight of H.E. and A.P. shell	4 ozs.
Muzzle velocity	2,750 f.s.
Penetration (armor plate at 500 meters, 90°)	30 mm.

Remarks: This gun is carried by two men and is sometimes found on tanks, armored cars and motorcycles. It is effective only in keeping mechanized patrols at a distance.



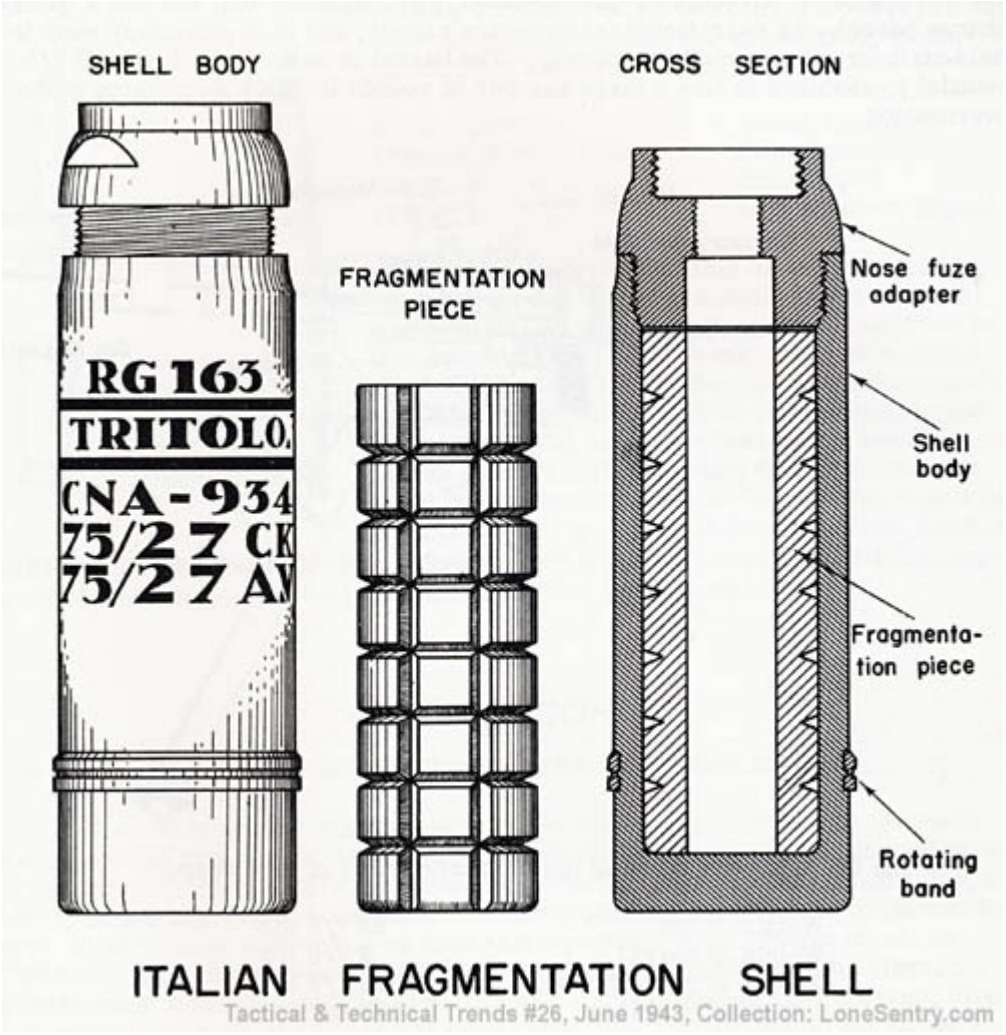
Italian 20-mm. Antitank Rifle

ITALIAN 75/27 HE FRAGMENTATION SHELL

The unusual feature of this ammunition is a "fragmentation piece," or segmented metal cylinder filled with TNT. The detonation of the shell is intended to break up the cylinder into small squares, thereby augmenting the antipersonnel effect. The shell body is of carbon steel, probably of low tensile strength, and is punched and drawn with a solid base, and the cavity is machined. There is a single copper rotating band. The nose, fuze adapter, and fragmentation piece are machined castings in gray cast-iron.

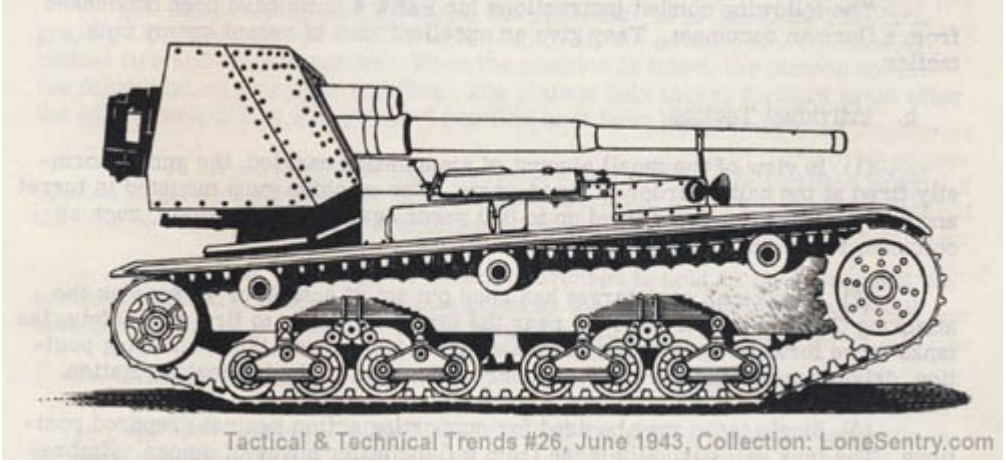
The shell may be identified by its specially processed gray surface with a 15-mm (.58-inch) light blue band, 20 mm (.79 inch) forward of the rotating band. An examination of the shell produces the following descriptive data:

Weight of shell body	6.98 lb	Length of shell body	7.97 in
Weight of nose fuze adaptor	1.87 lb	Length of nose fuze adaptor	2.16 in
Weight of fragmentation piece	3.85 lb	Length of fragmentation piece	6.46 in
Total weight (unfilled, unfuzed)	12.7 lb	Length of shell, unfuzed	9.25 in
		Length of shell in rear of Rotating band	1.48 in



ITALIAN 90/53 SELF-PROPELLED GUN

There has been a previous reference in Tactical and Technical Trends (No. 25, p. 48) to the Semovente (self-propelled) 90/53* gun. Further information on this Semovente 90/53 (3.54-inch) self-propelled AA/AT gun has been received.



On the basis of the present report, it appears that this gun is mounted on the rear of a turretless 14-ton, Model 14/41 tank chassis. In order to accommodate the gun, it would appear that the normal positions of the engine and transmission in the hull have been rearranged. The engine, normally in the rear, seems to have been moved forward to the center of the hull, access being provided by two doors in the superstructure roof. There is probably room for one member of the crew besides the driver in front of the engine. It would seem that the engine is overloaded, so that the vehicle is slower and less maneuverable than the M 14/41 tank. The speed probably does not exceed 12 mph. Presumably the 125-hp Diesel engine of the M 14/41 tank is retained.

*Caliber 90 mm, length of bore 53 calibers.

ITALIAN PARACHUTE ARTILLERY EQUIPMENT

A number of prisoners of war from an Italian parachute artillery unit have revealed the following details of their equipment.

The type of parachute used is known as the "I.F." (Imbracatura Fanteria) which opens automatically. White parachutes are used for personnel. Jumps were made during training from heights varying between 800 and 400 feet. No jump is ever made from a lower level than 300 feet. One of the prisoners described a jump in which seven men had to leave the aircraft in 4 seconds. They were trained to launch themselves from the aircraft with arms and legs spread-eagled. The types of aircraft employed during training were the Caproni 133 (tri-motored transport type) and the Savoia-Marchetti 82 (tri-motored transport type).

Each man is stated to carry the following equipment: a haversack containing 40 hand grenades, a Beretta machine-carbine with 400 rounds of ammunition strapped to the right leg, and 3 days' iron rations and 1 quart of water. Mention was also made of revolvers and daggers, but the scale of issue was not stated.

The uniform appears to consist of an officer-type blue-gray tunic with lapels and large breast and side pockets, skiing-type trousers, and high black leather ankle-boots with toecaps and a rubber sole and heel in one piece. (This is not worn in North Africa.) The normal Italian steel helmet is worn, with a special lining and a neck protector. For protection when landing, gloves and knee pads are worn. An insignia consisting of a sword with a single wing is worn superimposed on the usual artillery collar patch, and a yellow parachute design is worn on the left upper arm.

Forty-seven-mm guns and ammunition are dropped in separate loads, by means of blue-colored parachutes, in special canvas sacks called Aero Rifornitori or Sacci Rifornitori. These sacks bear different markings which indicate their contents:

Gun barrel	Yellow flag
Ammunition	Red circle
Wheels and trail	Blue circle
Carriage	Black circle

The ammunition is packed in specially lined metal boxes containing either 4 or 8 rounds. The prisoners were uncertain as to the actual number, and were not able to say how many boxes were dropped in each sack.

ITALIAN PARACHUTE SIGNAL FLARE

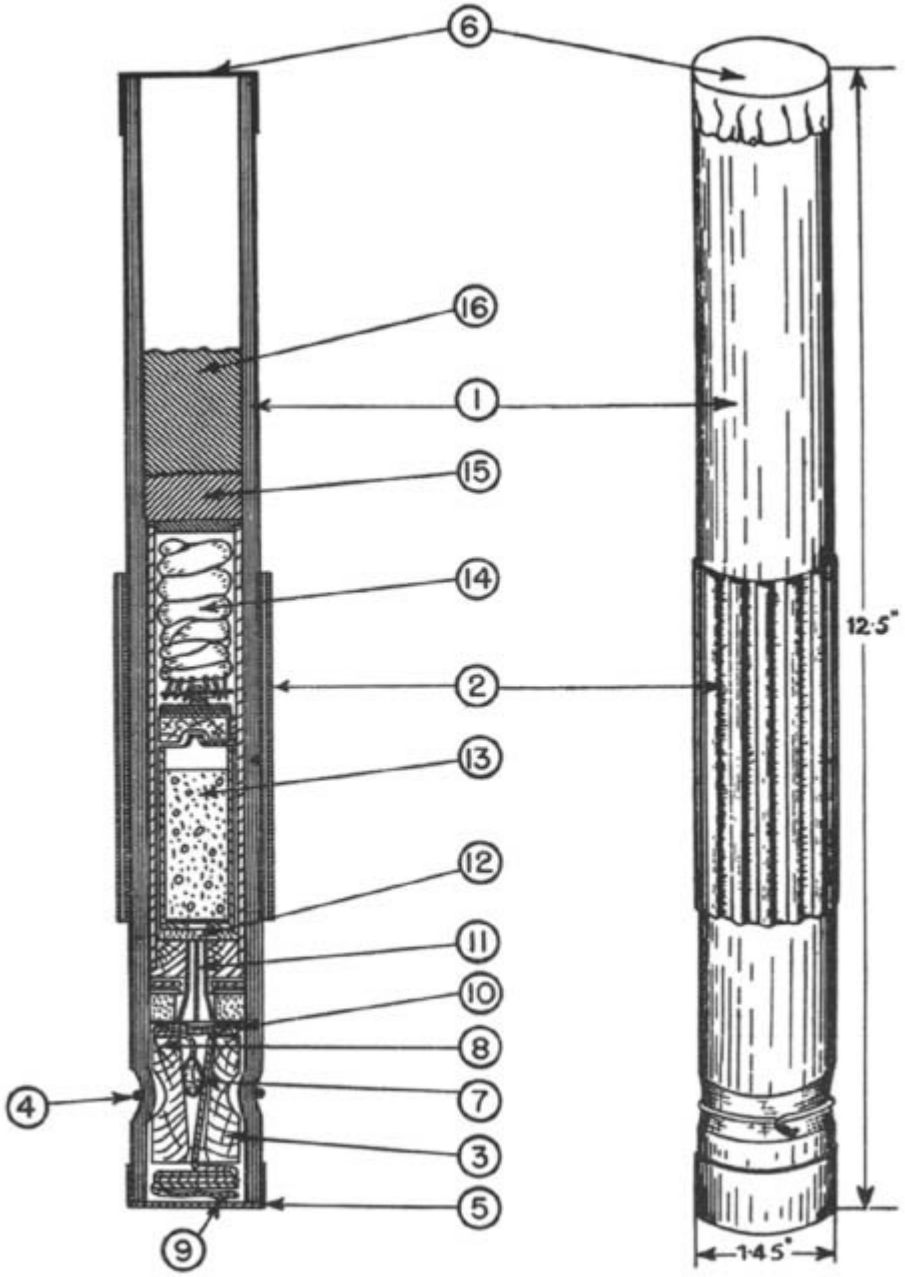
A specimen of an Italian parachute signal flare has been captured by the British in North Africa.

a. Description

The flare is contained in a cardboard tube (1) (see accompanying sketch) 0.19 inch thick, which, in the specimen examined, was colored bright red. The tube is provided with a corrugated cardboard grip (2), 3.9 inches long. Below this grip the tube is pinched in to fit into the groove in the wooden plug (3), and is secured by a wire (4). The open ends of the tube are sealed by paper, gummed over the ends at (5) and (6). The plug (3) has a central hole which contains a friction igniter (7), consisting of a match composition pellet attached to the end of a short length of cord and secured by a tack (8). The free end of this cord string (9) is protected by the seal (5). A part of the cord (10) near the igniter pellet (7) is impregnated with phosphorus. At (11) is a short length of safety fuse which forms a 2-second delay and leads to the powder charge (12). Above this is the candle (13) and its parachute (14), which are secured in place by a felt washer (15) and a length of waste packing (16).

b. Method of Functioning

When the seal (5) is broken, and the free end of the string (9) pulled, the part of the cord at (10) is drawn through the hole in the plug (3), where friction between it and the pellet (7) ignites the latter, which fires the safety fuse (11). After 2 seconds delay, this ignites the powder charge (12) which expels the candle (13) and parachute (14).



ITALIAN PARACHUTE SIGNAL FLARE

Tactical & Technical Trends #18, Feb. 1943, Collection: LoneSentry.com

c. Handling

If the ends of the tube are sealed, the flare has not functioned and is safe to handle. If the lower seal is broken, the cord should be secured within the end of the tube so that it cannot be pulled accidentally. The flare should be destroyed by burning.

ITALIAN TANK SIGNALS

The following report gives some Italian tank signals used by Italian forces operating in the North African theater.

(a) A triangular white (wooden) signal;

Shown repeatedly, means, "Pay Attention."

Shown continuously, "Go on or Stop" according to whether the signal is made at the halt or on the move.

(b) A triangular white signal above a triangular red signal;

Shown repeatedly, "Increase distance and space between tanks"

Moved sideways intermittently, "Form line."

Moved sideways continuously, "Form wedge."

(c) A triangular red signal above a triangular white signal;

Shown repeatedly, "Reduce distances and spaces between tanks."

Moved back to front intermittently, "Form columns."

Moved back to front continuously, "Form half platoons in line abreast."

(d) A triangular red signal;

Shown continuously, "I am in trouble," "I cannot carry out my task."

All of these signals, except that last, which is made only by the tank that is in difficulty, are made by the unit commander; and individual tanks repeat the signal to show that they have been understood.