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MILITARY INTELLIGENCE SERVICE
WAR DEPARTMENT

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MILITARY INTELLIGENCE SERVICE
WAR DEPARTMENT
Washington, October 1942

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No. 2
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NOTICE

Owing to the character of the material contained in the INTELLIGENCE BULLETIN, it has been necessary to classify it as "restricted." It is believed, however, that it should be made possible for all enlisted personnel and junior officers to use this bulletin, as it is designed primarily to serve as a vehicle for the dissemination, for their benefit, of the latest information received from Military Intelligence sources.

Wise men learn much from their enemies.

—Aristophanes.

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PART ONE: GERMANY

Section I. THE INFANTRY DIVISION

1. INTRODUCTION

The German infantry division has played a decisive part in the successes of the German Army in the Polish, French, Balkan, and Russian campaigns. German armored divisions have penetrated enemy lines and have won freedom of maneuver. But the hard-fighting, quick-marching, ground-holding infantry with its great firepower has brought about final decisions. Why is the German infantry division so effective?

The Germans have always recognized the basic importance of the infantry. They select especially promising officers and men for this arm of service, give them the most thorough training, and provide them with the best possible weapons. These weapons range from carbines, antitank rifles, machine guns, and light and heavy mortars to 75-mm and 150-mm infantry

howitzers. German division artillery is very similar to our own in caliber, number of guns, organization, and employment.

Each infantry regiment in the division has an infantry howitzer company with three platoons of 75-mm howitzers and one platoon of 150-mm howitzers. This company is an organic part of the regiment and thus relieves artillery units of the division of many small but difficult direct-support missions. This set-up also simplifies the problem of liaison between organic artillery and infantry units. In contrast to our infantry division, three-fourths of the transport in the ordinary German infantry division is horse-drawn.

Above all, the American soldier should remember that the German soldier is trained in the use of firepower and infiltration. The newspaper stories about German infantry attacking in solid waves, only to be mowed down, are plain nonsense. The Germans take advantage of every bit of cover and look for soft spots through which they can drive. Furthermore, the Germans know how to use firepower to clear out opposing forces; they go about their business as methodically as if they were engaged in a training exercise.

2. ATTACK METHODS

When you run into German infantry, you will probably meet detachments of the reconnaissance battalion. Your first contact may be with the armored-car platoon. In country where roads and paths are fairly good—and

especially at night and in foggy weather—your first contact may be with bicyclists, with the horse cavalry troop, or with motorcycle patrols. In any case, machine guns (nearly the same caliber as our own) and infantry howitzers will soon arrive to support these forward troops.

After you have held up the reconnaissance unit, you can expect the supporting infantry to appear. They will reconnoiter your position quickly but thoroughly. They are well trained and keen-eyed, but how much they see depends on you.

In attacking, the infantry will appear by squads, each deployed in a wide, staggered column or in line as skirmishers. In either formation the men will be about 5 yards apart, and the squad probably will be preceded by its light machine gun and its leader with his machine pistol.

During the advance the light machine guns operate well forward. The light infantry howitzers are not far behind. The howitzers have a very loud report and a considerable flash, and can easily be distinguished from the mortars. The mortars are 50-mm and 81-mm, much the same as our own light and heavy mortars.

The howitzers may be 1 to 2 miles away from you, even closer if there is cover. The mortars, which cannot fire any farther than ours, will be much nearer. Experience has shown that the mortars are brought into action quickly. You may even spot them taking up a position without cover in order to save time.

Once the attack is held up, the Germans will quickly try other methods. Reconnaissance patrols may first reconnoiter your position more thoroughly. They patrol well. Their scouting is excellent, partly owing to their thorough training and partly because many men come from country districts, as is the case with our own troops. Patrols specially organized and lightly equipped—as they were in 1939 when they harassed the Maginot Line—sometimes stay out for days, working in pairs and marking your dispositions on their maps. Their map-reading, too, is very good, and they have plenty of field glasses.

If your positions are well concealed, the enemy may have to send out fighting patrols, 40 or 50 strong. Working at night, the patrols will send out ahead one or two men who betray their presence in order to draw fire. As soon as one of your posts opens fire, the enemy will attack it with light machine guns and mortars.

Small detachments infiltrate, engage defensive posts from flank or rear, and cut telephone wires. They try to create the impression of a much larger force in the hope that you, feeling isolated and in danger, will fall back. With this idea in mind, they are likely to form salients, projecting deep into your forward defenses.

Where you are protected by an obstacle, the enemy attack will be made with the help of engineers. Against wire in front of you they will use their equivalent of our Bangalore torpedo—a plank up to 10 feet long with

slabs of explosive placed end to end along its length. For action against your pill-boxes—if they can get near enough—they may use slabs of T. N. T. fastened to the end of a pole and pushed into or against the openings for firing. The man carrying the pole is your best target. They also use flame-throwers, the range of which is limited to some 25 yards and which cannot be operated continuously for more than 12 seconds. These are carried on one man's back and therefore are comparatively slow-moving and offer a fairly easy target. If the enemy is faced with a water obstacle, he will find any part that you have left inadequately guarded and will cross it by means of rubber boats. The larger ones can transport a rifle or machine-gun squad or one of the 37-mm antitank guns. These boats are very vulnerable to small arms fire.

The part played by the engineers must not be underestimated. They are very good at the rapid crossing of rivers—first by assault boats, then by rafts made up of rubber boats and pontons, and, finally—when they are established on the opposite bank—by the construction of a ponton bridge. The motor vehicles can be ferried across on the rafts, which the engineers will already have constructed by the time the leading troops are across. Therefore, if you can prevent the leading troops from establishing themselves and keep the engineers from launching their rafts, you may delay the attack of a whole division.

3. USE OF DECEPTION

Another important point must be remembered. The Germans will use every method to fool you. Telephone calls in perfectly good American may order a bridge not to be blown up. Fifth Column operations may be well coordinated with military operations.

In general, German infantry are trained to create the impression of large numbers, and in this they are assisted by their close-support weapons—particularly the infantry gun, with its loud report, and mortars, which are brought into action very quickly.

4. CONCLUSION

Smooth cooperation, short clear verbal orders, a true appreciation of the value of speed—"Sweat saves blood"—and a high degree of physical fitness all combine to enable the Germans to exploit their opportunities to the full.

Section II. ENGINEERS

1. INTRODUCTION

German combat engineers have been in the front lines of every major Nazi engagement of the present war. They form a very definite part of the German combat team, which also includes the armored forces, air forces, infantry, and artillery. The major duty of these engineers is to keep the German Army moving. They assault fortifications or other obstacles; they span streams with everything from log rafts to large temporary bridges; they go regularly into combat, and under the most difficult conditions, to clear the way for the echelons that follow. The success of the Germans through surprise, deception, and speed has been due in no small measure to the front-line work of the combat engineers, who during World War I worked in the rear areas except when called to the front under rare critical conditions.

2. TRAINING OF COMBAT ENGINEERS

In line with a training principle used throughout the German Army, 90 percent of the instruction now given to the army's combat engineers deals with attack problems and 10 percent with defense problems. Stress is placed on engineer reconnaissance and on making use of all means available in the combat area to help the German forces continue their advance. Army engineering equipment is used only when local means are not available.

The combat engineers are trained basically as infantry soldiers, since most of them now advance with the infantry and other combat troops and engage regularly in battle.

German military leaders, however, do not try to turn a combat engineer into a "Jack-of-all-trades." After receiving basic infantry and combat-engineer training, each trainee is assigned to a group which concentrates on one special type of work. For instance, he usually qualifies specifically for one of the following tasks: demolitions, fortifications, storm-troop combat, combat at rivers, construction of military bridges, emergency bridge construction, and general obstruction duties.

Some of these different kinds of specialized training are elaborated briefly as follows:

a. Storm-troop combat, with special equipment for rush assaults.

b. The obstruction service, which prepares obstacles of all kinds. These men are trained to handle explosives and mines, as well as to use electric saws and boring equipment.

c. Combat at rivers, which involves the use of rafts and small assault boats, both in the attack and in the defense. These men learn how to cross water under all conditions—in rain, heavy wind, and snow, and especially at night.

d. Construction of military bridges—Also, establishing emergency ferry services, which provide transportation for men and matériel in motorboats and rowboats with outboard motors, or on improvised rafts propelled by these boats.

e. Emergency bridge construction, which calls for the preparation of many types of bridges, using material found locally.

f. Construction of field fortifications, which includes the building of defense installations of all kinds, large and small, with special training in the technique of preparing unusually deep foundations.

Looking over this whole set-up, the American soldier will see that a combat engineer in the German Army operates both as a fighter and a highly skilled technical expert. It may be said that if we destroy a German combat engineer, we destroy a man who is as useful to the Axis as any single person on the battlefield. Someone who is an infantryman—plus.

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3. OTHER ENGINEER ORGANIZATIONS

The types of jobs done by combat engineers in World War I are now done almost exclusively by labor organizations, which include the so-called Todt Organization. The campaign in Poland taught the Germans that motor highways are likely to be more useful transport routes than railroads. The work of maintaining roads became so heavy that the government ordered a man named Todt, inspector of roads in Germany, to form a special organization for this important duty. The Todt Organization is composed of specialists and laborers who repair, construct, and maintain roads and bridges (with the Construction Engineers) from the rear and well into the combat zone. Sometimes it also assists in preparing fortifications (with the Fortification Engineers).

Another organization working with the engineers of the German Army is the Reich Labor Service. It trains boys of 17 and 18 to perform many of the tasks which in the last war were assigned to the regular engineers. These tasks include:

Constructing and maintaining important highways; constructing and improving fortifications, bridges, and airports; salvaging equipment, munitions, and matériel in battle areas, and camouflaging and sandbagging military establishments.

Section III. DIVE-BOMBING

1. GENERAL

Originally developed by the United States Army and Navy in the late '20's, the technique of dive-bombing was soon adopted by the German Air Force, which tested it under actual war conditions during the Spanish Civil War. In the present conflict the Germans have found dive-bombing tremendously profitable, especially in Poland and on the Western Front. As a special method of precision bombing, it is known to have been successful against artillery positions, front-line troops, bridges, crossroads, rail centers, dumps, and anchored ships. The main purpose of the dive-bomber is to drop explosives on vital parts of a target, with maximum surprise and minimum risk.

The development of dive-bombing was presumably an attempt to overcome the inaccuracy of the earlier bombsights and to give additional velocity to the bomb itself, thereby increasing its penetrative and armor-piercing qualities.

2. TYPES OF PLANES

At present the Germans seem to prefer the Junkers 87 as a dive-bomber for low-flying attacks. For higher dive-bomber attacks, they are likely to use the Junkers 88 and the Dornier 217.

Everyone has heard a great deal about the German Stukas. The name "Stuka" may be applied to any one of several models of the Junkers 87. The 87's are low-wing, two-seater monoplanes, equipped with diving brakes to limit their speed. The wings are crank-shaped. The armament consists of two fixed machine guns in the wings, and one machine gun flexibly mounted in the rear cockpit. The plane has wing racks for four 110-pound bombs or two 220-pound bombs, and a carrier, underneath the fuselage and between the landing gear struts, which will carry a 550-, a 1100-, or a 2,200-pound bomb. When the 1100- or 2,200-pound bombs are carried, the wing bombs are omitted.

3. TACTICS

An average of 30 to 40 German dive-bombers take part in an attack. These planes ordinarily fly at an altitude of 14,000 to 17,000 feet, with escort fighters about 1,000 to 2,000 feet above them.

When the objective is sighted, the entire unit either attacks a single target or divides into smaller formations, which seek out individual targets previously as-

signed to them or attack the single target from different directions.

The dives are generally made upwind, since this permits greater bombing accuracy. The flight commander usually dives first. At the order to prepare to dive, the pilot sets his diving brakes, closes the oil cooler and cylinder radiator a little more than halfway (to keep from cooling his engine too much), switches on the reflecting sight, and adjusts the bomb-release. He then lets the plane slide off on the left wing, and, sighting his target through the bombsight, goes to town.

The rate of dive, varying with different types of dive-bombers, is regulated by the throttle and is maintained throughout the pull-out up to the moment of climb. Single- and twin-engine bombers use automatic bomb-releasing mechanisms which compute the height of release and angle of dive; otherwise this must be estimated by the pilot.

After the pull-out, the planes swoop down to about 100 feet from the ground in order to escape antiaircraft fire, and, while low, they machine-gun any target in sight. When the planes have reassembled, they seek cover in clouds or climb up through them to a high altitude and head homeward in close formation.

4. EFFECTIVENESS

The success of German dive-bombing operations has invariably been made possible by the absence of any real fighter opposition. In France, dive-bombing was used

successfully as a barrage to precede the advance of mechanized troops—it was not employed during the first phase of the advance into Belgium. During this Belgian phase, heavy attacks on United Nations airdromes were made by high-altitude bombers and fighter planes. Only after United Nations air strength had been considerably reduced did the dive-bombers put in an appearance.

In Crete, dive-bombers attacked airdromes prior to landings by parachute troops. Fighter planes strafed antiaircraft and other ground defenses. Here, as in Poland, the Germans had no air opposition.

Dive-bombing is expensive. When opposed by first-class fighter planes, the enemy has frequently suffered losses as high as 50 percent. Antiaircraft barrages often have caused dive-bombers to release their bombs at an altitude of 3,000 to 4,000 feet with a consequent loss of accuracy. Dive-bomber pilots in many cases have been seen swerving sideways near the end of their dive in an effort to avoid the barrage, dropping their bombs hundreds of yards wide of the target.

Unopposed, and in conjunction with ground troops, the dive-bomber has proved effective, but it is by no means the most potent weapon of the war, nor can it claim to have replaced artillery fire.

Section IV. DEVELOPMENTS IN DESERT WARFARE

1. TANK AND ARTILLERY TACTICS

The Germans have developed a new method of combining tanks with 88-mm and 50-mm guns for an attack. The procedure is for a wave of tanks to charge in close to a United Nations position and then crisscross until a dense cloud of dust rises. After this, a second wave of tanks comes up in the dust, accompanied by the 88-mms and the 50-mms, which entrench themselves in wadis[1] or, wherever possible, behind abandoned vehicles. While the dust is settling, the guns open fire from these close ranges with considerable effect. The Germans rarely ever fire directly at the front of opposing tanks; they wait for angle shots and try to hit the tanks on the side.

[1] A wadi is a gully which wind and water have cut out of the rocky, sandy soil of the desert.

2. BREAKING TRAILS THROUGH MINEFIELDS

The Germans have two methods for going through minefields:

(a) They lay a smoke screen and send in engineers to plot a trail through the minefield, locate mines in the passageway with mine detectors, and detonate the charges.

(b) Or, behind an artillery barrage, they send a tank over the trail selected. The tank goes ahead until its tracks are blown off by exploding mines. A second tank then tows the first one out, and resumes the forward drive until its own tracks, in turn, are damaged. A third then comes to tow the second, and the process is repeated until a trail through the minefield has been established. The Germans usually get through at a cost of three or four tanks. Since the only damage these suffer is the loss of their tracks—which the German recovery system can repair in three or four hours—the Germans do not regard minefields as serious obstacles in the desert. It should be noted that the Germans use anything and everything to pull tanks off the field. The recovery and maintenance system operating in Libya has been so well developed that it can repair 10 tanks a day.

3. AIR-GROUND RECOGNITION

The Germans usually have accurate air-ground recognition. First, ground troops release a chemical

smoke, often pink, which can be seen at 10,000 feet. Artillery then fires on the target. Planes observe the fire and bomb the area where the shells are falling.

4. SLIT TRENCHES

It has been found that slit trenches are an absolute necessity in case of bombing or artillery fire. Personnel in them are in very little danger from bombers unless they score a direct hit on the trench.

5. TRANSPORTATION

There are few long marches in the desert; nearly everything is now on wheels. On or near the front there are some foot movements, but even these are not practical over long periods. Thousands of trucks must be used, creating special problems.

Vehicles behind the lines are not dug in, but scattered at least 200 yards apart. Thus arranged, they make poor targets for aircraft since it is impossible to damage two trucks with a single bomb—and bombs are too expensive to use one per vehicle.

Excepting a small section for the driver to see through, the windshields of trucks are often greased lightly so that the dust will blow against them and stick. Sometimes they are painted. This prevents the windshield from reflecting light. The windshields are necessary to protect personnel from wind and dust.

In the daytime most trucks are kept out of artillery range.

6. SUPPLY

The Germans advance with supplies for 5 days in their trucks. On the fifth day the emptied trucks turn back, and a freshly loaded group replaces them.

7. EFFECT OF WEATHER

Most German soldiers are accustomed to temperate weather, and have to adapt themselves to the dry desert heat. To United States soldiers from Texas, Arizona, New Mexico, and the California valleys, dry heat is no novelty. Military observers agree that the heat of the African desert, although not the last word in comfort, has been exaggerated by newspaper correspondents.

Section V. BALANCED ANTITANK PROTECTION

In view of all the comment about the German 88-mm dual-purpose antiaircraft and antitank gun, some of us may forget that use of this weapon is only one aspect of German antitank methods.

In line with German Army principles, each combat unit, from the smallest to the largest, is so organized, armed, and equipped as to be tactically self-sufficient. Antitank protection is vital to the successful accomplishment of a combat mission; therefore, suitable antitank weapons are provided for each unit. These weapons are used in accordance with the German doctrine of antitank defense, which may be summed up as follows:

Staffs, troops, and supply echelons must constantly be on guard against tank attacks. Careful ground and air reconnaissance and map study help to indicate the avenues of approach over which hostile tanks will attack. Certain terrain features are natural obstacles to tanks, and must be used to full advantage. The

favorable avenues of approach must be protected by antitank guns, artillery, mines, and tanks.

Early information regarding hostile tanks permits timely and well-planned defensive measures. All reconnaissance agencies are required to report tank information to the commander immediately, as well as to the troops specifically threatened.

The antitank units which are organic parts of infantry regiments, battalions, or companies contribute their fire power to the support and protection of their own organizations. Those antitank units which are organic parts of corps and divisions constitute a reserve force which, because of their mobility, can be rushed to decisive areas as determined by the general situation.

Each infantry company is protected by a section of three antitank rifles.[1] Each regiment, in addition to these company antitank rifles (total 27), is protected by an antitank company of three platoons (each with four 37-mm antitank guns), and one platoon of four 20-mm rapid-fire antiaircraft-antitank guns.

A trend toward substitution of the 50-mm antitank gun for the 37-mm guns is progressing rapidly.

The antitank protection given to large units, such as the armored, motorized, and infantry divisions, need not be discussed here. But it is worth noting that the amount of antitank protection is steadily being increased for both large and small units.

[1] In Africa, each company of one light division was reported to be equipped with two 76.2-mm captured Russian field guns for antitank use.

Section VI. MISCELLANEOUS

1. USE OF DOGS

a. General

Germany used dogs for military purposes during World War I and also is using them in the present conflict. Some are trained to carry messages, some to help locate opposing forces during reconnaissances, some to do guard duty, some to help locate injured persons on the battlefield, and others to pull or carry supplies over difficult terrain.

b. Breeds Selected

Several breeds of dogs are used for the military work. All dogs selected must be fairly large and strong, and capable of being trained. The German shepherd (police) dog generally is favored over other breeds, and numbers about half of all the dogs used by the Germans. The Doberman pinscher breed also is highly satisfactory and is widely used.

c. Training

Training of dogs for military service begins when they are only a few weeks old. At the age of 6 months they usually are given an examination to weed out those which prove unfit for additional training. Dogs which show any signs of nervousness are eliminated immediately. The others, to qualify for the additional training, must follow their masters over very rough terrain, both by night and by day, and they must show ability to get across ditches, streams, and other obstacles. And they also must not be afraid of battlefield noises.

d. Duties After Training

(1) *Tracking dogs.*—After the training period, the dog and its trainer are assigned to a company. The trainer remains with the company for about 3 weeks, or until the dog has become familiar with the new master, who is chosen from volunteers who are dog lovers. During this same period, the dog also becomes familiar with all the men of the company's reconnaissance party, with whom it will work later.

After the period of adoption, the dog must obey its master at all times. If well trained to work with the reconnaissance party, it can precede the patrol by 30 to 40 yards (without losing touch) and on scenting the presence of any stranger, warn the patrol by returning silently to its master. Some of the dogs are

said to have been trained to signal the presence of strangers by pointing—much like a bird dog which has spotted a covey of quail. The dogs must not bark or whine. At the end of every reconnaissance, the dog immediately returns with its trainer to company headquarters. It must never stay in the front line.

(2) *Messenger dogs.*—The smartest dogs are used as messengers. The message containers are strapped to their backs or collars. They either find their way by memory or follow a scented trail. The scent is a mixture of 10 parts of water to 1 part of a substance which, when dissolved, looks like molasses and smells like root beer. The mixture is placed on the message trail by means of a container which allows about five drops per yard when it is carried at a normal walk.

(3) *First-aid dogs.*—These are trained to seek wounded or dead soldiers on the battlefield. The dogs have a short stick (*bringsel*) tied to their collars. When they find a soldier lying down, they take the stick in their mouths, return to their masters, who are ambulance operators, and guide them to the wounded. The dogs pay no attention to soldiers standing up.

First-aid dogs were credited with saving thousands of lives in World War I.

(4) *Guard dogs.*—These are trained to attack strangers or to give warning of their presence.

(5) *Draft dogs.*—These pull sleds or other small vehicles, usually in mountainous areas. Light loads sometimes are harnessed to the dogs' backs.

2. SPEED OF VEHICLES

According to a captured German manual, the speed at which various German motor transports and armored-force vehicles travel while alone or in convoy is as follows:

	Alone (*m. p. h.*)	*In convoy* (*m. p. h.*)
Motorcycles and cars	38	22
Trucks	25	22
Trucks with trailers	20	15
Mark IG and Mark II tanks	15	11
Mark III and Mark IV tanks	15	11

3. GERMAN-ITALIAN RELATIONS

Is there a spoke or two broken in the Axis?

There have been many reports for a long time that German and Italian soldiers do not get along well together. The Italians are said to hate the Germans, and the Germans, in turn, make sly remarks about the fighting abilities of the Italians. Some of these reports have come from official sources. The following extract from a German publication captured in Libya seems to bear out these reports:

"ITALIAN WAR COMMUNIQUE

"On the Tobruk front a large force of Italians attacked an enemy cyclist, causing him to dismount. After heavy and prolonged fighting they were able to

puncture his tires. The front wheel was destroyed, and the loss of the rear wheel must also be considered possible. The handlebars are in our hands, but possession of the frame is still being bitterly contested.

"H. Q. Royal Italian Army"

The Japanese are said to make similar jokes about their Siamese (Thailand) allies.

PART TWO: JAPAN

Section I. CHARACTERISTICS OF THE JAPANESE

1. RACIAL ORIGINS

Physical uniformity among the Japanese is probably more apparent than among Americans. However, it is impossible to establish rules for identifying every Japanese type. In spite of the Japanese belief in the divine origin[1] and purity of their race, the modern Japanese are a mixture of at least four basic peoples: the Malayan, from Malaya; the Mongolian, from North China; the Manchu-Korean, from Korea, and native tribes of the Japanese islands, such as the Ainu. Theoretically, the nation shows characteristics, in varying proportions, of all four. Its most distinctive racial marks are those of the Mongolian type—from families

[1] The Japanese people believe that their emperor is a "son of heaven," a direct descendant of a sun goddess. They believe that the emperors are the fathers of their race, and that they, therefore, are also of divine origin.

of the ancient ruling class or aristocracy—and those of a coarse peasant stock from the Malayan strain, with some mixture of the Ainu. The Mongolian type is something like the typical North Chinese, physically; the peasant stock is often similar in appearance to the South Chinese. Descendants of the Mongolian type in Japan are not numerous. They are frequently tall and slender and of a lighter skin tone when compared with the stocky, square, rather dark peasant. (See columns 3 and 4 of the table listing physical characteristics, in paragraph 2.)

The Japanese Army is conscripted from every class, but the average private with whom American forces have to deal is the short stocky farmer or fisherman. The strongest influence in the development of this type was an early migration from Malaya. Frequently, because of the common racial background between Japan and parts of China, differences between the peasant Japanese and the South Chinese, also of Malayan origin, are extremely slight. In the same manner, there is a close similarity between the Mongolian type of North China and groups of the same strain in Japan. Thus, in the table which follows in the next paragraph, the peasant Japanese and the North Chinese are presented as opposites. Differences in appearance between intermediate types must be determined by means other than physical characteristics. It is often true that separate environments have produced certain cultural differences which will be apparent under close study.

2. PHYSICAL DIFFERENCES FROM CHINESE

The table presented in figure 1 is an index to certain racial features in which differences appear between Chinese and Japanese. The two outer columns list opposites which represent the widest possible differences. The inner columns list intermediate overlapping characteristics where distinction between the two races is not always clear. Identification of types according to these measurements will be a fairly easy task when the Japanese peasant and the North Chinese are compared. (See fig. 2). In cases where there may be considerable doubt, suggestions for recognition appearing under paragraph 3 may be useful.

Chinese			Japanese	
North Chinese	South Chinese		Aristocratic upper class	Peasants (usually enlisted men)
Tallest	Intermediate	*Stature*	Intermediate	Shortest.
Heaviest	Lightest	*Weight*	Intermediate	Intermediate.
Slenderest	Intermediate	*Body build*	Intermediate	Stockiest.
Shortest	Intermediate	*Torso* [1]	Intermediate	Longest.
Long and slender	Intermediate	*Arms and legs*	Intermediate	Short and thick.
Straight	Straight	*Hair form*	Straight	Some wave.[2]
Smooth		*Muscles*		Knotty.
Lightest	Darkest	*Skin color*	Intermediate	Intermediate.
Intermediate	Lightest	*Beard*	Intermediate	Heaviest.[4]
Higher bridge	Intermediate	*Nose*	Intermediate	Flat.
Longest	Intermediate	*Face*	Intermediate	Shortest.
Deep, "Lantern".	Intermediate	*Jaw*	Intermediate	Square.
Less common	Less common	*Buck teeth*	More common	More common.
Narrow	Round, flaring	*Nostrils*	Intermediate	Round, flaring.
More common	More common	*Mongolian fold of eye*	Less common	Less common.
Less common	Less common	*Myopia* [5]	More common	More common.

[1] The trunk, or body without the head, arms, and legs.
[2] A rare characteristic. Straight hair is common to both Chinese and Japanese.
[4] The heavy beard and body hair of the Japanese peasant will distinguish him almost at once from the particularly hairless South Chinese.
[5] Nearsightedness. Although fairly common among the Japanese, a majority of them have glasses which correct the weakness.

Figure 1.—Comparisons between Chinese and Japanese

3. ADDITIONAL WAYS TO IDENTIFY JAPANESE

Besides the physical characteristics which have been listed, there are certain cultural peculiarities and mannerisms of the Japanese which will be helpful in identification. They are:

a. Speech

Among soldiers who have had the equivalent of an American high-school education, one may expect to find some knowledge of English. The Japanese language contains nothing like the English "l"; Japanese students usually have great difficulty with this sound, and replace it with the English "r." On the other hand, the Chinese usually render "r" as "l." Any simple speech test in English will be useful in identification. For example, speaking the sentence, "Robins fly," the Japanese with little practice in English will say, "Robins fry"; the Chinese will read these sounds in the opposite manner: "Lobins fly."

b. Gait

In walking, the Japanese frequently shows poor posture and is inclined to shuffle. At home he is accustomed to wearing wooden clogs (*geta*), held to the feet by leather thongs between the great and second toes. This clog is a small platform on short supports which is not lifted completely from the ground in walking. The manner of wearing *geta* often produces a slovenly step in marching. The feet of the Japanese soldier some-

times have an abnormal space between the great and second toes. On the side of the larger toe a callus frequently develops due to pressure from the thong of the *geta*.

c. Teeth

The Japanese usually have poor teeth. Because of this characteristic, extensive dental repair is rather noticeable among the people. Protruding ("buck") teeth are common. The Chinese possess better teeth, which are straighter and less marked by dentistry.

d. Personal cleanliness

Whenever it is possible to do so, the Japanese bathe once a day. Instances where cleanliness is neglected are extremely rare. Soldiers improvise apparatus for heating water when bathing facilities are not present.

e. Underclothing

A very large number of Japanese soldiers may be identified by two articles of underclothing:

(1) *Waist band.*—A thick, knit-ribbed woolen band (*domaki*) is frequently worn about the waist—both in summer and in winter—particularly by farmers and laborers. The Japanese believe that the warmth of this girdle assures greater physical strength. In addition, the soldier may wear a band of yellow cloth, with numerous red stitches on it, as a token of "protection" in battle. These symbols of luck are pre-

pared by women of the soldier's home community as farewell gifts.

(2) *Loin cloth.*—Men in uniform usually wear a loin cloth (*fundoshi*) in place of foreign-style underclothing. This article is made of a light-weight cotton material, supported by a narrow band about the waist. The undersash is loosely folded. It has been reported that this material is lined with pockets to conceal weapons or explosives. Although a small knife might be carried in the cloth, the soldier will not ordinarily hide small firearms in this way.

4. AVERAGE HEIGHT AND WEIGHT OF JAPANESE SOLDIER

The average American soldier is both taller and heavier than the Japanese. His height is approximately 5 feet 8 inches and his weight 150 to 155 pounds. The average height of Japanese recruits is 5 feet 3½ inches; their average weight is 116 to 120 pounds. Thus American forces are physically superior to the extent of about 4½ inches in height and 30 to 35 pounds in weight.

In the preceding table the arms and legs of the Japanese peasant are described as short and thick. The limb measurements of the American soldier normally exceed these specifications. Although these characteristics of the Japanese physique often denote great muscular power and endurance, in agility they are probably excelled by the American soldier. It is com-

monly supposed that all Japanese are trained in *judo* (ju-jitsu), the art of self-defense, and that they possess unusual ability in hand-to-hand combat. Undoubtedly a large number of soldiers have acquired skill in this exercise through training in school. But the value of *judo* frequently is overrated by foreigners. Furthermore, the average peasant type of soldier, even with thorough muscular training, usually remains rather awkward in movements of the body.

Section II. GROUND FORCES[1]

1. IN THE PHILIPPINES

a. Tactics

(1) *Infantry.*—As a rule, Japanese infantry in the Philippines started their attacks just before darkness or at night. In nearly every case, the attacks were flanking movements carried out by forces ranging from individual snipers to fairly large groups of soldiers. These groups worked separately, not worrying about the men on their right or left. They sneaked around the flanks or through gaps, and then imitated bird calls so that they could detect each other's whereabouts and meet. Regardless of the opposition encountered, these men maintained an aggressive effort to accomplish their mission. They tried to clear out certain designated areas during the night and have them completely occupied by dawn. Usually the attacks were made on

[1] Practically all the information given in this section was obtained from United States military observers who were on the battlefronts involved.

small fronts of about 1,000 yards. Sometimes the infiltrating groups, behind or to the flanks of our lines, would remain quiet for 2 days or more while other groups infiltrated through to strengthen their positions for attack. These tactics were successful mainly because of the jungle country, and because the Japanese had the most troops and complete air superiority.

The Japanese made good use of a .25-caliber light machine gun, which was easy to handle in the jungle. The gun often was carried strapped to the back of one man, who acted as the bipod when the gun was fired, while another man with him acted as gunner. When a target was observed, the first man flopped to the ground, with the gun on his back, and the gunner flopped behind him and fired the gun. As soon as a clip of ammunition was fired, they would roll over, 10 yards or more, and open again on the same target. By repeating this several times, the Japanese tried to lead our troops to believe that two or more machine guns were operating against them. At first, some of our troops believed that this .25-caliber was a Tommy gun.

The Japanese sniper wore a split-toe, rubber-sole ankle-shoe, which had a cheap cloth top. He wore a headnet cover over a steel helmet and a loose shirt or smock, which had several patterns of green and white colors in wavy lines.

One apparent weakness of the Japanese in jungle tactics was their practice of throwing their full strength

into the battle at the beginning. This method worked all right when it succeeded in driving back our forces. Such tactics would be dangerous if the opposition were to hold and counterattack strongly.

(2) *Artillery.*—The Japanese handled artillery very well, except that at the beginning they showed they were not used to combatting opposing artillery. They did not conceal their guns, and they moved forward with truck columns under artillery fire or tried to occupy a town within U. S. artillery range. However, the Japanese learned quickly from experience, although only after suffering heavy casualties.[2] Although their fire generally was effective, it never was very heavy except just before the fall of Corregidor. The Japanese concentrated artillery on Bataan after it fell, and plastered Corregidor heavily with the aid of an observation plane and observation balloon. Their 150- and 105-mm guns were the most effective weapons in the bombardment, although a few 240-mm guns were used.

The Japanese battery included a fifth gun. While four guns were firing on a target, this fifth gun would fire on a new target to get the range and make other firing adjustments. So, when the battery had completed fire on a given target, it had all the fire data on a new one and could begin heavy firing at once.

[2] Our artillery killed as many, if not more, Japanese than did all the rest of our weapons. The total Japanese casualties were much higher than ours, but ours were comparatively low. Most of our casualties were from small-arms fire.

(3) *Chemicals.*—The Japanese used no smoke or poisonous gas. They attempted to burn the woods on Bataan without success.

(4) *Refugees.*—The Japanese destroyed considerable civilian property at the beginning of the war to force refugees into our lines. Between 10,000 and 30,000 refugees flooded Bataan, adding greatly to our supply problems.

b. Equipment

(1) *Rifle.*—The .25-caliber rifle was the only one used by the Japanese. Much lighter than our Garand, it was ideal for jungle fighting. In contrast to our rifle, the Japanese weapon gave no flash and did not make a loud noise. Use of smokeless powder by the Japanese in their rifles—as well as in their machine guns—gave them another advantage over us. Our Garand proved 100 percent effective, although a little heavy for jungle use.

(2) *Machine guns.*—These were of three types—calibers .25, .30, and .50. Their .30-caliber gun is heavier than ours and was not particularly suited for jungle warfare.

(3) *Grenades.*—Two types of grenades were used, a small and a larger size. Some of these were fired from small mortars which weighed from 5 to 10 pounds.

(4) *Mines and traps.*—The Japanese were cunning in the use of antitank mines on trails. They had plenty of mines and used them on all probable tank approaches.

They also resorted to the old jungle trick of fixing grenades on twigs and branches over trails. "Doped" food and cigarettes were dropped in places where our troops would be expected to find them.

(5) *Tanks.*—The Japanese had a large number of small tanks in the Philippines, but they used them extensively only at the beginning of the war and near the end of the campaign. The tanks had a "V" front, and this sloping armor made them a hard target to hit solidly from the front. A good place to hit them is on a flat surface just below the "V" front. The tanks were well constructed.

(6) *Artillery.*—The Japanese used 47-mm antitank guns, some 75's, 105-mm guns, 150-mm guns, and a few 240-mm siege guns. The 47's stood up better than our 37's, and the 105's and 150's proved to be excellent weapons.

(7) *Personal.*—Leather equipment rots rapidly in the jungle because of the moisture, while webbed articles stand up well. Raincoats are greatly needed. All articles, such as mosquito nets and towels, should be green or brown.

2. IN CHINA

The Japanese have been playing "straight football" in China, leaving off the trick devices used in Malaya and the Philippines. Usually they throw almost everything into the front lines to start a battle and withhold

very few reserves. Pursuit is their specialty, and they prepare pursuit columns at the time of the attack. On the front they organize a holding battle and later place their main efforts on one or both flanks. Then the pursuit column goes into action, usually with tanks and other motorized vehicles. These columns generally push far ahead of the main body.

Smoke has been used freely by the Japanese in China, and some poisonous gases have been employed on a small scale.

Japanese rifle fire, .25-caliber, has not been very accurate when judged by our standards, and their pistol marksmanship is considered "lousy."

Very few tanks are used because gasoline has been hard to obtain.

As in Malaya and the Philippines, the Japanese use mortars and grenades to great advantage.

Considerable attention is devoted to camouflage. Every man has helmet and body nets, and all artillery units have nets for their pieces.

Section III. PARACHUTE FORCES

1. INTRODUCTION

Since the war began, the Japanese have used parachute troops only twice on a large scale—at Palembang, Dutch Sumatra, and on the Island of Timor, near Java. In September 1941, reliable reports indicated that they had three battalions and two companies. Each battalion consisted of a headquarters staff and supply section (not air-borne) and three companies. The total strength of a battalion is 670 to 700 men. Enlisted men, as well as officers, attend special courses in foreign languages and in map reading. All officers are drawn from the air force and must not be over 28, except the battalion commander, who must not be over 35. The age limit for enlisted men is 25.

2. OPERATIONS ON TIMOR

a. Landings

A battalion of about 700 parachutists were dropped to support a Japanese landing operation on Timor. About 350 were dropped one day and the same number the next. They jumped from transport planes, each of

which carried 15 to 24 men, at heights of 300 feet. Section leaders came down in blue parachutes and platoon leaders in red ones.

The landings were made about 0830 (8:30 a. m.) in bright sunlight with no wind. The principal landings each day were about 5 miles from our fixed defensive areas and on our lines of communication. Bomber and fighter planes protected the troops while the latter were landing, by bombing and machine-gunning the nearby areas. The terrain on which the landings were made is mostly flat country, covered by trees varying between thick undergrowth and high palm trees 15 to 20 feet apart.

b. Results Obtained

The operations as a whole were very successful, partly because our forces had no fighter planes to oppose the landings and to prevent the Japanese bombers and fighters from bombing and strafing the defenders. In one instance the paratroopers landed within 1½ miles of one of our company positions, and in another instance they surrounded one of our battalions and prevented it from breaking through to safety.

c. Equipment and Supplies

The parachutists wore green uniforms buttoned at the neck and rubber boots. They carried wrist compasses and were armed with Tommy guns,[1] which they

[1] These may have been light machine guns, which the Japanese are known to have used in the earlier Palembang operation.

fired while dropping to the ground. Other equipment included small mortars and a large number of battery-operated radio sets. Each parachutist carried rice and compressed fish as emergency rations, wrapped in cellulose.

3. OPERATIONS AT PALEMBANG [2]

Approximately the same number of paratroops (700) were dropped at Palembang as on Timor. They jumped from about 70 transport planes, some of which had British markings on them. Their mission was to capture the airport and hold it until Japanese sea-borne troops arrived via the Moesi river, and also to capture two large oil refineries to prevent the Dutch from destroying them. A total of about 300 attacked defending troops at the airdrome, and about 400 sought to capture the refineries.

Nearly all the parachutists were killed or captured, except a group which managed to hold one of the refineries and prevent it from being destroyed. The other refinery was demolished by the Dutch. On the whole, the attack was a failure. It is believed that the Japanese underestimated the strength of the Palembang defenders. The parachutists had no assistance until the following day, when Japanese ground troops came up the river in transports.

[2] Fuller details on the Palembang operations were given in Information Bulletin No. 16, Japanese Warfare: A Summary. M. I. S.

Section IV. NEW GAS MASK

1. AS A WHOLE

The latest type of Japanese gas mask tested by our Chemical Warfare Service does not give the all-around protection that our service mask does. The Japanese mask also will not stand the "wear and tear" that ours will although it is very well constructed. It compares very favorably with the United States mask from the standpoint of gas-tightness and effective vision. The mask is lighter than ours, weighing 3.4 pounds. Almost all the parts are made of metal except the angletube which is made of brass.

2. FACEPIECE

The facepiece and the breathing tube are made of rubber with a covering of elastic-knitted textile fabric. The tube is made with folds or furrows, much like our own. The eyepieces are made of shatterproof glass. The brass angletube contains the air inlet and outlet valves—the outlet valve is hinge-covered. There is a clamp at the junction of the breathing tube and the can-

ister to keep out water in case the mask should be submerged. There also is a plug in the canister inlet at the bottom. The facepiece permits an interchange of optical and service lenses, and it appears to have no essential weaknesses.

3. CANISTERS

Two types of canisters are used, both oval in shape. One is 5 inches broad, 6 inches high, and 2¾ inches deep and the other is 5 inches broad, 4½ inches high, and 2¾ inches deep. Each canister contains about 80 percent activated charcoal and 20 percent soda lime with a cotton filter. It differs from our canister in that the toxic fumes first pass through the filter, thus making it vulnerable to tear gas. This construction is one of the mask's major weaknesses. The canisters are good against nearly all other smoke gases and afford excellent protection against phosgene gas, a lung irritant, and chloropicrin, sometimes called "vomiting gas." However, the larger canister gives only fair protection against cyanogen chloride gas and the smaller one only negligible protection.

4. CARRIER

The carrier is a square pouch of light-weight olive drab duck—in fact, all the equipment carried in it is of this color. The equipment, which is kept in pockets, consists of a can of bleaching powder for decontamination purposes, a set of antifog plastic inserts for the lenses, and a bottle of nondimming fluid for the lenses.

PART THREE: UNITED NATIONS

Section I. CAMOUFLAGE

1. WHAT IS IT?

Camouflage is any and every means of hiding or disguising yourself from your enemy—misleading him as to your position, strength, and intentions—confusing him so that he wastes his blows and falls into your ambush.

2. POSITION IS ALL-IMPORTANT

The concealment of armies in the field is governed by principles as simple and logical as those illustrated in figure 4. Notice how much easier it is to see the soldier in the open than the one partly concealed in the grass. The shadow of the soldier in the open could easily be seen from the air, but the shadow of the man in the grass is hardly visible. If military installations and equipment can be sited in places where they are naturally harder to see, they will be correspondingly easier

to conceal. It is therefore important to discover what kind of siting is naturally noticeable and which is hard to see, and why. Like any other serious problem, concealment of armies in the field cannot be solved by guesswork. All such problems yield only to clear thinking and careful analysis.

Figure 4.

3. WHAT IS THERE TO HIDE?

Every human activity, from hoeing potatoes to building a blast furnace, leaves a visible mark upon the face of the earth. The marks made by an army differ from those made by a civilian population. If this were not

so, no camouflage problem would exist. Armies live differently, move differently, and work differently from civilian populations; so the marks they make are distinctive and easily identified.

The marks made by tank, motor transport, and artillery movement, trench-digging, and all other army activities differ greatly. If these marks are allowed to be obvious, the enemy will read them easily. Study of these marks will give him an idea of our strength and intention, and he will be able to lay his plan of action accordingly. Remember that these marks are not the work of "some person or persons unknown." They are made every time a soldier drives a truck or walks across a field of grass or digs a hole in the ground.

So long as our forces do not understand what kind of marks they are making in the ordinary course of our army work, and what makes such marks stand out, the efforts of a few camouflage specialists will be in vain. While they are trying to rub out one set of marks, thousands more are being made in other areas.

Our aim, then, is to hide the marks we make, or to find a way of making them less noticeable, or to disguise them so that they will not disclose valuable information to the enemy.

4. WHO IS OUR CHIEF ENEMY?

There are two enemies: the ground observer and the air observer. This study is concerned mainly with the air observer. Why? Because we are all familiar with

how things look at ground level. Concealment at ground level is primarily individual concealment or, at the most, concealment of relatively small bodies of men and materials.

With the air observer we are very much concerned, because most of us are not familiar with the airman's point of view. Hills, valleys, and other terrain features that hide opposing forces from each other at ground level mean little or nothing to the airman. Everything is spread out, as upon a plate, for him to view. Therefore, our problem is mass concealment. No part of a country can easily be made safe from the enemy's eyes, his cameras, or his bombs.

Unless our forces know how they appear to the enemy airman, they can hardly expect to deceive him. He sees them, and the marks they make, in all lights and at all angles. He can photograph them, and his photographs can be studied calmly and with instruments so exact that, for instance, a stereoscope reading of a good pair of vertical photographs will betray the presence of an artificial overhead cover that would easily escape the naked eye.

5. WHY DOES CAMOUFLAGE HELP?

Suppose a carefully camouflaged position has been photographed and detected, what can the enemy do about it?

If the position is within artillery range, he can train guns on it or he can mark it down on his map for future

attention. This is bad, but not necessarily decisive. The identification of forward positions and the shelling of them is to be expected. With defense in depth, not all important positions are within artillery range. Artillery fire is often directed by aircraft. Good camouflage of a position, even if the place is accurately pinpointed, makes it harder for the artillery observer to be sure that his battery is dead on the target.

If the position is beyond artillery range, it can for the time being be attacked only by aircraft. Admittedly, the airman will be given a pin-point map reference and possibly a copy of the air photograph. Nevertheless, he still must come over and spot his target before he can even start his preparations for attack. Let us examine what this means in the case of an airplane at 10,000 feet, flying at 250 miles per hour.

A number of seconds must elapse from the moment the airman thinks he has identified his target to the moment when he is certain he has identified it. From the moment he is certain of his target to the moment when he has made various calculations, set a course, aligned his bomb sights, and pressed a button to drop a bomb, a few more seconds must elapse. Finally, the bomb in its travel to earth moves forward an appreciable distance in hundreds of yards (fig. 5.) All this time the airman has been moving at 250 miles per hour. What it boils down to is this: to be sure of landing his bombs on or around his target on the "first run," the airman must correctly identify the target while he is

still anywhere from 3½ to 5 miles away from it. Even the dive-bomber is faced with a similar problem in a smaller degree—and he is usually more vulnerable.

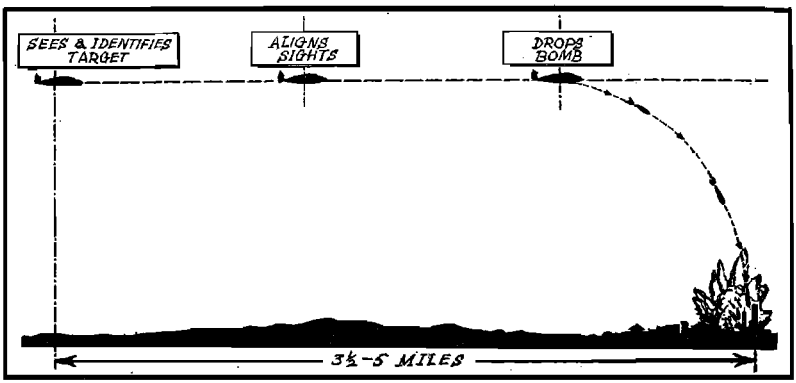

Figure 5.

Camouflage will not prevent the bombing of an area in which the enemy knows there are targets, but it lessens the danger of precision bombing. This may be decisive in keeping an important defense work in action.

It must also be remembered that a well-concealed position is less likely to get photographed in the first place. Air observers find it difficult to concentrate keenly for long periods. In the long run, they tend to see those things that are easy to see and to miss those that require sustained observation.

6. WHY ARE SHADOWS DANGEROUS?

The weapons of the enemy air observer are his eyes and the lenses of his camera.

The eye sees things in color and also in terms of light or dark. The camera sees things only as light or dark.

Artificial camouflage should blend with the color of its surroundings as perfectly as possible in order to deceive both the ground and the air observer. But for various reasons, the airman flying at some thousands of feet is far more conscious of the lightness or darkness of objects on the ground that he is of their color.

7. WHAT MAKES THINGS LOOK LIGHT OR DARK?

All other things being equal, a dark brown field will look and photograph darker than a pale green one. But even with surfaces of the same color, the thing that determines how light or how dark they look is texture. By texture is meant the degree of smoothness or roughness of a surface and its ability to cast a shadow.

Take a smooth and level surface in any given color—say green. (See fig. 6.) Rays of light strike it and are reflected in parallel rays, much as tennis balls bounce off from a smooth court. A high proportion of the rays enters the eye or camera, and an effect of lightness is produced.

Take another surface of the same color, lit the same way, but uneven or rough. The rays are reflected at all angles, just as tennis balls would bounce off a sheet of corrugated iron. A lower proportion of rays reaches the eye or lens. An effect of relative darkness is produced.

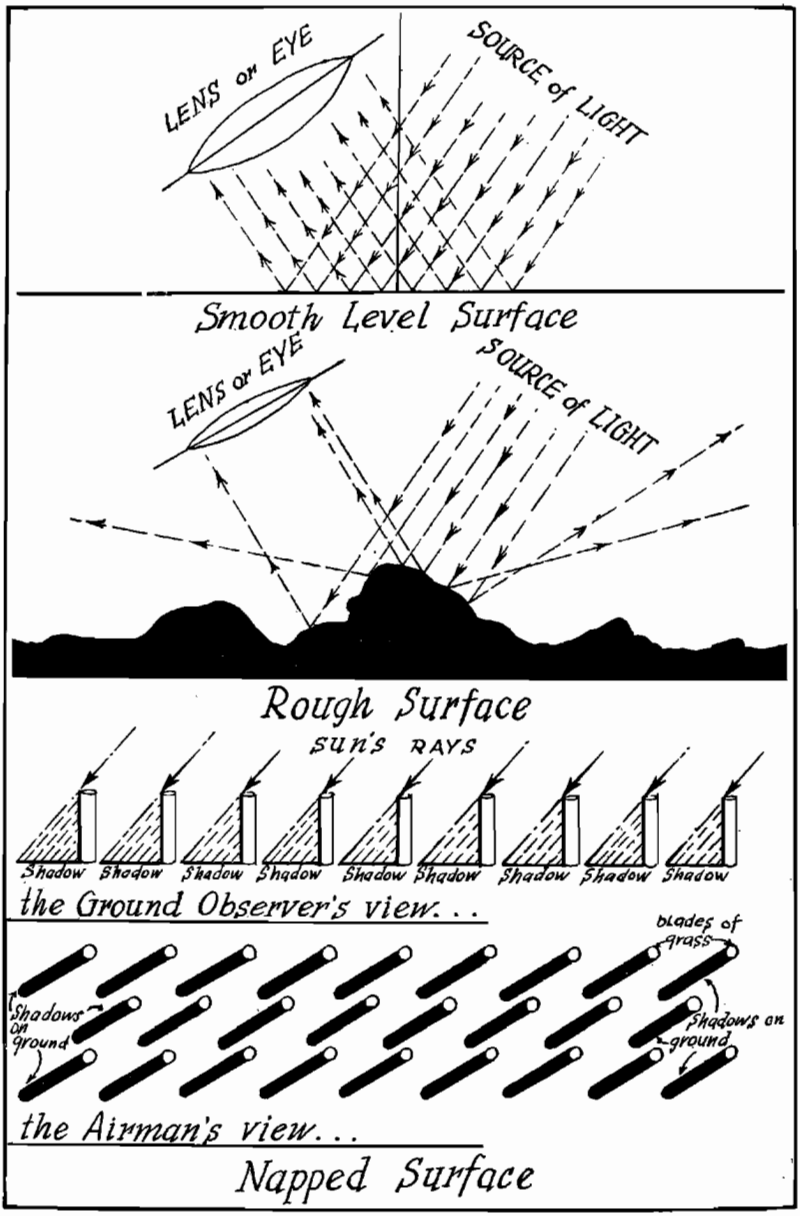
LENS or EYE
SOURCE of LIGHT
Smooth Level Surface
LENS or EYE
SOURCE of LIGHT
Rough Surface
SUN'S RAYS
Shadow Shadow Shadow Shadow Shadow Shadow Shadow Shadow Shadow
the Ground Observer's view...
blades of grass
Shadows on ground
Shadows on ground
the Airman's view...
Napped Surface

Figure 6.

Take a third surface of the same color, lit the same, but with a "nap," or texture—like grass or strands of wool, with each strand capable of throwing a shadow. Looking straight down, the airman sees all the shadows, whereas the man on the ground may not. The surface may look light at ground level but to the airman the "napped," or textured, surface produces an effect of relatively great darkness. Water is an exception to this rule. For a variety of reasons depending upon local conditions, water may look and photograph blinding white or inky black. Seen from the air in full sunshine, a natural shadow is almost always the blackest thing on earth.

It is possible in certain angles and conditions of light to produce, with black paint, a dummy shadow as dark or even darker than a real shadow. These conditions are rare. It is a good working rule to say that whereas black paint will often photograph and look surprisingly light in tone, a real shadow always looks almost black.

This rule about light surfaces and dark surfaces is worth re-stating. A clear understanding of it is indispensable to successful concealment in the field.

Of a variety of surfaces all having the same color and all lit in the same way and viewed from the same point, the smoothest and most level surfaces are the lightest; the rougher and more uneven they are, the darker they tend to become, and the surfaces with the heaviest "nap," or texture, look the darkest.

8. WHAT DOES THIS PROVE?

In trying to conceal any military work or equipment in grass or other substances with a similar sort of "nap," concentrate on getting the right texture. Paint alone will never give it to you.

Wherever grass or other vegetation has been trodden flat or scraped away and its place taken by bare earth or concrete or smooth wood, it is bound to show up lighter than the surroundings because the texture that throws the shadows and makes the surroundings look dark to the airman has been destroyed. You may correct this to some degree by painting or otherwise coloring the damaged or changed surfaces with a much darker color than the surroundings. But the quality of the painted patches will still be different and noticeable.

There are many ways of trying to restore the original nap: returfing the soil; sowing grass or other seed; planting quick-growing weeds; sprinkling with coarse ashes or stones mixed with the right coloring agent; or applying a tar coating, topdressing this with heather, seaweed, frayed rope-ends, scraps of burlap or old sandbags, and then spraying a suitable color over the surface.

How does this theory of light and dark work out in nature? The things that look light to the airman are the smooth and level surfaces—roads, sunlit roofs, concrete surfaces, painted surfaces, close-cut lawns,

smoothly raked dirt, bare patches in grass fields, and places where grass has been flattened.

The things that look darker are uneven ground, plowed land, surfaces covered with marsh grass clumps, reeds, or similar growth.

The things that look darkest are shadows, and the deeply "napped," or textured, objects such as uncut crops, very thick scrub growth, hedges, and trees.

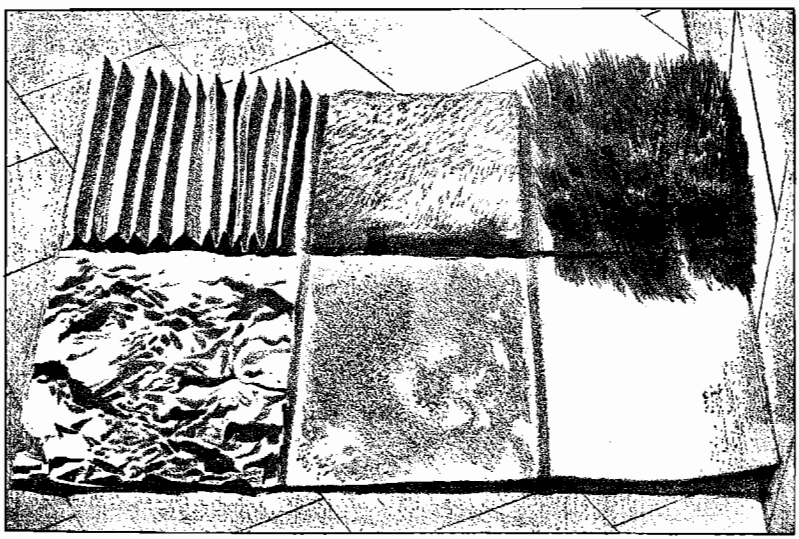

Figure 7.

9. WHAT SORT OF PICTURE DOES THE AIR OBSERVER SEE?

Just as persons on the ground are accustomed to group landscapes into different classes of scenery—

seaside, lake, mountain, city, and suburban—the airman naturally enough sees the world below him as a series of different sorts of scenery according to where he is flying.

a. Desert pattern with sandhills

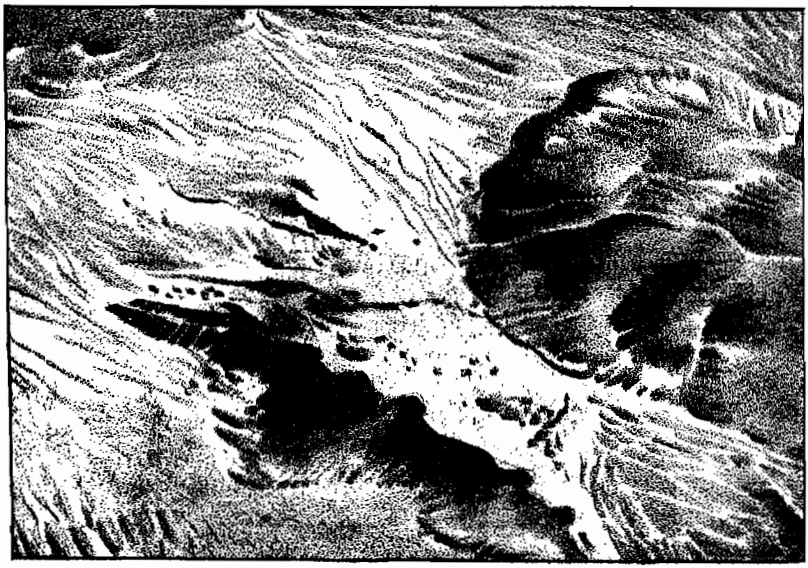

Figure 8.

Figure 8 is an air view of desert land with some sandhills and a little broken ground. The unevenness and the tendency of the hills to cast shadows should be noted. Dark lines and areas on a light background are especially conspicuous.

b. Another desert pattern

Notice the streak of dots caused by scattered clumps of camel grass and scrub. A few more spots of the same shape or size would not be noticeable among or beside these.

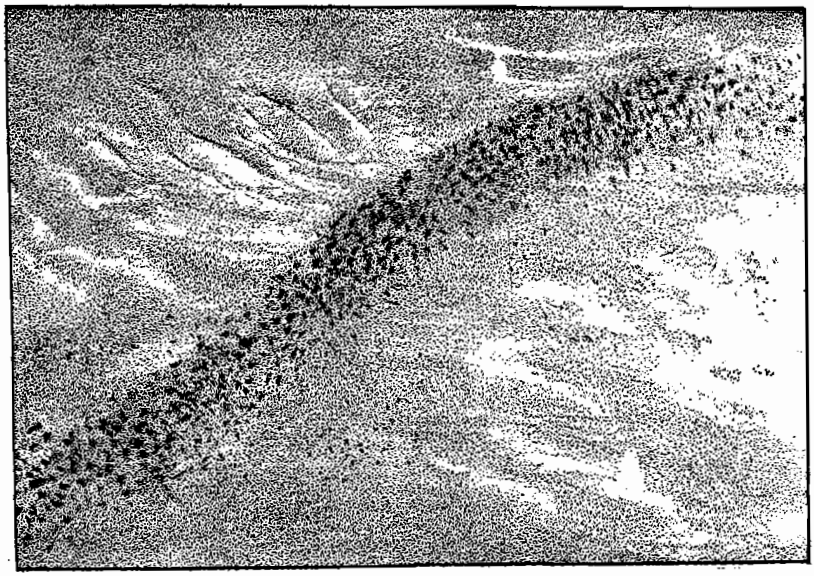

Figure 9.

c. Wadi [1] pattern

This is how typical wadi desert country looks—the airman's view of the sort of country found near Bardia or Tobruk in Libya.

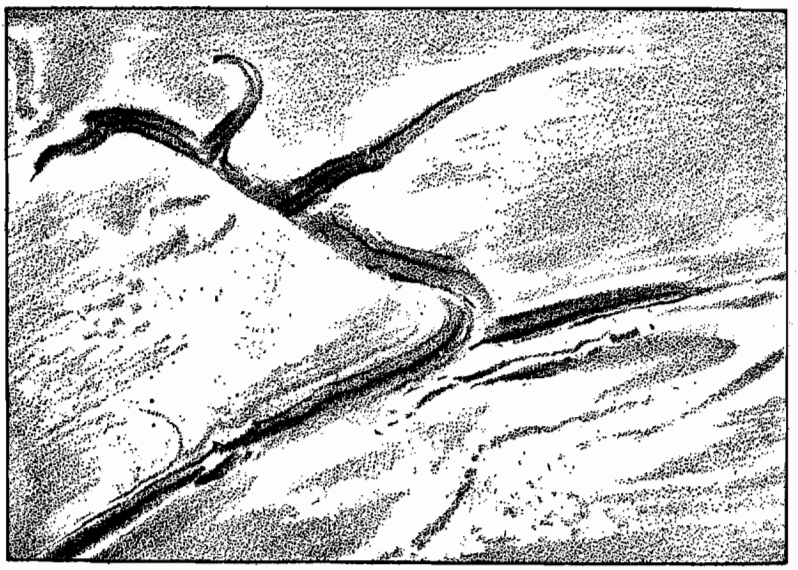

Figure 10.

[1] See footnote on page 15.

d. Polka dot pattern

This is how the scattered thorn-tree bush, as found in many parts of Sudan, Africa, looks to the airman. Any country with scattered trees on a fairly level or rolling plain will look something like this.

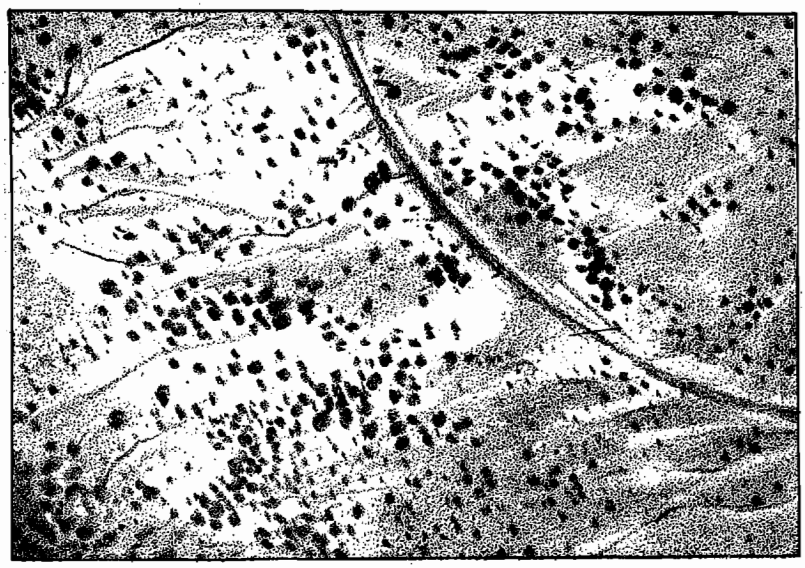

Figure 11.

e. Woolen, or carpet, pattern

Any place where the ground is more or less covered with a carpet of low scrubby vegetation such as heather, very tufty grass, or reeds, will look like a rough homespun material, tweed, or coarse woolen fabric of a somewhat patchy or blotchy character.

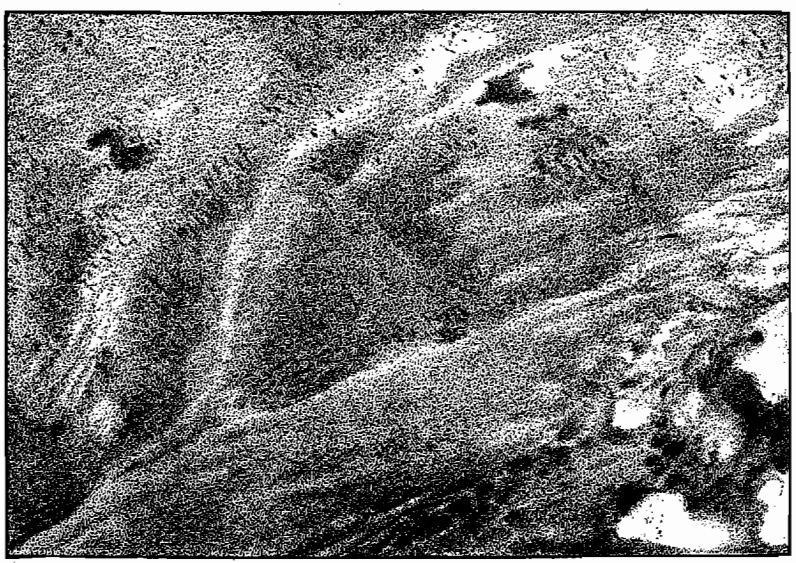

Figure 12.

f. Crumpled, or beaten metal, pattern

Rugged mountain country looks like beaten metal in deep relief or like a heavy material that has been bunched up together.

Figure 13.

g. Patchwork-quilt pattern

All farming country has the same general characteristics. This is logical. Farmers everywhere live and work in much the same way; therefore they are bound to make much the same sort of marks on the ground.

The marks they make always look like a patchwork quilt—sometimes the patches are more regular than at others, but the general effect is always the same. The picture shows typical farming country in Northern Ireland.

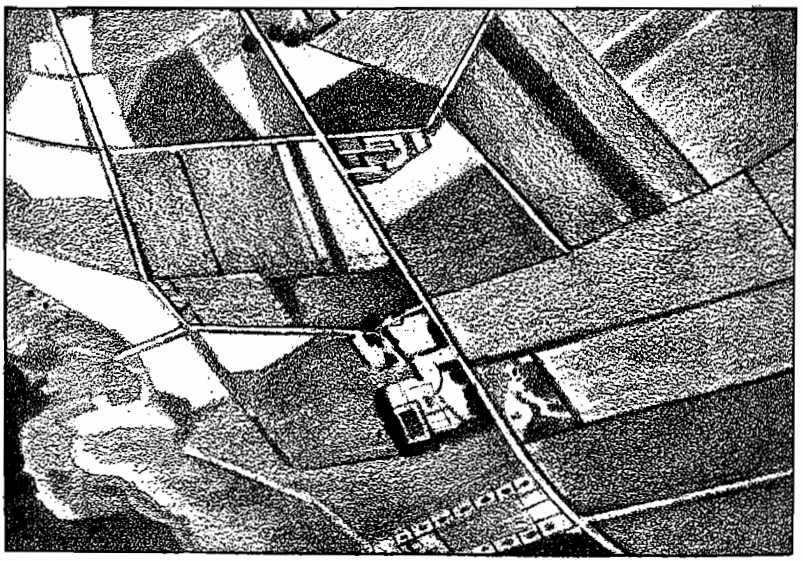

Figure 14.

h. Geometrical pattern

All cities present much the same general appearance. Most of them have been laid out on regular surveyed lines; their intersecting streets and avenues, their squares and crescents, parks, gardens, and other civic improvements give the impression of a formal pattern printed on a piece of cloth. Opportunities for camouflage matching the existing pattern of a city are almost unlimited.

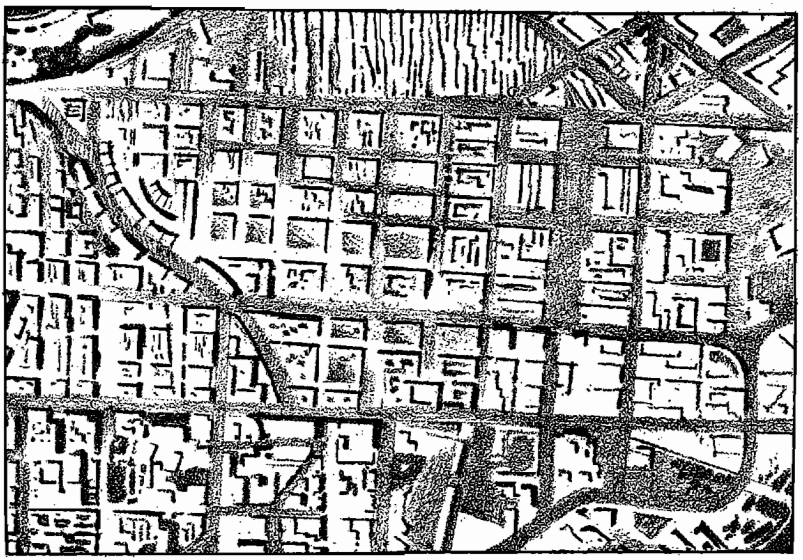

Figure 15.

i. Conclusion

Any intelligent person, having seen these examples, ought to be able to form a fairly accurate opinion of the pattern of any particular area in which he finds himself. He should be able to guess with reasonable accuracy what pattern it presents to the airman some thousands of feet overhead.

From this beginning, it should be possible, with a little imagination, to decide how men and matériel may best be fitted in with this pattern so as to gain as much concealment as possible.

NOTE.—This study of camouflage will be concluded in the November issue of the INTELLIGENCE BULLETIN.

Section II. NIGHT COMBAT BY RUSSIAN CAVALRY

1. GENERAL

The Russians have proved that there is a definite place for horse cavalry in battle, despite the wide use of mechanized forces and airplanes in modern warfare. By operating at night, cavalry avoids attack by aircraft, and moves, dismounts, and strikes with much more surprise than during daylight hours.

2. METHODS OF ATTACK

The success of a night attack depends largely upon careful reconnaissance of the enemy positions. A commander's reconnaissance includes the approaches to the enemy's positions and the location of his firing points and outposts. Before nightfall, all steps have been taken to provide absolute secrecy of movement. The plan of every assault group is worked out in detail. Units are designated to seize outposts and guards, and to deal with the automatic riflemen, the machine-gun

crews, and the tank crews when they come out of bivouac.

In moving to the point from which the attack is to be made, the Russians do not fire a shot, unless the Germans open fire. In this case all Russian fire power is put into action.

Experience has taught the Russians that it is difficult for cavalry to use artillery in night operations, except while on the defensive. Normally, the cavalry regiments and squadrons take along their heavy machine guns in carts. The machine guns are capable of accomplishing the mission usually assigned to artillery. Antitank units are equipped with antitank weapons, grenades, and bottles of gasoline ("Molotov cocktails").

All equipment is carefully inspected before the cavalry leaves for the attack. Stirrups are wrapped with felt or straw. At a point about 3 to 5 miles from the enemy positions, the machine-gun carts are left in the open and the guns and mortars are carried in pack. The troops dismount again in open areas near the enemy outposts, and the horse-holders hide the horses.

If the mission is to seize a particular point, machine guns and mortars support the action without a let-up until the point is taken. If the mission is to destroy an enemy unit, the troops return when the mission has been accomplished. In this case the machine guns and mortars are placed in positions where they can also provide fire for the withdrawal of the units, in addition to supporting the attack.

These night attacks are planned so as to be completed 2 or 3 hours before daybreak. The Russians need this time interval in order to return to their original positions without being exposed to air attacks.

3. EXAMPLE OF TYPICAL ATTACK

The following is quoted from a Russian report as an example of typical cavalry night operations against a village:

"Two days were required to prepare this attack. The village was 22 kilometers (about 14 miles) from our division position. A troop had been sent out on reconnaissance. It went out on the highway, concealed itself in the forest, and observed road movements; it determined the enemy strength, location of outposts, and location both of tank parks and night bivouacs, as well as the headquarters and rear elements.

"The approaches to the town were important. West and south were two ravines too rough for tanks. The decision was to attack from the north and east. These directions would permit cutting off any attempt of the Germans to withdraw along the highway which ran north of the city. They would catch the enemy under crossfires and at the same time avoid danger of firing on our own troops. Since one regiment attacked from north and the other from east to west, this danger was averted.

"The division moved out in two columns at 1900; at 2400 it assembled 3 kilometers (about 2 miles) from the

town, dismounted at once, and went into action. To insure surprise, the attack was made without the use of signals. The outguards were jumped without noise, and the units advanced on the bridge in the town. Here three German guards opened fire, but it was too late. Our troops threw grenades into the houses used as quarters, the assault groups attacked the firing positions, and 15 tanks were put out of action. The remaining tanks moved to the highway, but our engineer units had blown up the bridge. The fight ended at 0500, and from then until daylight (in December, about 0800) the troops returned to their position unnoticed by enemy aircraft.

"Our missions are usually for the purpose of opening the way for the infantry.

"As a result of these attacks, the Germans are now posting strong outguards, and even more careful reconnaissance is required.

"During such night attacks the Germans try to capture our horse-holders."

Section III. "DO'S" AND "DON'TS" FOR BRITISH ARMORED UNITS

1. INTRODUCTION

British armored forces have gained considerable experience in desert warfare while fighting the Germans and Italians in North Africa. The British, out of their first-hand knowledge of armored warfare, have compiled a list of "Do's" and "Don'ts" for armored units.[1] The list, which the British do not intend as a complete study of the subject, is presented here in part for the information of our troops.

2. THE LIST

a. Radio

(1) Never use radio if you can communicate by any other means without loss of efficiency.

(2) No station lower than company commander will acknowledge orders by radio.

[1] United States military doctrine on this subject may be found in FM 17–10, Armored Force Field Manual: *Tactics and Technique.*

(3) When receiving a radio order, keep hand on switch in readiness to acknowledge instantly in correct sequence. Do not hesitate to "break in" if previous station has not acknowledged after the prescribed wait.

(4) If your immediate superior has not acknowledged a radio order after it has been repeated once, acknowledge and act on his behalf.

(5) Think before you switch to "send" and know exactly what you are going to say.

(6) Make your messages and orders brief and simple, containing the barest essentials.

b. Tactical

(1) Learn to fire on the move in case the terrain and hostile fire do not permit you to halt.

(2) When you come under hostile fire, run into a position giving defilade to the tank hull if possible. If there is no "hull-down" position, keep moving. When taking up a hull-down position, the gunner must give the order to halt, just as his sights break the crest. This saves unnecessary exposure.

(3) In open terrain, do not stay in position when being engaged by tanks heavier than your own or by antitank guns firing at effective ranges. Under these conditions, the aim must be to advance diagonally at a good speed into effective range, fire a number of rapid and accurate rounds, and break off action diagonally at a good speed. The latter maneuver can be covered by smoke.

(4) Do not waste ammunition by firing at ineffective ranges, even if you are being shot at.

(5) Do not engage in a slugging match with heavier opponents. Engage them by short and rapid bursts of fire and frequently changed positions, whether you are in a hull-down position or not.

(6) Your primary aim must be to gain surprise. Use trickery. Attract attention in one direction, and hit from another.

(7) If you are suddenly engaged in the open by concealed antitank guns, an attack carried out at high speed is not only the most effective, but the safest course. Often there is no time to make a plan and one cannot halt. Tank commanders and drivers must use their initiative and adopt a bold course. For example, swing right or left, go fast for the enemy's flank, and charge right in.

(8) Never abandon a tank or crew under fire if there is a reasonable chance of getting them away.

(9) Remember that enemy tanks are normally supported closely by antitank guns; therefore always be wary of attempting to attack enemy tanks in rear. Keep a weather eye in that direction.

(10) Remember that tanks must never be used as stationary pillboxes to hold a position exposed to enemy fire. They may take up a position of observation from which they will be ready to attack the enemy. This may be by fire from a hull-down position or by fire and movement.

(11) Whenever possible, fight with the sun behind you. Whenever possible, fight into the wind.

c. Drivers

(1) Keep changing direction. For example, if your gunner is firing, pull up one steering lever after every shot fired. Do not keep jerking the lever back and forth. Make bold changes.

(2) Do not be afraid to "step on the gas" when in action. The faster you go, the higher your morale will be, and the fewer your chances of being hit.

(3) Never reverse in order to turn, unless you are on dead ground or in a hull-down position.

(4) Supply units must be given plenty of night driving, and all stop lights, horns, and so on must be disconnected.

(5) At halts, vehicles must pull to the right and get off the roads.

(6) In daylight, distances between vehicles must not be reduced under any circumstances. The unit which moves at close distances invites unwelcome attention from enemy aircraft.

(7) Tanks must not "track" each other. Vehicles in a straight line make an excellent target for enemy strafing; they raise more dust, which gives away their position.

(8) When halted, units should arrange themselves so that not more than three vehicles are in a straight line.

(9) Tracks in flat, sandy terrain are numerous and varied. It is never safe to imagine that because a track is wide and much used, it is the one marked on the map.

(10) If the tactical situation permits, always halt with your radiator into the wind.

(11) In soft sand, never follow the tracks of the vehicle in front.

(12) In soft sand, do not attempt to turn sharply.

(13) Select the gear you think best before you reach a soft area, and do not wait till you are in the area before shifting.

(14) Go for a soft area as fast as you can, with safety, and hope that momentum will carry you over.

(15) Do not follow the vehicle in front too closely.

(16) Use your clutch with care.

(17) In soft sand, never use your brakes. Allow yourself to roll to a halt.

(18) Whenever possible, stop on a downhill slope, no matter how slight.

(19) If you have to lower tire pressure for a long soft stretch:

i. Do not lower it more than one-fifth;
ii. Pump up as soon as possible;
iii. Do not let the tires get too hot to touch with hand;
iv. Mark the position of the cover on the rim to check up on creeping.

(20) When you get stuck do not use your engine in useless attempts to get out. Dismount (except driver)

and try to get out by pushing. If this is no good, use sand mats on your metal troughs or, as a last resort, wait for a tow.

(21) If you break down or get lost, stay by your vehicle, ration your food and water at once, and by flashing a mirror, waving a flag, etc., help those who are looking for you.

(22) If you see a vehicle stuck, do not drive straight up to it or you, too, will probably get stuck.

d. Protection

(1) Windshields of trucks should be painted with a mixture of sand and oil to prevent flashing in the sunlight.

(2) When at a halt, dig a trench big enough to house and protect the crew, but small enough so that you can drive the tank over the trench.

(3) Park vehicles so that they won't make obvious targets. Don't forget to make use of natural camouflage.

e. Navigation

(1) Always trust your direction-finding instruments before your instinct.

(2) The navigator is not necessarily right. The commander or second navigator should always check up on him. If necessary, a halt should be called for a moment to check up. It is better to do this than to go miles off a course.

(3) Be sure that speedometers on the navigator's vehicles are working and in order.

f. Maintenance

(1) Stick as closely as possible, within operational limits, to the rules laid down for cleaning oil-bath air filters.

(2) Check tire pressures frequently. Correct pressures are most important.

(3) Wipe the top of the gasoline cans before you fill the vehicle tank. The dust and dirt which get into the carburetor and engine, when this task has been neglected, have caused many breakdowns at critical times.

(4) Washing water may be strained and used in radiators in the event of shortage.

Section IV. HOW THE BRITISH SAY IT

1. GENERAL

Basically, there are not many differences in the language spoken by us and that spoken by the British. However, we use quite a few words and expressions which do not mean the same thing to them. A list of the most widely used of these words and expressions and what they mean to the British is given below:

2. GROUND FORCE TERMS

American	*British*
Advance party.	Van guard.
Airdrome.	Aerodrome.
Air defense command.	Fighter command.
Ambulance loading post.	Car post (CP).
Ammunition distributing point.	Ammunition point (AP).
Antitank fire.	Pak.
Assault fire.	Fire on the move.
Attacking echelon.	Leading troops (Leading tps).
Bivouac for armored formations or units.	Harbour.

American	*British*
Canteen.	Water bottle.
Cantonment.	Hutment.
Cargo truck.	Load-carrying lorry.
Casualty agent (chemical).	Poisonous gas.
Classified documents.	Protected papers.
Collecting station.	Advanced dressing station.
Combat aviation.	Operational squadrons.
Combat echelon.	Fighting group (echelon).
Combat zone.	Forward area.
Command post.	Advance Hq.
Company train.	Company transport.
Company transport.	A1 and A2 echelons.
Conduct of fire.	Fire control.
Daily telegram.	Daily ration strength state.
Danger space.	Danger area.
Dead space.	Dead ground.
Defensive zone or defense area.	Defended locality.
Distributing point.	Delivery points.
Dump truck.	Tipping lorry.
Encircling force.	Enveloping force.
English soldier.	Tommy (Atkins).
Engineer.	Sapper.
Enlisted men.	Rank and file.
Entrucking (point).	Embussing (Point).
Estimate of the situation.	Appreciation of the situation.
Field order.	Operation order (OO).
Field train.	"B" Echelon transport. (B Ech tpt).
Fixed fire.	Fire on fixed line.
Fox hole.	Weapon pit.
Fragmentation bomb.	Anti-personnel bomb.

American	*British*
"H" hour.	Zero hour.
Hollow square formation of vehicles.	Leaguer (Laager).
Identification panels.	Ground strips.
Identifications.	Divisional signs and unit flashes.
Interdiction fire (complete).	Concentration fire.
Interdiction fire (partial).	Harassing fire.
Irritant smoke.	Toxic smoke.
Journal.	War diary.
Kitchen police.	Cookhouse fatigue.
Limiting points.	Junction points.
Line of departure.	Start line.
Long ton.	Ton.
Low gear.	Bottom gear.
Main line of resistance	Forward defended localities.
Main supply road.	Main artery of supply.
Maintenance, first echelon.	Daily maintenance by driver.
Meeting engagement.	Encounter battle.
Member of Australian or New Zealand Army Corps.	Anzac.
Message center.	Signal office.
Messenger.	Despatch rider (DR).
Meteorological message.	Meteor report.
Military blouse.	Tunic.
Military police.	"Red caps" (Corps of Military police).
Mine planter.	Mine layer.

American	*British*
Observation aviation.	Reconnaissance aircraft.
Oral order.	Verbal order.
Outpost area.	Line of outposts.
Overlay.	Trace.
Ponton.	Pontoon.
Prime mover.	Dragon.
Protective fire.	Covering fire.
Quartering party.	Harbouring party.
Radio.	Wireless.
Rain coat, trench coat.	Mackintosh.
Reconnaissance patrol.	Sortie.
Regiment (infantry or armored)	Brigade.
Replacement center.	Training or holding depot.
Retirement *or* retreat.	Withdrawal.
Rolling barrage.	Moving barrage.
Roof-top watcher for aerial bombers.	Jim Crow.
Rotating band (projectile).	Driving band.
Royal Navy enlisted men.	Ratings.
Sector of fire.	Arc of fire.
Security.	Protection.
Security detachment.	Covering detachment.
Sentry squad.	Sentry post.
Service train.	Supply units.
Shelter.	Cover.
Signal Corps.	Royal Corps of Signals.
Support trench.	Second-line trench.

American	*British*
Table of Basic Allowances.	Mobilization Store Table.
Tables of Organization.	War establishments.
Taps.	Last Post.
Task force.	Special force.
Time interval.	Time allowance.
Transmission.	Gearbox.
Transport aviation.	Personnel or troop-carrying aircraft.
Troop movement by motor.	Embussed movement.
Urgent message.	Immediate message.
War Department intelligence.	War Office intelligence summaries.
Wrecker.	Recovery vehicle.
Zone defense.	Defence in depth.
Zone of action.	Boundaries.

3. AIR FORCE TERMS

American	*British*
A bomber pilot.	Bus driver (slang).
Antiaircraft fire.	Flak.
Executed a power dive.	Screamed downhill (slang).
Propeller.	Airscrew.
Storage batteries.	Accumulators.
To break formation to engage enemy.	Peel off, to.
To get a medal.	Gong, to collect a (slang).
To get going.	Get cracking, to (slang).

4. CIVILIAN TERMS

American	*British*
Air-raid siren.	Banshee.
(American) citizen.	(British) subject.
Apartment.[1]	Flat.
Apartment house ("Apartments for Rent")	Block of flats ("Flats to Let").
Apple pie.	Apple tart.
Baggage.	Luggage.
Baggage car.	Luggage van.
Bar, saloon.	Public-house, pub.
Beard.	Beaver.
Beets.	Beetroot.
Bell hop.	Page boy.
Bill (currency).	Banknote.
Billboard.	Hoarding.
Biscuits.	Hot breads.
Boots.	High boots, Wellingtons.
Bowl of milk.	Basin of milk.
Bumper.	Fender.
Candy.	Sweets.
Canned goods.	Tinned goods.
Checked baggage.	Registered baggage.
Chief of Police.	Chief constable.
Coal miner, coal ship.	Collier.
C. O. D.	Carriage forward.
Conductor (railroad).	Guard.
Cop.	Bobby (slang).
Construction crew.	Gang of navvies.
Corn.	Maize, Indian corn.

[1] An "apartment" in Great Britain is always a single room.

American	*British*
Crackers, cookies.	Biscuits.
Cross-ties.	Sleepers.
Dessert.	Sweet.
Dime novel.	Penny-dreadful.
Dirt.	Always means "filth" in England, not "soil".
Dish of rice, fish, and eggs, boiled together.	Kedgeree.
District Attorney.	Public prosecutor.
Druggist.	Chemist, apothecary.
Drug store.	Chemist's shop.
Drug-store clerk.	Chemist's assistant.
Dry goods store.	Draper's shop.
Elevator.	Lift.
Excursion bus.	Charabanc.
Fender.	Mud-wing.
Fish dealer.	Fishmonger.
Freight train.	Goods train.
French-fried potatoes.	Chips.
Game of checkers.	Game of draughts.
Gas, gasoline.	Petrol, motor spirit.
Grain (cereals).	Corn.
Hill, rocky peak.	Tor.
Hood.	Bonnet.
Intersection, street corner.	Crossing.
Jail, The English word is pronounced exactly as we pronounce "jail".	Gaol.

American	*British*
Laborer.	Navvy.
Lima beans.	Broad beans.
Local train.	Slow train.
Long-distance call.	Trunk call.
Mail.	Post, letters.
Mail a letter.	Post a letter.
Mail box.	Post box, pillar box.
Mechanic.	Fitter.
Molasses.	Treacle.
Monkey wrench.	Spanner.
Movie.	Cinema.
Movies.	Pictures, flicks, films.
Movie theater.	Picture palace, cinema.
Muffler.	Silencer.
Napkin.	Serviette.
Navy Department.	The Admiralty.
Newsstand.	Bookstall.
Oatmeal.	Porridge.
Overcoat.	Greatcoat.
Paved.	Metalled.
Pay day.	Wage day.
Peanuts.	Monkey-nuts.
Pep.	Bounce.
Phonograph.	Gramophone.
Pickled or canned beef.	Bully beef.
Pitcher.	Jug.
Policeman.	Constable.
Quotation mark.	Inverted comma.

American	*British*
Radio tube.	Valve.
Raincoat.	Waterproof.
Roll of film.	Spool of film.
Round trip ticket.	Return ticket.
Rumble seat.	Dickey.
Running board.	Footboard.
Salespeople, clerks.	Shop-assistants.
Schedule (sports).	Fixture card.
Scrambled eggs.	Buttered eggs.
Second floor (in England the numbering of the floors begins on the floor above the ground floor).	First floor.
Shoes.	Boots.
Shoestrings.	Boot-laces.
Sidewalk.	Pavement, footpath.
Soft drinks.	Minerals.
Spark plug.	Sparking-plug.
State Department.	Foreign Office.
Store.	Shop.
String beans.	French beans.
Storekeeper.	Shopkeeper.
Street car, trolley, electric car.	Tram.
Subway.	The Underground, the Tube.
Swamp.	Fen.
Taxi stand.	Cab rank.
Terminal.	Terminus.
Ticket office.	Booking office.
Tire.	Tyre, outer cover.
Tobacco (of inferior quality).	Shag.

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American	*British*
Track.	Platform.
Transmission.	Gear-box.
Truck.	Lorry.
Trunk.	Box.
Underpass.	Subway.
Undershirt.	Vest.
Vaudeville act.	Variety turn.
Vaudeville theater.	Music hall.
Vest.	Waistcoat.
Watch crystal.	Watch-glass.

5. SELECTED LIST OF BRITISH ABBREVIATIONS

A. D. S.——— Advanced Dressing Station.
A. F. V.——— Armoured Fighting Vehicle.
A. O. C.——— Air Officer Commanding.
A. R. P.——— Air Raid Precautions *or* Ammunition Refilling Point.
Bde.——— Brigade.
B. M.——— Brigade Major.
C. C. S.——— Casualty Clearing Station.
C. G. S.——— Chief of the General Staff (in the Field).
C. in C.——— Commander-in-Chief.
Coy.——— Company.
Cwt.——— Hundredweight. In England—112 pounds; in America—100 pounds.
D. C. M.——— Distinguished Conduct Medal.
D. P.——— Delivery Point.
D. S. O.——— Distinguished Service Order.
F. A. A.——— Fleet Air Arm.
F. A. P.——— First Aid Party (*or* Post).
F. D. L.——— Forward (*or* Foremost) Defended Locality.

Flt. Lt.	Flight Lieutenant.
H. M. A. S.	His Majesty's Australian Ship.
H. M. S.	His Majesty's Ship.
I. R. A.	Irish Republican Army.
M. C.	Military Cross.
M. D. S.	Main Dressing Station.
M. T. B.	Motor Torpedo Boat.
O. T. C.	Officers' Training Corps.
Pte	Private.
R. A.	Corps of Royal Artillery.
R. A. C.	Royal Armoured Corps *or* Royal Automobile Club.
R. A. M. C.	Royal Army Medical Corps.
R. A. O. C.	Royal Army Ordnance Corps.
R. A. P.	Regimental Aid Post.
R. A. P. C.	Royal Army Pay Corps.
R. A. S. C.	Royal Army Service Corps.
R. A. V. C.	Royal Army Veterinary Corps.
R. E.	Corps of Royal Engineers.
R. E. M. E.	Royal Electrical and Mechanical Engineers.
R. F. A.	Royal Field Artillery.
R. G. A.	Royal Garrison Artillery.
R. H. A.	Royal Horse Artillery.
R. H. G.	Royal Horse Guards.
R. M.	Royal Marines.
R. M. A.	Royal Marine Artillery.
R. Tanks	Royal Tank Regiment.
T. O.	Transport Officer.
V. A. D.	Voluntary Aid Detachment.
V. C.	Victoria Cross.
W. O.	War Office.
W. W. C. P.	Walking Wounded Collecting Post.

WHO THEY ARE

FIELD MARSHAL ERWIN ROMMEL (born in 1891) is a native of Wurttemberg. Apart from an attachment to a field artillery regiment early in 1914, his regimental experience has been exclusively infantry; he won a captaincy in World War I and was decorated with the Pour le Merite order. Early in the 1920's he met Hitler, became a Nazi party organizer, and later headed Hitler's personal police, the Elite Guard.

By the time Hitler took office, Rommel was a strong believer in mechanized warfare. Several years before the outbreak of World War II, he toured North Africa for his "health," and returned to Germany to plan what later was to become the *Afrika Korps* (Africa Corps). In the first year of the war, he became famous as the commander of the 7th Armored Division, whose sudden and decisive appearances during the campaign in the West earned it the title of the "Ghost Division."

He is resourceful, makes decisions quickly, thrives on action, and gets the utmost out of his men. A captured German officer said recently, "The important thing about Rommel is that he even can teach the Royal Italian Army how to fight."

One of his contributions to blitzkrieg is his method of changing tactics on a large scale, often for no other reason than to confuse the opposition. He is always prepared for a lightning-like switch from defense to offense.

FIELD MARSHAL SEMYON TIMOSHENKO (born in 1895) was hardly known to the Soviet people outside army circles, until May 8, 1940, when Stalin appointed him People's Commissar for Defense.

Back in 1915, Timoshenko, a Ukrainian peasant, was drafted into the Imperial Russian Army. During the Revolution he joined a guerrilla detachment in the Crimea and the Caucasus. His rise in the Red Army was slow until Stalin began to retire a number of generals. Since then, Timoshenko has risen rapidly. His first great military success was in the cracking of the Mannerheim Line in Finland. After this, he was allowed to put into effect his "Disciplinary Code of the Red Army," to reorganize the army almost single-handed, and to supervise future training.

○

A battle sometimes decides everything; and sometimes the most trifling thing decides the fate of a battle.

—Napoleon I