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Section I. DEFENSE AGAINST AIRBORNE FORCES

1. INTRODUCTION

Some Japanese tactical plans for use against airborne forces are presented in an enemy treatise which is paraphrased below. The document outlines the tactics that hostile airborne forces are expected to use, and then discusses countermeasures planned by the Japanese.

2. GENERAL

The Japanese believe that airborne forces are most vulnerable to ground attacks from the time their transport planes [and gliders] arrive over the landing area to the time when these forces complete their assembly for combat. A well-coordinated attack by the defenders during this period is the "key to victory," the enemy document states. Other important defensive factors include thorough reconnaissance and security measures in advance, to prevent surprise attacks, and the establishment of perfect communication and liaison between various units of the defending forces (especially in the case of air-ground communications and liaison).

Regarding the plan of attack by United Nations forces, the document reads:

In connection with landing operations by ground troops, the opposition [United Nations] may dispatch airborne troops inland for the purpose of capturing important military points, key communication centers, and important military installations, such as our airfields or other areas suitable for landings.

Thus the hostile forces will try to gain the initiative at the beginning of the landing operations. To maintain this initiative as the operations progress, the opposition, by close coordination with its ground fighting, may try to throw our rear into confusion by use of airborne forces: to cut lines of communication (especially transportation routes and communication lines), to interrupt troop movements, and to destroy command and liaison systems. Or, the enemy may use airborne troops in the areas where their ground forces are fighting, in an effort to make a decisive attack immediately.

To arrange successful countermeasures to the above tactics, it is necessary that our commanders be certain in their judgment of where and when the hostile forces will attack.

It is also necessary that commanders be prepared to engage small numbers of hostile airborne troops who may be landed in the interior [of an island or a considerable distance back of the major ground operations] for the purpose of throwing the inhabitants into confusion. Our forces should look for any change in the attitude of the inhabitants [as a means of detecting whether or not they may be hiding hostile troops].

3. PREPARATIONS

a. General

Regarding Japanese preparations for airborne attacks, the enemy treatise reads:

The commander of the security detachment must work very closely with all units concerned, especially the air units, in

detecting hostile plans and in disseminating this information. The commander will strengthen security measures in accordance with intelligence gained from air reconnaissance and from various intelligence reports and observations.

The security-detachment commander will bear in mind that hostile forces will often land at dawn or at dusk, and that first of all, they will usually make a thorough reconnaissance, establish a detailed plan of attack, and execute strafing and bombing attacks.

Because of this hostile reconnaissance, the security forces must try to conceal themselves completely against air observation, and, when the strafing and bombing starts, must fight back fearlessly and courageously.

In seeking concealment from the air:

(1) Use forests, buildings, and so forth, and their shadows as well;

(2) Cover with camouflage nets the positions which are exposed; and

(3) Disperse troops and execute movements rapidly if the orders above cannot be complied with.

It is especially necessary for security-detachment commanders to keep communication facilities in good order so that there will be no hitch in troop movements during an emergency.

The security-force commander will arrange for construction of defensive positions in areas suitable for airborne landings and in the vicinity of vital points which hostile airborne forces may try to capture. The commander also will make a proper tactical distribution of antiaircraft units and of other troops necessary to the defense.

Suitable places for hostile landings are:

- (1) Airfields and terrain suitable for aircraft landings;
- (2) Flat ground which has few, if any, obstacles;
- (3) Roads without obstacles;
- (4) Terrain on which planes can taxi; and
- (5) Bodies of water which can be used by seaplanes.

If the security-force commander feels that the enemy [United Nations] is planning an airborne attack in a particular area, he will strengthen its defenses by concentrating tank units there, as well as other additional troops. Their advance will be concealed from air observation.

Preparations must also be made for hostile "hit-and-run" attacks. (In these attacks enemy troops expect to be removed by planes after accomplishing their mission.)

b. To Defend Airfields

Regarding security measures for airfields, it is necessary to guard each airfield and its perimeter, as well as the planes and installations. Preparations must be thorough. A careful check must be made on civilians going in and out of the airfield. Security measures must be especially strict at night.

The distribution of the airfield security force may vary according to its strength, the enemy situation, and the adjoining terrain. However, strong means of security must be placed near the planes and the more important installations.

In making the proper distribution of security forces at airfields, it is necessary to place antiaircraft observation sentries at the required points and to have adequate patrols to make rounds through the areas adjacent to the field.

The defense measures will also include the skillful utilization of terrain and other natural objects; the construction of barriers, positions, and so forth; and the establishment of adequate communication with nearby units.

In areas suitable for airfields or runways, it is necessary to place obstacles, or otherwise make it impossible for hostile airborne troops to use these areas. It is best to use such obstacles as wagons, barrels, and boxes, because they can be removed quickly in case our own aircraft need to use the areas.

In keeping watch over the civilians going in and out of the airfield, it is necessary to check their movements carefully and to inspect their clothing and anything that they carry. Individ-

ual civilian movements will be prohibited. The internal situation [regarding civilian inhabitants] will be investigated, and if necessary, communication with the outside will be stopped. It is especially necessary to take constant precautions concerning the movements of civilian families.

With regard to tactics that the Japanese may use against airborne troops, the enemy document says:

4. COMBAT TACTICS

a. General

When hostile transport planes get within range, we will first concentrate antiaircraft fire in an effort to destroy airborne troops while they are still in the planes, or while they are parachuting down. From the time of landing, the fire of artillery, machine guns, rifles, mortars, and grenades will be used against the invaders. Before the hostile troops are able to concentrate their strength, the rifle unit [or units] will make a quick, determined assault, and the tank unit, coordinating with the riflemen, will attack and crush the opposition.

Combat tactics against airborne troops which have been able to concentrate in a landing area corresponds, in general, to ground combat tactics. Appropriate movements by tanks and other mobile units are especially valuable for this type of fighting.

It is necessary to annihilate the hostile troops before reinforcements can arrive by air or overland.

Since hostile planes usually will continue to support airborne troops after their landing, it is necessary for our antiaircraft units to resume antiaircraft fire immediately after the hostile troops have landed—except in unusual circumstances.

Since the attacking airborne troops—especially paratroopers—will attempt to use the transportation facilities, weapons, and equipment in the landing area, we must take the necessary counter-measures.

In case of a surprise attack, precautions will be taken so that secret documents and matériel will not fall into hostile hands.

b. Against Parachute Troops

Parachute troops generally jump when the speed of the transport planes is approximately 135 miles per hour and when the altitude is about 450 feet or more. The jumping is completed within 20 to 30 seconds. During this period the parachutists are easy targets for the various antiaircraft weapons, including machine-gun and rifle fire.

While descending, parachutists carry only such weapons as pistols and grenades. For their full equipment they must rely on reaching packs which are parachuted down separately. Therefore, they are weakest from the moment they near the ground to the time they are able to reach their equipment and get ready for action. During this time it is essential that we launch an especially fierce and daring attack.

Furthermore, shelling at the time of landing is very effective, since casualties are inflicted not only by shell fragments but by the shell-scarred areas which cause sprains and broken bones.

We also should make every effort to capture dropped equipment and supplies before the parachutists can reach them.

Hostile forces sometimes try to make a display of force by dropping dummy men and matériel. The genuineness of these must be determined at once.

c. Against Air-landing Troops

At present the enemy [United Nations] lands from 10 to 20 riflemen per glider or plane. It is necessary to annihilate these groups individually just after they land and before they can effect a concentration. Heavy fire by artillery and machine-gun units and crushing assaults by tanks are especially effective.

Section II. NOTES ON AIR TACTICS USED BY JAPANESE

1. INTRODUCTION

The notes presented below on Japanese air tactics were extracted from various intelligence reports dealing with the South Pacific area. They are not complete and are presented here merely as examples of enemy combat methods. Our observers generally agree that the Japanese vary their tactics a great deal, and that tactics used in one area may be different from those in another theater of operations.

In general, U. S. airmen have found that the Japanese fly better than they shoot, and that their Navy fliers appear to be better than their Army pilots.

The Japanese during recent weeks have been making a large proportion of their bombing attacks at dusk.

2. BOMBING ATTACKS

a. During the Day

Japanese bombers usually drop their bombs at high altitudes, while flying in a V or V's formation. For protection, they have a tendency to depend more on altitude than on clouds. However, the enemy, quick

to take advantage of bad weather, is likely to attack under very poor atmospheric conditions. These attacks are made in good formations, which are held after the bombs are dropped.

Japanese bomber formations usually consist of 9, 18, or 27 planes.

In some sectors Japanese Army Air Force bomber operations have followed a fairly regular and characteristic pattern, roughly along these lines:

(1) Assembling units and moving them forward from rear airfields;

(2) Making photographic reconnaissances of the targets;

(3) Delivering the attack;

(4) Repeating the attack; and

(5) Withdrawing to rear airfields.

Operation (1) was designed to achieve surprise by keeping aircraft out of view of our photo-reconnaissance flights—until the last moment.

In follow-up attacks, Japanese bombers generally are persistent until their losses become very heavy.

In their relatively new practice of making attacks at dusk with medium bombers, the Japanese have often used as many as 40 to 50 escorting fighters. These attacks have usually been followed up by single-bomber harassing raids at intervals throughout the remainder of the night.

Dive bombers also have been used in making attacks at dusk. The fighter escort generally consisted of 30 to 40 planes.

Lately our pilots have noted that Japanese escort fighters have a tendency to work in pairs.

In one instance 21 Japanese medium bombers, accompanied by a large fighter escort, made a high-level attack from 23,000 feet, while a smaller formation of light bombers carried out a low-level bombing and strafing attack.

The medium bombers pressed home their attack despite the fact that a large percentage of them were destroyed or damaged by our fighters before reaching the target. The original formation was broken, but the bombers were still able to reach their objective when reformed into three flights, each consisting of four bombers and flying in a tight diamond-bow formation. The Japanese apparently had little fire control, and the bombers carried out no evasive tactics except to nose down after passing the bomb-release line.

The escorting fighters appeared to use a generous amount of white tracer.

The light bombers flew at approximately 200 to 220 miles per hour while making their bombing and strafing runs.

b. At Night

The Japanese apparently feel that moonlight bombing operations are not materially different from the same thing by day. They generally precede their raids with the usual reconnaissance, fly in formation, and use the normal pattern-bombing procedure with light bombs.

In a recent attack on a U. S. Navy surface force, Japanese medium bombers approached during darkness, in 2 formations of 12 planes each. One plane detached itself from the formation and flew parallel to the course of the ships on one side, for a distance of 5,000 yards. During this run, it dropped float flares at intervals of about 600 yards. The plane then flew about 5,000 yards across the course of our ships, to the front, and dropped a second line of flares at approximately the same intervals. Finally this plane dropped a red flare and a green flare abreast of the formation and outside of the parallel row of flares.

Recent action in the South Pacific has disclosed a Japanese tendency to employ intruder tactics. On at least one occasion a returning flight of friendly bombers was joined by a Japanese plane which followed the traffic pattern, turned on its landing lights, buzzed the control tower at about 500 feet altitude, and then proceeded to make a bombing run on nearby shipping. This attack occurred after dark but during a full moon period when visual recognition was most difficult.

3. TORPEDO ATTACKS AGAINST CONVOYS

Approximately 25 Japanese torpedo planes attacked one of our convoys in the following manner:

The planes came in at angles of about 45°, covered with three levels of fighters up to 20,000 feet. The planes dropped their torpedoes from heights of 20 to 50 feet, while flying at about 250 miles per hour.

The fighters strafed several of our ships during, and after, the period when the torpedoes were being dropped.

4. FIGHTER ATTACKS AGAINST BOMBERS

Observers report that Japanese fighter pilots generally are skillful in the use of clouds for cover before coming in close to attack our bombers. They are also adept at approaching from the direction of the sun.

In some areas most of the enemy fighters have made their attacks from the 10- and 11- or the 1- and 2-o'clock directions. They apparently preferred to fly parallel to the bombers before attacking, and were often first sighted 2 or 3 miles to the left or right, where they awaited an opportunity for frontal attacks. Usually the attacks came from below, and were both single and coordinated, depending on the number of fighters involved. In one instance, one fighter attacked at 5 o'clock and a second at about 2 o'clock. Each made a pass and then shifted to the other's position and repeated the process.

The enemy pilots usually opened fire at an estimated range of about 500 yards. After an attack, they half-rolled and dived to accomplish their breakaway. The attacks usually were fairly continuous for about 15 to 20 minutes.

5. DEFENSE AT NIGHT

The Japanese in recent months have increased the number of fighter planes used for defense of airfields

at night. In some cases, enemy searchlights have been operating in conjunction with the fighters. The searchlights track the targets until the fighters give a signal, and then all searchlight activity ceases. The fighters then attack from the 5- to 7-o'clock direction, high or low. Sometimes enemy fighters have turned on plane searchlights when approaching our bombers. The fighters usually worked in pairs, with both twin- and single-engined fighters being used.

Section III. HOW JAPANESE RAIDERS DEMOLISH ARTILLERY

1. INTRODUCTION

During the course of fighting in the South Pacific, the Japanese have developed what they call raiding-demolition detachments for the purpose of destroying United Nations artillery and mortars. The organization, equipment, weapons, and tactics used by these detachments are described in a Japanese treatise which is quoted below. The introduction to the treatise explains that the methods of destroying hostile artillery and mortars vary according to the situation at a given time. However, this "guide" deals with "the accomplishment of the mission in a short time by a raiding detachment."

2. THE TREATISE

a. Organization

The organization and strength of the raiding-demolition detachment depends on the number of guns to be destroyed and whether we [Japanese] attack with surprise or by storm. However, we usually attack with surprise and suddenness. The detachment generally consists of a demolition section, a reinforcement [reserve] section, and a covering section, in addition to the commander.

When the raid is against a hostile battery of four guns, the basic strength will be as follows:

(1) Demolition section—15 men, in 5 groups of 3 men each; 1 group is assigned to each gun, and 1 is held in reserve;

(2) Reinforcement section—one section of riflemen, who act as reserve for the demolition section; and

(3) Covering section—one section of riflemen who protect the flanks.

However, if an insufficient number of personnel are available at a certain time, it may be necessary for one section of riflemen to execute all three tasks—demolition, reinforcement, and cover. Only a demolition section was used during the early part of the Buna battle, and it gained success by surprise attacks. Later, when the hostile forces guarded their guns more closely, we used all three sections.

b. Personnel

Personnel of the raiding-demolition detachment must be especially calm and fearless. Each man must be quick-witted and always ready to take advantage of opportunities. Therefore it is not necessary that the leader be an officer. A noncom, or even a private, may be preferable. (During the Buna battle most of the raiding personnel were volunteers. Some of them were so earnest about their work that, after accomplishing their set mission, they searched out other guns and destroyed them with left-over explosives.)

c. Weapons

It is necessary that each man of the detachment carry three or more hand grenades.

Members of the reinforcing and covering sections carry rifles.

The demolition section carries 12 hand grenades (preferably tied together in groups of 3); 8 armor-rupturing mines; 8 to 10 explosives (igniters and slow-burning fuzes included); about 12 matches, or cigarette lighters (these must be moisture-proof); 4 picks; and smoke candles, if available.

d. Supplies and Equipment

Although the amount of rations depends upon the distance to the objective, normally it is necessary to carry a week's supply.

Preferably, the regular type of ammunition is carried.
All men are equipped as lightly as possible.

e. Training

The detachment must learn as many pertinent details as possible about its mission by studying intelligence reports and maps, and, if possible, by first-hand observation.

The commander selects an assistant, and then rehearses the plan of attack with the detachment. This includes the route and disposition of the men during the approach, their disposition during the attack, and the training in demolition methods to be used. Each man must thoroughly understand his duty and its application to the objective as a whole.

f. Approach

The essential point in approaching the objective is secrecy. Therefore, the men must be prepared to take a roundabout way and cross difficult terrain without complaint.

It is necessary to refer to tall trees and other prominent landmarks en route in order to facilitate movement to and from the objective. All movements must be made with good judgment, and with the proper security measures in force.

Should the detachment be discovered by hostile forces, it would be advisable to withdraw at once and change the route of advance to another direction. Discovery by opposing forces usually will cause a delay in reaching the objective.

One raiding-demolition detachment, dispatched to a distant objective, made a detour and moved through a jungle area with the aid of a compass. The detachment usually concealed itself by day and collected information. Then, after searching and marking the next line of advance, it approached the objective at night.

g. Main Points in the Attack

When the objective has been approached, it is necessary to ascertain conditions and wait persistently for the opportunity to

attack with surprise. Just before attacking, it is advisable to destroy the communication net in the vicinity of the line of guns. Unless circumstances make it necessary, do not attack while the guns are in operation, because practically all defending personnel will be available at that time.

When it is necessary to attack by assault, the reinforcement section should fire and subjugate the gun crews. Each of the three-man groups of the demolition section except the one in reserve will approach a gun and destroy it. At this time the covering section will protect the flanks. If possible, it is advisable to activate smoke candles to cover the demolition section while the guns are being destroyed.

When the attack is made at night, it is advisable to throw hand grenades at the main groups of hostile forces in an effort to cause panic.

Under certain circumstances, it is best to attack and annihilate the hostile gun crews before destroying the guns. Remember that artillery is weak in close combat.

The following information concerns the destruction of enemy [United Nations] guns and mortars:

(1) To destroy a trench mortar, drop one ignition hand grenade into the barrel.

(2) To destroy a cannon [any artillery piece], throw a *Kessoku* [presumably several hand grenades tied together] into the bore of the gun. To make the destruction absolutely sure, it is advisable to demolish the gun barrel (in the vicinity of the muzzle) with explosives or armor-rupturing mines. If possible, it is also advisable to destroy the gun cradle. The tangent sight and other laying apparatus should be crushed with picks.

(3) If time is available, it is advisable to drop the entire gun into the sea or a river, or bury it in the ground. The same holds true for the ammunition for the gun.

(4) The lenses of the panoramic sights should be brought back as proof of successful destruction.

(5) When attacking a hostile artillery observation post, capture and bring back as much observation equipment as possible.

Section IV. JAPANESE DEFENSE NOTES

1. INTRODUCTION

The following notes on Japanese defensive tactics were paraphrased from translations of various enemy treaties on this subject. Readers are cautioned to bear in mind that these notes deal with combat methods devised for use by the enemy, and that they must not be confused with our own defense tactics.

2. DEFENSE PLANS FOR "X" AREA

Japanese plans to defend a certain area in the South Pacific are outlined below. The area is not identified.

a. General

We will defend our present positions to the last man, breaking up hostile attacks by fire power and counterattacks. Our reconnaissance must be precise and systematic so that we may avoid being taken by surprise. Those units on guard in the outer areas will keep as much of their strength as possible in a mobile state of readiness.

b. Tactical Points

Front-line companies will make reconnaissances of the area extending 1 kilometer from the hostile positions, battalions will be responsible for the first 2 kilometers, and the regiment for over 2 kilometers.

You will use infiltration and raiding patrols to confuse the enemy's rear.

Upon discovery of a new enemy plan, you will display initiative to disrupt those plans.

Every unit, from the smallest sentry group to the largest company; must consider the probability of hostile artillery attacks, and therefore strive to construct several alternate positions, to the left, right, and rear, so that our defense will be as mobile as possible.

Construct strong aerial-defense trenches.

Companies occupying positions the farthest forward will be relieved in about two weeks by battalion- and regimental-reserve units.

c. Supplies

"Get one of the enemy every time you shoot" is to be a maxim of this fight. The defenders must shoot the big forms of the enemy [United Nations] as they approach. As many provisions and as much ammunition as possible must be stored in the front lines. However, these supplies should be widely dispersed as a protection against bombing.

d. Communication

It is preferable to lay telephone wires between every observation post and company. Because of air attacks, important connections must be doubled. Also, wires must not be laid in groups. Men must be posted to guard wires, or reserve wires must be prepared.

Communication between platoons or sections should be done by signals or by the speaking-tube system. In front of hostile forces, it is quite unnecessary to speak in a loud voice or to dispatch messengers.

Radio equipment and telephones must be installed in strong air-raid shelters.

3. COASTAL DEFENSES

a. Reconnaissance

It is necessary to determine the landing plans of the hostile forces at an early stage. Their movements must always be observed—especially the activity of boats, torpedo boats, and reconnaissance planes. Patrol of the adjacent sea area by boats must not be left up to the Navy. Every unit must plan various measures for coast patrol. It is necessary to practice various methods of quickly reporting the discovery of hostile forces.

b. Tactics

Both day and night maneuvers must be held in rehearsing tactics to use in defense against landing operations. It is necessary to develop various plans that the enemy [United Nations] may use, and to work out the proper measures to counter these plans.

When it is known that hostile forces will attempt a landing, every unit must concentrate as much of its strength as possible to annihilate the invaders on the beach. Even those who are sick and wounded must, if at all possible, bear arms and participate in the battle with grim determination.

It must be remembered that the hostile troops, upon landing, will not be familiar with the situation and will have no constructed positions. Furthermore, they will be confused, due to poor liaison and lack of control, and will therefore be in a very disadvantageous position. Under such conditions it is possible for even one of our smallest units to destroy a large number of the invaders by fierce and fast attacks.

On the other hand, if the invaders are given time to reorganize and dig in, it will be very difficult to annihilate them later.

4. COMMENTS ON PANTELLERIA DEFENSE

The following observations are made in connection with the American and British attacks on the Italian island of Pantelleria:

(1) To counter the enemy's [United Nations] large-scale, overwhelming air attacks, it is essential to possess sufficient fighter planes and absolutely complete antiaircraft defenses and ground installations.

(2) To counter hostile landings, it is essential to possess strong mobile forces for counterattacks, in addition to the fixed defenses for combat at the water's edge.

(3) Isolated islands require an accumulation of sufficient water, rations, and matériel.

(4) Evacuation of the inhabitants from Pantelleria was begun only a short time before the surrender. Although both planes and ships were used for this purpose, only a few hundred were removed. It was a blunder not to have cleared out all the inhabitants before the decisive attack, regardless of their devotion to their soil.

5. ANTIAIRCRAFT OBSERVATION

An antiaircraft observation party should have field glasses, shutter field glasses, and simple communication equipment.

The party should take up positions where its members will have a wide view and where the sound of planes can be easily heard. These positions should be located so as to facilitate communication with the officer in charge and with the appropriate antiaircraft units.

Antiaircraft observers must know how to distinguish between hostile and friendly planes.

When any evidence of a hostile plane is detected, report to the officer in charge and to the antiaircraft units in the vicinity. If the identity of the plane cannot be determined, the procedure will be the same.

Report to the officer in charge when a friendly plane is detected coming in our direction.

Section V. SUPPLEMENTARY NOTES ON BOOBY TRAPS AND MINES

1. INTRODUCTION

The information given in this section on Japanese booby traps is largely supplemental to the article, "Land Mines, Grenades, and Booby Traps," which was published in *Intelligence Bulletin*, Vol. II, No. 1, pp. 1-15. While the Japanese have made no extensive use of booby traps to date, it is known that the subject has been under study in the enemy training program.

(As a safeguard against booby traps, the Japanese have been observed beating trails ahead of them with long bamboo poles.)

2. USE OF PULL-TYPE GRENADE

The Japanese pull-type hand grenade is well suited for booby-trapping purposes, and the enemy may use it extensively in future defensive operations. Details of this grenade were presented in *Intelligence Bulletin*, Vol. II, No. 3, pages 39-42.¹ Several ways in which the Japanese may use this grenade as a booby trap are illustrated below. Most of the diagrams were taken from an enemy publication.

¹ In *Intelligence Bulletin*, Vol. II, No. 3, p. 40, par. 2b (Table of Characteristics) "Weight of body" should be 409.5 grams instead of 509.5 grams.

a. With 75-mm Shell

Figure 1 shows how the Japanese tied a pull-type grenade and a Model 91 grenade to a 75-mm shell to form an improvised booby trap. This combination was found by our troops during recent operations in the South Pacific. The pull-igniter string of the pull-type grenade was tied to some vines which were



Figure 1.

stretched between two trees. A person or a vehicle striking the vines would have activated the booby trap, which was hidden in some grass nearby. Detonation of the pull-type grenade would have set off the shell and the Model 91 grenade.

In improvising booby traps similar to the above, the Japanese are likely to use any type of high-explosive shell or other type of explosive conveniently at hand.

b. Attached to a Rifle

The rifle in figure 2 is connected to the pull-igniter string of the grenade by means of a string, cord, or

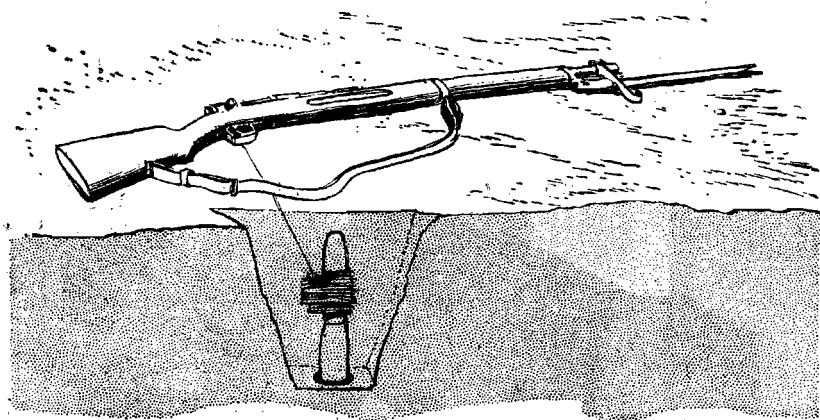


Figure 2.

wire. A pull on the rifle will activate the grenade and the attached shell. Instead of the rifle, the Japanese may use any other object they think will be attractive to United Nations soldiers. The booby trap illustrated in figure 2 is placed in a shallow hole and then covered. It may also be concealed in grass or bushes.

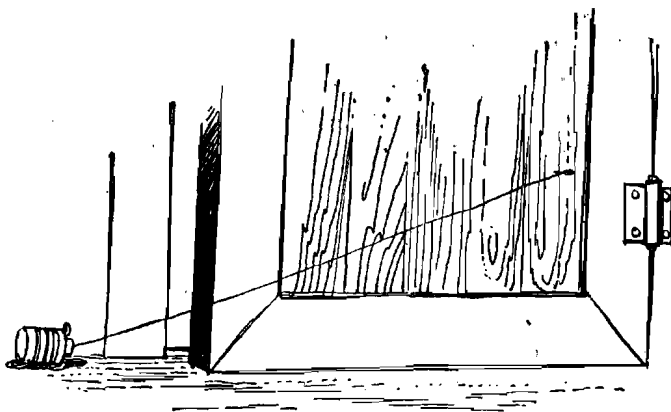
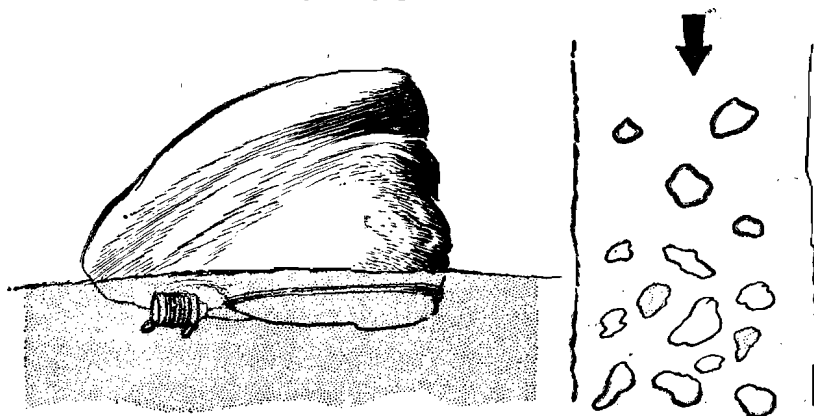
c Attached to a Door**Figure 3.**

Figure 3 shows how the pull-type grenade can be rigged to a door. Opening the door will activate the weapon.

d. Attached to Loose Rocks**Figure 4.**

This arrangement of the pull-type grenade works on the same general principles as the other types. A wire, string, or cord connects the pull-igniter to one of several loose rocks, which are placed in a road or trail for obstruction purposes. Lifting the rock connected with the grenade will activate it. Here, again, the grenade may be tied to some other type of explosive at hand to increase the blast effect.

e. Attached to Felled Trees

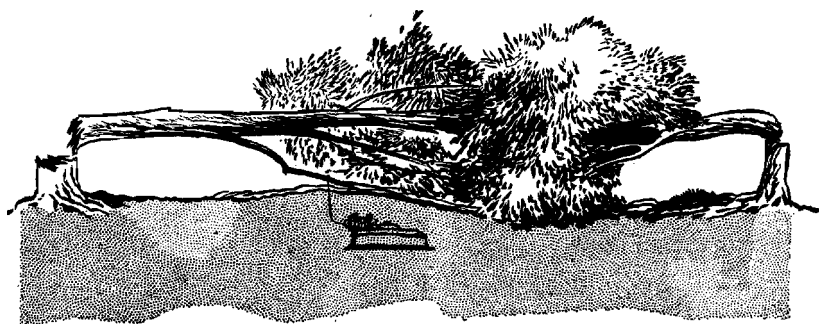


Figure 5.

This arrangement is practically the same as in figure 4. The grenade, tied to a mine in this case, is attached to one or more of the felled trees by means of a vine or string. Instead of trees the enemy might use most any type of obstructing material.

3. USE OF ANTITANK MINES

All units in the Japanese Army are trained in the extensive use of antitank mines.

These mines are likely to be found:

- (1) On logical routes of approach to enemy positions;
- (2) On bridges and their approaches;
- (3) On all possible detours to antitank barricades;
and
- (4) Under tank barricades of a temporary nature.

Section VI. JAPANESE SENTRIES

1. INTRODUCTION

At least a rough idea of how the Japanese use sentries in the South Pacific areas may be gained from the following collection of enemy information.

Japanese sentries usually form a "line of observation on the foremost front line." They are given specific instructions, some of which must be carried out even if it means a stand to the death.

The enemy "sentry" is divided into "special guard" and "double sentry." The special guard is posted at strategically important points or at places where effecting relief is difficult. It usually is composed of a noncommissioned officer or a superior private as leader and four to seven privates. This number may be increased under certain circumstances. Part of the guard is usually posted as observers while the remainder is concealed nearby. All men are armed with rifles, and the group sometimes has a light machine gun also.

A double sentry post is composed of a noncommissioned officer or a superior private as leader and "the required number" of privates. Usually two to four men at a time will be on duty. From outpost detachments (pickets) two men are sent out a distance of about 400 yards to form a "double sentry."

2. POSITIONS

According to the Japanese, sentry positions must be capable of all-around defense. The "most suitable" places must not be selected, because they can be easily fired upon by hostile forces. The positions must be so concealed that they cannot be seen from a distance of over 5 yards. The Japanese also lay stress against the destruction of natural terrain features.

"The positions of those on observation duty (more than two men) and those on relief must be close together," one Japanese document states, "so that the relief can be effected at the resting place. Therefore the relief party does not have to move its position for the purpose of relieving those on observation duty."

3. SPECIAL ORDERS

The "special orders" for Japanese sentries are given below.

Sentries must know:

- a. The number of sentries;
- b. The names of important roads, villages, and natural objects [in the area];
- c. The situation in regard to friendly units and patrols in forward areas;
- d. What ground must be particularly observed;
- e. The article regarding precautions against gas attacks;
- f. The position and the number of neighboring sentries, and the methods of communication;
- g. The position of pickets and your company, and routes to them;

- h. The methods to use in observing, what postures to assume, how to effect relief, how chemical troops move into action, and what to do in case of hostile attacks;
- i. How to signal and give alarms; and
- j. Any other precautionary item.

4. OBSERVATION

In regard to instructions for observing, the Japanese sources are quoted as follows:

Observation, in all directions, must be carried out constantly. This may sound easy, but there are certain tendencies to avoid. For example, the sentry who does not see hostile forces for several days in his area is apt to become lax. In this state he is likely to be fired upon before he sees the enemy, who more than likely will then be able to get away. The enemy who approaches must be killed, or, if possible, captured.

It is necessary that sentries make good use of their hearing. In jungle areas, the sound of dead branches broken by footsteps can usually be heard before anyone can be seen (unless the movement is over a road or trail). These sounds generally are followed by the shaking of bushes or branches and then, finally, the appearance of the enemy.

If anything regarding hostile forces is discovered, it must be reported immediately. If something occurs so suddenly that time does not permit reporting, it is necessary to signal by firing rapidly, or by some other means. The report will be made later.

5. COMBAT TACTICS

Upon contact with hostile forces, Japanese sentries have been instructed to take the following action:

Approach of the enemy [United Nations] will be signaled to the sentry leader and neighboring sentries. (A sentry should act at his own discretion. Contacts cannot be made.)

When the sentry (or sentries) is certain that the hostile forces plan to continue advancing, fire will be withheld until the latter are at point-blank range. Then the sentry will fire—first at the man carrying the automatic rifle and then at those who follow him.

If the hostile forces are small, they will be shot or captured. If large, we must start firing from a greater distance than that outlined above. If the invaders attack persistently, we will use hand grenades in driving them back.

With superior forces, the enemy may attack our rear; therefore we must guard it carefully.

Sometimes, in retreat, the hostile forces are weak, and we should follow up with fierce attacks.

The opposing forces will try to collect their dead, if any; therefore we must guard against these efforts.

Each sentry leader will make a report after the hostile forces have been driven away.

6. COMMUNICATION, MOVEMENT, RELIEF

A Japanese document stipulates that only hand signals will be used for communication between sentries. Communication for effecting reliefs will be done without speech or any other form of noise. Signals may be given, according to the document, by pulling a wistaria vine, or some other type of vine.

Sentries will be relieved at “dawn, dusk, and so forth,” the document states, “but we must be careful that the route of relief is not detected by hostile forces.”

Sentries are required to mess alternately, and quietly.

PART TWO: GERMANY

Section I. GERMAN MACHINE GUNS AND NOTES ON THEIR USE

1. INTRODUCTION

This month the *Intelligence Bulletin* devotes two sections to timely information regarding German machine guns—a subject of particular interest to junior officers and enlisted men. Readers who wish to investigate this topic more extensively are referred to two M. I. D. publications: “German Infantry Weapons” (*Special Series*, No. 14) and “The German Squad in Combat” (*Special Series*, No. 9). The former is of value for its abundant technical detail, while the latter contains useful information about the tactical employment of a machine gun by the squad.

Two types of German-manufactured machine guns are used by the German Army. These are the 7.92-mm MG 34, which was introduced before the present war, and the 7.92-mm MG 42, which was introduced in 1942 and which is gradually replacing the MG 34. Both types are issued for use in the following roles:

- a. As a light machine gun, fired from a bipod.
- b. As a heavy machine gun, with a tripod and a telescopic sight.

c. As an antiaircraft machine gun, fired from single and twin antiaircraft mounts.

Also, the MG 34 is mounted on nearly all German tank and armored cars.

German machine guns normally remain in use in the roles for which they are first issued. Production, maintenance, and training are simplified, however, by the Army's adoption of a single standard model. (Any existing duplication is caused by the present change-over period.) Ammunition is interchangeable throughout.

The issue of ammunition to infantry is roughly as follows:

Light machine gun:	<i>Percent</i>
Ball -----	84
Armor-piercing-----	12
Armor-piercing tracer-----	4
Heavy machine gun:	
Ball -----	82
Armor-piercing -----	10
Armor-piercing tracer-----	8

2. THE MG 34

a. Table of Characteristics

Weight (unmounted)-----	24 lbs
Weight of bipod-----	2½ lbs
Weight of HvMG tripod-----	42 lbs
Weight of LMG light tripod-----	14 lbs 11 oz
Over-all length of gun-----	48 in
Cyclic rate of fire-----	800-900 rpm
Practical rate of fire (LMG)-----	150 rpm

Practical rate of fire (HvMG)-----	300 rpm
Cooling-----	Air
Cartridge feed-----	Flexible metal belt containing 50 rds (two or more of these may be joined end to end) or a drum containing 50 rds.
Ammunition carriage-----	Belts carried in metal boxes; weight, with 300 rds, 22 lbs.
Sights-----	Blade front sight and leaf rear sight graduated from 200 to 2,000 meters (see fig. 6). Telescopic sight when used as HvMG.

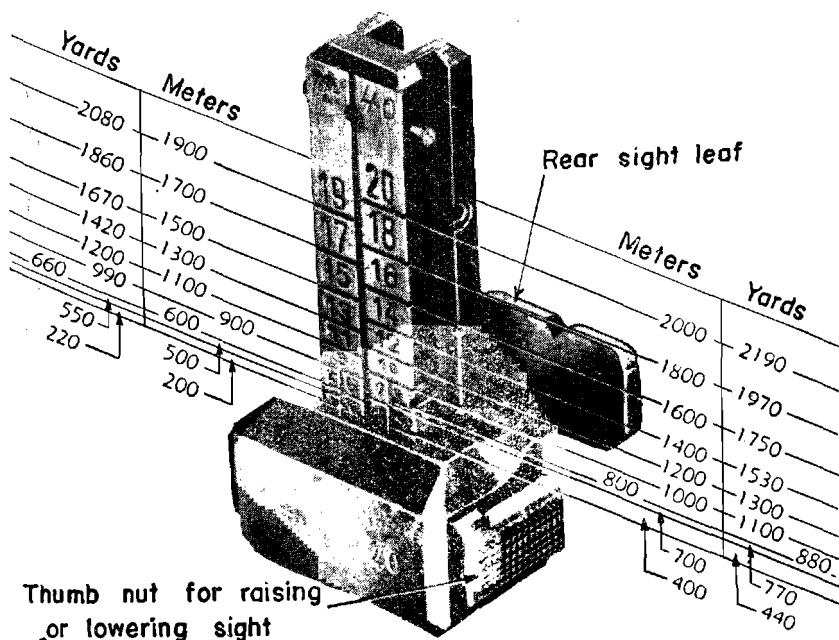


Figure 6.—Rear Sight of MG 34 (showing relation between yards and meters).

b. Method of Operation

The gun is recoil-operated (by a barrel recoil of $\frac{3}{4}$ inch.) This action is assisted by muzzle blast. The breech mechanism is of the Solothurn type (rotating bolt head). Provision is made for semi-automatic fire.

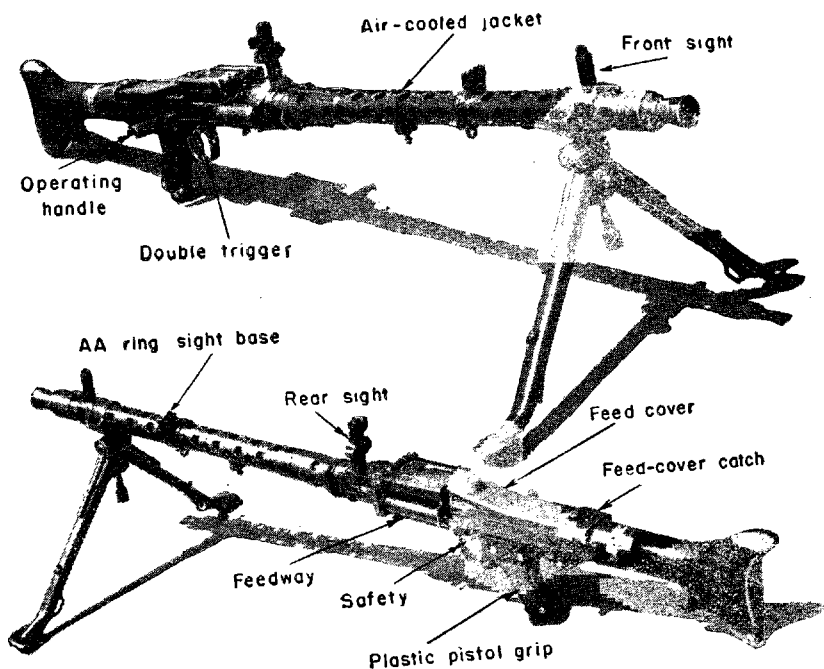


Figure 7.—Two Views of MG 34 on Bipod Mount.

c. Use as Light Machine Gun (see fig. 7)

As a rule, the gun is fired from the bipod (see fig. 8), although three very light tubular tripods are

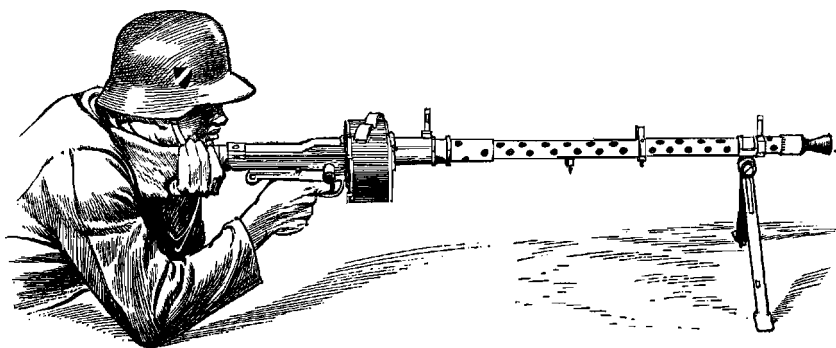


Figure 8.—German Method of Firing MG 34 from Bipod Mount.

carried by the company and are issued to the platoons as required. These light tripods are used chiefly in antiaircraft defense, but occasionally terrain conditions may warrant the use of the gun from this tripod against ground targets.

The open sights are graduated to 2,000 meters, but German manuals give the maximum effective range as 1,500 meters (1,640 yards). The most effective range seems to be between 650 and 850 yards.

The barrel must be changed after 250 rounds of more or less continuous fire. Two spare barrels are carried in separate barrel cases by members of the light machine-gun detachment.

Bursts of 7 to 10 rounds are fired, and approximately 15 aimed bursts can be fired in 1 minute.

d. Use as Heavy Machine Gun

When the MG 34 is used as a heavy machine gun, it is mounted on a tripod known as the MG *Lafette* 34 (see fig. 9). The gun is carried in a cradle em-

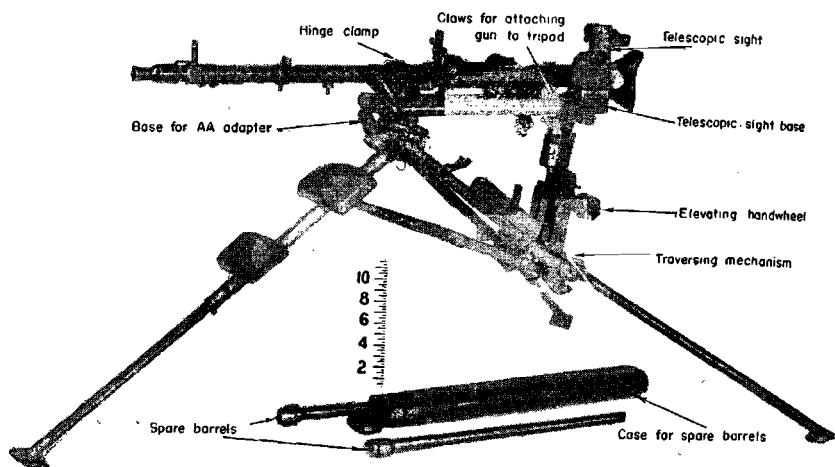


Figure 9.—MG 34 on Tripod Mount.

bodging a spring buffer, which enables the gun to recoil as a whole on its mount. This device adds greatly to the stability of the mount without increasing the weight. Adjustable elevating and traversing stops are provided; these enable the gun to be elevated and traversed within predetermined limits.

An automatic searching fire device is incorporated, and is operated by the recoil of the gun in the cradle.

A telescopic sight is fitted, with provision for direct fire up to 3,250 yards and for indirect fire to 3,800

yards. Small targets usually are not engaged at ranges of more than 1,500 yards.

Three spare barrels are carried.

e. Use as Antiaircraft Machine Gun



Figure 10.—MG 34 on Antiaircraft Mount (using drum feed).

Four types of antiaircraft mounts are provided. These are (1) the standard light tubular tripod issued for the light machine gun (see fig. 10); (2) the standard heavy machine-gun tripod with an adapter; (3) a monopod mount fixed in vehicles used for transporting personnel; and (4) a twin mount carried in a small horse-drawn, two-wheeled trailer. The standard tri-

pods mentioned in (1) and (2) can rapidly be converted for antiaircraft use.

German soldiers are also taught to fire on aircraft and ground targets by supporting the gun on another man's shoulder (see fig. 11).



Figure 11.—MG 34 in Action without Bipod or Tripod.

Regardless of the method used, fire above a maximum vertical range of 2,600 feet is prohibited.

f. Use in Armored Vehicles

Nearly all German tanks and armored cars are armed with one or two MG 34's, in addition to the main armament. Under these circumstances the butt

is removed, and the gun is fixed in a special mounting in the gun mantlet.

3. THE MG 42

a. Table of Characteristics

Weight (unmounted)-----	20 lbs. (approx.)
Weight (with bipod)-----	20 $\frac{3}{4}$ lbs
Weight of HvMG tripod-----	43 $\frac{1}{4}$ lbs
Weight of LMG-----	14 lbs 12 $\frac{1}{2}$ oz
Over-all length of gun-----	48 in
Cyclic rate of fire-----	1,100-1,150 rpm. ¹
Practical rate of fire (LMG)--	150 rpm
Practical rate of fire (HvMG)-	300-400 rmp
Cooling-----	Air
Cartridge feed-----	Flexible metal belt containing 50 rds (two or more may be joined end to end)
Ammunition carriage-----	Belts carried in metal boxes; weight, with 300 rds, 22 lbs.
Sights-----	Blade front sight and leaf rear sight graduated from 200 to 2,000 meters. Also uses tele- scopic sight on tripod when employed as a heavy machine gun

b. Method of Operation

The principle of operation is a combination recoil and blow back. In place of the Solothurn rotating bolt-head action of the MG 34, there is a new system. This involves a lateral separation of the bolt studs in the cylinder from the bolts in the barrel extension.

¹ German documents give the cyclic rate of fire as 1,500 rpm.

An improved feed mechanism is provided. Barrel-changing is extremely rapid.

No provision is made for firing single rounds.

c. Construction

The extensive use of stamping, riveting, and spot welding gives the gun a less finished appearance than that of the MG 34. There are few machined parts. However, this does not mean that its life is shorter or its performance inferior.

Use of MG 34 and the MG 42 as light machine guns is comparable, except that, in the case of the newer model, the higher rate of fire and the consequent "creep" of the gun makes shorter bursts (of 5 to 7 rounds) advisable. Twenty-two aimed bursts can be fired in 1 minute.

d. Use as Light Machine Gun (see fig. 12)

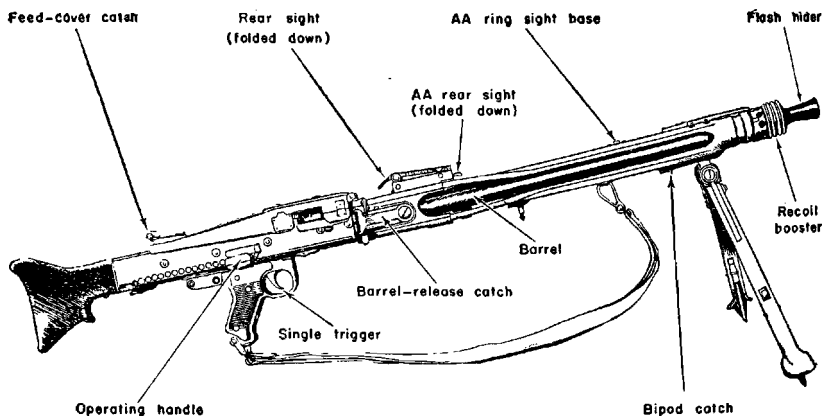


Figure 12.—MG 42 on Bipod Mount.

e. Use as Heavy Machine Gun

The tripod has been slightly modified to suit the catches on the gun, but has not been altered in essentials. A new and slightly modified telescopic sight is also in use.

German manuals advise bursts of 50 rounds for best results.

As in the case of the MG 34, the barrel should be changed after 250 rounds of more or less continuous fire, although prisoners of war have stated that barrels need not be changed until 400 rounds have been fired. It has been suggested that the detachment may carry more than 3 spare barrels, but this point has not yet been established.

f. Use as Antiaircraft Machine Gun

Against aircraft the MG 42, like the MG 34, is fired from light and medium tripods as well as from single and twin mobile mounts.

g. Possible Use in Armored Vehicles

Although use of the MG 42 in tanks or armored cars has not yet been reported, it is being used in the "Ferdinand," and further development along this line should be regarded as a distinct possibility.²

4. GERMAN TACTICAL DOCTRINE

a. General

(1) *Light machine gun*.—While the basic principles of the tactical use of the German light machine

²The "Ferdinand" is a new German heavy self-propelled gun. (See *Intelligence Bulletin*, Vol. II, No. 2, pp. 1-4.)

gun are not unusual, the following are especially stressed in enemy doctrine: surprise, fire and movement, coordination of fire power, conservation of ammunition, and alternate positions.

(2) *Heavy machine gun*.—When issued with the heavy tripod, the MG 34 and the MG 42 are invariably used as heavy machine guns, except in the case of a surprise attack by a hostile force, when a gun may be off its tripod and not in firing position. Because of its dual nature, the weapon can be used as a light machine gun under such circumstances.

In the German Army the heavy machine guns are carried in the machine-gun company of the infantry battalion. This company has twelve heavy machine guns in addition to six 3-inch mortars.

The heavy machine gun is employed from open or covered positions. In the case of open positions, which may be taken up in battle, use is made of all available cover. A position of this kind is normally manned by a section (two guns) under the control of the section leader. Covered positions are generally on reverse slopes, and are normally manned by a whole platoon (four guns), which the platoon commander controls from a central command post.

The heavy machine gun is prepared for action behind cover, and is placed in its firing position only at the last moment.

Covered positions are almost always used when overhead fire is to be delivered.

b. Attack

In the attack heavy machine guns cover the deployment of the rifle companies from echeloned positions sited on commanding ground. In a penetration (*Einbruch*) the heavy machine gun, firing from positions in the rear of the attacking troops, aims at centers of resistance within the hostile position, and prepares to give covering fire against counterattacks. Heavy machine guns follow the attacking rifle companies from position to position. Inasmuch as unified control of this type of work is difficult, sections and platoons are usually placed under the command of the rifle company to exploit local successes. Single guns may even be used in support of rifle squads or platoons to consolidate ground gained and to cover the flanks; however, this is practically the only time when heavy machine guns are used singly.

c. Defense

In defense the heavy machine gun is normally sited under the direction of the company commander. Sections may be placed under commanders of advance positions or, less often, commanders of combat outposts. Otherwise, the heavy machine guns, although employed in the sectors of rifle companies, will form part of the battalion-fire plan. Their tactics involve exploiting all the possibilities of fire as early, as heavily, and at as long a range as possible. For this purpose positions are taken up in, or just to the rear of, the main line of resistance. Some heavy machine

guns may be sited forward as "silent" guns. It is a German principle to site them for enfilade and cross-fire. The heavy machine guns are sited in covered positions, with open positions forward of the main line of resistance having been reconnoitered beforehand and echeloned in depth. Thus the guns are able to move forward and engage any hostile force attempting to penetrate.

German doctrine stipulates that heavy machine guns in the rear of the main line of resistance may not fire overhead at ranges of less than 400 yards.

d. Conclusion

After the Battle of France a "Commander of Supporting Weapons" was instituted in the infantry battalion (normally the commanding officer of the machine-gun company). However, there is now reason to believe that heavy machine guns are increasingly being allotted in platoon strength (four guns) to the rifle companies, in whose sectors they are almost always employed in attack or defense.

German training stresses cooperation between the heavy machine guns and the battalion support weapons (infantry guns and antitank guns and mortars). The utmost attention is paid to the careful siting of fire positions, as well as of alternate and dummy positions. It has been found that the Germans make every effort to gain surprise, and that their camouflage is usually excellent.

Section II. U. S. SOLDIERS DISCUSS GERMAN MG TACTICS

1. INTRODUCTION

"It's true that the Germans have a good machine gun," a U. S. junior officer who fought in Sicily remarked recently, "but, like many other German weapons, it doesn't live up to all the latrine rumors you hear. It doesn't walk on its hind legs or jump through hoops or anything like that. It's just a good, fast gun. I feel that the sooner our men understand how the Germans use it tactically, the more success we'll have in combating it."

German machine-gun tactics figure prominently in the following comments by U. S. soldiers who have been up against the gun lately, and who can speak with authority of the ways in which it is employed.

2. COMMENTS BY U. S. SOLDIERS

"What impresses me especially is the way the Germans site their machine guns so as to deliver crossfire from opposite sides of a road. I see a good deal of this, because I'm a jeep driver. They generally try to site guns at narrow places, such as defiles and bridges. The Germans like our jeeps just as much as we do, and they make a great effort to kill personnel

without damaging the vehicles. 'They're always very much aware of salvage possibilities.'

"German machine-gun fire is usually so low—often about a foot and a half above the ground—that we call it 'grass cutting.' The Germans know that U. S. soldiers don't allow their wounded to lie around any longer than is necessary, and that a man who has a leg wound of some kind will probably need a helping hand to get him to safety. It's fairly obvious that the Germans know the value of immobilizing as many men as possible at one time.

"Although the German machine gun is first-rate as to fire power, its dispersion is poor. One of my friends had so much confidence in his ability to get away from it that on one occasion, even though he had already received a number of shoulder wounds, he made a successful dash for safety, and then turned and got the machine gunner with rifle fire. Three shots in the stomach.

"The machine gunners lie in wait for us. They're very patient. For example, they know that sooner or later we're going to want a certain little piece of commanding ground, or some spot that offers unusually good defilade. They lie motionless—always well camouflaged—for as long as may be necessary, and then let us have it.

"The Germans make every effort to stop vehicles. Next to stopping a lot, they like to stop a few. Next to stopping a few, they're satisfied if they can stop

just one. One of their methods involves the use of two skillfully camouflaged vehicle traps [see fig. 13], extending halfway across a road from opposite sides, and with just enough space between the two traps for a single vehicle to pass. As a rule, the Germans choose a piece of road with sizeable banks on each side. Even if a vehicle detects the traps, the enemy's

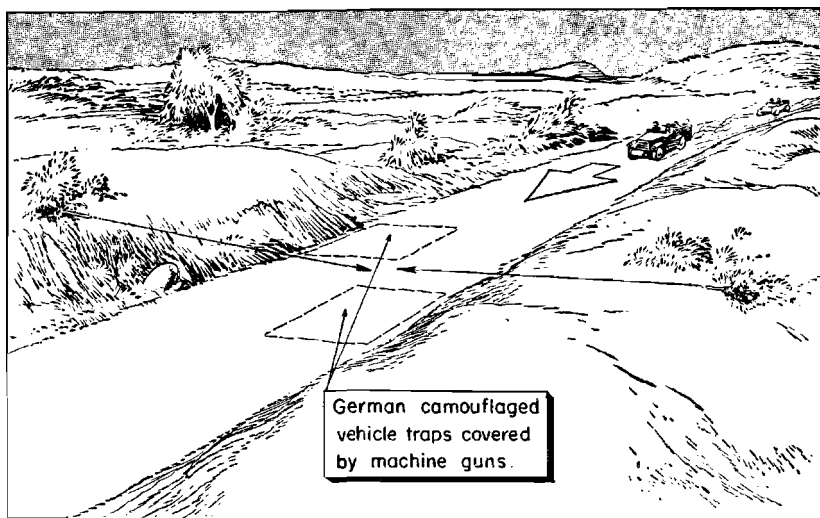


Figure 13.

purpose is served, for the vehicle then must slow down in order to twist its way cautiously between the traps. This presents a good opportunity for enemy machine guns, well sited on each side of the road, to place fire on the vehicle.¹

¹ When there is no rising ground flanking a road, the Germans construct rectangular traps which extend from the center of the road well into the fields on each side.

“Under these circumstances the machine guns can do a hell of a lot of damage unless they are neutralized at once.

“Vehicle traps are covered with tightly stretched canvas, which is sprinkled with dirt the same color as the road itself. I’ve even seen a good approximation of dusty asphalt.”

“It’s amazing how those machine gunners can sit around and wait. One morning we were going up a hill. The Germans waited and gave it to us in the back. They were down in holes clear over their heads, with a harmless-looking little bush concealing each man. In other words, they didn’t open fire until the split second when they were sure they could do the greatest amount of damage.

“At night the enemy uses machine pistols a good deal—and machine guns, too. Once, around 2300, we were up a valley. We’d been out there two or three nights, and had gained pretty good control of the place. An enemy patrol came down the valley, and bumped into us. I’ll never forget the speed with which they opened fire after they were challenged. There wasn’t any interval of estimating the situation or of just standing around! They threw grenades almost as soon as the first English word was uttered, and instantly followed up with machine-pistol fire. In the dark those grenade-throwing babies can damn near hit you from the sound of your voice! They seem able to gauge where it comes from. I think it’s reasonable

to suppose that they're trained to hurl grenades—or something similar in weight and shape—at voices in the dark. However, the Germans aren't so hot at many other aspects of night fighting. In Sicily they had to undertake a tremendous variety of night activity, for which they obviously had no particular appetite.

“By the way, I saved my life once by speaking a single German word at night, although the only ones I know are *nein* (no) and *ja* (yes). The terrain was very rocky, and the night was pitch-dark. I was sleeping about 15 yards from my machine gun. Suddenly I woke up and realized that a German patrol had filtered into the locality. A shadowy form crept alongside me, and a voice asked *Neunten Kompanie?* which sounds enough like Ninth Company to be understood readily. I whispered *Nein!* impatiently, and then added *Sssh!* in a warning tone, to suggest that we were running a great risk in saying anything at all. He moved on, and I lay quiet. Presently I heard the voice of one of the men who were awake and manning my gun. He was challenging a German. Then I heard the opening of fire. It didn't last long. The German patrol withdrew, and I got back safely to my gun.”

“It's true that the dispersion of their machine-gun fire is poor.

“In retreat the Germans like to leave a few men and machine guns behind to cover the movement. The

idea is to make you think there are a hell of a lot of Germans around when there are really just a few.

“When they’re defending a town or a hill, they try to fool you by luring you within range of their densest fire power and then assaulting your flanks and rear with machine-gun fire.

“In general, their machine-gun fire is very low. You can throw yourself down and feel reasonably secure—but you don’t dare rise. As it is, there’s only a tiny margin of safety. Often, however, the German can’t prevent you from wriggling away, and then getting up and making a dash for it. Twelve of us did this once. We were inspecting an Italian truck, which was about 50 yards from a small house. The Germans had a machine gun on each side of the house and riflemen inside it. When they opened up, we dropped down, wriggled out of the dispersion areas as fast as we could, and then ran. All 12 of us got away without a scratch. Why the riflemen didn’t get us I don’t know. However, I’ve heard a great many U. S. soldiers comment that German rifle fire is not as accurate as ours.

“I’d like to add, too, that our Browning automatic rifle is accurate at a greater range than the German MG 42.”

“The Germans are very clever at determining our probable line of approach, and then siting machine guns to cover it. One of their favorite practices is to site three guns so that they will be mutually support-

ing while covering a saddle between two small hills as well as the side approaches [see fig. 14].”

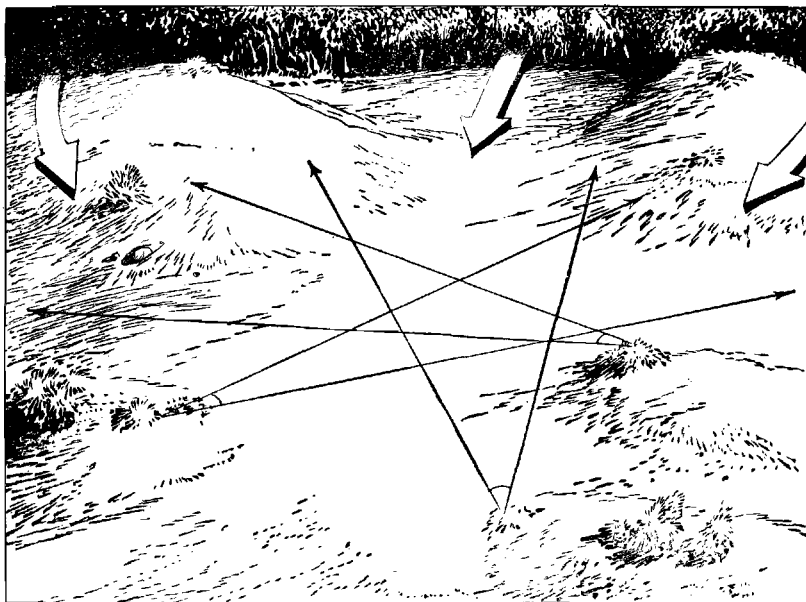


Figure 14.—German Machine Guns Sited for Mutual Support.

“There’s no question about the Germans being very adept at working out fields of fire.

“In a withdrawal or a retreat, the Germans destroy everything that they can’t take with them. Automatic stuff, especially. It literally amounts to a ‘scorched weapons’ policy.

“Every once in a while we find them using our helmets and M1 rifles.

“Their light machine-gun fire is harassing as hell, but I don’t think much of its accuracy. As to height,

I'd say it averages about two feet above the ground—often enough to let you slither out of the dispersion area. It's true that a man can dodge the fire in this manner. We've done it often.

"They take high commanding ground and try for long, grazing fire. In defense they can pick their own ground, of course. In siting machine guns they often use the military crest of a hill, as well as the base. [Note: See the last statement in this section.]

"The Germans fight a good rear-guard action. They're foxy. The U. S. soldier is a better fighter, though. He's got guts, audacity, and ingenuity. Although he isn't crafty by nature, he soon learns to be just as sly as the enemy. There's no doubt about it—Americans learn fast."

"German supplementary positions are imaginatively planned and used. At nightfall, for example, a platoon or company is likely to move about half of its machine guns up to the military crest of a hill, where they fire intermittently throughout the night. The other machine guns, still in the lower positions, remain silent. The purpose of this is to deceive us as to where the German strength is, and to lure our artillery into making preparations to place fire on the military crest. Then, before dawn, the Germans bring back the machine guns from the supplementary positions. This means that they are once again in full strength at the base of the hill, and are ready to surprise us as we advance [see fig. 15]."

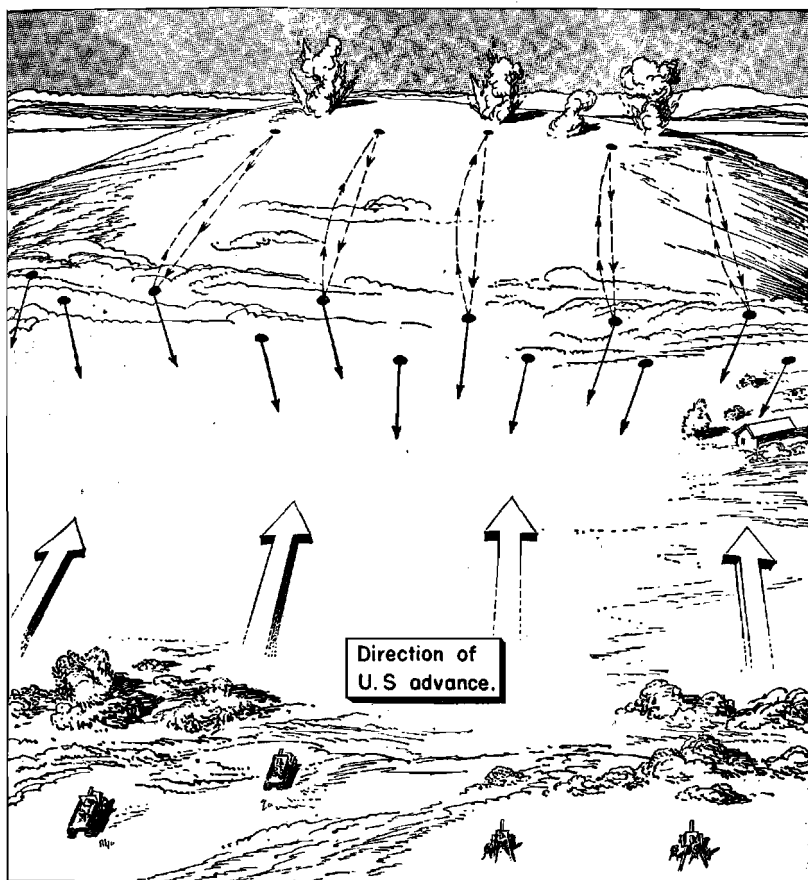


Figure 15.—German Tactical Employment of Supplementary Machine-gun Positions.

Section III. USE OF INFANTRY WEAPONS AGAINST PARACHUTISTS

1. INTRODUCTION

The German Army attaches great importance to the use of infantry weapons against parachutists. A German document acquired by United Nations forces in Sicily discussed the technique of employing rifles and machine guns for this purpose. The following extracts from this document should be regarded as supplementary to a more general article, "Principles of Defense against Airborne Troops," which appeared in *Intelligence Bulletin*, Vol. II, No. 3.

2. THE DOCUMENT

a. General

German infantry units must at all times be prepared to meet surprise attacks by parachutists.

Hostile parachute troops jump from an altitude of 3,000 feet or more, drop about 1,000 feet, and then open their parachutes; or they may jump at an altitude of about 400 feet, and open their parachutes after a drop of about 100 feet. One must reckon with a speed of fall of from 16 to 20 feet per second. When the first of these procedures is followed, the parachutists, in landing, are dispersed over a large area. When a platoon of parachutists follows the second procedure, it attains in the air a lateral dispersion of from 425 to 750 yards, a depth of about 325 yards, and a difference of altitude of 50 to 65 feet between jumpers.

In employing infantry weapons against hostile parachute troops, German soldiers will fire only on the order of a responsible commander, such as a platoon commander or squad leader. The individual parachutists—not their parachutes—constitute the proper targets.

While a parachutist is landing, he may be attacked with every likelihood of success. At this time he must free himself from his parachute, and is helpless. If his weapons are dropped separately, he must recover them. This, too, will occupy him for a few moments.

All arms must participate in the task of crushing a parachute attack. Moreover, the employment of every form of ground defense for this purpose has the definite effect of breaking down the morale of the hostile force.

b. Use of the Rifle

Riflemen will fire on hostile parachutists as soon as the latter are within a range of about 425 yards. In a moderate wind, a rifleman will aim at the center of his target. In a strong wind, he will lead the moving target according to firing rules. The rear sight will not be changed while fire is in progress. Riflemen will also fire on ammunition and weapon containers.

Standing or kneeling firing positions should be assumed. However, the situation may justify a prone position. Each rifleman will fire at the parachutist nearest him. When the parachutist jumps from an altitude of about 400 feet, the rifleman will not have time to fire more than five aimed rounds.

c. Use of the Machine Gun

Machine gunners will use ordinary ball ammunition against parachutists. It is advantageous to include armor-piercing tracer bullets in ammunition belts, in a proportion of 1 to 3.

Fire will be opened with the rear sight set according to the actual distance of the target. With reference to wind velocity, the rules for aiming are the same as those in subparagraph b. The rear sight will not be changed while fire is in progress.

The machine gun may be fired from a bipod, as a light gun, or from a tripod, as a heavy machine gun; however, surprise parachute attacks will generally compel a machine gunner to fire from the shoulder of another man.

If parachutists are dropped in front of a position, they are to be met with concentrated machine-gun fire. If they are dropped beyond the fire position on the flank, they are to be fired upon successively; that is, a machine gunner will fire on the nearest parachutist, and will then fire on any who remain in the line of sight. A volley of sweeping fire on scattered parachutists is a waste of ammunition, and is strictly forbidden.

Section IV. USE OF TANKS WITH INFANTRY

1. INTRODUCTION

The correct and incorrect ways of using infantry with tanks, according to the German Army view, are summarized in an enemy document recently acquired. In this document the Germans list the correct and incorrect methods side by side, an arrangement which is also followed in this section, for the convenience of the reader. The document is of special value and interest, not only because the column headed "Right" indicates procedures approved by the enemy, but because there are implications, in the column headed "Wrong," of certain errors that German units may have made from time to time.

Extracts from the document follow.

2. THE DOCUMENT

a. Attack

<i>Wrong</i>	<i>Right</i>
Attack not thoroughly discussed in advance.	(1) Thorough discussions of reconnaissance and terrain will take place. Riflemen and tanks will maneuver jointly as much as possible, in advance.

Wrong

Inadequate coordination between armored and artillery units.

Failure of armored cars and tanks to maneuver jointly in advance.

Distribution of too many tanks in proportion to infantry used in the attack.

Tanks deployed and distributed among small units.

The use of tanks in unreconnoitered terrain when speed is essential.

All tank commanders absent on reconnaissance.

Right

(2) The mission of protecting armored elements not yet discovered by hostile forces will be distributed among artillery. (Flanks will be screened by smoke.)

(3) Armored cars used for observation will maneuver with tanks before an intended attack.

(4) Tanks not intended for use in an attack will be kept outside the range of hostile fire.

(5) For effective results, available tanks—at least an entire company—will be combined for the assault.

(6) Terrain must be reconnoitered, especially when an attack at great speed is contemplated. Facilities for mine clearance must be at hand. If a tank detonates a mine, the remaining tanks must halt while the minefield is reconnoitered. After this, the minefield must either be cleared or bypassed.

(7) A number of tank commanders must always remain with the company.

Wrong

Tanks launched without a clear statement of their mission.

When a sector full of tank obstacles has been taken, tanks are ordered to cross this sector in front of the riflemen.

Tanks advance so rapidly that riflemen are unable to follow.

When two successive objectives have been taken, tanks ignore the possible presence of hostile forces in areas between these objectives, even though an attack on still another objective is not contemplated at the moment.

Tanks within sight of positioned hostile tanks advance without benefit of covering fire.

Tanks are ordered to hold a captured position, even though heavy weapons are available for this purpose.

Right

(8) The mission of tanks will be widely understood.

(9) Riflemen cross the sector first and create passages, while the tanks provide covering fire from positions on slopes.

(10) Tanks advance only a short distance at a time. Riflemen advance with the tanks.

(11) When two successive objectives have been taken, the entire area between them must be made secure by means of tanks, artillery, assault guns or antitank guns, and heavy weapons.

(12) Responsibility for covering fire is divided among artillery or heavy antitank guns. If these are not available, Pz. Kw. 3's and Pz. Kw. 4's provide protection.

(13) As soon as an objective has been taken, tanks are withdrawn and are kept in readiness for use as an attacking reserve or in the preparation of a new attack.

Wrong

Riflemen and light machine guns remain under cover during own attack.

Tanks take up positions so close to hostile forces that early discovery is inevitable.

Tanks remain inactive when a mission has been completed.

Right

(14) Riflemen and machine guns cover the antitank riflemen, who have the mission of destroying hostile tanks which may attempt to bypass.

(15) If possible, tanks take up positions outside the range of hostile artillery fire. Tanks which are compelled to take up positions in the vicinity of hostile forces do so as late as possible, so that the hostile forces will not have time to adopt effective countermeasures.

(16) When a mission has been completed, tanks promptly receive orders as to what they are to do next.

b. Defense

Distribution of tanks along the entire front.

(1) All available tanks are kept together so that during an enemy attack prompt action can be taken against an advantageous point. Tanks, assault guns, and heavy antitank guns must be kept at a distance while firing positions are being prepared.

Wrong

Subordination of tanks to small infantry units for the purpose of static defense.

After repulsing an attack, tanks remain in the positions from which they last fired.

As hostile tanks approach, own tanks advance, having failed to take up advantageous firing positions beforehand.

Tanks which have no armor-piercing weapons are sent into battle against hostile tanks.

When hostile tanks approach, German riflemen and their heavy arms remain under cover, and leave the fighting against tanks with infantry to own tanks, assault guns, and antitank guns exclusively.

Right

(2) When tanks have fulfilled their task they are withdrawn behind the main line of resistance, and are kept in readiness for further action.

(3) After repulsing an attack, tanks move to alternate positions as soon as heavy arms or riflemen have taken over the responsibility of delivering covering fire.

(4) A firing front is created at a tactically advantageous point in the area against which the attack is directed. Tanks deliver surprise fire—from positions on reverse slopes, if possible.

(5) Tanks without armor-piercing weapons are kept back, and are used for antiaircraft protection, as well as in establishing communications and in supplying ammunition.

(6) All arms take part in defense against hostile tanks. Infantry accompanying the tanks are kept somewhat apart, however, so that tanks, assault guns, and antitank guns are free to engage the hostile tanks.

Wrong

All available tank reserves are compelled to remain out of action because of minor defects.

Tanks which must remain in forward positions do not dig in, and thereby constitute targets for hostile artillery.

Right

(7) Repairs will be arranged in such a manner that a number of tanks are always ready for action.

(8) Tanks which are within range of hostile observation must be dug in as fast as possible. In winter, they must be hidden behind snow walls.

c. Notes on Use of Ammunition

When only a few hostile tanks attack, fire is opened early.

Against a superior number of tanks, fire is opened at close range.

Pz. Kw. 4's will fire hollow-charge ammunition at ranges of more than 750 yards.

(1) When only a few enemy tanks attack, it is best to wait until they are within a favorable distance and then destroy them with as few rounds as possible.

(2) Fire is opened early on a superior number of tanks, to force them to change direction. High-explosive shells are used at first. Since this early opening of fire gives away own positions, new positions must be taken up.

(3) Tanks which are short of 75-mm armor-piercing shells must allow a hostile force to approach to a position within a range of 750 yards.

d. Peculiarities of Winter Fighting

Tanks are placed outside "tank shelters" when these shelters are being used for other purposes.

(1) "Tank shelters" are to be kept for the exclusive use of tanks, assault guns, and mounted antitank guns.

Wrong

In deep snow, tanks do not advance on roads.

Winter quarters are located so far from the scene of action that the tanks, if required, may arrive too late.

When "tank shelters" are snowed under, departure is possible only after hours of extra labor.

In winter, tanks travel freely over roads which have not been used for a considerable time.

In winter, tanks are ordered to attack distant objectives.

Right

(2) In deep snow, tanks keep to roads. An adequate number of men are detailed to assist if fresh snow falls.

(3) When action in appreciably distant places is under consideration, arrangements must be made for the smaller units—if possible, never less than a platoon—to reach the scene of action at the proper time.

(4) Paths leading from "tank shelters" to the nearest roads are kept cleared. Snow fences are provided for exits. Readiness of tanks is always assured.

(5) Because of danger from land mines, mine-clearance detachments always precede tanks, especially if a road is seldom used.

(6) All attacks consist of a number of consecutive attacks with "limited objectives." When these objectives have been reached, the area is cleared and reorganization is completed before a new attack is launched.

Section V. MISCELLANEOUS

1. ENGINEER RECONNAISSANCE

Engineer scout squads are sent out well in advance of proposed Engineer activity, and are ordered to report the following to their commander:

a. The disposition of hostile forces in relation to German forces.

b. Details of the location in which work is to be done, and of difficulties which will confront the engineers.

c. The probable requirements as to men and materials.

d. Recommendations as to the most suitable methods of accomplishing the task.

e. The cover and concealment which will be available during the approach.

f. The probable length of time required for the task.

g. Recommendations as to the advisability of seeking the cooperation of other arms.

2. THE GERMAN SOLDIER WRITES HOME

The German High Command is disturbed by what it calls "carelessness amounting to treason" in the German soldier's letters to his family and friends in the Reich. Security violations are only one aspect of the problem, it seems. Equally dangerous, according

to the High Command, is the tendency to include in letters to the Reich remarks which may weaken confidence in the armed forces.

Criticism of superiors is placed high on the list of forbidden subjects. German soldiers are reminded that they may submit justified complaints through channels. They are ordered not to insert grievances about officers and noncoms into letters which, when circulated at home, are bound to make civilians wonder how an army that contains unfit and inferior leaders can be expected to achieve final victory.

German soldiers have been informed that complaints about food and general treatment are also taboo.

"What can a wife or a mother do when she receives such letters?" the commanding general of a German army asks. "Nothing! The only possible result is to arouse grave misgivings. Sometimes she may even try to send him food from her own rations. This is of no appreciable value to the man, and merely deprives his home of food which is sorely needed there. If complaints about bad treatment or insufficient food are justified, these, too, may be submitted to a proper military authority. Under no circumstance are they to find their way into letters which may undermine the morale of German civilians!"

3. "DIG OR DIE"

From the diary of a British junior officer:

During 6 April, shelling of my platoon was only fairly frequent. In the course of half an hour, we counted 16 shells in the im-

mediate vicinity of the post. We counted 80 to 100 shells in, or near, this small area alone before the end of the day. The only casualties were one killed, two wounded and half our breakfast missing. We were dug-in in the usual way.

No comment.

PART THREE: UNITED NATIONS

Section I. SECURITY FIRST

1. INTRODUCTION

Every member of the Army, the Navy, the Marine Corps, and the Coast Guard has a personal stake in the matter of safeguarding military information. Even so, the most patriotic individual is always in danger of forgetting that the enemy cleverly tries to collect "small" facts and dovetail them so that the "big" fact will emerge. A man may be eager to preserve the nation's safety and his own, but the moment he forgets that the enemy's intelligence services work subtly, instead of in a predictable manner, he becomes easy prey for the Axis.

We fight the enemy not only with guns, but with silence.

The security campaign will not end until the war itself ends. This is why the *Intelligence Bulletin* reports, from time to time, new and helpful security information. This month a thought-provoking item has been paraphrased from an article published in a South African Air Force pamphlet. The paraphrase is presented below. It is followed by a note on unintentional compromising of security by Americans at home, and how servicemen can remedy this. The sec-

tion concludes with an extract taken from a War Department pamphlet.

2. CARELESS QUESTIONS

We hear a great deal about "careless talk," but very little about "careless questions." Careless asking is all too often responsible for careless telling! While careless telling is seldom intentional, seemingly careless asking sometimes is deliberately and scientifically planned.

The enemy agent—or the stooge whom he is bribing or blackmailing—has motives very different from those of one's mother, wife, sweetheart, or best friend. Unfortunately, they all ask their questions in the same casual, natural way.

Every day the most innocent catch phrases, such as "What's new?" "How's everything?" "What's the dope?" and "What do you know?" lead to the committing of blazing indiscretions.

Love makes most people possessive. The people who love us—and this is especially true of women—are always eager to project themselves into our lives, to share our experiences, at least with their minds and hearts. We are accustomed to talk freely with them. The habit, ingrained in so many of us, of "getting it off our chest" to the person we love is hard to overcome. Breaking the habit is particularly hard for those of us who loyally observe the tradition of writing home every week.

In the armed forces the relationships between different ranks are inevitably responsible for certain types

of careless questions. The Senior asks the Junior a question, perhaps out of politeness, or perhaps because of an impulse to patronize. Junior is too overawed to identify the question as "careless." The Junior asks the Senior a question, perhaps because the Junior wishes to appear a superior fellow who is going places, or perhaps because he thirsts for information that is none of his business. The Senior, especially if he has only recently been promoted, is likely to find such questions irresistible. Nor must we forget the Senior-to-Senior and Junior-to-Junior combinations. Naturally, we don't want our equals to get a jump ahead of us. We want to know all the dope (only we try to excuse ourselves by saying solemnly that we want to "keep ourselves up to date"). In the service, then, we fall into the habit of answering careless questions, just as we do when we are speaking or writing to the people we love.

What are the mechanics of the careless question? It may be written, spoken directly, or telephoned. It isn't always easy to answer exactly as we should, and in a courteous manner. Because we are ordinary human beings, we would prefer to talk freely. Moreover, our reaction to the "careless question" is affected by our familiarity with faces and our personal affections or dislikes, and by our uncritical acceptance of uniforms and insignia. These things are largely responsible for our failure to detect questions of this type and, in so detecting, to avoid giving a dangerous answer.

The written question gives us more time for reflection than does the question spoken directly or telephoned. For this reason the written question is a little less dangerous—but only a little!

The directly spoken question involves an added danger because of the rapid speed at which the average conversation is conducted. Although one can see and identify the speaker, analyze the tone of his voice, and study his facial expressions, the conversational “rate of fire” makes it impossible to examine every question deliberately and carefully. However, if we are able to show presence of mind, we can gain time by asking a noncommittal counterquestion. This gives us a moment in which to reflect.

The telephoned question is by far the most dangerous. It is impossible for the staff of any switchboard to check the origin of each telephone call and the credentials of each caller. Nor, in fact, is it the staff's duty to do so. It must be assumed that an enemy agent will have no trouble whatever in reaching by telephone anyone with whom he wishes to speak. We all are so accustomed to poor connections, people omitting or mumbling their personal identifications, sudden requests for information, continually changing personnel, and so on, that we are a little hesitant about asking those who telephone us—often very high officers—to speak up, give their name and rank, specify their job, hang up and let us ring them back, and so forth. Internal and private lines are not absolutely

safe, either. There is no such thing as a telephone line that can't be tapped.

In fact, the telephone is the happy hunting ground of the bluffer who is an expert at asking questions which will sound casual. In using the telephone, moreover, he exposes his person to no risk at all.

It must be stressed again that an enemy agent asks his "careless question" deliberately, whereas a friend will employ the selfsame manner without any ulterior motive. The fact that the technique is the same is what causes all the trouble. We simply fall into a habit of answering questions asked in a casual, friendly tone. And sometimes, even if we do not answer a question outright, we are likely to reply in such a manner as to confirm or deny a statement related to a military secret. We may do this merely by implication.

The question is what counts. It constitutes the first danger to military security. The answer constitutes the second danger, of course.

The seemingly unimportant question, the seemingly unimportant answer. The lighthearted question, the lighthearted answer. The flattering question, the flattered answer. The annoying question, the annoyed answer. The careless question, and the careless answer.

Axis ammunition!

3. HOW THE HOMEFOLKS MAY ERR

Several reports have been received relating how parents, relatives, and friends of men overseas are unintentionally violating security regulations. These vio-

lations involve the engraving on gifts of such secret information as the name of a soldier's unit and his arm of service. If soldiers with such information on their persons should fall into the hands of the enemy, it would greatly facilitate the latter's intelligence work. In one instance the unsuspecting parents of a soldier overseas purchased him an expensive identification bracelet with the following engraved on it: his name, rank, serial number, APO number, Company D, 300th Port Battalion, Transport Corps. Luckily, a service-connected friend of the parents saw the engravings before the gift was mailed, and pointed out the security violations. Only the soldier's name, rank, and serial number should have been engraved on the bracelet.

4. SECURITY VIOLATIONS

So that troops in theaters of war may make full use of the weapon of surprise, it is of the utmost importance that all officers and men understand the seriousness of their responsibility for safeguarding military information. Enemy intelligence acquires much of its knowledge about impending operations by piecing together bits of information carelessly circulated by individuals who do not realize the importance of such bits of information. No officer or enlisted man in the U. S. Army has any excuse for failing to understand that the disclosure of such information constitutes a serious breach of military discipline. The following examples of security violations are cited and will be brought to the attention of all personnel to serve as a warning:

a. A private stationed in a staging area wrote a letter to a girl in which he listed several APO numbers with their geo-

graphic locations. The private was tried by a general court-martial and sentenced to 6 months at hard labor with forfeiture of \$30 per month for 6 months.

b. A lieutenant colonel stationed in a large city had access to information involving troop movements and other matters vital to national security. One evening the lieutenant colonel told a woman over a public telephone that he was flying overseas the next day and named his destination and probable time of arrival. A high ranking officer was mentioned as being a passenger on the same airplane. The lieutenant colonel was relieved from active duty with the U. S. Army and reverted to inactive status.

c. A private disclosed to a group of civilians the location of a regimental ammunition dump, the number of rounds of ammunition on hand at the dump, and the number of men on guard. One of the civilians reported the incident, stating that he had not known of the ammunition dump's existence before the soldier told him. The private was tried for disclosing military information knowingly and wilfully, found guilty, and sentenced to confinement at hard labor for 3 months with suspension of \$20 per month for a like period.

d. A major, while serving on a staff in an active theater of operations, wrote letters to friends in the United States which disclosed order of battle and casualties, and contained violent criticism of superior officers, including the general in command of the entire operation. He was severely reprimanded by the chief of staff of that command, transferred to a home station, and reduced to his permanent grade of first lieutenant.

e. A major, while on temporary duty in the War Department, sent a cable in the clear to the commanding general of the U. S. Army forces in an overseas theater advising him that he was being replaced by another officer. For disclosing this secret information, the major was reduced to his permanent grade of second lieutenant.

f. A sergeant, in conversation with two United Nations non-commissioned officers and in the presence of civilians, disclosed

exact details of a new and secret type of combat airplane. The information revealed might have impaired the effectiveness of the airplane and resulted in serious loss of lives among United Nations forces. In any event, the information would have been of great value to opposing forces, enabling them to adjust their combat methods to meet this new weapon. The sergeant was sentenced to 5 years' imprisonment, total forfeiture of pay and allowances, and dishonorable discharge from the U. S. Army.

g. A major in an advanced base of operations sent several rolls of film to the United States without censorship. Many of the pictures taken were of military installations. The major was court-martialed and forfeited \$50 a month for 6 months.

h. A sergeant in a theater of war disclosed results of enemy action, casualties, and location of an APO address. He was court-martialed, restricted to the detachment area for 3 months, and required to forfeit \$20 a month for the same period.

Section II. HOW U. S. ARTILLERY TERMS DIFFER FROM BRITISH

1. INTRODUCTION

A list of common U. S. artillery terms and their British equivalents is presented below. It is felt that this list will be a considerable help to our artillery units since many of them may be in action beside British units, or in support of British units, or vice versa. The list of terms was compiled at a British artillery school.

2. THE LIST

<i>AMERICAN</i>	<i>BRITISH</i>
Adjust-----	Correct.
Adjusting-----	Ranging.
Adjutant (S-1)-----	Administration Officer.
Aiming circle-----	Director.
Aiming stakes-----	Aiming posts.
Altitude (elevation)-----	Height or elevation.
Angle-of-site level-----	Sight clinometer.
Army Artillery Group-----	Army Group, R. A. (A. G. R. A.).
Army Artillery Group Commander-----	Commander, Army Group, R. A. (C. A. G. R. A.).
Brigadier General, Army Artillery-----	Brigadier, R. A. (B. R. A.).
Assignment-----	Role.
"At ease"-----	Rest.

<i>AMERICAN</i>	<i>BRITISH</i>
"At my command"-----	"Fire by order."
Attached-----	Under command.
Azimuth-----	Bearing.
Base deflection-----	Line.
Base line-----	Zero line.
Base piece-----	Pivot gun.
Base point-----	Zero point.
Big "T" or Little "T"-----	Apex angle.
Boresight-----	Test sights.
"Cease firing" (canceled by "next elevation")-----	"Stop" (canceled by "Go on" or fresh sequence of orders).
Check point-----	Witness point.
Chief of section-----	No. 1.
Commands-----	Orders.
Communications-----	Signals.
Coordinates (12.3-45.6) or 2356.	Map reference 123456.
Corps Artillery Officer-----	Commander, Corps, R. A. (C. C. R. A. or M. G. R. A.).
Counterbattery accuracies:	
P-----	50 yards.
Q-----	100 yards.
R-----	150 yards.
S-----	Over 150 yards.
Continuous wave-----	Morse (key).
Deviation-----	Line error.
Direct support-----	Supported arm can expect 60% of its calls to be answered.
Div Artillery Commander-----	Commander, R. A. (C. R. A.).
Executive-----	Gun-position officer (G. P. O.).
Fire Direction Center-----	Regimental Command Post.
Five rounds per gun-----	Scale 5.
General support-----	In support.
Gunner-----	Layer (No. 3).

AMERICAN	BRITISH
Gunner's quadrant-----	Field clinometer.
"H" hour-----	Zero hour.
Location (accurate)-----	Fix.
Lost-----	Unobserved (O. U.).
Map reference 36.6-49.5-----	Map reference 366495.
Mask-----	Crest clearance.
Mission-----	Intention.
"Mission accomplished"-----	"Troop stand easy."
Observing line-----	The line O. T.
"On No. 1 close — mils"-----	"Concentrate — minutes on No. 1."
"On No. 1 open — mils"-----	"Distribute — minutes from No. 1."
Operations officer (S-3)-----	Adjutant.
Overlay-----	Trace.
Panoramic sight-----	Dial sight.
Piece-----	Gun.
Place mark-----	Bearing picket (B. P.).
Platoon-----	Section.
Precision fire-----	Pin-point target.
Reciprocal laying-----	Individual angles.
Record base deflection-----	Record zero lines.
Salvo fire-----	Troop fire, 2 seconds.
Section-----	Subsection.
Sense-----	Spot (observe).
Sensing (U. S. method) :	Correction (British method) :
"100 short"-----	"Add 100."
"100 over"-----	"Drop 100."
"100 left"-----	"Right 100."
"100 right"-----	"Left 100."
Sheaf-----	Subtension of troop at target.
Shift-----	Switch.
Site-----	Angle of sight.

<i>AMERICAN</i>			<i>BRITISH</i>
Standing	Operating	Proce-	The interchange of Liaison Of-
dure.			ficers, complete with cable and
			wireless sets.
Unobserved fire	-----		Predicted fire.
Voice radio	-----		R/T.
Volley fire	-----		Salvo or gun fire.
"X"	-----		Eastings.
"X Y" template	-----		Map code.
"Y"	-----		Northings.
"Y" azimuth	-----		Grid bearings.
1 mil	-----		3.46 minutes.
17.78 mils	-----		1 degree.
6,400 mils	-----		360 degrees.

Section III. A CASTAWAY'S DIARY

1. INTRODUCTION

A U. S. aviator, forced to parachute from his plane in the South Pacific, spent two trying weeks on the sea and on practically uninhabited islands before he was rescued. He kept a day-by-day account of his experiences, relating how he utilized his equipment, the mistakes he made, and how he obtained food and water.

A condensed version of this pilot's diary is presented below. In addition to being interesting, his story is believed to contain lessons which will be profitable for other members of our armed forces. It is considered that the safe return of this pilot to his squadron should be attributed to his resourcefulness and the intelligent use he made of his equipment. The fact that he knew where he was and where he wanted to go, and knew how to go about getting there saved him from a great deal of futile wandering and mental distress.

The names of persons and places have been omitted from the story.

2. THE DIARY

May 2 [1943]

The opening of the 'chute snapped me up short, and I was able to look around and see my plane falling in two pieces—

the tail section and about 6 feet of fuselage were drifting crazily downward and the forepart was fluttering down like a leaf. I tried to ease the pressure of the leg straps on my thighs by pulling myself up to sit on the straps, but was unable to do so because of the weight and bulk of my life raft and cushions. As a result, my thighs were considerably chafed.

I was so busy looking around that I didn't notice how fast I was descending, and before I knew it I had hit the water. The wind billowed the 'chute out as I went under, and I was able to unfasten my chest strap and left leg strap at once; unfastening the right strap took about 45 seconds, and I held on to the straps as I was pulled along under water by the 'chute. I couldn't understand why I didn't come to the surface—then I remembered that I hadn't pulled the CO₂ (carbon dioxide) strings of my life jacket. As soon as I had done this, my belt inflated and I came to the surface. I immediately slipped my life raft off the leg straps, ripped off the cover, and inflated it.

During my descent I had hooked an arm through my back pack strap so as not to lose it, but during the time I was struggling under water it must have come off because, when I came up, I saw it floating about 20 feet away. I paddled over and picked it up, along with two cushions—one of which was merely a piece of sponge rubber, 15 inches square and 2 inches thick.

After I got into the boat, I took the mirror from the back pack and discovered a deep gash, about 1¼ inches long, on my chin and another deep gash, about 3 inches long, on my right shin. I took out my first-aid kit, examined the contents, and read the instructions. I found that there was no adhesive tape in the kit—apparently it had not been replaced when the kit was checked on the ship coming down from Pearl Harbor. I sprinkled sulfanilamide powder on both wounds and put one of the two compress bandages on my leg. I haven't any idea how I got either one of these cuts. During this time I was having brief spells of nausea, but did not vomit. However, in

a short while I had a sudden bowel movement, probably as a reaction from the shock and excitement. I felt very weak and dizzy.

I began to take stock of my equipment and to figure out where I was by consulting the strip map which I had in my pocket. My chief aim was to reach the nearest land.

As I sat in the boat, still dazed and faint, I realized that, with the distance and prevailing northeast wind, I had little chance of making one of the larger islands. As nearly as I could figure out, I was about 10 miles east of a small island and about 10 or 15 miles south of another. Beyond reaching land I hadn't formulated any plans except to reach land.

About 50 minutes after I had crashed, I saw a friendly fighter coming toward me from the west, about 50 feet off the water. I immediately grabbed my mirror and tried to flash the plane. The pilot wobbled the plane's wings, came in, and circled, and I saw that it was my wing man. Five other fighters came down and circled, apparently trying to get a fix on me, and I waved to them.

Soon they went off toward the east, and I noticed to my consternation that dark cumulus thunderhead clouds were moving in quickly from the northeast and that the sea was getting quite rough. I realized that no planes would come out for me then because of the approaching dusk. Just before sundown, rain began falling, the wind became stronger, and the waves got higher and higher. There wasn't much I could do—I was still weak and not a little scared. About all I did was to throw out my sea anchor—a small rubber bracket on a 7-foot line—and cover myself with my sail. Rain fell in torrents and the wind blew all night. I bailed out water six or seven times during the night with the small cup that the pump fits in and also with my sponge rubber cushion, but there were always 2 or 3 inches of water in the bottom. The rest of the time, I just huddled under my sail.

May 3

The rain stopped about daybreak, but the sky was cloudy and the sea still choppy. Off to the east I saw what appeared to be two friendly fighters in the distance, but I knew they wouldn't see me. As day approached, I saw that I had been blown about 10 miles south of the center of the island I was making for. The wind was still from the northeast and I knew I would have to paddle like the devil even to hold my own and not be blown farther out to sea. I broke out one of my six chocolate bars and ate part of it, but I wasn't hungry. I also took a swallow out of my canteen, but I wasn't particularly thirsty. All day long I rowed with my hand paddles, sitting backward in the raft. By 1600 my forearms were raw and chafed from rubbing against the sides of the raft. I had stopped paddling only two or three times during the day, to eat a bite of chocolate and take a swallow of water. Rain began falling about 1600, and I hit a new low point of discouragement when I realized that I had apparently made no headway at all during the day.

After night fell, the rain continued in intermittent showers until dawn. The sea was still rough and the wind was from the northeast. I tried to continue paddling, but a large fish hit my hand—I don't know what kind it was—in fact, I didn't even see it, but the experience dissuaded me from rowing any more in the dark. I threw out my sea anchor again—this time with the two cushions tied on the line for additional weight—and huddled under my sail for the rest of the night. I don't recall that I slept this night, or any night before I got to shore—I just seemed to lie in a sort of coma.

May 4

When the sun came up, I found that I was south of the west end of the island and about two miles farther out than I had been the previous morning. I broke out another chocolate bar.

for "breakfast," drank a little water, and began to paddle again. Some time during the day I got the idea of getting in the water and swimming along with the raft. The only result of this maneuver was that I lost one of my hand paddles, and I went back to paddling with the remaining paddle and my bare hand.

The results of my continuous paddling were more heartening this day, and by about 1500 I realized that I had covered quite a little distance. Just about this time, however, a big storm came from the northwest, and it began to rain again. Again I put out my sea anchor with the cushions tied to it, and settled down under my sail. It rained off and on all night with a northwest wind. Although I was never very thirsty, I would catch rain on my sail and funnel it into the pump cup, drink some of it, and use the rest to keep my canteen filled. Before the storm came that afternoon, the sun had been quite hot and I had kept my head covered with my sail and applied zinc oxide to my face. Earlier that day I had seen four friendly fighters going west along the south shore of this island. I also saw a friendly patrol plane which passed over early every morning and late every evening, but because the sun was so far down each time, I was never able to signal with my mirror.

May 5

At daybreak I saw that I had drifted to a point about 6 miles south of the east end of the island. I had another chocolate bar for breakfast and a little water, and I was considerably encouraged when I found that the wind was blowing from the southeast. This meant that I had a very good chance of reaching the island, so I pulled in my sea anchor and began paddling. Some time during the morning my remaining hand paddle slipped off in the water and, forgetting that I had my life belt inflated, I jumped overboard to retrieve it. Of course, I couldn't get under the surface and soon gave up.

I stopped paddling only to take an occasional swallow of water, and about 1800 I came close to the shore. The surf didn't look

too bad. I headed right in—a mistake, as it turned out, for as soon as I got in closer I found that the waves were at least 50 feet high,¹ the highest surf I've ever seen. About this time a big one broke in front of me. It was too late to turn back. I felt as if I were 50 feet in the air when it broke, and all I could see in front of me was the jagged coral of the beach. I tried to beat the next one in, but it caught me just after it broke and tossed me end-over-the-kettle into the coral.

Fortunately, I missed hitting the sharpest coral and received only a few cuts on my hands. My boat landed about 50 feet away in a sort of channel leading into the beach. I tried to stand up and found that I couldn't walk. Finally, I crawled over to the little channel, got my boat, and dragged it up on a small sandy beach. Since I had tied my belongings rather securely to the raft, the only items that were missing were the pump, the two cushions, and the can of sea marker. I was very tired and very weak; I turned my raft upside down and lay on it, with my sail over me, trying to sleep, but apparently I was too tired to sleep—I think I only dozed for periods of a few minutes at the most.

May 6

At dawn I began to look for coconuts on the ground and found one mature nut under a tree. The tree was about 25 feet high, and I immediately set to thinking how I could get more of the nuts off it. I was, of course, too weak to climb and I thought of cutting notches in the tree. It was hopeless, and I opened the one coconut. The seed had already sprouted and there wasn't much milk in it; since I wasn't hungry, I ate only a little of the meat.

Instead, I had my usual "breakfast" of a chocolate bar, laid out my things to dry, cleaned my knife and gun as best I could, and rested some more. Although my .45 had been wet almost

¹ This height, estimated by the writer, is believed to be excessive.

constantly and was quite rusty, the moving parts worked all right after I had applied more oil to them.

Then I started out to find some pandanus nuts, having read and reread my guidebook. I found a few, but they were so high I couldn't get to them. In the afternoon I sorted my equipment and rested. By this time I had decided to try reaching the western end of the island. I wasn't sure whether there were any Japs or natives on the island, but thought I might at least run into some natives.

During the day I ran across a crocodile in a channel in the coral beach, but we parted company at once, without incident. Toward evening, rain threatened. I made a coconut cup, imbedded it in the sand, and rigged my sail around it so that it would catch water and funnel it into the cup through a small hole in the sail. The rain began when it got dark. I settled myself on the ground under a tree and pulled my rubber boat over me for shelter.

May 7

In the morning I worked out a plan for getting some coconuts. I cut several notches in the trunk of the tree and then made a sort of rope ladder with my sea anchor line, placed this around the trunk so that it would slip, and pushed it up as far as I could. Climbing up by these means, I was able to reach and twist off two coconuts. This was pretty exhausting work, so I rested for a while and then filled my canteen with the rain water that had accumulated in the coconut cup. I drank the milk from the coconut and ate a little of the soft meat, but still I was not very hungry. My store of chocolate bars was down to two, so I decided to conserve them.

I then packed all my gear in my back pack, rolled up my life raft, and set out to walk along the coast to the west end of the island. There was a 100-yard stretch of coral between the water and the beach, and it was not bad walking. Naturally, I was glad I hadn't discarded my shoes in the water. Several times I

came to channels in the coral, usually at the mouths of small streams, and then I would have to blow up my life belt and swim across. At one such place I saw more fish and tried to catch one with my fishing line and pork-rind bait, but the fish declined to bite.

Late in the day I came to a sandy beach, along which I walked until it was dark. Then I made a crude lean-to of palm fronds against a tree trunk, blew up my life raft, and settled down on it with my sail as a cover. I smeared zinc oxide on my face—I put either zinc oxide or vaseline on my face each morning and night for protection against sunburn, and also periodically put vaseline on the gash on my shin and on my hands, which were cracked from the salt water. The sulfanilamide powder was rather water-soaked, so I used vaseline instead. Aside from a daily quinine pill, that was the extent of my doctoring. Fortunately, the gash on my chin had closed pretty well.

That night I woke up from one of my periods of dozing to find that the tide had come in. I scrambled around, moving my gear to a dry spot, and discovered that the tide had carried away my sail and my shoulder holster. Luckily, I had my .45 close to my side, but one of the two clips in the holster contained all my tracer bullets.

May 8

In the morning, after I had eaten half of my remaining chocolate bar, I started walking again. Most of the time I walked in the water up to my knees. Soon the coral ledge ended and I had to strike inland because I couldn't get through the immense surf that was washing against the high rock and coral of the shore. I would go inland a little way, parallel the coast by clambering up and down the ridges, and then go back to the shore to see if I could make my way along it. During the day I saw two more crocodiles in a small lagoon and my only snake, a small blue snake about 1½ feet long with a flat tail. During the day I found several coconuts along the beach and on the

ground, and I drank the milk. As dusk came on, I was inland, climbing one of the ridges. It began to rain. I put my life jacket and back pack on the ground, under a log, and lay on my deflated life raft. It rained all night, and by morning I was lying in mud.

May 9

During the morning I crossed more ridges, which ran down to the shore from the central range. This was pretty tiring—mostly I would zigzag up them, and then slip and slide down. I was always hopeful that I would be able to make my way along the coast, but this was impossible. During the day I ate some fern leaves and the remainder of my last chocolate bar. At dusk I came down to the coast to see whether I had rounded a particular rocky point. I found that I hadn't, and decided to spend the night in a small cave in the coral, which was about 100 feet above and 150 feet back from the water. I slept on my back pack and life jacket and used my deflated raft as a cover. After sleeping spasmodically, I was awakened at dawn by a wave breaking at the entrance to the cave.

May 10

In the morning, rain was falling and the wind was blowing; I could make little headway over the rocks and coral so I took to the ridges again. I ate some ferns, and about 1450 I came onto the shore where there was a good sandy beach. The hills were smaller, and there was a grove of coconut palms. I was near the end of the island and could see the next one about 2 or 3 miles across the channel. In the shallow water I found two small crabs and about eight mussels. I ate the crabs raw, and, putting the mussels in my pocket, headed for a small bay. It was a fine afternoon and I built a lean-to of sticks and palm fronds and blew up my raft. I then tried some of the mussels and found that they were rather unpleasantly slimy. When I ate the rest the next day, I washed them first and they tasted pretty good. It rained that night, and since my lean-to did not

prove to be as water-proof as I had expected, I got under my boat.

May 11

The next morning I rested, and ate the meat and drank the milk of a few coconuts. I decided not to build a fire because of the possibility of attracting Japs, but to get to the next island and try to make contact with the natives. I filled my canteen from a stream. Late in the afternoon a number of friendly bombers and fighters came over going west and soon returned. Both times I used my mirror to try to attract their attention. I was quite weak and tired, but built a new and better lean-to. That night I dozed fitfully and the mosquitoes were quite annoying. The only other noteworthy incident that day was my first bowel movement since the one immediately after parachuting into the sea.

May 12

In the morning I washed my clothes and set about making some oars. I found two small pieces of lumber with a few nails and a screw in them, and, using the nails and a screw, I attached two sticks to the pieces of lumber to make a serviceable pair of oars. Then I ran my sea anchor line around my boat through the rings, and attached to it another piece of rope that I had found. I made two loops in the rope for oar locks. By looping the rope around my feet I could get leverage for rowing. I used some sponge rubber from my back pack to make pads for oars. I slit my back pack and inserted a couple of sticks; this provided me with a sail. When I had completed my preparations in the evening, I gave my craft a brief shake-down cruise, dined on coconuts, and went to sleep.

May 13

With the meat of two coconuts and my canteen of water as provisions, I set out early in the morning on my voyage to the

next island. I went out to sea through a break in the reef and soon found that, although my course was due west, I was heading northwest. This was due to a north-northeast wind, and I rowed constantly because of the possibility of being blown south of the hook of the island. About noon I headed into a sandy beach on the south shore of the hook and again found to my dismay that I had underestimated the size of the surf. The waves caught me and tossed me onto a fairly smooth coral ledge. I was under water for what seemed a very long time—actually about 45 seconds—but managed to hold onto my boat. As I struggled to my feet I heard someone shouting and was overjoyed to see two natives in a canoe about 50 yards off shore waving to me.

I got into the canoe with all my gear except the back-pack cover and we started east to the south shore of the point, where we met two more natives in another canoe and put into the beach. The natives brought some water and a taro from a hut. After a while we started around the point and along the shore. The natives asked me if I were thirsty, and when I said that I was, we again put into the beach and went into another hut, where I saw a collapsible Japanese boat. One of the natives climbed a 50-foot coconut palm and brought me some coconuts. Finally we pushed on to a village about halfway up the coast. There I was greeted by the chief. After being given pineapple and taro, I was taken to another hut where it was indicated that I was to sleep. I was given a corner of a low platform, a clean bamboo mat, and a pillow and blanket. After eating more pineapple and taro, I talked mostly with the chief's son, who had been to a mission school and was quite interested in America. After dark we all went to sleep.

Traveling from island to island for three days, the natives managed to get me to the U. S. outpost, where I was picked up and carried back to my organization.



LIBRARY
COMMAND
AND
GENERAL
STAFF