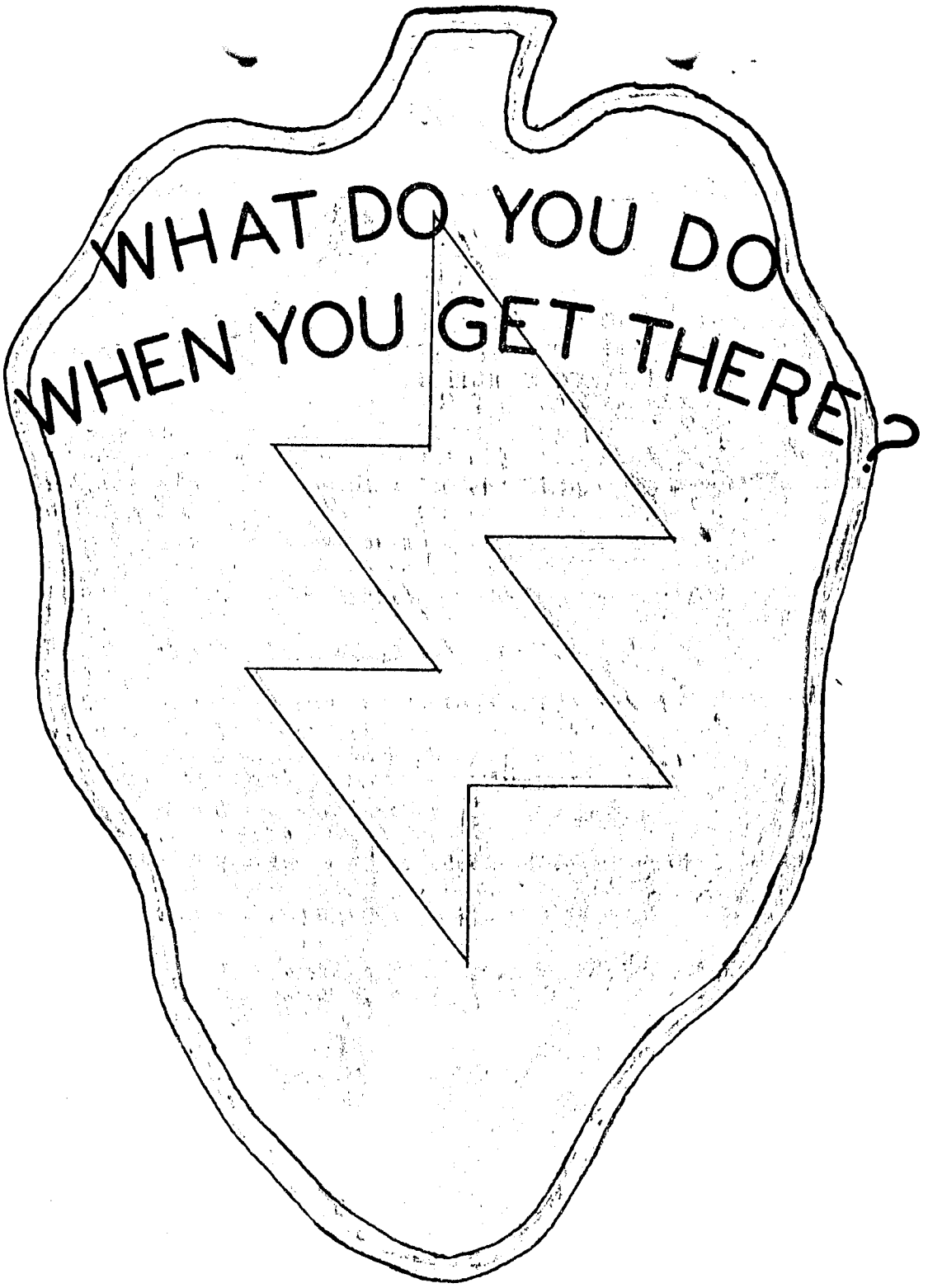

OPERATIONS SOUTHEAST ASIA

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FOREWORD

The purpose of this booklet is to bring together, under one cover, information considered vitally essential to the commander and soldiers alike if success is to be gained in jungle warfare. This information has been gleaned from many sources and is based primarily on experience rather than theory. The general theme of this document is repeated, or strongly implied, in each chapter - SECURITY and CONTROL - forget either of these vital elements of jungle fighting and you are dead! The foot soldier must again think in terms of his feet. The task of jungle fighting is arduous and often unexciting, it will frequently require long hours on patrol in trying terrain and climatic conditions. Success depends on first class discipline and high standards of training. This then is the goal we seek.

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CHAPTER I
THE JUNGLE BASE

Section 1.--INTRODUCTION

1. Owing to the difficulties of administering small or large forces operating in the jungle and of the limited time for which they can operate independently, it is often necessary to establish basesforward of the company or platoon operational base camp.

2. These bases can be divided into two types:

a. Tactical bases.--These may be company or platoon bases and are frequently occupied for some time. They form the firm base forward of which patrols or ambush parties operate. They are capable of being resupplied by either air drop or, in some instances, by ground troops or native porters.

b. Patrol bases.--These are temporary bases occupied by either a company, platoon or portion thereof. They are completely secret, should never be occupied for more than 48 hours, and ideally for not more than 24 hours.

3. The general principles governing the setting up of the two types of jungle base are the same, but it must be remembered that whereas the patrol base is virtually an overnight resting place, the tactical base may have to be occupied for longer periods and requires far more elaborate facilities than does the patrol base.

Section 2.--DECEPTION

A jungle base depends largely on secrecy for its security, and it is always necessary to have a cover plan which will draw enemy attention away from your base. Deception should always be thoroughly planned. Some suggestions are as follows:

a. If the terrain is suitable for night movement, the approach march should be made at night.

b. In the approach march population centers should be avoided.

c. It may sometimes be necessary to detain local inhabitants who have blundered into patrols during the approach march.

d. The further away bases are from obvious base sites the more secure they will be.

e. Fires by day should be smokeless.

f. Not more than one trail should lead into a base. This trail should be well camouflaged and guarded.

g. The base must be established silently.

h. Make a cover plan to conceal obvious preparations for operations and allow as few men as possible to know the plan.

i. Use boot or foot wear of local pattern when available, to avoid certain patrols being given away by the well known pattern of the combat boot.

Section 3.--ESTABLISHING A BASE

1. Well-trained and hardened troops can make a base practically anywhere but obviously some places are better than others. The following are factors involved in the location of a base:

a. It must be so located that the patrol can carry out its mission.

b. It must be secret and secure. If it is not secret the enemy will quickly find it. Therefore the use of a jungle base for more than 48 hours should be the exception rather than the rule. If the base is not secure, troops will be unable to rest as they will be uneasy about their safety. The type of place desired is one remote from trails and villages and with a good thick jungle canopy.

c. It must have good facilities for the erection of radio aerials. Communications are improved when the set is mounted on high ground.

d. If it is anticipated that an air drop is required, the base should have a convenient drop zone. (DZ). DZ's are generally better if located on high ground. The base should not be too close to the DZ or its security will be prejudiced.

e. It must allow men to sleep in comfort. Areas which are wet underfoot should be avoided. Men will not sleep comfortably on steep slopes. Flat and dry ground that drains quickly is best.

f. It should be close to water.

g. Care should be taken to avoid establishing base camps near dead trees or under trees with rotting branches, as these are liable to fall during sudden tropical storms causing casualties.

2. It is important that the area chosen for the jungle base should be suitable, or patrolling from it will suffer accordingly. Planning,

forethought, and study of the map and aerial photographs will give a good idea of where to go, but experience is the best guide.

Section 4.--LAYOUT OF A BASE

1. It has been found from experience that once the set drill is clearly understood, establishing base procedures becomes a simple routine matter. All that is necessary is for the patrol commander to indicate the center of the base and the directions of 12 O'clock. The men then take up battle positions in pre-alloted areas which are checked and the necessary alterations made. Such a cut and dried procedure is much faster than any impromptu arrangements which inevitably lead to numerous readjustments, general confusion and an unnecessary strain on the troops.

2. Once this "clock drill" is understood each man knows his own and his neighbor's areas of responsibility.

Section 5.--SEQUENCE OF ESTABLISHING A BASE

A suggested sequence for establishing a base is as follows:

a. The patrol commander orders the patrol to halt, puts out whatever local protection is necessary and indicates 12 O'clock for the base.

b. A small security clearing patrol is immediately sent out to search around the site within hearing distance. The remainder of the patrol take up defensive positions and there should be no chopping, cooking or similar activity until the security patrol returns. The security patrol's task is to ensure that not only are there no Enemy Forces, but that there are no wood cutters, field workers etc. present who could jeopardize the security of the base.

c. In the event of two security patrols being sent out, to avoid clashes they should both work in either a clockwise or counter-clockwise direction.

d. Elements under their commanders move into their positions according to a "clock" system and make contact with the elements on their right and left.

e. The patrol commander goes around making adjustments as necessary.

f. Men start putting up shelters and settle down (As a general rule, there should be NO chopping, although the patrol commander should be guided in this regard by his appreciation of the degree of security of his base).

g. A perimeter path can be cut around the front of the shelters. Another path may be required into the center of the base from the various section commanders to the patrol commander, but cutting should be avoided as much as possible. It is the clear trademark of a patrol's presence.

h. If time permits the patrol commander holds a commanders' meeting. Following are some of the points to be covered:

(1) Sentries, passwords, stand-to, stand-down and alarm scheme.

(2) Local patrolling.

(3) Work for the next day.

(4) Maintenance of weapons.

(5) Water and Washing parties.

(6) Cooking, fires and smoking.

(7) Latrines.

(8) Refuse pits.

Section 6.--SECURITY AND PROTECTION

1. General:

a. It would be unwise to underestimate the ability of the enemy to attack a base, therefore, every precaution must be taken. The base must be well situated and well protected.

b. When the majority of a patrol is out operating away from its base, sufficient troops must remain in base in order to give it adequate protection. A base commander will be detailed to coordinate the defense. All duties such as sentries, local patrols and action in case of alarm, must be clearly understood by every man. Base protection troops will usually consist of troops due for a rest, and specialist personnel not on patrols such as radio operators.

c. All movement to and from a water point must be controlled and have adequate protection.

2. Dusk and Dawn Alerts.--As in any other operation, morning and evening alerts will be strictly observed. Special points to note are:

a. Evening alerts enable every man to check the night dispositions of his neighbors to the flanks, front and rear. This is the safeguard against confusion among our own troops should shooting start at night.

b. Alerts ensure that every man rises in the morning and retires for the night, properly dressed and with every item of his arms and ammunition at hand.

c. If an early move is planned for the following day, the evening alert is the ideal time for a commander to check that every man is properly equipped so that there will be no delay on the following morning.

d. Sub-unit commanders will detail day and night sentries and can check at alerts that every man knows his tour of duty and his orders.

e. Commanders will check that each man:

(1) Is in a sound tactical position.

(2) Knows what to do in case of alarm.

(3) Knows his fire section, and that each sub-unit commander knows his sub-unit task.

(4) Knows what troops, if any, are outside the patrol base and their route and expected time of return.

f. Alerts are an opportunity for commanders to ensure the strict observance of all medical precautions.

g. Alerts are an insurance against possible dawn or dusk attack.

h. Fires should not be allowed after the evening alert.

3. Sentries:

a. By Day:

(1) Sentries must always be posted by day, particularly on trails leading past or into the base.

(2) They should be posted at the limit of noise. In a well conducted camp this should be 20-30 yards only.

(3) With troops new to the jungle it is advisable to post sentries in pairs.

b. By Night:

(1) Sentries should be drawn into the perimeter during the evening alert, before it gets dark. After this time nobody will be allowed out of the perimeter without permission of the base camp commander.

(2) In larger base camps, where numbers allow, double sentries will be posted.

(3) In the case of the small camp or resting place where numbers are few, it may only be practicable to post a single sentry. In such a case the tour of duty of the sentry should be as short as possible to ensure maximum alertness.

(4) Sentries must have some means of waking their patrol commander silently.

(5) Listening posts or ambushes may be laid on trails into the position.

4. Local Patrols.--Local patrolling must be carefully controlled by the patrol commander so that trails in the area of the base are kept to a minimum.

5. Carrying of Weapons.--Every man must be armed at all times and men must never move about singly. The reason is obvious but only strict discipline will ensure that this rule is observed.

6. Alarms:

a. When firing starts, or when the signal for the alarm is given every man moves silently to his alert position and remains there. From then on any movement seen or heard during the period of the alarm is regarded as being Enemy.

b. There should be no firing at night until the Enemy is a definite target. (Experience has shown that, by night, fire at ranges beyond 10 yards is ineffective). In no circumstances should there be any firing from the center of the base.

Section 7.--LEAVING A BASE

When leaving a base every effort must be made to obliterate any signs of occupation, and in particular any tell-tale marks of the time of occupation. This will hinder the Enemy, if they subsequently find the site of the base, from counting the exact number of men in the patrol.

Section 8.--ADMINISTRATION OF A BASE

If base administration is bad, patrolling from that base will deteriorate because living in it will be unpleasant and tiring. Some of the points which require attention are:

a. Location and cleanliness of latrines and urinals.--These are normally outside the base and will be protected by the sentry layout. Excreta must be buried or flies will cause dysentery.

b. Disposal of rubbish.--Rubbish must be disposed of as it occurs. Empty cans must be buried. If this is not done flies will increase quickly. Before evacuating a base the commander must ensure that all rubbish and food is completely destroyed. Food which is to be buried should be taken out of cans or packets so that it will deteriorate more quickly, and as an added safeguard against its use by Enemy Forces, should be buried in excreta pits.

c. Water purification.--The patrol commander must ensure that water is sterilized. Water-borne diseases are common and jungle water will not be drunk unless it has been properly sterilized.

d. Cooking.--Where individual C ration packs are carried, each man prepares his own food. However, if 10-1 rations are issued, cooking is usually done on a squad basis.

Section 9.--CONCLUSION

1. A jungle base must be located in a position from which its patrols can best carry out their tasks, but its exact location will be decided by the requirements of security and comfort. These two factors may conflict but they are interdependent, for without security there can be no comfort.

2. The extent to which a jungle base will be developed depends on the length of time it will be occupied. But every effort must be made to ensure that it is as secure and comfortable as possible so that patrols returning to it can rest.

3. Security and comfort can only be achieved first by good discipline and leadership, and secondly by paying careful attention to the following:

a. There must be an alarm system known to, and practiced by everyone.

b. Adequate sentries must be on duty at all times.

c. A careful duty roster must be kept, and rest must be organized.

d. Strict hygiene rules, and water discipline must be laid down and observed.

e. Well constructed shelters should be built.

f. Cooking should be of as high a standard as possible according to the circumstances.

4. Employment:

a. Jungle operations are characterized by the reliance on small unit actions. This is particularly true of counterinsurgency missions. The single major advantage possessed by US Forces in the conduct of such operations is the mobility afforded by improved communications and army aviation. Small units will be required to displace and function independently in remote areas against all enemy familiar with the terrain, lightly equipped and jungle wise.

b. Typical missions under such conditions will include the interception of guerrilla forces, raids against insurgent bases, routine patrols of trails and areas, protection of a local populated center and the meticulous sweeping of assigned areas. A basic requirement for the accomplishment of those missions cited above will be the capability of company and smaller units to sustain themselves independently in the jungle for short periods.

CHAPTER II
PATROLLING

Section 1.--INTRODUCTION

1. Although patrolling is important in every type of warfare, it has more than normal significance under jungle conditions. Patrolling in jungle is no different basically from patrolling anywhere else, but because of the terrain, vegetation and characteristics of the enemy, some modifications are necessary.

2. Patrols are classified by the type of mission they perform. The two general classifications of patrols are reconnaissance and combat. They differ in the mission assigned and their actions at the objective. There are many variations in size and organization of these patrols, ranging from two men to a company or larger unit.

a. A reconnaissance patrol gathers information which will enable the commander to make timely and adequate decisions.

b. Combat patrols destroy or capture enemy personnel, equipment, and installations, or provide security.

3. All patrols are a source of intelligence and must be prepared to report all information, whether topographical or enemy, which they have discovered.

Section 2.--INFORMATION

1. Information on the following items must always be studied and passed on to a patrol commander before his patrol is sent out:

a. Topography. Full use should be made of maps, air photographs, air reconnaissance and local knowledge. A patrol "going map" should be kept up-to-date. In addition to the maps kept at unit and sub-unit level it is essential that all new topographical and trail data should be recorded on maps maintained at Division or Battle Group Operations Rooms. This enables up-to-date information to be always avilable to new units moving into an area.

b. Enemy Information may be available from Special Forces briefs, informers, air reconnaissance (visual and photographic) and captured documents. The past history of enemy activities in the area should be studied.

c. Friendly Forces. Boundaries and movements of all friendly forces in the area should be considered. These are recorded in the Division or Battle Group operations room.

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d. Civilians. Movements and habits of civilians must be studied if movement of troops is to remain secure.

2. All information from informers must be carefully considered and assessed.

Section 3.--PLANNING AND CONTROL OF PATROL OPERATIONS

1. All patrols require clearance. This requires that boundaries for the movement of the patrol must be given and agreed upon with other friendly forces. It is often necessary to arrange this some days in advance in order to prevent loss of security by a sudden switch of mission of a unit involved in routine work.

2. The main problem when planning patrolling is the introduction of patrols into their operational areas without the loss of security. Every means of avoiding observation by civilians must be used in deception; movement by night; the use of civilian vehicles (arranged through the Police) and the use of indirect routes. Security and deception are essential factors to consider when planning a patrol.

Section 4.--BRIEFING BY BATTLE GROUP / COMPANY COMMANDERS

1. All patrols must be sent out with a clearly defined mission. In a reconnaissance patrol this should take the form of a question or series of questions posed to the patrol commander. Combat patrols will have tasks such as the attack and destruction of an enemy party or the prevention of contact between enemy and civilian groups in a fixed area, such as in food control operations.

2. Although the unit commander is responsible for the operation of patrols, he usually delegates the detailed planning of these operations to his staff officers. The operations officer and the intelligence officer advise and assist the commander in planning patrol actions. The intelligence officer prepares the daily patrol plan. He includes in his daily patrol plan the missions and routes for all of the unit patrols for that day. He presents the plan to the commander for approval or modification. Once the commander approves the plan, the intelligence officer and the operations officer determine the units to provide the patrols.

3. The patrol leader is notified of his mission well before the time of departure. This allows him to make a reconnaissance (map or photo) and to prepare for the operation. Patrol members have ample time to prepare themselves for the mission.

4. The officer dispatching a patrol must make available to the patrol commander all possible information which may affect his mission.

5. It is essential that Battle Group Commanders, and, in the case of detached companies, company commanders maintain patrol maps showing areas covered by patrols, and results and information gained. Consultation with the previous patrol commander, if an area is being revisited, can often be of considerable assistance also.

6. A sound communication signal must be arranged to avoid operators giving away the presence of patrols by their efforts to open communications. This signal must be laid down by the officer dispatching a patrol. It is suggested that fixed times be given for patrols to open communications. Control transmits the call sign for periods of 30 seconds at one minute intervals from five minutes before to five minutes after the fixed time. Sub-stations should not, of course, reply unless the patrol commander has a message for control which MUST be passed. CW should be used for all transmissions from the jungle.

Section 5.--PLANNING AND PREPARATION BY THE PATROL COMMANDER

1. A typical order for patrol leaders is attached as Inclosure 1 to this chapter. This order gives a comprehensive list of headings for consideration by a patrol commander. The items which should be included in his orders will depend on the task and likely duration of his patrol.

2. Routes and timings are two of the more important considerations for the patrol commander.

a. Movement into the operational area must be secure if the patrol is to achieve success. This implies that any form of habitation must be avoided and that movement through villages or cultivated areas should be avoided if possible. In the case of cultivated areas, movement should take place before the arrival or after the departure of workers.

b. The return trip should be by an alternate route. ONLY IN EXCEPTIONAL CASES SHOULD A PATROL RETURN BY ITS OUTWARD ROUTE.

3. Select men you know to be capable and in good physical condition. Do not choose men with colds - Their coughing endangers security. If the mission requires swimming a river, select only those men who are good swimmers. Include an aid man if your patrol is larger. If possible, include someone that speaks the enemy language.

4. Select an assistant patrol leader who is qualified to take over the patrol if you become a casualty, and have him help you to prepare your detailed plans and to make the patrol ready.

5. Usually you do not select special personnel to accompany the

patrol; they are chosen by higher commanders. The commander may provide native guides; if not, you may want to request them. Guides provided by your commander are usually trustworthy; it is risky to choose your own native guides.

6. When troops are to be committed to jungle, the problem of casualty evacuation must always receive prior consideration. Before leaving base a patrol commander should mark locations of possible drop zones on his map or photograph. Then, if a casualty occurs, he is in a position to decide whether to move to an existing clearing or to search for and cut a new one. It is recommended that packs of cutting equipment (saws or explosives) be held in unit supply, ready for free drop when needed.

Section 6.--DEBRIEFING AND BRIEFING

1. Debriefing:

a. The use of a debriefing guide such as the one shown at Inclosure 1, greatly simplifies the task of the patrol commander in making his report. Remember, he will be tired.

b. Whatever the time of day or night, the company commander, or debriefing officer must be up ready to interrogate the patrol commander. His information is urgently required so that commanders can plan the next operation and other patrols.

c. The test of good interrogation followed by a good clear report is that few, if any, questions are raised later.

2. The value to other units and higher headquarters of information obtained from a debriefing must be kept in mind.

3. Briefing for the next day. At the same time the patrol commander must in addition to debriefing his patrol, start to think of action for the next operations. In this way briefing of the patrol will be completed before the men are dispersed or go to bed.

4. Employment:

a. A primary objective of all combat operations is the location of the enemy followed by a decisive action to affect his destruction. The normal battlefield surveillance means are largely ineffective in primary and secondary growth jungle. Instead, the commander must rely on an intensive, well-coordinated patrol effort to gain the required information and to close with the enemy at a time of his choosing.

b. A jungle patrol must be well versed in the fundamentals of

patrolling and must possess the additional training in stealth, deception, and precise movement required by the jungle. Each jungle patrol must be capable of accomplishing reconnaissance and combat missions. Because of this all patrols will normally be self-sufficient.

c. Typical missions will include control of trails and assigned areas, location of enemy forces and installations, the manning of blocking positions, and the conduct of special combat missions such as raids and ambushes.

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PATROL LEADERS ORDER

1. SITUATION:

a. Enemy Forces: Terrain, identification, location, activity, strength.

b. Friendly Forces: Mission of next higher unit, location and planned actions of units on right and left, fire support available for patrol, missions and routes of other patrols.

2. MISSION - What the patrol is going to accomplish.

3. EXECTUION- (Subparagraph for each subordinate unit.)

a. General Plan.

b. Specific duties of each individual or unit.

c. Coordinating instructions.

(1) Time of departure and return.

(2) Route to be followed.

(3) Passage of friendly position.

(4) Alternate route of return.

(5) Actions at danger areas.

(6) Initial format on.

(7) Action upon enemy contact.

(8) Initial rallying point.

(9) Actions at rallying points.

(10) Actions at objective.

(11) Reporting results of patrol - when and to whom.

(12) Rehearsals.

4. ADMINISTRATION AND LOGISTICS:

a. Rations.

Incl 1

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b. Arms a nd ammunition.

c. Special equipment (state which members will carry and use) and uniform (to include camouflage measure for men and equipment).

d. Method of handling wounded and prisoners.

5. COMMAND AND SIGNAL:

a. Signal.

(1) Signals to be used for control within the patrol.

(2) Communication with higher headquarters - radio call signs, time to report, and special code to be used.

(3) Challenge and password.

b. Command.

(1) Chain of command.

(2) Location of patrol leader in formation.

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DEBRIEFING PATROLS

1. The purpose of this is to guide those who have to debrief patrol commanders.

2. It suggests a number of questions but it must not stop "debriefers" from asking other questions they may think relevant.

3. HINTS ON DEBRIEFING:

a. Make the person who is being debriefed comfortable.

b. Do not make him write the answers. You must do the work while he relaxes.

c. Debrief as soon as possible while the knowledge is still fresh in his mind.

d. Avoid asking questions which suggest the answer.

e. Patrol Commanders will answer these questions better if they know what is needed before they go out.

4. TOPOGRAPHY:

a. Was the intelligence briefing accurate? If not, what inaccuracies were discovered?

b. Was the map accurate? If not, what were the inaccuracies?

c. If air photos were used, was the interpretation of use?

d. What was the state of trails followed?

e. Did the trails show signs of recent use?

f. Were any other trails or game trails seen? Where?

g. Where rivers were crossed or followed, give location of:

(1) Bridges (include type).

(2) Fords.

(3) Were they in recent use?

5. CONTACTS:

a. Where contacted? (Time, date, place, grid ref.).

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b. How many enemies? Of what races? Sex?

c. Any known persons? Can you describe any of them?

d. How were they dressed?

e. Were they carrying packs?

f. How were they armed? (Weapons seen and estimated from volume of fire).

g. What were the enemy doing? If moving, in what direction?

h. Any equipment of documents recovered? To whom have they been given?

j. Any casualties? To own troops or enemy?

k. Have the enemy casualties been identified? If not, what has happened to the bodies?

l. Any POW's? What have you done with them?

6. CAMPS:

a. Where and when was the camp discovered?

b. How was it located i.e., valley, hillside, hilltop?

c. How many huts or buildings?

e. Estimate their accomodation.

f. How long ago were they built?

g. When were they last used? By how many?

h. Were any defences constructed? Describe layout including sentry posts, warning signals, booby-traps, dugouts, etc.

j. How many approach or escape routes? Give their directions.

k. Any food dumps in the camp?

l. Any weapons, ammunition or armourers' tools?

m. Any signs of a printing press?

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n. Any signs of wireless sets being used?

o. Any documents? If so, where were they found?

p. What was done to the camp?

7. CULTIVATION AREAS:

a. Give time, date and grid reference of place of discovery.

b. What was its size and shape?

c. Any steps taken to camouflage crops?

d. What kinds of crops?

e. How old were they?

f. When were they last tended?

g. Any signs of habitation in the area?

h. Any tracks?

j. What was done to the cultivation?

k. In the case of aboriginal ladangs can you estimate the food produced in excess of the aborigines own requirements.

8. SUPPLY DUMPS:

a. Location time and date?

b. What was in it?

c. What was the condition of the store?

d. How was it concealed?

e. When was it last visited?

f. Estimate the age of the dump.

g. Has it been added to since it was first laid down?

h. What was done with the stores?

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CHAPTER III
PATROL MOVEMENT AND FORMATIONS

Section 1.--INTRODUCTION

1. The extreme density of jungle terrain makes patrolling one of the most important aspects of jungle warfare. All movement must be considered to be tactical in nature, ever ready to take counter measures against the constant threat of enemy ambush.

2. The formations discussed in this chapter, while similar to those used in normal warfare, are designed with the following in mind:

a. The requirement to produce maximum fire power immediately on contact.

b. Battle is largely at close quarters.

c. Troops must be capable of taking immediate counter ambush.

Section 2.--MOVEMENT - GENERAL

1. The rate of movement in primary and secondary jungle is seldom more than one mile per hour. Because of the shade given by the trees, movement in jungle can be made over reasonable distances without great physical discomfort.

2. Due to the restricted visibility in the jungle the only sure means of maintaining direction is by compass. Every commander down to the most junior, must be able to use a compass with confidence and accuracy. Movement by night is not often practical and should only be undertaken by well trained troops.

3. Movement through swamp areas is the most tiring and slowest of conditions likely to be encountered. Some assistance in this respect can be obtained by moving from the roots of one tree to the next.

4. Of prime importance is the complete understanding by all personnel of the characteristics of the jungle. They must be trained to feel at home in the jungle and made to realize that it provides good cover which enables them to approach within close range of the enemy unobserved.

Section 3.--PATROL MOVEMENT

1. Silence.--Silence is essential at all times; both voice and movement. With practice it is possible to move at considerable speed in comparative silence. Move steadily and carefully and part the undergrowth rather than crash through. Blundering forward will, in addition to loss of silence, produce bruises, scratches and loss of direction. Avoid walking on dry leaves, sticks, rotten wood, etc., whenever possible. Silent signals should be arranged and used.

2. Cutting:

a. Cut a trail only as a last resort and only to avoid excessive detours. There is usually a way nearby where movement is easier. Cutting has the following disadvantages:

(1) It is not silent.

(2) It reduces speed of movement.

(3) Fatigue is increased in the leading elements.

(4) Quick handling of weapons is made impossible.

b. If it is necessary to cut a trail:

(1) Make sure the machette is always sharp.

(2) Do not slash - a sawing action is just as quick and more silent.

(3) Cut upwards - this prevents pulling vines, etc., down on you.

3. Trails and Trail Discipline.--Movement on trails should be avoided, though it may sometimes be necessary when speed is required, or when moving in mountainous country. Movement on trails simplifies the problem of the enemy who constantly seeks targets along such routes.

4. Not only should established trails be avoided, but efforts should be made to disguise or hide signs of movement to prevent the leaving of a trail even in virgin country. Some aids in this problem are:

a. Have the last man brush the trail lightly with a small branch after the patrol has passed.

b. Remember trail discipline. Do not "signpost" the route with litter and waste food. These items should be kept and buried. Do not pluck leaves or break twigs as this blazes a trail for the enemy.

c. When crossing streams a patrol should spread out along the bank, and be ready to give supporting fire to the leading troops.

d. When crossing established trails, signs of crossing should be erased by the rear man.

e. When moving through close, hilly country avoid handling small saplings as the shaking of overhead branches can be seen and heard

at a considerable distance.

5. Speed of Movement.--Speed of movement is dictated by the nature of the terrain and the task, and is measured in time rather than distance. Speed in moving from one point to another will be better obtained by intilligent route planning rather than by trying to push quickly and blindly foward.

6. Speed will always be limited by the necessity to avoid noise of movement and will often be painfully slow. Commanders must remember that movement in jungle is fatiguing, both physically and mentally, and must balance his desire for progress against the necessity for keeping his troops fresh and alert for action.

7. Halts must be frequent for observation and listening and less frequent for rest. When halted, always take up positions for all round defense. In single file formation it may be necessary to delegate responsibility for protection and lookouts down to all elements within the group. As a general guide, when working out time for rest halts, start with the usual ten minutes per hour. Do not march for longer periods. Usually, however, halts will be more frequent, especially when traversing difficult cou try. After passing through swamp or climbing a steep slope, it is a good plan to have a short rest. Make sure the entire patrol has passed through a defile, if applicable, before halting or only the leading elements will be rested.

8. Observation.--In jungle a man observes with all his senses. On the move he must notice every sign of movement, marks on trails and broken vegetation. His nose must be keen, and free from cigarette smoke, sweets, the smell of hair oil, so that he immediately notices any strange smell such as tobacco, cooking and wood smoke. Frequently, depending on how close the commander suspects the enemy to be, and certainly not less often than every ten minutes, a patrol must stop and listen.

9. Eyes must be trained to di regard the general pattern of foliage immediately to the front and look through rather than at it. A better view is often obtained by looking through jungle at ground level.

10. As soon as any unusual sign or sound is noted a patrol must "freeze" silently. There should be no further movement until the patrol leader has investigated.

Section 4.--AREA SEARCH

1. When searching an area of jungle, or patrolling for information in such areas, the most that a platoon can be expected to search in a day, even under ideal conditions, is one/1,000 meter map square. Commanders, when briefing patrols, must bear this in mind otherwise ground will be only partially searched and incomplete information will result.

2. A most effective method of search in jungle is the "five finger" or "fan" method. A patrol base is established from which reconnaissance patrols of three or four men each are sent out towards the area in which enemy activity is suspected. These patrols are sent out on compass bearings, at intervals of 10 degrees, like the ribs of a fan. Their radius of action should be limited to two or three hours outwards from base, i.e., approximately 1,000 meters. It is essential to limit their radius of action in this way because their task is an exhausting one and they must remain alert and ready for action all the time. For this reason, members of the patrols should be changed frequently. There are several variations of the "fan" method. One is for each patrol to turn right or left at the far end of its patrol line, move 100 meters to the flank and then return to the patrol base on the back bearing plus or minus 5 degrees, as the case may be.

3. Members of such patrols as described above wear no equipment and carry no rations, except perhaps a package of biscuits. They carry only their arms and ammunition, maps and compasses. They move slowly, pausing frequently to listen, and as silently as possible to avoid detection.

4. If the enemy has been in the area being searched, he probably left some sign. It is for these signs that the patrols search; both visual signs and noise. Members of the patrols should have some training in reading enemy signs such as disturbed vegetation, footprints, and marks on banks of strceams.

5. Reconnaissance patrols used in this type of search must realize that their function is to obtain information on which their commander can make a plan. If they find traces of enemy movement they should try to establish:

a. Number of enemy passing through the area.

b. Time of activity.

c. Location of activity.

d. Direction of enemy movement.

Recon patrols do not try to make contact with the enemy but return to patrol headquarters and report the information to the commander.

6. If no information is obtained in the thorough search of a given area, the patrol base moves on and a fresh series of reconnaissance patrols is sent out.

Section 5.--FORMATIONS

1. Movement in jungle is normally restricted to individual units no

larger than a platoon, depending on the mission to be accomplished. Recon patrols will usually consist of no less than three men and no more than one rifle squad. Regardless of the size, the basic formations used are the same; the "single file" and "open" formations, depending on the terrain.

2. Single File.--The single file formation is mandatory in dense terrain and is probably the most used formation in jungle movement. The primary considerations in organizing the patrol for movement through the jungle are control and security.

a. Control.--To insure control the chain of command must be established prior to departure of the patrol. This chain should extend down through the last man in the patrol. The patrol leader must take a position which will allow for maximum control of the entire group, under the circumstance. This position will normally be immediately behind the point or lead element.

b. Security.--Without proper and continuous security, the patrol will likely be doomed to failure. Security begins with the lead man and extends throughout the entire group. Prior to departure on patrol, the members must be assigned positions within the column and given numbers. Even numbered men will observe to the right and odd numbered to the left. At the halt, this system provides for all round security as the point man will cover the front and the rear man to the rear. Distance between men in the column will be determined by the density of the terrain, but should never be more than five meters.

3. Open Formation.--This formation is used only in relatively open terrain where freedom of movement is less restricted and visibility is relatively good. Position of the fire teams in this formation may vary depending on the desires of the patrol leader. Although less critical than in the single file formation, control and security are still prime considerations. The patrol commander remains in rear of the lead element, along with the native guide, should one be attached to the patrol. All-round security is maintained at the halt.

Section 6.--MAINTAINING CONTACT AND MOVEMENT BY NIGHT

1. Maintaining Contact.--The patrol leader must always adapt his speed of movement to that of his rear elements, in other words, responsibility for keeping touch must be from front to rear. The flanks must maintain their position by the center. The only exception to this rule will normally be the leading element, or point, whose whole attention must be focused forward. Obstacles must be crossed tactically. It must be remembered that obstacles and defiles are choice places for an enemy ambush. A simple method should be worked out to cover troops crossing obstacles to ensure that all elements are over before the patrol moves on.

2. Night Movement.--Movement by night in jungle, without a guide or an intimate knowledge of the area, is difficult but it must never be regarded as impossible. Movement on established trails and up streams has been carried out with success, but away from trails it is extremely noisy and maintaining contact is difficult. The following aids will help to maintain contact when moving by night;

a. Use of small patch of luminous tape on back of collar.

b. White towel or rag fixed to back of each man.

c. If no enemy is expected to be in the area, "black-out" flash lights may be used.

3. If contact within a night patrol is broken both parts of the patrol must halt and:

a. The rear part will stay in place.

b. The leading elements must retrace their steps to bridge the gap, moving back on the route which they have already been over. In this way contact will be regained more rapidly and there is less chance of a clash between two moving parties.

Section 7.—MAINTAINING DIRECTION

1. The compass is the only completely reliable and constant guide to direction and should be issued to as many men as possible, a minimum of two per patrol. Because of limited visibility in jungle it is important that patrol leaders recheck their direction constantly. Normally one individual is designated as compass man and will follow directly behind the lead man in the group who is more concerned with security than with direction.

2. Navigation through jungles without roads and trails requires the utmost in map-reading ability and direction-finding skills; skill in following a predetermined route through terrain without obvious landmarks, and skill in being able to orient one's own location at all times in respect to the starting point.

3. The following procedures will help a unit to navigate a jungle successfully:

a. Obtain a map (scaled to 1/25,000 or larger) that is up-to-date with the latest data from other units, patrol reports, and information obtained from natives; and have a good compass.

b. Select the following minimum navigation personnel for each

patrol: a map reader, a compass man, and a man to measure distance.

c. Move short distances at a time, 100 to 300 meters, frequently checking the map with the ground and patrol reports; and measure back azimuths with the compass when practicable. Direction once lost in the jungle is hard to regain.

4. When lost in a jungle, the first and paramount action is to sit down and think out the situation calmly. DO NOT PANIC. Knowing and acting on the following suggestions may save the life of anyone lost in the jungle:

a. Follow streams towards their mouths.

b. Select a distant, distinct terrain feature for orientation as you move. This will keep you from walking in circles.

c. Recheck every compass setting and computation for errors and correct them.

Section 8.--RETURN TO BASE

1. A patrol is most vulnerable to enemy action when it is tired. After several hours or days' operations men may relax as familiar landmarks near their base appear. This is known to the enemy and is the time when many successful ambushes have been sprung by the enemy. Remember that all movements on operations in the jungle are tactical moves and remain alert and ready for action until safely inside camp. DO NOT use trails close to camp as a normal route for returning patrols.

CHAPTER IV
THE AMBUSHING OF ENEMY FORCES

Section 1.--POLICY

1. A high proportion of total Enemy Force eliminations are achieved in ambushes, and better opportunities exist to inflict casualties than in any other form of contact. With the dwindling targets offered by the Enemy Forces it is essential that full advantage is taken of every chance offered. Ambushes are laid as the result of direct high grade information, must be based on sound and detailed planning, and executed by specially selected troops.

2. This chapter sets out the basic doctrine for the planning of ambushes to be laid as the result of information or suspicion, or as part of a large scale operational plan. The aim of such an ambush is to contact the Enemy Force under circumstances of the attackers' choosing.

3. In order to exploit fully an opportunity to ambush the enemy, it is essential that the best possible team be chosen to make the contact. This may frequently entail a company commander personally commanding an ambush group, even although it may consist of only a handful of men. Men specially selected for their marksmanship or other particular qualities should be drawn from any element of the unit, and in fact the ambush group may consist of men from different services. The main consideration in selecting the ambush party should be to choose the team most likely to succeed in that particular case.

4. A high proportion of ambushes laid as the result of information occur at food pick up points, either on the jungle fringe, or on the approaches to villages. Even though the information concerning the time and place of such food lifts may be absolutely accurate, within the knowledge of the informant, it may not take place on the time and date arranged, the area being kept under observation by the enemy to search for sign of a possible ambush. Commanders must always take this into consideration and not become discouraged if a carefully laid ambush fails to achieve its purpose. A clear distinction must, however, be drawn between such an occasion and an ambush that is at the right place at the right time but fails because of mismanagement.

5. The observance of the detail contained in the remainder of this chapter will do much to insure success in ambushes.

Section 2.--THE PRINCIPLES OF AMBUSHING

1. To achieve success, spontaneous co-ordinated action on surprised Enemy Forces held within a well covered killing area is needed This requires:

a. Good shooting from all positions--kneeling, sitting, standing, lying, and firing from behind cover.

b. A high standard of training in ambush technique.

c. Careful planning and briefing.

d. First class security in all stages of the ambush.

e. Intelligent layout.

f. Concealment.

g. A high standard of battle discipline throughout the operation.

h. Determination by all members of the ambush party to wait and kill.

i. A simple clear cut plan for springing the ambush.

Section 3.--THE LAYOUT OF AMBUSHES

1. Principles:--There are two fundamental principles of general layout:

a. All possible approaches should be covered.

b. The ambush must have depth.

2. Approaches:--Information may frequently give the destination of the Enemy Forces, but will rarely give the exact route they will take. However good information may be, the enemy has a habit of arriving from an unexpected direction. It is therefore essential that all possible approaches be covered.

3. Depth.--At the first burst of fire Enemy Forces scatter quickly and the chances of getting a second burst from the same position are small. It is important, therefore, that groups should be so located that when the enemy scatters they take a progressive toll or any survivors.

4. The Ambush Group:--An ambush is made up of a series of small groups of men. The size of these groups will vary, but two to six men may be used as a guide.

5. The group should be self-contained. It is not possible for men to remain alert for six to eight hours, so one or two men in a group will be listening and watching, while the others rest in the ambush position. By rest, is ment that a man relaxes in his position,

resting his eyes and ears. This should eliminate fidgeting and dozing.

6. In placing the men of his group the commander must:

a. Consider concealment as his first priority. Movement in the area must be kept to a minimum, even at the expense of better firing positions. Each man should enter his position from the rear. The group commander must ensure that all traces of movement into the position are removed or concealed.

b. Ensure that the man detailed to spring the ambush has a good view of the killing ground.

c. Ensure that other men of the group will have good firing positions when they break through their concealment, i.e., to stand up to engage moving targets.

d. Locate his men in a position of all round defense.

e. Choose his own position for maximum control of his group.

f. Organize a simple and clear system for alerting his group.

7. Types of Ambush:--Groups may be employed in two ways, bearing in mind the principles of layout:

a. Area Ambush;--Where there is more than one approach, all must be covered. Approaches should be covered in depth to catch Enemy Forces scattering from the position of the ambush. Such an ambush is known as an area ambush. It consists of a series of small groups, each with its own leader, located as part of an overall plan to encompass a particular Enemy party which is expected. The groups may be laid out as limited ambushes. Area ambushes have proved much more successful than limited ambushes.

b. Limited Ambush:--When because of the terrain there is only one likely approach, a group or groups may be placed in depth with all round defense at a spot on that route which gives adequate concealment. This is a limited ambush. It is used when the area ambush is impossible or as part of an area ambush, along a very likely approach.

Section 4.--THE SEQUENCE OF LAYING AN AMBUSH

1. Planning.--Many factors affect a plan for ambush. The following are common to all ambushes.

a. Information.--Information on the ambush area can be obtained from maps, previous patrol reports, police, and air photos.

b. Clearance.--Movements of other Friendly Forces in the area must be considered.

c. Time Factor.--The necessity of being unseen, coupled with knowledge of the habits of the local population will dictate the time at which it is safe to move into the ambush area.

d. Security.--The Enemy has a good intelligence system. Intentions of our own troops must be disguised from the start, i.e., by moving out to the ambush position by dark, and making false moves. The telephone should not be used when discussing plans for an ambush. A cover plan should always be made when time is available.

e. Ground.--All possible approaches should be considered. When considering likely ambush sites such as defiles and water crossings, the obvious should be avoided.

2. Preparation for Ambush:

a. Success depends on adequate preparation. The time available for preparation is often limited. Certain items must therefore be kept in a state of constant readiness:

(1) Weapons must be kept zeroed and tested.

(2) Ammunition and magazines must be kept clean and frequently emptied and refilled.

b. Preparation on recipt of orders to lay an ambush should include:

(1) Thorough briefing.

(2) Rehearsal, when time allows.

(3) Firing practice, if time allows.

(4) Final checking of weapons.

3. Briefing:--All members of the ambush party must be fully briefed. It is suggested that briefing be divided into two parts:

a. Preliminary briefing at static location.

b. Final briefing in the area of actual ambush by the commander of the ambush. This will be kept to the minimum but must include:

(1) General area of each group including direction of fire.

(2) Orders for springing the ambush.

(3) Orders on completion of ambush.

4. Rehearsal:--The more time that can be devoted to rehearsal the greater will be the chances of success. Rehearsals should not be carried out at the ambush site, as security will be prejudiced immediately. If possible select a site for rehearsal closely resembling the actual ambush position. All possible and likely Enemy actions should be simulated and the ambush groups practiced in springing the ambush under a variety of circumstances, including the unexpected..

5. Rehearsals for night ambushes should be done at night, and where it is proposed to make use of night illumination aids, these should also be employed.

6. Occupation:--The occupation of an ambush position should be carried out with great care. All routes made by the ambush party must be carefully concealed. Remember that suspicious items such as paper scraps, foot prints, and bruised vegetation put the Enemy on their guard. It is essential that all items with a distinctive smell which will betray the presence of the ambush party to the Enemy Forces be left behind. Men's hair should be washed free of hair oils and hair creams, cigarettes should be withdrawn, sweets, chewing gum and other scented food, including curry powder, must not be carried. It is frequently necessary to wear soft shoes or have bare feet for the final move into the positions. When allotting tasks and fields of fire for weapons it is seldom possible to provide each weapon with a good field of fire. Each individual must be able to see his arc or responsibility and must be prepared to fire from any position when the ambush is sprung.

7. Lying in Ambush:--Once a group is in position there must be no sound or movement. This is a test of training and battle discipline. Men must be trained to get into a comfortable position and remain still for long periods. During the wait weapons must be cocked and in a state of instant readiness.

8. Springing the Ambush:--The ambush should be sprung when all possible Enemy Forces are in the killing zone and the range has been reduced to the minimum. There must be no half-hartedness or premature action. All men must clearly understand the orders and signal for opening fire.

a. The principle to be observed when springing an ambush is that fire should not be opened so long as the Enemy is moving towards someone in a better position to kill. A limited ambush will normally be sprung by the commander

b. Should any Enemy Forces act as though it has spotted the ambush, any man who sees this should spring the ambush.

c. All shots must be aimed to kill. Once fire has been opened targets become more difficult and to cope with moving targets men may have to stand up.

d. A signal must be arranged to stop firing, so that immediate follow up action and search can start as soon as Enemy Forces become impossible to engage.

e. When the ambush has been sprung men who have been previously detailed will search the immediate area under cover of ambush weapons and covering each other. They will:

(1) Check Enemy Forces in the killing area and secure any who are still living.

(2) Search surrounding area for dead and wounded.

(3) Collect arms, ammunition and equipment.

9. A definite signal for calling off the ambush must be arranged. This is particularly important in area ambushes and night ambushes in order to avoid groups running into other ambush parties. No movement to contact an ambush party in position should ever take place in darkness.

10. Rendezvous:--An easily found assembly area must be selected at which troops will rally at the end of an action on the receipt of the prearranged signal. This item cannot be stressed too strongly as men have been killed when returning to collect a man left in ambush.

Section 5.--PREVENTION OF ACCIDENTS

1. Cases have occured where soldiers and police are shot by parties of Friendly Forces which are waiting to ambush the Enemy.

2. The primary cause of such accidents is that the ambush party is keyed up to expect the arrival of the Enemy Force in the area of the ambush and on seeing any movement fire is opened. . The conditions are such that it is not possible for them to recognize the people fired at.

3. Once an ambush has been set there should be no movement of any kind by our own forces anywhere near the ambush position, unless it is essential.

4. Where it is essential for such movement to take place it

must be very carefully planned and rehearsed. In all other cases once clearance has been given for the ambush to take place, no movement of any kind is to be allowed.

5. It is important to insure that fire discipline is observed in ambush operations in close country as in any other form of operations.

Section 6.--GENERAL

Training:--As ambushing is one of the most successful means of killing the Enemy, time must be given to training for it. This is particularly important for platoon leaders. Training must be aimed at eliminating common faults and improving technique. Its objects are to:

1. Achieve silence and stillness in ambush.

2. Train troops to occupy ambush positions without advertising their presence by smells (curry, chewing gum, cigarettes), by paper scraps, crushed vegetation, and foot prints.

3. Ensure good placement of weapons, and positioning of commanders.

4. Improve fire control and particularly the even distribution of fire.

5. Practice clear, well understood signals for springing ambushes, follow, and search.

6. Ensure accurate shooting at difficult moving targets.

7. Improve care of weapons and eliminate stoppages.

Section 7.--AMBUSH BY NIGHT

1. General.--The doctrine for day ambush also applies to night ambush. In darkness concealment is easy, but shooting is obviously less accurate. Much therefore depends on good placement of weapons so that the killing zone is interlaced with fire.

2. Factors:--The following factors apply to night ambushes.

a. The shotgun if available should be the primary weapon used in night ambushes.

b. The remaining ambush weapons should contain a high proportion of automatics. The M1/M2 carbine is not considered a good weapon for ambush parties, owing to its poor stopping power.

c. In darkness all weapons, particularly LMG's firing down trails should have their left and right arcs of fire fixed by means of sticks to eliminate danger to friendly troops.

d. The ambush party must never move about. Any movement will be regarded as Enemy.

e. Clear orders, precise fire control instructions, and signals are essential.

f. Men and groups will be closer together than by day. Control at night is all important.

g. It is difficult to take up an ambush position at night, where possible, therefore, it should be occupied before last light.

3. Night Illumination Aids:--More often than not night ambushes will depend on artifical illumination in some form. When ground marker flares are used, care should be taken to locate them so that the ambush party suffers from a minimum of glare. A variety of night shooting aids are available.

4. Grenade Necklace:--A useful ambush aid is a grenade "necklace." This consists basically of a series of grenades, with the striker mechanism removed, connected at approximately 12-foot intervals by a length of primer cord. The "necklace" is detonated electrically.

5. Possible uses in ambush of this device are:

a. Laid as a stop along likely Enemy lines of retreat from an ambush killing ground.

b. Laid in dead ground difficult to cover by the weapons of the ambush group.

c. Laid in the likely halting place of the main body of the enemy party.

6. When used, members of the ambush party should be protected from, or located outside the lethal area of the grenades.

Section 8.--SUMMARY

1. The following are some common reasons for failure of ambushes:

a. Disclosure of the ambush by the noise made by cocking weapons and moving safety catches or change levers.

b. Tendency to shoot high at the light face of the enemy.

c. Disclosure of the ambush position by foot prints made by the ambush party moving into position and by movement of individuals at the crucial time, when the Enemy is approaching.

d. A lack of fire control.

e. Commanders poorly located for best control.

f. A lack of all-round observation resulting in Enemy Forces arriving in the area of an ambush unannounced.

g. Misfires and stoppages through failure to clean, inspect, and test weapons and magazine.

h. A lack of a clearly defined signal for opening fire.

j. A tendency for all to select and fire at the same target.

k. Fire opened prematurely.

2. The density of jungle vegetation naturally canalizes foot movement of both enemy and friendly forces over trails or hastily broken paths. Contrary to popular misconception movement of groups cross country is equally difficult for the enemy. As a result an effective means of controlling the enemy's activity; of severing his supply lines; and of intercepting and destroying his combat elements is by means of the ambush.

3. The successful ambush requires a degree of stealth and patience in excess of that normally possessed by the American soldier. As a result special training and practice of techniques is required.

CHAPTER V

LOCATING AND ATTACKING

Section 1.--INTRODUCTION

1. Attacks on enemy camps or bases will frequently be done by strike aircraft, particularly in cases where information indicates that the camp is likely to remain occupied for some time. It is unlikely, however, that the information will be sufficiently precise for the camp to be pinpointed exactly and reconnaissance foot patrols may still have to be sent out in order to determine its exact location. The patrol will often be accompanied by surrendered or captured enemy personnel, or other persons providing the original information.

2. The succeeding paragraphs deal with the deliberate attack by ground troops where neither bombing nor artillery fire can be employed.

Section 2.--SIGNS OF ENEMY PRESENCE

1. The enemy may disclose his presence by trails, marks on the ground, or noise. It is therefore essential that every man be able to recognize the signs left by enemy personnel, even when made by only one or two. The enemy seldom uses permanent trails. Some men will be better than others at tracking, but all can, with training, spot the more obvious signs of enemy passage, i.e., disturbed vegetation, footprints in soft ground and the marks of a water point on a stream bank.

2. Noise is an important factor in locating enemy positions. Men patrolling must listen carefully all the time. The enemy will make noise. They use wood for cooking and their biggest give away is the noise of chopping. They also cough, talk, and rattle cans like any other human being.

Section 3.--THE SEARCH

1. A great deal of tactical skill and patience are necessary to discover the enemy in their camp. This is done, when exact locations are not known, by reconnaissance patrols.

2. Although the suspected area of a camp may be known, only by careful and often prolonged searching of the area will the camp be located on the ground. At the same time, a force must be at hand to take immediate action on receipt of information from reconnaissance patrols.

3. A rifle company is the ideal size force for this type of operation, though the task can, on occasions, be undertaken by as few as thirty to forty men.

4. Once the force has moved into the suspected area, the commander sends out reconnaissance patrols in the direction in which he judges the camp to be. The path of these patrols radiate from their base like ribs of a fan, on compass bearings at intervals of 10 degrees. There may be as many as eight or nine patrols, and seldom less than five.

5. Each patrol consists of three or at most, four men. The men wear no equipment and carry no rations. They search silently and must remain alert at all times. The lightness of their equipment tends to limit their radius of action but is basic to this method of working. The whole search may take days or even weeks, yet men patrolling must remain as fresh and alert as possible. Even lightly equipped, the task is an exhausting one. Each patrol must, therefore, be out for limited periods only and must be changed frequently.

6. Detailed information relative to patrol movement and formations is contained in paragraph 3, above.

7. Having found traces of the enemy, the patrol should return immediately to base and inform the company commander who must direct any future action. An unwise move by a junior leader may disclose the presence of the attacking force. Above all, a reconnaissance patrol must never move along an enemy trail it has discovered.

8. Now it is the job of the company commander to conduct further searches. He will often go forward himself accompanied by two or three men. Listening becomes vitally important, since noise may disclose the enemy camp if it is near.

9. The search does not always follow this pattern. It is possible that a reconnaissance patrol may return having actually located the camp. In any event, once the camp is located, the next step is for the company commander to make his plan.

10. Ideally, the Company Commander and his platoon leaders should view the camp, guided if possible by the patrol commander who found it.

11. The extent to which the Company Commander can show his platoon leaders the actual camp, and his decision whether to do so or not, must depend on a variety of factors, the most important of which are:

a. Risk or compromise to security due to the danger of the party being seen or heard by the camp sentry(ies) or by enemy returning to the camp.

b. Danger of making fresh tracks and thereby disclosing the presence of the unit.

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c. Time that would be taken by further reconnaissance and likelihood of camp being evacuated before an attack can be mounted.

d. Weather conditions prevailing (Heavy rain would screen the movement of the reconnaissance party).

Section 4.--THE ATTACK

1. Meanwhile, the main body should have been moved up to a position of readiness for the attack. The movement of troops into position demands extreme stealth; all equipment and packs should be dumped and, in the final phase, men should carry only their weapons and ammunition.

2. The attacking force will be divided into:

a. An assault party.

b. A cut-off party.

3. The task of the assault party is to flush the enemy. This party can normally be small, as the usual reaction of the enemy is to flee in all directions when attacked. The bulk of the force will form the cut-off party or cordon, which must be complete and as close to the camp as possible, in order to catch the enemy as they scatter.

4. The commander should be able to limit his orders to the, (1) composition of the assault party, and (2) areas of responsibility of subunits in the cut-off party. However, if it has not been possible to indicate areas while on his reconnaissance, it may be necessary to move the cut-off party in one line to their position about 100 yards distant from the camp perimeter. They will then crawl forward silently to their action stations. At least an hour must be allowed for this difficult final move.

5. Experience has shown that unless an occupied enemy camp is completely surrounded the attack is often abortive and the majority of the enemy escape. The assault must be timed to start when the cordon it complete. The assault party moves into the camp picking its targets and opening fire as it does so. As soon as fire is opened the men in the cut-off party assume the best possible fire positions and wait for targets to present themselves. There must be no indiscriminate firing and NO movement out of their positions. If this order is observed the cordon remains complete and the risk of accidental shooting of our own troops is negligible.

6. All men must be briefed that, if they are seen while moving into position or if it is obvious that the enemy are trying to escape, any group may open fire. In that event all men go on the double to their allotted positions.

Section 5.--GENERAL POINTS

1. When a patrol returns with information which indicates the possible presence of enemy in the area, the Company Commander should normally wait for the remaining patrols to come back. If one has information of this type, another may have discovered the enemy encampment.

2. The Commander must know the limitations of his troops. If their jungle craft is weak, he may have to limit his reconnaissance of the camp, not risking too close a move before his cordon is in position.

3. Reconnaissance patrols must be permitted to shoot if they are actually seen by the enemy or if fire is opened on them.

4. This method demands high standards of jungle craft and self-reliance, which can only be achieved and maintained by training and rehearsal.

5. In counterinsurgency operations raids against known bases will result from extensive patrolling, information from informers and meticulous area search. Such raids will constitute the climax of an intensive coordinated effort. The objective of such operations must be the complete destruction or capture of enemy forces.

6. The sequence of tactical operations will probably follow the sequence indicated below:

a. Earning the confidence of friendly natives.

b. Separation of the guerrillas from their sources of support.

c. Denial of movement to guerrilla forces in assigned zones.

d. Location and destruction of guerrilla leaders by means of bounties and ambushes.

e. Raids against guerrilla operational bases to complete destruction of the enemy's capabilities.

7. Planning and preparation for the raid must be accomplished with utmost secrecy. The objective area must be thoroughly reconnoitered and all routes of egress must be blocked prior to the attack. The attack must be made to destroy or capture the enemy's leaders. Effective guerrilla leaders and organizers are the product of extensive training and are rare. Generally organized military forces following standard tactical principles can successfully capitalize on this weakness.

CHAPTER VI
MOVEMENT ON THE ROAD

Section 1.--INTRODUCTION

1. This chapter deals with movement by road as it affects sub-units of the Battle Group and describes measures which can be taken to counter attempts by the enemy to ambush military vehicles. It should be noted that these principles apply to units of other arms. In considering these measures there are two main principles:

a. An ambush is a contact with the enemy and by offensive retaliatory action the opportunity must be taken to inflict the maximum casualties on them.

b. The primary object of the enemy in staging an ambush is to gain arms and ammunition and every effort must be made to prevent this equipment from falling into their hands.

2. It is the duty of all commanders to keep the problem of counter ambush action constantly in mind and to keep themselves informed as to enemy tactics and activity in any particular area.

3. It is also extremely important that troops appreciate the problem, take precautions against ambush, and are prepared for immediate offensive action should the need arise.

Section 2.--THE PROBLEM

1. The following paragraphs deal with the "why, where and how" of enemy action in preparing a road ambush.

2. The aim of the enemy in ambushing vehicles can be summarized in the following order of priority:

a. To obtain arms and ammunition, without which they cannot continue their campaign.

b. To inflict casualties on us with the minimum risk to themselves.

c. As a part of a deception plan to draw us from another area.

d. To demonstrate to the local population the enemy freedom of initiative and potential striking power.

e. As a quick and easy method of "blocking" new recruits to their organization.

3. There is ample evidence that the enemy is willing to accept the risk of remaining concealed for up to three days. However, they prefer to carry out an ambush on a road where a target can be expected to appear fairly quickly.

4. There is also evidence that the enemy plan and execute a road ambush with very great care. They gather information from all sources, choose the ground very carefully, make a detailed plan - and often rehearse it - and altogether organize their forces in a workman-like-manner.

5. An enemy unit carrying out an ambush may be organized in the following manner:

a. Firing Group - Their task is to bring concentrated fire to bear on the vehicle or vehicles selected as the target and to wipe out opposition quickly.

b. Assault Group - Their task is to advance, probably under cover of fire from the Firing Group, to finish off survivers.

c. Follow Up Group- They seize arms and ammunition and carry them away without waiting to see the final outcome of the engagement.

d. Protection Group-- In addition there may well be protection and/or warning groups and there are always scouts and look-out men. When the enemy plan to use a road block, look-out men are posted from half to one mile up and down the road.

6. The enemy will normally carry out ambushes by day, but he is prepared to lay them at night when he can deploy greater fire power because of less difficulty of concealment.

Section 3.--COUNTERING THE PROBLEM

1. This is considered in two parts:

a. Precautionary measures to reduce the chances of being ambushed and to insure instant readiness for action.

b. Action on Contact. Immediate action drills designed to gain the initiative by offensive action.

Section 4.--PRECAUTIONARY MEASURES

1. The Military Classification of Roads. Roads in the area may be classified according to the estimated risk of enemy action in the area. The following is an example of road classification;

a. Unrestricted

b. White

c. Black

2. Unrestricted roads are those which lie within the town and city limits and other roads as decided by the responsible headquarters. Subject to any particular restrictions which local commanders may wish to impose, military personnel are permitted to travel on these roads unarmed, and in any type vehicle.

3. White roads are those upon which there is considered to be only a very limited risk of enemy ambush activity. The following is suggested for travel on these roads:

a. All personnel traveling in military vehicles will be armed.

b. Vehicles may move singly but every military vehicle will carry one armed man in addition to the driver.

4. Black roads are those roads which are not classified as unrestricted or white. The following is suggested for travel on black roads:

a. All personnel will be armed.

b. Travel at night will be restricted to cases of operational necessity.

5. Movement of Military Convoys. For the purpose of these instructions a convoy is defined as a group of two or more vehicles.

6. There are no special instructions concerning the movement of convoys on unrestricted roads.

7. On White roads:

a. An armored vehicle is not considered essential.

8. On Black roads:

a. Troop convoys of operational units will be primarily responsible for their own protection but the fullest use will be made of armored vehicles as escort according to availability.

9. Unit SOP's for Convoys. Every unit should have comprehensive orders covering movement by road based on a classification system

similar to the one described above. These orders should state clearly who is authorized to put a convoy on the road and should cover in detail the following points:

a. The appointment and duties of convoy and vehicle commanders.

b. The organization of the convoy.

c. The weapons and ammunition to be carried (to include automatic weapons).

d. The state of vehicles, e.g., detailed instructions concerning traps, tailgates, and windshields.

e. Immediate action drills.

f. Security measures.

10. Security. The enemy intelligence system is carefully and widely organized and is very effective. It is essential, therefore, that the movement of convoys should never become a routine matter and that the maximum precautions are taken to prevent the enemy gaining advance information of vehicle movement. In this connection it should be remembered that:

a. Telephone systems are usually not secure.

b. Radio transmissions can be monitored.

c. The loyalty of civilian employees cannot be guaranteed.

d. Troops tend to be talkative.

In short, the fewer people who know about the timing, route and composition of a convoy before it moves out, the better. Therefore, drivers and escorts should be notified as late as possible and the use of alternate routes and other deception measures should not be overlooked.

11. The Convoy Commander. A commander must be detailed for every convoy of vehicles moving by road. This will not necessarily be the senior officer or NCO traveling. The convoy commander will position himself where, according to the circumstances, he can best control the convoy. This will not necessarily be in the first or last vehicle.

12. Briefing. Briefing by the convoy commander before moving out must be detailed and explicit. All drivers, vehicle commanders, and if possible, all men traveling in the convoy should be present at the briefing. Briefing should include:

a. Details of timings, route, speed, order of march, maintenance of contact and action to be taken if contact is broken.

b. The distribution of men to vehicles.

c. The distribution of weapons.

d. The appointment and duties of vehicle commanders and sentries.

e. The action to be taken in the event of enemy attack.

13. Alertness. It must be impressed upon all ranks that a high degree of alertness is essential when moving along routes likely to be ambushed by the enemy. Every man in the convoy must be ready for immediate action at all times.

14. Vehicle Commanders. A commander must be detailed by name for each vehicle. His duties will be to insure that all personnel in his vehicle are constantly on the alert and to assist in maintaining convoy formation by controlling the driver. He will insure that men in the vehicle are able to see all around and to fire their weapons or throw grenades without hindrance. The primary task of the commander is to take charge of the troops in his vehicle if the convoy is ambushed.

Section 5.--CONCLUSION

1. The principles mentioned above apply to all types of convoys. The following points are reiterated:

a. The necessity for clear orders and detailed briefing by the convoy commander before moving out.

b. The need for constant alertness on the part of all personnel.

c. The need for security in planning road movements.

2. The outward appearance of the road convoys of a unit is a good indication of its state of operational efficiency. The enemy intelligence has its observers everywhere who can read and interpret the signs of a good unit as well as we can. Thus, the more prepared and aggressive our troops are, the less likely they are to be ambushed.

3. The US Army relies on vehicular movement for its sustenance. The characteristics of jungle areas include limited road nets, the isolation of the jungle between infrequent villages or cities, primitive bridges which are easily sabotaged, and the vulnerability of poorly constructed roads to the employment of craters and abatis.

4. We must rely on vehicles moving under conditions of exposure to the above characteristics for troop movement, supply, evacuation, administrative support and communications. In many instances the vehicles so employed will be manned by other than trained combat personnel. Even though the road nets would constitute priority objectives in support of US operations in a jungle area the enemy must be presumed to have the capability of conducting an ambush of individual vehicles or columns at any time. Senior commanders are particularly desirable targets to a guerrilla force.

CHAPTER VII
INTELLIGENCE

Section 1.--INTRODUCTION

Intelligence is that knowledge of the enemy, the weather, and the geographic features which are used in the planning and conduct of tactical operations within a given area. It provides the commander with information and conclusions about the area of operations, enemy capabilities, and enemy vulnerabilities to permit a determination of their probable effect on his courses of action. Intelligence is required by the commander in determining the best use of his firepower and maneuver forces to accomplish his mission and maintain the security of his command. In jungle operations, intelligence provides the basis for security measures and decisions on the best use of the area of operations in accomplishing the mission.

Section 2.--INTELLIGENCE SOURCES

1. The most common sources of information for intelligence purposes are:

a. Enemy activity.

b. Prisoners.

c. Local civilians.

d. Recovered military personnel.

e. Captured enemy documents.

f. Enemy material.

g. Enemy signal communications and other electromagentic emmissions.

h. Friendly agents and informers.

i. Reports by patrols.

j. Visual air reconnaissance.

k. Air photography and interpretation.

l. Resistance and guerrilla groups.

2. Surrendered enemy personnel provide an extremely valuable source of information in jungle operations. The following points must be borne in mind:

a. Secrecy. The fact that a surrender has taken place must be kept secret so long as it may be possible to turn it to our advantage.

b. Handling. The fewer people who question a newly surrendered enemy the better. The success of an interrogation is influenced by our handling of enemy personnel from the time of their capture to their final interrogation. From the interrogators point of view, the handling and treatment of enemy personnel prior to interrogation is in fact, the conditioning of such personnel for interrogation. Interrogation will normally be carried out by the Jungle Base Commander or IPW personnel, if available.

3. Captured enemy personnel will be handled in accordance with the 1949 Geneva Convention, relative to the treatment of Prisoners of War, and the Division SOP for Combat Operations.

4. Civilians who have been within enemy controlled areas may be valuable sources of information, particularly about terrain. They also may have knowledge of enemy installations and activities. Civilians picked-up in recently captured areas often give information readily. Many disclose information in consideration of their own self-interests. Generally, the longer the delay in questioning civilians, the less valid is the information obtained.

Civilians from enemy controlled areas must be carefully screened in order to detect "line crossers" and "stay-behind" enemy agents.

5. Captured enemy documents. Maximum collection of enemy documents is insured by appropriate training and supervision of small units and individuals. Captured documents furnish information which is generally reliable. However, enemy plans may be based on false assumptions or may have been changed. Documents also may contain enemy propaganda or may have been prepared and planted by the enemy to be captured in an effort to confuse and deceive.

6. Documents taken from a prisoner of war are evacuated with the prisoner, in custody of a guard, so that the prisoner can be interrogated as to the content of the documents. Documents from other sources usually are forwarded through intelligence channels. Below division level, documents are inspected briefly for information of immediate tactical value and then promptly forwarded to the intelligence officer of the next higher headquarters.

7. Enemy material. Captured material may have immediate intelligence value by contributing to target information, order of battle intelligence and development of enemy capabilities and vulnerabilities. The production of technical intelligence is assisted by a continuous collection and exploitation efforts by both combat troops and the technical services. All captured material will be passed to the technical services concerned as soon as practical.

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8. Map coverage of jungle areas is normally limited. Due to the rapid changes in jungle growth and inaccessability of many areas, there will be some inaccuracies in the available maps, therefore, care must be taken to insure that the most current map availableis used. Because of heavy vegetation and availability of natural camouflage material, aerial photos will not be of the same value as in operations in open terrain. Advance patrol action and local inhabitants are the best sources for determining local, salient, terrain features.

9. Patrols. Much tactical information is provided by patrols, whether sent out expressly for that purpose or acquired in the course of other duties.

10. The value of this source is greatly increased if:

a. Correct and detailed briefing is given prior to departure of patrols.

b. Adequate training and thought has been given to the skills of observation and recording of information.

c. Proper de-briefing and reporting takes place as soon as possible after the patrols return.

11. Enemy Radio Activity. All captured radio equipment must be turned in for technical inspection. In addition, it is essential that any information concerning the enemy's use or suspected use of radio should be reported promptly. Such information will supplement and contribute to intelligence gained through ASA Communications intercept activities.

Section 3.--COUNTERINTELLIGENCE

1. Counterintelligence is inseparable from intelligence operations. For this reason, every military intelligence activity has a counterintelligence or security control aspect. The objective of counterintelligence is to safeguard information, personnel, material, and installations against the espionage, sabotage, or subversive activities of foreign powers, and disaffected or dissident groups or individuals which constitute a threat to the national security. Both offensive and defensive measures are used to provide security for a command. Counterintelligence activities include:

a. Neutralization or destruction of the effectiveness of actual or potential hostile intelligence and subversive activities.

b. Detection of treason, sedition, and disaffection within military ranks and among the civilian employees of the army.

2. Special considerations. Jungle operations.

a. Camouflage. The jungle affords superior camouflage and concealment. In jungle warfare camouflage is a special concern of the individual. Care must be taken to avoid excessive cutting. Clear only foliage and underbrush that is absolutely necessary.

b. Light discipline poses no unusual problem in jungle areas since the dense foliage tends to blanket light; however, normal blackout conditions should be maintained during hours of darkness.

c. Sound discipline is a specific problem. Visibility is limited and the only means of locating friendly or enemy troops is through noise detection or observation at close range.

Section 4.--CONCLUSION

1. Successful operations against any enemy in the jungle depends upon accurate and timely intelligence. Here, more than ever, the importance of the individual soldier as a source of information is realized. Commanders and troops at all echelons, must realize the importance of reporting as accurately and timely as possible, every piece of information which they obtain, both about the enemy and the terrain of the country over which they are operating. It must be remembered that, though a piece of information may appear in itself to be of little or no importance, it may be of considerable value when added to other information already available.

CHAPTER VIII
ARMY AVIATION

Section 1.--INTRODUCTION

The mission of the Aviation Company (Inf Div) is to provide the Division and its elements with aerial observation, reconnaissance, transportation and limited resupply.

1. In the jungle the difficulties of terrain, visibility, and climate so complicate command, control, maneuver, supporting fires, supply, and evacuation that the application of combat fundamentals and the considerations involved in special operations must be adapted primarily to terrain and climatic limitations. Few roads or trails are available in the jungle; they often must be constructed as movement progresses. Rivers are frequently the best routes of communication and supply. Dense growth and general lack of road nets make ground travel difficult.

2. Army aircraft may be extensively employed for troop movements, resupply, evacuation, observation, surveillance, aerial photography, wire laying, and other transportation and communication missions. The conduct of artillery fire, surveillance, observation, and aerial photography may be very difficult, even with highly trained aerial observers because of the thickness of the vegetation. Radio will be the primary means of air-ground communications. The use of panels and message drop and pick-up, and other means of air-ground communication is difficult because of the lack of cleared areas. Aircraft may frequently be required to assist in ground communications by laying wire and acting as radio relay stations.

3. In jungle operations the Aviation Company is capable of providing the Division with the following missions:

a. Day and night aerial observation, reconnaissance, and surveillance.

b. Rapid spot aerial photography.

c. Limited transportation of troops, supplies and equipment.

d. Supplemental aeromedical evacuation.

e. Transportation of commanders and staffs by air.

f. Aerial radiological surveys.

g. Aerial communication assistance to include radio relay, wire laying, message drop and pick-up, and propaganda leaflet distribution.

4. Difficulties encountered by the Aviation Company in jungle

operations that may effect the fulfilling of its mission are; lack of adequate landing strips and helicopter pads, maintenance, and navigation.

5. The construction of landing strips and helicopter pads for Army aircraft in jungle areas requires considerable time and heavy equipment. Frequent rains generally make it necessary to surface landing fields with landing mats, crushed rock, or coral. In areas where rivers and lakes are numerous and of sufficient size, waterways can be used in lieu of landing fields. Jungle unit displacements are usually of short distances. Passage is so difficult that the problem facing the unit commander is not how far the unit displaces but how long it will take. Hence, aviation units do not displace in these areas as frequently as in less difficult terrain. Infrequent displacement alleviates, to some extent, the problem posed by the absence of suitable landing fields or helicopter pads.

6. The hot, humid climate of the jungle requires that electronic equipment found in aircraft be operated or turned on for appreciable periods daily to prevent damage from fungus. This high humidity causes parts to rust and deteriorate quickly, therefore; all equipment must be inspected more frequently than normal. Due to the type materials used to surface airstrips, the maintenance officer must plan on increased tire wear and plan accordingly.

7. Electronic aids to navigation may be virtually nonexistent in jungle operations. Due to frequent rains airfields should be equipped with some type non-directional radio beacon in order to provide the company with all weather flying capability. Aviators and observers must acquaint themselves with terrain characteristics not ordinarily used for orientation, such as local variations in the color and density of vegetation, of differences between the types of vegetation found in various sectors of the battle area in the jungle.

8. While the doctrine for the employment of the Aviation Company is essentially the same in jungle warfare as in other areas, certain modifications are required because of the characteristics of the weather and terrain and the general scarcity of operational air strips. These factors do hinder operations. However, the aviation company is still capable of carrying out its mission in jungle type terrain. Due to the conditions mentioned before, greater emphasis must be placed on the use of helicopters.

9. Aviation support in any type terrain does not stop with the capabilities mentioned here, it stops with the imagination of the commander.

CHAPTER IX
EMPLOYMENT OF FIELD ARTILLERY IN JUNGLE WARFARE

Section 1.--INTRODUCTION

1. The factors of terrain, weather, and enemy guerrilla tactics require serious consideration in that they may require deviation from normal tactical doctrine for the employment of FA in jungle warfare. These factors include, but are not limited to, poor ground observation, lack of roads, few open areas for gun positions, inadequate survey control and climatic conditions; while enemy tactics include, such guerrilla activity as ambush, infiltration, raids, and surprise attack. Despite these obstacles, the artillerymen employing his present equipment judiciously to meet the current situation can provide the support necessary for accomplishment of the mission. To support this conclusion it might be well to note some facts disclosed during World War II.

a. In mid August of 1942, General MacArthur Submitted a long and detailed requisition for equipment needed to prepare three divisions for warfare in New Guinea. The list was based on the theory that organizational as well as individual equipment should be light, most of the items requested being patterned on equipment then being used by the Japanese. General MacArthur wanted to convert his infantry cannon companies to the use of 60mm mortars, his 105S mm howitzers to 81mm mortars and pack howitzers. In the Army Ground Forces, meanwhile, there was considerable discussion about, and planning for, the development of specialized light divisions for jungle warfare. Experience both on New Guinea and Guadalcanal soon revealed however, that standard heavy equipment was more effective than believed earlier, and it proved to be far superior to Japanese material. In the end, virtually no changes were made in TOE's for troops in the Pacific, the theory of especially equipped light divisions for jungle warfare was discarded.[1]

b. (C) The British and Colonial forces in Malaya discovered that tactics used against the Japanese in World War II, modified to suit a different enemy, were applicable to Malayan operations.[2]

2. Employment. Using this historical background as a point of departure, let us then consider what can be expected from the Division Artillery in overcoming terrain and weather obstacles, and what methods can be employed in dealing with typical enemy jungle tactics.

a. Mobility

(1) Problems of mobility in the jungle, although more severe, are closely related to those encountered in conventional areas. Consideration must be given to the weight and size of the equipment, its means of transportability and the condition of the roads and trails available. As an example, the towed 155mm and 8" howitzers will not be able to

move as rapidly as the 105mm towed. By the same token, in most areas it can be expected that SP weapons will be faster than the towed. The problem of mobility is of prime importance in the jungle since most roads and trails are hardly passable. Clearing of existing roads and trails for all calibers in the 25th Division Artillery would slow operations and would require engineer assistance such as bulldozers. However, only minor improvement is necessary to move the 105mm howitzer, and once this has been accomplished a reasonable additional effort would enable the larger pieces to move. It might be well to remember that the 105mm howitzer can be towed by ¼T truck, or even manhandled into position. To pioneer new roads and trails is beyond the capability of a field artillery unit.

(2) In areas considered impassable we can resort to air transportability where possible. Airdrops of 105 and 155mm howitzers are feasible and can be accomplished, if necessary. Experiments with rotary wing aircraft as a method for movement of troops and field artillery have been conducted with success by the British in Malaya. Helicopter lifts of a complete 105mm battery over distances of 100 miles are tactically sound, and can be accomplished rapidly. This type of movement has been adopted as standard and there now exist helicopter borne 105mm howitzer batteries in the U. S. Army. All of the 105mm batteries in the 25th Division Artillery have been trained in this technique as have the helicopter pilots of the 25th Division Aviation Company. Employment of this capability would be limited primarily by availability of lift and rigging, elevation above sea level of departure and objective area, and to some extent by weather during periods of heavy rainfall and restricted visibility.

b. Position Areas. Ideal position areas with ample room and good access routes into them will be at a premium. However, through effort beyond that normally required for preparation of position areas, plus light pioneer work to include bulldozer assistance, the artillery battery can occupy most areas with the minimum of notice. It is significant that a major portion of firing in jungle areas will be high angle which requires the expenditure of less effort than does low angle fire on clearing fields of fire. The size and shape of probably available areas does not present a major obstacle, since batteries may be implaced in various patterns such as semicircle, diamond, or on narrow frontages. Normal coverage of the target area, commensurate with the caliber of the weapon, may be achieved by position area corrections to individual pieces. The 105mm howitzer will be least restricted by available position areas, since it can be manhandled and does not require as much preparation of positions as do the larger calibers.

c. (CMH) Survey. The British report that some civil survey is available in Malaya, and this should hold true for many areas in SE Asia. It is usually possible to position units on a common

grid, but because of the nature of the country it may frequently be impossible to accomplish a target area survey. Although accurate survey is a definite advantage in the massing of fires, the lack of it will not preclude the use of this technique. Massing of fires can be accomplished without survey requires and adjustment of all units on the target, or prior registration of all units on a nearby common registration point.

(1) When adequate survey control points do not exist in the area of operations, battalions must initiate survey operations using assumed coordinates and height. When at least one survey control point exists, Div Arty survey is based on the grid established by the coordinates and height of this point. Surveys of the battalion which used assumed control are then converted to the grid established by the survey control point. When no survey control points exist in the area, a control point is designated and assumed data for the point is established. The assumed data will approximate the correct grid data as closely as possible. The surveys of all units are then converted to the grid and the azimuth established at the assumed point. Azimuth at all points of the survey should be correct grid azimuths, if it is at all possible. Astronomical observations, further discussed below, can assist in meeting this requirement.

(2) When conditions of the terrain are such that Division Artillery cannot extend control along the ground, a technique of survey employing helicopters may be used. However, helicopter surveys must be employed with caution. The reliability of data obtained is difficult to predict. Uncontrolled elements such as wind, refraction, personnel reaction time and mobile target (helicopter) make satisfactory performances difficult; moreover, intersection and resection are two of the weaker methods of survey. Although direction as well as location can be established it is not always reliable. To establish direction with an accuracy sufficient for cannon artillery of the Honest John, the artillery battalions can conduct an astronomical observation employing either the sun or one of a number of stars.

(3) The tellurometer, now included in the 25th Division Artillery's TO&E, but as yet not received, appears to have particular application to conduct of surveys in poorly mapped areas. The tellurometer is an electronic device which measures slant distances with extreme precision. Measurements can be made during darkness, and under all other conditions of poor visibility; however, electrical line of sight must be established for each measurement. It takes approximately 30 minutes to measure a single distance with the tellurometer and only two stations, one at each end of the desired baseline, need be occupied. The operating range of the tellurometer is from 1/10 mile to 40 miles and the equipment can be transported manually or moved by $\frac{1}{4}$T vehicle or helicopter. While the line of sight requirements would restrict its usefulness in thickly wooded areas, the equipment would definitely speed up survey in many of the areas where the 25th Infantry Division

troop safety it may be necessary to impose restrictions on closeness of fires around perimeters.

(8) Progressive Firing. Progressive firing was successfully used by the Australians in the Australian Mackay Jungle Exercises held during March-June 1959. This technique is achieved by periodically firing a round into an observed area, approximately 800-1000 meters in front of the advancing infantry. This firing affords the following advantages:

(a) It gives the infantry unit a more accurate fix on its actual ground position in the jungle.

(b) The forward observer has a round on the ground at all times from which he can transfer to any target which might arise.

(9) Illumination. Use of illumination over the jungle by the French in Indo-China proved an effective means of area surveillance during the night.

(10) Direct Fire. The following is an account of Viet Minh artillery tactics employed against the French in Indo-China, which can be used to good advantage. The Viet artillery resorting to direct fire, methodically wiped out all French artillery. This has been called the major tactical surprise of the most important battle of the war, and indeed the key to the Viet success in the Indo-China War. With French guns silenced the Viets were able to employ their own artillery with impunity, direct their AA guns without fear of French counterbattery. Instead of the conventional indirect fire by battery the Viet Minh used their artillery singly. One piece often accompanied by an AA gun was pulled into a forward position usually at night and were dug in and camouflaged. The position had been chosen so that direct fire could be brought against the French, and the FA pieces were so carefully concealed that they were able to smash the French artillery and yet avoid detection from the air and destruction by French artillery. The French themselves admit that they succeeded in destroying only one or two pieces. Having established the supremacy of their artillery, the Viet Minh were able to move forward their troops together with FA and AA, and deny the French the use of an area or at least to make it dangerous. The unorthodox approach to FA turned out to be the decisive factor in the French defeat. The French Air Force made valiant effort to smash Viet Minh artillery and troops, but the distances were too great and the concealment and protection of Viet Troops too good.[4]

e. Observation. Observation of fires by ground observers is very restricted and supplemental observation by an Air OP is usually required. The 25th Division Artillery can furnish from its own

grid, but because of the nature of the country it may frequently be impossible to accomplish a target area survey. Although accurate survey is a definite advantage in the massing of fires, the lack of it will not preclude the use of this technique. Massing of fires can be accomplished without survey requires and adjustment of all units on the target, or prior registration of all units on a nearby common registration point.

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might be employed.

d. Fire Capabilities. The capabilities of artillery under normal counterattack are well known and do not require discussion. However, to combat the type war the known enemy will conduct in the jungle, wherein his activities will be confined primarily to guerrilla tactics, there are several techniques we can employ, all of which have been successful for the British in Malaya.[3]

(1) Flushing. In thick or difficult country the enemy can be flushed by artillery fire into areas occupied by troops waiting in ambush.

(2) Harassing. Harassing fire can be used to keep the enemy on the move when their whereabouts are known or to harass them generally by methodical searching of an area. Harassing is most valuable during hours when the enemy are normally resting and when operations by infantry are halted. To be successful it must be planned in conjunction with infantry operations and maintained over long periods.

(3) Blocking Escape Routes. When troops are engaged in followup operations, the artillery can be used to prevent the enemy from using likely escape routes. This is more effective in steep hilly country or swamp, where movement is canalized within fairly narrow limits. By using this technique the enemy may be driven into ground of our own choosing.

(4) Deception. Artillery Fire in an area away from that in which troops are operating may deceive the enemy as to our intentions, giveing them a false sense of security and covering the noise of movement made by our own troops.

(5) Pursuit. Often in the pursuit, the infantry will be confronted with fortified positions. Small elements can hold the enemy in these positions while artillery pieces can be brought forward for direct fire. In many cases this will enable the main force to continue it's pursuit.

(6) Perimeter. Integration of individual artillery pieces in the battalion or battery perimeter is essential during hours of darkness. If the situation warrants the batteries can remain intact and fires can be planned around the perimeters of the artillery position area as well as the infantry perimeter.

(7) Predicted Fire. When observation of the target area is impossible predicted fire is the normal procedure. Accuracy of the predicted fire will be dependent upon the accuracy of available maps, and up to the minute meteorological data. Because of this and for

troop safety it may be necessary to impose restrictions on closeness of fires around perimeters.

(8) Progressive Firing. Progressive firing was successfully used by the Australians in the Australian Mackay Jungle Exercises held during March-June 1959. This technique is achieved by periodically firing a round into an observed area, approximately 800-1000 meters in front of the advancing infantry. This firing affords the following advantages:

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(b) The forward observer has a round on the ground at all times from which he can transfer to any target which might arise.

(9) Illumination. Use of illumination over the jungle by the French in Indo-China proved an effective means of area surveillance during the night.

(10) Direct Fire. The following is an account of Viet Minh artillery tactics employed against the French in Indo-China, which can be used to good advantage. The Viet artillery resorting to direct fire, methodically wiped out all French artillery. This has been called the major tactical surprise of the most important battle of the war, and indeed the key to the Viet success in the Indo-China War. With French guns silenced the Viets were able to employ their own artillery with impunity, direct their AA guns without fear of French counterbattery. Instead of the conventional indirect fire by battery the Viet Minh used their artillery singly. One piece often accompanied by an AA gun was pulled into a forward position usually at night and were dug in and camouflaged. The position had been chosen so that direct fire could be brought against the French, and the FA pieces were so carefully concealed that they were able to smash the French artillery and yet avoid detection from the air and destruction by French artillery. The French themselves admit that they succeeded in destroying only one or two pieces. Having established the supremacy of their artillery, the Viet Minh were able to move forward their troops together with FA and AA, and deny the French the use of an area or at least to make it dangerous. The unorthodox approach to FA turned out to be the decisive factor in the French defeat. The French Air Force made valiant effort to smash Viet Minh artillery and troops, but the distances were too great and the concealment and protection of Viet Troops too good.[4]

e. Observation. Observation of fires by ground observers is very restricted and supplemental observation by an Air OP is usually required. The 25th Division Artillery can furnish from its own

resources trained air observers as required and the necessary communication support. Air observers can function mutually with ground observers and ground observers can function in coordination with each other. In Indo-China against the Viet Minh the French employed the use of roving ground OP's and target marking personnel. Targets were located and marked for future reference.

f. Ammunition. All the ammunition and fuzes compatible to the artillery can be used in the jungle. There are, however, many differences in their effectiveness and reliability. Consideration of these variations are important in selection of ammunition to be fired, with availability probably the deciding factor. White phosphorous and other colored smoke are very often used during adjustment to facilitate observation and to mark targets. Proximity (VY) fuzed shell and time fire are generally ineffective because heavy overhead growth reduces the fragmentation effect. Quick fuze (PD) produces tree bursts below the canopy and is especially effective. Delay fuze activated by the trees, gives a ground burst similiar to that obtained by quick fuze in open terrain. Heavy undergrowth smothers the shell burst, limiting the burst radius, thus necessitating more ammunition than normal to obtain good area coverage. Use of chemical shell will be effective because of the longer target exposure resulting from stable meteorological conditions under the jungle canopy.

g. Communications. It is by rapid, reliable, and extensive communication that the successful command and control of the division artillery is effected. Radio and wire system parallel each other and both are necessary to insure continuous communications. Dependent upon the situation and terrain one or the other may be the primary means.

(1) In the jungle, radio must be considered the primary means of communication since it can be installed rapidly. Although the range of radios is shortened by jungle growth, this problem can be resolved by using relay stations on the ground or in the air. The latter is by far the more reliable and is used extensively. Forward observers will find most observation posts inaccessible to vehicles and will have to resort to battery pack radios. This will result in an abnormal requirement for batteries.

(2) In most areas wire is considered the most reliable means of communication but in the jungle the problems of terrain, weather and enemy tactics tend to belie this conviction. Laying of wire over difficult terrain can be accomplished by use of liaison planes or helicopters, however its susceptibility to the enemy makes it extremely difficult to maintain. One of the major efforts of enemy guerrilla tactics, which include infiltration and surprise raids, is the disruption of communication lines, and because of this the maintenance of wire is a constant problem. Climatic conditions, particularly

excessive rainfall, with its capability for shorting of lines is another detriment to reliability of wire.

3. Nuclear Weapons.

a. Employment. The discussion of the employment of conventional artillery as contained herein is applicable to the employment of nuclear weapons. We have noted that terrain and vegetation combine to reduce rate of movement. This factor militates against large unit movements such as 8" and Honest John and will cause movement of such delivery units to be slow and difficult. A future addition to the nuclear capability of the Infantry Division is the Little John. This weapon is now in production and will soon be available to field artillery units. It is modern, rugged, and reliable, and is less than half the weight of a 105mm howitzer. The firing unit complete with nine crewmen requires only two helicopters for movement and can be emplaced and fired in ten minutes. The Little John already has earned its place as the newest member of the Army's arsenal of effective weapons, and is fully capable of participating in any encounter which might arise.

b. Weapons Effects. Major variations in predicted effects can be expected in jungle terrain. The interlacing of foliage at crown heights with tough creeper vines etc, may produce far less tree blowdown than predicted. In addition, the thick canopy may serve as an effective shield against thermal effects. Intensive rainfall and high humidity combine to reduce fire potential in wooded areas. Results predicted by our current manuals are believed more reliable in scrub jungle (second growth) and in plantation or cultivated areas than in areas covered by tropical heavy jungle growth.

4. Conclusions.

a. Present equipment used judiciously to meet the difficulties of terrain and jungle environment, combined with tactics employed against the Japanese in World War II, and by the British in Malaya, will enable the field artilleryman to provide timely and adequate support in jungle warfare.

b. Speed of ground movement will depend upon condition of available roads and trails, size and type of weapon, and available engineer support. The 105mm howitzer will be the most flexible since it can be manhandled or towed by ¼T truck when necessary.

c. Complete 105mm howitzer batteries can be moved rapidly by helicopter, while 105 and 155mm howitzers can be air dropped.

d. Size and shape of an area will not prevent occupation since units can be emplaced in various patterns with narrow frontages and use high angle fire.

e. Lack of, or inadequate survey will have little effect on capability or effectiveness of field artillery fires. Flexibility in types and methods of survey will enable most units to be positioned on a common grid while the use of combined registrations on a common target will cause massing of fires to be effective.

f. Valuable experience has been gained by the British in Malaya and the French in Indo-China. Indirect fire methods used by the British, and direct fire methods used by the Viet Minh against the French are techniques which are inherent to U.S. training standards and can be employed effectively by U.S. field artillerymen.

g. Although ground observation may be limited this can be overcome by use of air CP's and combined air and ground CP's.

h. All ammunition and fuzes presently available can be used in the jungle. Of prime importance is the consideration for proper selection of ammunition commensurate with the terrain and effect desired.

i. Ammunition requirements will be relatively high because of the absence in many areas of reliable survey information and the reduction of radio of effects for all calibers caused by dense growth.

j. Radio will be the primary means of communication in the jungle since wire is susceptible to enemy tactics and is difficult to maintain. Although dense jungle growth will restrict the range of radios, this can be overcome by the use of relay stations, particularly in the air.

k. Present nuclear weapons delivery units are large and slow and movement will be time consuming. The Little John will simplify this problem since it is completely air transportable and can be rapidly emplaced and fired.

l. Due to terrain and weather extremes predicted nuclear effects will vary. This is particularly true in the case of tree blow down and fire hazard.

CHAPTER X
FIRST AID AND PREVENTIVE MEDICINE

Section 1.--INTRODUCTION

1. In jungle areas such as found in the Southeast Asian countries, the primitive living conditions of the rural populace; the over-crowding in urban areas; the presence of large reservoirs of infection among the populace; and the lack of sanitation and health control measures, all contribute to a high disease rate. Fortunately, it is possible to protect personnel from these diseases by careful attention to the control procedures required, and by thorough indoctrination of all in observance of the appropriate personal protective measures. In these areas disease can easily cause more casualties than the enemy. These casualties not only put the man affected out of action but also result in numerous medical personnel being required for their care, and may seriously hamper the commander in the accomplishment of his mission.

2. Information relative to the individual countries of Southeast Asia is contained in the Commander's Health and Sanitary Guide to Southeast Asia, issued under separate cover.

Section 2.--FIRST AID

1. It is essential that every man on jungle operations should understand not only the basic methods of Self Aid and of First Aid to the injured, but also general health. In other words, the principles of Preventive Medicine. This in particular applies to senior and junior leaders who are responsible for the health of their men.

2. Many a soldier has been saved from death or permanent disability because immediate First Aid was rendered, and many have died as a result of their comrades lacking the knowledge or the confidence to apply First Aid.

3. First Aid saves lives and stops pain. It is but common sense plus a little specialized knowledge.

a. A lightly wounded man, if given first aid, can go on fighting. It is therefore essential to act quickly.

b. A badly wounded man looks pale and sweaty. Be prepared for this. Calm him and also the men under your command.

c. Do not disturb a wounded man too much unless you have to. Nature will tell him how to lie in the safest and most comfortable position.

d. Look, think, and then act--there may be three men wounded at once. Treat the most urgent first. Keep under cover. Any fool can be

brave and get killed; be brave and don't get killed, and save your friend instead. Look, think, and then act.

e. Equipment:

(1) First aid field dressing is carried by every man.

(2) Each section carries a first aid pack.

(3) Extra medical equipment and dressings are carried by medical aidmen.

4. When a man gets hit beside you:

a. CALM YOURSELF.

b. STOP HIS BLEEDING.

c. KEEP HIM WARM.

d. REASSURE HIM (words of comfort are an important first aid measure).

5. Wounds.--At the time of injury pain is seldom felt. The sensation is very like a blow that you may get when boxing.

6. When to give a man a drink.--Give a wounded man a drink of anything you have--but do NOT give a drink to a man with a wound in his belly, or to a man who cannot swallow. You will kill him if you do. Remember--no drink to these two men. But you can moisten their lips.

7. Stop Bleeding.--Bleeding of a slight or severe degree accompanies all wounds. A man can bleed to death very quickly. SO ACT PROMPTLY. Remember bleeding can be stopped by the firm pressure of a dressing accurately applied on or into a wound. The dressing acts as a splint and helps to immobilize the injured part. After the dressing has been applied have faith and do not remove it to see if the bleeding has stopped.

8. Shock.--Shock lowers vitality; it kills more men than do bullets. It is increased by fear, cold and pain. Restore, by encouragement, the peace of mind of the wounded man. Reassure him by the quiet and methodical way you go about giving first aid. All movement of the wounded man must be gentle and reduced to a minimum. Pain is allayed by immobilization. If possible give hot sweet drinks--tea or soups.

9. Abdominal Wounds.--All cases should be treated as of first urgency. The object is to get the wounded man quickly and comfortably to surgical aid. Do not give this man anything to drink.

10. Chest Wounds.--The small perforating wound requires little direct attention save the application of a dressing. If the wounded man coughs up blood, explain to him that it must be expected. Reassurance and calmness are essential for his peace of mind. Some of the larger wounds are of the valve type and suck in air, they require immediate first aid. The man finds it difficult to breathe. Seal the wounds off with the firm application of a dressing into the wound itself. Bind the dressing firmly to the chest. Transport the patient in the position most comfortable to himself.

11. The jaws and face.--The impact of the blow may cause a temporary loss of vision. The first sign is usually a trickle of blood on the face or in the mouth. The patient may faint. A patient with a severe jaw wound should be laid stomach down on the stretcher with his head projecting beyond the canvas and the forehead supported by a bandage sling between the handle. This prevents the man swallowing blood and saliva and his tongue falling back. Keep the foot of the stretcher higher than the head to insure drainage.

12. Broken Bones.--To allay pain and shock and to prevent the splintered bones damaging blood vessels, nerves and muscles, the bones together with their surrounding tissues and muscles must be immobilized by splinting. Support the broken limb with a well padded splint. Place the limb in its most natural position and you cannot go wrong. Do not let the limb flap around or the sharp ends of the splintered bones will cut the vessels, nerves and muscles to pieces. A broken arm should be bound firmly but not too tightly to the chest. After splinting the broken lower limb bind it to the other, foot to foot, knee to knee and thigh to thigh.

13. Injury to Spine.--In all cases of fracture of the spine, the patient must be transported on his back if carried by litter. Pads should be placed to support the neck and the small of the back. However, if patient is carried on a blanket, he must be carried on his stomach. It is vital that the injured man is not bent or twisted when moving him as it may kill him. If the man in unconscious make sure his tongue or false teeth do not fall back into his throat and choke him. Keep his face turned to the side and his airway open so he can breathe.

14. Burns and Scalds.--If a limb has been burned, elevate and immobilize it. If proper medical attention is not available apply a dressing to the burn. Pain may be allayed by giving frequent hot drinks to which a little salt has been added.

15. Phosphorus Burns.--Hold under water--pick out the pieces of phosphorus. Keep the wound wet.

16. Artificial Respiration.--For apparently electrocuted or drowned persons, immediate application of artificial respiration is vital. The method used will depend on that taught by the unit commander.

Section 3.--SANITATION AND DISEASES

1. Sanitation.--Water is universally contaminated because of primitive methods of waste disposal. As a result, intestinal diseases are widespread and produce a very high sickness and death rate. All water should be considered unsafe and be properly treated before being used for drinking or cooking. Mosquitoes, flies, and lice abound and are responsible for much illness. Locally acquired foods are unsafe in the raw state because of the use of night soil (human feces) for fertilizer, and must be well cooked before serving to prevent transmission of intestinal parasites and dysenteric organisms.

2. Disease.

a. Malaria is the major public health problem since it is the chief cause of illness and death among the native populace. Although malaria is found in all parts of Southeast Asia it is most prevalent in the mountainous areas.

b. Intestinal disease (dysentery, amebiasis, cholera and typhoid fever) are second to malaria in importance. All except cholera are present constantly and intermittent outbreaks of cholera may be extremely devastating. These diseases would probably cause the greatest loss of manpower to a military force unless thorough precautions were taken. Special attention must be given to adequate procedures for water purification, waste disposal, control measures for the use of imported as well as native food products. If you eat only clean food and drink clean water, you will avoid these diseases. Make every effort to insure that food is kept clean during transport, preparation and serving. Food or drink should not be purchased from villages or unlicensed vendors. The most dangerous items are cold drinks, ice cream, and other dairy products.

Section 4.--SUMMARY

1. First Aid packets will be carried by all ranks while on operational missions.

2. To assure good health all recommended immunizations for the area concerned must be kept up-to-date.

3. Don't eat or drink foods which have not been approved by medical personnel or drink water which has not been properly treated.

4. Observe strictly all rules of personal hygiene as may be set forth by the commander.

5. Each individual must have a thorough knowledge of both Self Aid and of First Aid and (buddy treatment) procedures before going into these areas.

CHAPTER XI
TREATMENT OF CIVILIANS

Section 1.--INTRODUCTION

1. Relations with the civilians in the area of operations may or may not be governed by Military Rights and Status of Forces Agreements and/or Civil Affairs Agreements. These agreements, whether express or implied, govern the relationships between United States Forces and the local population. Part of all of the following situations may exist and must be considered:

a. U.S. Forces are operating in the area at the invitation of the host country.

b. Host country citizens have certain rights similar to those of our own country; freedom of speech and movement, etc.

c. Movement of foreign troops into a democratic country would normally cause concern on the part of the civilians, possible to the point of demonstrating against it.

d. Identification and separation of hostile civilians and trouble makers from friendly civilians is one of of our major concerns in such operations.

e. All actions must be in strict accordance with any agreements between the host government and our own.

Section 2.--DEALING WITH NATIVES

1. Dealings with the natives should be through a proper agent, such as a colonial administrator or head man of the district. Agreements relative to employment, pay and rewards should be made through a designated agent. This agent should be carefully consulted as to native religions, superstitions, and customs. Local rules and customs should be respected. In dealing with natives the following actions should be taken.

a. Be friendly, but cautious.

b. Be courteous.

c. Respect their customs, religions, and personal property.

d. Give them gifts.

e. Do not threaten.

f. Do not molest their women.

2. Employment of natives. Friendly natives may be employed as scouts, guides, carriers, rear area litter bearers, and laborers. Natives are also valuable sources of military information. If the local situation and agreements permit, the use of native troops, organized and controlled by the commander, will decrease objection to the presence of our forces.

3. Unit commanders must, at the earliest possible time, determine the sentiments of the local inhabitants. Local political leaders, police representatives, or village leaders should be contacted and influenced to assist as required.

Section 3.--SUMMARY

1. The key to success in dealing with the civilian population, regardless of the area, is firm but just treatment. By gaining the confidence and cooperation of the civilians in the area, the commander will have gone far towards the accomplishment of his mission.

2. Note Appendix 2 for details regarding life and living conditions in Laos.

CHAPTER XII
COMMUNICATIONS

Section 1.--INTRODUCTION

1. Standard signal communications systems and techniques will normally be employed in jungle operations, however, lack of trails often restrict or prohibit the use of vehicles, and dense foliage may cause excessive attenuation of radio signals from short range sets. Field expedients will have to be utilized to cope with these conditions. Lighter, nonorganic equipment which is man-transportable may be used if available. This chapter covers some of the considerations and expedients peculiar to jungle operations.

2. While all equipment for use in the tropics must be capable of functioning efficiently in high temperatures, temperature alone does not cause the greatest difficulty. Inadequate storage facilities cause much damage. Continuous damp, warm air causes a general disintegration of most types of insulating material.

3. Fungus growth often reduces the wire insulation resistance to such an extent that service is interrupted. Under tropical conditions, fungus may form in a day or two on the edges of insulators, and in keys and jacks, causing short circuits. Insects also create maintenance problems. Spiders may build webs in switchboard wiring; even lizards have been known to enter equipment and short circuit main bus bars. Termites destroy wooden structures and some types of insulation. In some cases tropical wind storms sometimes even carry large quantities of dust which get into equipment and cause contact and insulation trouble.

4. Before beginning jungle operations, every possible measure must be taken to dry out and protect equipment. The care of electronic equipment is of special importance in the rainy season. It should be moisture-proofed and fungus proofed to provide protection against fungus growth, insects, corrosion, and water. The treatment, which is designed for field application, consists of spraying or brushing on a moisture and fungus-resistant varnish. It should be applied prior to arrival where possible and, in every case, prior to issue for use in the jungle. Even after this treatment, additional precautions should be taken. Waterproof covers are an added protection. If covers are not issued they can be made from salvage material. Signal equipment should never be placed on the ground and left there over long periods of time.

5. Although radio communication in the jungle is highly desirable, particularly in the attack, the normal operating range is reduced 40 to 70 per cent below the range for open or lightly wooded areas. Due to poor transportation facilities, large and powerful radio sets will usually be used only in rear areas, or at sites immediately adjacent to roads,

trails, paths, or navigable waterways. Field sets used in the jungle must be given great care because of the damage resulting from heat, moisture, fungi, or insects. Radio operators must be trained to copy weak signals and to use every expedient possible in sitting and constructing antennas. Remote control of equipment may be helpful in gaining a more favorable location of the set. Radio sets may have to be hand transported and hand operated. Substitution of man-packed sets for vehicular sets may be necessary. The following are suggested solutions to some of the problems which will be encountered when communicating by radio in the jungle. If operating in terrain which does not allow the use of vehicles it may be necessary to dismount radio equipment from vehicles and pack it into areas where it is needed. With the vehicular mounted FM equipment now in use in the Infantry Division, the modification Kit MX-898/GR may be used as a power source. The types of operation provided by the modification kit are as follows:

a. Field operation of set RT-68 with the battery case and the hand generator. The batteries contained in the battery case (one BA-419 and five BA-403) provided the power required for the receiver portion of the set. To transmit the hand generator must be turned during the entire transmission.

b. Field operation of RT-68 with the hand generator only. This type of operation requires that the hand generator be turned at all times when receiving or transmitting.

c. Field operation of set RT-70 with battery case. The batteries contained in the battery case provide sufficient power for both receiving and transmitting. The hand is <u>never</u> used to power RT-70.

6. Storage batteries may also be used; however, their weight and maintenance problems practically eliminate their use in jungles. Radio equipment such as the AN/GRC-19 and AN/GRC-46 could be transported by helicopter to otherwise inaccessable locations where they can be powered by easily transported portable 1.5 KNW-28 Volt generators. Another piece of equipment is the radio set AN/GRC-9 an AM radio set, which can be substituted for the shorter range FM equipment in the Infantry Division.

7. Long range radio communication in the jungle is possible only when the antenna used is clear of surrounding jungle growth, when antennas are so sited long-range communication is similar to that for any other military operation.

8. Line-of-sight radio communication is used when dense jungle growth makes HF ground wave transmission impossible.

9. Tests have shown that the absorption of the radio waves going through heavy jungle is so great that the transmission path along the ground which is normally used for short-distance military communications, is practically unusable for communication ranges of over one mile.

a. Another important factor which generally reduces the range of HF communication in the jungle is the relatively high atmospheric noise level due to static originating in thunderstorm regions both near and far from the jungles. In the lower portion of the HF band, static like radio signals is not usually propagated from long distances during the daytime; however, at night it reaches the receiving point from long distances and therefore interference is relatively high at night and lower during the day. The very high absorption of radio signals by dense jungle growth, coupled with the high noise level in the HF band makes jungle communication by means of the path along the ground difficult.

10. Two alternative paths do exist and are recommended for providing jungle communication for ranges greater than approximately one mile. One path is that above the top of the jungle, using VHF equipment; the other is one vertically upward to the reflecting ionosphere, and down using HF equipment.

a. Transmission over the top of the jungle. Communication via VHF path over the top of the jungle is particularly well suited to situations in hilly or mountainous terrain where the terminal equipment can be located at relatively high altitudes above the surrounding terrain with a minimum of ridges in between the two terminals.

(1) The VHF band, being affected very seldom by atmospheric static and ionospheric variation, is capable of providing communication with about the same degree of reliability both day and night.

(2) Therefore there will be the same number of frequency channels available both day and night. This factor is of importance in laying out a signal plan wherein it is essential that communication be established both day and night over large numbers of circuits.

(3) The PRC-10 will communicate three-fourths of a mile to one mile in very dense flat jungle when both sets are on the ground. When both sets are placed above the jungle, the range is increased from three-fourths of a mile to about four miles. (See Figure 1.)

b. Transmission via Ionosphere. (HF) If elevated paths are not available, the other path which may be used for jungle communication most of the time with HF equipment is the one up to the reflecting ionospheric layers, which exist in the region from about 60 to 200 miles above the earth. It is not entirely stable in its characteristics as it

changes with the time of day and year, and the geographical location. In spite of the fact that this alternate path may be as great as 400 miles long, it may not absorb the radio signal as much as one or more miles of jungle growth.

c. The designated ranges in the following table are ranges that will be obtained a large percentage of the time (about 90 per cent) during the worst months of the year. Ranges less than these will be obtained more often and ranges somewhat greater than these will be obtained less often than 90 per cent. It should be understood that under different atmospheric-noise (static), antenna, ground, and jungle density conditions, the ground-wave ranges may be more or less than those indicated.

Chart of calculated 90 Per Cent Reliable Ground Wave Range of radio sets in Panama during Noisiest season of year.

	Radiotelephone		Radiotelegraph	
	Daytime	Nighttime	Daytime	Nighttime
AN/GRC-9				
Over level, open terrain	6 Mi	1.5 Mi	25 Mi	10 Mi
Through dense jungle	0.8 Mi	0.4 Mi	2 Mi	1 Mi
AN/GRC-9				
Over level, open terrain	16 Mi	9 Mi	57 Mi	30 Mi
Through dense jungle	1.5 Mi	1 Mi	2.5 Mi	2 Mi
AN/PRC-10 (RC-292)				
Over level, open terrain	12 Mi	12 Mi (under favorable conditions)		
AN/PRC-10				
Dense Jungle:				
Both sets on grd	1 Mi	1 Mi		
One set in tree	2 Mi	2 Mi		
Both sets in trees	4 Mi	4 Mi		

d. The attenuation due to dense jungle growth is so great that, for communication of more than approximately one mile, the ground wave which is normally employed for these ranges is practically useless. Communications greater than one mile may be obtained by elevating the antenna of VHF sets, either by raising them into trees or by using hilltop sites. Ranges greater than one mile with HF sets require use of sky-wave

transmission. This involves the use of antennas radiating energy almost vertically and the employment of ionosphereic predictions for optimum results.

11. Radio Antennas. A radio antenna must be correctly sited for maximum efficiency. However military considerations may require the use of other than the best antenna sites. The following rules are useful guides when siting radio antennas and for improving radio communications in the jungle:

a. Antennas should be located on hills overlooking the surrounding terrain and jungle growth.

b. Antennas should be located in clearings on the edge farthest from the distant station. The clearing should extend at least 100 yards from the antenna in the direction of the distant station.

c. Directional antennas should be oriented in straight-line paths. When intervening jungle growth or terrain makes the straight-line transmission path impossible the antenna can be oriented slightly off-course, particularly when the off-course path is unobstructed.

d. Antennas should be located as high as possible when the antenna site is located directly behind an intervening mask. If feasible, tie the radio set to the top of a tree and operate it from that location or remote it to the ground.

e. Antennas should not be located in narrow valleys or between ridges or stretches of high jungle growth.

f. Antenna cables and connectors should be kept off the ground to lessen the effects of moisture, fungi, and insects. This applies to all power cables.

g. Complete antenna systems, such as ground planes and dispoles, are more effective than fractional wavelength whip antennas.

12. Antenna Sites.

a. Jungle growth must be cleared from antenna sites. If an antenna touches foliage, the signal will be grounded, especially during the rainy season.

b. Whip antenna sites. The standard 15-foot whip antenna provides good omnidirectional coverage in the horizontal plane. Ranges are reduced in densely wooded areas or where the locality is very noisy.

To overcome this reduction in range, it is necessary to site the set carefully or to change the antenna system. For example, it may be possible to bounce the signal (sky wave transmission) over an obstruction by tilting the antenna away from the distant station when operating in the HF band. (Note this method should never be used with FM radio equipment) (See Figure 2.)

c. An increase in the antenna's height will usually extend the communications range of a radio set. Operating the set from the top of a vehicle or shelter will increase the range in many cases.

d. Increasing the antenna's length by using additional mast sections or a long piece of wire (if the top of this wire can be supported) will usually improve operations. When this is done, it may be necessary to return the antenna coupling circuit or adjust the antenna lengths until improvement is noted.

Typical Antenna Lengths

To determine the proper length (in feet) of a half-wave antenna for any frequency, divide 468 feet by the frequency in megacycles. The resultant length is given in feet. Examples are:

Frequency (mc)	Antenna Length (ft)	Frequency (mc)	Antenna Length (ft)
2	234	8	59
3	156	9	52
4	117	10	47
5	94	11	43
6	78	12	39
7	67		

13. Field Expedient Antennas.

a. Improvised antennas can be constructed from available materials using the method below. The overall length from X to Y should be 234 feet with insulators placed as shown in the following diagram:

Placing Insulators on Field Expedient Antennas

Frequency (mc)	Length (ft)	Connections
6.0	78	X to A
5.0	94	X to B
4.0	117	X to C
3.0	156	X to D
2.5	187	X to E
2.0	234	X to Y

Improvised insulators can be made of any non-conducting material. (See Figure 3.)

b. Two field antennas that can be used with the field type HF or VHF sets are the vertical half-rhombic and the wave antenna. These are shown in Figures 6 and 7.

14. Radio Shelters, Operations and Maintenance.

a. Shelters. When mobile shelters are not available, tents or shacks should be erected to house radio stations. Floors should be built in these shelters to hold equipment off the damp ground and away from moisture, fungi, and insects. These shelters should be so constructed that air will circulate about the installed equipment.

b. Operation. Tropical rains, heat, fungi, and insects combine to produce major problems in the operation of radio equipment. As a result, the effective operation of radios in the jungle depends to a great degree on the training, resourcefulness, and perseverance of the individual operator.

c. Maintenance. Because of moisture and fungus growth, maintenance of radio sets in tropical climates is more difficult than under temperate climatic conditions. The high relative humidity causes condensation to form on the equipment. This is especially true when the temperature of the equipment becomes lower than the surrounding air. To minimize this condition, keep the sets turned on or place lighted electric bulbs near the equipment.

15. Poor radio communication or lack of communication can be due to any of a number of reasons and it is not always due to excessive distances or bad terrain. Poorly kept equipment and improper operation can be just as effective in preventing communications as excessive distances, mountainous terrain or thick jungles.

16. General operating hints:

a. Use a handset or headset in place of a loudspeaker if the incoming signal is weak.

b. Make sure the microphone or handset is in good condition. Speak directly into the microphone; speak slowly and distinctly.

c. If the set is in a vehicle, make sure the battery voltage is up. Keep the engine running to charge the battery.

d. Moving the set a few feet may improve reception considerably.

e. Use CW in place of voice for increased range.

f. When using vehicles with mounted antennas place them so that the optimum use can be made of the vehicles and their antennas. (See Figure 8.)

17. Wire, the other of the two primary means of communication in the Infantry units is used for tactical control, fire control and for administrative traffic within and between units. It is used whenever there is time for the system to be installed; the tactical situation being the prime consideration. Wire is particularly adaptable to any tactical situation if it is used properly. The limitations imposed by the jungle on other means of communication cause a greater dependence on wire. The continual dampness and gungus growth in jungle areas will reduce materially the effective range of field wire lines. Consequently these circuits should always be designed on the bases of wet wire transmission factors. Ground wire routes are limited and the few available routes will be heavily traveled, making overhead construction imperative in most cases. One way to alleviate this situation is the use of helicopters from the Division Aviation Company.

When laying wire, using men and vehicles, the suggested construction techniques listed below should be used to maintain the effective range and to extend the life or field wire lines:

a. Selection of the best route for a wire line is extremely important to construction and maintenance. Ground reconnaissance is more effective than aerial reconnaissance, because dense jungle growth hides trails and roads from aerial observation.

b. Repeaters and amplifying telephones can be used to increase the range of field wire circuits. The laying of two field wire lines, using two wires for each side of the circuit, will also increase the range of field wire circuits. When using two field wire lines for one circuit, one wire of each pair is connected together for one side of the circuit, and the other wire of each pair from the other side of the circuit to prevent cross talk and extraneous noise (unless the lines are spaced and transposed on insulators as open wire).

c. If possible, field wire lines should be constructed overhead on forestry-type insulators (Insulator IL-3/G). This type of construction will give better service and requires less maintenance than field wire lines laid on the ground. When placing overhead-type forestry insulators in the jungle or placing any wire in trees care should be taken to follow the safety standards prescribed in the unit SOP.

Care also should be taken to use climbers fitted with sharp tree gaffs. Trees that have large diameters generally are more difficult to climb than samller trees, and usually require some variation in the method of climbing. The safety strap is normally long enough for trees with diameters up to 24 inches. When climbing larger trees, it may be necessary to substitute a rope for the safety strap. Two safety straps may be linked together, if the combined length is sufficient to pass around the tree trunk.

d. When maintenance becomes difficult, wire maintenance teams can be placed at close intervals along the lines. Maintenance can be facilitated if test stations are installed at frequent intervals. The lines should be tagged often so that they can be readily identified.

18. When using wire communications in the jungle and an open or break is encountered in the circuit a suggested SOP to be used by the unit is as follows:

a. Remove one terminal wire and place it in the ground. (Both ends do this). (The jungle being damp and moist will make use of the ground as a return path to restore the circuit, and the lines.)

b. If this does not work, remove the other end of the terminal and put it in the ground. (After replacing the first end back on the terminal.)

c. This will take some cooperation and experimentation between both ends to be sure both have the same wire in the ground at the same time. This utilization of the damp earth is called a Ground Return Circuit. (See Figure 9.)

19. A Simplex Circuit is one in which a ground-return telephone circuit is superimposed (added to) a single, full metallic circuit to obtain an additional circuit. (See Figure 10.)

20. A Phantom Circuit is three channels of communication obtained over two metallic wire lines, or two pair of WD-1 lines, superimposed with repeating coils and using a metallic return. (See Figure 11.)

21. The Simplex Phantom circuit is four channels of communication which can be obtained over two metallic wire lines, superimposed with repeating coils and one circuit using the ground as a return path. This will give maximum use of the field wire when in the jungle and expedite laying and recovery of wire. (See Figure 12.)

22. Air laying of field wire and field cable. Air laying of wire and cable becomes necessary in the jungle in most cases. It is of particular importance in forward areas. There, tactical units are highly

mobile and widely dispersed. When laying this wire it is imperative that an aircraft fly in an arc when traveling the course between the initial point and the release point. Tests have shown that in doing this the proper amount of slack is left in the wire thus preventing "Deadfall" and wind breakage. Deadfall is the breaking and falling of old limbs on tight wire and breaking it. With the amount of slack in the wire obtained from flying this arc, this is prevented. Wind breakage is due to wire being caught in the tops of the trees and the wind whipping them back and forth. If they do not have the proper amount of slack laying on them they will break the wire. (See Figure 13.)

a. Field wire can be laid from either fixed or rotary-wing aircraft, but rotary-wing aircraft is more suitable because:

(1) Rotary-wing has greater maneuverability and versatility in the jungle.

(2) The wash down action of the rotor keeps the wire at a safe distance below the aircraft.

(3) Rotary-wing can land, and take off from small areas, which also facilitates policing of the lines.

(4) The slow-speed, low flying, and hovering capability of the rotary aircraft makes it adaptable to low level dispensing.

23. Route Reconnaissance. Unless it is firmly established that the projected route for the wire lines is free of obstacles, there is a definite need for an aerial reconnaissance of the route. If the wire laying is to be done at night, the reconnaissance should be done during daylight hours. It is also imperative that the pilot hit the appointed objective exactly. There are many situations in the jungle which prevent the pilot from landing. In dense jungles if the pilot misses the target as little as twenty-five feet the men on the ground will not be able, in most cases, to find the wire and communications will be disrupted due to the time element in locating the wire.

24. Air laying field cable. Field cables, such as Cable Assembly CX-1065/G (spiral four) may be laid by rotary-wing aircraft to connect line-of-sight radio terminals with accessory equipment in a command post; to provide cable lines across contaminated areas or minefields, and to span rivers.

a. There is no device for dispensing field cable from aircraft; however, some device could be improvised in an emergency.

b. Field tests have indicated there are five important factors to be considered in improvising of dispenser for the air-laying of field cable:

(1) The dispenser must be sling-loaded rather than being carried in the craft.

(2) The cable cannot be payed out from the cable reels; it must be arranged in gentle folds on the dispensing frame.

(3) The dispenser must be as light as possible to increase the amount of cable that can be carried by the aircraft.

(4) Some means must be provided to jettison the dispenser in case the cable snarls during the dispensing operation.

(5) Ground test the dispenser to insure the dispenser will pay out the cable at high speeds.

24. The Messenger is one of the most reliable means of communication in jungle operations particularly in lower units. Except when roads are available to motor vehicles messengers will be of little value. The requirements of intelligence, courage, and aggressiveness take on added importance in the jungle. Men should be carefully selected for this task. Their training should include instructions in jungle lore, trail knowledge, intensive map reading, evasion and escape, and the use of a compass. Trails blazed with code markings materially assist messenger communication. In dense and difficult jungle, messengers are employed in pairs. In the battle group, company, and platoon, messenger communication is one of the primary means. In the defense, it supplements wire communications. A number of men should be trained to replace messenger casualties.

25. The use of aircraft from the Division Aviation Company for messenger service is dependant on suitable landing facilities. The helicopter is most desirable for this purpose, since it requires little space for landing and taking off. Aerial drop and pickup techniques may be used with fixed-wing aircraft where the terrain does not afford a suitable landing field.

26. Sound communication can be used to great advantage in the jungle particularly as a prearranged signal for security units and patrols. The sound of liaison planes and helicopters or overhead artillery fire may be used by ground personnel to maintain their direction of attack. Most small unit leaders have pre-arranged sound codes used for security purposes.

27. Visual communication includes the transmission of messages by flag, panels, and pyrotechnics, but its use is limited by the density of the jungle. Areas in which panels may be used are scarce.

a. Semaphore flags can be suitably employed in jungle operations.

Flags may be obtained from available stocks, or may be improvised. Flag stations must be located to deny observation by the enemy, and they should have a contrasting background against which the flags will stand out clearly.

b. While it is fundamental that lamp signals are sent only from front to rear, situations will occur in jungle operations in which such communications is permissable in both directions. Lamp stations should be concealed from enemy observation, and will generally be located along straight stretches of trail. Either white, red or infra red beams may be used. In general, the white beam is visable at greater distances by night; the red beam by day. In fog and smoke, the red beam is more satisfactory. A flashlight with an improvised reflector may serve as a signal lamp, or a lantern with an improvised movable cover may be used; the cover is lifted to expose the light for long or short periods to represent dashes and dots.

c. Visual communication by pyrotechnics is not satisfactory in areas of heavy vegetation; is seldom possible to project them through overhead foliage. If pyrotechnic signals are to be used, individuals should be detailed to look out for them.

28. Guerrilla forces must have communication of somekind between all their units for control, coordination, information and security. Their communication is limited by the following factors:

a. Logistics. Supply and maintenance problems usually prohibit the use of complex equipment.

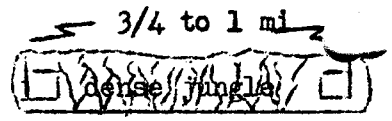
b. Geography. Since there are no front lines and few boundaries in guerrilla operations, the system must be flexible, adaptable to various terrain, and highly transportable.

c. Degree of control. Guerrilla units must have far greater communication autonomy than conventional units since units will seldom combine for coordinated action.

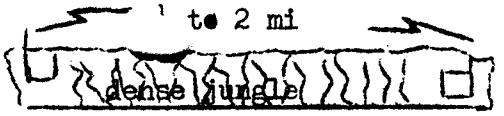
d. Communications security is essential for survival and takes precedence over dependability and speed. Transmission time must be limited to the absolute minimum.

e. Personnel. Guerrilla organizations usually have few technicans. Personnel must be recruited and trained as couriers and messengers.

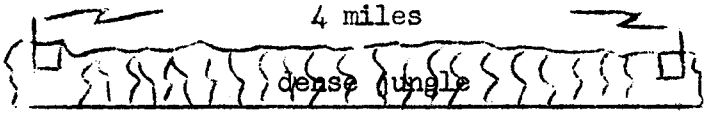
29. Guerrilla means of communication. Guerrillas utilize all of the techniques mentioned in the chapter. Most of these means are used on a field expedient basis. The use of homing pigeons and prearranged communications is generally left to the discression of the individual leader.



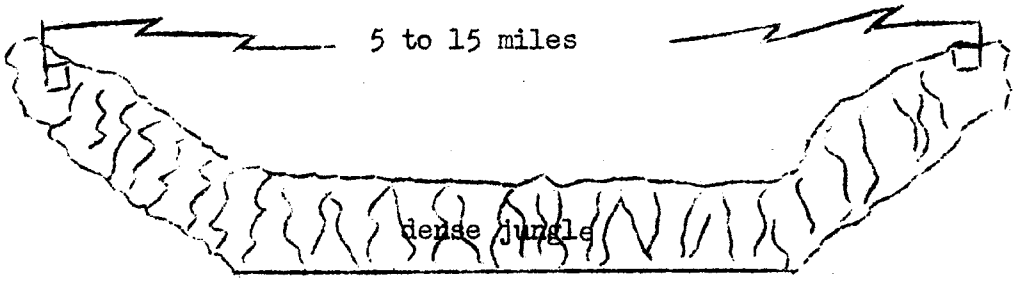
a. both sets in jungle



b. one set in tree

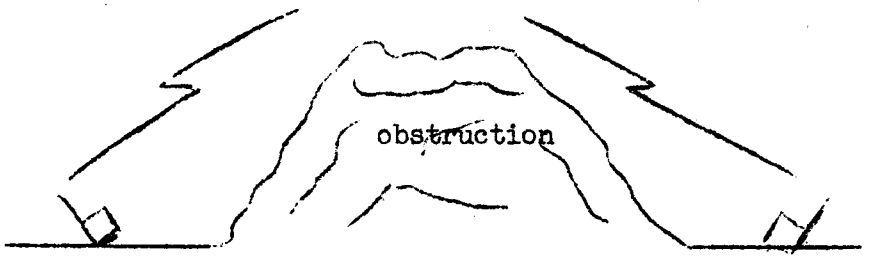


c. both sets in trees



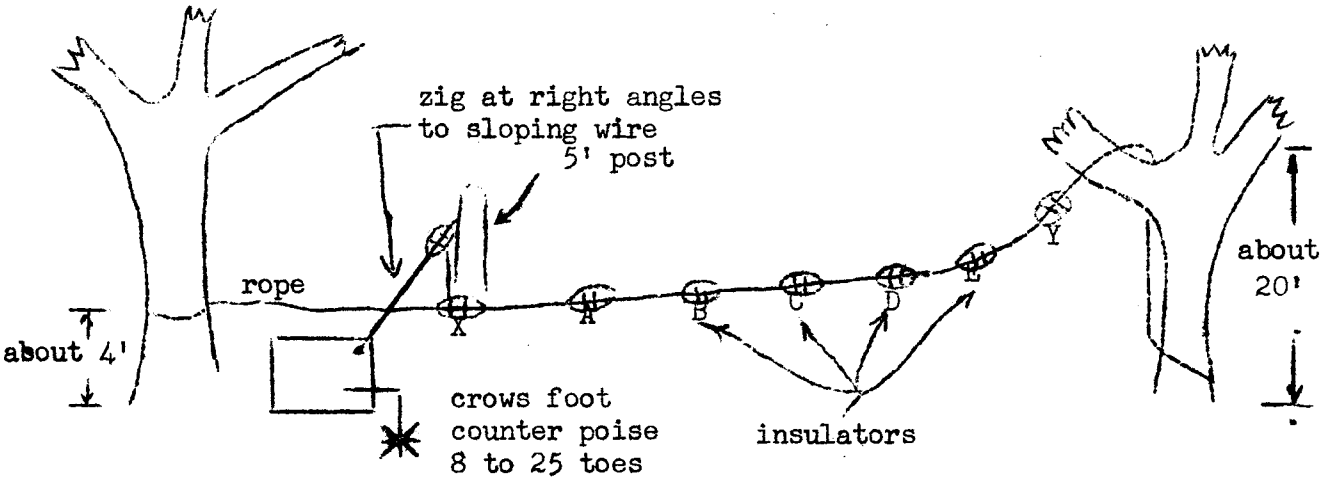
c. both sets in trees

FIGURE 1

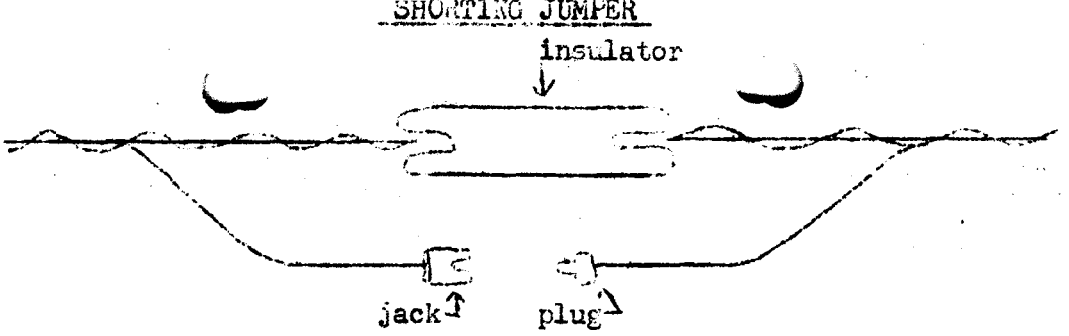


Tilting antennas for increasing signal strength over an obstruction

FIGURE 2

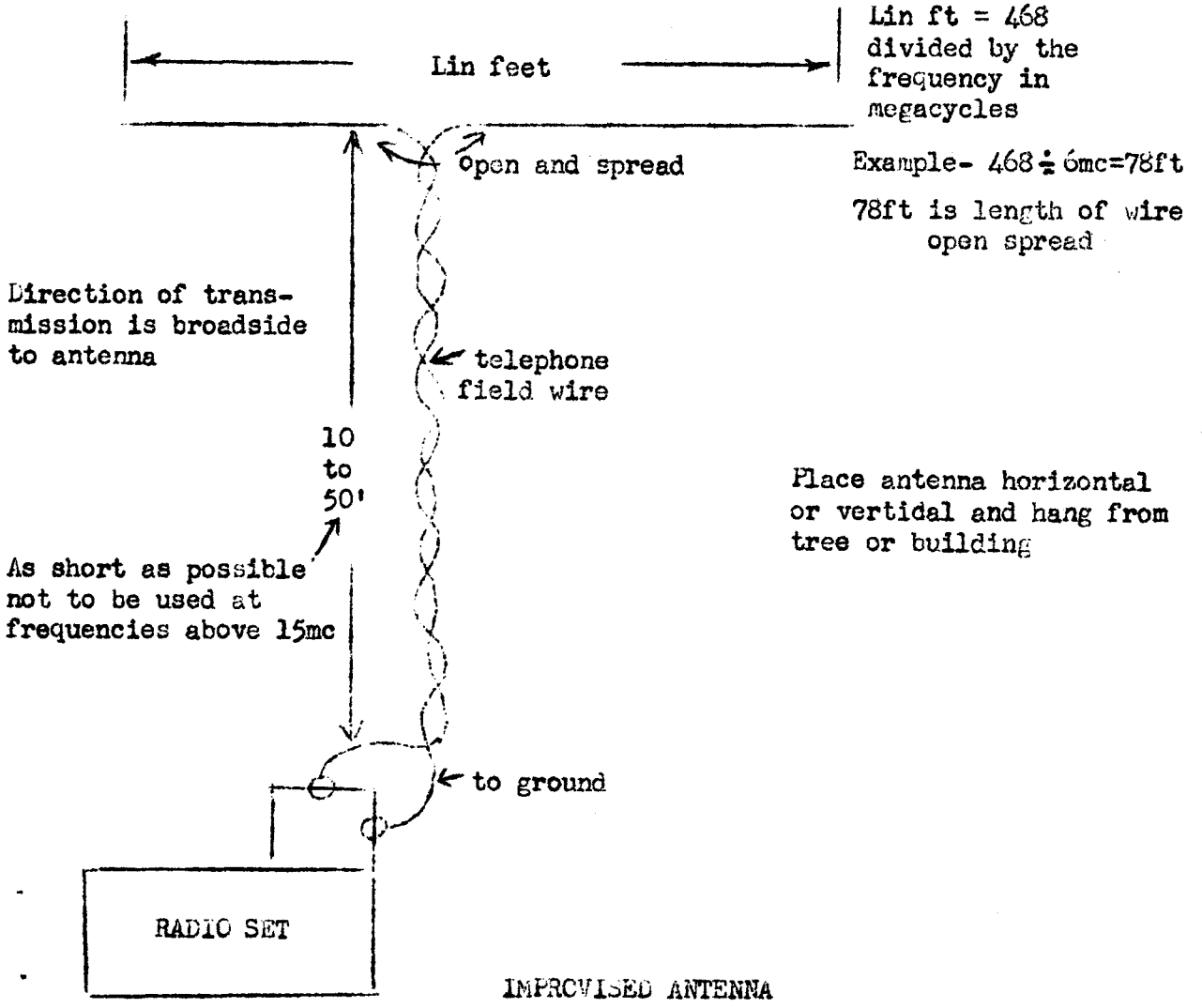


IMPROVISED END FED ANTENNA FIGURE 3



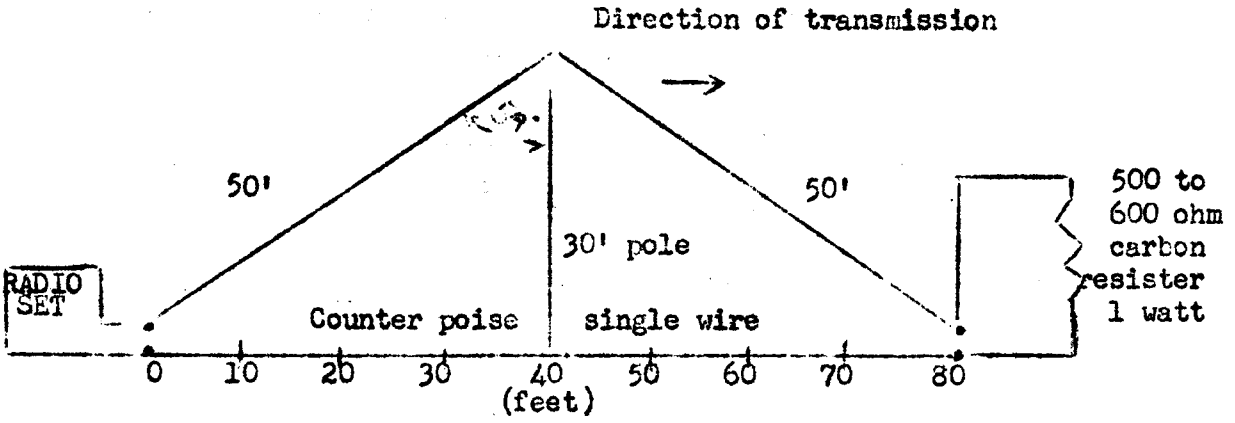
Shorting jumper detail (shorting jumper and insulator shown above appear in fig las items A,B,C,D,E on rope)

FIGURE 4



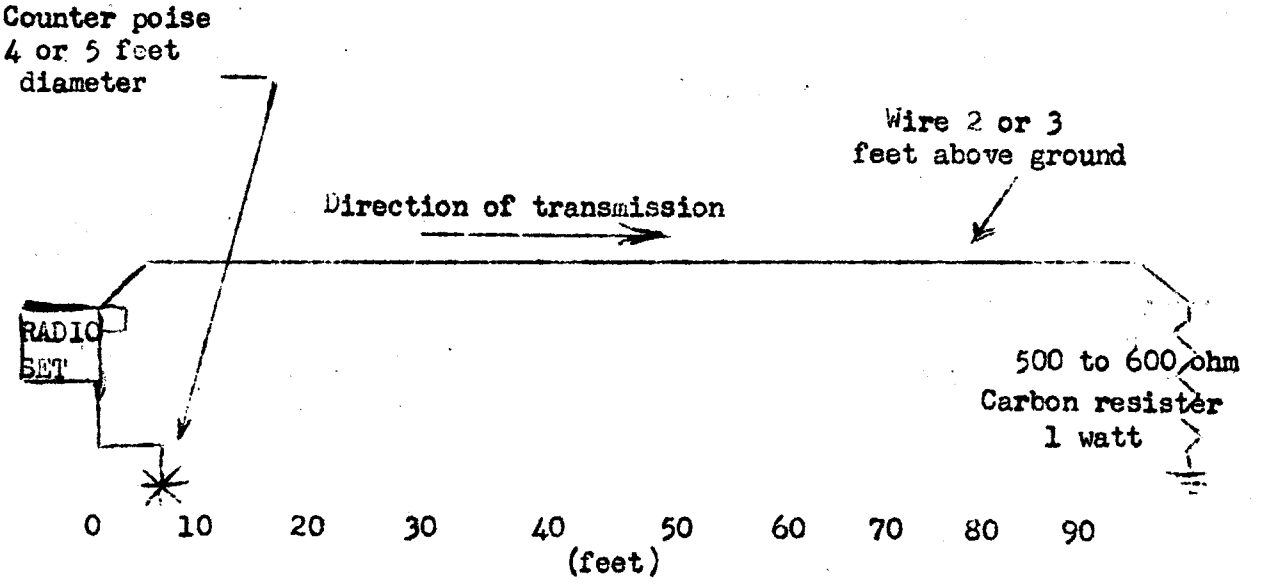
IMPROVISED ANTENNA
FIGURE 5

WARNING: When improvised antennas are used, the tuning of the antenna circuits and final amplifier circuits should be checked. It is also important that the precautions in regard to proper siting be observed. If the transmitter loads poorly, try adding to or subtracting from the improvised antenna.



VERTICAL HALT RHOMBIC for use between 20-60 mc

FIGURE 6



VERTICALLY POLARIZED WAVE ANTENNA for use between 20 and 80 mc

FIGURE 7

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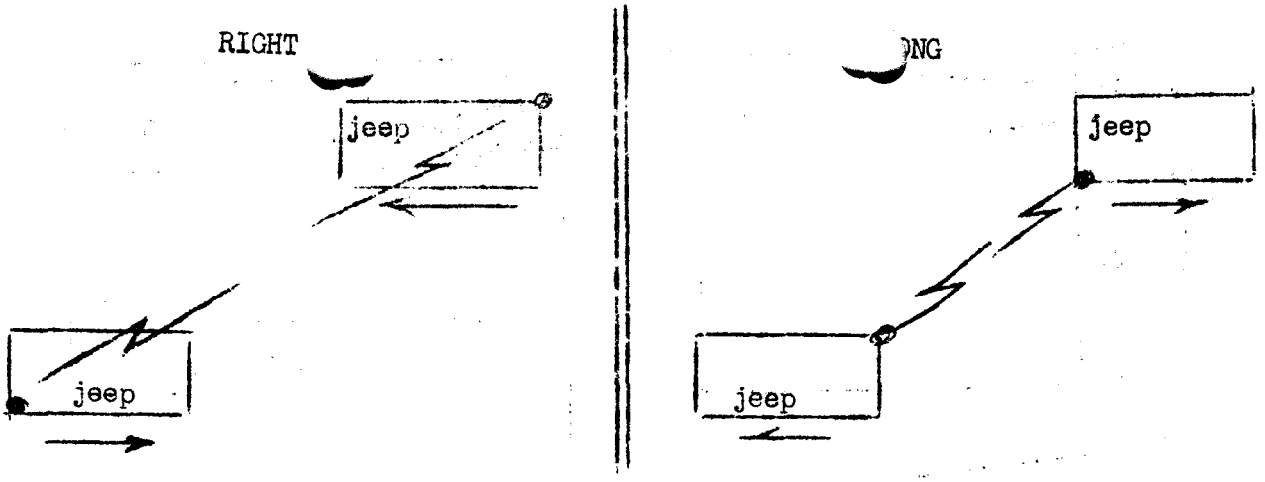
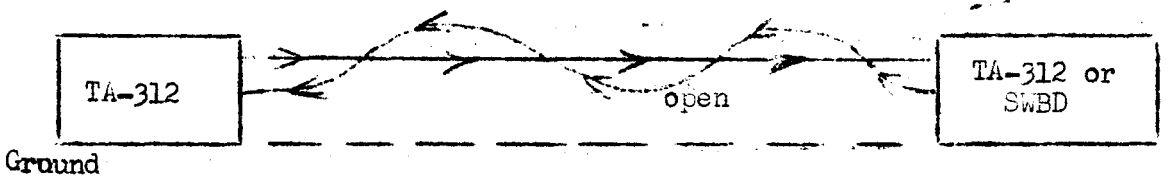


Place vehicles so optimum use can be made of them in transmitting.

FIGURE 8



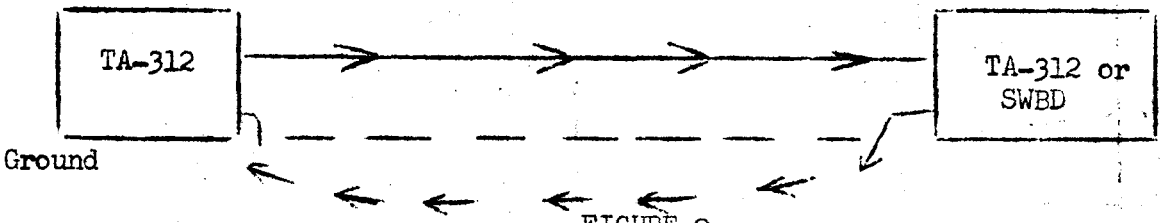


FIGURE 9

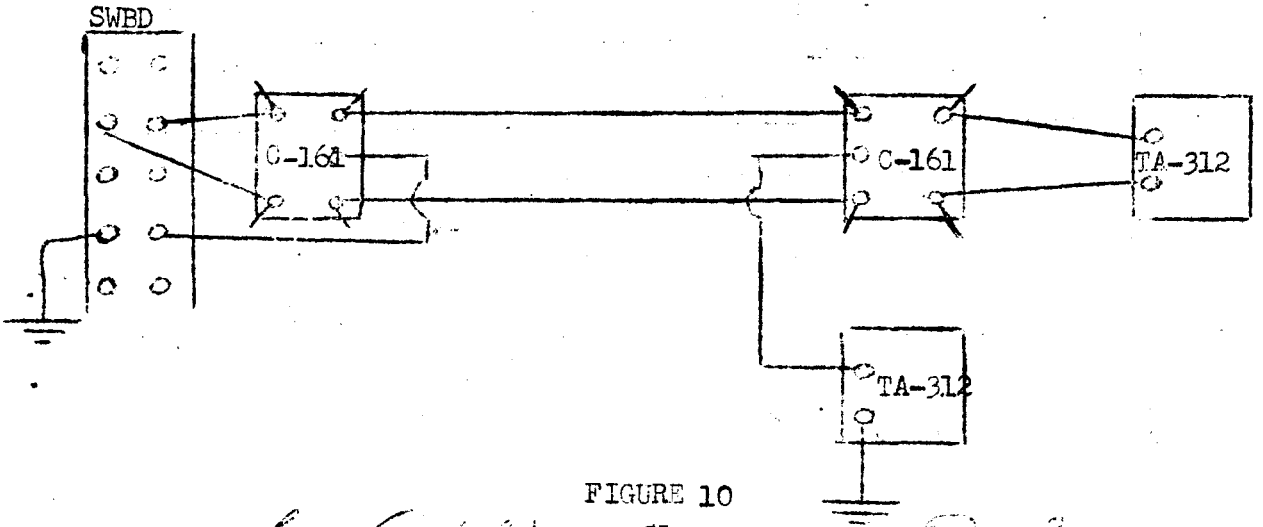


FIGURE 10

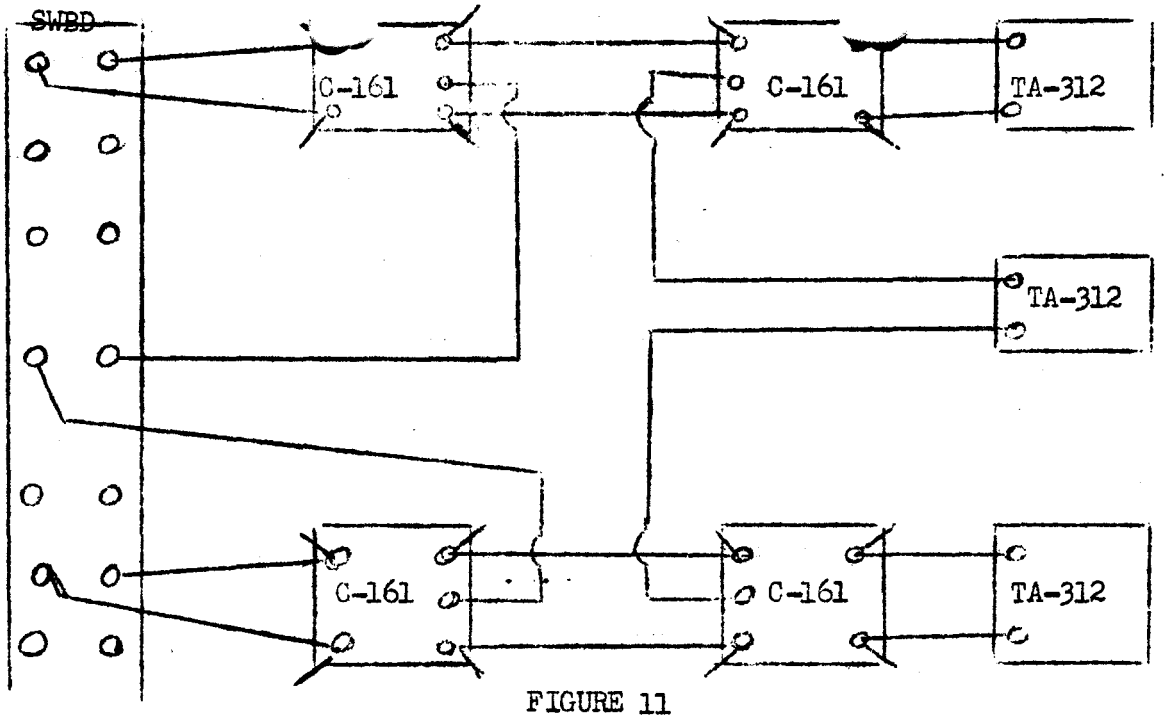


FIGURE 11

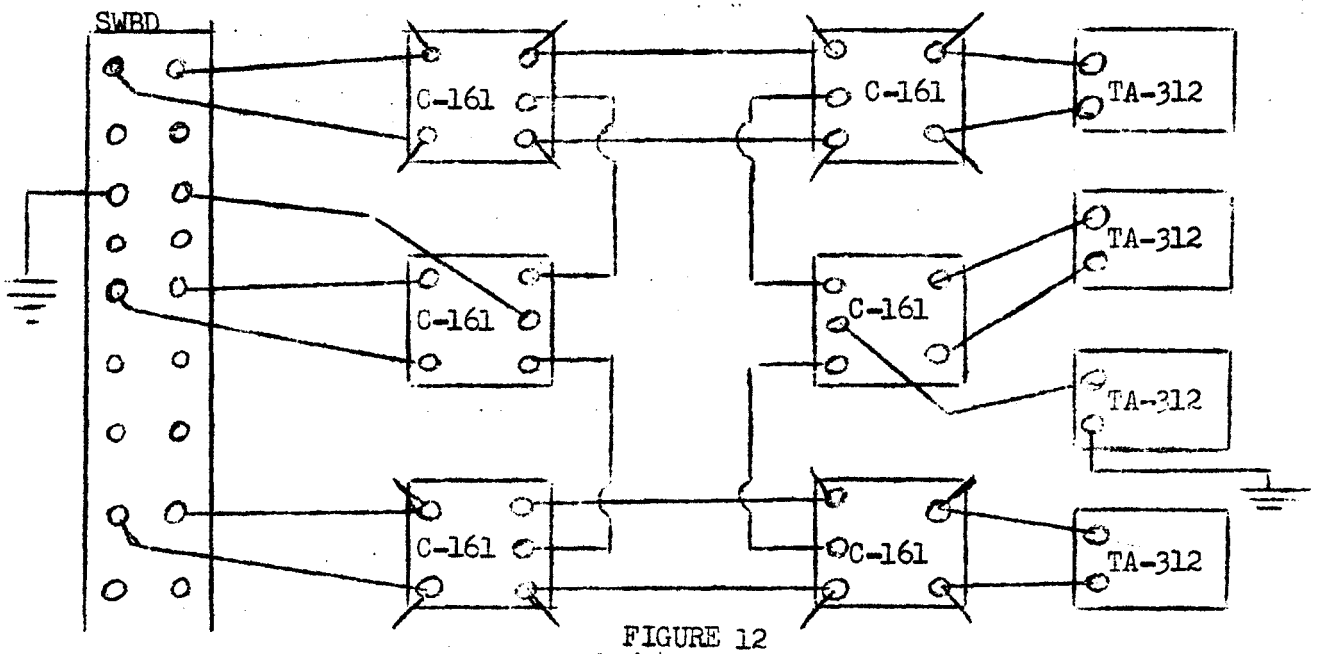


FIGURE 12

FLIGHT OF WIRE LAYING CRAFT ARC

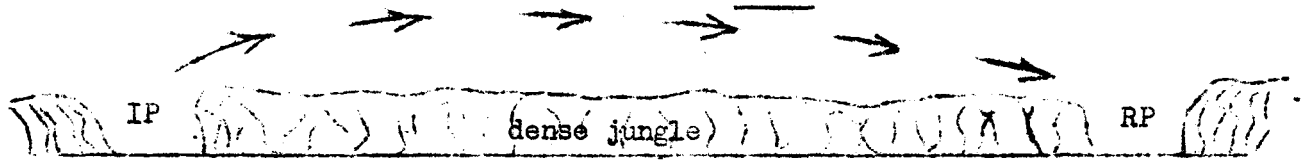


FIGURE 13

For Official Use Only

CHAPTER XIII
GEOGRAPHY AND CLIMATE OF SELECTED SOUTHEAST ASIA COUNTRIES

Section 1.--INTRODUCTION

CAMBODIA
Geography

1. Cambodia, part of peninsular Southeast Asia, is bounded on the south and east by Vietnam, on the north by Laos and Thailand, on the west by Thailand, and on the southwest by the Gulf of Siam. The total area (approximately 53,650 square miles) is about the size of the State of Arkansas. The country has a relatively compact shape with a maximum north-south extent of about 280 miles and an east-west extent of approximately 355 miles.

2. The dominant relief feature of almost the entire country is an extensive alluvial plain centered on Tonle Sap (lake). The plain is ringed by hills and mountains except in the southeast, where the Mekong River plain and delta extend to the Gulf of Siam and the South China Sea. Tonle Sap, normally about 100 miles long and 20 miles wide, increases to a maximum of about 155 miles in length and 62 miles in width during the wet season (mid-June through December), when the Mekong River overflows into the lake. During this period, areas adjacent to the lake are inundated. From early January through May, water flows into the Mekong River and the surrounding fresh water swamps become dry. At the capital city of Phnom Penh the true delta of the Mekong begins and the river divides into two channels.

3. In southwest Cambodia there is an isolated chain of rugged forested mountains and hills. The mountains have broad rolling summits generally 2,000 to 5,000 feet above sea level and 1,000 to 2,000 feet above the adjacent valleys. Forests cover about 75 percent of the country. Broadleaf deciduous forests intermixed with areas of grass and scrub, and irrigated rice, principally in the Battamband and delta areas, are the chief types of vegetation.

Climate

1. Cambodia is situated in the heart of "Monsoon Asia" which extends from India to the Kamchatka Peninsula. The northeast or winter monsoon (mid-October to mid-April) brings dry weather to the area from the Asian land mass. In summer, conditions are reversed; warm, moist air from the oceans moves inland, bringing with it the heavy summer rains that are typical of the monsoon climates. Spring, particularly April, is the warmest time of the year; however, there is little variation in the monthly temperature averages. At Phnom Penh, the coldest month, January, has an average temperature of 78°F. while in April, the warmest month, the average is 85°. Annual average

temperatures for the whole area range between 80° and 83°F. Extreme temperature ranges are from 53° to 105°F. The southwest area receives the heaviest amount of precipitation as the southwest monsoon carrying moisture-laden air strikes the mountains bordering the coast. The seaward slopes of the mountains receive an annual average of from 104 to 204 inches of rain, mainly during the summer monsoon season. The rest of the country averages between 50 and 73 inches of rainfall per year; except in the extreme southeast, where rainfall of 108 inches has been recorded.

LAOS
Geography

1. Laos, the elongated, landlocked, northwestern section of Indochina, has a north-south extent of approximately 660 miles and east-west extent of 320 miles. The country's boundaries are with China on the north, Vietnam on the east, Cambodia on the south, and Burma and Thailand on the west. The Mekong River forms more than 500 miles of the western boundary. Laos has an area of approximately 90,000 square miles, which is slightly smaller than the state of Oregon.

2. The country is divided into two distinct topographical areas. The northern area consists chiefly of parallel mountain crests rising to heights of 6,500 feet. Transversal ridges are found at lower elevations. Between them are deeply-cut valleys through which flow entrenched rivers. Although the slopes are forested there are some areas where relatively high yields of rice are obtained. The steep slopes, commonly greater than 30 percent, and the ravines through which flow swift streams, produce an almost inaccessible terrain. The amount of level plain is negligible, and these areas are the sites of all the major settlements situated in the small basins strung along the streams. What little wet-rice culture is found in the highlands is carried on here. The ridges and the crests throughout the area also are inhabited, but they have been somewhat deforested through the long practice of dry-rice planting by cutting over and burning the forest cover.

3. The southern half of the country is the eastern half of the Mekong watershed. This long narrow region is composed of mountains and dissected hills in the east, a low-lying valley floor adjoining the upper Mekong River in the west, alluvial plains in the center, and a plateau area in the south. The mountainous areas have slopes commonly greater than 30 percent and local relief greater than 1,500 feet. Summit elevations generally are between 4,500 and 7,500 feet above sea level with a few peaks in the area being over 9,000 feet.

4. The upper Mekong River plain in the west is narrow, forested, and no greater than 80 miles wide. Hills and low mountains are scattered throughout the plain, increasing in occurrence toward the east.

The plateau areas in the south generally are 1,000 to 3,500 feet above sea level with rolling to hilly surfaces and scattered peaks rising to 2,000 feet above the average plateau level.

Climate

1. The climate of Laos is monsoonal, similar to that of Burma and Thailand. It is characterized by two major seasons; the southwest monsoon from mid-May through mid-September, and the northeast monsoon from mid-October through mid-March. These two major seasons are separated by two short transitional periods. The southwest monsoon season is a period of heavy and frequent rainfall throughout the area. The northeast monsoon season brings five months of drought, with a monthly average of about one-half inch of rain.

2. At Vientiane temperatures range range between 60°F. and 94°F.

3. Spring (mid-March to mid-May) brings the highest temperatures--usually above 100°F. in the daytime. A maximum temperature of 113°F. has been recorded. Strong winds from the south occasionally cause some damage to buildings and trees.

4. Autum is the reverse of spring, as decreasing rainfall, humidity, and temperature bring the most delightful season of the year.

THAILAND

Geography

1. The Kingdom of Thailand (Land of the Free) lies in southeast Asia between 5° and 21° north latitude and 97° and 106° east longitude. Its area of approximately 200,000 square miles is about four-fifths the size of Texas and about the same as that of France. It is elongated and irregular in shape, extending some 1,650 kilometers (1,030 miles) from north to south and 800 kilometers (500 miles) at its greatest breadth. It is bordered on the west and northwest by Burma, on the north and east by Laos, on the southeast by Cambodia, and on the south by the Gulf of Siam. Its lower western extremity is bordered by the Andaman Sea, the Gulf of Siam and Malaya.

2. The general surface of the country is characterized in the north by forest-covered mountains and foothills, and in the south by flat alluvial plains which become inundated and intersected by winding rivers and streams during the heavy rain season. It may be conveniently divided into four principal regions--the northern, central, eastern, and southern or peninsular.

3. The Northern Region, comprising about 55,000 square miles, is dominated by mountains running generally north-south and separated by

valleys of the Mae Ping, Mae Wang, Mae Yom, and the Mae Nam Nan (Mae Nam) contributaries to the Mae Nam Chao Phraya (Mother-of-the-Waters-in-Chief) Thailand's principal waterway (often referred to as the Chao Phya and generally known as the Menam). For the most part the rivers cleave their way between precipitous banks, providing areas of flat alluvial ground suitable for cultivation and supporting populated communities, and culminate at the confluence with the Chao Phraya into a level, swampy area which finally emerges into the great central plain.

4. The average height of the peaks in the region tower approximately 1600 metees (5,200 feet) above sea level. Doi Angka (Doi Inthanon) the highest mountain (2576 meters) is situated approximately 50 kilometers southwest of the city of Chiengmai; Doi Dutheb (1676 meters) overlooks Chiengmai from the west; Doi Chiang Dao (2185 meters) lies north of Chiengmai and Doi Pa Cho (2012 meters) lies to the northwest. Lesser peaks exist but those named are the principal ones.

5. The Central Region comprising about 63,000 square miles is over 300 kilometers in length and varies in width from 50 to 150 kilometers. It may be divided into three parts; the area south of latitude 18° north drained by the Mae Nam Chao Phraya, the Mae Nam Suphan and the Mae Nam Bangpakong; the area drained by the Mae Klong; and the area south of the Chanthaburi Mountains.

6. The Mae Nam Chao Phrays is the principal means of water communication for transporting two of Thailand's chief products; teak logs in rafts and rice in large river boats. It is also a source of valuable silt,which in the rainy season is deposited on the expansive flat rice-growing areas of the region. The western branch of this great river is said once to have been the principal channel.

7. Where it breaks off the main stream it is known as the Khlong Makham Thao, lower down as the Mae Nam Suphan; where it passes under the Southern Railway Line it is known as the Mae Nam Nakhon Chaisi and at its mouth as the Mae Nam Tachin. The practice of giving a river different names at different stages of its development is common especially in the Central Region. The eastern and principal branch of the Mae Nam Chao Phraya divides and unites at several points; the chief stretches being known as the Mae Nam Noi (lesser river) , Mae Nam Yai (great rivdr), the Mae Nam Lopburi, etc. At Ayutthaya it receives the waters of the great eastern contributary, the Mae Nam Pa Sak, which, rising in the Petchabun Mountains drains the western slopes of the mountains of the Dong Phaya Yen Forest.

8. The Mae Nam Sa Kaeo, known lower down as the Mae Nam Prachin, and still lower down as the Mae Nam Bangpakong, rises near the frontier of Cambodia and drains the basin between the San Kamphaeng Range and

the Chanthaburi Mountains. It reaches the sea at the northeast corner of the Gulf of Siam.

9. To the west of the central plain is the watershed of the Mae Klong or Ratbuir River. The eastern or main branch of this river, known as the Khwae Yai, rises at the end of the Thanon Thong Chai Range where one finds a mass of high and difficult peaks approximately 2000 meters in height. At this point the main range breaks into three distinct ridges. At the head of the westernmost of the three is the pass of the Three Pagodas (Phrachedi Sam Ong). It is here that the Khwae Noi or lesser branch of the Mae Klong takes its rise. This western range (Tenasserim Range) forms the frontier of Burma and Thailand. It varies in height from 700 to 1500 meters and is densely forested.

10. The area between the Chanthaburi Mountains and the Gulf of Siam is drained by numerous streams, all flowing in a southerly direction. The chief of these are the Mae Nam Chanthaburi, the Mae Nam Wen and the Mae Nam Trat. The principal peaks in the mountainous areas here are the Khao Kheo (800 meters) which is visible from Bangkok, the Khao Soi Dao (1640 meters), the Khao Phrabat (1078 meters), and the Khao Sabap (933 meters). The Chanthaburi Plain is flanked on the east by a line of hills called the Banthat Hills which lie along the Cambodian frontier and on the west by the Chanthaburi Mountains which tend southward toward the coast of the Gulf of Siam.

11. While the central plain is the most important section it occupies only a small portion of the region's area. However, its low gradient (25 meters at Pak Nampho, 18 meters at Chainat, 4 at Avutthava and at Bangkok City 1,80 meters above sea level) tends to make this area the catch basin for the heavy monsoon rains and the richest in alluvial deposits.

12. The Eastern Region a saucer-shaped plateau tilted to the southeast, is bounded on the north and east by the Mae Khong, on the west by the Petchabun Mountains and the massive flat-topped peaks of the Dong Phaya Yen, and on the south by the San Khamphaeng Range and the Dong Rek Scarp. The plateau proper is guarded on the north and east from the Mae Khong by a line of hills varying in height up to 600 meters and is drained by the river system of the Nam Mun. The western and northern sides of the plateau vary in height from 130 to 200 meters above sea level while at Ubon the levels are reported in the neighborhood of 50 meters. The mountains at Dong Phaya Yen Forest are comprised of a mass of flat-topped peaks varying in height from 800 to 1300 meters, the highest peak of which is the Khao Laem (1628 meters).

13. The Southern or Peninsular Region consists of a long (750 kilometers), narrow (15-200 kilometers) peninsula from the head of

the Gulf of Siam to the border with the Malay States. Its eastern shores are on the Gulf of Siam and the South China Sea; its western shores abut the Sea of Andaman and the Indian Ocean. The Tenasserim Range and the Mae Nam Kra separate it from Burma. The boundary with the Malay States is the Kalakhiri Mountain Range. In the northern portions streams flow either north or south until they find a passage eastwards to the sea. The largerst of the rivers are the Mae Nam Petchaburi, Mae Nam Pran, and the Mae Nam Bandon. The only important rivers flowing into the Indian Ocean are the Mae Nam Trang and the Mae Nam Kra.

14. The coast of Thailand is varied from heavily indented, closely fringed, rocky shoreline to low, long, continental shelves, bordered by jungle clad islands. Of the islands, the most important are the Ko Si Chang which lies near the northeast corner of the Gulf of Siam and forms a good shelter for large steamers which cannot cross the bar of the Chao Phraya. The largest islands along the coast are Ko Chang, the Ko Kud, and Ko Khram. The most important island along the Peninsular Region is Ko Phiket, the center of the tin industry. Other islands, but of lesser import, are the Ko Lanta, Ko Phrathong, Ko Yao Yai, Ko Libong, and Pulo Tatutaru.

Climate

1. The climate is under the influence of seasonal monsoon winds. The northeast monsoon season (winter) is the mildest and lasts from November to February. Occasional surges may continue into March or April. These latter two months are known as the "pre-monsoon" season, or summer, and is considered the transitional period from the northeast to the southwest monsoon. This period is the hottest of the year. The southwest monsoon or rainy season, when winds sweep in from the Indian Ocean, is most active in July when abundant rains occur over the entire country. Peak rainfall occurs in September. The "post-monsoon" season occurs in October and is considered the transitional period between the southwest and northeast monsoon seasons.

2. Temperatures in upper areas--northern, northeastern, and central areas--produce long periods of hot weather except along the coastal regions where the sea breezes moderate afternoon temperatures. Maximum temperatures range from 92°F. to 101°F. in April, the hottest month of the year. Minimum temperatures are about 70°F. in the northern region, 73°F. in the northeastern area, and 75°F. in the central region. During the northeastern monsoon season temperatures are milder and people accustomed to temperate climates will find November to February delightful. Daily temperatures average 55°F. to 68°F. with maximum readings at about 88°F. and minimum around 59°F. Outbreaks of cold air from the China mainland occasionally reduce temperatures to lower readings in the northern and northeastern

regions. Warm clothing is required during the cold season, in the northern and northeastern regions, but lightweight clothing is customarily sufficient in the central region.

3. The southern areas generally are mild throughout the year. Maximum temperatures are in the vicinity of 91°F. and minimum around 71°F.

4. Rainfall. Dry weather persists over upper areas in the cold season and throughout the hot season, but may be broken in early May with frequent rains. Although rains generally continue from June to September occasional dry spells occur in June. Maximum rainfall occurs in September.

5. In southern areas a double rainy season occurs; one during the southwest monsoon (May to October) and the other during the northeast monsoon (November to February). The average yearly rainfall is greatest (over 150 inches) along the exposed west coast of the peninsular area and least (less than 50 inches) on the sheltered eastern plateau.

6. Relative humidity from November to February generally is low with the lowest occuring in December and January. Afternoon humidities may drop to 18 percent. With the onset of the hot season in March and April, moisture content becomes moderately high but, due to less rainfall and high temperatures, afternoon humidity remains low. The period of the southwest monsoons brings gradual rises in humidity until it reaches about 80 percent during August through October.

7. Thunderstorms caused by thermal convection and shear lines moving from the north occur genrally in the afternoon and early evening hours and occur in upper regions between April and October on the east coast of the gulf and in southern areas between March and November. Maximum occurrences over upper areas are in May, with secondary occurrences in September. Over the east coast of the gulf areas they reach maximum activity in May with maximum occurrences in October. In southern areas primary occurrences are in April and secondary one in October.

8. Typhoons entering the country average 2.2 per year with most of them occurring toward the end of the Southwest monsoon and during the post-monsoon season from September to October. Records indicate that tropical cyclones are infrequent from June to August, and November to December and April, while no disturbances have been reported during the period from January through March.

VIETNAM
geography

1. The Republic of Vietnam, the southeastern section of the

former French entity of Indo-China, extends for approximately 700 miles along the axis of its crescent shape. At no point is it wider than 150 miles. Its boundaries are with the communist-controlled area in the north, Laos and Cambodia in the west, and the South China Sea in the south and east. The Republic of Vietnam has an area of 65,726 square miles, which is slightly smaller than the State of Washington.

2. The area has three main landform divisions: the southern section of the rugged Chaine Annamitique, the coastal plains, and the Mekong Delta. The southern section of the Chaine Annamitique consists mainly of heavily dissected hill lands, rolling to hilly plateaus. The hills are generally rounded and 300 to 600 feet higher than the surrounding broad valleys. The plateau areas have rolling surfaces and are predominantly 1,000 to 3,000 feet above sea level. Local relief may be as much as 1,300 feet in this area. The coastal plains are generally less than 25 miles wide. The surface is generally level, but becomes gently rolling towards the highlands. In places, mountain spurs extend to the sea and divide the coastal plain into sections. Sand dunes, 10 to 60 feet high, are common. The delta area is characterized by a flat, poorly drained surface, crisscrossed by numerous tributaries of the Mekong and a dense network of canals and smaller streams. The elevation of the delta generally does not exceed 20 feet above sea level; slopes are generally less than 1 percent. The northern section is dominated by stands of evergreen forest, and the marshy Mekong Delta is one of the world's leading rice producers.

Climate

1. Climatically, the nation may be divided into two regions; the northern and the southern. During the winter monsoon (November through March) the northern area is subject to moist trade winds from the north Pacific Ocean which cause the characteristic cloudy, rainy season. Heaviest precipitation occurs during October and November; up to 50 inches of rain may fall during these two months. The southern area, separated from the cloudy domain to the east by the Chaine Annamitique, has its dry season with comparatively fair weather at this time. Saigon receives an average of eight inches of rain during those months. During the summer monsoon season (June through September) conditions are nearly reversed. Very heavy rainfall (50 inches in Saigon) prevails in the south. The northern section experiences variable conditions in summer. Several typhoons can be expected to affect the coast each year, usually between July and November. Summar-like conditions prevail during the transitional periods. Mean daily temperatures for a representative northern section station are 90°F. in June and 72°F. in January. Mean minimums are 78°F. in June and 65°F. in January. At Saigon, in the southern area, the mean daily maximum in April is 95°F., the minimum 70°F in January. The absolute minimum temperature recorded at Saigon is 57°F.

Appendix I (References) to Operations Southeast Asia Booklet.

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FM 7-100	Infantry Division
FM 19-40	Handling Prisoners of War
FM 21-75	Combat Training of the Individual Soldier and Patrolling
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FM 30-15	Examination of Personnel and Documents
FM 30-19	Order of Battle Intelligence
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25th Infantry Division SOP for Combat Operations

Guerrilla Warfare by Lt Col A. Balcos, Greek Army

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Appendix II (Life and Living Conditions in Laos) to Operations Southeast Asia Booklet.

LIFE AND LIVING CONDITIONS IN LAOS

C O N T E N T S

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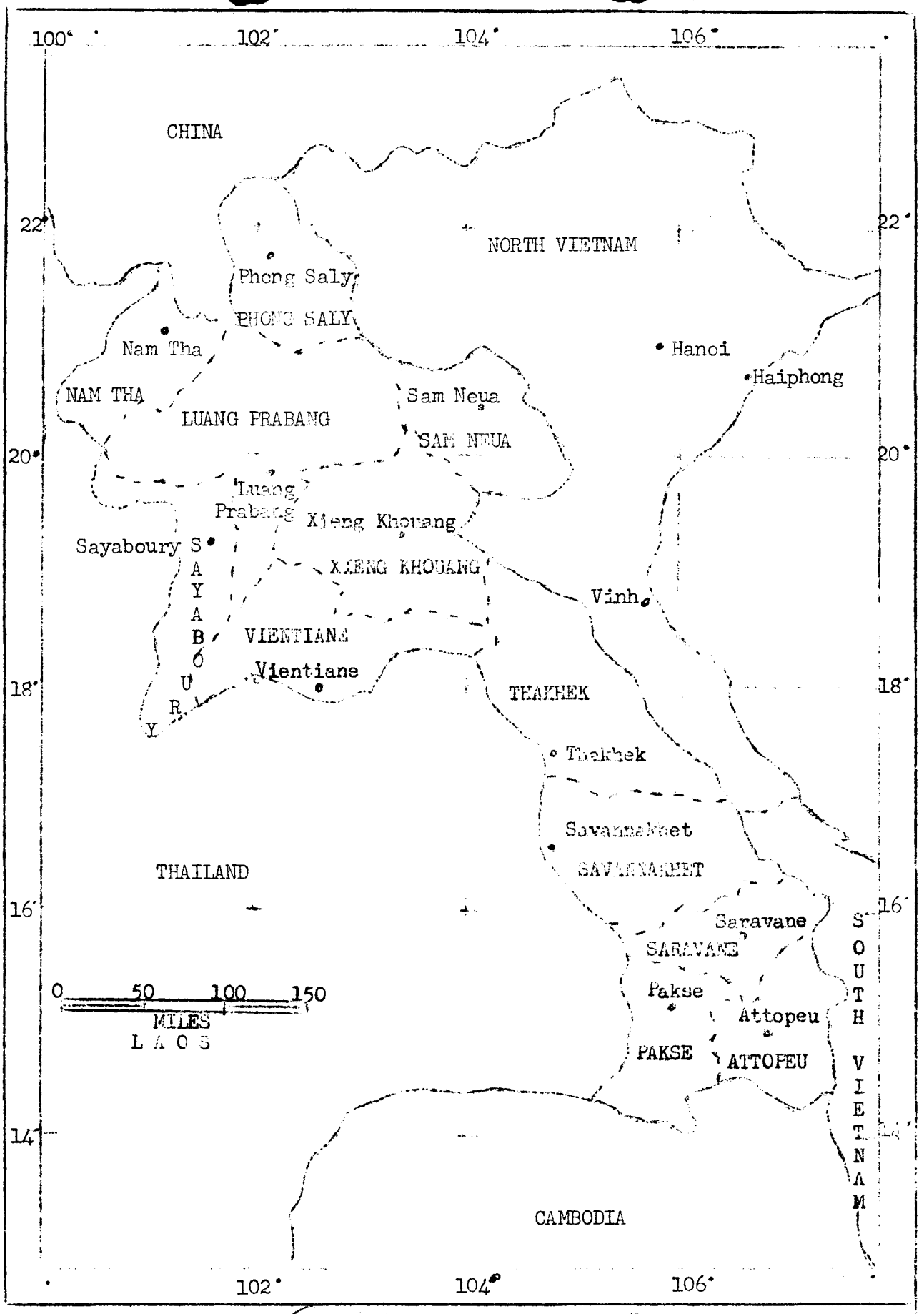

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LAOS

I. Introduction

This report has been prepared for the purpose of acquainting the reader with fairly detailed information on various subjects pertaining to life and living conditions in Laos.

II. Background Information

a. Population.

1. Total Population: The total population of Laos is estimated to be between 1.5 and 2.5 million. It must be understood however that government census includes only males. Furthermore a large portion of the population lives in remote areas which have little or no contact with Royal Lao Government (RGL) officials and where the census is an estimate at best.

2. Ethnic Groups: Roughly the population of Laos is divided into the following ethnic groups:

(a) Lao (Laotian Thai).

(b) Various tribes of Thai (Black, White, Red, and "Lu").

(c) Meos.

(d) Various tribes of "Kha".

(e) Various tribes of Chinese and Mongolian origin.

(f) In addition there is a small but very powerful group of Chinese merchants. They are usually considered to be foreigners although some of them have become Lao citizens in order to be able to own property and businesses in Laos.

3. Detailed description of each ethnic group:

(a) The Laotian Thai, usually referred to as Laotian or Lao, live predominantly along the Mekong River and the banks of its major tributaries. They live in small villages in bamboo huts which do not present a neat appearance and are usually not very clean. They grow glutenous rice and a small amount of vegetables for their own consumption and also raise chickens and pigs. A great number of water buffaloes are present in a Lao village and all of them are usually owned either by the whole village or by one individual who rents them out to the members of the village for field work. The Laotians are easy-going happy people who do not like to work very hard. They are very hospitable and like

feasts with dancing and entertainment. Lao men wear the Sarong and a plain shirt with long or short sleeves. Lao women wear tight skirts which reach just below the calf; the skirt is usually of handwoven cotton with a very colorful handwoven hem; for ceremonial purposes they wear skirts with handwoven silk and gold or silver threads. On normal days they wear a plain white long sleeved blouse and on ceremonial occasions they wear a very beautiful gold or silver embroidered stole, which is wrapped around their chests with one long loose end of it hanging over one shoulder. Lao married women wear their hair in a tight knot on the side of their head; unmarried girls wear their hair in a high knot on the back of their head. Widows usually shave their heads.

(b) The Thai are composed of various tribes; the major ones are: Black Thais, White Thais, and Red Thais. These tribes live predominantly in the provinces of Vientiane and Luang Prabang and a few large settlements are located in the provinces of Xieng Khouang and Phong Saly. The tribes usually live on the lower slopes of mountains (below 2,000 feet) in the foothills and on some rare occasions in the valleys (near Vientiane city). Their homes are constructed of wood and are usually very neat and clean. They grow a limited amount of rice, and considerable amounts of corn and vegetables. They raise beef and water buffalo (small number) and a large number of pigs and chickens. They also grow opium but in very small amounts and mostly for bartering purposes only. In general the Thais are very industrious, friendly and hospitable. Their dress varies considerably from clothing worn by the Lao. The male Thai wear long, baggy, black or dark blue trousers and short, black or dark blue jackets. In addition they usually wear a colored sash around their waists and some kind of a hat. The sashes are of either red, blue or green color. Thai women wear very long tight black skirts (ankles are covered), and solid color long sleeved blouses with two rows of silver buttons at the front center. In addition, they wear a high turban type head dress. Their waists are wrapped tightly with a sash of red, blue or green silk. Many such women can be seen in the city of Vientiane and some of them are at the present time employed by the United States Operations Mission (USOM) as maids and clean-up help.

(c) The Meos live predominantly in the Province of Xieng Khouang but overflow into the provinces of Vientiane and Sam Neua. This group usually lives in the mountains above the 2,000 foot level in neat houses solidly constructed from wooden planks. They are hard-working people and fairly clean in their living habits. During the Japanese, and later during the Viet Minh invasions, they proved themselvesto be excellent guerrilla fighters. They love their independence but are very friendly and hospitable to American personnel. They grow corn and other vegetables in abundance on the slopes of the mountains by the slash and burn method. They raise chickens, pigs, and goats for their meat supply. They also do a lot of hunting to provide a change in diet. As opposed to the Lao, the Meos eat predominantly Vietnamese-type rice and use glutenous rice only

for dessert. The Meos produce great quantities of opium and consider it their major source of income. In fact, the RLG had to permit open trade of opium in the Province of Xieng Khouang when the Meos threatened to revolt as a result of a general prohibition of opium trade throughout the country. The Meos are extremely independent and will not accept any leadership except from their King, "Tubi", who has a very large official office next to the office of the governor of Xieng Khouang Province in the town of Xieng Khouang. King Tubi is a relative of the governor through marriage and is known to be loyal to the RLG. He has traveled through Europe and speaks excellent French. King Tubi is regarded as the absolute ruler of all Meos and represents their interests with great zeal and energy. During the war against the Japanese and later against the Viet Minh, the Meos fought on the side of the French and received considerable support from the French through aerial drops of supplies and ammunition. During that time the French gained considerable influence over the Meos which they are still exploiting at the present time. Meo men wear long, baggy, black or dark blue trousers and short black or dark blue jackets; no shirt is worn underneath. Meo women usually present an unclean appearance; they wear very short (above knee) vertically striped skirts and short black or dark blue jackets or blouses. In addition, they wear different types of turbans made of either a piece of cloth or a bath towel. Around their calves they wear wrappings to keep from getting leg cramps in the cold mountain climate. Both male and female Meos wear heavy silver rings around their necks, ankles, and wrists. The number of rings depicting the wealth of the individual or his/her family. Meo men do not perform any labor except hunting. All work is done by the women and children.

(d) The Kha are divided into many different tribes. All these tribes use different languages and only very few of them speak several words of Lao. These tribes live predominantly in the southern part of Laos in the Provinces of Pakse, Attopeu, Saravane, and the eastern portions of Thakhek and Savannakhet. They usually live in the mountains above the 2,000 foot level and are extremely primitive in their living habits. They present a very dirty appearance; men wear breechclouts and the women wear extremely short skirts with either a short open jacket or bare torsos. The hunting is done with bows and arrows, crossbows and spears. The Khas live in small primitive bamboo or grass huts and never stay in one place very long. They have almost no contact with RLG representatives and only visit Lao villages to trade opium and animal skins for utensils such as machetes, knives, and such. The Khas are fierce and sometimes are referred to as savages; they are unfriendly to strangers and may be dangerous if encountered in their own domain without the protection of a military escort. National Laos Army (ANL) authorities advise travelers not to venture into this area without military escort, and even then to remain on or near the roads.

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(e) The various tribes of Chinese and Mongolian origin live mainly in the northernmost parts of Laos in the provinces of Nam Tha and Phong Saly. These tribes are mostly composed of "Kho" and "Ho"; they live a quasi nomadic life under very primitive conditions. Although they all speak different languages, they use Quan Hoa (a version of Chinese) as their Lingu Franca when in contact with other tribes or with Chinese merchants. The males wear nondescript baggy pants and short jackets. Women wear short, striped skirts and short open jackets heavily ornamented with silver buttons; in addition, they wear very colorful headdresses also studded with heavy pieces of silver. They also wear silver ornaments around their necks, ankles, wrists, and in their earlobes.

(f) The Chinese reside predominantly in the four (4) major cities and in the larger towns. The largest Chinese settlements are located in Vientiane, Luang Prabang, Savannakhet, and Pakse. Smaller settlements are located in Muong Sing, Nam Tha, Muong Sai, Sayabouri, Vang Vieng, Paksane, Phonsavan, Ban Ban, Xieng Khouang, Thakhek, Nhommarath, Muong Phine, Tchepone, Paksong, Saravane, Attopeu, and Khong. The Chinese own and operate most of the restaurants and major stores; they also own the major portion of the import-export business in Laos.

(g) There are some Vietnamese in Laos; most of them live in Vientiane and Pakse; they also own and operate many restaurants and some of the smaller import-export businesses.

REMARKS: It becomes apparent after reading the foregoing section of this report, that the Laotians do not form an overwhelming majority in Laos, and therefore, the people as a whole do not have a National feeling but rather owe allegiance to their own local chiefs.

b. Local Government.

1. The smallest unit of local government in Laos is the village or "Ban". A village is usually composed of six to twenty huts and is ruled by an elected member of the village community who is called the "Nai Ban".

2. The next larger unit of local government is the group of villages or "Tasseng". A "Tasseng" is usually composed of five to twelve villages and is ruled by an elected member from one of the villages; usually it is the most prosperous person in one of the larger villages. This individual, who is called the "Tasseng" is elected by the "Nai Bans" and then confirmed in his position by the "Chao Muong."

3. The "Chao Muong" is actually the first official RLG representative in the local government structure. He is elected by the "Tassengs" and then confirmed in his position by the RLG. He is the chief of the "Muong" which is composed of several "Tassengs".

4. Several of such "Muongs" compose the Province which is governed by a governor or "Chao Khoueng." He is an appointee of the RLG and is the highest authority on civil matters in a province. He usually works very closely with the military region commander of the region of which his province is a part, and assists the ANL in all problems which involve civilians with the military.

c. Economic Background.

1. Economy: The economy of Laos is strictly of an agricultural nature. The Laotians, who live mostly in the lowlands, grow glutenous rice and raise water buffalo, pigs and chickens. They also grow small amounts of vegetables for their own home use. Fruits, like mangoes, bananas, coconuts, and oranges, grow wild and are not exploited for commerical use. In Paksong (40 Km east of Pakse) the French used to have coffee, tea, and various fruit plantations, including pineapple. However, these plantations were burned to the ground twice; once during the Japanese occupation and once during the Viet Minh invasion; at the present time these plantations are deteriorated and unproductive. A few leftover trees do bear fruit and these are used by either the local population or sold in very small amounts in Pakse. In past years the French had rubber plantations and also exploited the teak wood resources and a few tin mines; however, all the production, with the exception of one tin mine near Pakse, is now at a standstill. In general, Laos is an incredibly poor country, and at the present time it exists primarily through the economic aid it receives from the US and France.

2. Trade and Industry: The only trade to speak of in Laos is the local trade among the population in food and daily necessities. Trade, as such, can be found only in the larger towns, the rest is usually done on a bartering basis. There is one major commodity, opium, which is used for trading purposes throughout Laos although it is considered illegal in all provinces except in Xieng Khouang; opium is also smuggled into Thailand and South Vietnam.

As far as Industry is concerned there is almost none in Laos with the exception of one small tin mine and several small sawmills; in addition, there is some home industry. The most noteworthy is the making of silk stoles and gold embroidered skirt hems. These are very colorful hand woven fabrics which are used by Lao women on their ceremonial as well as on their every-day dresses. Some small silver ornaments are also produced in homes in Laos, but mostly in the provinces of Phong Saly and Nam Tha.

d. Wild Life in Laos.

1. Wild Animals: Wild animals are found in abundance throughout Laos with the exception of the extreme northern provinces, where most

wild animals have either been killed or frightened away because of continuous fighting that has prevailed there over the period of the past 10 to 15 years. Among the animals to be found in Laos are: Elephants, gaur, wild buffalo, boar, tigers, leopards, black panthers (very rare), deer, wild rabbits, and wild cats. Bird life is also abundant; among the birds to be found are: wild turkeys, wild geese, wild ducks, pheasants, wild pigeons, and partridge.

2. Reptiles and Snakes: Laos is infested with various types of poisonous and non-poisonous snakes. The only dangerous non-poisonous snake is the python which will not attack anything it cannot eat; however, if disturbed, this snake may become very dangerous. The poisonous snakes are in abundance and may be found anywhere in Laos, even in Vientiane; among them are: The King Cobra, the ordinary Indian Cobra, the Black Kraite, the Banded Kraite and others of the viper variety. In southern Laos a very tiny snake, locally called "The Minute Snake," can also be found; this snake never gets over 5 inches long but its bite is fatal, with symptoms (muscular cramps) appearing within 50 seconds after the bite; all bites from the other poisonous snakes are fatal if not treated within a few minutes or in some instances within two hours.

There are no crocodiles or alligators in Laos but virtually millions of lizards are in abundance everywhere; although some of the latter look and act dangerous, they are harmless if left alone.

3. Insects: Insects of various sorts and in great numbers are to be found throughout the country. Among them are: lice, fleas, mites, ticks, various types of mosquitoes (malaria vectors) and poisonous (but not fatal) spiders and centipedes (rare). A great number of blood sucking leaches are prevalent especially in the southern portions of Laos.

e. Diseases:

Due to almost non-existent medical and sanitation facilities the population in Laos is plagued by many diseases; the most prevalent are: amoebic and bacillary dysentery, tuberculosis, syphilis, malaria, dengue (rare), goiter (especially among women), hepatitis, leprosy, and various skin diseases. In addition, practically the entire population is infected with various intestinal parasites like: tape worm, hook worm, round worm, and pin worm. These can easily be transmitted through improper food handling and the consumption of raw or half cooked meats and fish.

III. Living Conditions

a. General: Laos is an extremely backward country, and living conditions are primitive and poor.

b. Electric Power: Electrical power in Laos is limited to five towns: Luang Prabang, Vientiane, Thakhek, Savannakhet and Pakse. Even in these towns the power is limited and inadequate. Only larger private homes and official buildings are supplied with electricity. The population is limited to perhaps one 40-watt bulb per home regardless of how many rooms the house may have.

c. Water Supply: There are no water storage facilities or processing plants in Laos. All water is obtained from rivers, streams, ponds, and shallow wells. The water sources are used for drinking, washing, laundering, bathing, sometimes as toilets, and wallows for domestic animals. The water throughout Laos is considered non-potable and must be filtered and boiled (at least 20 minutes) prior to consumption.

d. Housing Facilities: Housing facilities are not available anywhere in Laos with the exception of a few homes of local officials and village chiefs; even these homes are far below US standards, but they are livable. Huts in villages and even in towns, although they may appear to be clean, are usually infested with vermin which may cause a multitude of diseases.

IV. Preventive and Protective Measures Against Diseases

a. Food.

1. Meat and Fish: Local meat should not be consumed if possible, but if circumstances make it unavoidable, personnel should eat only thoroughly cooked beef, water buffalo, chicken, or goat. Pork should be avoided at all cost, as trichinosis is very prevalent among pigs. Game meat like deer, wild rabbit, and birds may be eaten freely but should always be well cooked. The rivers in Laos are abundant with many varieties of fish; however, almost all fish are infested with intestinal parasites and therefore should be well cleaned and thoroughly cooked before consumption.

2. Vegetables: Local vegetables may be eaten but should always be washed in treated water and well cooked. Raw vegetables, like lettuce or tomatoes, should be avoided.

3. Fruit: There are many varieties of fruit growing wild throughout Laos; the most prevalent are: bananas, mangoes, coconuts, and wild oranges. All fruit may be eaten but should always be peeled, being careful that the outside of the peel does not come in contact with the fruit itself.

b. Water and Alcoholic Beverages.

1. Water: No untreated water should be drunk under any circumstances except in emergencies. Water should be treated with water purification tablets or boiled and filtered. In emergencies, water from mountain springs (in immediate vicinity of source) may be drunk but only where there is no known human habitation and where there are no domestic animals nearby.

2. Alcoholic Beverages: There are three types of alcoholic beverages produced in Laos: the most commonly known is a rice liquor called "Shum" or "Lao-Lao"; it is very strong and vile to the taste and should be drunk in very small quantities only; the next is a brew also called "Shum" but it is prepared from corn and comparable to "White Lightning" found in the southern part of the US; usually this drink may be found in all Meo and Thai villages throughout Laos; it is even stronger than the Laos "Shum" but much cleaner. Both these brews, although of umpleasant taste, are fairly safe to drink in small quantities and are a necessary evil during all village gatherings and dinners organized in honor of visitors. The third Lao drink, which is found mainly in the provinces of Thakhek and Savannakhet, is the "Lao Hai;" this is a very strong rice liquor which is prepared in an earthernware jug, sealed with mud and left to ferment for two or more months. The jug is usually only one quarter full and just before serving this drink it is diluted with plain river water; the drinking is done through bamboo reeds directly from the jug by several people simultaneously. This procedure is somewhat of a ritual in many villages of the above named two provinces, and all visitors are always urged to compete with the local population in a drinking bout. This brew is not only extremely intoxicating but also very unsafe to drink because of the river water added to the drink prior to serving it. All US personnel should abstain from drinking this brew, but if forced by circumstances to do so, they should at least fortify themselves with some antibiotic in order to prevent dysentery.

c. Insect Control:

Insect repellents should be applied to the body freely at least twice a day. At night mosquito netting should be used; if not available, an extra heavy coating of insect repellent should be rubbed over all exposed portions of the skin and near all openings in the clothing. If malaria prevention pills (like Aralen, Chloroquine Phosphate) are available they should be taken at least once a week or twice weekly if operating in an area heavily infested with mosquitoes. When forced to sleep in the woods, personnel should use hammocks, if available; if none are on hand, bamboo platforms should be built at least 1½ feet off the ground. Personnel should never sleep on the ground as insects will make it extremely uncomfortable and snakes might make it very dangerous.

d. Domestic Animals.

All contact with domestic animals should be avoided as all of them are heavily infested with parasites like fleas, lice, ticks, and mites, which are all vectors (carriers) of various serious diseases.

e. Venereal Diseases.

All physical contact with the local female population should be avoided as venereal diseases are very prevalent throughout Laos, especially the asiatic varieties of syphilis, which may be found everywhere.

V. Local Customs

a. Among the Laotians.

1. Greetings upon arrival or departure and signs of gratitude: All types of greetings are expressed by placing the fingertips of both hands together as if in prayer and holding then in front about chest high with tips touching the chin, nose, or forehead, depending on the station of the individual addressed; the more important the person is the higher the hands are held. Laotians very often will place their hands above their heads and bow deeply as they consider a US representative a very high placed person; however, this will be found mostly in small villages. US personnel should abstain from making the sign of greeting too high as they will automatically lower their station by doing so. When addressing royalty, Laotians usually kneel and bow deeply almost touching the ground with their forehead and holding their hands way above their heads; this type of greeting in Lao is "Some Buy" (phonetic). The symbol of gratitude is exactly the same as the greeting and is expressed in the same manner; the words accompanying such a sign are "Kop Chai" or "Kop Chai Lai" (Thank you or thank you very much).

2. Marital Status and Domestic Customs: According to Lao customs a man may have several wives, but he must be able to support them. Usually Lao men have several wives and especially military personnel have them scattered all over Laos due to many changes of station and the inadequacy of transportation facilities. A man may divorce his wife by public announcement and without giving any reason; however, if he has children he is responsible for their support. A woman has no right to divorce her husband under any circumstances; infact, if her husband leaves her and continues to write at least once every 6 months she is considered married; if the man stops all contact for over 6 months the woman is free to marry again. As far as work is concerned, Lao men do very little of it and only when absolutely necessary; most work is done by women and children. Lao women never eat with their men; first they serve the food and after the men have finished eating they eat the leftovers in the kitchen or a back room;

this custom is even adhered to during some receptions in the larger towns given by local officials to US visitors. The better educated and higher placed officials, especially in Vientiane, disregard this custom when entertaining US or European officials and have their families at the table together with their visitors. In villages the food is usually served on a floormat and all persons sit on thefloor making certain that the soles of their feet do not point at any individual especially the visitor. Food is served on separate plates for every dish and each individual is given a plate; Laotians use a spoon and fork and do not use chopsticks except for cooking. The rice is eaten from baskets with bare hands by rolling a small ball of rice, dipping it into a sauce made of "Nam Pla" (fish sauce) and red pepper and then placing it into the mouth. The rice is glutenous and very hard to digest; therefore, US personnel should eat it only in small quantities. The rest of the food usually consists of chopped-up chicken, chopped-up duck, and pieces of beef and pork; a soup is always served and is fairly safe to eat as it is boiled; usually a salad, made of water cress, lettuce, or mountain grass is also served but US personnel should not eat it under any circumstances if they do not wish to get sick a few hours later. Visitors to Lao villages will find that children are usually very shy, will run away and sometimes cry when in the presence of a caucasian; they should be treated in a most friendly fashion and most of the time they will become friendly in return; however, if they continue to show fright, visitors should never under any circumstances insist on showering them with attention, as this type of action may be misconstrued and unfriendly reaction by the population may result.

3. Religion: Latians are all Buddhists but they also believe in spirits. Almost every Lao home has a little temple reserved as a home for "good spirits" and on the roof of every Lao home there are symbols to prevent "bad spirits" from entering their homes. Their beliefs are very strongly embedded and respect towards their way of thinking should always be shown. Under no circumstances should US personnel laugh at, or ridicule, these beliefs, as this type of action may make mortal enemies of even the most friendly Laotians. The Laotians have many holidays and religious festivals are usually of a very gay nature accompanied by fairs ("Boons"), native dancing (Ram Vong), and a great amount of gambling. Many foreigners can be seen visiting such fairs and US personnel should be encouraged to attend them, without attracting undue attention by "showing off." A very important religious ceremony is often held in honor of visitors; it is called the "Pah See" and represents an offering of good will, health, wealth, and luck from the Laotians to the visitor. The ceremony lasts about an hour including prayers, offerings to Buddha and chants by the village chief or a village sage. At the end of such a ceremony all members of the village, individually, will kneel in front of the visitor and attach a cotton thread to his wrist; if the village is big a visitor will have

will have many such threads attached to both of his wrists and may even find them annoying; under no circumstances should these threads be removed while remaining in this village as the inhabitants will consider it an insult to their customs, according to which these threads must remain on the wrist until they fall off of their own accord. Violation of this custom will certainly spoil all the good will shown to the visitor and will stop all friendly relations.

b. Among Other Ethnic Groups:

1. Greetings and Signs of Gratitude: The same sign are used as described in paragraph V.a.1.

2. Marital Status and Domestic Customs: Same as described in paragraph V.b.1. In addition, it should be mentioned that among the other ethnic groups in Laos, the woman's status is even lower than that of a Lao woman; they are made to work harder and their rights are absolutely nonexistent. Marriage, as such, does not really exist; wives are bought from their parents and become the property of the man who purchased them. It is quite common to see a man walking down a trail, followed by 8 to 10 women (all his so-called wives) and female children loaded to the utmost with wood or some other produce, while the man and the male children walk in front empty-handed or smoking a pipe. Eating habits are almost the same as the Laotians except that the rice consumed is Vietnamese-type and not glutenous rice. In addition, they eat more vegetables (corn) and goat meat is their major meat product.

3. Religion: Contrary to the Laotians, the other ethnic groups in Laos are not Buddhist but worship spirits only. Very little is known about their religious beliefs and observance of holidays. The writer of this report has had no occasion to observe any religious ceremonies among people other than Laotians.

VI. Hints on Behavior While in Contact with Local Population

a. With Government Officials: Courtesy is one of the most important factors during negotiations with Lao Government officials. Open advice should not be given except disguised in the form of a suggestion. Demands should be made in the form of a polite request but nevertheless firmly accompanied by an explanation why such a request would be beneficial to the local population. All actions concerning the local population should be initiated through the local government representative in order to preserve his "face" with the local people.

b. With Intermediate and Village Chiefs: "Chau Muongs, Tassengs, and Nai Bans" should be contacted with an introductory note

from the govenor of the province, if at all possible. If such a note or letter is unobtainable, such persons should be treated in much the same manner as described in the previous paragraph, except that perhaps a little more authority may be shown directly without disguising it with too much politeness.

c. Individual Male Villagers: Individuals should always be treated firmly but politely. Requests should be made as simple as possible and nothing too strenuous should be requested. Laotians, in general, do not mind a little work as long as it is not connected with any hard labor and difficult, they may sit down and do nothing or disappear into the woods. Under no circumstances should a Lao be beaten especially in the face or upon the head. The head is considered sacred and in fact the whole human body is considered "tabu"; disregard of this rule or a violation thereof will make a mortal enemy of even the friendliest Laotian, and his whole family and village.

d. Individual Female Villagers: Although local customs may seem to be frivolous and immoral to an American obsever, they are in reality quite the opposite. Local men may have two, three or more wives and several concubines, but the relationship between them is quite rigid and very strict. For example, if any one or both parties to an adulterous act are caught the punishment is swift--death by beheading; a thief may be punished by having his hand cut off (very rare). Lao women, as a rule, do not marry under the age of 16, although there are some rare exceptions. When a man courts a Lao girl it is usually done in a very ceremonious manner and all physical contact is completely avoided until the actual marriage. Although Lao men joke and flirt with many girls during festivities and dances, they do not permit themselves any liberties. Lao women are extremely shy, especially with "foreigners" and relationship with them should be limited to a courteous greeting and nothing more. Excessive attention shown to local women may antagonize the male population and cause irreparable damage to mutual relationship with the villagers.

VII. Conclusion

An attempt has been made in the preceding report to give the reader some idea on living conditions in Laos. Although the general picture presented here might make Laos appear as an unfriendly and dangerous country, it really is not as bad as it seems tobe if one takes certain precautions and follows certain rules.