HEADQUARTERS
1st Engineer Battalion
1st Marine Division (Rein), FMF
FPO, San Francisco, California 96602

3:JJK:rer
5750
5 July 1966

From: Commanding Officer
To: Commanding General, 1st Marine Division (Rein), FMF, FPO, San Francisco, California 96602

Subj: Command Chronology

Ref: (a) DivO 5750.24

Encl: (1) Command Chronology, 1st Engineer Battalion (-), 1st Marine Division (Rein), FMF, FPO, San Francisco, California 96602

1. In accordance with the provisions of reference (a), the Command Chronology of the 1st Engineer Battalion (-) 1st Marine Division (Rein), is hereby submitted.

J. R. AICHELE

[redacted] Enclosure (1)

COMMAND CHRONOLOGY

1 - 30 JUNE 1966

Appendix B to
Enclosure (1)

COMMAND CHRONOLOGY

1. Organizational Data

a. 1st Engineer Battalion (-), 1st Marine Division (Rein) FMF
Det, 1st Bridge Company, (Attached 1-15 June 1966)

b. Location

(1) Headquarters and Service Company (-), Chu Lai.

(2) Support Company (-), Chu Lai.

(3) Company "A" (-) (Rein), Da Nang.

(a) 1st Platoon, Company "A", Phu Bai.

(4) Company "B" (-), Chu Lai.

(a) 3rd Platoon, Company "B", SLF w/BLT 3/5.

(5) Company "C", Chu Lai.

c. Period Covered. 1 June 1966 to 30 June 1966

d. Command and Staff Officers

Commanding Officer	Lt. Col.	J. R. AICHELE
Executive Officer	Maj.	F. P. KUNKLE
Sergeant Major	Sgt. Maj.	G. W. SHAW
Adjutant/S-1	2nd Lt.	F. H. STRIKER
S-2/Legal Officer	1st Lt.	R. OSBORNE
S-3/S-4	Capt.	J. J. KIRKPATRICK
H&S Company/Supply Officer	Capt.	W. D. SMITH
Support Company	Capt.	D. R. HINES
Company "A" (-) (Rein)	Capt.	G. R. MEIBAUM
Company "B" (-)	Capt.	T. P. KILDAY
Company "C"	Capt.	J. T. KOMAR
Resident OICOC Div CP	Maj.	C. R. GIBSON

e. Average Strength

USMC		USN	
OFF	ENL	OFF	ENL
29	600	1	11

2. Commanders Narrative Summary

a. Organization. On 1 June 1966, the 1st Engineer Battalion consisted of the Headquarters and Service Company; Engineer Support Company; Company "A" minus the 1st Platoon; Company "B" minus the 3rd Platoon; Company "C"; and Detachment, 1st Bridge Company, FMF. The 1st Platoon, Company "A" was in direct support of 1/1 at Phu Bai, RVN, and the 3rd Platoon, Company "B" was attached to BLT 3/5, the 7th Fleet SLF. This Organization remained basically the same until 15 June 1966 when the Detachment, 1st Bridge Company was detached to the 9th Engineer Battalion. On 26 June 1966, Company "A" minus the 1st Platoon and reinforced by elements of Headquarters and Service Company and Engineer Support Company embarked for Da-Nang and assumed direct support of the 1st Marines.

b. Intelligence

(1) VC Mines and Booby Traps. During the period covered by this report, the Battalion S-2 Officer attended intelligence briefings given at the Division Command Post. In addition, intelligence summaries, personal observations and all other available sources of information were studied by members of this command in order to provide up-to-date material for use in the Division Land Mine Warfare School as outlined in paragraph 2d. In order to disseminate this information for the benefit of all hands the book enclosed herewith as Appendix B was prepared and distributed Marine Corps wide by this Battalion.

(2) Road and Bridge Reconnaissance. Reconnaissance of all major bridges from Chu Lai to Quang Ngai was accomplished by the Battalion S-2. The reconnaissance report, including aerial and ground photos of the bridges, was forwarded to the 1st Marine Division for planning purposes.

c. Training. Due to operational commitments no formal GMST classes have been conducted for members of this Battalion. However, informal classes have been held in the technical fields of motor transport, engineer equipment and communications maintenance, mine warfare and demolitions, supply, and personnel administration. Formal schools conducted by this battalion were as follows:

(1) Division Land Mine Warfare School. During June 1966, 326 students were scheduled from 1st Marine Division Units for training in land mine warfare, demolitions, and booby traps. The syllabus for the training of all personnel included the following subjects:

(a) Route and Trail Clearance.

(b) U.S. Firing Devices.

(c) Foreign Mines, Fuses and Firing Devices.

(d) U.S. Mines (A.P. to include M18A1)

(e) Trail Markers

(f) VC Explosive Devices

(g) Booby Traps

(h) Walk-Through Booby Trap Trail

(i) Examination

In addition to the above subjects, infantry units received training in the following areas:

(a) Introduction to Demolitions and Explosives

(b) Non-electric Firing

(c) Improvised Charges

(d) Practical Application in use of C4, TNT and Detonating Cord

(e) Examination

(2) LVTE-1 Firing. Twenty-eight members of this Battalion were given formal instruction on the line charge loading and firing procedures for the LVTE-1 on 10 and 11 June 1966. The instruction was completed by the firing of a live line charge from an LVTE-1 by members of the class.

d. Operations

(1) Tactical Support. During this period this battalion participated in operations Apache (9-14 June 1966), Kansas (16-28 June 1966) and Oakland (9 June thru 3 July 1966). In addition, the 1st, 5th, and 7th Marines were tactically supported on twenty (20) company and platoon size operations. A total of 2500 pounds of explosives were expended by Engineers in support of these operations. These explosives were used for the destruction of twelve (12) VC mines, one (1) ton of cached rice, and seven (7) caves.

(2) Convoy Support. All convoys to Quang Ngai and Tam Ky were supported by engineer breaching teams from this Battalion.

(3) Contacts. Members of this Battalion have been involved in five separate contacts with the VC not including those as a result of engineer support of infantry operations. These contacts have resulted in the capturing of eleven (11) VCS and one (1) VCC.

(4) Casualties. During this reporting period, this Battalion has suffered nine (9) WIA and six (6) wounded non-battle casualties.

(5) Road and Bridge Construction. This Battalion repaired or replaced nine (9) bridges and built seven (7) bypasses on Route #1 and other vital roads north of Tam Ky in support of Operation Kansas. In addition, the Battalion was engaged in the following projects:

(a) 5th Marines CP Road from Hill 35 (BT 445080) to Route #1.
(b) 3/7 CP access road (BS 566956).
(c) 1/7 CP access road (BT 625010).
(d) Construction of ten (10) bypasses for bridges along Route #1 from Chu Lai to Quang Ngai.

These projects have resulted in a total construction of 6.1 miles of road and eleven (11) culverts.

(6) Water Points. The Battalion established water points in support of Operation Kansas at coordinates BT 280240 and Operation Oakland at coordinates BS 607721. In addition the Battalion operated thirteen (13) water points in the Chu Lai area which produced 3,178,000 gallons of potable water and another 2,239,000 gallons for showers.

(7) Division CP Construction. During the entire month of June, this Battalion furnished three (3) officers and sixty three (63) enlisted men for the construction of the Division Command Post. In addition, this Battalion rendered supply support for the project in the requisition, stockage, and issuance of certain materials.

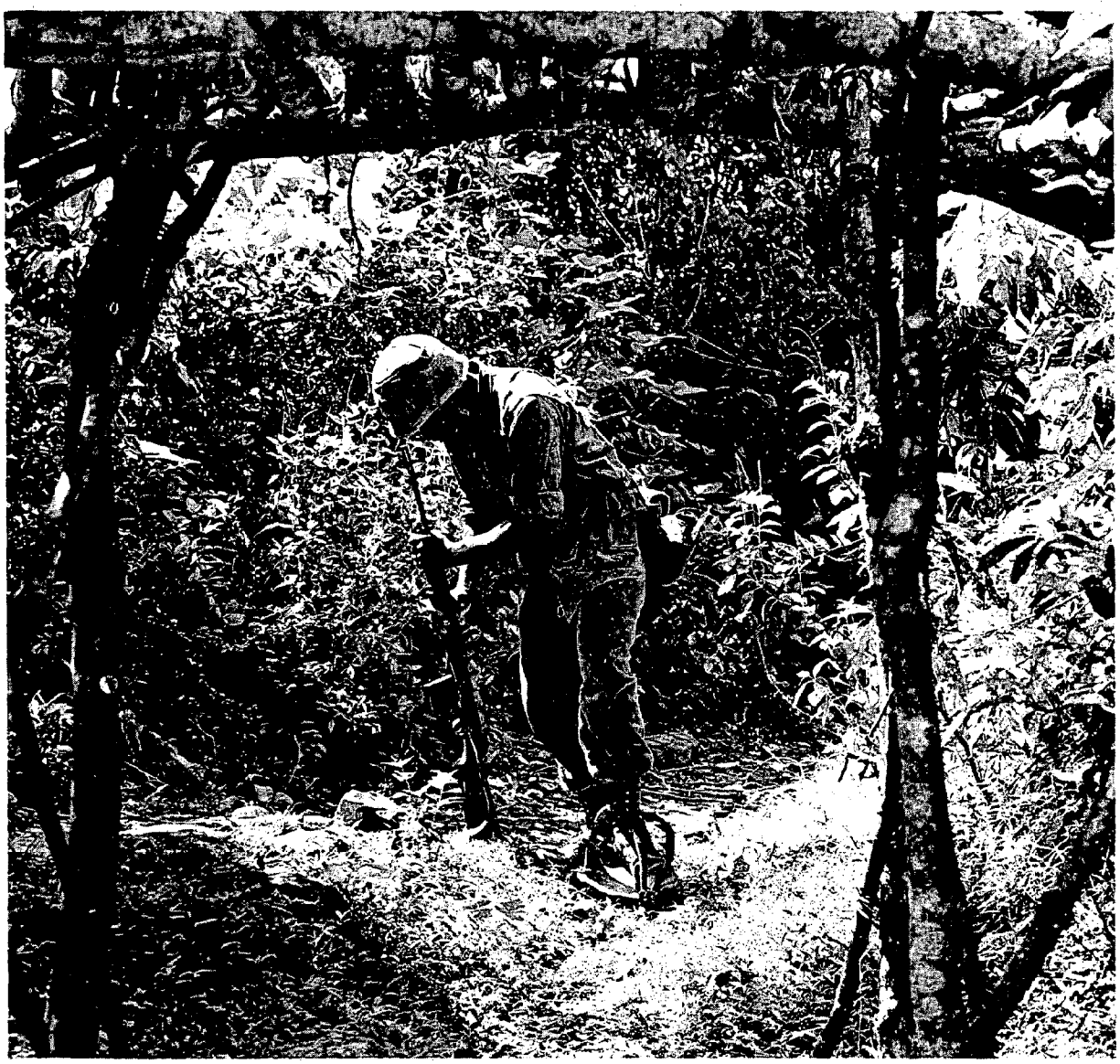
e. Civil Affairs/Civic Action. This Battalion's present area of responsibility in the Civil Affairs program is Dong Binh (1) (BT 571993) and Dong Binh (2) (BT 564002) in the Quang Ngai Province. In Dong Binh (1), approximately 18 people receive medical attention, and 60 bars of soap are being distributed twice a week. In Dong Binh (2), approximately 16 people are receiving medical attention, and 40 bars of soap are being distributed twice a week. The attitude of the villagers has remained very good during this program.

REFERENCE LIST

EVENT	REFERENCE
Det 1st Bridge Company terminate TAD as of 15 June 1966	First Endorcement on 3d Mar Div Spl0 133.66 1/FHS/rwk over 1522 DTD 15 June 1966
Company "A" (-) (Rein) ADCOM 1st Engineer Battalion, OPCON 3d Marine Division	CG 1st Mar Div msg 1222254Z June 1966

Appendix A to
Enclosure (1)

CAM VAO



FIRST ENGINEER BATTALION

FOREWARD

The information accumulated on following pages was incorporated in order to partially fill a void. This void exists in written information available on Viet Cong mines, fuzes, boobytraps, demolitions and other casuality producing items.

These pages are directed at and originated for the Marines serving with the 1st Marine Division at Chu Lai. It is not limited to this purpose and it is hoped that other Marines benefit from it.

I will be the first to admit that portions of this manual, if I may call it that, are inconclusive. This insufficiency is attributable to inadequate methods and means of varifying technical information. The assimilations and assumptions made are from personal experiences and observations, and deductions proffered by Officers and Enlisted Men of 1st Engineer Battalion.

The initiation of this manual was due to the foresight of LtCol J. R. AICHELE, Commanding Officer, 1st Engineer Battalion. It is our desire that these first chapters will be used as stepping stones to a more complete collection of chapters on the subject. This will necessitate the writing of new pages and the rewriting of the old as long as Marines serve here.

JON C. HILL
1stLt USMCR

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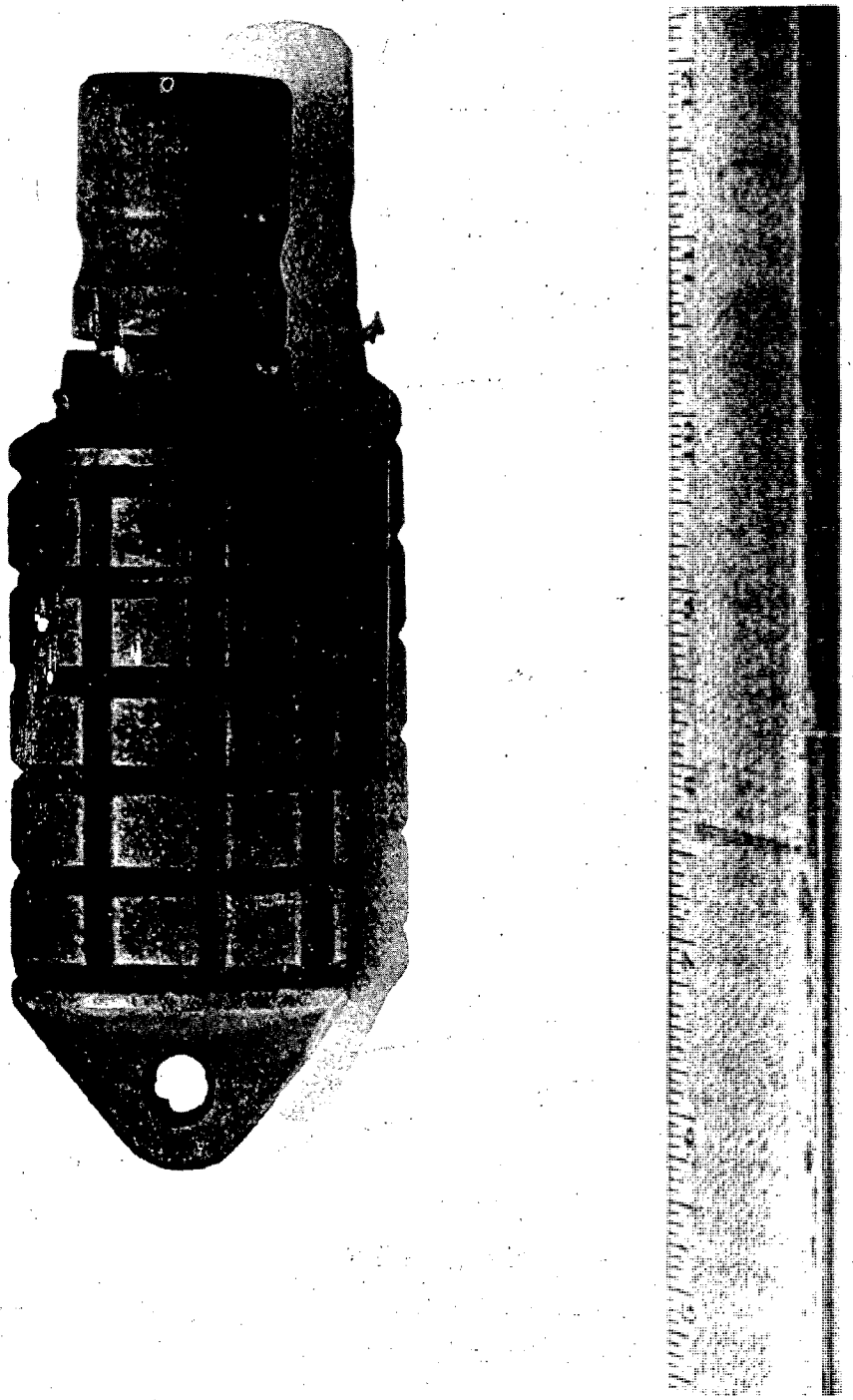


VIET CONG ANTI-PERSONNEL MINE

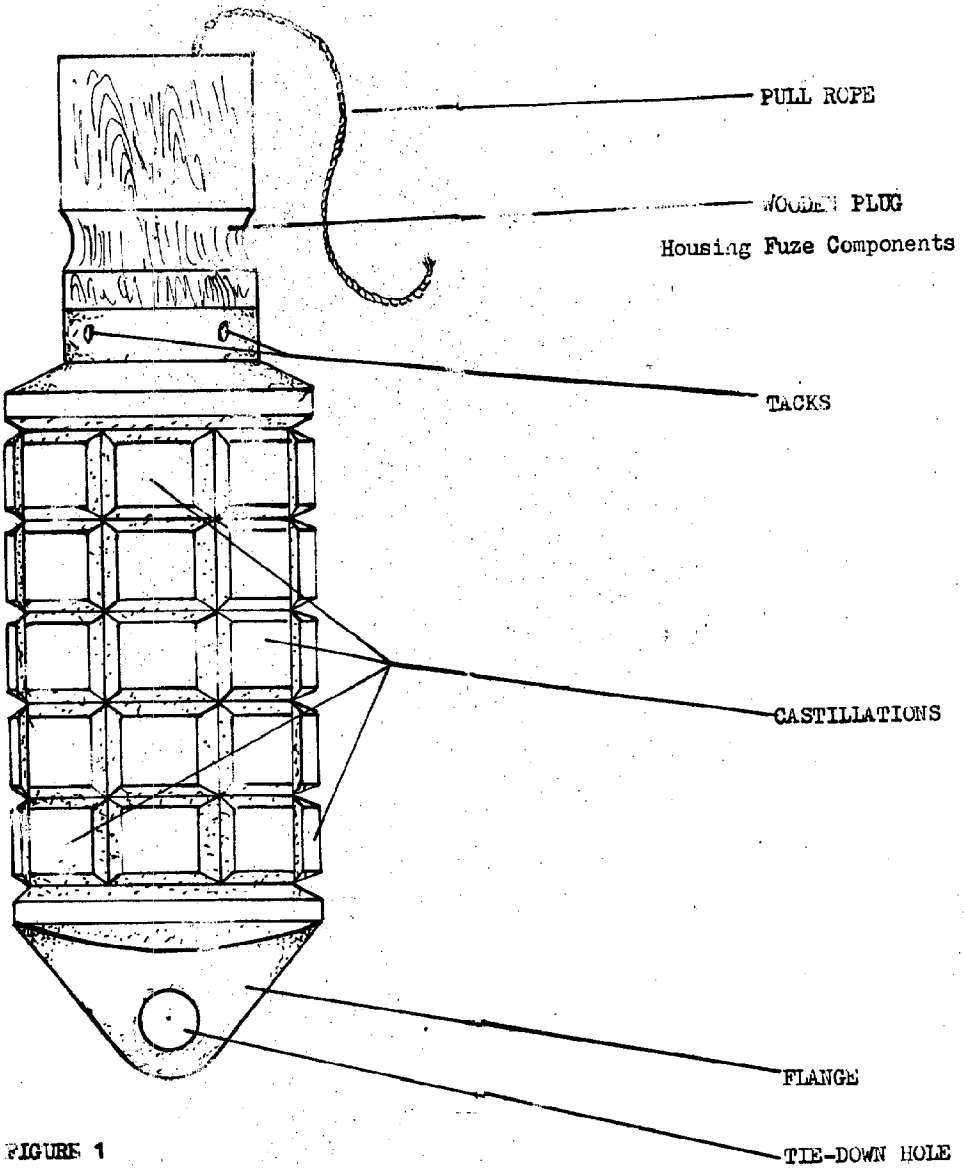
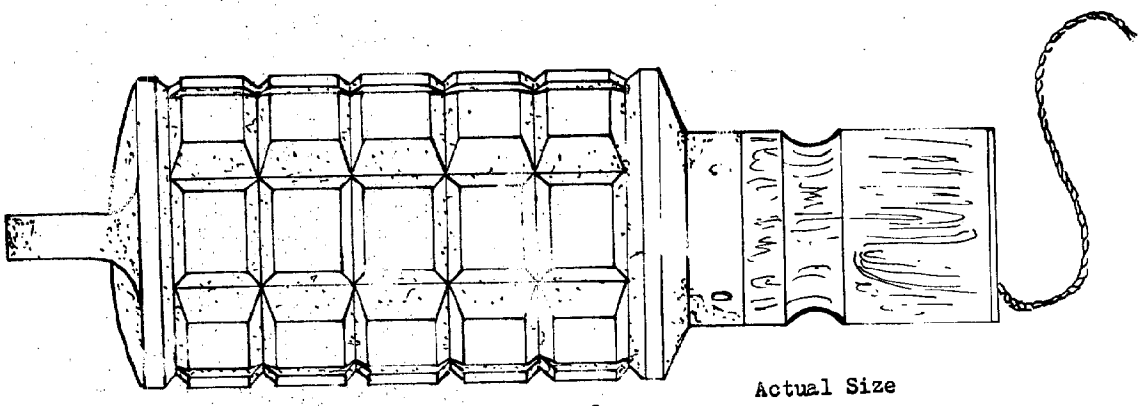


FIGURE 1



Actual Size

VIET CONG ANTI-PERSONNEL MINE

This mine is used extensively by Viet Cong forces operating in the Chu Lai area. It is known in other sectors of the Republic of South Vietnam as the Z-10 anti-personnel mine and as the VC Cylindrical Cast Iron Fragmentation Mine.

Two types of this mine are in existence. The difference between the two is believed to be one of manufacture rather than one involving technical characteristics. One mine has the word "Min" cast on it where the other type does not.

The mine is employed as a boobytrap and also as an anti-personnel mine. A number of pages will discuss employment.

The VC Anti-personnel Mine is a fragmentation type mine. It consists of a cylinderical castellated, cast-iron shell containing a high explosive detonator and a bursting charge. The castellations are manufactured to facilitate fragmentation of the mine.

The fuze consists of a wooden plug which houses three components, the fuze body, the copper pull wire with pull cord attached, and a match compound. The wooden plug with components is cemented into the mine body with asphalt. The plug is further secured to the mine, by four small tacks driven into the plug through holes cast in the mine body.

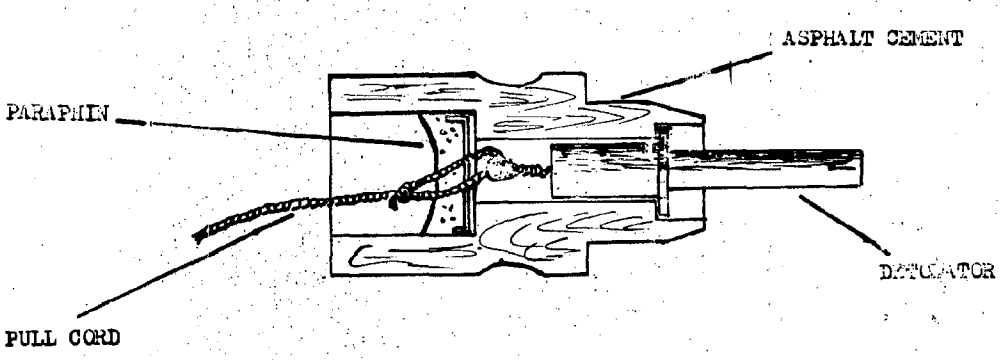
The explosive (flaked TNT) is formed in the mine body around a heavy waxed paper insert, shaped like a funnel, which serves as a fuze well. The fuze well accepts the detonator and a portion of the fuze body.

Description

Mine

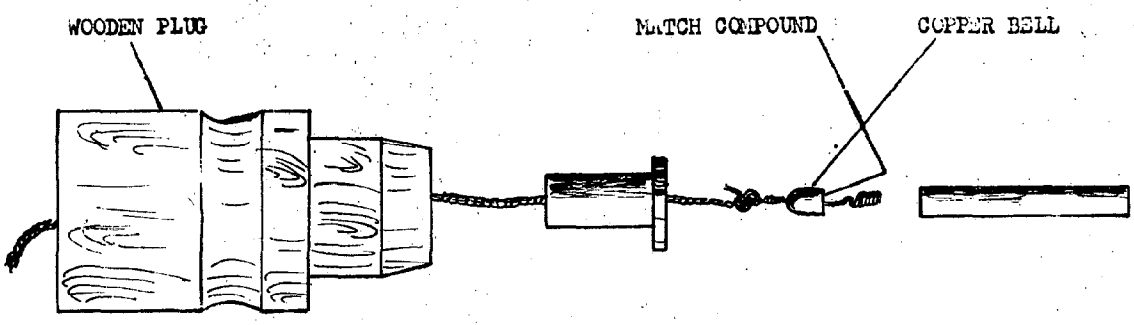
Model number - Z-10 or VCAP Mine
Type - Stationary, fragmentation
Weight - 2.2 pounds
Dimensions - 5" long - 2" diameter

VCAP FUZE



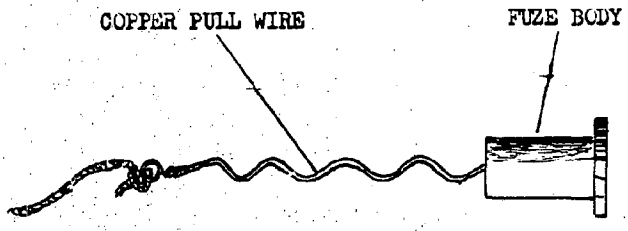
VCAP FUZE INTACT
Actual Size

FIGURE 2



VCAP FUZE COMPONENTS
Actual Size

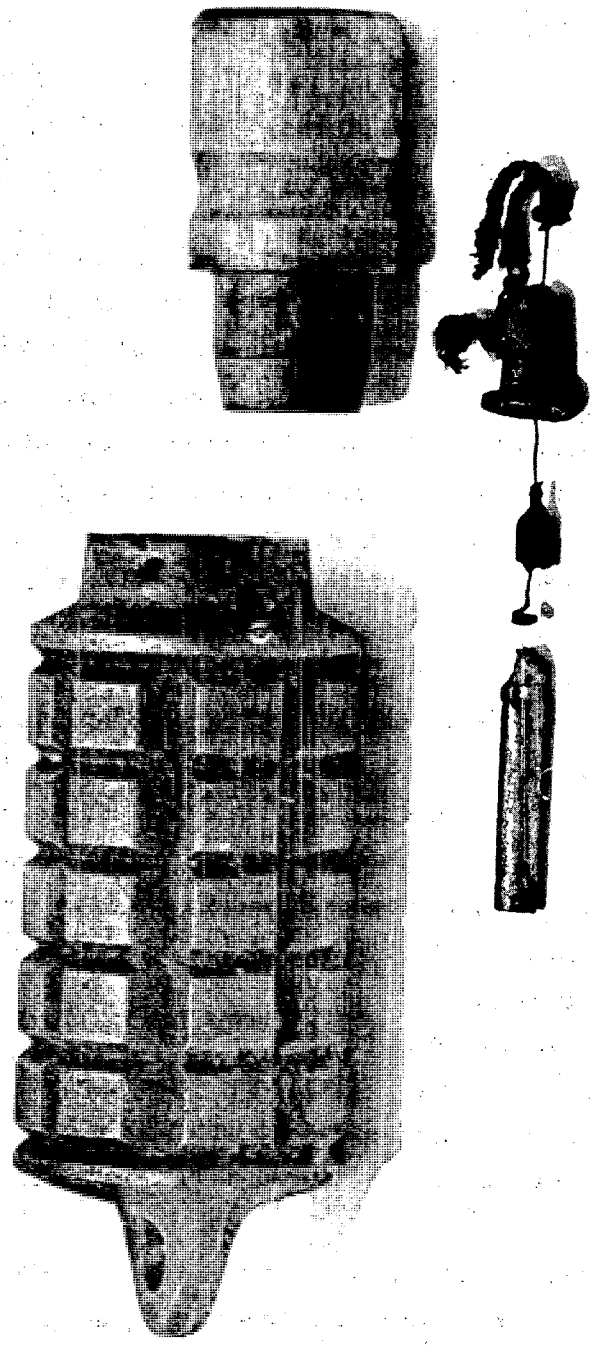
FIGURE 3



VCAP FUZE

Fuze Body and Copper Pull Wire

FIGURE 4



VCAP MINE WITH FUZE

Material - Cast iron

Fuze well - In center of mine, waxed paper shaped to receive the cap and lower portion of the fuze.

Delay - The delay in this mine represents an imperfection in manufacture. It has been known to explode instantaneously, but under certain conditions a delay of from 3-6 seconds occurs. The fuze in the mine is known to give off smoke during daylight hours and to throw sparks during darkness when activated. In some instances this has allowed the individual who trips it an opportunity to assume a prone position. The reason for the delay, the smoke, and the sparks is attributable to the moisture and the phosphorus compound in the match.

Detonator - The mine has one detonator which consists of a non-electric copper blasting cap 1-9/16" long and 1/4" in diameter. The fuze is manufactured in such a manner that it will accept the open end of the cap. The well shaped match is constructed so that it will fit inside the cap. See figure 3.

Weight of bursting charge (TNT) - 5 ounces

Color - Black to gray

Marking - Castillations; the word "Min" is cast on some mines of this type.

Fuze

Components - Wooden plug, lead body, copper pull wire, pull cord, well containing match (phosphorus), compound. See figure 2.

Type - Pull friction; phosphorus

Safeties - None

Color - Gray

Markings - None

Function

A pull of from 5 to 6 pounds on a trip wire attached to a pull cord will activate the fuze. A pull of 2-1/2 inches will allow the copper pull wire to completely uncoil, forming a spiral. The spiral then passes through the match compound, igniting it. See figure 4.

Employment

The Viet Cong do not lay mines in any kind of standard pattern. They use different markings to show the presence of mines and boobytraps. As an example, they use thorn bushes piled across a trail to show that it is mined or boobytrapped. They use various bamboo devices such as triangles, arrows, broken pieces, sections layed perpendicular to the road, or a mixture of bamboo and rocks as markers. In most cases the indigenous personnel are aware of areas that are mined or boobytrapped. If this information is unobtainable, observe what areas they keep away from. Another key to finding VC mines and boobytraps are unnatural phenomena that occur in the terrain and vegation. Where nature has been disrupted, one can assume that the area could be boobytrapped. A bamboo stalk laying across a trail which forces men to step on it or over it, is an example of this. Another tip that follows this vein is the VC who farms by day and fights by night will mine or boobytrap areas that he uses very rarely in his work. Some favorite spots are the graveyard, sandy areas that cannot be farmed, jungle areas, and routes to and from these areas.

The Viet Cong anti-personnel mine is usually employed with a trip wire. The trip wire varies with the material available. Some of the materials used are communication wire, 1/4 inch fiber rope, U. S. trip wire, monofiliment fishing line, string, strips of bamboo and vines.

When the VCAP is used as a mine, it is elavated to increase the casualty radius. The hole in the flange is used to tie the mine to some solid object. The mine is employed with a slack trip wire. The trip wire varies in length of the boobytrapped area and the height above the ground. It can be as much as 6 to 8 feet above the ground, set for AN/PRS-10 antennas on trails, or for trucks and tanks on roads. In some cases the trip wire may be just a few inches above the ground. The trip wire to the mine is usually established across routes frequented by Marines. Trails, dykes, holes in hedgerows, gates and clearings are some of the places the mine is used.

When the VCAP is used as a boobytrap, the imagination of the VC employing it is the only limiting factor. There are many duds and malfunctions of the mine for this reason. The pull exerted on the pull string should be one where the pull string is nearly perpendicular to the top of the wooden plug. In many cases it is used in such a way that the direction of pull is actually parallel to the top of the wooden plug. The mine is used in conjunction with man holes and panji pits. It can be rigged to a board across a hole so that when a man steps on the board, his leg pushes the board down a sufficient distance to activate the mine. It has also been used in panji traps. In this case a man falls into a hole and has several barbs embedded in him. He immediately tries to pull away from one of the stakes or foot traps that the mine was wired to.

The VCAP is also usedon doors, gates, well or storage covers, and entrances into abandoned caves and tunnels.

Disarming

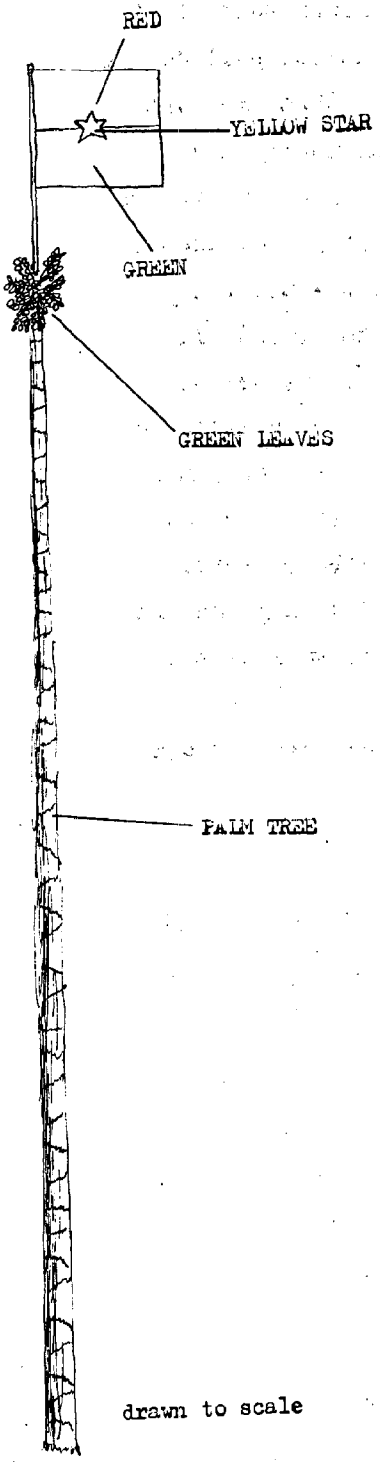
The best and safest method of deactivating the VCAP mine is to destroy it in place. This can be done with a small

charge of high explosive. If it becomes necessary to physically remove the mine, a few things should be considered. Is the immediate area clear of other boobytraps or mines that might be activated in removing the apparent one? Is the pull device hooked up to any device on the opposite end? Check the area around the mine for snakes tied to bushes, or thorns and barbs with excrement on them. Does the mine have any strange marks or paint on it that would ordinarily not appear there? The VC are known to have mercury switches in the Chu Lai area that could be integrated with the mine to explode it and a larger secondary charge when the VCAP is disturbed.

After taking these precautions, the pull device attached to the pull rope can be cut or untied. If the tie down hole in the flange has been utilized, untie or cut the material used to fasten the mine. When the mine has been removed, coil the pull rope inside the top of the wooden plug and put tape or several band aids over the hole. This will keep the rope from being accidentally pulled.

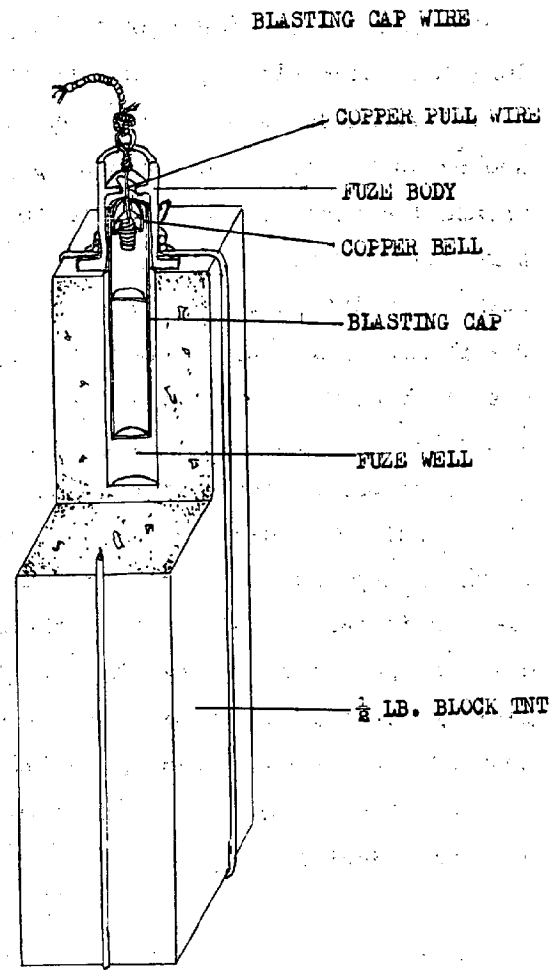
The mine should then be carried to a place where it can be safely destroyed.

VC BOOBYTRAPPED FLAG



drawn to scale

FIGURE 5



Actual Size

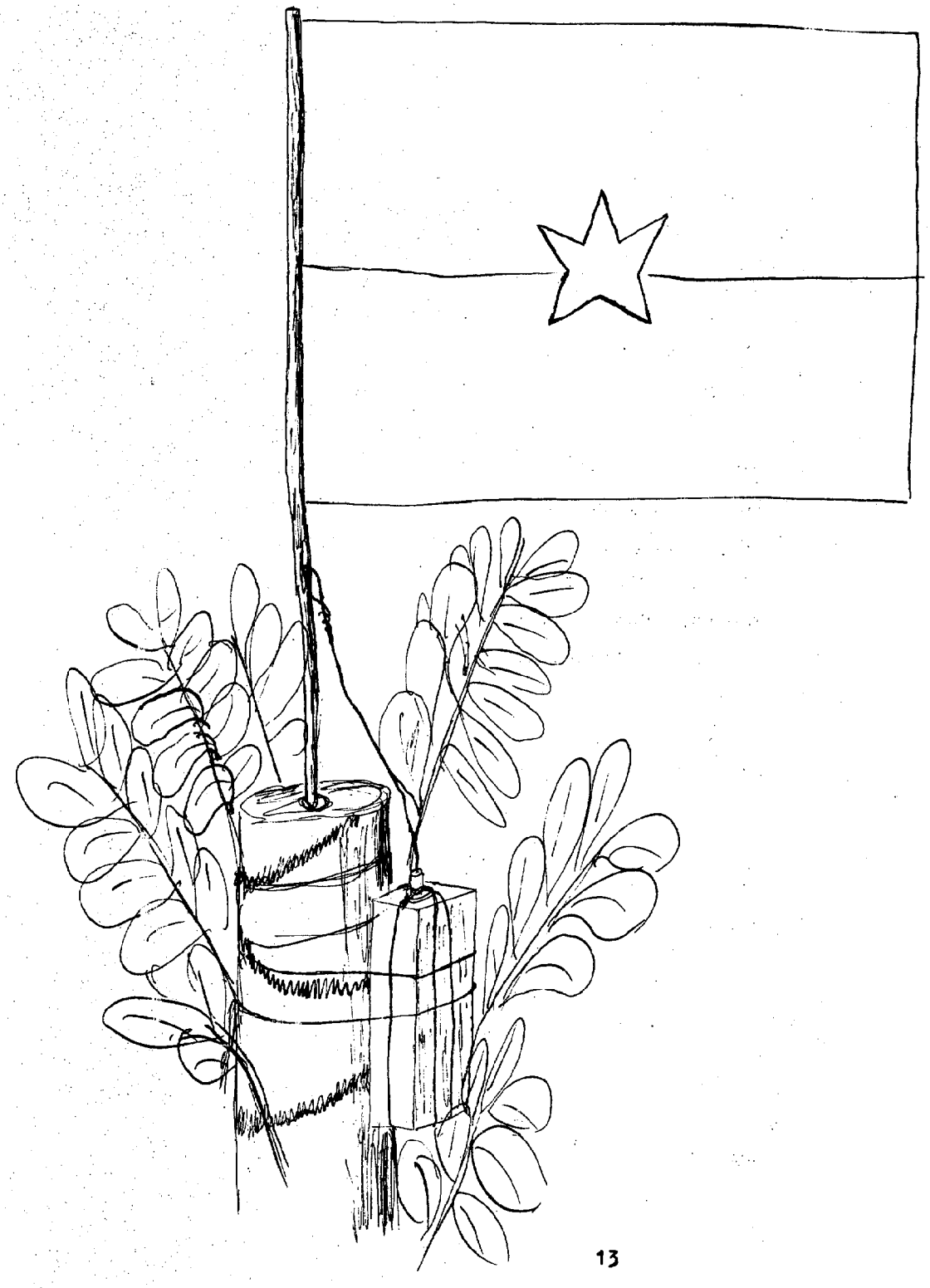
FIGURE 6

*See figures 2, 3 and 4 for FUZE COMPONENTS

On 4 March 1966, at about 0900, a road reconnaissance was requested by the S-3 of a Marine Regiment. An Engineer unit was to proceed to BT 392160, where intelligence sources reported a large crater in Route # 1 south of Tam Ky. At 1000, the Engineer squad, reinforced by a squad of Infantry, proceeded north to the vicinity of Hill's 54 and 10, BT 398150, where seven men were seen running in the general direction of Hill 54. The reconnaissance party and the security group dismounted and continued on foot in order to complete the mission. As the unit came closer to the pass between Hill 54 and 10, it became evident that a roadblock had been established by the VC in the area. There were indications that the area was also boobytrapped. There were two palm trees about 15 feet tall set in the asphalt of Route # 1 approximately 150 meters apart. One of the trees had a Viet Cong flag flying from it. The other tree was cribbed with rocks at the bottom. The words "Cam Vao" had been written on the asphalt with white chalk. In addition to the trees, there were about 10 large thorn bushes placed over some of the chuck holes in the road. The Infantry squad was deployed to search a near-by house for the VC, but to no avail. The infantry squad was called to provide security for the reconnaissance party, whose original mission was to inspect the road further on. The road had been blown in two places. Upon returning to the road block, the reconnaissance party pulled down the palm tree with the rock crib at it's base, with a long section of rope. There were no boobytraps attached to the tree. The thorn

bushes were investigated utilizing a mine detector and probes. There were no mines in any of the holes. The other tree with the flag in it was obviously boobytrapped. After the tree was brought down there didn't seem to be any boobytrap fixed to the flag. There was a strange thing about the flag and its relation to the tree. Some green leaves were wired to the tree with blasting cap wire of U. S. manufacture. The leaves were separated and a hole in the bamboo staff holding the flag was found. Attached to the hole in the flag was another piece of blasting cap wire. The leaves were carefully taken away from the palm tree and a 1/2 pound block of TNT was uncovered. The TNT was fuzed with a pull friction phosphorus fuze. The boobytrap and its components are illustrated in figures 5, 6, and 7.

VIET CONG FLAG
(With booby trap attached)



PANJI PITS, MAN TRAPS & FOOT TRAPS

The Viet Cong are forced to use the materials that are most readily available in an area to construct devices that will kill or inflict casualties. These devices have many variations for this reason. Many of the traps used by the Viet Cong are redesigned animal traps. One material that is available in all areas is bamboo, which is used for panji stakes, latice work to revet holes, caves and tunnels, mats to cover holes, and as supports for tunnels.

The Viet Cong depend upon indiginants for impressed labor. This laborer is used to dig holes, trenches, and caves, to sharpen bamboo, to weave strips of bamboo into mats, to sharpen nails and wire for foot traps, to carry excess earth and materials away where it can be blended with the terrain, and to carry working tools and materials to and from the emplacement site.

Panji stakes are used for various things. They are used in conjunction with cactus to form fences to keep animals in or out of an area. They are made in varing lengths and widths depending on their use. See figure 9.

Panji stakes are pieces of split bamboo sharpened on both ends so that one end can be embedded in the earth leaving the other sharpened end protruding above. In some instances the stake is put in coals of a fire to harden it. To add to the effects of the punture wound inflicted by the stakes, the VC at times urinate on it or put excrement on the point to produce infections.

Panji's are put on a revetment or ditch bank where they can serve as protection from assaulting

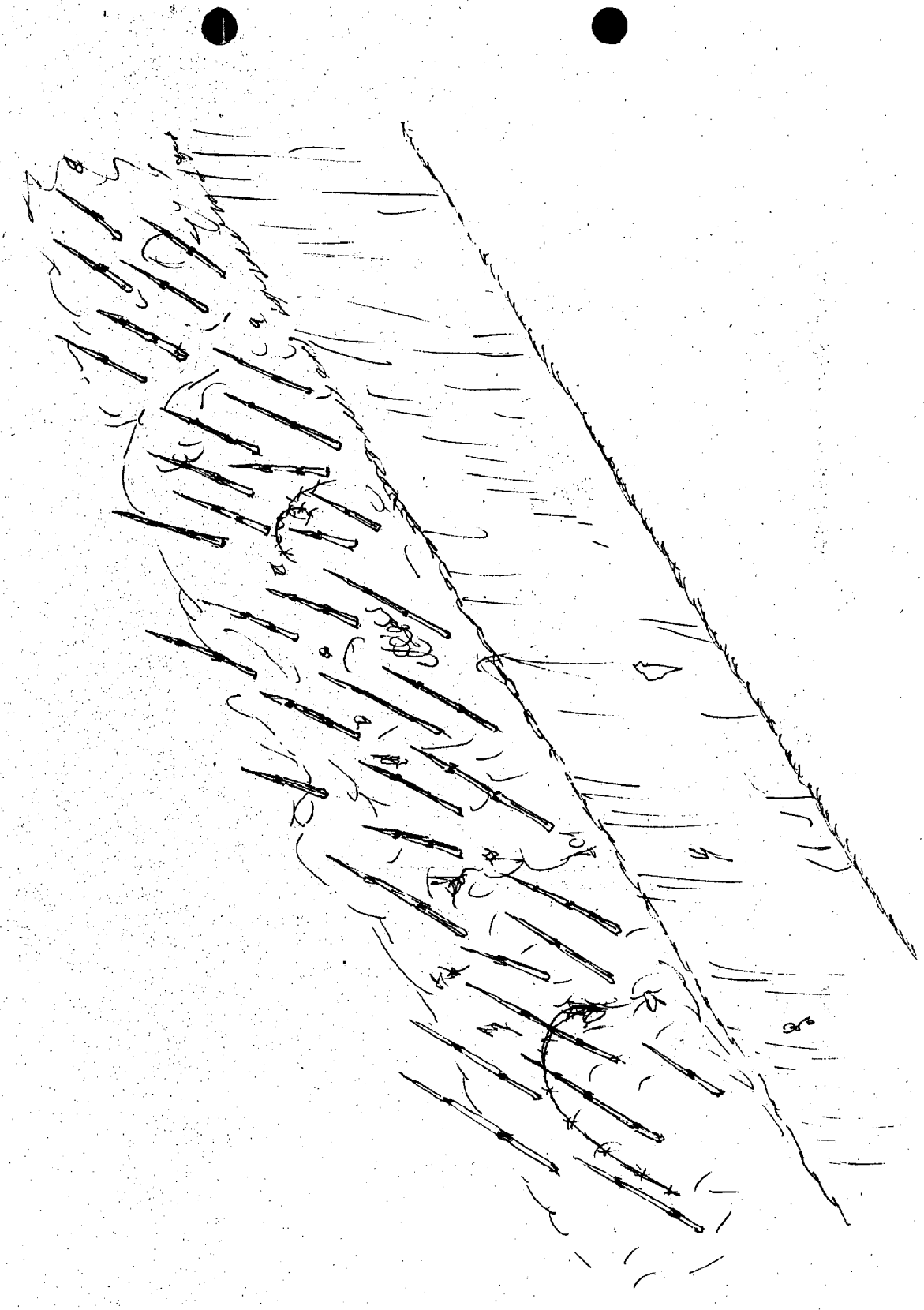
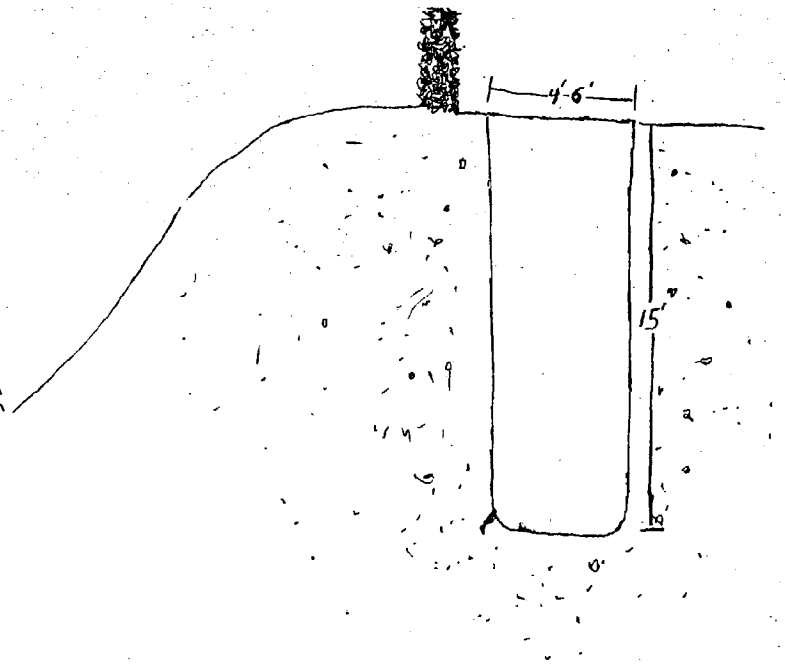


FIGURE 8

MAN TRAP



PANJI STAKES USED AS A FENCE

FIGURE 9

DECLASSIFIED

troops or as a barrier to deny advancing forces easy access to a given area. See figure 8.

Man Trap. A very deep hole is excavated that will inflict injuries on the man who falls in it. It is designed so that the cover will give away when the weight of a man is placed upon it. The trap has been found near hedges and fences where a person would be fighting thorns or steping down and paying attention to the area ahead. See figure 9.

Panji, foot or leg pit. This foot trap is constructed along trails or in likely bivouac areas. There are many different designs and sizes of this trap. See figure 10.

This pit is a dual trap in that the stakes on the bottom of the hole stick the foot and the wire connecting the upper stakes has just enough slack in it to allow the foot to reach the lower stakes before it draws the four upper stakes into the thigh, knee area, or calf of the leg. It also is rigged with the Z-10 in some instances. See figure 11.

Bamboo latice and paper with sand or earth sprinkled over it. Four to six feet deep with panji's as long as 4-1/2 feet placed in the pit. This is designed to inflict casualties to the whole body. It has been found in sandy areas such as graveyards and sand dunes, along the sea and rivers, and near trails. See figure 12.

Foot Trap (Metal). This particular type of trap is made from available materials such as nails, bolts or heavy guage wire. There are many types of which the four presented here are examples.

PANJI FOOT TRAP
(with snake)

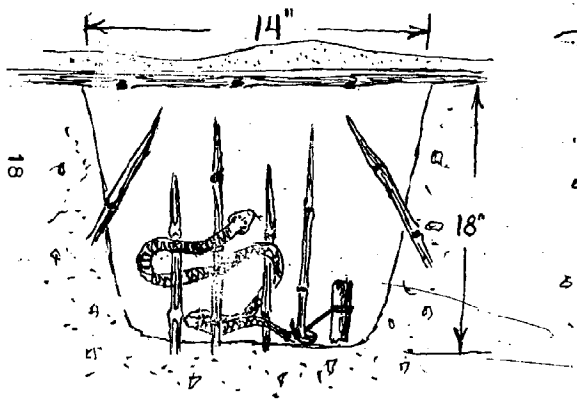


FIGURE 10

PANJI LEG TRAP

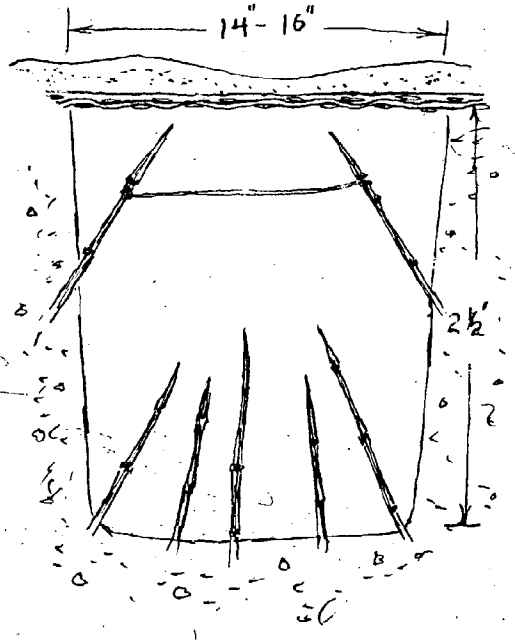


FIGURE 11

PANJI BODY TRAP

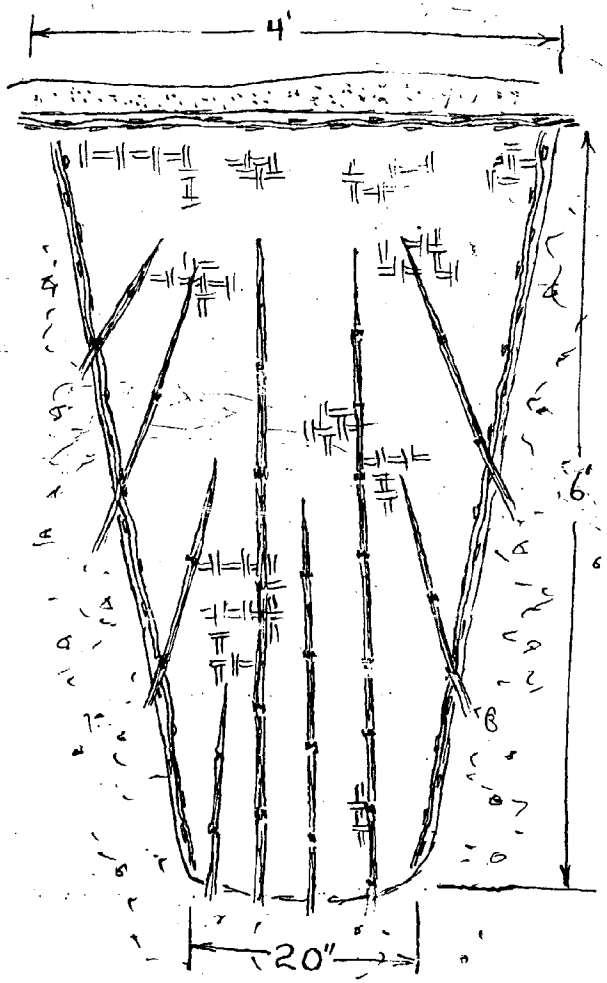


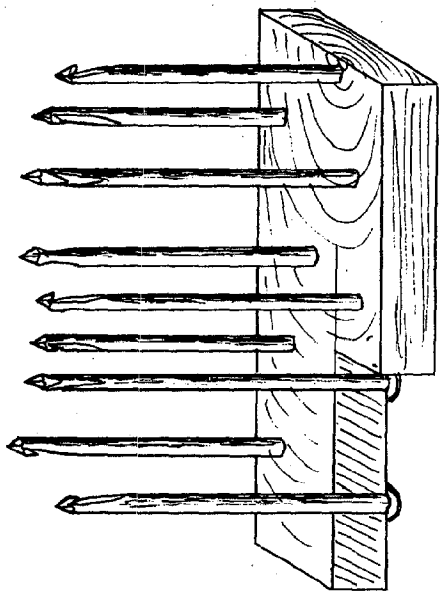
FIGURE 12

This trap was near the top of a ditch bank where a trail passed over it. The theory used was that a man would step over the top of a bank and land on the trap without seeing it. See figure 13.

This foot trap was found near a village where several had been placed in holes. This was an area bordering a dense thicket of bamboo and thorns. See figure 14.

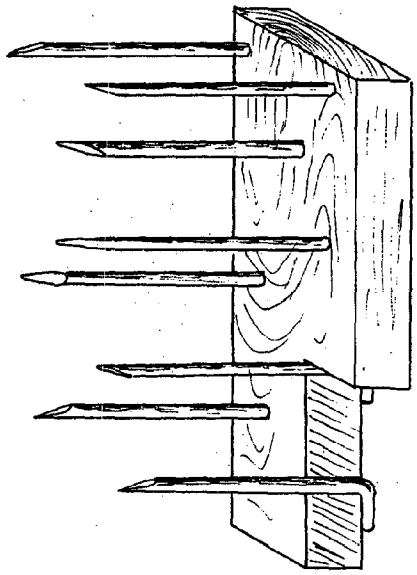
The types in figures 15 and 16 are emplaced in 3 to 4 foot holes or near bottoms of banks or hills where a man could be moving with more force and momentum than usual. The shank and barb on these traps are designed in such a way that force is needed to drive the trap into the foot.

In searching an area for any of these devices, certain indicators are helpful in locating them. The cover over the hole that the device was placed in may have been made from green materials which have buckled up or down as they dried out. See figure 17. If sand or loose soil was placed over the cover, a good chance exists that rain falling on it has washed the material through the cover and down into the hole. See figure 18. In some cases the hole will sink because too much material was used on it. See figure 19. Another indication is a fine edge where a crack or line has formed between the earth as it occurs in nature and the artificial layer on top of the cover. See figure 20. In addition to the things mentioned, a small hump of uniform length or width or diameter may occur. See figure 21.



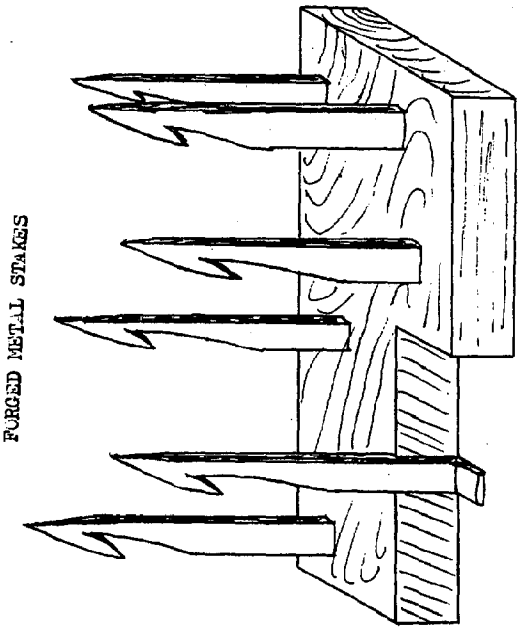
WIRE STAKES

FIGURE 13



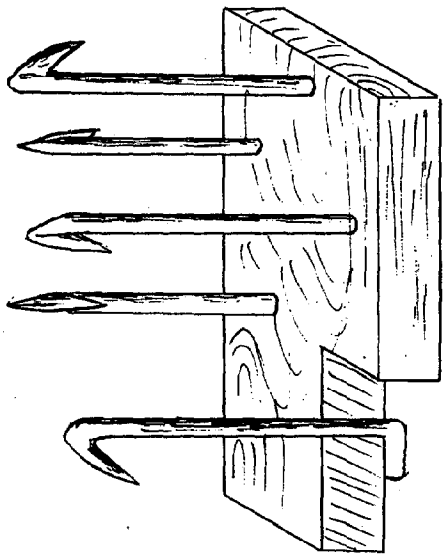
NAIL STAKES

FIGURE 14



FORGED METAL STAKES

FIGURE 16



WIRE STAKES (barbed)

FIGURE 15

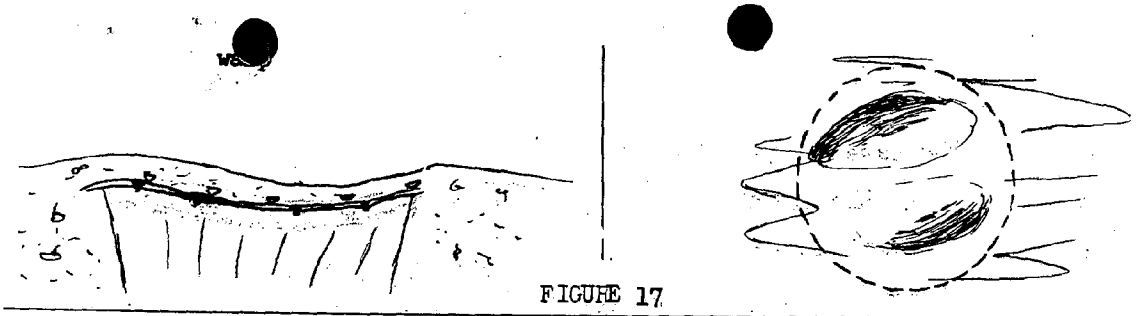


FIGURE 17

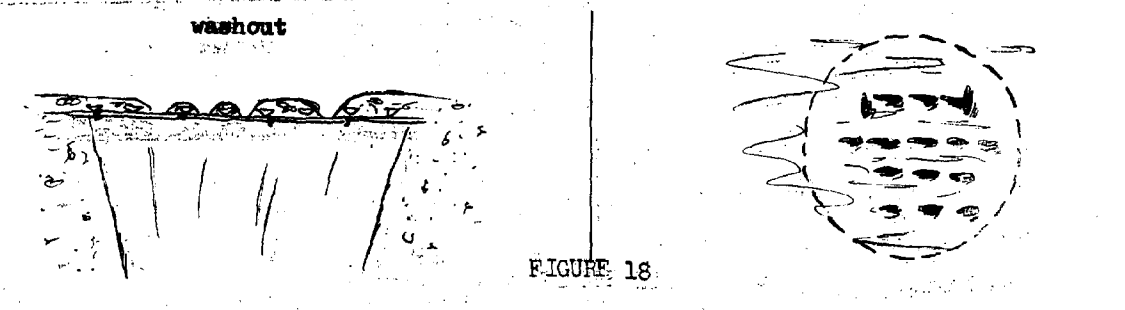


FIGURE 18

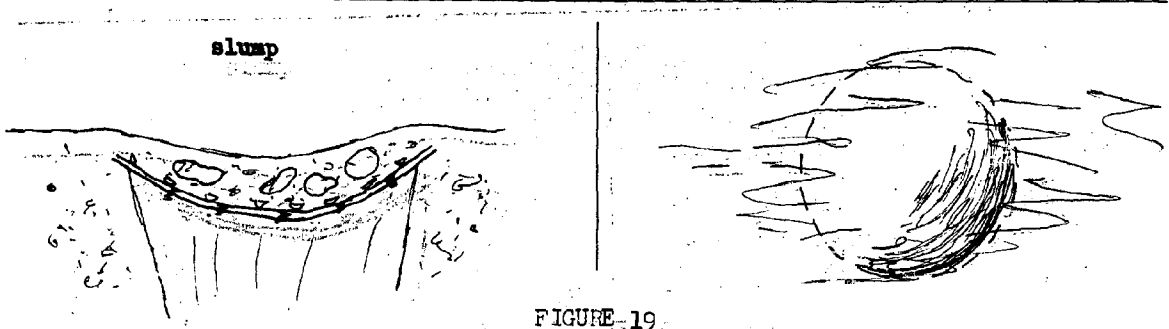


FIGURE 19

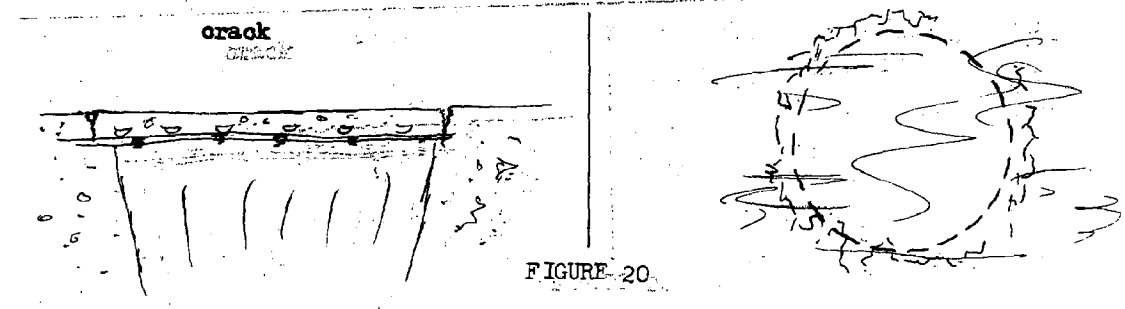


FIGURE 20

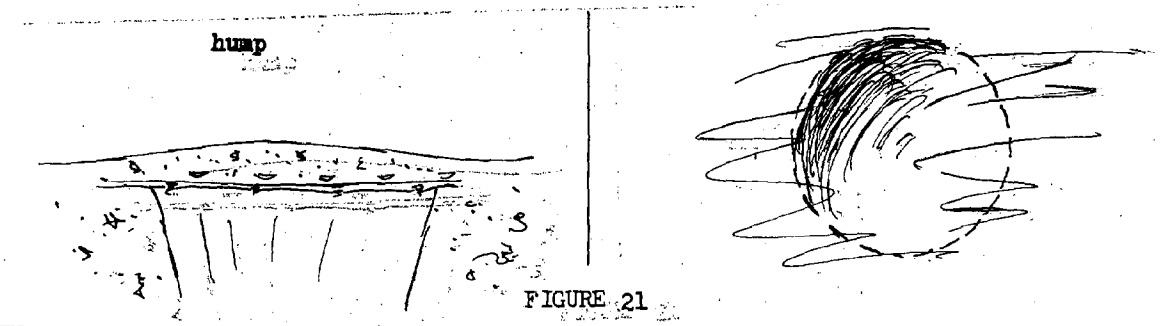


FIGURE 21

CHAPTER IV

CAVES, TUNNELS, FIGHTING HOLES & TRENCHES

401 The caves, tunnels, fighting holes and trenches dug by the VC vary in the method of construction. There are features that are the same in each. Examples of this are false walls and air ducts in caves and tunnels.

402 Caves and tunnels vary in size from small holes 2' x 2' at the mouth and 4' long to ones that are 6' x 6' at the open end and 400 meters long. They serve many purposes ranging from storage cells to hospital wards. It is necessary to hide or camouflage the entrances and breathing holes to avoid detection. This is done in some cases by making underwater entrances and having the breathing pipe come up under dense thickets of thorn or cactus bushes. Entrances have been found under piles of dung in stables, under false floors in houses, under piles of rice straw, in the bottoms of wells and in many other unlikely places.

403 The earth excavated from them is put into the fields or dumped in rivers and streams where its presence goes unnoticed. The earth is removed with small grubing hoes and other tools of local manufacture. The earth where the digging takes place is generally clay and free of rock formations so digging is easy. In sandy areas, shoring of bamboo poles and bamboo mats are used to brace the hole. Many times the VC have just dug a very long trench and then constructed a frame work of bamboo and covered it with bamboo matting. Then the excavated material is thrown or pulled on top of the frame work. This particular type is much easier to detect than one dug under the surface of the earth. The primary reasons this type has to be constructed are the water table and sand.

404 The local guerrillas depend on indigenous personnel to do much of his labor. The people of an area are often aware of the location of the hole and they may even take you to the entrance if their labor was involuntary.

405 Fighting holes and trenches are located along likely avenues of approach or in areas where PAVN units intend to make a stand. The fighting holes range from small individual holes to holes that provide protection for four or five men. This latter type

fighting hole adequately protects the occupant from air and artillery attack. After the various preparations are fired, the VC can climb to the top of the hole and run to a nearby trench. The trenches are put along hedgerows or treelines to disguise them. The trenches vary in length also. If they are to be used as an access or egress to an area, they may run for several thousand meters.

406 The clearing of tunnels and caves is accomplished in several ways. A .45 caliber pistol in the hands of a Marine will usually do the job. A flashlight and a rope are other useful items. The rope can be tied to the individual to pull him out if he gets stuck or falls in a trap. Prior to entering the cave, an interpreter should be used to urge any occupants from the cave. If it is known that people are in the cave, every possible means should be made to get them to come out. If they refuse, a token charge can be placed in the mouth of the cave to encourage those inside to come out.

407 In destroying caves and tunnels or when small charges are used as encouragement, one important thing should be remembered. The oxygen in the hole is partially used up by the explosion and a deadly gas is produced. A number of instances have arisen where individuals have succumbed as a result of entering the cave or tunnel too soon after an explosion.

408 The amount of explosives to be used in a cave or tunnel depends on the size, construction, and materials used in building it. The Engineer who destroys it relies heavily on his experience to estimate the charge needed. A new man gains experience from an experienced one in this way. An individual fighting hole may require 5 pounds of C-4, where the larger type may need 40-60 pounds of explosive to bring it down. Because of logistical aspects, C-4 is the type of explosive most often used. Cratering charges are better when large complexes are encountered and it is logistically feasible to use them.

409 In the following pages several different types of cave and tunnel networks are shown. These illustrations depict only a few of the many different types encountered.

TUNNEL COMPLEX

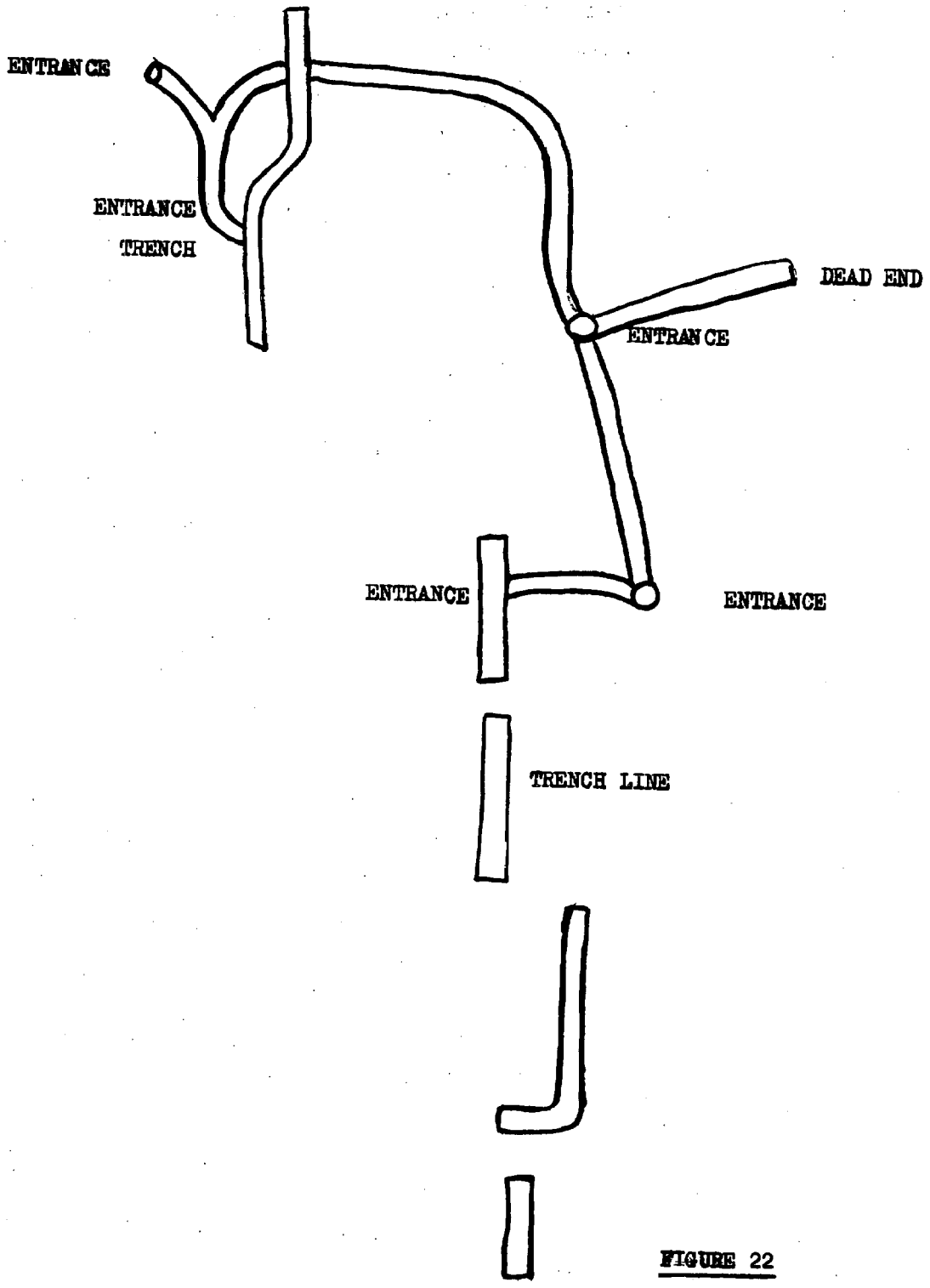


FIGURE 22

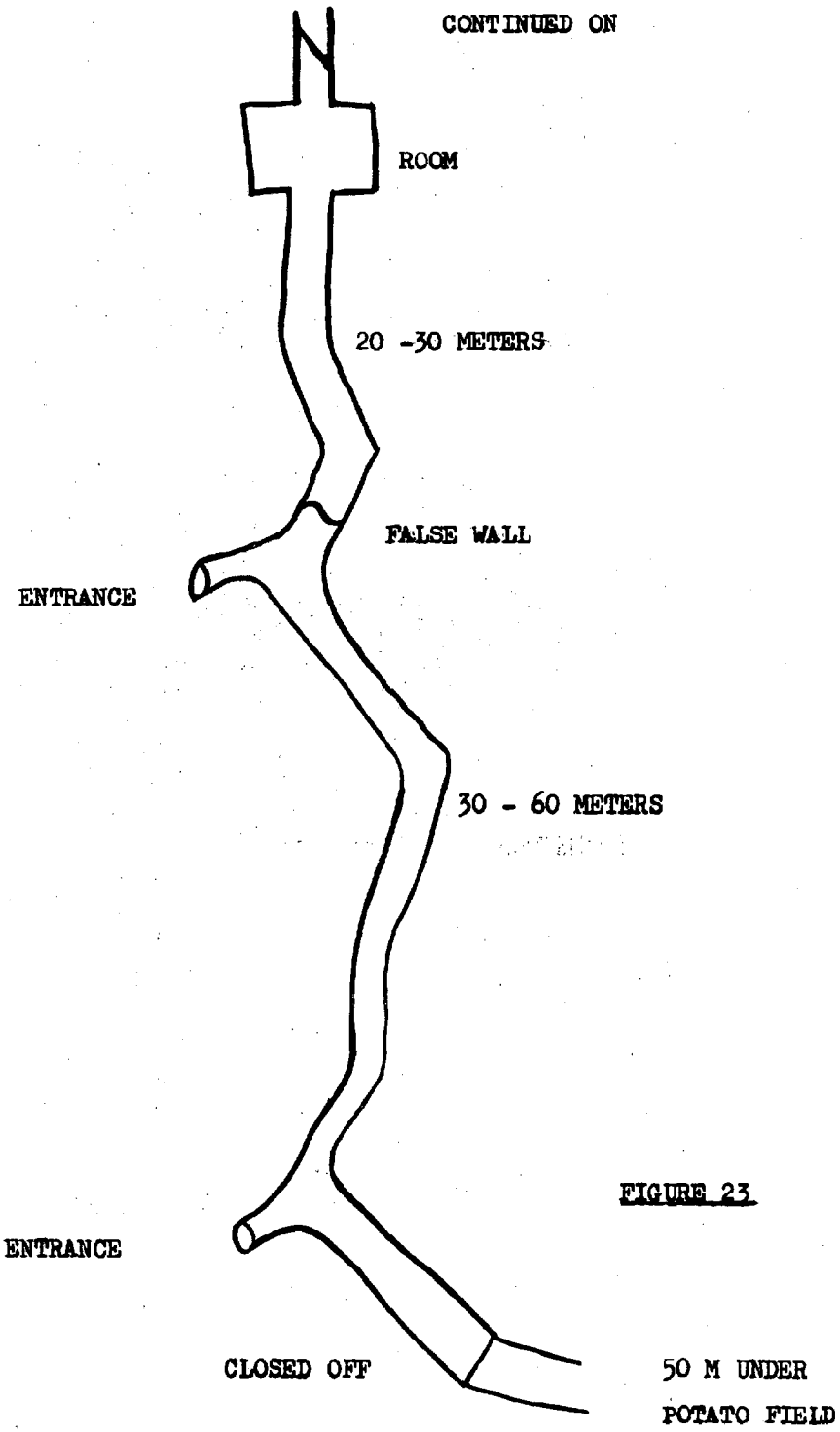

TUNNEL COMPLEX
CONTINUED ON
ROOM
20 -30 METERS
FALSE WALL
ENTRANCE
30 - 60 METERS
ENTRANCE
CLOSED OFF
50 M UNDER
POTATO FIELD

FIGURE 23

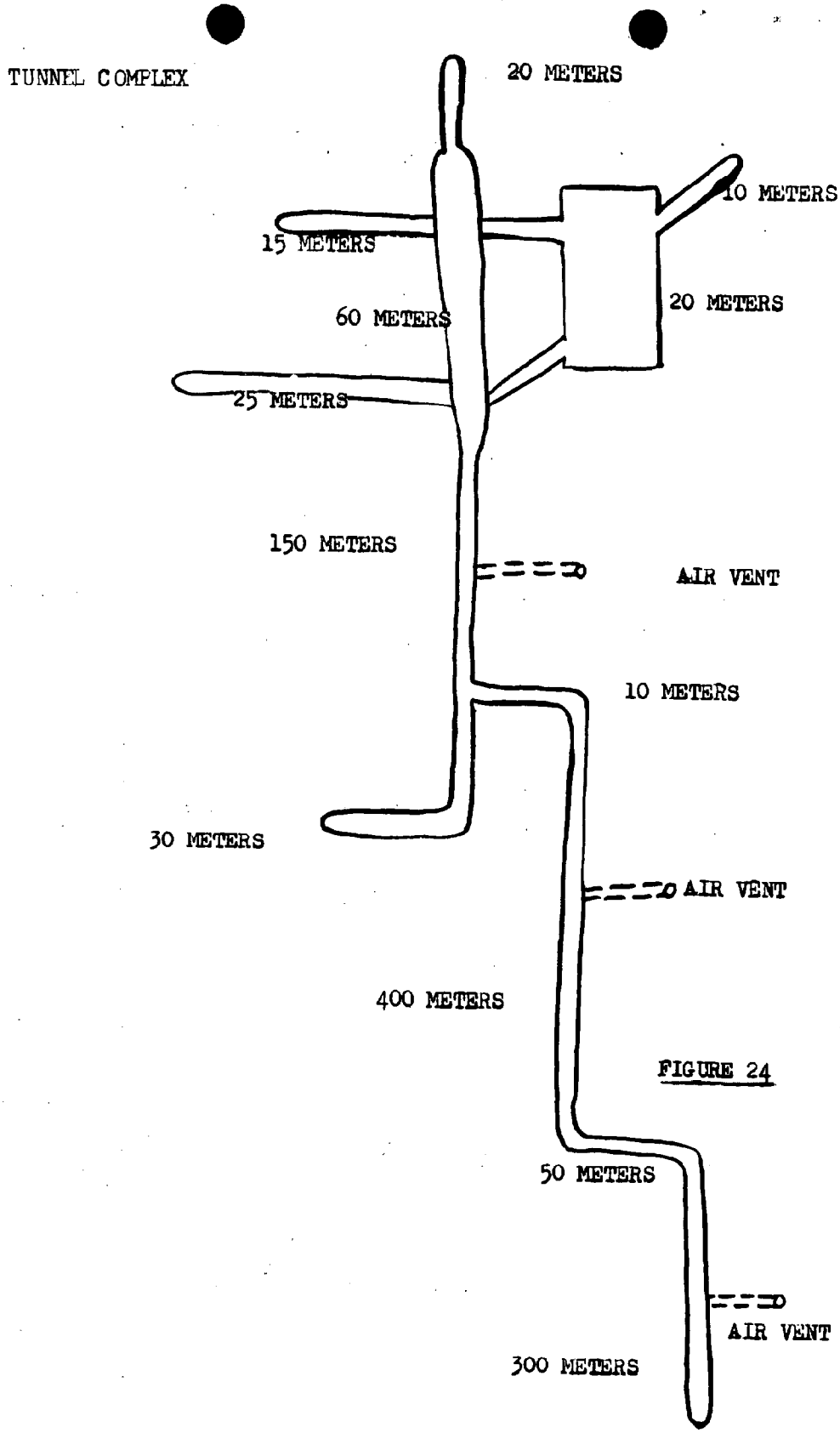

TUNNEL COMPLEX
20 METERS
10 METERS
15 METERS
20 METERS
60 METERS
25 METERS
150 METERS
AIR VENT
10 METERS
30 METERS
AIR VENT
400 METERS
50 METERS
AIR VENT
300 METERS

FIGURE 24

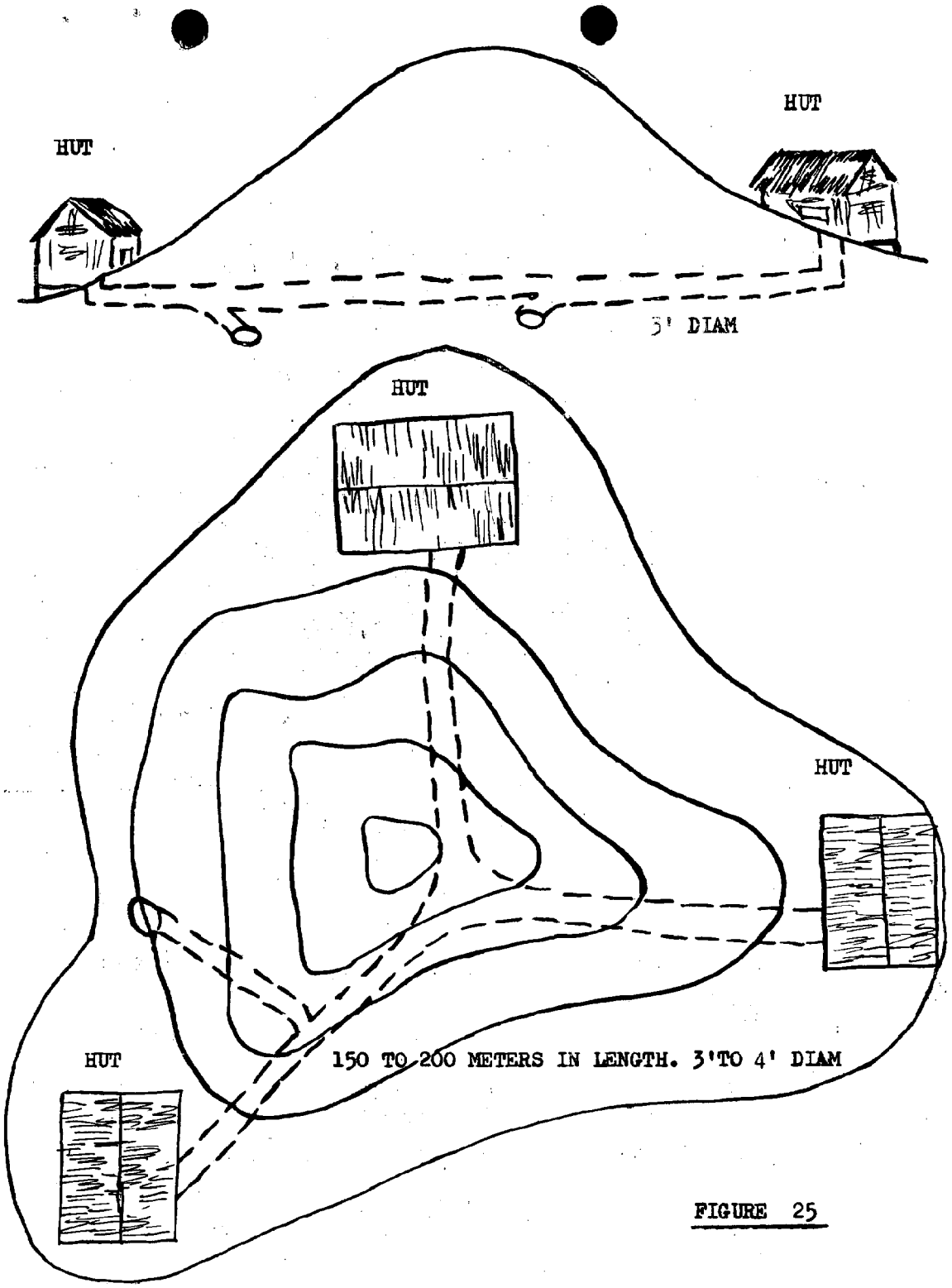


FIGURE 25

TYPICAL TUNNEL COMPLEX FOUND ON OPERATION "NEVADA".

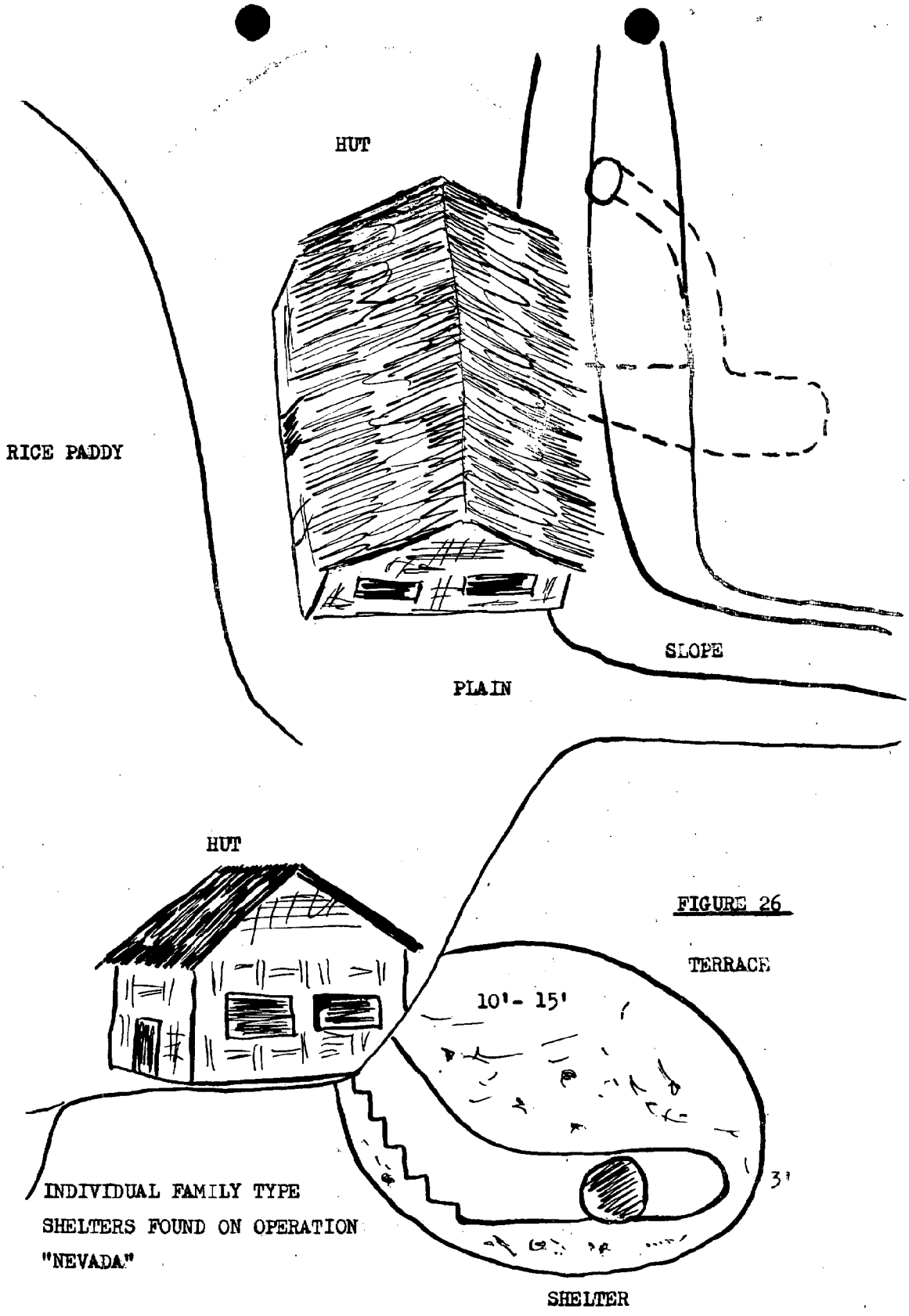


FIGURE 26

INDIVIDUAL FAMILY TYPE SHELTERS FOUND ON OPERATION "NEVADA"

CHAPTER V

ANTI-HELICOPTER LANDING STAKES

500 The anti-helicopter landing stake is usually a piece of bamboo that ranges from six to eight feet in length. Small palm trees of corresponding lengths have also been used for this purpose. The stakes are then placed in the ground with one sharpened end sticking straight up. The device is supposed to penitrate the fuselage or interfere with the blades of the helicopter if it were to land on them. It also denies our forces the use of a landing zone until the area is cleared.

501 The stakes are used to cover an open spot in the jungle or a specific area where helicopters might try to land. The stakes are spaced at 6 feet to 10 feet intervals at the butt throughout the LZ. The VC have used explosives in conjunction with the stakes. A trip wire, rope, or vine has been stretched between many of the stakes. A basket charge, a Z-10 anti-personnel mine, or some other charge will be attached and camouflaged to a few stakes. These are not readily identifable at first. Each stake has to be cleared separately because of pull type boobytraps placed under the butt of the stake. The stakes can be pulled out with a long rope or blown down with a small charge.

502 This particular device has not been a big problem. It occurs more as the exception than as the rule. Figure 27 illustrates a typical example.

ANTI-HELICOPTER LANDING STAKES

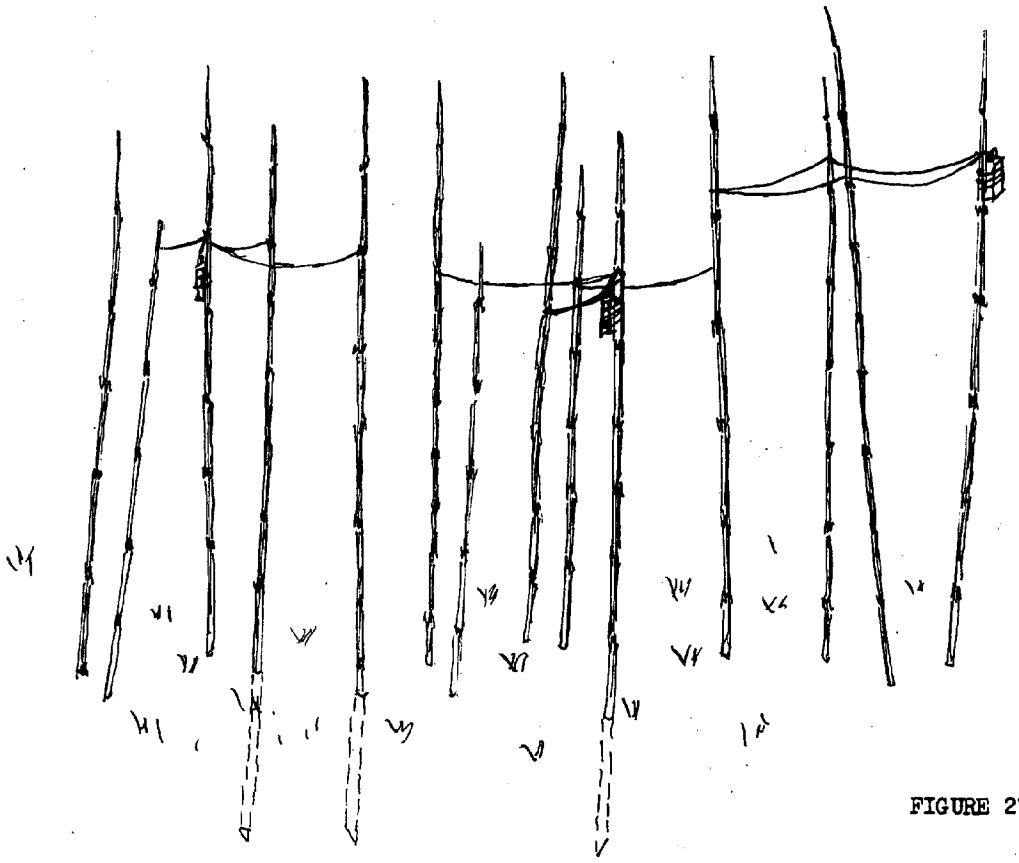


FIGURE 27

CHAPTER VI

EXAMPLES OF VIET CONG EXPLOSIVE DEVICES

600 There are many variations, types, and configurations that the VC use in constructing explosive devices. The VC have two basic components that appear in many of them. The fuze as it appears in figure 3 and the standard 1/2 lb. block of TNT as it appears in figure 28. The blocks are 1" x 2" x 4".

601 The blocks of TNT are wrapped in brown waxed paper. The charge has a fuze well on one end to accept the VC blasting cap. The block shown in figure 28 has had the fuze well enlarged so that a portion of the fuze will fit in the hole. The fuze and cap are tied to the block with string wire or bamboo strips.

602 The charges in figure 29 have two of the standard 1/2 lb. blocks in them. They are bound together by bamboo woven around them. The bamboo holds the fuze and detonator in the explosive. When the charge is prepared and used in this manner, camouflage is comparatively easy. The components constitute a prepared charge that is easy to pack and easy to install.

603 The charges in figure 30 are examples of where the VC have used our explosive and their own to produce a charge. The root beer can has the same pull friction fuze that is used by the VC in all charges. A piece of bamboo holds the fuze in the can and paraphin is used as waterproofing. A piece of cardboard was cut so that it was of a larger circumference than the open end of the root beer can. A hole was made in the center of the cardboard and the bamboo plug was forced through it. With all of these components installed a working combination was created. A standard VC cap as discussed on page 5 is installed and placed in the can. In this particular charge the VC used about 1/2 can of C-4 of U. S. manufacture and filled the rest of the can with granulated TNT. The small piece of bamboo on the side of the can is used to hook it on a belt or strap.

604 In figure 31 the charges were placed in containers made from sheet metal. Some of these have wooden tops but the majority have sheet metal covers with sheet metal extensions in the center to hold the standard VC fuze. The explosive in the containers varies with what the VC have to put in them. The explosives from bombs and rockets are often used but in most cases the VC use their explosive either in granulated form or in block form.

605 The 20mm shell shown in figure 32 has been filled with pieces of metal and an explosive. The primer in the shell is detonated when the fish-hook shaped piece of metal punctures it. The shell is placed in an area where Marines are likely to walk. The open end faces up so that when it is stepped on the shrapnel will inflict injuries on the person who walks on it. A small board is inserted in the ground so that the shell and fish hook will not give when pressure is applied to it.

606 Any of these charges may be primed with a detonator and fuze used to inflict casualities. Another purpose they serve is that of a booster for a larger charge. This charge may be manually controlled or pressure actuated. The larger charge many times consists of artillery rounds or aerial bombs boobytrapped in place or moved to bridges, culverts, or ambush sites. They are also emplaced in roads as anti-vehicular mines. In the case of a large bomb this is not feasible in most cases.

607 The priming of the booster where it is a controlled mine can be either electric or man-electric. A long section of wire or rope can be used to pull the standard friction fuze. The VC use our communication wire and other insulated wire obtainable in this area to electrically detonate the booster. This may be devised so that pressure is applied to a devise to close a circuit or a person can do the same thing from a safe distance. Any of these actions will cause the ordinance to explode.

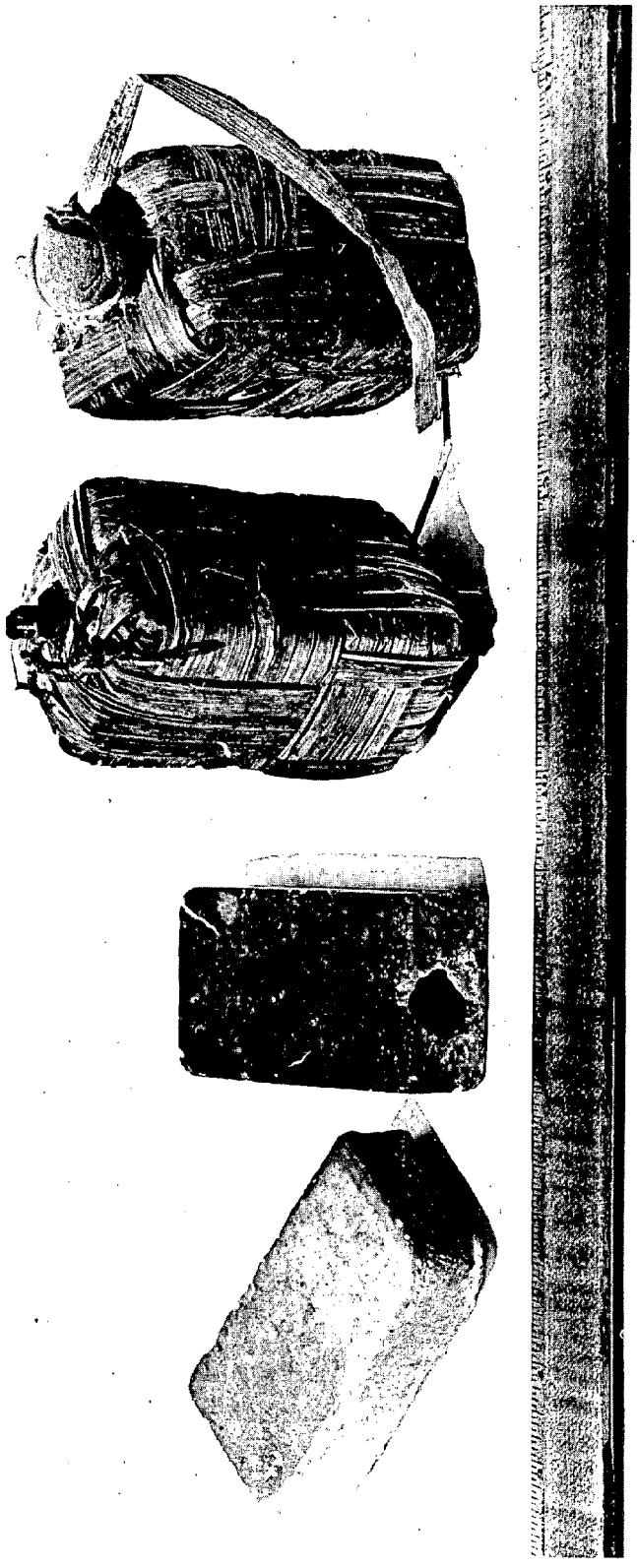


Figure 28
V.C. TNT WRAPPED IN BAMBOO

Figure 29
V.C. TNT

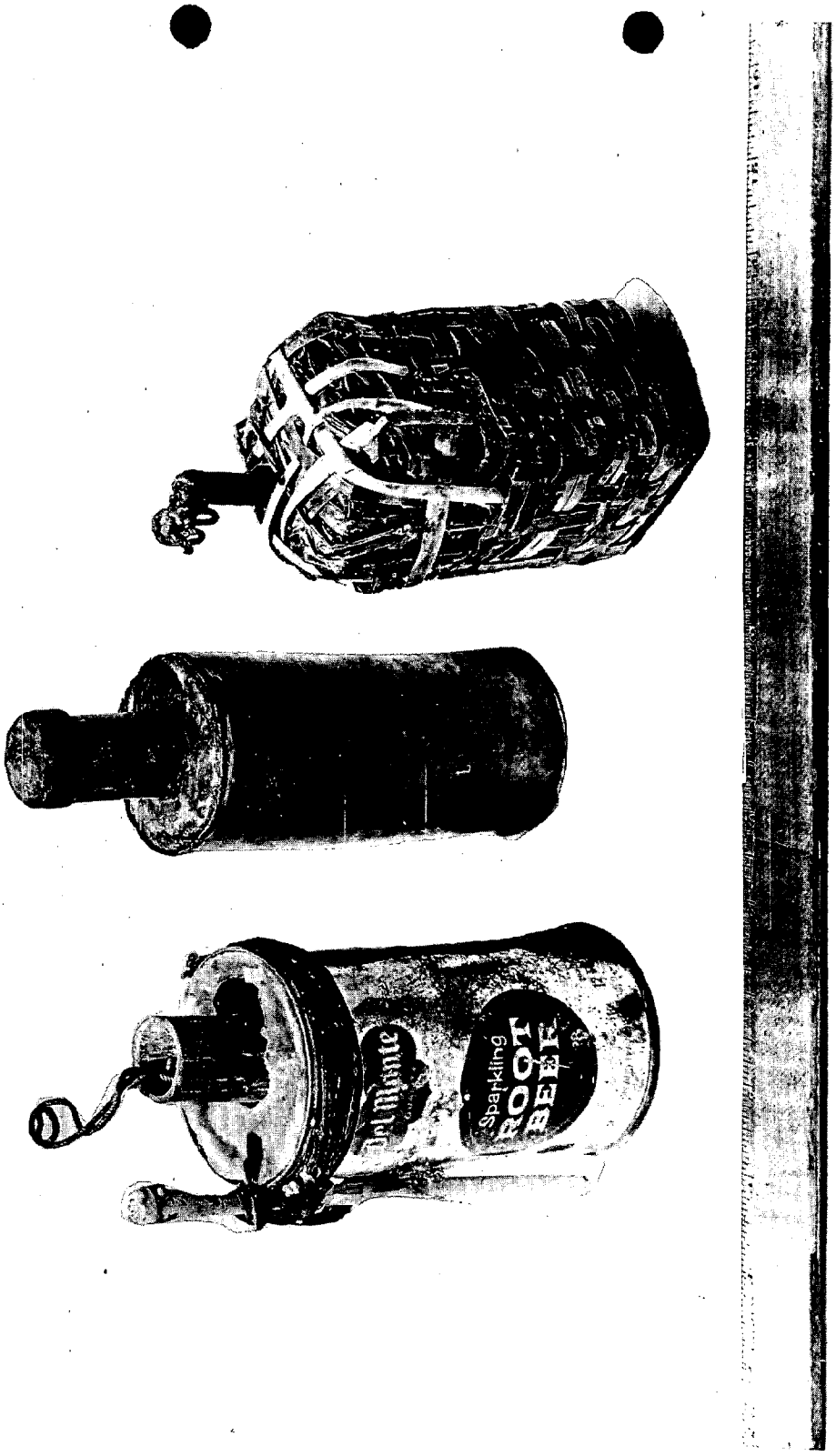


Figure 30

EXAMPLES OF V.C. IMPROVISED CHARGES

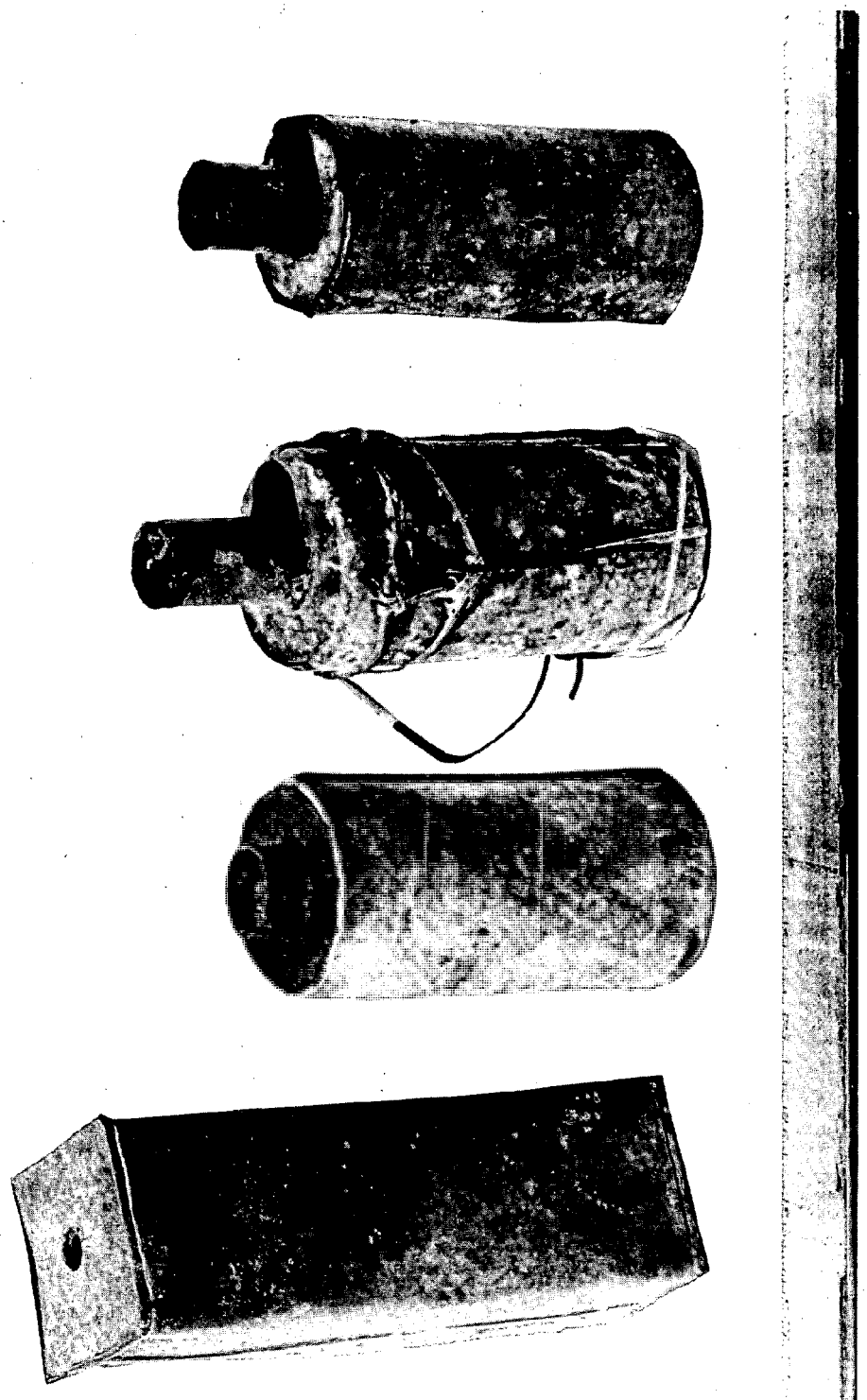


Figure 31

EXAMPLES OF V.C. IMPROVISED CHARGES

Figure 32

BOOBYTRAPPED 20MM SHELL

CHAPTER VII

V. C. GRENADES

700 There are several types of hand grenades used by the Viet Cong. Four of these different types are shown on the following pages.

701 The V. C. grenade is a fragmentation grenade. It has five basic components as pictured in figure 33. There is usually a wooden handle that is hollowed out to accept the fuze and also allow the pull rope to pass through it. The action of the fuze is the same as the fuze on page 4, used in the Z-10, but the fuze in the grenade is larger. The match compound is used to ignite a section of either time fuze or safety fuze. If you will notice in figure 33, a piece of safety fuze is shown coming from the fuze, but a piece of time fuze is crimped in the cap. This shows components from two different grenades. The fuze serves as the delay for the grenade. The delay is thought to be about 4-7 seconds.

702 The grenade is employed by pulling off or screwing off the cap covering the hole in the wooden plug handle. The pull rope is coiled inside and sealed from the fuze, detonator and time fuze by beeswax or paraphin. The person using the grenade pulls the pull rope and grasps the long wooden plug handle. The grenade is then thrown using the wooden handle. Unless there is absolutly no recourse, it is best not to use VC grenades. They could be rigged as boobytraps. this could be done by eliminating the time fuze which would cause the grenade to function simultaneously.

703 The grenades in figure 35 and 36 numbers 1, 3 and 4 are often found in large numbers when V. C. stores or caches are uncovered. The grenade in figures 35 and 36, number 2, is seldom found in this area. The grenade in figure 35 and 36, number 3 is often carried in a pouch made from bamboo. They are usually carried in pairs and fitted to a belt or carrying strap.

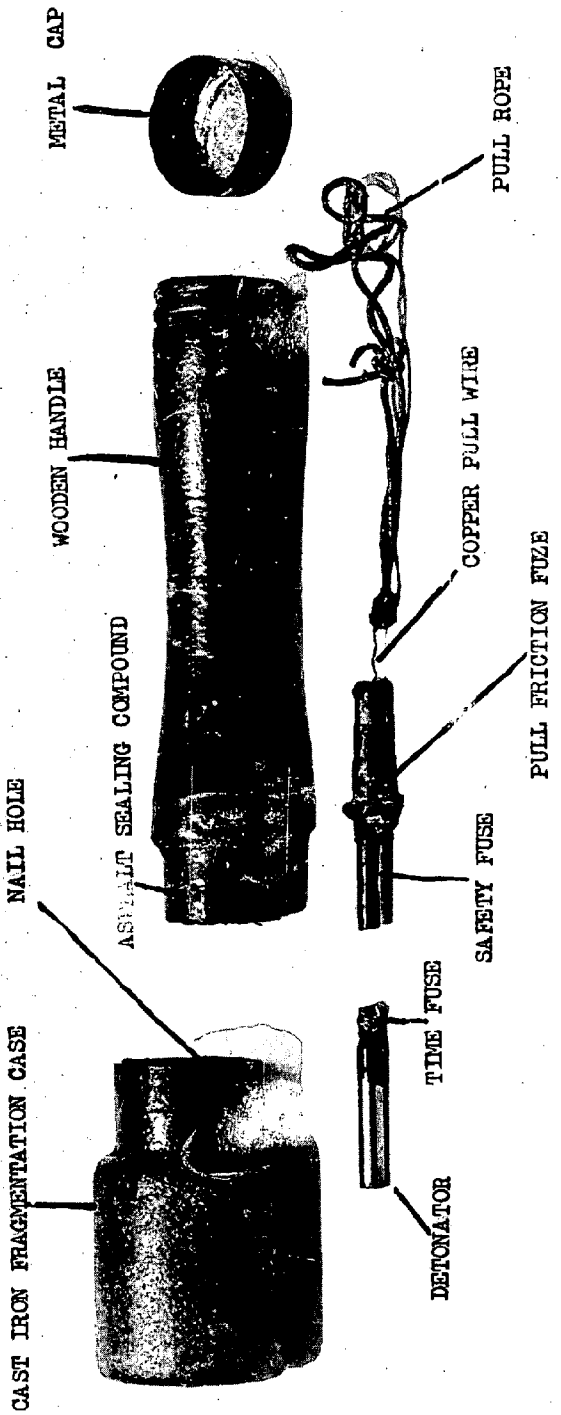


FIGURE 33

V. C. GRENADE (WITH COMPONENTS)

FIGURE 34

V. C. GRENADE

FIGURE 36

V. C. GRENADES

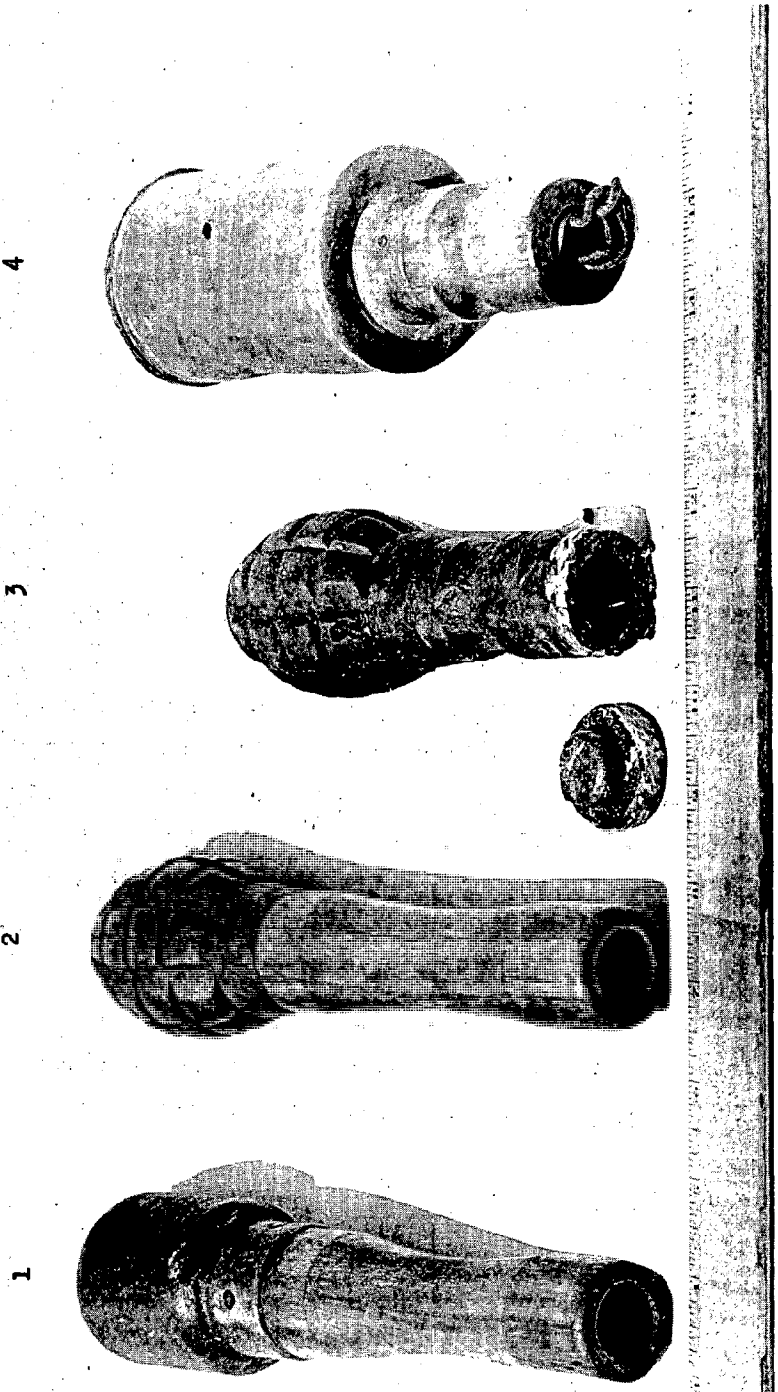


FIGURE 35
V. C. GRENADES

CHAPTER VIII

BOOBYTRAPS UTILIZING M-26 AND MK2 GRENADES

800 The Viet Cong use U.S. manufactured grenades for boobytraps. They have devised numerous methods of employment. The most common method used by the V.C. are ones where the M-26 and MK2 fragmentation grenades are used in conjunction with a trip device. The trip device may consist of any number of things to include monofilament line, string, wire, vines, banboo strips and rope.

801 One method of employing either grenade as a boobytrap is to use it with a can. The can must be large enough to accept the hand grenade but small enough to retain the safety lever on the grenade. After the grenade has been placed in the can a trip device is attached to the grenade fuze so that the safety lever will function when the grenade is pulled from the can. The last step in preparing the boobytrap is to remove the safety pin from the grenade.

802 The hand grenade in figure 39 has been placed in the fork of a tree. A length of monofilament line is attached to the pull ring. The safety pin has been pinched so that it can be pulled from the retaining hole with ease. It should be noted that the position of the safety pin is exaggerated and that the position of the grenade in the tree fork would reduce the casuality producing potential of the boobytrap.

803 Grenades can be used as boobytraps by removing the delay element in the grenade. A note of caution is necessary in view of this V.C. capability. Grenades that are discovered in the field, along roads, or in positions vacated by V.C. forces should not be used until they are inspected.

FIGURE 39

M-26 WITH TRIP LINE

FIGURE 38

M-26 IN C-RATION CAN

DECLASSIFIED

FIGURE 37

M-26 IM C-RATION CAN

CHAPTER IX
ANTI-VEHICULAR MINES

900 There are two general types of anti-vehicular mines used by the Viet Cong. One of the two types is a manufactured mine. The other type is a mixture of components and can be called an improvised mine.

901 The mine in figure 40 is a cast iron mine shaped like a football. It is usually employed as a controlled mine, but it can be used with either a pressure board, figures 41, 42 and 43; or a pull friction fuze, figure 40. If it is used with the pull friction fuze, a VC would have to attach a rope or wire to the pull cord and then activate the mine from a safe distance when a vehicle passes over the mine. The VC would then quickly pull the wire or rope into a hiding place during the confusion. He could do this from a hiding place and never be discovered. If the mine were used as an electrically controlled mine, the VC would have an electrical power source. When a vehicle passed over the mine he would close the circuit which would activate the mine. If the VC employing the mine used a pressure board, he could leave the area, but he would have no choice in what he blew up.

902 The manufactured mine in figure 40 weighs about 11½ pounds. It has a filler of either granulated TNT or melonite as a high explosive. In each end of the mine there are holes which can be used to either fuze the mine or to fill it with an explosive. The holes are plugged with a threaded cap. On one side of the mine there is another hole which is used to fuze the mine. It also has a threaded cap to plug it.

903 The other anti-vehicular mines vary with the explosives and other materials available. One of the types found by the VC uses a 105mm, 155mm or 8" artillery dud or a mortor dud as the main charge. A booster is attached to the main charge to explode it. The components are placed in a culvert, under a bridge, or placed in the road where they are employed. One of these arrangements is shown in figure 42.

904 Typical pressure type firing devices used by the VC are shown in figures 41, 43 and 44. In figure 41, a bamboo section has been split in half and fitted to a board. Contacts are fixed to the bamboo and the board so that the weight of a vehicle will crush the bamboo, which closes the contacts, activating the charge. An electrical cap is wired into the electrical circuit and when it detonates, the booster explodes which sets off the main charge. The power source consists of some type of battery. The batteries vary from used radio batteries to flashlight batteries.

905 Another firing device used by the VC utilizes two boards with contacts running back and forth across the boards. In figure 43, the device has two holes in the top board and two rounded pegs of wood fixed to the bottom board in such a way as to allow the boards to come together under pressure. The rounded pegs are larger than the holes. When the device is used it has to be put on top of the road. If sand or dirt gets between the two boards, they cannot close. Old rags, bamboo mats, burlap bags and filth have been used to camouflage the device. The device in figure 44 is employed in the same way. The only real difference is that two pieces of wood hold the boards apart. The pressure of the vehicle passing over the boards bends the top piece down to meet the bottom one. This brings the contacts on each board together.

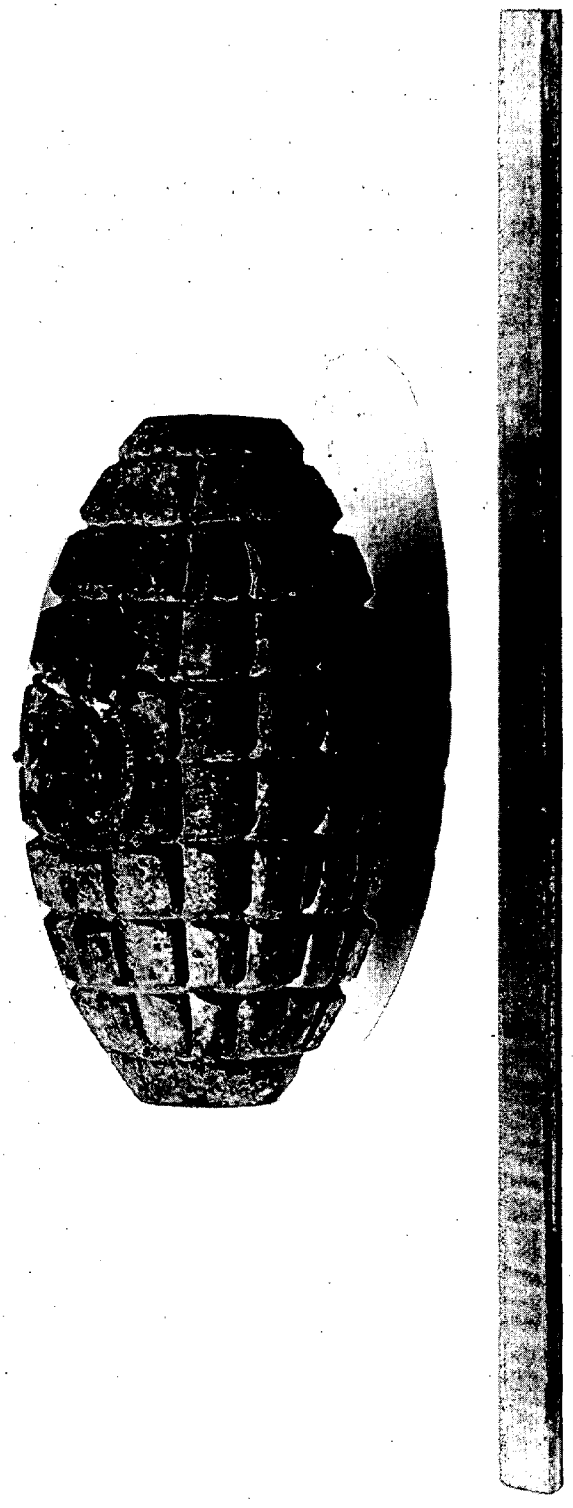


FIGURE 40

V.C. ANTI-VEHICULAR MINE

PRESSURE FIRING DEVICE

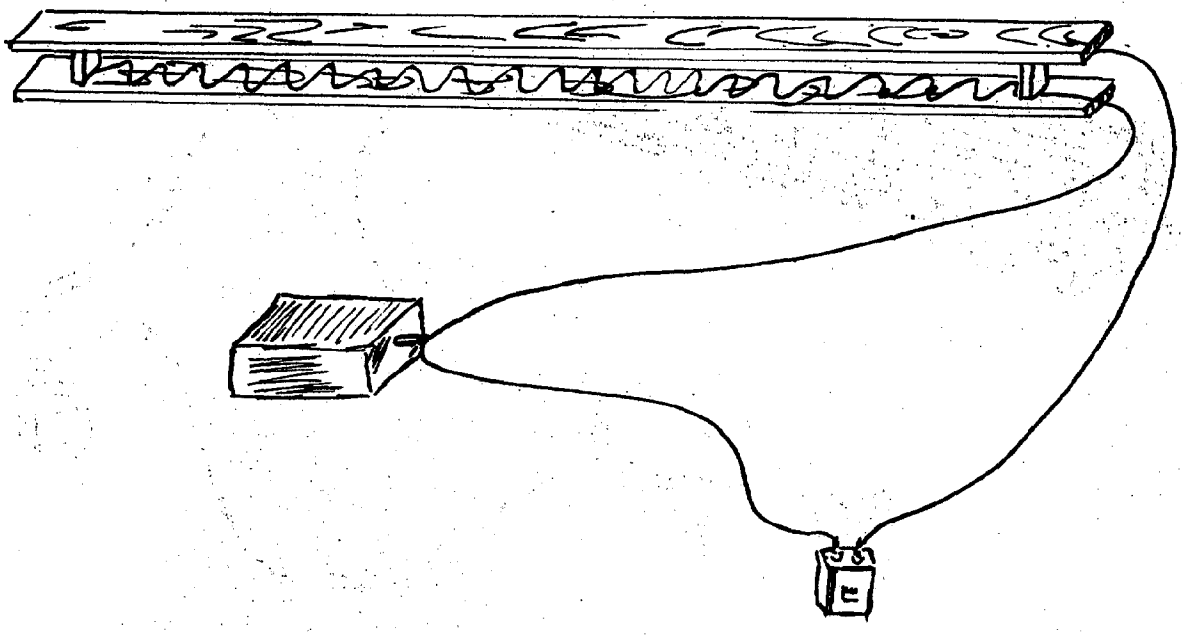


Figure 44

PRESSURE FIRING DEVICE

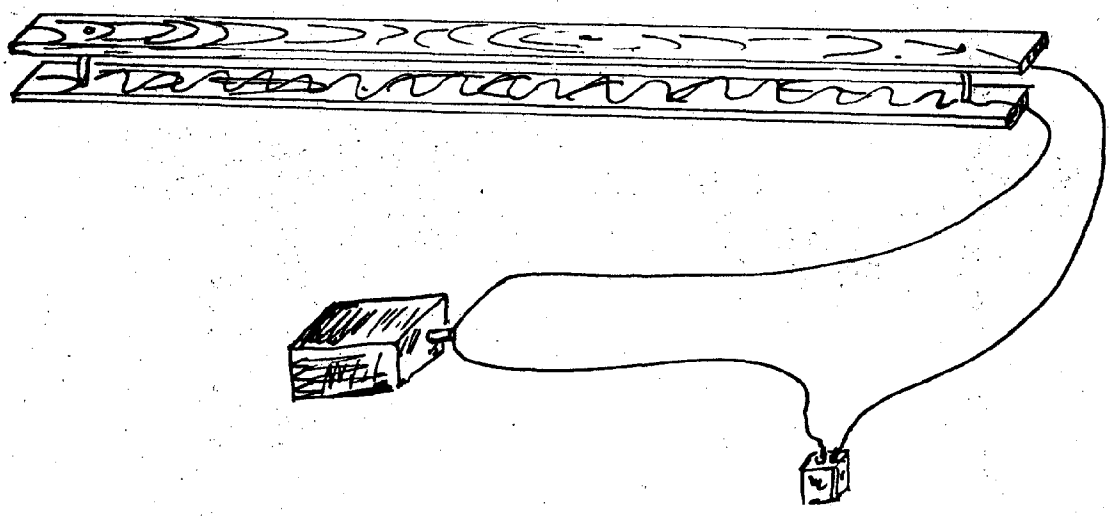


Figure 43

BAMBOO PRESSURE FIRING DEVICE

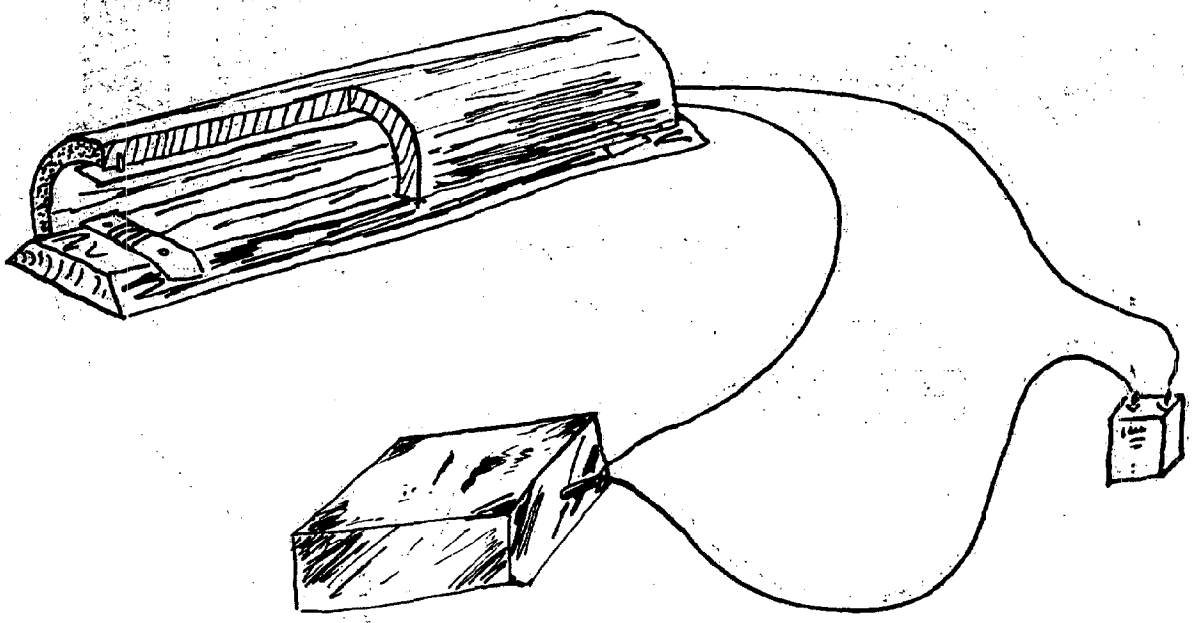


Figure 41

ANTI-VEHICULAR MINE

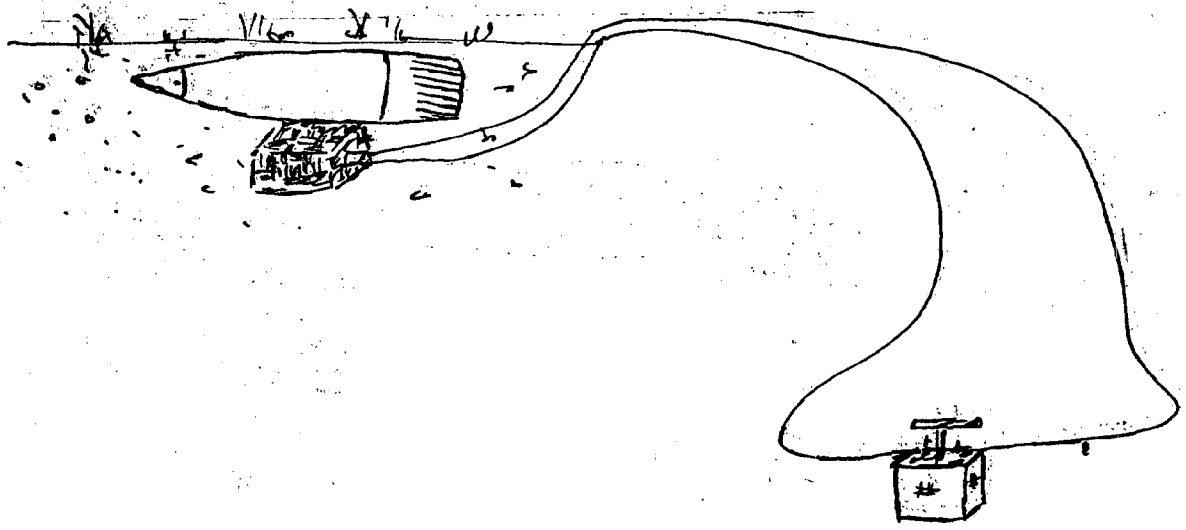


Figure 42

CHAPTER X
CONCLUSIONS

1000 The Viet Cong have used many boobytraps, mines, and other devices against Marines in the past, they are using them at the present time, and they will continue to employ them in the future.

1001 It is difficult to put forth factual material in certain areas because so many devices are used once or the components are lost. There are devices that are reoccuring and these are dealt with in the preceeding pages.

1002 It can be assumed that the VC teach lessons on standard items. Examples of standard items are the Z-10 and its fuze as discussed in Chapter One, and the blocks of TNT discussed in Chapter Six. It is evident that the VC teach many lessons on the use of U. S. mines, demolitions and munitions. These lessons stress improvision.

1003 One problem encountered by the VC is a universal one where mines and boobytraps are concerned. This problem is one involving markers. The VC have to mark their devices to protect themselves from them. This doesn't mean that all devices are marked to indicate that an area is boobytrapped, and it doesn't mean that you are going to be able to identify the marker. There are many types of markers and only a few are used with mines and boobytraps. A good example of what all markers have in common is that whatever they are or whereever they are, they shouldn't be. A regular pattern of bamboo, a sequence of pieces of cloth, or rocks and bamboo together along a trail are examples of this. A broken piece of bamboo that has been turned to point in a certain direction is another example. After passing a few gates and walking along a few trails, experience will help you see things that should not appear in the area ahead. If a gate you come to is open, there is no reason to bother with it. The path and area on each side of the gate can be concentrated on. If the next gate is closed, a good assumption will be that it is boobytrapped. A long rope can be used to pull it open or to jerk it down. The VC have come to realize that they can expect this so they will put a trip wire attached to a mine down the trail a few feet. This is meant to catch a Marine off

guard. The VC have other problems that evolve from their boobytraps. The indigenous personnel who live in an area are the supply source for many VC. If the VC are to continue using the people, they cannot afford to kill them or their animals with VC instituted devices. The people are told where things are located and where they can travel safely. If people are seen using only one side of a road or avoiding particular sections of the road, this is a good indication that there is something dangerous in the places they avoid.

1004 The use of boobytraps by the VC is probably emphasized too much in one sense. Marines under instruction feel they will almost certainly encounter a trap or mine. This is not the case, as very few actually come in contact with them. In another sense, it is impossible to over emphasize the use of boobytraps and mines because of the manner in which they are employed. No one, regardless of MOS or tactical situation, can feel absolutely safe. A mine can be in the road you travel everyday. A boobytrap can be placed along the trail to the beach. The figures on the following pages are examples of items and places that boobytraps and mines are frequently found.

FIGURE 45
HOLE IN A HEDGEROW

FIGURE 46

PATH IN THE JUNGLE

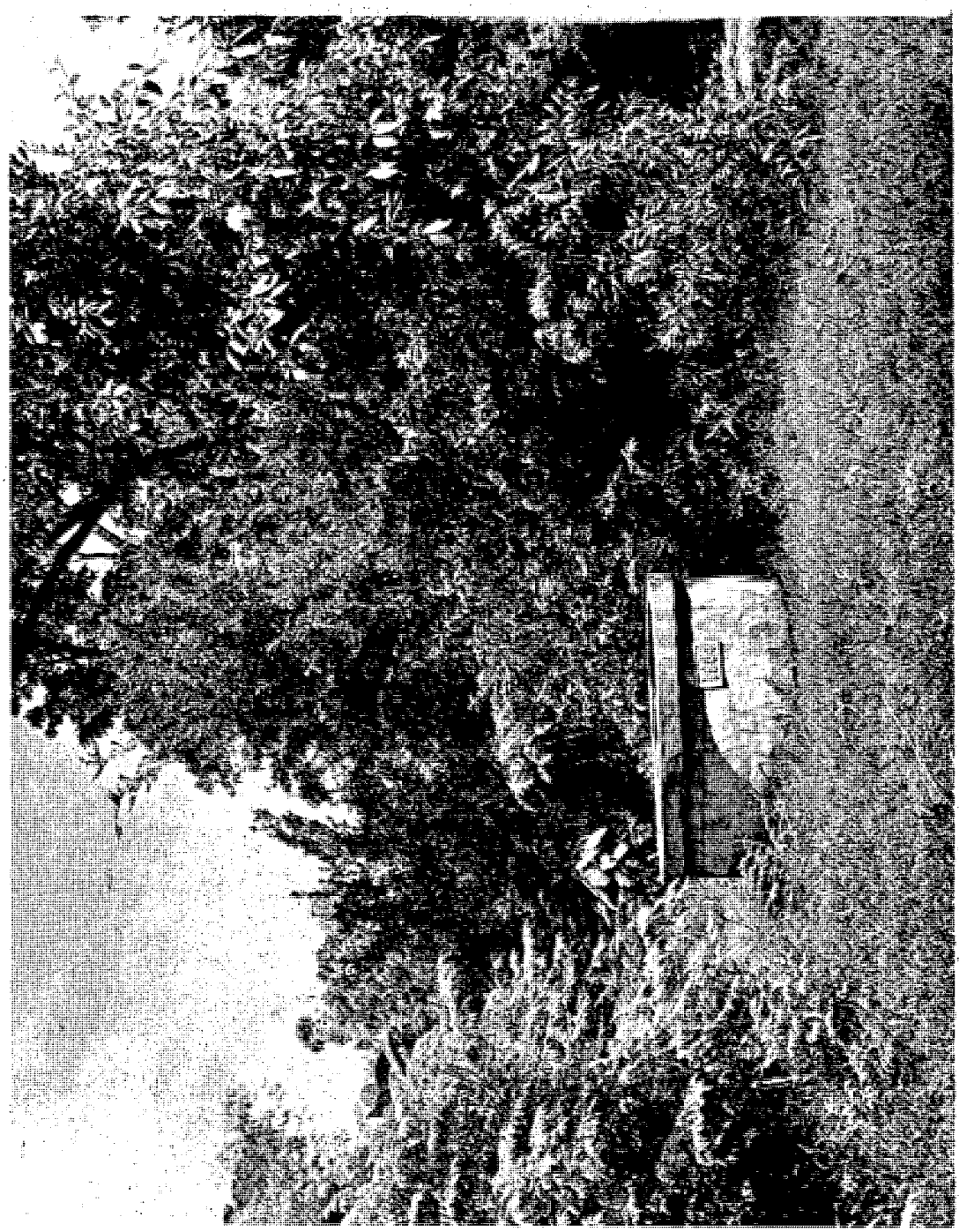


FIGURE 47
A WELL

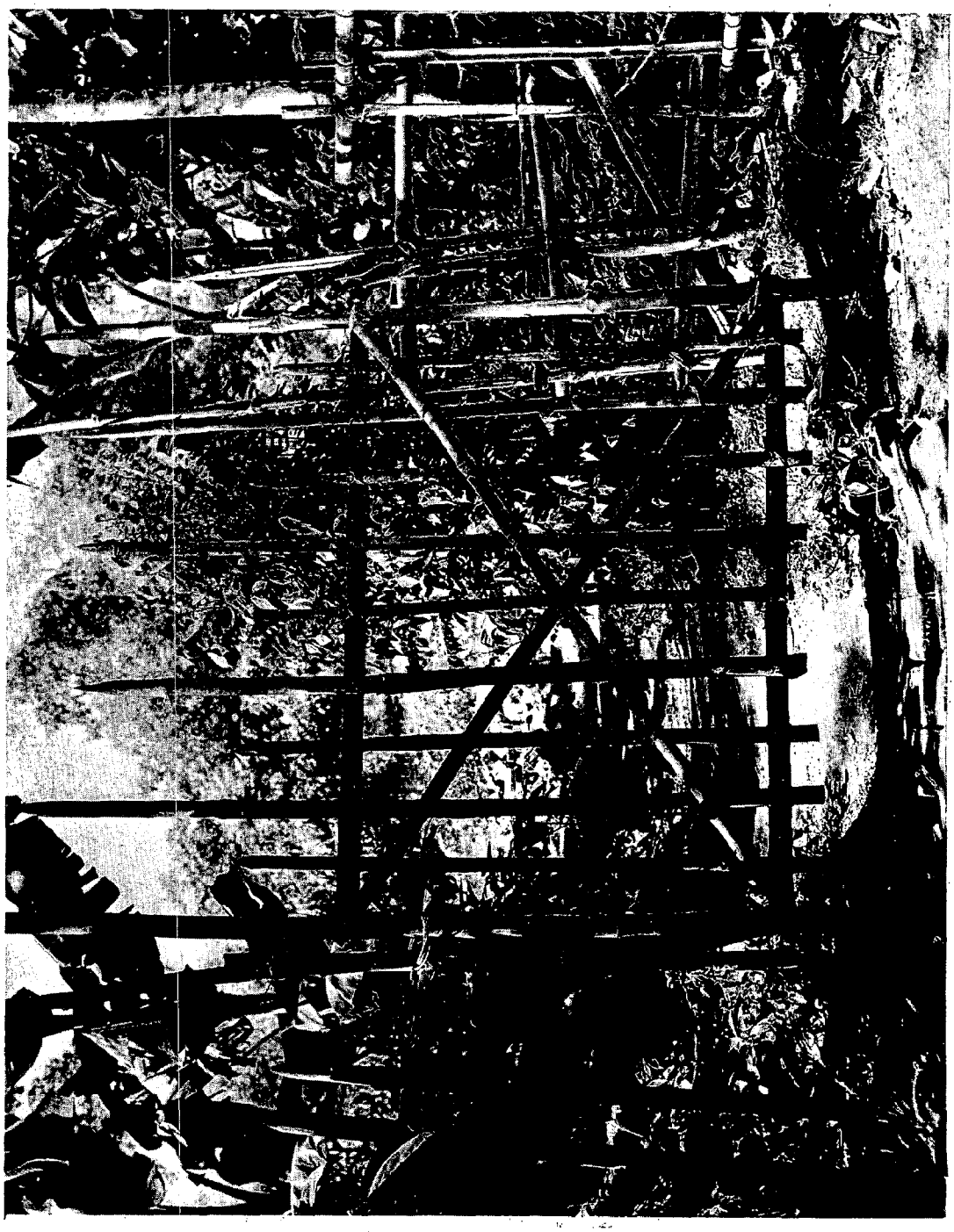


FIGURE 48 VILLAGE GATE

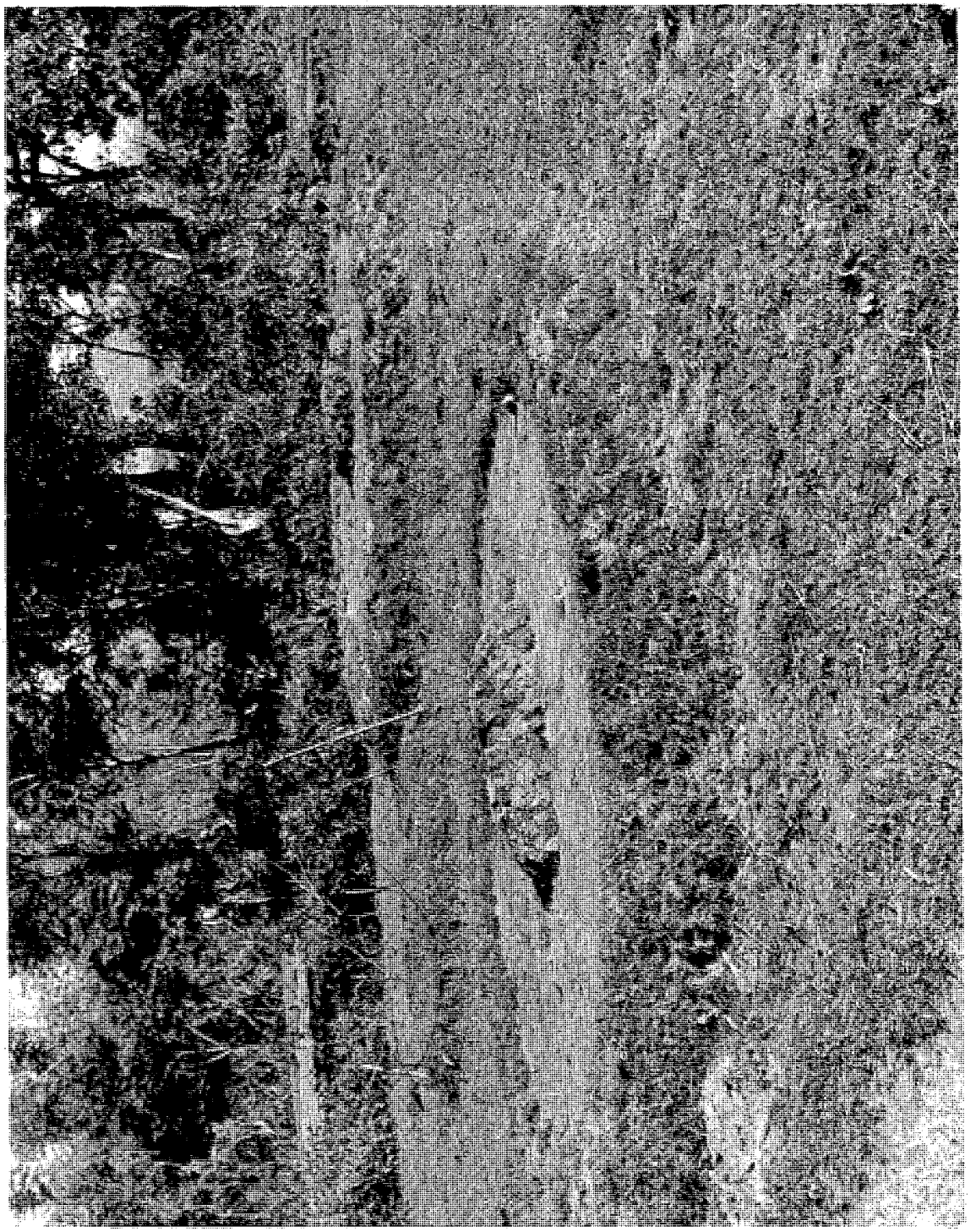


FIGURE 50

BURIAL GROUND

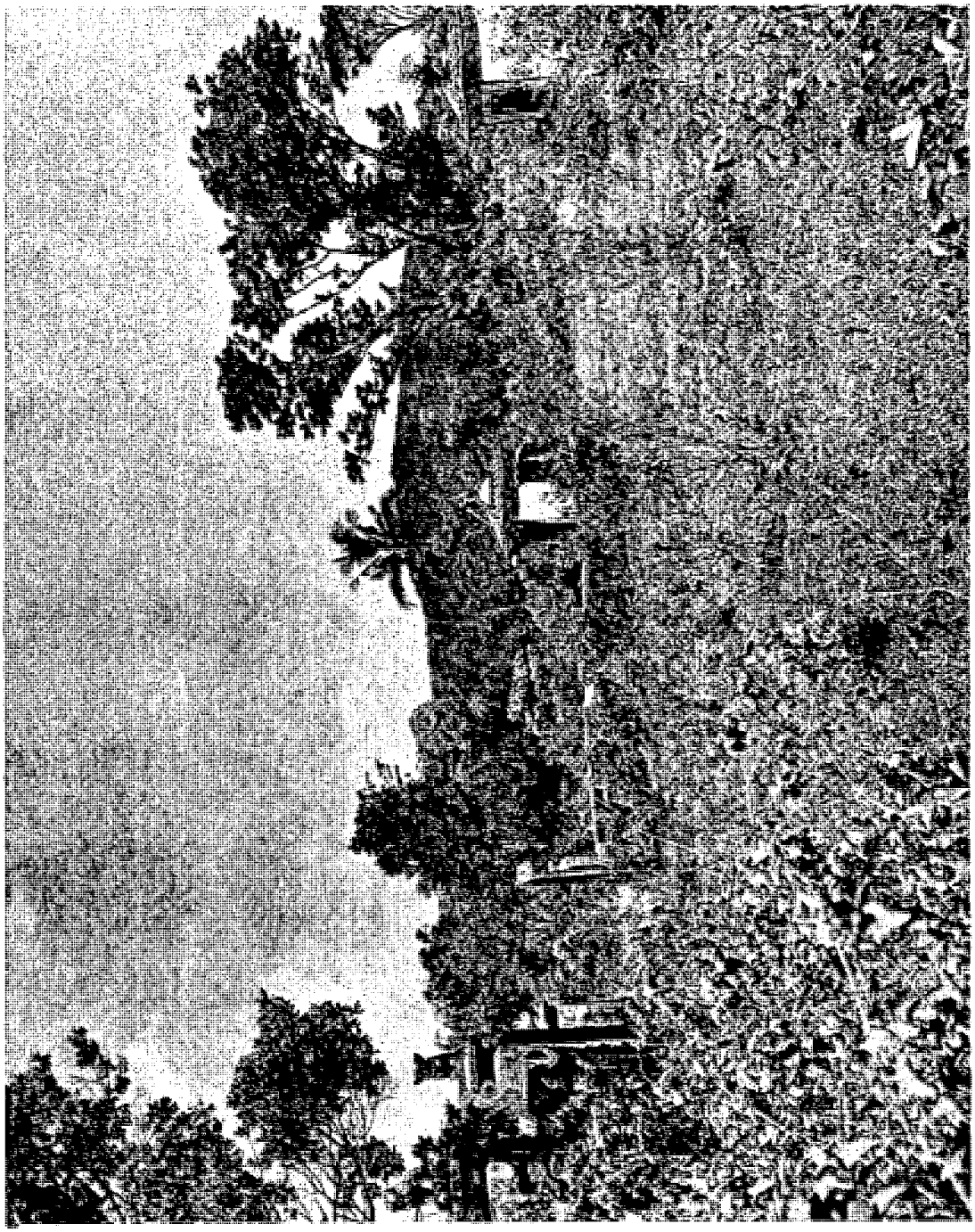


FIGURE 49

SHRINE

FIGURE 52
MORTAR DUD

FIGURE 51

ARTILLERY DUD

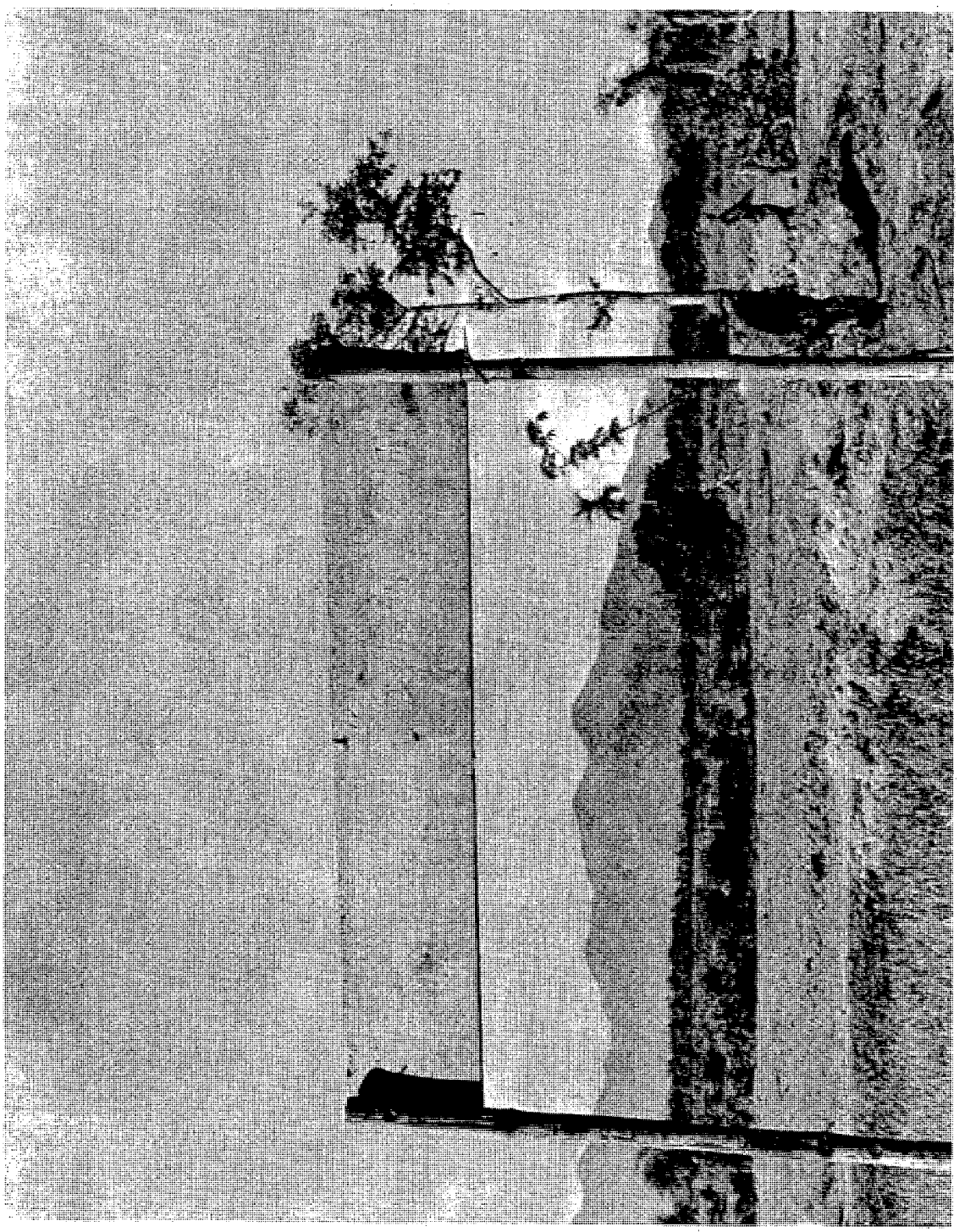


FIGURE 53
SIGN

FIGURE 54
TUNNEL ENTRANCE