

1 ATF SVN



MINEWARFARE BOOKLET

REVISED JUNE 71

(I)

FOREWORD

1. Mines and booby traps have been responsible for many casualties both in-theatre and in 1 ATF.
2. No effective countermine and booby trap programme can exist without an understanding of enemy techniques and the counter-measures to defeat them.
3. While additional in-theatre mine warfare training is given to many units it is believed that this booklet will assist both as a refresher to those units and as a reference to other units and individuals.
4. This booklet consolidates the more important aspects of the enemys' use of mines in 1 ATF TAOR together with the countermeasures that can be taken against these mines.

This booklet was: Directed by: COMD 1 ATF.

Prepared by: THE SAPPERS OF 1 FD SQN GP RAE.

Produced for: YOU.

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A GUIDE TO MINES AND BOOBY TRAPS

SECTION 1 - THE ENEMY

Introduction

1. Mines and booby traps are a traditional facet of war and are perhaps the most feared of weapons. In Vietnam the VC and NVA are well aware of this and use these weapons as a major section of their armoury. The important factor is that they rarely lay conventional minefields but concentrate on the widespread and skillful use of nuisance mines. Australian troops must be prepared for and able to counter these guerrilla tactics.

The Enemy's Doctrine

2. As far as the enemy is concerned the conventional principle of fenced and marked minefields is not valid. He will seldom use a fence to indicate an area he has mined or booby trapped.

3. This does not mean that he is unaware of the value of mining. On the contrary his use of Anti-Personnel and Anti-Vehicle mining is extremely professional and calculated to create casualties, fear and slow down our operational movement without exposing himself to contact with friendly troops.

4. The enemy will use mines and booby traps intelligently and frequently to protect his camp sites, base areas and caches. In addition he will place these in and around areas in which Australian troops are likely to move and to work.

5. Experience has shown that most mines laid by the enemy in Phuoc Tuy Province have been laid by village guerrillas and District Companies, having usually been trained by main force units. It is important to note that although the enemy does not believe in fenced minefields he will almost always mark his mines in some way. The most common methods encountered in Phuoc Tuy Province are shown in Annex A.

6. The enemy is well trained in the laying and concealment of mines and booby traps and uses the basic doctrine:

"EACH GROUP MUST BE COMPOSED OF TWO OR MORE MINES"
(Extract from captured mine training pamphlet)

7. Therefore where one mine is found, there are usually more nearby. This is of critical importance to Australian troops and to the tactics we employ when a mine incident occurs.

8. The enemy is adept at using mines as a "terrorist" weapon. Past operations in Phuoc Tuy Province have shown that the enemy will place mines inside actually occupied local villages. This has occurred in Dat Do, Phuoc Loi and Lo Gom in each of which Australian casualties were suffered, although the villagers were still present. The enemy's training pamphlet stresses the need for villagers to know the location of the mines he sets. Australian troops cannot count on the villagers to inform us of their presence. Inside the village the enemy will not lay mines indiscriminately.

9. The enemy prepares and maintains mine maps in order to avoid accidental casualties to himself. These mine maps are high priority documents if captured and must IMMEDIATELY be passed to responsible authority. Good information on enemy mines can also be gained from HOI CHANH, the local population and PSY OPS and Civil Affairs teams. This information should be treated with caution and confirmation should be sought wherever possible.

10. Enemy doctrine does not appear to call for the covering of his mines by fire or to use his mines to initiate a fire fight or ambush. Therefore, it can be expected that the enemy will rarely engage Australian troops in a mine incident.

11. Although not an enemy tactic, attention must be drawn to the fact that local ARVN, RF and PF posts are almost always surrounded by mines and booby traps. Unfortunately, the language barrier makes these posts a definite mine and booby trap hazard to Australian troops. The areas surrounding these posts must be considered suspect. Do not disturb barbed wire or move off obvious tracks in the close vicinity of any of these posts. When operating near, or entering any Vietnamese installation, it is essential for Australian elements to carry out a detailed recce and establish firm liaison with the local Vietnamese commander. This will be a positive step in reducing the risks which exist in close proximity to any Vietnamese defensive post.

Enemy Mine Expedients

12. Finally, in dealing with enemy mine doctrine it is essential to remember that the enemy is ingenious and versatile in the use of almost any captured or recovered Allied mines or explosive devices. He is also capable of local manufacture of expedient mines and booby traps. All he needs is basic materials and any type of available explosive and he will produce weapons which will be able to kill effectively. Examples of the expedients commonly encountered in Phuoc Tuy Province are:

- a. Use of unexploded US Cluster Bomblets as Anti-Personnel and Anti-Vehicle mines.
- b. Use of slabs of melted down TNT in conjunction with torch batteries and bamboo detonation switches to form an extremely effective Anti Armour Mine.
- c. Use of Allied grenades to form the basis of booby traps designed around trip wires.
- d. Use of Chicom RPGs as Anti-Vehicular mines.
- e. Use of recovered small arms ammunition to produce "foot breaker" mines.
- f. Use of "blind" Allied artillery rounds as Anti-Vehicular mines.
- g. Turning around of Claymore mines in darkness around defensive perimeters to cause "self inflicted" casualties to allied troops.

13. All of these expedient mines and booby traps are well conceived and require properly trained Mini or Splinter teams to neutralise or destroy them. Non expert troops must NOT attempt to neutralise mines and booby traps.

Enemy Anti-Personnel Mine Sites

14. The enemy studies Australian troop habits in order to determine sites for mines and booby traps. He will carefully site mines where they will cause maximum casualties to the unwary. Typical sites for anti-personnel mines are:

- a. Along and on either side of known and defined paths such as tracks, roads, streams etc.
- b. Near and around shade trees where troops are likely to gather to rest.
- c. Around and in road blocks.
- d. In or on the edge of craters after an airstrike or road denial task.
- e. Under stones, sticks etc, lying on paths or tracks.
- f. In likely or known ambush and harbour sites.
- g. Behind likely fire positions that allied troops may use in a cordon.
- h. In and around fire positions that he has used very recently to harass allied troops.
- i. Around the fringes of clearing, particularly likely LZs where friendly troops will normally disperse as helicopter insertion drill.
- j. In and around Engineer worksites.
- k. On approaches to his own base camps and caches.
(It is important to note that a mine found in an unusual or unpopulated area will usually have something worthwhile nearby).
- l. Almost anywhere near heavily populated areas where Australian troops will obviously be frequently present.

Enemy Anti-Vehicle Mine Sites

15. Typical sites for anti-vehicle mines are:

- a. Narrow tracks and defiles, ie wheel rut tracks, land cleared trails, new road works, fords (It is more common in Phuoc Tuy Province to encounter nuisance set electrical and pressure mines, than to encounter command detonated mines).
- b. Around diversions, blown culverts and road blocks.
- c. In commonly used APC and tank routes, ie high ground in wet and inundated countryside, and at bends in tracks.
- d. Puddles in roads.
- e. Patchwork repairs on roads.

Note: Where the enemy sets anti-vehicle mines he may commonly also set anti-personnel mines nearby to cause casualties to evacuating personnel and repair/recovery crews. This tactic is of prime importance in our counter-measure drills and training.

Enemy Mine Markers

16. As has already been written, the enemy, although he does not use a set pattern of mining, will always mark his mines in some way. To do this he uses a variety of mine markers: the commonly encountered markers in Phuoc Tuy Province are shown in Annex A.

17. It must be realised that the enemy has no set doctrine on markings, and usually ensures that the local markings are passed to transient units by word of mouth.

18. All Australian troops MUST learn to recognize these markers, and always be on the alert for the unusual or unnatural; a pair of sharp eyes are perhaps the best defence against the enemy's mine tactics.

Other Important Factors

19. The enemy will sometimes attempt to draw our troops into mined areas by offering the chance of physical contact. He will engage Australian troops by fire from a specific direction and withdraw so that follow up Australian elements move into mined areas. All Australian troops must be careful not to be decoyed into mine incidents. When working in mine suspect areas, tactical commanders must bear this in mind when making their appreciations.

20. Whether on foot or mounted it is paramount to avoid using the same track or path on more than one occasion. Developing the habit of using the same route time after time is inviting enemy mine action. This applies particularly to Armoured movement on Fire Trails, and to foot patrolling, especially clearing patrols.

21. This section has dealt with all of the basic doctrine which has been used and noted by experience in Phuoc Tuy Province. Remember, however, that we are opposing a versatile and trained enemy and that new tactics are to be expected and must be guarded against. The keynote to this is for all Australian troops to develop a high degree of mine caution and within the framework of our tactics retain the highest degree of flexibility in dealing with enemy mining and booby trapping.

Reserved:

A GUIDE TO MINES AND BOOBY TRAPS
SECTION 2 - COUNTER MEASURES

Introduction

26. This section will outline the current doctrine in use by Australian troops in Vietnam to counter the enemy mine threat.

Training

27. The most important counter measure is a constant and high degree of anti mine training, both refresher and rehearsal. Constant revision is essential.

28. Reference to this booklet will keep the mind active on this subject and gives all Australian troops a ready insight into the problems faced. Refresher training and rehearsals must be carried out before operations in likely or known mine prevalent areas. All soldiers of all ranks involved on operations risk the danger of mines.

29. In-theatre training for the Arm's individual replacements and infantry units is carried out by the Sappers of 1 Fd Sqn. This service and advice is available to all units;

SO --- CONSULT THE SAPPERS: IT'S THEIR GAME.

30. Before operations in suspect areas, units can request additional training. 1 Fd Sqn is available to provide refresher training.

Mine Intelligence

31. 1 Fd Sqn has a small engineer intelligence section. A card index system of all mine incidents in Phuoc Tuy is kept and mine incident maps of particular areas are available on short notice.

32. All engineer teams are briefed for a particular area before going on operations and carry a mine incident map.

Physical Protection

33. If a mine incident occurs there are a number of ways in which casualties can be minimised or negated;

- a. Never Bunch Up. This natural tendency will cause unnecessary casualties if a further mine incident occurs. Commanders must ensure maximum possible dispersion as permitted by the tactical situation.
- b. If possible, wear flak jackets and steel helmets when in a mine prevalent area. A little discomfort from these is preferable to serious wounds.

- c. Sandbag the floors of vehicles to absorb blast and shrapnel from anti vehicle mines. Also where possible arm the vehicles with steel belly plating for the same reason.
- d. Be alert, look for the unnatural:
- (1) Loose dirt, new filled areas.
 - (2) Loose or taut wires, rope, string, vines etc.
 - (3) Sticks and stones in unnatural looking positions.
 - (4) Markers and indicators (see Annex A).
 - (5) Disturbed foliage, damaged foliage, foreign looking grass, weathered camouflage.
 - (6) Plastic wrapper materials protruding from the ground.
 - (7) Electric lead wires.
 - (8) Irregular tread patterns on roads.
 - (9) Water puddles (water is probably the easiest and most ideal mine camouflage).
 - (10) Areas obviously avoided by locals. Also be on the lookout for unusual behaviour on the part of locals, such as early departure from working areas when allied soldiers are present. Agitation at your moving close to their location. Sudden disappearance of people from villages or roads. All these are indications that the villagers are aware something is about to happen.
- e. Be alert, avoid:
- (1) Establishing regular patterns, such as same harbour or ambush sites.
 - (2) Picking up souvenirs.
 - (3) Movement close to or on tracks.
 - (4) Foot movement in mined areas when mounted movement in APC's is available.

Action on Suspicion

34. Should something arouse suspicion, the Commander of the element should immediately be informed; he will recce the area in company with a Sapper. In mine prevalent areas Sappers will always be readily available in the form of a Mini or Splinter team. A brief description of these teams is:

a. Splinter Team. A team of two Sappers who are NEVER separated. One is known as a No 1 and is the more experienced of the pair, the other is his No 2. These men are equipped to travel with Infantry on foot and have an amount of explosives, detonating cord, detonators and fuse. They may also carry other ancillary gear for Engineer tasks such as tunnel search torch and pistol, grappling hooks, long and short safety pins and most importantly they carry in their heads a very large knowledge of all likely mines and booby traps.

- b. Mini Team. The same team of two sappers who are additionally equipped with a flak jacket and helmet each, and a mine detector. This type of team is designed to move mounted with Armoured elements, or in a deliberate breach of a known mine area.
- c. Combat Engineer Team. For larger operations involving mines, or when there is a heavy mine danger, a Combat Engineer Team may be available, or moving with the Infantry elements. This team is basically 3 Splinter or Mini Teams commanded by a Corporal or Lance Corporal, a total of 7 Men.

35. If for some reason these teams are not present when a suspect area is found the Commander on the spot will decide what to do. Unless he is convinced that the suspicion is unfounded, he should always seek immediate Sapper advice and support.

Action on a Mine Incident

36. When a mine incident occurs, a mine incident being anything that confirms the presence of mines, the following actions should take place:

- a. Nobody in the area moves unless directed. Movement in the area can only be made in marked safe lanes and areas.
- b. The senior Engineer in the area directs all clearance activities through the Commander who retains overall control.
- c. The two man mini or splinter team clears and marks a safe lane to any casualties using a mine detector if available or by prodding with a bayonet. Assuming a detector is available the drill is then as follows:
 - (1) One member moves forward sweeping the detector to clear a path of 4 feet width. He is wearing a head phone set, carries a pistol and is "blind" to any outside occurrences.
 - (2) The other member follows at a distance of about 2 yards. He carries both weapons and is responsible for clearly marking the safe lane with mine marking tape or cord. (If neither are available, he can mark with tree branches, rifle slings, weapons or scratch the ground surface, but the marking must be obvious and not able to be obliterated by rain).
 - (3) The infantry protection element must provide protection for the team while maintaining a safe distance of at least 10 yards. They must not lose sight of the team.
 - (4) Where there is a weak confused signal on the detector the two members will continue to work as a team to investigate the cause of the reading. When there is a strong positive reading the No 1 will normally take the action to investigate, then mark or dispose of the mine. The No 2 will withdraw to a safe distance. The decision of how best to dispose of the mine i.e., pull or blow is made by the No 1. The decision on when to do so is the commander's.

- d. Once all clearances have been effected, first aid will be given before 'Dust Off.
- e. If a known safe area is not readily available an area for litter extraction will be prepared by the Engineer Team, and will similarly be clearly marked by well secured tapes, to avoid the Dust Off helicopter moving the markers with its blade wash.
- f. The non casualties in the area must NOT move but wait until the clearance party has cleared a safe lane to them. It is stressed that NO movement will occur even to assist casualties crying for aid until clearance is complete: any movement may create more casualties, a tragedy can easily be transformed into a disaster by foolish movement.
- g. The Commander will then make an assessment in conjunction with his Engineer advisor as to the next action. Often a deliberate clearance may be required to either continue his aim or evacuate the area.

Action on a Mine Incident - Vehicular

37. When a vehicular mine incident occurs, a mine incident again being anything that confirms the presence of mines, the following actions should take place:

- a. No vehicles move and no troops dismount unless directed. Movement in the area can only be made in the proven vehicle tracks behind the vehicle involved in the incident. Any other area is suspect until cleared.
- b. Any troops thrown from the vehicle by the explosion should not move.
- c. The senior Engineer in the area directs all clearance activities through the Commander who retains overall control.
- d. The two man mini team dismount to the safe area of a vehicle track. The No 2 moves forward along the vehicle tracks to join his No 1. If there are vehicles between himself and the No 1 he must be careful to climb over each successive vehicle thus maintaining safe movement forward by use of proven vehicle tracks and vehicles.
- e. A mini team will have a mine detector and the following drill then follows:

- (1) The No 1 of the mini team clears a path of 4 feet width to any passenger thrown from the vehicle. It is then safe for nominated members on the vehicles to dismount and administer first aid to any injured on the ground, first aid having already been given to those injured on the vehicle.
- (2) The mini team then proceeds to clear the area for any further mines, marking any mines or booby traps found.
- (3) Once the area is proven clear of mines or booby traps and detected mines/booby traps marked a safe area is marked for a DUSTOFF LZ if necessary.

38. The following points are emphasised:

- a. Extremely firm control by the Commander is essential.
- b. No movement unless directed.
- c. Minimum number of people engaged in clearance operations.
- d. Everyone must be aware of methods of marking safe lanes.
- e. No one steps outside a cleared area.
- f. All involved MUST remain calm, despite casualties needing urgent attention, priority MUST be given to clearing safe lanes to avoid further casualties.

Summary

39. To summarise, all soldiers should know and understand these key words:

KNOW THE ENEMY'S MINE HABITS
KNOW WHERE HE LAYS MINES
KNOW THE MARKINGS USED
WHERE THERE IS ONE MINE THERE IS MORE
LOOK FOR THE UNNATURAL
CHECK THE MINE INCIDENT MAP
REVISE, REFRESH AND REHEARSE
ACTION ON A MINE INCIDENT
AVOID REGULAR HABITS
KNOWLEDGE OVERCOMES FEAR
SEEK OUT THE SAPPER

RESERVED

40 - 45

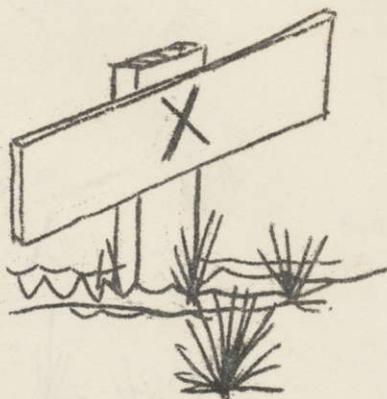
ANNEXES

- A. Enemy Mine Markers
- B. Commonly Used Enemy Mines

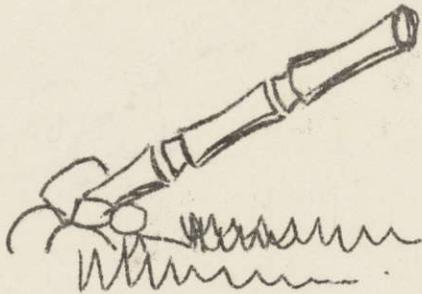
ENEMY MINE AND BOOBY TRAP MARKERS



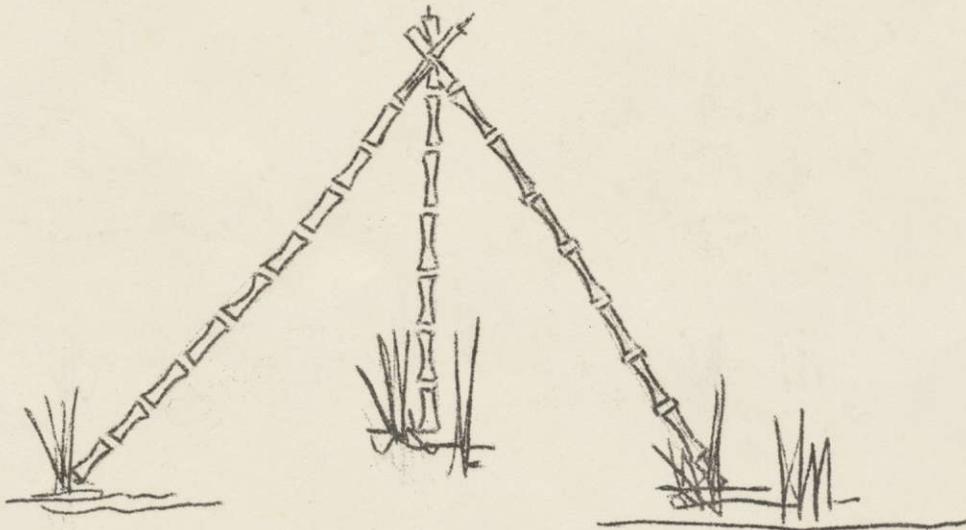
Various formations of small rocks have been placed on trails to serve as a warning of mines and booby traps ahead. These rock formations have been placed in circular, pyramid and straight line patterns.



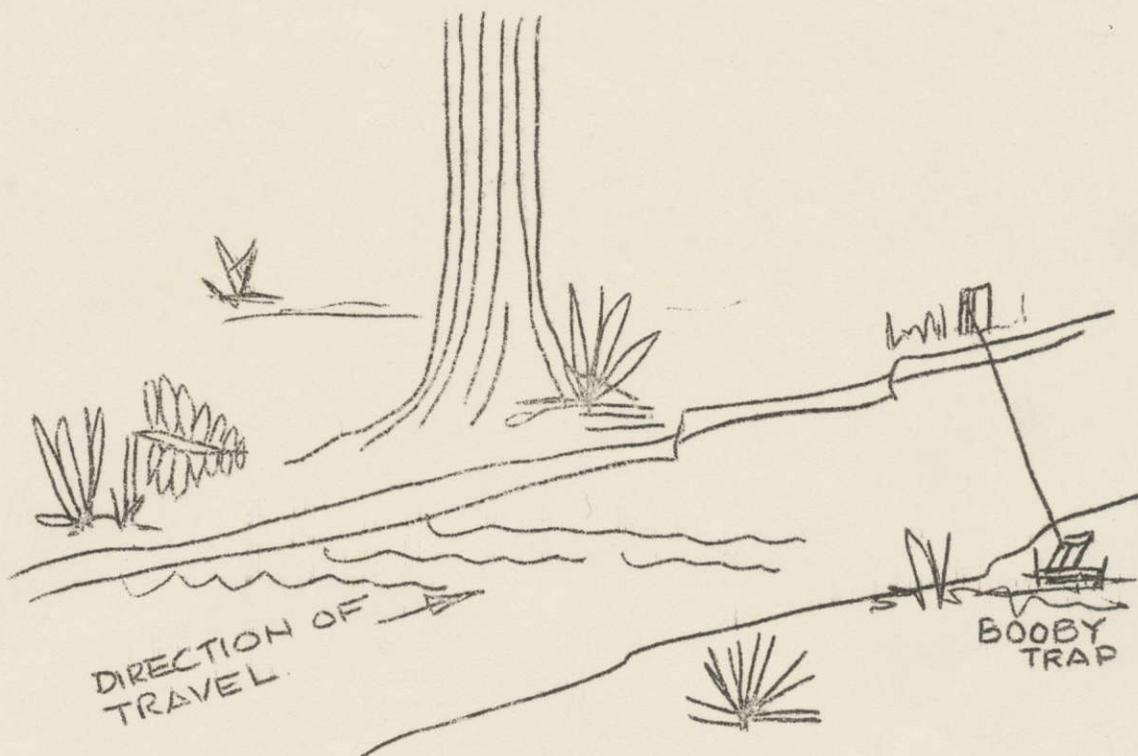
Red X Markers are placed on roads and trails leading to mined areas.



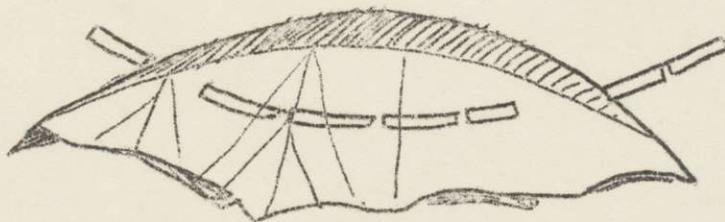
Bamboo Marker.
A piece of bamboo 6 to 8 inches long
stuck into the ground at 45 deg points
toward the booby trap or mine.



A tripod made from sticks indicates mine, booby trap or
panji pit under the tripod.

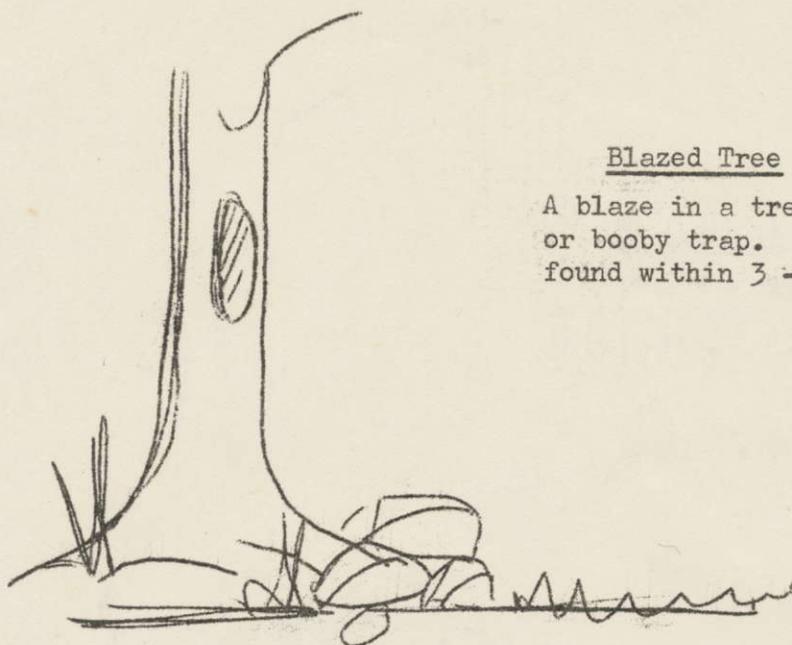


The VC will break the top of a small sapling and this will point to the mine or booby trap down a track. Usually 50 - 100 meters from the broken tree the trap will be found.



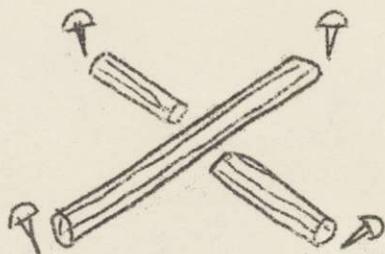
Leaf Marker

A stick through a leaf will indicate the presence of a mine or booby trap.

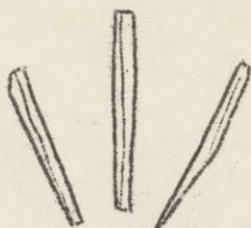


Blazed Tree

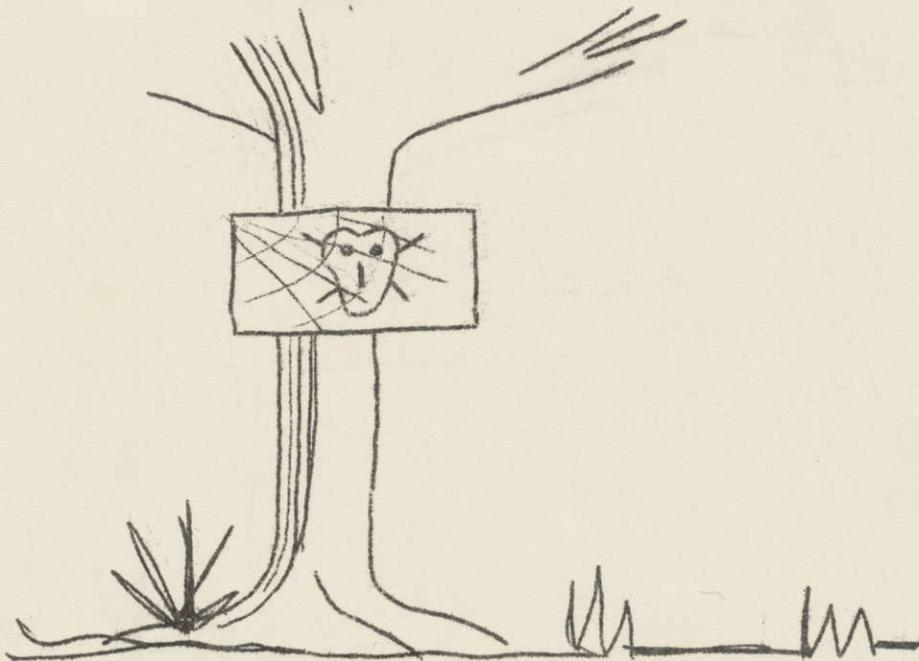
A blaze in a tree indicates a mine or booby trap. Usually the mine is found within 3 - 5 meters of the blaze.



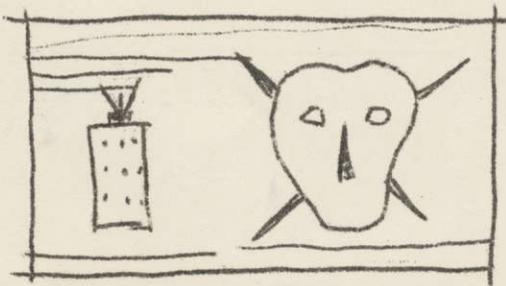
Crossed sticks normally indicate a mine underneath.



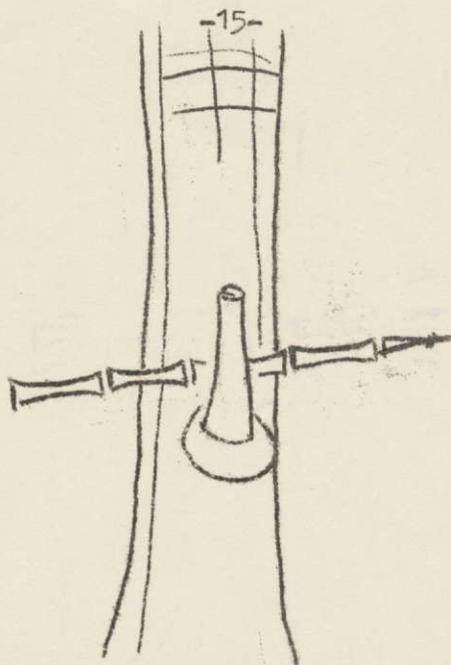
Sticks in the form of an arrow indicate direction of mines.



The sign indicates mined areas. The sign may indicate a mined trail and another sign will be present at the end of the mined area. The word "MIN" may be painted on the marker also.

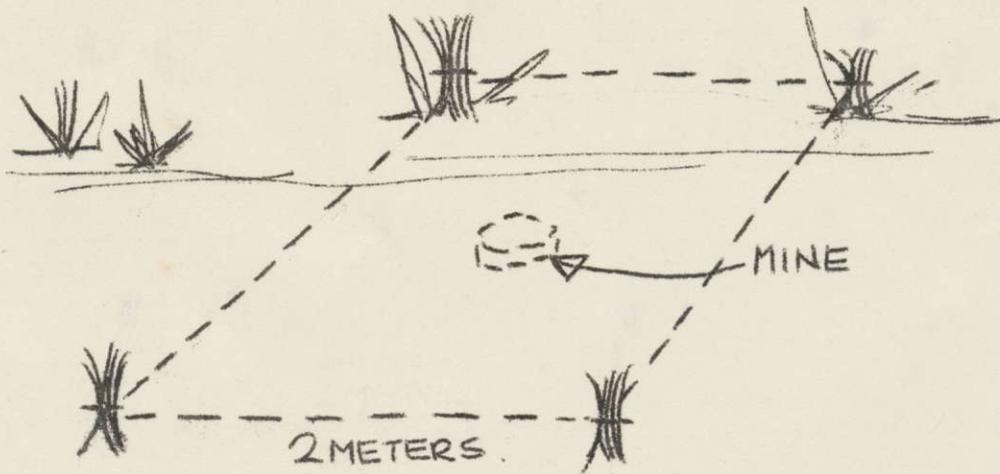


This sign indicates the presence of M16 Anti Pers mines.



Stick in Tree Fork

Indicates mine or booby traps usually 10 - 20 meters away.



Four tufts of grass tied in knots indicate mines in area encompassed by markers,

Below are some of the sign markers found. They may be painted, pencilled, or scratched onto wood, tin or paper etc.

VUNG CÀM ĐI

RESTRICTED AREA, KEEP AWAY

TỬ ĐI

KILL ZONE

Xin Đừng Đi

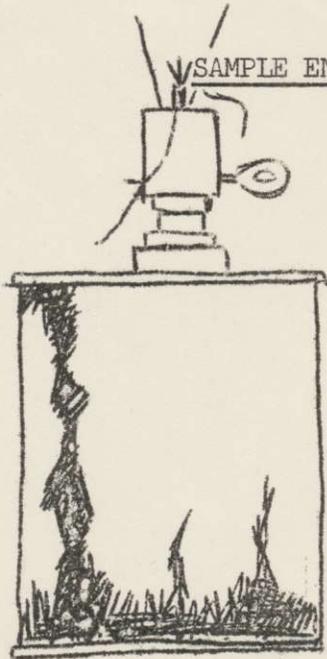
PLEASE DON'T GO

VÙNG CÓ BẦY

AREA IS BOOBY TRAPPED

The above are the majority of the markers discovered to date. Be on the alert for the unusual. There are many other ways he can mark them.

SAMPLE ENEMY ANTI PERSONNEL MINES
AND BOOBY TRAPS



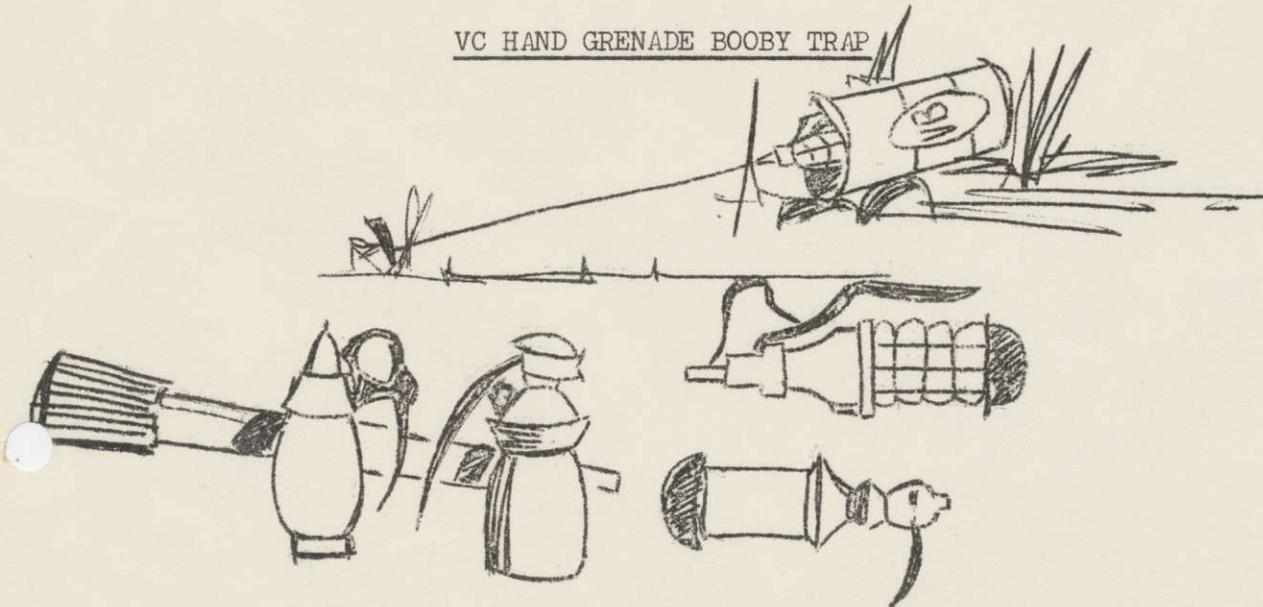
M16 Mine: This is a mine developed by the US but is very widely used by the VC/NVA.

Characteristics:

- a. Cas radius - 50 metres.
- b. Initiated by pressure (foot or vehicle or tripwire).
- c. Employed with M5/M26 Anti lift.
- d. On initiation 1 - 4 seconds delay bounds into the air and explodes thigh or waist high.

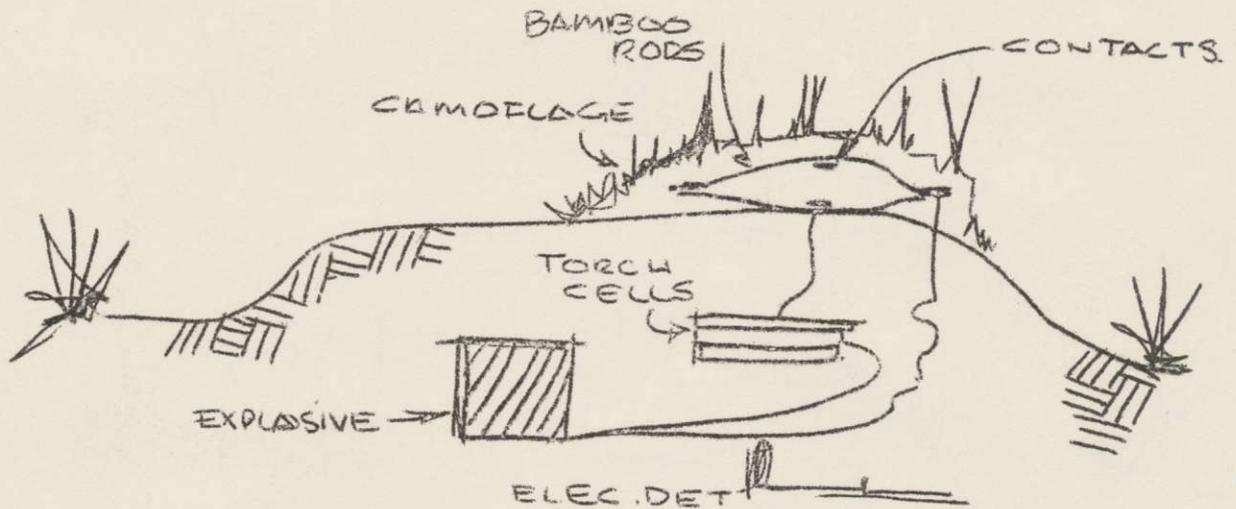
This mine should be blown in place.

VC HAND GRENADE BOOBY TRAP



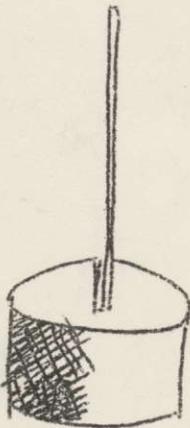
There are several methods of employing grenades as booby traps, the illustration shows some typical grenades used and one of the most common devices. A grenade is placed in a can, the safety is removed and a trip wire is attached to the grenade. The M26 grenade is also used using this principle. Another method of employing is taping to a tree about head high with a trip wire going across the path.

SAMPLE ENEMY ANTI TANK, ANTI VEHICLE MINES



This electric detonation device is used on trails and roads. When the track or wheels of a vehicle move over the contacts, they are closed and the explosives detonates under the belly of the vehicle. Dud artillery shells or bombs can be used with or in place of the explosive charge. (Charge has normally been in the vicinity of 30 lbs).

VC TILT ROD MINE



This mine is employed in paths, trails and in areas cleared by bulldozers. Once the rod is moved out of the vertical plane the holding claws release the striker mechanism and so detonation occurs. The weight of explosives varies but 20 lb plus can be expected.

Mine should be blown in place.