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COUNTERMEASURES AGAINST STANDOFF ATTACKS

combat experiences · lessons learned

NO. 71

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HEADQUARTERS
UNITED STATES MILITARY ASSISTANCE COMMAND, VIETNAM
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MACJ3-053

13 March 1969

SUBJECT: Vietnam Lessons Learned No. 71: Countermeasures Against Standoff Attacks

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2. This information may be of value for direct application to training or to reinforce existing doctrine, based on combat experiences in South Vietnam.

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VIETNAM LESSONS LEARNED NO. 71

COUNTERMEASURES AGAINST STANDOFF ATTACKS

CHAPTER I: INTRODUCTION

1. (U) GENERAL:

a. One of the major offensive actions by the enemy during the Vietnam conflict has been standoff mortar, recoilless rifle and/or rocket attacks against military installations in South Vietnam.

b. The capability of the enemy to launch such attacks has increased considerably in the past three years. At the outset of the conflict, standoff attacks were by mortars and recoilless rifles. In February 1966, rockets were introduced into the enemy weapons inventory. These weapons provided the enemy with additional flexibility and greater firepower since they possessed a greater range and could be employed in large numbers from improvised launchers. The threat to military installations grew in proportion to the enemy's intentions and availability of rockets. As the enemy threat increased, greater emphasis was required throughout South Vietnam to increase installation protection and improve countermeasures against such attacks. At those installations where effective countermeasures and reasonable protection for personnel and equipment have prevailed, such attacks by the enemy have been infrequent and relatively ineffective.

2. (U) PURPOSE: The purpose of this Lessons Learned is to review in detail enemy capabilities, the tactics he uses for standoff attacks, combat experiences which have demonstrated both weaknesses and strengths in countering these attacks, and countermeasures which have proven effective against the enemy.

CHAPTER II

ENEMY WEAPONS

1. (CMHA) GENERAL: The enemy possesses a variety of weapons which are suitable for standoff attacks against military installations. These weapons range from the 60mm mortar to the 140mm rocket. Each has certain capabilities, characteristics and limitations which influence the enemy's employment tactics. The following is a brief description of those weapons which have been used most frequently in standoff attacks against military installations in Vietnam:

a. Mortars:

(1) 60mm mortar (CHICOM type 31, M1942 - copy of US M2) (Figure 1).

(a) This is a smoothbore, muzzle-loaded, drop-fired weapon. It has a baseplate, a handcrank on the end of the elevating screw housing, and a cross-leveling mechanism of two-piece construction. Unlike the French and US model of this mortar, the CHICOM type has brass feet.

(b) Weight - 44.5 lbs.

(c) Range - 1530 meters.

(d) Rate of fire - 20 to 35 rounds per minute.

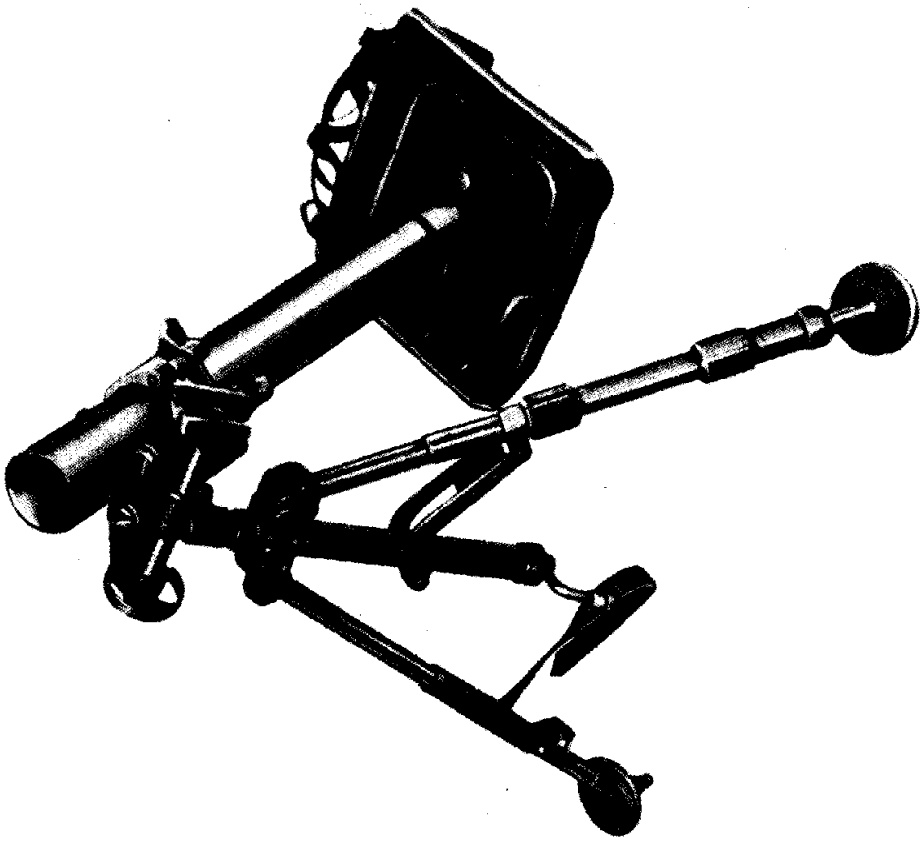
(e) Ammunition weight - 3.3 lbs.

(2) 82mm mortar (CHICOM type 53 - copy of Soviet M1937) (Figure 2).

(a) This is a conventional muzzle-loaded, drop-fired, smoothbore weapon. The M1937 consists of three basic components: tube, bipod, and baseplate. The recognizable features of this mortar are the baseplate, which is circular with a flat surface across the back edge, and the bipod, which has a turnbuckle type of cross-leveling mechanism between the right leg and the elevating screw housing.

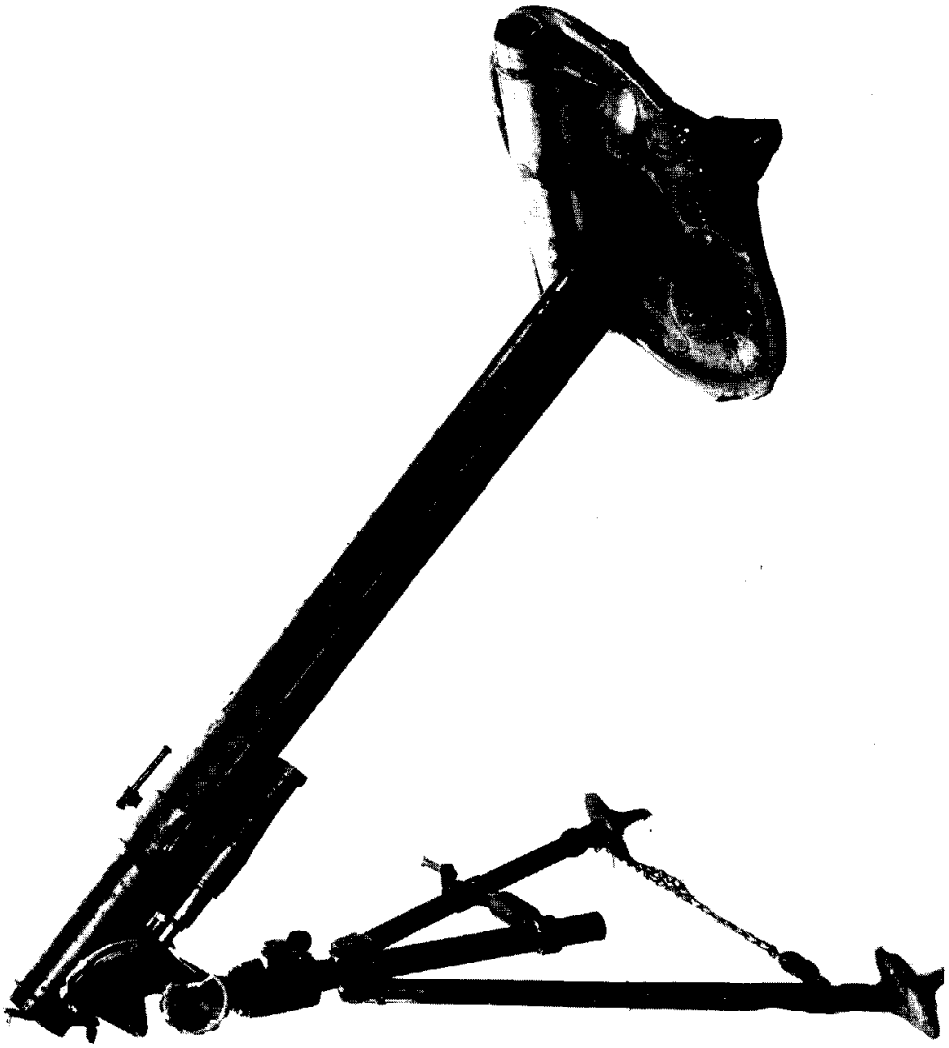
(b) Weight - 123 lbs.

(c) Range - 3040 meters.



(Figure 1)

60mm mortar (CHICOM type 31, M1942-copy of US M2)



(Figure 2)

82mm mortar (CHICOM type 53-copy of Soviet M1937)

(d) Rate of fire - 25 rounds per minute.

(e) Ammunition weight - 7.2 lbs.

(3) 120mm mortar (CHICOM type 55 - copy of Soviet M1943) (Figure 3).

(a) This is a conventional, muzzle-loaded, smoothbore mortar that can be either drop-fired or trigger-fired. It consists of three major components: tube, bipod, and baseplate. For transport, this mortar is normally mounted on a two-wheeled carriage and towed.

(b) Weight - 606 lbs (traveling 1,100 lbs).

(c) Range - 5700 meters.

(d) Rate of fire - 15 rounds per minute.

(e) Ammunition weight - 28 lbs.

b. Recoilless Rifles.

(1) 57mm recoilless rifle (CHICOM type 36 - copy of the US recoilless rifle T15E16) (Figure 4).

(a) This weapon can be fired from the shoulder, from its monopod, or from a tripod. The outstanding identifying feature of this weapon is the long, cylindrical monopod below the telescopic sight, the two protruding handles at the breech end, and the peculiarly shaped tripod.

(b) Weight - 52.25 lbs (tripod 26 lbs).

(c) Maximum horizontal range - 4,375 meters.

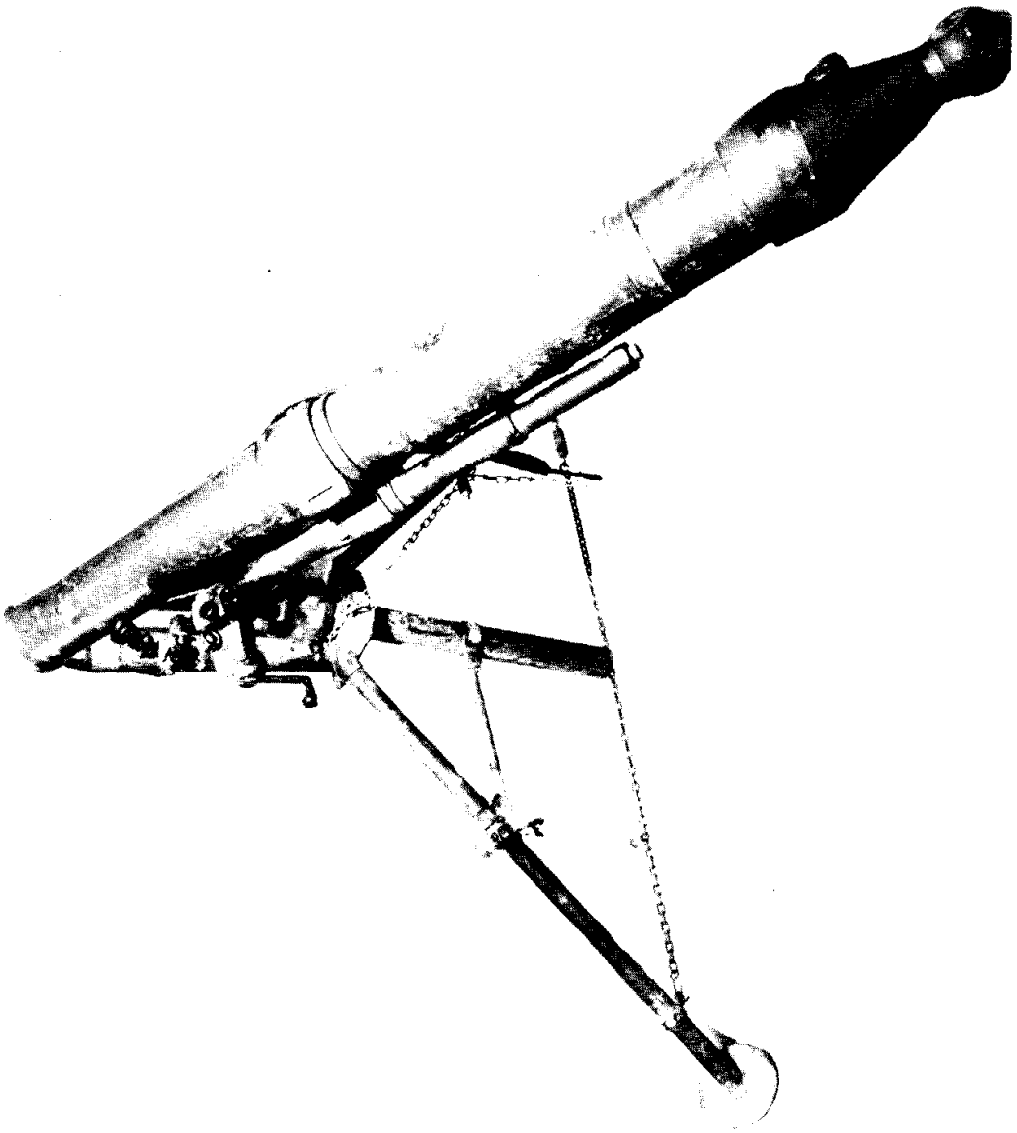
(d) Rate of fire - 5 rounds per minute.

(e) Ammunition weight - HEAT - 5.7 lbs, HE - 5.6 lbs.

(f) Armor penetration - 2.75 inches at 0 degrees.

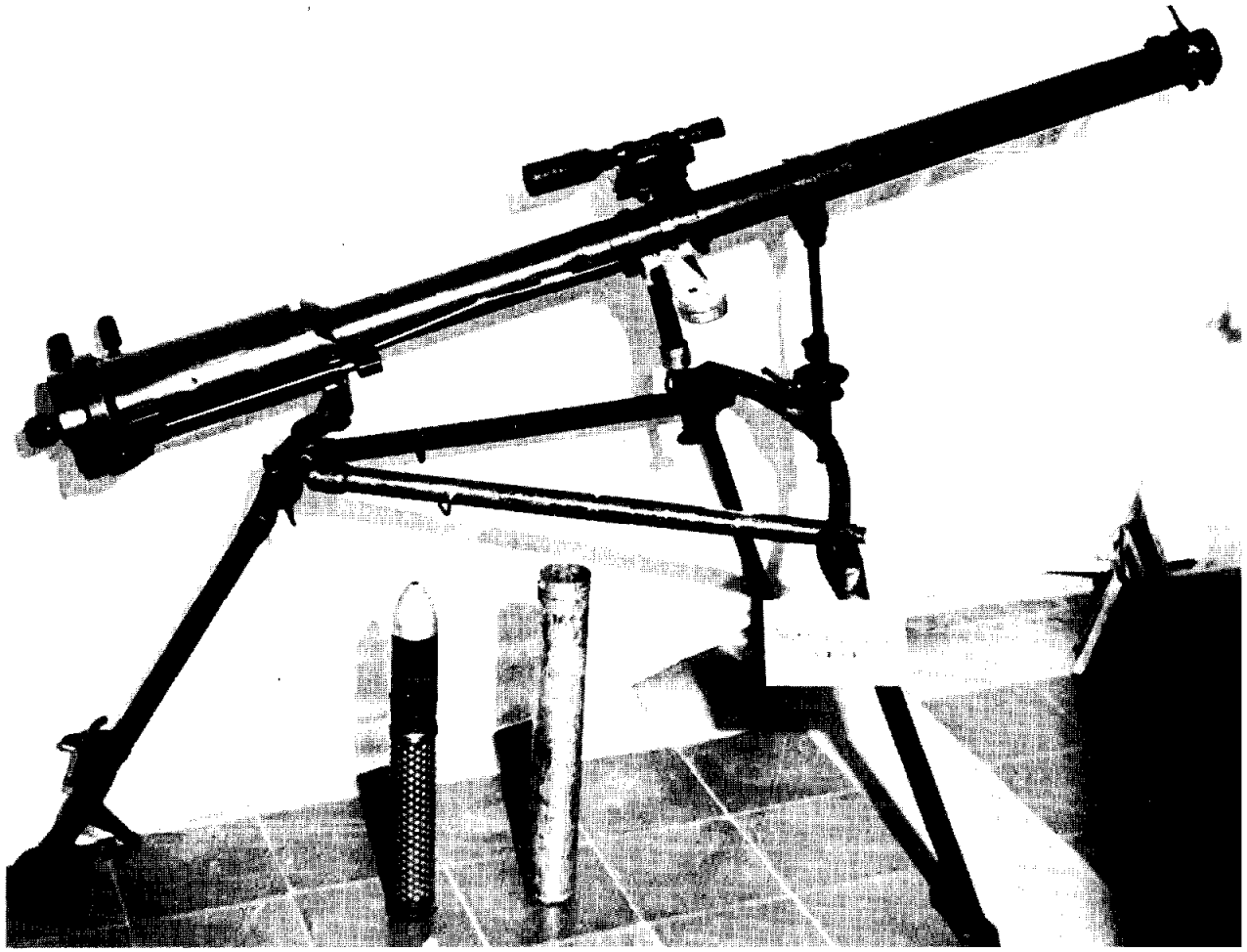
(2) 75mm recoilless rifle (CHICOM type 52/56 - copy of US M-20) (Figure 5).

(a) This is a breech-loading, portable weapon, designed to be fired from a machine gun tripod. The barrel and breech of the 52/56 weapon are copied from those of the US 75mm recoilless rifle.



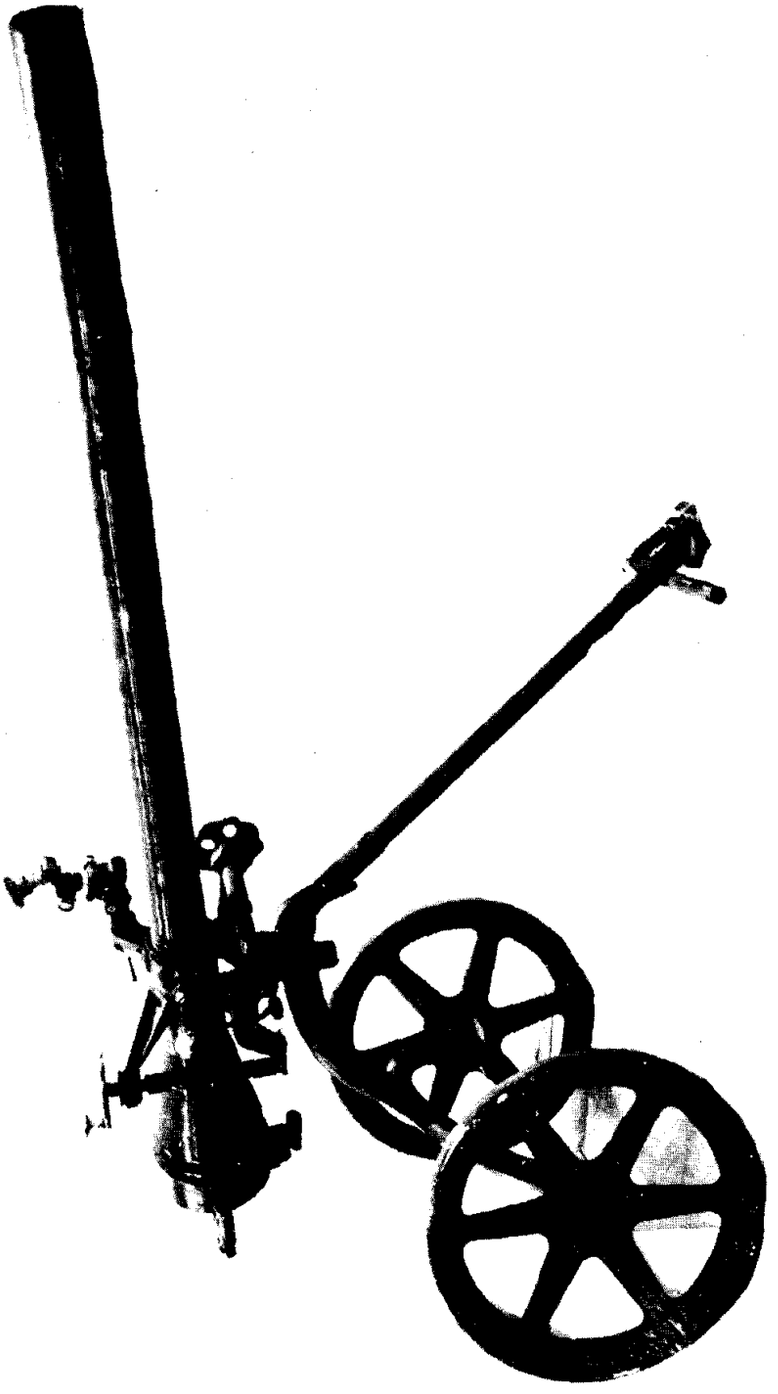
(Figure 3)

120mm mortar (CHICOM type 55-copy of Soviet M1943)
Brass baseplate is not shown.



(Figure 4)

57mm Recoilless Rifle (CHICOM type 36-copy of US Recoilless Rifle T15E16)



(Figure 5)

75mm Recoilless Rifle (CHICOM type 54/56-copy of US M-20)

(b) Weight w/o carriage - 132 lbs.

(c) Maximum horizontal range - 6,675 meters.

(d) Rate of fire - 10 rounds per minute.

(e) Ammunition weight - HEAT - 21 lbs/9.5 kg., HE -22lbs/10 kg.

(3) 82mm recoilless gun (Soviet B-10) (Figure 6).

(a) This is a smoothbore gun mounted on a tripod-supported pedestal. The tripod legs are adjustable and can either be spread out to give a low silhouette or drawn in close to raise the gun for a better field of fire. Recognition features are the two-piece tube, the detachable wheels, the multiperforated guard on the left side, and the towing handle.

(b) Weight in traveling position - 188 lbs.

(c) Length, overall - 6.4 feet.

(d) Effective range against moving armor (HE) - 390 meters.

(e) Maximum horizontal range - 4,470 meters.

(f) Practical rate of fire - 5 to 6 rounds per minute.

(g) Armor penetration - 7.8 inches at 0 degrees.

(h) Ammunition type - HEAT - 10 lbs, HE - 8 lbs.

c. Rockets.

(1) 107mm CHICOM Rocket (Figure 7).

(a) The 107mm rocket was designed to replace the CHICOM 102mm rocket. It is slightly longer, has a longer warhead, has greater range and is more accurate.

(b) Length with fuse - 33 inches.

(c) Weight with fuse - 42 pounds

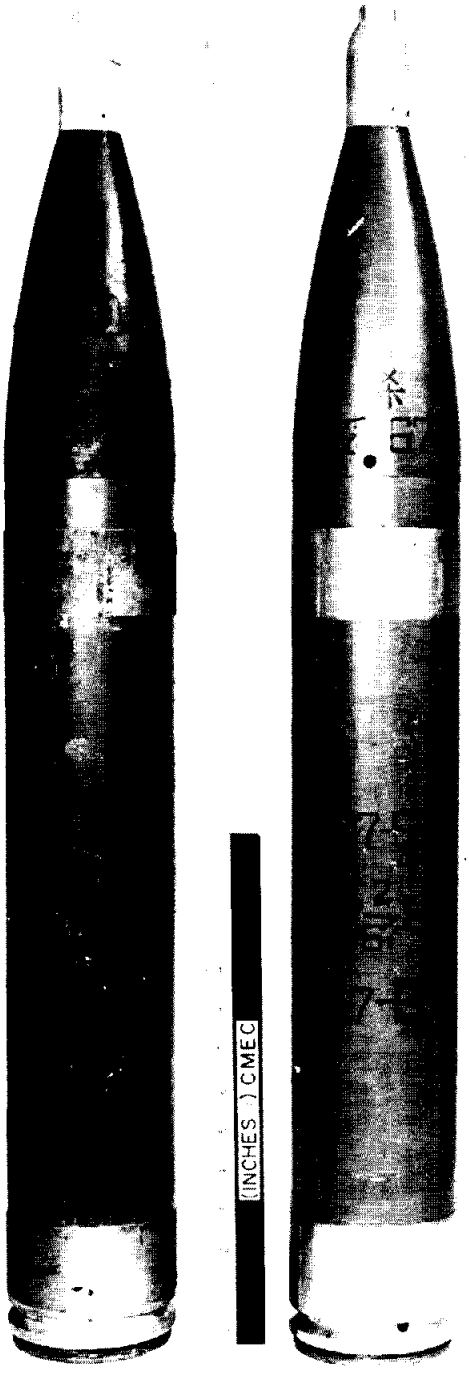
(d) Range - 6000 to 8000 meters.

(e) Fuse - super quick, short delay, long delay.

(f) Launcher weight - two tubes - 48.75 lbs, twelve tubes - 547.5 lbs.

(Figure 6)

82mm Recoilless Gun (Soviet B-10)



(Figure 7)

107mm CHICOM Rocket

(g) Tube length - 35.42 inches.

(h) An enemy training document, captured on 28 October 1968, indicated that firing pads for the 107mm rocket could be made of dirt, bamboo frames or crossed stakes. It further stated:

> ...We can use road embankments, a dike between two rice fields, the brim of a combat trench, an earth mound, a bomb crater or an ant hill, digging a semi-circular hollow in which to fit the rocket....
>
> The main purposes of the rockets are objectives having a large area, usually 400 x 400m, such as enemy strongholds, airfields, storage points or towns. Besides, it is also used to support the infantry and to attack distant objectives that may affect the combat mission of the infantry. Each cadre should not fire over 20 rockets at a time. The average number of rockets should be six to make command and control easier.

(2) 122mm Soviet Rocket (Figure 8).

(a) The 122mm rocket is fin stabilized and possesses a greater range and destructive power than either the 107mm or 140mm rocket.

(b) Length - 75.4 inches.

(c) Weight - 101.86 lbs.

(d) Range with spoiler ring - 3,000 to 7,000 meters. Without spoiler ring - 6,000 to 11,000 meters.

(e) Warhead - 14.5 lbs explosive.

(f) Launcher length - 8.1 feet.

(g) Launcher weight with tripod - 121 lbs.

(h) The first military installation in South Vietnam to be attacked by 122mm rockets was Camp Carroll in early March 1967. Since this date, these rockets have been used not only against military installations, but also against urban areas, ports and bridges throughout South Vietnam.

(i) Attacks by these rocket are usually of longer duration than attacks by 140mm rockets since more than one 122mm rocket can be

(Figure 8)

122mm CHICOM Rocket

launched from the same launch position when using the rocket launcher. The 140mm rockets are usually launched from individual launch tubes positioned on dirt or mud launch pads. These tubes are seldom reloaded for follow-on attacks.

(j) A 122mm rocket battalion is normally assigned three companies. Each company is authorized six launchers with three rockets each. PW reports indicate that attacks may be conducted by individual companies with 18 rockets, by a battalion with 54 rockets or, in rare cases, by a platoon with six rockets.

(k) Prisoner of war interrogation reports also indicate that a 122mm rocket launcher site can be set up and operational in approximately one hour and fifteen minutes. Preparation consists of digging the fire pits and backblast pits, making the cradle for the launcher tube (in the event the tripod is not used), connecting the firing system, and loading the rockets. In the event of a misfire, two additional attempts are made, time permitting, before the rocket is discarded.

(3) 140mm Soviet Rocket (Figure 9).

(a) The 140mm rocket is spin-stabilized. It can be launched from single tubes mounted on a board or from earth mounds. Its greatest advantage is ease of employment.

(b) Length with fuse - 42.3 inches.

(c) Weight with fuse - 90 lbs.

(d) Range - minimum - 1,000 meters, maximum - 10,000 meters.

(e) Fuse - super quick, long delay - 1 second, short delay - .5 seconds.

(f) Launcher tube length - 45 inches.

(g) Tube weight - 22 lbs.

(h) This rocket has been employed extensively against all types of military installations. For the most part, attacks using these rockets have been of short duration, usually lasting from one to two minutes. Reports indicate that launching positions are prepared after dark and more often than not, these rockets are launched from improvised dirt mounds. Launch mounds are prepared by digging shallow trenches or holes and piling the dirt forward to serve as a launch platform. Small aiming stakes are normally placed in front of the rockets to serve as an aiming reference. These stakes are positioned during daylight hours and are best indicators of a potential 140mm rocket launch site.

(Figure 9)

140mm Soviet Rocket and Launch Tube

(4) 107mm CHICOM/VC Overcaliber Rocket (Figure 10).

(a) This rocket is a modification of the standard 107mm CHICOM rocket. Unlike the overcaliber 122mm rocket, its components are machined. Though its configuration would seem to reduce its accuracy, it appears that it is probably a relatively effective weapon at close range.

(b) Length - 54.25 inches.

(c) Weight - 84 lbs.

(d) Range - 1,500 to 2,000 meters.

(e) Warhead - 27.75 lbs explosive.

(f) Fuse - CHICOM type 1 in nose and DK 2 in base.

(g) Launcher - improvised trough or dirt mound.

(5) 122mm Soviet/VC Overcaliber Rocket (Figure 11).

(a) This is a VC modification of the standard 122mm rocket. This rocket has great destructive power but because of its apparent ballistic deficiencies, it is relatively inaccurate and best suited for harassment purposes.

(b) Length - 83 inches.

(c) Weight - 281 lbs.

(d) Warhead - 120 lbs explosive.

(e) Fuse - DKZ-B in nose.

(f) Range - 1,000 to 1,500 meters.

(g) Launcher - improvised rail type.

(6) 122mm Overcaliber Rocket (Improved Version) (Figure 11a).

(a) This is an improved version of the rocket shown in Figure 11. These rockets were found in a cache complex on 9 February 1969, at XT 544719, 28 kilometers southeast of Katum, Vietnam.

(b) Length - 78 inches.

(c) Weight - 182 lbs.

(d) Warhead - 115 lbs HE, 82 lbs RDX explosive.

(e) Fuse - not determined.

(f) Range - 800 to 2,500 meters (estimated).

(g) This rocket is launched from a rail launcher as shown in Figure 11a.

(7) 107mm Overcaliber Rocket (Improved Version) (Figure 11b).

(a) This is an improved version of the rocket shown in Figure 10. These rockets were found in the same cache complex as the 122mm rocket in Figure 11a.

(b) Length - 44 inches.

(c) Weight - 73 lbs.

(d) Warhead - 42 lbs HE, 27 lbs RDX explosive.

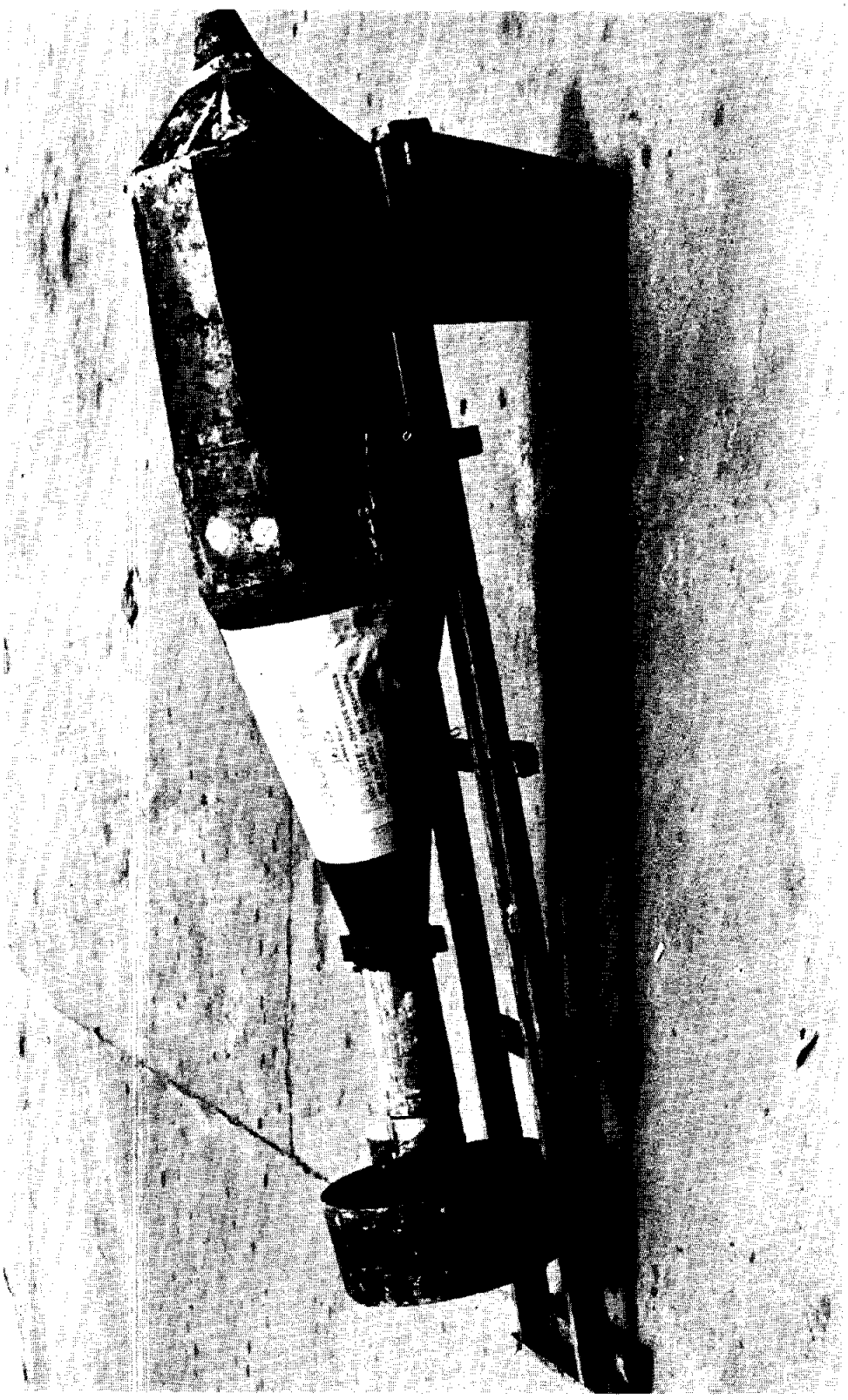
(e) Fuse - not determined.

(f) Range - 700 to 2,000 meters (estimated).

(g) This rocket is launched from a rail launcher as shown in Figure 11b.

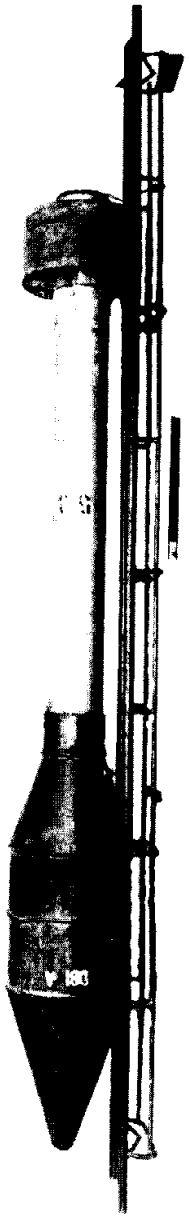
(Figure 10)

107mm CHICOM/VC Overcaliber Rocket



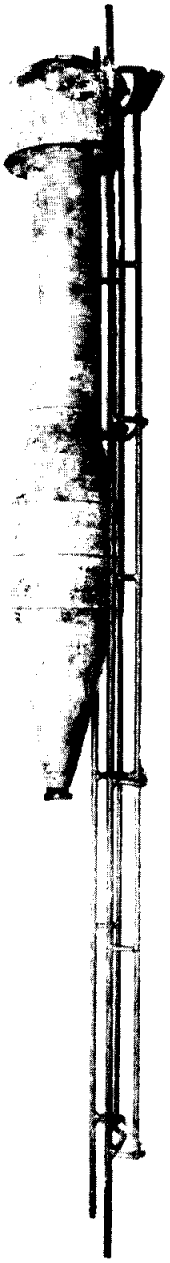
(Figure 11)

122mm Soviet/Vietnam Overcaliber Rocket



(Figure 11a)

122mm Overcaliber Rocket (Improved Version)



(Figure 11b)
107mm Overcaliber Rocket (Improved Version)

CHAPTER III

ENEMY PHILOSOPHY, ORGANIZATION AND TACTICS

1. (U) GENERAL: As reflected in the foregoing, the enemy's weapon system provides him with a multiple capability for conducting standoff attacks against military installations. To effectively oppose the enemy requires an understanding of his philosophy, how his units are organized and equipped, and the tactics he uses to position and employ his weapons.

2. (U) PHILOSOPHY:

a. Intelligence reports indicate that the enemy considers US and Government of Vietnam (GVN) military installations vulnerable and lucrative targets and that standoff attacks against these installations accomplish the following objectives:

(1) Destroy valuable US and GVN military combat assets.

(2) Demonstrate his capability to attack and inflict damage on major US and GVN military establishments at a time and place of his choosing.

(3) Cause the US and GVN to use a considerable portion of their military capability to protect military installations.

(4) Weaken the morale of military personnel located on these installations.

b. The above philosophy is supported to some extent by a prisoner of war (rocket company commander) who made the following statement while being interrogated in 1968:

> US forces in Vietnam are disposed in large fixed installations which always provide our forces with lucrative targets. Our forces are always certain that as long as the weapons hit the installation, the US forces will lose equipment and manpower. Likewise, these large posts do not have sufficient forces to control the surrounding countryside, which makes our attacks easier.

3. (CMHA) ORGANIZATION:

a. Mortar and Recoilless Rifle Units. Enemy mortar, recoilless rifle

and heavy machine gun companies are organic to infantry combat support regiments and are employed at all echelons as combat support units. A typical infantry combat support regiment is assigned an 82mm mortar company, a 12.7mm heavy machine gun company and a 57/75mm recoilless rifle company. Each of these companies is authorized six weapons and approximately 80 personnel. These companies are supported as required by one signal and one reconnaissance company organic to the regiment.

b. Rocket Units. Enemy rocket units are organized into regiments, battalions, companies and platoons. Each regiment is assigned a headquarters squadron, a signal and reconnaissance company and three rocket battalions. Within a typical rocket battalion is a headquarters company and three rocket companies. Each 122mm rocket company is authorized six launchers and 18 rockets. The 107mm rocket company is normally authorized 12 launchers and 24 rockets. The 140mm rocket company is normally authorized 16 launchers and 16 rockets. All rockets can be employed from improvised launchers. When employed in large-scale standoff attacks, rocket units may be supported by elements of an infantry combat support regiment.

4. (CMHA) TACTICS: Prior to each standoff attack, the enemy conducts reconnaissance of the installation, surveys the weapons firing positions, moves his weapons into position and prepares his weapon for firing. Each of these actions follow patterns which are indications of an impending attack. If these indicators are recognized, the chances to counter the enemy are increased considerably.

a. Reconnaissance.

(1) Each installation to be attacked is normally reconnoitered at least three times before the attack. The reconnaissance element normally consists of three teams of three individuals each. Reconnaissance entails a detailed analysis of the installation proper to determine the location and disposition of critical equipment and facilities, the location and manning of command posts, the number and type of perimeter and internal defense positions, and the schedule of installation operational activities. Efforts of the reconnaissance element are often supplemented by enemy agents (male and female) located on and off the installation.

(2) After studying the reports by the reconnaissance element, final reconnaissance is normally conducted by the rocket force company commander(s) before final decision and preparation for attack. To maintain maximum security, the launch crews are not advised of the exact time or location of the launch site(s) until arrival at the site(s).

b. Weapons Movement.

(1) The enemy normally transports his weapons from the resupply point to the staging area by sampan, foot, or both, using military transportation personnel and/or civilian porters. Movement from the staging area to the launch site is accomplished, with few exceptions, at night and by foot. The staging or assembly area is seldom more than one and one-half hours travel time from the launch site(s) and in some cases, is as close as three to five hundred meters to the launch site. Heavy weapons systems are normally moved to a position adjacent to the launch site by sampan. Movement of the 122mm rocket is best illustrated by excerpts from an account given by a prisoner of war captured on 25 June 1968 who had participated in numerous 122mm rocket attacks against military installations. As related by the prisoner:

> ...two personnel carried the launcher tube (Figure 12). This tube could not be broken down, so it was carried by one man on each end. The unit had discarded the tripod because of the weight and the fact that it took two personnel to carry it. By not having to transport the tripod, these individuals could be utilized to carry the rocket. Instead of the tripod, pieces of wood nailed together in the form of a "X" or "H" were used as a launcher tube cradle (Figure 13). It took two personnel to carry a rocket. One person carried the main body and another the warhead and fuse....

(2) This same PW stated that he did not know how the rockets were transported to the resupply or staging location. However, other prisoner of war reports reflect that rockets are transported to staging areas or resupply points by a combination of military and civilian porters or by a combination of sampans and porters. These movements are conducted in daylight under cover of heavy foliage, if insufficient foliage cover exists the movements are conducted at night.

(3) The staging area is normally within one to two hours foot or sampan travel from the launch site. Exceptions are mortar units which support battalion size operations involving a combination of stand-off and sapper attacks on an installation. These movements are usually by foot and require up to two hours travel time from the staging area, dependent upon the distance to the launch site. However, in some cases weapons are located adjacent to the launch site.

(4) Five to 30 days preceding each attack, the enemy normally attempts to locate his weapons approximately three to five kilometers from the launch site(s). In some cases, these storage points are used as assembly or staging areas which are normally one to one and a half hours travel time from the launch site. In other cases, these storage areas

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(Figure 12)

Four individuals are required to carry the 122mm launch tube and the tripod. Because of this requirement, improvised launch stakes are often used (Figure 13). In this picture only one-half of the tripod is being transported.

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(Figure 13)

Improvised "H" type rocket launcher stakes made of bamboo poles.

may be located along river or stream banks adjacent to the launch site, in graveyards, abandoned villages or hamlets, astride boundary lines between US, RVNAF or FWMAF field units, in tunnels, or adjacent to or within inhabited areas, dependent upon the attitude of the civilian populace. In each case, maximum effort is made to conceal these locations by natural foliage or similar methods.

c. Weapons Site Preparation.

(1) Rockets.

(a) Prior to each rocket attack, an enemy survey team conducts a survey of the launch site(s) to establish and align each rocket launch position. This survey is usually conducted the afternoon before the attack. As the survey progresses, stakes are placed on and in the ground to serve as a reference for positioning, aligning and aiming each rocket or rocket launcher (Figure 14).

(b) The rocket launch crew normally arrives at the launch site after dark. Using the reference stakes placed by the survey team, the launch crews position and align the rocket or rocket launchers, prepare the rocket launcher firing pit(s), wire the rocket launch system for rocket firing and load the rockets. (A typical 122mm rocket launch site is depicted at Figure 16). Individual rockets are spaced approximately ten meters apart with approximately 20 meters between each six rockets.

(c) Total time to prepare rocket launch positions, after arrival of the rocket launch crews, varies from 20 minutes to an hour, dependent upon the size of the force and the type launchers used.

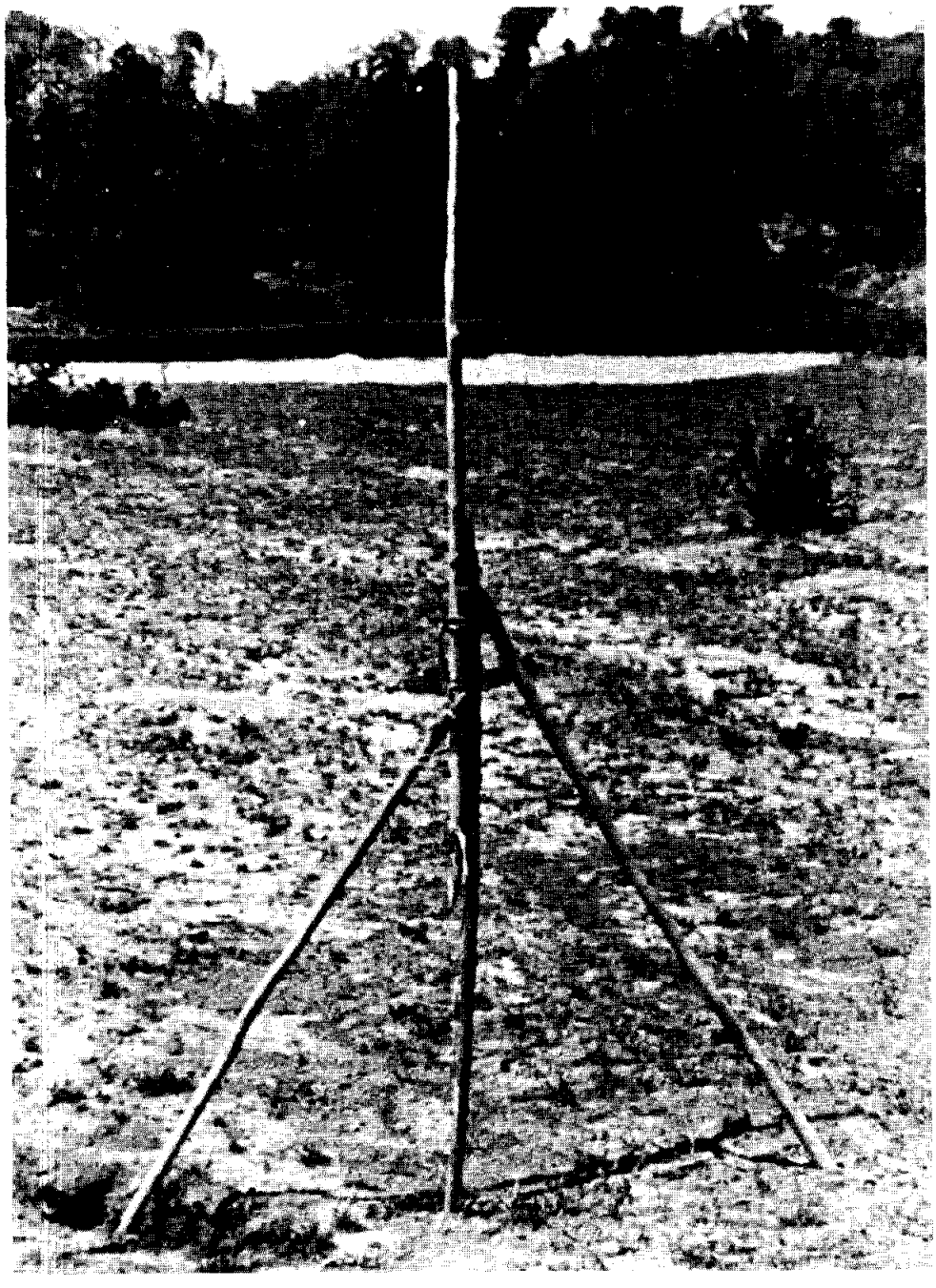
(2) Mortars/Recoilless Rifles. Employment of mortar and recoilless rifles requires preparations similiar to those required to fire rockets, except the aiming stakes are normally 20 to 30 meters in front of the firing position (Figure 15). Weapons positions are normally established in a semi-circular pattern with the smaller caliber mortars forward of the larger caliber mortars and the recoilless rifles on the flank of the larger caliber mortars. Mortars are usually positioned in a circular foxhole 1.7 meters deep and two meters wide with a dirt bank around the position. The position is usually camouflaged with branches, grass or other like material. Recoilless rifle positions are usually located on high points offering concealment.

d. Weapons Employment.

(1) Combat Operations After Action Reports and intelligence reports reflect that the enemy seldom employs rockets, recoilless rifles and mortars in the same attack, unless he intends to penetrate or attempt to

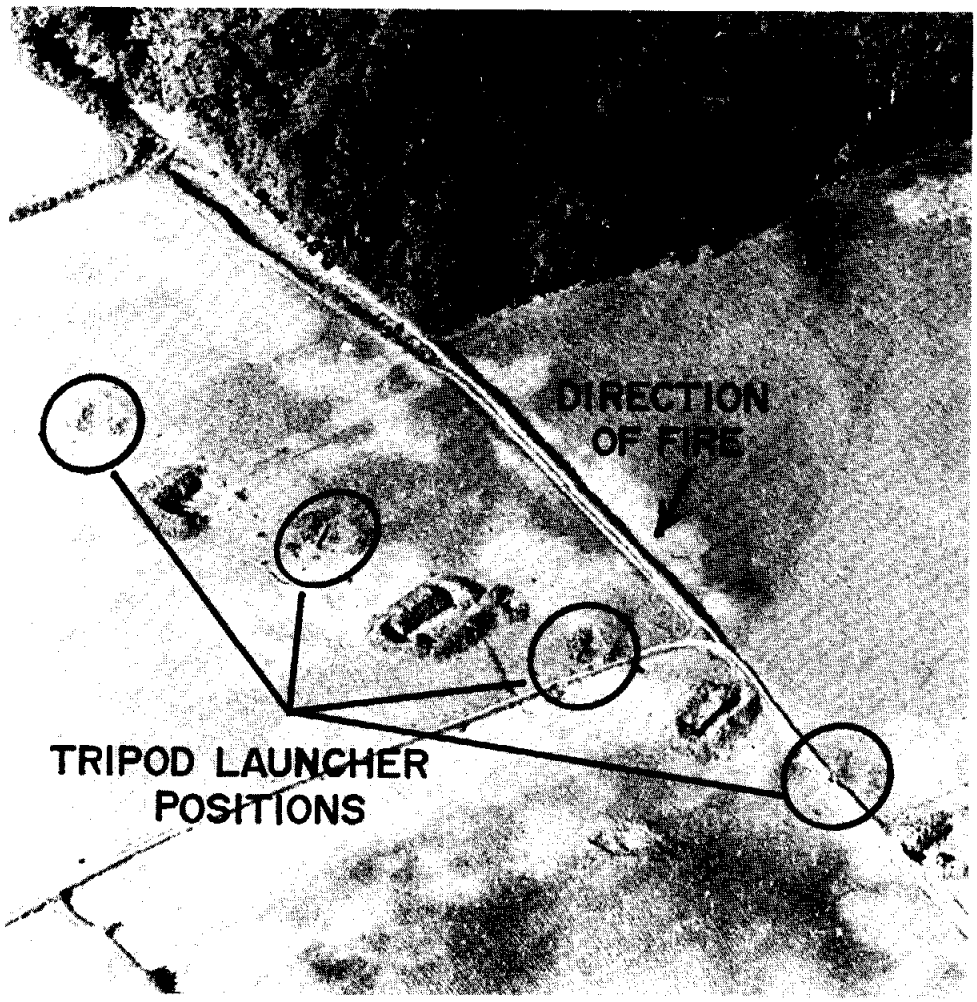
(Figure 14)

Rocket site survey stakes positioned to align tripod and rocket launcher. Stakes were eight feet long. Note stake in ground between stakes for placement of tripod.



(Figure 15)

Fabricated Mortar Aiming Stake. A small light is affixed to the tip to facilitiate night sighting. This stake is placed 20 to 30 meters in front of each mortar position



(Figure 16)

A typical 122mm Rocket Launch site. Note L and U shaped crew firing pits to the side and slightly forward of launcher positions.

overrun the installation. When employing his weapons for this purpose, rocket attacks have preceded other attack activities. Mortars and recoilless rifles have been used against installation machine gun positions, bunkers or other specific targets on the installation. When used only for standoff attack purposes, mortars and recoilless rifles have usually been employed against installation area type targets such as ammunition dumps, base facilities, barracks or aircraft parking areas.

(2) Rockets.

(a) Attacks by rockets usually last from two to twenty minutes dependent upon the size of the attacking force, the number of rounds available, and opposing counterfire response capability and accuracy.

(b) The enemy normally employs his rockets in salvos of three, six, twelve, eighteen, and has on occasion, in the case of the 122mm and 140mm rocket, employed two battalions of eighteen rockets each. In the attack against Da Nang in February 1967, one hundred and thirty 140mm rocket launchers were located at one launch site. Because of malfunctions in the firing system and individual rocket motors, only 66 were successfully launched. Fifty-six impacted on Da Nang Air Base and eight in the adjacent village. The other two did not impact in the area.

(c) Normally, a 122mm rocket battalion is equipped with three rocket batteries (one battery per company), each of which has six launchers or a capability of the battalion to launch 18 rockets in one salvo. In the case of the 107mm rocket, this capability varies from one to twelve rockets from each salvo, dependent upon the launcher used, the number of units, and the availability of rockets. The 140mm rocket can be launched from launcher tubes mounted on dirt pads or from improvised dirt and mud mounds. The number of rockets that can be launched is dependent upon availability of rockets, firing system and size of the launch site.

(d) Rocket fire is usually adjusted after the first one or two rounds. After the first rocket round has detonated, the forward observer (FO), if used, advises the rocket company by telephone or radio how close to the target the round landed and adjustments are made accordingly.

(e) Recent Combat Operation After Action Reports reflect that the enemy has begun to use new tactics for standoff attacks by attacking military installations from more than one launch site location, either simultaneously or by alternating salvos, in an attempt to increase the problem of counterfires. The reasoning behind these tactics was probably explained best by a prisoner of war (rocket company commander) interrogated in December 1968, when he stated:

> The primary problem for our forces is air observation by the US followed by quick reaction air strikes (helicopter or fixed wing). This limits the number of rounds that can be fired on an installation. The rocket exhaust is visible for nearly 300 meters from point of ignition to point of burnout. This provides air observers with easily recognizable pinpoint locations of the launch site. Consequnetly, we have adapted hit and run tactics in accordance with the principles or guerrilla warfare.
>
> No more than five rounds are fired from any single tripod type launcher. This takes about 20 minutes. No more than two salvos are fired from homemade launchers, which takes about ten minutes. Displacement only involves the immediate pick-up of all equipment and leaving the area with all possible speed, which takes about five minutes....

(f) Withdrawal from the launch site(s) is planned in advance. The withdrawal route(s) for rocket units are planned to provide for concealment by the most direct route to the assembly or staging area. This route is normally the same as that used to reach the site. At night, emphasis is placed on speed. When a large rocket force is employed and its units are pursued, mortars are used to give fire support during withdrawal.

(3) Mortars and Recoilless Rifles. Mortar and recoilless rifles are employed as separate standoff attack forces, as a composite force, or in conjunction with rocket standoff attacks.

(a) When employed as individual weapons systems, care is exercised to position these weapons in a relatively well concealed area. On several occasions they have been positioned within 15 meters of hamlets, the edge of small villages, in churchyards or in close proximity to individual dwellings. The capability of friendly counterfire appears to be the key to method of employment.

(b) When employed in conjunction with rocket standoff attacks, where no attempt to breech the installation defenses is planned, mortar and recoilless rifles are normally employed as follow-on fire to the initial rocket attack. When used in this manner, they are normally employed as cover fire while the rocket force withdraws. The recoilless rifle unit is usually the last to withdraw.

(c) A prisoner of war interrogated in December 1968 stated that recoilless rifles and mortars were more accurate than rockets and therefore could be used against smaller targets. He stated that except for the difference in range, they were used in a fashion similar to rockets.

CHAPTER IV

COMBAT EXPERIENCES AND LESSONS LEARNED

1. (U) GENERAL:

a. Combat experiences indicate that the frequencey and resultant damage of enemy standoff attacks against military installations in South Vietnam have, in most cases, been proportionate to the effectiveness of countermeasures and internal protective measures which have prevailed at each military installation.

b. Reflected herein are excerpts from certain of these combat experiences as revealed by combat after action and intelligence reports which best illustrate the enemy's methods of operation, employment tactics, effects of such attacks, and lessons learned from these attacks.

2. (CMHA) COMBAT EXPERIENCES:

a. Da Nang Air Base. At 0310, 27 February 1967, Da Nang air base was subject to a standoff attack. In this attack, 56 140mm rockets impacted on the air base proper and eight in the adjacent village.* The attack lasted less than 60 seconds. Eleven US military personnel were killed, 125 were wounded, 13 aircraft and various buildings and facilities were damaged. In addition, 35 Vietnamese civilians were killed and 50 wounded by rounds which impacted in the village adjacent to the air base. Prisoner of war interrogation reports obtained after the attack revealed the following:

> During the afternoon of 26 February, while the rocket launch site was being surveyed, enemy forces of the VCR-20 Local Force Battalion met 130 NVA soldiers of an unknown unit and began moving east to the launch site from the Ba Na mountain area from a location in the vicinity of AT7970. During the initial part of the movement, each NVA soldier carried one 140mm launch tube on his back. Then the battalion reached a valley along the line of march, members of the R-20 battalion picked up 130 140mm rockets from a cache located in the vicinity of AT886700. Each rocket was placed on a bamboo vine-rope constructed stretcher. Two men were assigned to each stretcher which contained one rocket. Each rocket was carried in this manner until the battalion reached the Song Yen River. At this point, approximately 30 native

*Sixty-six were launched but only sixty-four impacts were recorded.

watercraft with crews were waiting at the edge of the river.

The rockets were placed in the boats and the ground crew proceeded downstream. The porters walked along the edge of the stream as the boats moved to the vicinity of the launch site. At 2330 hours, the force reached the already surveyed firing positions. The porters off-loaded the rockets and took them to the launch site adjacent to the river, placing one rocket behind each of the preliminary emplacements.

The rocket crews immediately began preparing the launch positions, marked by a roped-off area, while another group began assembling the rockets for firing, i.e., unpacking, fusing, and installing the igniters. The firing pits were three to four feet long, eight to ten inches in depth and 20 to 24 inches in width. The earth from the pits was placed in front of the pits. (Figure 17)

After final preparation of the firing positions, the rocket launcher tubes were positioned in the launch site. A bamboo pole was in place at the front and rear of the launch pit which served as an aiming device. These had been previously placed there by the survey crew. Final azimuth adjustments were accomplished by the rocket launch crew by reference to a white line painted along the top of the launcher.

As soon as the launchers were properly aligned, the fused rockets were inserted. Elevation of the launcher tube was adjusted by a notched peg. Wires were attached to the electrical igniter at the base of the round and then tied to the electrical alignment stake. A set of wires, acting as a common electrical system was then connected to the rear alignment stakes and spliced into the igniter wires already installed in the rockets. These wires connected each fire control pit to 10 or 12 launch pits. Communication was established between the control pits and, on command, the rockets were ignited from an electrical source.

Although 134 launch pits were constructed, only 66 pits were effectively used. The rockets were fired in volleys from the line of launchers located at grid coordinates AT965697 firing first, followed by the rockets located at grid coordinates AT966695. All 66 rockets were fired within 30 to 45 seconds, with an estimated 20 seconds

(Figure 17)

This is a 140mm Rocket Launcher as used in the attack on Da Nang. Note the rope on the left which anchors the launcher.

between volleys. Thirty-five rockets failed to ignite due to a malfunction in the electrical wiring system. One rocket jammed in the launch tube, causing the tube to be fired with the rocket, leaving the mounting board behind secured in position by stabilizing ropes.

The unit was forced to make a hasty withdrawal from the area before possible counterfire. This task was complicated because of the number of rockets that misfired. Valuable time was lost removing rockets from the launchers, and there was insufficient manpower to cope with the unexpected additional materiel to be evacuated. As a result, four launch tubes loaded with rockets were left at the launch site. Six unexploded rockets were placed in one of the firing pits shown in Figure 18. Two of these rockets were booby trapped with "mouse trap" pressure release detonators. Numerous rockets were thrown into the river and 101 rocket containers with various carrying devices were left behind.

...Thirty-one rockets were recovered from the river and four from launch tubes by US personnel....

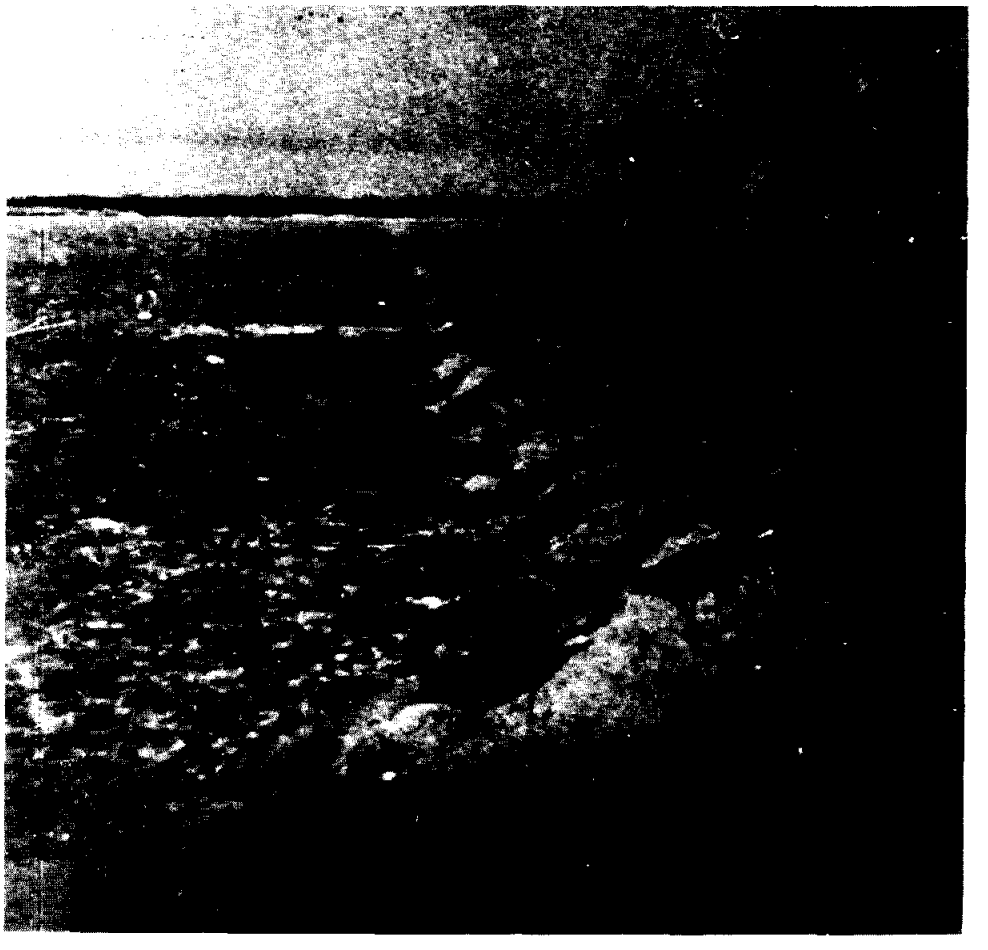
(1) As reflected in this account, the initial movement of the rocket battalion, after rendezvousing with a NVA unit, began from the Ba Na mountain area in the vicinity of AT7970. The unit then proceeded to the Song Yen river and thence to the launch sites at grid coordinates AT965697 and AT964694, a distance of approximately 1700 meters. The rockets were picked up from a rocket cache at grid square AT8867 approximately 1500 meters, or a little less than a mile from the launch site.

(2) From the above account, it appears that 23 rockets with containers were evacuated from the launch site.

(3) In excess of 500 enemy personnel were involved in this operation.

(4) Not reflected in the above account was the intelligence gathered prior to the attack. As reflected by the Combat Operations After Action Report following the attack, numerous intelligence reports and small unit contacts indicated that reconnaissance of Da Nang Air Base was being conducted and that an attack was imminent.

(5) The report indicated that several friendly personnel were injured or mortally wounded while attempting to take cover in nearby bunkers.



(Figure 17A)

140mm rockets positioned to fire from dirt mounds.

(Figure 18)

140mm rockets found abandoned in enemy firing pits after the attack on Da Nang. Two were booby trapped with "mouse trap" pressure release detonators.

b. Lai Khe Base Camp.

(1) During the period 14 March 1968 through 13 April 1968, Lai Khe Base Camp was subject to 26 separate rocket attacks. As a result of these attacks, one US military was killed, 21 were wounded, two buildings were destroyed and five damaged. In addition, two vehicles were destroyed, six were damaged, and numerous small items of equipment were either destroyed or damaged.

(2) The most significant aspect of these attacks was the fact that each lasted less than one minute and each was launched during daylight hours. This change in tactics was probably best explained by an enemy document captured during subsequent sweep operations approximately 15 kilometers from Lai Khe which stated:

> ....According to the situation, we can fire in the day or at night, but we will obtain more results if we fire during the day, because the enemy takes shelter at night...Therefore, we are required to clearly know the enemy situation....

(3) During these attacks, a total of 83 rockets were fired (75-122mm and 8-107mm) with fuse setting "Quick." Rockets were fired individually and in salvo (one to five rockets per attack).

(4) The Combat Operations After Action Report reflected the following concerning countermeasures in effect:

> Counter rocket fires began no later than 2 minutes after impact in each case of incoming rounds. The Artillery which plans fires for Lai Khe base defense has a very extensive counter rocket program which was fired daily. The plan was updated daily based on the best intelligence on confirmed and suspected rocket launch sites. During the past month numerous destruction missions on bunker and storage complexes to the northwest of Lai Khe (rocket belt) resulted in secondary explosions. This would indicate probable rocket storage areas. In addition, the Division Artillery S2 Target Center planned daily intelligence targets in the "rocket belt" area.... The trails leading into the "rocket belt" area were interdicted daily in order to disrupt and increase the rocket resupply problem.
>
> Light Fire Teams (LFT's) reacted to incoming rockets within 10 minutes. TAC Air reaction was between 5-30 minutes depending on whether or not the aircraft were airborne at the time. TAC Air was also utilized to destroy hard installations within the "rocket belt" area and for nightly

SKYSPOTS. On numerous occasions LFT's and FAC's were on station, observed rockets being fired, and immediately expended in the area. However, due to the method of recent launchings and the fact that it takes so few people to set the rockets. up, it has been extremely difficult to judge the effectiveness of artillery counter-fire and airstrikes. There has not been much equipment left on the ground to destroy after the rocket has been fired utilizing crude wooden bipod launchers and commo wire. In addition to LFT's and FAC's, the Division utilized division artillery aerial observers and G-2 air observers and aircraft to conduct daily visual reconnaissance (VR) over the rocket belt area both during the day and night in order to bring immediate effective fires upon rocket locations and, thus, greatly improved the effectiveness of the counter-rocket program.

Infantry units conducted daily reconnaissance and reconnaissance in force operations in areas of known and suspected rocket locations. Several company and battalion size operations took place in the rocket belt during the reporting period. Their findings indicated that the rockets seem to have been fired by a few individuals utilizing commo wire at a distance of 200-700 meters from the actual launch locations....

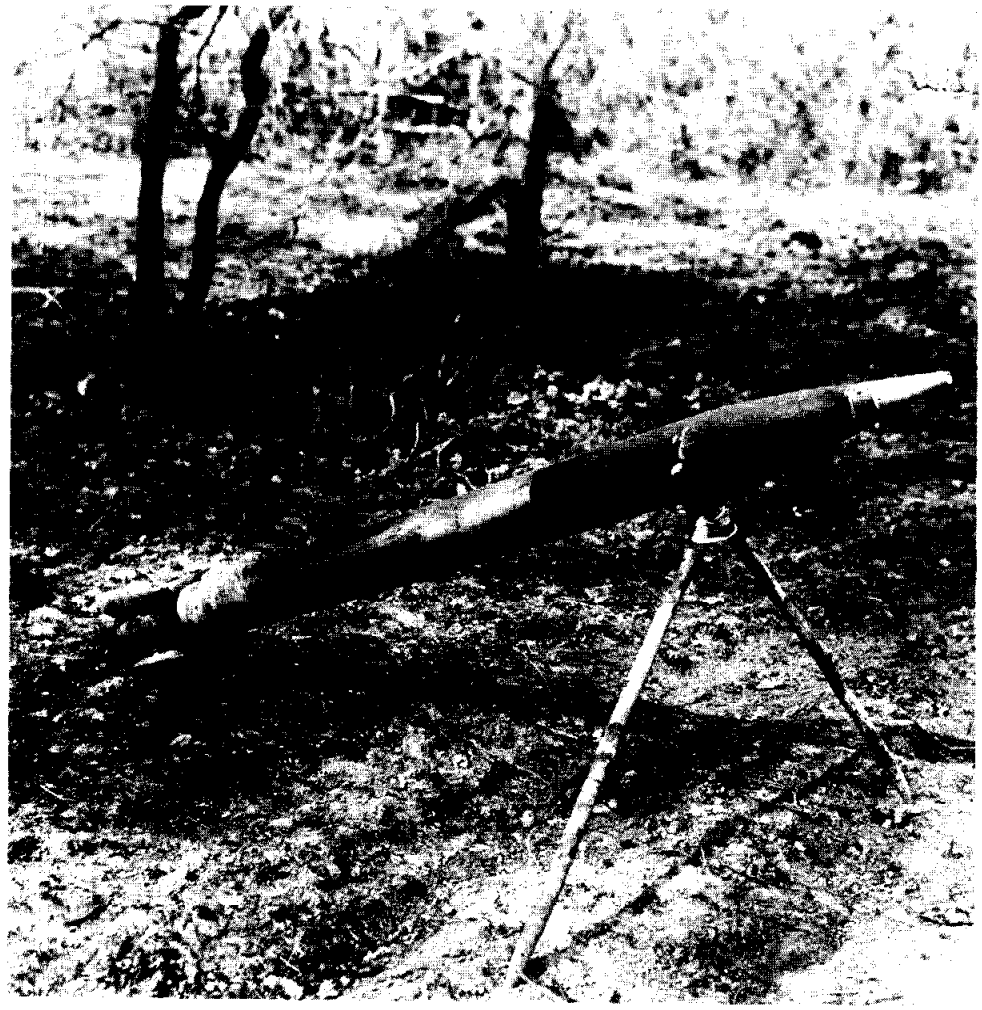
(5) The report also indicated that four ambush patrols were placed to the west and east of Lai Khe each evening. During a sweep operation at one launch site, a friendly unit located one enemy KIA, one AK-47, eight flashlight batteries (wired together within a wooden framework), three improvised rocket launchers (each consisting of two 1x42 inch saplings wired together to form an X tripod), and two 122mm rockets (Figures 19 and 20). This finding indicated the method of operation by the enemy and the effects of counterfire.

c. Tan Son Nhut Air Base.

(1) Tan Son Nhut Air Base was subjected to enemy standoff attacks by 122mm rockets on 6, 7, 8 and 10 May 1968. Each of these attacks either preceded or was in conjunction with enemy infiltration attempts and ground assault activities against the air base and adjoining areas.

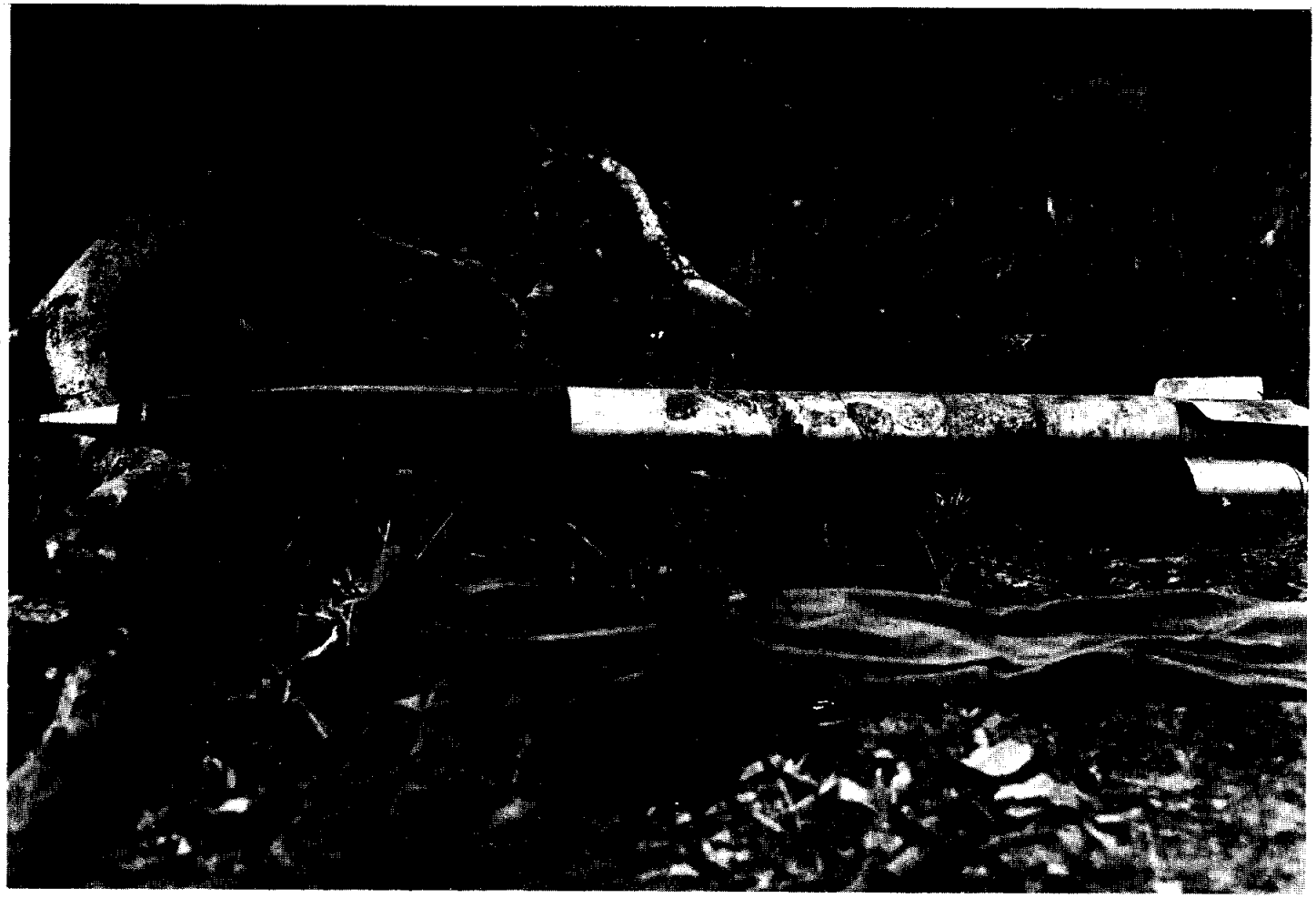
(2) The following account, extracted from the Combat Operations After Action Report of the 377th Combat Support Group, reflected basically what transpired during and following each of these attacks:

At approximately 0616, 6 May 1968, one of the air base perimeter observation towers reported incoming rockets.



(Figure 19)

122mm rocket mounted on improvised stakes. This photograph was taken immediately after attacks on Lai Khe Base Camp in 1968.



(Figure 20)

An abandoned 122mm Rocket, AK47 Rifle and canvas carrying bag for 122mm Rocket and components found at launch site following attack on Lai Khe Base Camp.

Two minutes later, heavy movement was reported behind the school adjacent to the south perimeter. At 0620 hours, one of the task force units charged with supporting the base was deployed to an area receiving sporadic small arms and automatic fire. Shortly thereafter, contact with an unknown size enemy unit was reported behind a school in close proximity to the base. At 0722, one of the outer perimeter bunkers reported it had made heavy contact with approximately 40 enemy adjacent to the bunker post. Contact with the enemy continued to increase. The enemy continued his attempts to infiltrate the area around the air base throughout the day using small arms sniper fire, machine gun fire and mortars to cover movement. At one time during the exchange of fire, one of the base defense sector supervisors reported observing an enemy on the roof of a building adjacent to his sector, holding an aiming stick. Permission to fire was obtained and the enemy was eliminated. The mortar barrage ceased. Sniper fire continued.

At 0303/0406, 7 May 1968, eleven rockets impacted on the base. Minor damage was inflicted. The impact pattern indicated that the flight line was the probable target.

At 0300, 8 May 1968, 14 122mm rockets impacted on the base. The general pattern indicated that the work areas and housing areas were the primary targets. Damage was moderate to minor.

At 0325, 10 May 1968, seven 122mm rockets impacted on the base resulting in negligible damage. This appeared to be a harassment attack.

Throughout these attacks, enemy probes and sniper fires were continuous. The reason for such action by the enemy was probably best explained by the following comments in the Combat Operations Report:

...As during the TET Offensive, the need for a free fire zone was realized. Had a free fire zone been established adjacent to the south perimeter, the enemy would have been identified earlier plus the continuous small arms fire received after 6 May would have been eliminated.

3. (CMHA) LESSONS LEARNED: As reflected in the preceding accounts, certain Lessons Learned were realized from each of the attacks:

a. Da Nang Air Base.

(1) The enemy demonstrated the capability to transport, position and launch large numbers of rockets against a military installation although intelligence reports indicated that an attack against the installation was probable.

(2) The threat of counterfire caused the enemy to abandon the launch site before he could successfully launch more than half of his weapons.

(3) The majority of friendly casualties on the air base resulted from personnel exposing themselves while attempting to take cover in bunkers.

(4) More than 500 enemy personnel are involved in an attack of this magnitude.

b. Lai Khe Base Camp.

(1) Although the enemy was persistent in his attack efforts, the results he achieved were at best minimal because of countermeasures in effect.

(2) The enemy used several locations from which to launch his attacks. Each launch site was occupied by minimum enemy forces scattered throughout the rocket belt.

(3) The enemy demonstrated new tactics by launching his attacks during daylight hours and from many directions.

(4) The enemy was forced to launch his rockets from improvised launchers because of the need for maximum security while infiltrating the rocket belt.

(5) Although tactical air was available during the actual launching of the rockets, few aircraft were on target in time to destroy enemy rocket launch crews.

(6) Artillery response was timely and relatively effective as demonstrated by the short duration of each attack and the abandonment of enemy weapons.

c. Tan Son Nhut Air Base.

(1) The attack on Tan Son Nhut demonstrates one of the enemy's basic tactics, that of preceding each assault on an installation with some form of standoff attack or harassment action. This complicates the problem of passive defense measures against standoff attacks considerably because of the dual requirement to provide protection for personnel on the installation, while at the same time protecting the base against enemy ground assault actions. For this reason, installation defense preparation against standoff attacks must take into account installation ground defense requirements. This requires that the earliest prewarning of standoff attack activity be provided all personnel, that each individual be fully trained in his duties by location, and that bunkers or shelters be located so that both requirements can be met under standoff attack conditions.

CHAPTER V

PREATTACK PREPARATIONS

1. (CMHA) GENERAL:

a. Experience has demonstrated that the degree of success in minimizing the effects and frequency of enemy standoff attacks against military installations has been proportionate to those preattack measures taken to:

(1) Provide protection for personnel and other critical assets on the installation.

(2) Determine requirements and procedures necessary to counter enemy standoff attacks.

(3) Locate and destroy enemy weapons caches.

b. In satisfying these requirements, all aspects of the installation environment must be evaluated to insure that capabilities established are in consonance with the threat which exists and the problems associated therewith.

2. (CMHA) INSTALLATION PREPARATION: The protection of personnel, critical equipment and facilities are major considerations in establishing installation defenses against enemy standoff attacks. This problem is amplified because of the corresponding requirement to provide for internal security on the installation in the event the enemy attempts to penetrate or overrun the installation in conjunction with standoff attacks.

a. Personnel Protective Measures. In most cases, injury or death to personnel on military installations from enemy standoff attacks has been caused by shrapnel or blast effects. For the most part, injuries or death have occurred to those personnel in the open, in unprotected facilities or enroute to protective shelters. From these experiences, it has been determined that the following actions are required to provide for reasonable personnel protection:

(1) Alert notification devices such as sirens and/or public address systems must be located throughout the installation to ensure that all personnel are warned that an attack is imminent or in progress.

(2) Sufficient personnel shelters must be strategically located throughout the installation. Each shelter should provide protection on four sides and overhead equivalent to four sandbag thicknesses.

(3) Billets and working facilities, such as office buildings, towers, maintenance buildings, warehouses etc., should be protected on four sides by the equivalent of four sandbag thicknesses. This protection should extend high enough above the flooring to offer adequate protection, structure support capability considered.

(4) Personnel must be thoroughly indoctrinated in personal protective measures and procedures which have been established, with particular attention given to location of protective shelters and action to be followed under attack conditions. In this regard, emphasis must be placed on the necessity for personnel remaining in a prone position rather than upright while an attack is in progress.

(5) Properly equipped observation posts should be positioned along the perimeter of the installation to serve as an early warning relay of enemy weapons employment.

b. Critical Equipment and Facilities Protection. Equipment and facilities essential to the combat mission should be dispersed throughout the installation consistent with operational and security requirements. This equipment should be protected on a minimum of three sides by the equivalent of four sandbag thicknesses. This protection should extend from the floor or ground level to the height necessary to provide for reasonable protection. Where possible, the same equivalent protection should be provided overhead. If four-sided protection is not feasible, the open end should be that side opposite the direction of potential attacks.

3. (CMHA) TERRAIN ANALYSIS: A detailed analysis of the terrain around each military installation is essential if an effective capability is to be established against enemy standoff attacks. This analysis should extend approximately five kilometers beyond the range of the enemy's weapon system. It should be designed to determine suitable enemy weapons employment sites, possible weapons storage locations, most likely access and withdrawal routes, observation posts and civilian and military aspects of the area. The facts gathered from this analysis should be recorded and used as a basis for developing a capability to deny the enemy access to the area, locating his weapons, and determining pre and post counterattack fire clearance requirements within the area.

a. Since the 122mm rocket has the greatest range of any of the enemy's weapons employed against military installations, this analysis should extend from the perimeter of the installation to approximately five kilometers beyond the range of this weapon (i.e., 11,000 meters plus five kilometers). During the conduct of the analysis, the following should be identified:

(1) Navigable waterways adjacent to or within 16,000 meters of the installation.

(2) Roads or trails within, adjacent to, or leading to the rocket belt. (That area of terrain around the installation which is considered suitable for mortar, recoilless rifle and/or rocket employment).

(3) Terrain within the rocket belt which is considered suitable for enemy weapons employment (type and range of weapon considered).

(4) Requirements for defoliation.

(5) Potential weapons storage areas (based on requirement for concealment and movement to launch locations).

(6) Most appropriate locations for friendly observation posts, radar surveillance equipment and counterfire artillery batteries.

b. Initial conduct of terrain analysis should be by helicopter followed by detailed ground and, if necessary, water reconnaissance and analysis of terrain features which appear to offer suitable enemy weapons storage areas.

c. When conducting preliminary terrain analysis by helicopter or other vehicular means, a minimum of two individuals should be present so that at least one individual is free to observe and plot terrain features which are capable of supporting enemy activities. If possible, this individual should be a trained observer equipped with binoculars. As reported in DA Lessons Learned 3-68, July 1968:

> The inexperienced observer will normally attempt to use his binoculars constantly. Such a procedure may cause him to become disoriented and perhaps even a little airsick. Experience reported by the 22nd Combat Support Aviation Battalion indicates that it is best to scan the area without binoculars and use them to search only a small area. The greatest value of binoculars in aerial observation is that they reduce the necessity for making low passes... (Or, in the case of other type vehicles, getting too close to the area in question).

4. (CMHA) LOCATING ENEMY WEAPONS CACHES: The enemy normally locates his weapons caches in what he considers a "safe" area as close as possible to launch of weapons employment site(s). This has been supported by several prisoner of war statements. Each has indicated that this is one of the prerequesites for caches. On several occasions, weapons have been located only a few meters from the weapon site and in some cases, immediately adjacent to the site.

a. Large caches are usually buried or concealed in large tunnel complexes. These caches are guarded or kept under observation by local guerrillas. Many are concealed near or on stream or river banks, in hedgerows, under heavy foliage, broken tile or earthenware, straw stacks, in hollowed trees, logs, tree stumps, under woodpiles, rubbish or any suitable object which provides concealment.

b. Caches located near waterways are usually just below or above the water line concealed by natural vegetation. For this reason, these caches can be located more easily at low tide. Probing the banks, streams, or small waterways with a pole or like item has proven to be the most effective method for locating caches. (Caches are seldom located in large or deep waterways except along or near banks, because of the problems associated with recovery). Weapons have also been found in waterproof bags suspended beneath sampans or other type water vehicles.

c. Small caches are usually covered by soft dirt, wood, metal, plastic or natural vegetation. In many cases, weapons found in small caches were either wrapped in plastic or in 50 gallon drums. Using a pole or like item to probe the ground or the suspected cache area has proven to be an effective method for locating these caches. Mine detectors and dogs have also been used with considerable success.

d. The best method for locating caches is by using Hoi Chanhs, sympathizers or others to pinpoint or guide friendly forces to cache sites.

e. When using Hoi Chanhs or others to locate caches, they should be taken to the area described and placed "on point" a safe distance from friendly troops. If possible, an interpreter should be used to receive and relay information. Upon arrival at the cache site, the area should be secured prior to search operations. Search should be slow and deliberate with caution exercised for possible booby traps.

CHAPTER VI

COUNTERMEASURES

1. (U) GENERAL: To effectively counter enemy standoff attacks, unacceptable damage must be inflicted on the enemy in the event he attempts or succeeds in launching an attack. To meet this requirement the following capabilities must be established:

a. A command and control capability which provides for rapid response to enemy standoff attack activities detected or suspected.

b. A surveillance capability which is capable of detecting enemy movement or standoff attack activities at any location around the installation wnich is within the range of enemy weapons.

c. A fire delivery system which is capable of inflicting unacceptable damage on enemy forces once detected.

2. (CMHA) COMMAND AND CONTROL:

a. To be responsive to the requirement for timely and accurate counteraction against enemy standoff attacks, all forces assigned counterattack responsibilities must be responsive to a single commander and to the requirements which exist. Against standoff attacks, this normally involves those elements assigned to the Control Central and those functioning under its operational control, to include field units in each AO and aerial teams supporting "rocket belt" surveillance.

b. While all actions between AO's are initiated and/or approved through the Control Central, to be fully responsive to the requirement for rapid response within their AO, responsibility for reaction, to include area clearance and counterfire response, must be vested in each AO commander. When two battalions are operating in one AO, a brigade type forward command post should be established. Under this command and control arrangement, final decision for engaging the enemy is vested in the designated forward CP commander, after proper clearance procedures have been met. It is therefore imperative that the following command and control capabilities be established:

(1) Reliable and effective communications must be maintained between the Control Central and each AO Command Post.

(2) Each AO commander must have a counterfire capability assigned to cover potential enemy weapons employment locations in his AO. Where

possible, this capability should be organic to his force.

(3) Each commander must be cognizant of all authorized movements in his AO to include patrol and ambush team activity.

(4) All enemy activities in an AO, observed by personnel outside that AO, should be reported to the responsible AO Command Post through Control Central.

(5) Where responsibility for counteraction against the enemy involves combined forces, Control Central should be manned by qualified representatives from each force. These individuals should be located in one room so that close and timely coordination can be effected as required.

(a) An interpreter should be available in the Control Central at all times to provide for clear understanding of information or requirements passed from one country representative to the other.

(b) Operating procedures should be standard for each AO and within and throughout the Control Central so that mutual support is provided in a timely manner and with minimum effort.

3. (CMHA) SURVEILLANCE: The importance of establishing a capability which will provide for detection of the enemy prior to launch site activity within the rocket belt cannot be stressed too strongly. If the enemy is denied the opportunity to enter or move within the rocket belt, his standoff attack capabilities are contained. Facilities and procedures established to provide this capability must be based upon potential enemy launch or weapons employment site locations, possible enemy avenues of approach to these locations and other terrain features within the enemy's weapons employment capability. The degree of success is dependent upon positive coverage of the entire area in question and avenues of approach thereto. A combination of several methods is usually required. This includes personal surveillance from manned observation posts (towers or high terrain), airborne reconnaissance, surveillance radar, patrols and ambushes, and other warning devices. At most installations, all are required.

a. Observation Posts. Observation posts should be strategically positioned to provide for line of sight observation throughout the rocket belt. At some installations, this requirement cannot be fully satisfied because of terrain features, distance involved, obstructions, or other reasons. Reasonable security should be provided each post to preclude destruction by the enemy. Personnel manning these posts should be equipped with binoculars, a minimum of one starlight scope and, if possible, two battery commander scopes. Watch shifts should be no longer than four hours,

manning capabilities considered. Each post should provide for unobstructed view of a predetermined sector of the rocket belt. Where possible, the visual field of each post should complement that of two additional posts so that complete coverage throughout each sector of the rocket belt is possible and so that triangulation for enemy positioning can be effected.

b. Aerial Reconnaissance. Day and night aerial reconnaissance should be conducted over the potential enemy weapons employment area and potential avenues of approach thereto to monitor possible enemy movement or activities.

(1) The day reconnaissance effort should be designed to detect possible enemy movement along the approach avenues and within the rocket belt to detect reconnaissance activity and/or enemy weapons employment preparation. As stated previously, preceding each attack, the enemy sends reconnaissance and survey teams into the rocket belt to reconnoiter the installation and establish rocket launch site or weapons firing positions. Such preparation is normally discernible by the presence of aiming stakes or poles aligned in a "V" or perpendicular position pointing to the installation (figures 18 & 19). During the conduct of aerial reconnaissance, caution should be exercised to ensure that the time over each sector of the area varies each day so as to preclude enemy knowledge of arrival time.

(2) Night reconnaissance should be conducted throughout the rocket belt to detect enemy activity and/or assist in coordinating counterfires. Caution must be exercised to ensure that this effort does not terminate before 0700 each day and that an overlap exists between day and night reconnaissance.

c. Radar Surveillance. If properly positioned and supported, ground surveillance radar provides one of the most effective surveillance capabilities against enemy standoff attack activities. This is particularly true for night operations when enemy activity is most prevalent and visual observation is difficult.

(1) Several radars have been employed throughout South Vietnam in the rocket belt ground surveillance role. The degree of success has varied at each location commensurate with terrain features, the capability of the radar, and operational and maintenance support provided. Radars employed in this role include: the AN/TPS-33, AN/TPS-25, AN/PPS-6, AN/PPS-5 and the AN/PPS-4.

(2) Under ideal conditions, the AN/TPS-33 has a range capability of 18,240 meters. However, experience has demonstrated that personnel targets can seldom be detected beyond 6,000 meters in South Vietnam. Weather, foliage and power output influence the range capabilities of this radar considerably. When mounted on a tower to improve range capability, some deadspace results. In addition, considerable maintanance and electrical

power support difficulties have been encountered. This radar is being replaced by an improved model scheduled in Vietnam for test in 1969.

(3) The AN/TPS-25 radar has proven to be one of the most effective radars for area ground surveillance. After arrival at a location, it can be readied for operation in approximately three hours. To obtain maximum range, it should be located so as to allow line of sight coverage of the desired area. If ground location does not provide this capability, the radar set should be positioned in a tower approximately 40 feet above the terrain. This will provide for maximum range and minimum deadspace. When located in favorable terrain and positioned properly, the AN/TPS-25 radar has the capability to detect personnel movement out to 12 kilometers. Numerous intelligence reports reflect that the sightings detected by this radar have resulted in counterfire response which completely routed the enemy. For example, during one five day operation in III Corps some 220 sightings were recorded by one set which had been positioned to monitor suspected enemy activities. Of these 220 sightings, 136 were verified as enemy targets and fired on. In mid-April, following an operation near Cai Lay, a prisoner of war stated that his company had suffered ten killed and thirty wounded by artillery fire directed on his company as a result of radar sightings. On another operation, an agent reported that 136 enemy had been killed in a night operation by artillery fire as a result of AN/TPS-25 radar sightings.

(4) The AN/PPS-6, 5 and 4 radars have been used effectively to extend installation perimeter defense, monitor avenues of approach to the rocket belt(s) and provide deadspace coverage of the AN/TPS-25 or 33 radars. They have also been used to vector patrols or ambush teams within the rocket belt proper and to enemy trails or access routes to these postions. These radars are also suitable for use with ambush teams.

(a) The range of the AN/PPS-6 varies with the terrain and foliage characteristics thereon. It can detect moving personnel out to a range of 1,500 meters and moving vehicles out to a range of 3,000 meters. Ideal terrain for the AN/PPS-6 is flat or slightly rolling terrain, relatively free of vegetation. It may also be used to detect targets in ravines and streambeds, when used in the automatic search modes. As a minimum, the Night Observation Device (NOD) or Searchlight Device should be employed with the AN/PPS-6 to confirm targets acquired. A three man team is adequate for continuous operation. The set may be operated from a rechargeable battery for 15 to 20 hours. It is particularly suitable for night defense and ambush operations.

(b) The range of the AN/PPS-5, like the AN/PPS-6 and 4 radars, varies according to terrain features and foliage around the installation.

This set can be transported by two men and readied for operation in 10 minutes. It can detect and locate moving personnel targets at ranges from 50 to 6,000 meters and moving vehicles from 50 to 10,000 meters. It can be operated on either AC or DC current. When used in a portable configuration, with two BB-248/U120 Volt DC 100 ampere hours batteries connected in series, this radar set can be operated for 26 hours at 70 degrees Fahrenheit before requiring a recharge. Because of its range capability, it can be used as a substitute for the AN/TPS-25 radar. This is a follow-on radar for the AN/PPS-6 and 4 radars.

(5) Additional ground surveillance radars are under development as of this writing and should be in the test stage by early 1969.

d. Patrols and Ambushes. The use of patrol and ambush teams within the rocket belt and along potential access routes thereto have proven effective in curtailing enemy standoff attack activities against military installations. Where these teams have been used judiciously and in sufficient numbers, enemy activity has diminished considerably.

(1) The employment of this capability should be in consonance with intelligence gathering and suspected activities of the enemy based on past experiences. Ambush teams should be positioned at night but not in the same location consecutively.

(2) The activities of these teams should provide for surveillance and or ambush activities along avenues of approach to the rocket belt such as waterways, trails and suspected launch sites, with particular attention given to those areas where other type coverage is not adequate or where precleared fire zones cannot be established. The presence of these teams in these locations may increase counterbattery fire response time.

(3) Each team should be equipped with suitable communications so that movement of the teams can be monitored and support provided against the enemy as required.

4. (CMHA) FIXING THE ENEMY'S POSITION: To fix the enemy's position(s) within seconds, observation posts (OP's) must be strategically located so that triangulation of each potential launch site can be effected. Each post must be equipped with means which provide for accurate and quick azimuth sightings and rapid relay of sightings to Plotting Central. This capability has been established within the Capital Military Assistance Command by increasing the number of observation posts within its tactical area of responsibility, equipping each observation post with equipment and procedures which provide for accurate sighting and orientation of enemy attack position(s), and a communications capability which provides for rapid relay of this information.

a. In its Operational Report for November 1968, the Capital Military Assistance Command (CMAC) related the following:

> ...Experience indicated that once a rocket flash was detected by a tower observer, rapid orientation by other observers could not be accomplished effectively utilizing the M-5 plotting board. To quickly disseminate azimuths of observations, a system of prenumbered grids was developed. One hundred and eight blocks containing four grid squares each were selected and numbered. Azimuths from each of the observation towers to each numbered grid block were derived using the M-5 plotting board. The compiled lists of azimuths were placed in all towers.
>
> Employing this system, CMAC Plotting Central can orient observation towers simultaneously in three seconds whereas previously it required at least three minutes.

The report further reflected:

> Evaluation of the flash base and Plotting Central has resulted in the conclusion that the existing system does not provide adequate coverage to assure accurate target location or the desired degree of flexibility to respond rapidly to multiple rocket attacks. Accordingly, a new flash base system has been designed employing 16 US observation posts instead of the present nine. Two separate radio reporting nets, and two M-5 plotting boards have been established.... To provide the flexibility necessary during multiple attacks, a second M-5 plotting table will be used in the Plotting Central and an additional radio net will be employed, resulting in eight observation posts each reporting on separate nets to two plotting agencies. The resulting coverage from this expanded system should be adequate to ensure the required three azimuth rays to develop an accurate intersection on enemy first round launchings.

The report also stated that the manning within each observation post would be changed to provide for increased observation throughout each sector of the rocket belt.

b. The training of all observation post personnel and plotting central personnel is paramount to accurate and timely artillery counterfire. One method which appears to be worthy of note is that reflected in the CMAC Operational Report for November 1968. The report reflected the following:

CMAC has developed and implemented a simple test to evaluate detection means and reaction time. The test is initiated by firing one round (HE VT) at a predesignated declared grid. The observation posts report their sightings to the CMAC Fire Support Element (FSE). Plotting Central at CMAC FSE posts the reported sightings using M-5 plotting boards. As soon as a grid is developed, it is forwarded to an artillery fire central headquarters which directs a fire unit to attack the target. The target is engaged with two rounds of shell HC smoke. The following are used to judge reaction time:

(1) FSE Time: Time from reported flash to development of grid and passing of information to Artillery Central Headquarters.

(2) Bn FDC Time: Time from receipt of information at Artillery Central Headquarters to receipt at fire unit.

(3) Fire Unit Time: Time from receipt at fire unit until first round is fired.

Since implementation of these tests, reaction time has been reduced and a sense of competition has developed between the artillery units in CMAC.

5. (CMHA) COUNTERFIRE: Counterfire capabilities at most installations consist of gunships, artillery, mortars, and/or tactical aircraft. The effectiveness of these counterfires has been proportionate to the command and control capabilities which have been established and the accuracy of fire delivered. Fixing the enemy and receiving timely clearance for counterfires have been the major problems encountered. Experience has demonstrated that if counterfires are not accurate and delivered within one to two minutes after initial enemy weapons launch, damage to the enemy is negligible and does not serve as a deterrent. This is borne out by prisoner of war reports which indicate that in most cases the launch crew(s) have departed the launch site before counterfire commences. These reports also indicate that in most cases artillery fires are inaccurate and cause little damage to the launch site proper. Most prisoners of war state that fire delivered by fixed wing or helicopter gunships constitutes a greater threat than artillery or tactical aircraft. However, they state that the effectiveness of these aircraft and helicopters can be negated to a large extent by waiting until they have passed the launch site before launching an attack or, moving out quickly while they receive clearance to fire.

a. Gunship Counterfire.

(1) The problem of fixing the enemy and delivering fire on his position can be partially resolved if sufficient fixed wing aircraft and/or helicopter gunships are available so that one is on an approach heading to the potential launch or weapons site(s) at all times. These aircraft should be positioned so that those areas considered the most likely sites are monitored continuously after dusk. As stated previously, caution must be exercised to ensure that a pattern is not established which gives the enemy forewarning of airborne schedules.

(2) The problem of receiving clearance to fire on the enemy can be resolved best by ensuring that radio contact is maintained with the clearance authority for those areas which have not been precleared. To facilitate clearance, the Area of Operation (AO) Command Post should be the primary contact initiating clearance action. The AO commander should ensure that close liaison is maintained with district or province chiefs in his AO at all times for those areas where clearance may be required. In each case, each targeted launch site should be precleared through Control Central with final clearance responsibility vested in the AO commander or his designated representative. In those locations where civilian activity is a problem, an attempt should be made to have these areas placed under curfew after hours of darkness.

b. Artillery Counterfire.

(1) To be effective as a deterrent against enemy standoff attacks, artillery fire must be accurate and timely. This requires that procedures and capabilities be established which provide for fixing the enemy's position(s) within seconds after enemy attack action is observed and clearance to fire is either automatic or granted within one to one and one half minutes thereafter.

(2) Where possible, predesignated target areas within the rocket belt or access routes thereto should be assigned to artillery batteries to provide for rapid response to counterfire requirements. These areas should be depicted in the Control Center and in each AO CP so that rapid coordination can be effected.

(3) Radar sightings which cannot be cleared should be tracked until such time as they can be cleared or until a definite route of movement can be determined. A grid should be precleared ahead of the target and artillery laid to fire a time on target mission when the enemy enters the cleared target zone.

(4) In the near future, 105mm CS rounds should be available for delivery against those enemy positions where delay in receipt of clearance to fire is contemplated. This round is presently under test in III CTZ and has been effective.

CHAPTER VII

PREPARATION AND CAPABILITIES

REVIEW QUESTIONAIRE

1. (U) GENERAL:

a. Defense and countermeasure capabilities established for one installation may not prove satisfactory at another because of terrain features, local civilian environment, type installation and disposition of forces. However, for each installation, there are certain fundamental requirements which must be met if successful defense against the enemy is to be realized.

b. Listed herein are those considerations which should be addressed initially and periodically thereafter to insure that maximum attention is given to the essential requirements for installation defense against enemy standoff attacks.

2. (CMHA) IDENTIFICATION:

a. Is there an integrated defense plan which includes, in addition to internal and perimeter defense, measures for friendly tactical operations (surveillance/patrols/ambushes/search and clear) in the area out to the maximum range of the rocket/mortar/recoilless rifle threat as well as rapid reaction to limit the effectiveness of an attack and destroy the enemy?

b. Have major installations (likely targets) within a complex been identified?

c. Have rocket/mortar/recoilless belts been identified? (Rocket/mortar/recoilless belts are defined as the area encompassed between arcs swung from central point within the installation; one arc representing maximum range the other representing the closest most likely point of penetration of enemy rocket/recoilless rifle mortar launch units. Arcs may be swung from more than one point within the complex depending upon number and disposition of major installations therein).

3. (CMHA) ENEMY SITUATION:

a. Where are probable launch/firing areas? Within these areas, where are most probable launch/firing sites?

b. What are enemy capabilities? Type weapons? Size and identity of forces? Maneuverability?

c. What are enemy's routes of ingress and egress from rocket/mortar/recoilless rifle belts?

d. What are enemy's most probable lines of communication within rocket/mortar/recoilless rifle belts?

4. (CMHA) FRIENDLY SITUATION: Do maneuver elements operating in areas adjacent to the installation accomplish the following:

a. Concentrate surveillance/detection means and efforts within the rocket/mortar/recoilless rifle belts and approaches thereto; utilize to maximum available electronic/mechanical/optional/sensory equipment?

b. Conduct high density patrolling of probable launch/firing areas within the belts and approaches thereto? (Are patrols briefed on launch/firing areas characteristics and what to look for?)

c. Maintain positive control over waterways leading into and within the rocket/mortar/recoilless rifle belts?

d. Coordinate counterrocket/countermortar/recoilless rifle activities, surveillance, patrolling, etc., with GVN, RVNAF, NP, FWF and other US forces in area of responsibility?

e. Provide ground/helicopter borne reaction forces to seal off enemy routes of egress, seek out, and capture or destroy enemy forces? (Are LZ's available or established near probable launch/firing areas to expedite insertion of helicopter borne reaction forces?)

f. Reconnoiter routes of ingress into rocket/mortar/recoilless rifle belts?

g. Conduct an aggressive program to locate enemy weapons caches?

5. (CMHA) INSTALLATION DEFENSE:

a. Is an alert system in effect at each major installation within the vital area? Are personnel familiar with it? Are drills conducted?

b. Are personnel and critical equipment provided adequate protective shelter? Does each person know the location of his assigned shelter?

c. Are passive defense measures satisfactory?

6. (CMHA) COMMAND AND CONTROL:

a. Is a single commander responsible for the integrated defense against enemy ground, air, mortar, rocket and artillery attack?

b. Does the commander have a single Operations Center to control all elements of the defense?

c. Are all elements of the defense represented in the Operations Center?

d. Is an interpreter provided where combined forces are involved?

e. Does the Operations Center have the capability to plan, initiate, coordinate and control, when necessary, all defensive fires and defensive actions within the area out to the maximum range of attacking weapons?

f. Is there a reliable communications system established in the area of responsibility between all command and control centers, maneuver forces, firing elements, aircraft support and the observation/surveillance network?

7. (CMHA) OBSERVATION POSTS:

a. Are OP's and searchlights collocated? If not collocated, are direct communications established between them?

b. Have OP's and radar sites been surveyed in, properly equipped and manned?

c. Has selective defoliation been accomplished to improve observation and surveillance?

d. Have cell surveillance teams been specifically tasked to detect and report enemy activities around the installation? Have positive communications between these teams and Control Central been established?

e. Are OP's prepared to report accurately and immediately? Is each equipped with instruments capable of determining azimuths quickly? Are personnel trained in flash ranging as well as forward observer procedures?

f. Has a standard format been prepared for OP and radar teams use in reporting rocket launchings?

g. Is provision made for counterfire drills to exercise OP's, plotting central and counterfire forces?

h. Are personnel manning observation posts (other than artillery OP's), listening posts, ambush points, etc., trained in basic forward observer

procedures, to locate enemy weapons firing and call in counterfire?

i. Do aerial observers know what to look for regarding rocket/mortar/recoilless rifle attacks; indications of impending attack, characteristics and locations of probable launch/firing areas, sites? Are airborne Forward Air Controllers and personnel airborne for other purposes utilized in supplementary observation roles?

8. (CMHA) ARTILLERY SUPPORT:

a. Have specified strike zones been established in all possible areas?

b. Is there a dynamic harassment and interdiction program? Is this based on suspected enemy action from past experience as well as intelligence gathering?

c. Does artillery have responsibility for coordinating detection means?

d. Are "clearance to fire" procedures established? Does artillery have authority to attack without clearance all detected launch/firing sites based on either:

(1) Direct and positive observation?

(2) A reliable three-way intersection achieved from azimuths reported by established observation posts?

e. Is artillery authorized to deliver fires within 200-400 meters of friendly troops?

f. Are rules of engagement clear and understood?

g. Do artillery AO's overfly the rocket/mortar belts and approaches thereto frequently and thoroughly?

9. (CMHA) AIR SUPPORT:

a. Have supporting aviation units been briefed on location of the rocket/mortar/recoilless rifle belts, enemy capabilities and potential launch/firing sites?

b. Does the air support unit understand and concur with coordinating procedures for counterfires?

c. Is firefly available? If so, is it employed effectively?

d. Is there a capability to employ TPQ-10 (MSQ77) air strikes? Are they utilized in conjunction with other harassment and interdiction fires? Before and after attack?

e. Is SLAR/IR type equipment available? Is it utilized?

10. (CMHA) CONDUCT OF THE DEFENSE AGAINST ROCKET/MORTAR/RR ATTACKS:

a. Are daily surveillance activities conducted?

(1) Patrols?

(2) Overflights?

(3) Reconnaissance inserts?

(4) Waterway patrols?

b. Are air strikes (AN/TPQ-10) utilized? Carefully selected?

c. Is flow of intelligence sufficient to anticipate enemy rocket/mortar/RR attacks? Are procedures established for rapid dissemination of rocket/mortar intelligence?

d. Are PW's and Chieu Hoi's habitually interrogated for rocket/mortar/RR information?

e. Has an intelligence log been established to record all intelligence information pertaining to rockets/mortars/recoilless rifles, indicating action taken?

f. Are daily checks made with local police and hamlet/village officials in or near the rocket/mortar/recoilless rifle belts?

g. Does emphasis continue to be on prevention rather than reaction?

h. Is plan flexible enough to counter simultaneous attacks from several launch areas?

11. (CMHA) POST-ATTACK INVESTIGATION:

a. Has an after action inspection team been established? Trained? Equipped?

b. Are provisions made for cordoning off uncovered rocket/mortar/recoilless rifle position areas/impact areas until investigations are complete?

c. Are procedures established for post attack insertion of inspection team(s) into rocket/mortar/recoilless rifle positions and impact areas?

d. Are inspections conducted in accordance with after action inspection check list?

e. As an absolute minimum, are the following questions resolved:

(1) What were the enemy's tactics?

(2) What was the time interval between rounds?

(3) What was the direction from which the rounds were fired?

(4) Was the attack launched from one site or multiple sites?

(5) Were the rockets fired from launchers, packing containers, or from dirt mounds or other devices?

(6) Is adequate countermortar radar in being?

(7) Is defoliation adequate?

(8) Was communications, coordination and plotting adequate to meet the enemy situation?

(9) What action is required to correct deficiencies noted?

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