Tactics used in Vietnam



Allied and NVA/VC Tactics

Allied and North Vietnamese / Viet Cong doctrine showed marked and significant differences in the approaches taken by either side when faced with decisions regarding unit tactics on the battlefield. This section of GRUNT! will be used to examine the tactical doctrine of the various combatants in relation to many different areas and highlight those differences which are glaringly apparent as well as those which were far more subtle but nonetheless present. No attempt is made to determine which, if any, can be considered as 'best' or 'correct'.

UNITED STATES

Fire Support Coordination	An in-depth examination of the complex fire support coordination procedures as practised in Vietnam, including artillery, helicopter, Tac Air and naval gunfire support.
Defending Installations	An examination of lessons learned and their application to the defence of static US installations against Viet Cong mortar and recoilless rifle attacks.
NVA Bunkers	A look at the construction techniques of the NVA and the effectiveness of weapons systems employed against them.
Ambush Operations	Introduction to US doctrine regarding ambushes, including pages on the various types of ambushes used (from hamlet to waterway) as well as a selection of schematics detailing US formations adopted in ambushes.

Eagle Flight	Introduction to Eagle Flight Operations and Missions, including schematics detailing flight formations and assault landings as well as an actual operational summary.
VC Tunnel Complexes	An examination of the techniques developed and adopted by US forces in combating VC tunnel systems.
Village Search Operations	Methods adopted by US forces in isolating and searching villages and hamlets suspected of harboring VC or VC sympathisers
Countering Ambushes	Techniques used to avoid being ambushed by NVA and VC including trail security and Company movement.
Friendly Fire Incidents	Whilst not strictly a subject detailing tactics used this article nonetheless highlights the dangers of poor tactical decisions when employing supporting fires.
Countering Standoff Attacks	This article examines the various strategies adopted by the US and Allies in countering the increasing threat of NVA standoff attacks against friendly installations

NVA and VIET CONG

Ambush Operations	Introduction to NVA and VC Ambush tactics, from simple and small scale to fully fledged five-element maneuvering ambushes.

Offensive Operations	Overview of NVA/VC offensive operations
Defensive Operations	Overview of NVA/VC defensive operations
Booby Traps	Employment and effect of widespread use of booby traps
NVA Sappers	Development of the NVA Sapper Corps examines training, organisation and tactics
Power Raids	How the NVA/VC conducted their lightening fast attacks on allied bases and defensive installations.
Hill Trap Maneuvers	In 1966 the NVA started to develop a form of maneuver designed to annihilate US forces in 'special' killing zones.
Standoff Attacks	As the war progressed, the NVA made increasing use of standoff weapons to attack US installations in 'hit and run' operations utilising rockets, recoilless rifles and mortars.
Area Control and Mobility	In order to maintain their grip on the local populace and remain elusive from allied forces, the NVA and VC adopted techniques that allowed them to achieve both objectives simultaneously.
NVA and VC Base Camps	The construction of base camps and the maintenance of supply caches was a major feature of NVA and VC mobile operations. Realising this, they were also the major targets of the allied efforts.

NVA and VC Supply Caches	The establishment and maintenance of widespread caches of food, weapons and gear was of particular importance to the NVA and Vc since it allowed them to remain mobile and supplied even when their base camps were overrun.

Fire Support Coordination



INTRODUCTION

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1. PURPOSE.

This publication presents a series of lessons learned on fire support coordination agencies, organizations, procedures, and techniques used by FWMAF, RVNAF, and US forces in the RVN. Specifically, it deals with artillery, armed helicopters, tactical air, and naval gunfire support operations. The basic purpose of this publication is to document FSC in the RVN for -

- Units which request and receive fire support, to acquaint commanders with the support available and with procedures for getting that support.
- Agencies which develop and disseminate doctrine and instructional material, for possible use to reinforce, review, or revise doctrine or training in FSC.

2. SCOPE.

This Lessons Learned deals with the broad subject of FSC as it is carried out in the RVN. It addresses the factors which make FSC in the RVN different from and more complex than those experienced in wars in other areas and points out where modifications of doctrine and accepted procedures are necessary or desirable to meet the situation as it exists in the RVN. It assumes a general knowledge of FSC principles, procedures, and techniques, such as those presented at US combat arms service schools. Separate Lessons Learned are devoted to:

1. Field artillery support. (ANNEX A)
2. Armed helicopter support. (ANNEX B)
3. Tactical air support, including reconnaissance. (ANNEX C)
4. Naval gunfire support. (ANNEX D)
5. Combined fire support coordination centers - an innovation in the RVN. (ANNEX E)
6. An after-action report, Operation COBRA STRIKE, a joint combined operation which illustrates the successful integration of several fire support means. (ANNEX F)
7. Glossary of Abbreviations. (ANNEX G)

3. GENERAL.

a. Definition.

The US Joint Chiefs of Staff define FSC as "The planning and executing of fire so that targets are adequately covered by a suitable weapon or group of weapons". (JCS Pub 1)

b. Complexities.

(1) The definition itself needs no modification to apply to FSC in the RVN. However, several unique factors combine to make FSC in the RVN a complex and exacting procedure- more so than in previous wars. At the same time, fire support is more routinely available and in greater amount than in any previous war. In the great majority of cases, it is available in a matter of minutes - provided the ground commander knows of its availability and the procedures for securing it. The following factors tend to complicate FSC in the RVN:

a. Parallel national command and communications channels (US, RVNAF, and FWMAF).
b. Language difficulties.
c. Populated and urban areas.
d. Friendly and enemy intermixed.
e. International, political, and tactical boundaries.
f. Parallel national fire clearance procedures.
g. Joint (multi-service) and combined (multi-nation) participation.
h. Air warning requirements.

(2) These interacting factors, while resulting in a complex situation for the FSCOORD at any level, do not present an insurmountable problem. On the other hand, to appreciate the gravity of the situation, see MACV Lessons Learned No. 70, "Friendly Casualties from Friendly Fires", 17 October 1968.

c. Modifications.

The unique situation in the RVN has resulted in modification of terminology, doctrine, and procedures in FSC to meet the existing situation. These modifications are summarized immediately below and are dealt with in more detail in later parts of the paper.

(1) Terminology.

a. The term "free fire area" is not recognized officially at the MACV level; "specified

strike zone" is the approximate equivalent term.

b. "Air strike" is used in its usual sense, except that B-52 strikes are excluded; therefore, strike aircraft are defined as fixed wing aircraft of the fighter, bomber, and attack classifications capable of conducting an air strike.
c. Populated and urban areas are numerous and for most purposes constitute "no-fire areas".
d. There is no bomb line(s) in the RVN; the entire republic is considered to be inside the bomb line.

(2) Divisional artillery differs in varying degrees from the textbook organization. For example -

a. There is no Honest John battalion in any of the infantry divisions in the RVN.
b. Mixed calibers of artillery function as a unit at some Fire Support Bases
c. Some DS battalions have reorganized into two five-tube and two four-tube batteries.

(3) Field artillery support is widely available but the high degree of centralized control inherent in artillery doctrine is lacking, because the environment and nature of operations require wide dispersal of artillery.

(4) Deviations have been made from the fire support responsibilities inherent in the four standard field artillery tactical missions.

(5) The support of aerial artillery and other armed helicopters is much more extensive and available than might be the case elsewhere.

(6) TACAIR support is routinely available and in greater amounts than in any other war in history. Because of the relatively small area of the RVN and the presence of an extensive and elaborate TACS, TACAIR support is much more highly centralized than would be the case in a more conventional area of operations.

(7) TACAIR in the RVN has been tailored to operate in the relatively permissive environment that exists because of friendly domination of the air and lack of a really effective enemy air defense.

(8) A TACP is not normally found below brigade level in the RVN. In a more conventional situation, a TACP would be found with each maneuver battalion.

(9) The FAC is almost invariably airborne, as opposed to a more conventional situation where he would normally operate from a truck. This extensive use of the airborne FAC is

dictated partly by the unfavorable terrain and environment and permitted because of friendly domination of the air and the enemy's limited air defense.

(10) Within its range, NGFS is routinely available for tactical operations along the entire coast of the RVN. In a more conventional environment, this support would probably be available for amphibious assaults only.

(11) The CFSCC has proved its value and its use is being constantly expanded.

4. FIRE SUPPORT COORDINATION IN THE RVN.

a. Fire Superiority and Coordination.

1. Friendly forces in the RVN have a great margin of fire superiority over the enemy. The means to destroy the enemy are readily available, which is confirmed by daily operational results expressed as KIA ratios; the daily RVN-wide enemy to friendly KIA ratio is routinely 6 or 8 to 1 and often 10 or 12 to 1. The problem with most tactical operations is finding and fixing the enemy. Once this is done, he can be destroyed with coordinated air strikes, artillery, naval gunfire (if available), and armed helicopters. The successful application of the fire support depends on close coordination.
2. The keys to successful integration of the several types of fire support are effective radio communication and close personal contact.

(a) The vital radio links are:

- The artillery with the air and ground observers, artillery units, and armed helicopters.
- The FAC and strike aircraft.

(b) The essential close personal contacts are:

- The infantry battalion commander and his artillery LO, his primary FSCOORD.
- The FAC (and/or NGF spotters) and air observers.
- Ground observers and maneuver elements.
- Military commanders and local RVN government officials.

b. The Ground Commander's Role.

Most fire support planning and control in the RVN is at maneuver battalion level. The procedure which has evolved allows timely and effective engagement of targets by several fire support means with a minimum of danger to friendly troops and civilians. One such system is described below.

(1) FSC is usually exercised by the battalion commander through his artillery LO. Most operations are controlled from a command and control helicopter in which the commander and his artillery LO are located, all fire support (TACAIR, artillery, NGF, and armed helicopters) being controlled through the artillery LO. This procedure applied to artillery support is not unusual, but the method of coordinating TACAIR with other fire support will serve to illustrate the techniques which make the system so effective.

- TACAIR is controlled through an airborne FAC, who is in UHF radio contact with the strike aircraft.
- An artillery air observer is with the FAC; the air observer is in contact with the artillery LO, the ground FOs, the artillery battalion and battery FDCS, and the firing batteries on the artillery FM fire direction net.
- This system allows the battalion commander, through his FSCOORD (the artillery LO) to control the artillery fires and the TACAIR support. A similar system with an air observer riding with the NGF spotter would extend the control to include NGF support.

(2) An example illustrates how near-simultaneous engagement of a target by several fire support means can be achieved by using this or a similar system. Assume a typical LZ preparation involving the use of artillery, TACAIR, and armed helicopters - the LZ being in a valley with high ground on both flanks. The sequence of actions during the LZ preparation might be as follows:

(a) Artillery fires are coordinated by the artillery LO and placed on the LZ under control of the air observer riding with the FAC.

(b) The artillery is shifted to block probable escape routes off the LZ and TACAIR is brought in under control of the FAC.

(c) When the strike aircraft have expended most of their ordnance, the FAC notifies the artillery LO through the air observer. The artillery LO alerts the armed helicopters which, as the strike aircraft make their last pass on the LZ, provide suppressive fires, then escort the troop carrier helicopters into the LZ.

(3) This second example illustrates the actual simultaneous engagement of the enemy by several fire support means. This action, which may well emerge as one of the classic examples of FSC in the RVN, took place in June 1969 at the 25th US Infantry Division's FSB Crook, northwest of Tay Ninh City near the Cambodian border.

(a) FSB Crook was circular, contained six US 105mm howitzers, and was defended by one reinforced US rifle company. Supporting artillery included 12 US and ARVN tubes of various calibers. TACAIR and helicopter gunships were available on call.

(b) Fire planning for the defense of FSB Crook was as follows:

1. A circular band out to 700 meters from the perimeter was to be covered by direct artillery fire from within the perimeter.
2. A north-south stream just west of FSB Crook was designated as a "safety line"; aerial fires were restricted to one side of this line and supporting artillery fires were restricted to the other side. This safety line concept is not contained in current FSC texts but had the effect of establishing a fire coordination line, two no-fire areas (one for artillery and one for aerial fires), and a restrictive fire plan for safety of friendly aircraft; in addition, it served as the basis for developing the artillery and air fire plans.

(c) The defense of FSB Crook, to include an early warning system, was planned six days in advance and the plan was executed as written.

(d) When the enemy attack came, the six 105mm howitzers within the FSB placed close-in direct fire around the perimeter.

1. At the same time, supporting artillery fired preplanned concentrations in its sector in areas beyond the outer ring of these direct fires.
2. All aerial fires were controlled by a USAF FAC on a specified frequency, clearing the FM voice command net for use by the ground commander. Aircraft were committed to assigned sectors as they arrived on station. Aircraft sectors were divided by visible terrain features to permit the simultaneous use of helicopter gunships and fixed wing aircraft. Continuous 7.62mm minigun coverage by AC-47 (Spooky) and AC-119 (Shadow) gunships was augmented by high-performance fighter delivery of heavy ordnance and napalm.

(e) The perimeter of FSB Crook was not penetrated. Planning and FSC had permitted the simultaneous use of artillery and aerial fires. Friendly losses were one killed and three wounded; 402 of the enemy died in their futile assault on FSB Crook.

c. Rules of Engagement.

For various reasons, e.g., populated and urban areas, intermingling of enemy and friendly civilians, international borders. and religious monuments and buildings, fire support in the RVN must conform to specific rules of engagement. These rules are jointly formulated and published by MACV in Directive 525-13 and the RVNAF JGS; they are applicable to the US, FWMAF, and RVNAF. The rules are not intended to restrict commanders unnecessarily in the performance of their missions, but they are necessary to limit the risk to the lives and property of friendly forces and civilians and to avoid the violation of operational and international boundaries. Subordinate headquarters are not allowed to modify or make substantive interpretations of the rules of engagement. These rules will not be discussed

further here except to stress the extremely important mutual relationship between them and FSC.

5. SUMMARY.

Techniques which permit the simultaneous use of several fire support means in one target area have been proved in combat in the RVN. Effective FSC is basic to our military effort here. It has been the deciding factor in many engagements and has greatly contributed to our success thus far. With Vietnamization, its importance will not diminish. FSC has been aptly described as a "performing art" rather than a science, the fire support plan being the "single sheet of music" from which the FSCOORD orchestrates for the commander within his organization.

ANNEXES:

- A - Field Artillery Support
- B - Armed Helicopter Support
- C - Tactical Air Support
- D - Naval Gunfire Support
- E - Combined Fire Support Coordination Centers
- F - After Action Report: Operation COBRA STRIKE
- G - Glossary of Abbreviations



Return to Tactics

Source:

Vietnam Lessons Learned No. 77: Fire Support Coordination in the Republic of Vietnam. United States Military Assistance Command, Vietnam, 20th May 1970

US Defence against Mortar and Recoilless Rifle Attacks

INTRODUCTION

The issue of how best to deal with the difficult problem of defending static installations against Viet Cong mortar and recoilless rifle attacks was one that occupied a prominent position in the minds of US strategists. Whilst responses to mortar and recoilless rifle attacks had indicated a growing capability on the part of US and Allied forces to cope with this problem, the ideal solution was still seen as preventing the attack itself if at all possible.

Counterinsurgency Lessons Learned #60 presented an analysis of attacks on airfields and other static installations. Its purpose was to review the circumstances surrounding some previous attacks in order to learn more about the tactics of the Viet Cong and the countermeasures that could be adopted by friendly commanders.

In order to put into effect the benefits of lessons learned from previous attacks, it was felt to be essential that commanders were fully cognizant of the importance of prior coordination, control, fire support plans, quick reaction forces, and effective command procedures.

ENEMY TACTICS

In a single instance of a mortar and recoilless rifle attack conducted against an air base in Vietnam, a minimum of 240 rounds were fired by the Viet Cong from 81 and 82mm mortars and recoilless rifles. A plot of the rounds indicated that the aircraft parking areas and other operating installations adjacent to taxiways and runways were the primary targets. The Viet Cong attack was apparently well planned in detail and vigorously executed without any prior warning. No incidents or patterns were evident which could have been considered as specific indicators of the attack and, militarily, the attack could be rated a complete success. The Viet Cong had obviously infiltrated the area often enough to reconnoiter and plan an attack which succeeded in damaging US aircraft and inflicting heavy personnel casualties. Success such as the one mentioned was only one of many.

In complete accordance with VC offensive doctrine, attacks were thoroughly planned and rehearsed. Through reconnaissance efforts and agents they had learned the exact location of prime targets as well as the operating schedules of the various base agencies and activities. Where day-to-day activities and dispositions had become stereotyped, the Viet Cong had used such fixed patterns of activity to their advantage in planning and executing the attack. Attacks were executed with a determination and

precision which clearly indicated a complete understanding of the duties of each attacker. For example, a POW captured after an attack on Da Nang in Oct '65 stated that the attack had been rehearsed six times and sand table classes had been held to point out each individuals tasks.

The Viet Cong positioned recoilless rifles to fire along the long axis of the airfield so as to take advantage of their small deflection error and the relatively large range dispersion of this weapon. Several weapon positions were used simultaneously in order to permit the attackers to continue firing even when one or more positions had been knocked out. It was subsequently found that firing positions were usually placed along a trail to facilitate withdrawal.

Most attacks occurred between the hours of 2330 and 0230 on moonless nights and this time frame suggested that the attackers moved into position and subsequently withdrew under the cover of darkness.

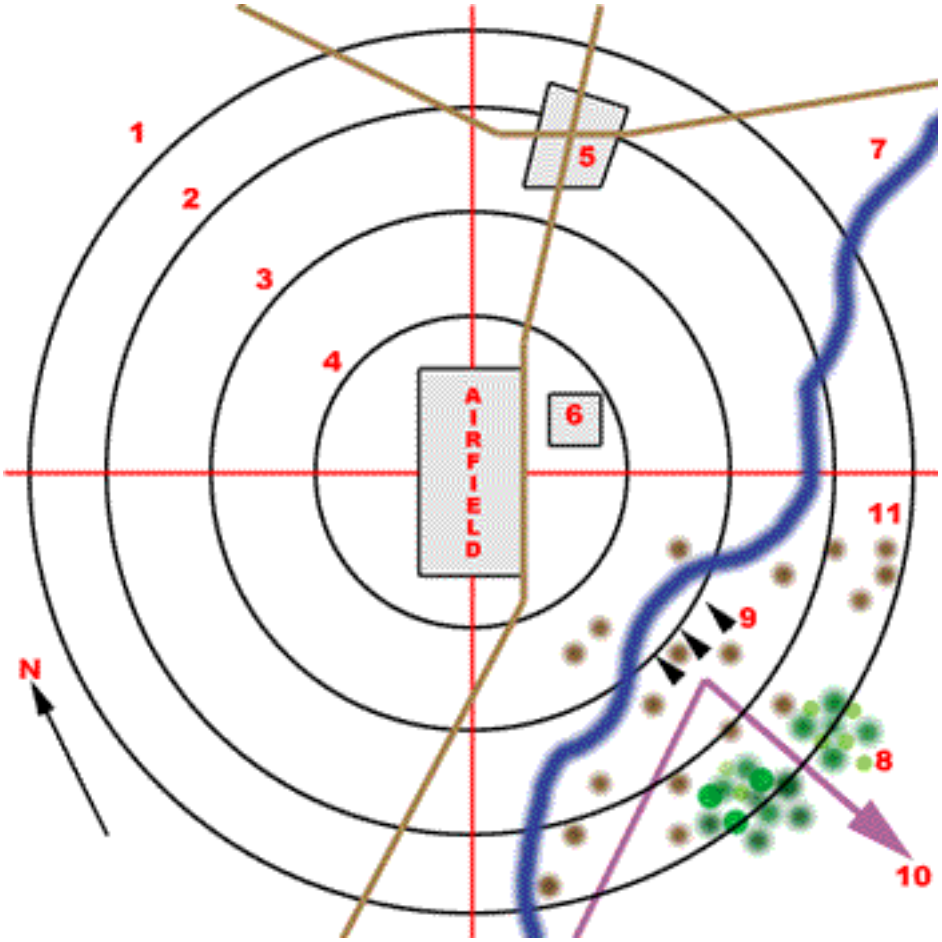
Both during the preparation phase of the attack and the attack itself the Viet Cong had made use of aiming markers, directional guides and target strikes with the result that rounds were well placed with no adjustments noted. Fire for effect literally commenced with the first round.

DEFENCE PLANS

The most reliable method for obtaining early warning of an attack was to establish a restricted area surrounding the installation out to the range of 120mm mortars. Naturally, it was not always possible to establish such an ideal restricted zone around a base. The defence plan established at Soc Trang airbase (see below) provided a basic plan which is particularly worthy of note. The defence plan was designed with four circular areas around the airfield, the last one extending to 11,000 meters. The circular areas were divided into four quadrants. Each quadrant had pre-selected LZ's and artillery concentrations for use in case of an attack. The reaction company was billeted in barracks immediately adjacent to the airfield.

SOC TRANG AIRFIELD
DEFENCE PLAN MAP
KEY

1. 11,000-meters
2. 9,000-meters
3. 6,000-meters
4. 3,000-meters
5. Soc Trang
6. IRF Cantonment
7. Rach Ba Xuven
8. Pre-planned US ambush positions



9. 75mm Recoilless Rifle Positions
10. Route of VC ingress/egress
11. Pre-plotted Artillery Concentrations/LZ's

A defence plan may well have had all the ingredients for the rapid and successful suppression of enemy fires; but immediate reaction did not, of itself, preclude a standoff attack. Aggressive patrolling within the circular "watch" area was aimed at further discouraging Viet Cong mortar attacks. Patrolling was generally done at night because the Viet Cong normally moved into his attack positions after dark. Proof of the need for more aggressive patrolling was to be found in the records of previous attacks. In very few instances was an attack discovered by a patrol while the enemy was moving into a firing position.

It should be emphasized that the Viet Cong often knew beforehand where targets were located, often as a result of penetration of the installation by sappers, and in some instances the operating schedules. In order to reduce the enemy's knowledge, one US airbase, after a particularly devastating attack, instituted new passive defence measures and improved others. These measures included:

- Dispersal of personnel and valuable equipment such as aircraft
- Construction of revetments around aircraft and other vulnerable equipment and supplies
- Construction of primary and alternate gun positions
- Preparation of individual protective emplacements
- Varying placement of sentries
- Random use of internal vehicular patrols
- Improvement of entry and exit screening procedures
- Establishment of effective intelligence and reporting procedures

- Timely and accurate reporting by sentries and elements engaged in defence of the airfield
- Establishment of effective psychological warfare and civic action programs to enhance civilian cooperation
- Utilization of civilians and police in the area to enhance the intelligence effort

INTELLIGENCE

Obtaining quality intelligence data and responding effectively to intelligence that had been gathered, were key factors in countering a mortar attack. The detailed reconnaissance and deliberate preparation of firing positions, as well as the necessary movement of weapons and materials made the Viet Cong highly susceptible to a concentrated intelligence effort.

Events that had occurred and been noted prior to past attacks were often recognised as clear indicators of a new and impending enemy attack. Some examples of these indicators, taken from actual recorded events, are as follows:

- Reports of unidentified Vietnamese in the vicinity of an airfield for a number of mornings prior to an attack
- The herding of cattle by men (close to the eventual penetration point of the airfield) should have been interpreted as a reconnaissance effort and taken as warning of an impending attack. At no other time had men herded the cattle; normally it was done by women and children
- In one instance, a security patrol at about 2300 hours surprised a party of Vietnamese carrying a basket near the airstrip. The Vietnamese dropped the basket and ran. The basket was not searched until after daylight the next morning. It was found to contain five fuzed 81mm mortar rounds plus food and clothing. In the meantime, an attack was made on the airbase during the early morning hours
- A marked increase in the number of harassments, acts of terrorism, ambushes and small scale attacks in the surrounding areas often preceded some attacks
- The discovery of freshly prepared entrenchments or firing positions within mortar or recoilless range of the installation
- It was often noted that local inhabitants were apparently aware of impending attacks. Prior to one attack, a report was made by a national policeman at 1700 hours to the CO of an ARVN compound. The policeman stated that 100 civilians were crossing the river by boat from north to south into the nearby city on orders from the VC who told them to evacuate the area. An attack was subsequently made on the US advisors compound at 0200 hours the next morning

DETECTION of an ATTACK

The majority of Viet Cong mortar and recoilless rifle attacks lasted no longer than 20 minutes; however, this was sufficient time in which to cause considerable damage. The immediate detection of the firing positions was essential if the duration of the attack was to be shortened.

Where possible, continuous aerial observation would be maintained during the hours of darkness with particular interest being paid from 2200 hours until one hour before the beginning of morning nautical twilight. This time period was considered to be the most likely time of attack. The incidents highlighted in the following attacks clearly illustrate this requirement for continuous aerial observation:

- During an attack on Soc Trang at 0150 hours, 22 Jun '66, a UH-1D helicopter and an O1-F fixed wing aircraft were airborne. The O1-F aircraft pilot spotted the initial enemy firing and immediately dropped a flare above the spotted gun position. Before the flare had deployed and ignited, which took about 40 seconds, seven more rounds had already landed. The attack lasted only five minutes but without the immediate detection of the firing positions, additional rounds would have been fired with a corresponding increase in the damage and casualties caused
- In a mortar attack on Vinh Long on 7 Jun '66, the armed aircraft that had been acting as aerial observers for the base were refueling at the time of the attack. They immediately scrambled, and brought direct fire on the VC positions. In this case the defending elements took immediate action; however, the need for continuous surveillance was evident
- A helicopter fire team on reconnaissance at the Vinh Long airfield spotted the first rounds as they were fired toward the base on.29 May '66. The team passed the alert to the airfield tower and took the enemy positions under fire. An AC-47 flare ship was diverted from the nearby Can Tho area. The remaining armed ships on the airfield scrambled and were firing on the positions within six minutes, at which time enemy action ceased.

In addition to aerial observation it was necessary to utilise all available means of ground detection. This could include using improvised facilities to provide surveillance of the surrounding terrain. The capability of immediately reporting the location or the direction of the flash of the observed firing positions had to be an inherent factor in the means of detection as the following illustrations show:

- Counter-mortar radar would be used to scan the most vulnerable or likely direction from which an attack may be launched. In a number of instances an operational AN/MPQ-4A radar, manned by trained personnel and oriented in the direction of the attack, proved effective in locating hostile mortar positions. At the Pleiku air base, during the attack of 22 April '66, one of the two attacking mortar positions was located by radar; however, the radar never proved to be effective against the recoilless rifle
- The Starlight Scope offered further possibilities for the detection of enemy positions. On the night of 7 Jan '66 the Starlight Scope was used by Detachment A-412, 5th Special Forces Group to detect and observe VC actions. Using the scope, Special Forces personnel observed the VC preparing mortar positions and a command post approximately 1500 meters north of the compound. These positions were cleverly concealed and were so constructed as to be well protected against counter-mortar fires. Special Forces personnel maintained the VC construction team under surveillance each night until the emplacements were apparently completed and the following day a demolition patrol destroyed the positions.

Adequately manned observation towers, a relatively straightforward expedient, also proved to be successful in detecting enemy mortar positions. By having two or more towers correctly sited and each

equipped with a simple, home made alidade, it was possible for an intersection to be made in order to locate enemy gun positions.

COUNTERMEASURES and REACTION

Viet Cong attacks, almost without exception, were well planned and indicated a comprehensive knowledge of US troop and material dispositions. Countermeasures to prevent the VC's surveillance of the target area and means of discouraging his approach to within range of indirect fire weapons was necessary if attacks were to be minimised. Experience was to show that various techniques were relatively successful. One technique was the illumination of the surrounding area using aerial flareships, searchlights and mortar/artillery.

Variation in the placement of sentries, ambushes, listening posts and patrol routes, and their employment on random schedules was also used to reduce the Viet Cong ability to conduct surveillance by denying him freedom of entry into the area.

The surveillance of prime target areas was invariably accomplished by Viet Cong personnel who had actual daily access to the installation. Therefore, exacting and detailed screening of the local national laborers was necessary to insure proper identity and loyalty. This often served to reduce the surveillance capability of the Viet Cong as well as their knowledge of the key installations and their locations within the defensive area. Rigorous daily entry and exit screening had to be maintained and any relaxation of this invited attack.

Once a Viet Cong attack was launched, return fire had to be delivered immediately if the destructive effect of the attack was to be minimised. This could be accomplished by pre-selecting artillery concentrations on likely mortar positions. These concentrations were assigned to friendly mortar and artillery units and were fired automatically. When not engaged in other missions the artillery and mortar crews were laid on these concentrations to facilitate rapid response.

As mentioned earlier, the Viet Cong normally established several positions so that maximum fire could be placed on the target. To reduce the time in which the Viet Cong could place effective fire on the target, ground alert helicopters had to be immediately responsive as indicated by the following:

- At Tan Son Nhut, the average enemy fire was 19 rounds per minute, or 95 rounds in five minutes which was the scramble time for aircraft
- In the attack on Soc Trang on 18 May '66, armed helicopters scrambled within 3 minutes. This was in accordance with the defense plan, but sufficient rounds to cause some damage fell in 3 minutes.

As noted in the above accounts it was imperative that a ground reaction force be established and rehearsed to react promptly. The following illustrations amply prove the point:

- In the attack on Vinh Long on 29 May 66, the 9th ARVN Division quickly employed a forty man reaction force. They were inserted by helicopter to block the VC's escape. An early morning ground operation toward the blocking position resulted in 13 VC KIA and one captured
- Conversely, in an attack on another airfield, aircraft were made available to the unit commander but he declined to employ a reaction force until daybreak. The VC escaped.

Aircraft parking areas were primary targets of Viet Cong attacks. Ground alert aircraft parked in the normal aircraft parking areas were often themselves damaged and unable to perform their alert missions. As a result, aircraft would be frequently repositioned in order to prevent enemy registration on one area. Repositioning would be done at random and in response to local intelligence.

The relatively short duration of mortar and recoilless rifle attacks required immediate response in order to minimise the effects of the attack by forcing the Viet Cong to break contact. In one area, to accomplish this, a fire control and clearing radio net was established for the purpose of announcing hostile mortar and recoilless rifle fire to all fire units with an indirect fire capability in the defence complex. In the attack on the district headquarters at AP Dong Hoa in Hau Nghia province on 27 May '66, communications were knocked out, leaving the defending elements with no means of effecting a coordinated defence. The defenders subsequently concluded that a joint TOC would have clearly enhanced the defence effort.

The VC invariably attempted to knock out the communications complex. In many attacks the VC were more than partly successful. In the attack on AP Dong Hoa, mentioned above, the Special Forces had been using their communications to request air and flare support. On 2 April '66 in an attack on another installation there was a critical lack of control for armed helicopters and supporting artillery due to the disruption of communications. In addition, higher headquarters were not informed and consequently could not influence the battle. These incidents emphasised the desirability of having alternate and multiple means of communications.

SUMMARY

The Viet Cong successes in launching mortar and recoilless rifle attacks, though limited in total effect, were sufficiently successful so as to encourage similar efforts in the future. US and ARVN airfields provided the VC with a means of inflicting heavy equipment losses and in some cases high personnel casualties. Experience was to show that the Viet Cong would continue to exploit a proven tactic or technique until it was forcefully, effectively and repeatedly countered. The ability of friendly elements to counter enemy attacks lay in the application of lessons learned from previous attacks.

Friendly elements needed to realise that the Viet Cong were very methodical and planned their attacks with precision, normally employing mortars and recoilless rifles at night from positions that enabled him to fire for effect on the long axis of an airfield at pre-selected targets. Therefore, in order to prevent an attack, a good internal passive defence and an external plan which included aggressive patrol action beyond the range limits of the enemy weapons was essential. Also, the implementation of a sound

intelligence reporting system which would provide indications of an attack considerably enhanced the overall effort to reduce the chances of an attack.

Since Viet Cong attacks seldom lasted for more than 20 minutes, time was of the essence in its detection. Constant surveillance by aerial and ground observation and the use of electronic devices enabled defence elements to detect enemy fires almost immediately. Once the firing had been detected, immediate deployment of armed aircraft, artillery, and flareships invariably forced the enemy to cease fire and withdraw. Immediate airmobile reaction by a ground force to pre-selected ambush positions along the route of withdrawal quite often resulted in elimination of the attacking force during it's withdrawal.

As a consequence, it was believed that each successful counteraction would, in time, significantly reduce the frequency of Viet Cong mortar and recoilless rifle attacks.

Source:

US Army, Counterinsurgency Lessons Learned #60, 10th September 1966



Back to Tactics

NVA Bunkers

PART I

Introduction

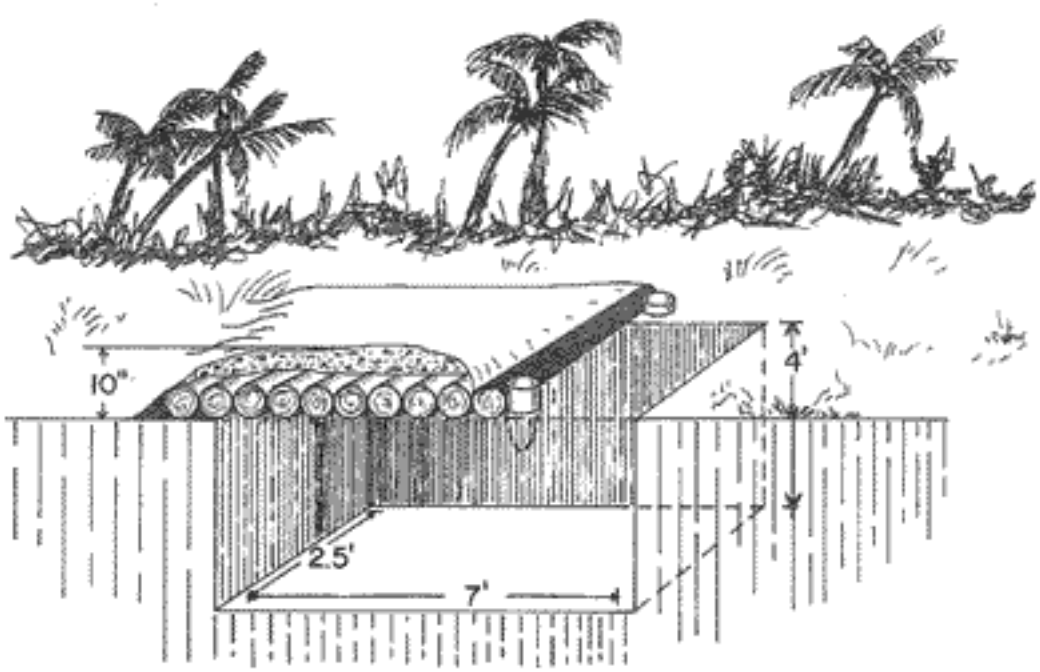
This series of articles on NVA bunkers is based upon an analysis of enemy positions at Khe Sanh that was carried out by the 3rd Marine Division. The purpose of their study was to produce an evaluation of the effectiveness of various weapons systems employed against the enemies fortifications. Whilst the tactics of the NVA at Khe Sanh were somewhat different from those previously encountered by US forces, his defensive concepts relating to the use of trenches, tunnels, and fortifications were similar to those used previously. All map references are to US military maps of the Khe Sanh area.

In the Marine study, all of the position types were examined from an engineering aspect, and then analyzed in relation to the supporting arms employed against them. Where possible, their tactical location and relationship to other nearby positions was also studied in order to determine their purpose, interrelationship, and ability to withstand assault by fire. No attempt was made however to determine or define the overall scheme of operations of the NVA forces at Khe Sanh. It was accepted that although these positions represented only a small fraction of the battlefield, they were nonetheless considered as being representative of NVA construction and placement.

The study concluded that friendly weapons systems proved to be highly effective against the enemy fortifications and this was evidenced by the enemy having abandoned the battlefield, leaving behind mounds of supplies and piles of unburied dead, a rare occurrence on the part of the NVA.

Individual Living & Fighting Holes

Individual fighting holes were designed to afford the occupants both protection from fire and shelter from the elements. The holes were first dug, and then lined with locally procured materials. Cover was placed on the top and served as a means of protection and camouflage. The typical hole measured 3x6x4 feet (**Fig. 1**) and was both carefully and deliberately camouflaged. Estimated occupancy was from one to three days. No supporting arms were employed against this type of position.



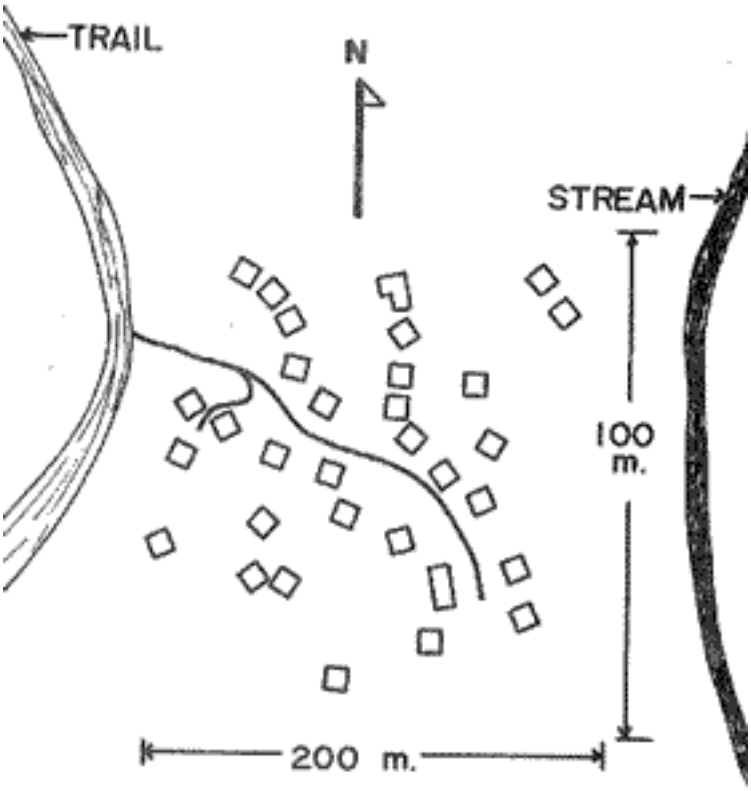
Individual Fighting Hole (Fig. 1)

The holes were located approximately 10 feet from a heavily used trail on the south-eastern slope of Hill 678 (XD 851328) where the foliage consisted of dense bamboo thickets, banana trees and miscellaneous broad leaf trees which formed a canopy between 15 and 40 feet above the ground.

The positions had served as a temporary resting place for small groups of people moving over long distances, or were used by the point or advance guard of a large unit. The absence of spoil, waste and other human detritus suggested the former, although a large complex was subsequently found several hundred meters away.

Unit Bivouac Sites & Hasty Positions

Hasty positions were generally constructed for rapid protection and short-term occupancy. They varied in size from single individual sleeping holes to company and battalion sized complexes consisting of multiple fighting holes and storage areas. The notable absence of trenches tended to indicate that these areas were not exploited for prolonged defense. This was further borne out by the fact that no individual camouflage precautions were present and the spoil had been piled on the edges of the holes to form a protective berm.



Company Position (Fig 2)

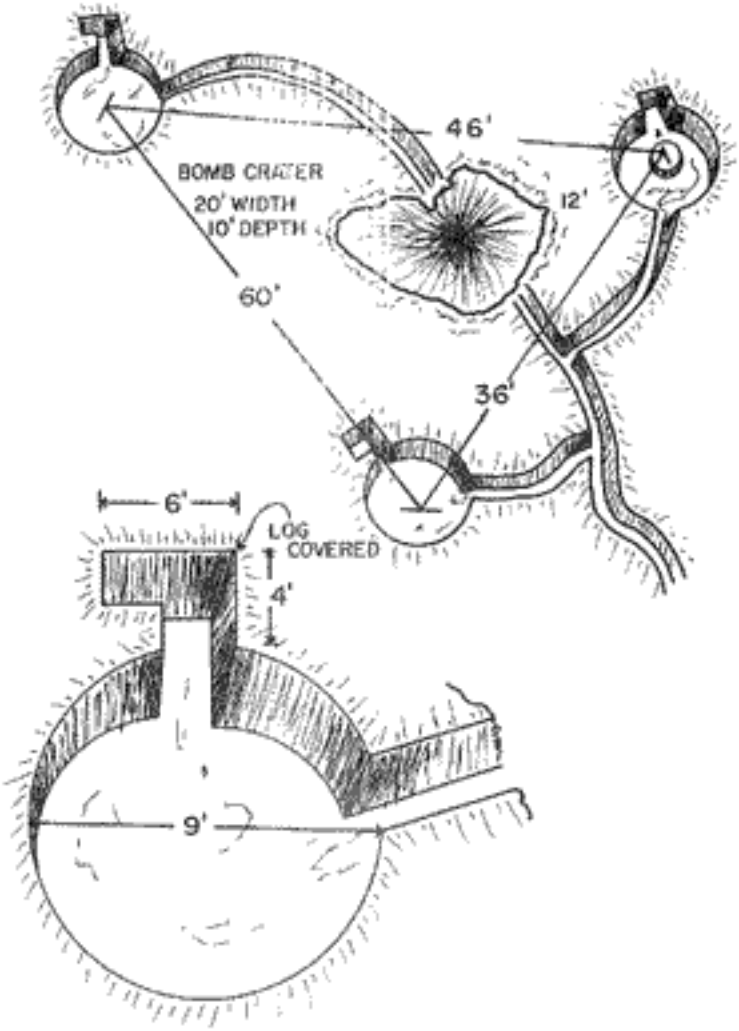
Holes had been scooped out and then lined with leaves and matting. Again, no supporting arms were employed against this position. Figure 2 shows the general design and layout of a large bivouac site located on the east side of a hill 200 meters above the Khe Cham River, under a solid tree canopy at XD 855322. The hill mass ran in a north-south direction at an altitude of 500 meters. The area closely followed the pattern of most living areas, i.e., on reverse slopes between the topographic crest and the nearest water source.

In areas where heavy canopy existed, no concealment measures were taken however, heavy security was invariably placed on the perimeter of these areas. It is worth noting that subsequent observation flights over the area were unable to locate the position under the dense canopy.

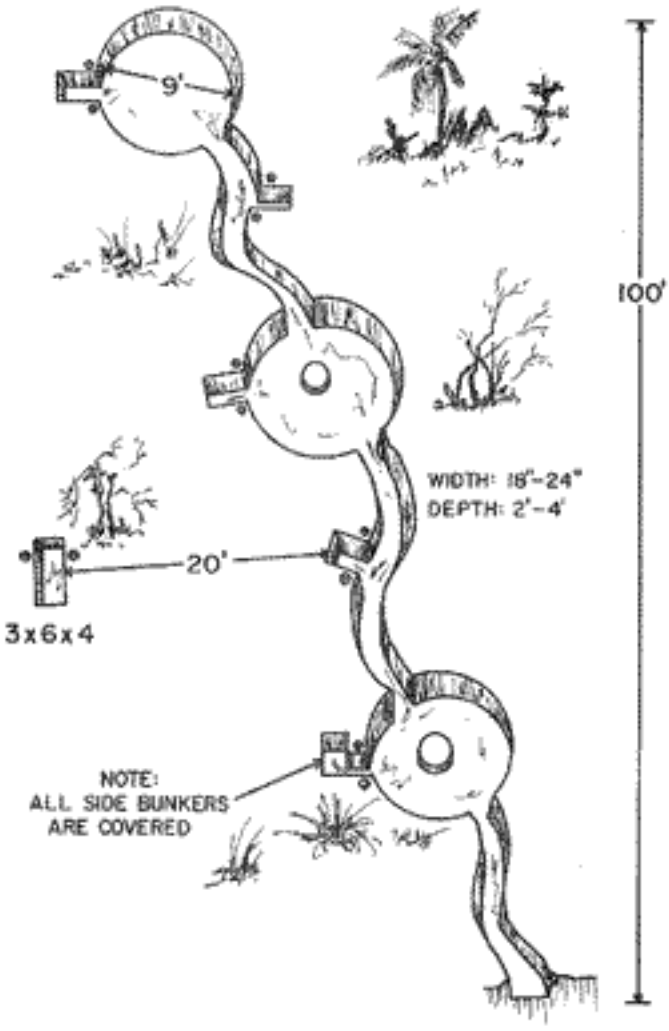
All indications pointed to this area as being a stop-over point for a company sized unit. There were over 100 various-sized sleeping and fighting holes in the area and each group of sleeping holes was protected by an outer perimeter of fighting holes. Within the inner perimeter, sleeping holes were scattered in a random fashion, generally along either side of the trail.

Antiaircraft Positions

One of the most readily identifiable NVA fortifications was the single or multiple antiaircraft site. Single positions were used in conjunction with living areas, trench complexes, supply routes, and were located within each complex, or directly adjacent to it. Multiple positions in either a triangular or linear formation were employed on hilltops and high terrain to provide security to base areas, storage and logistic points. These positions were in single groups or mutually supporting complexes. Each position was capable of independent action. Figures 3 and 5 illustrate the positions located at XD 847317 and XD 853309. Subsequent searches of these positions recovered spent 12.7mm brass casings.



Triangular 12.7mm AA Position (Fig 3)

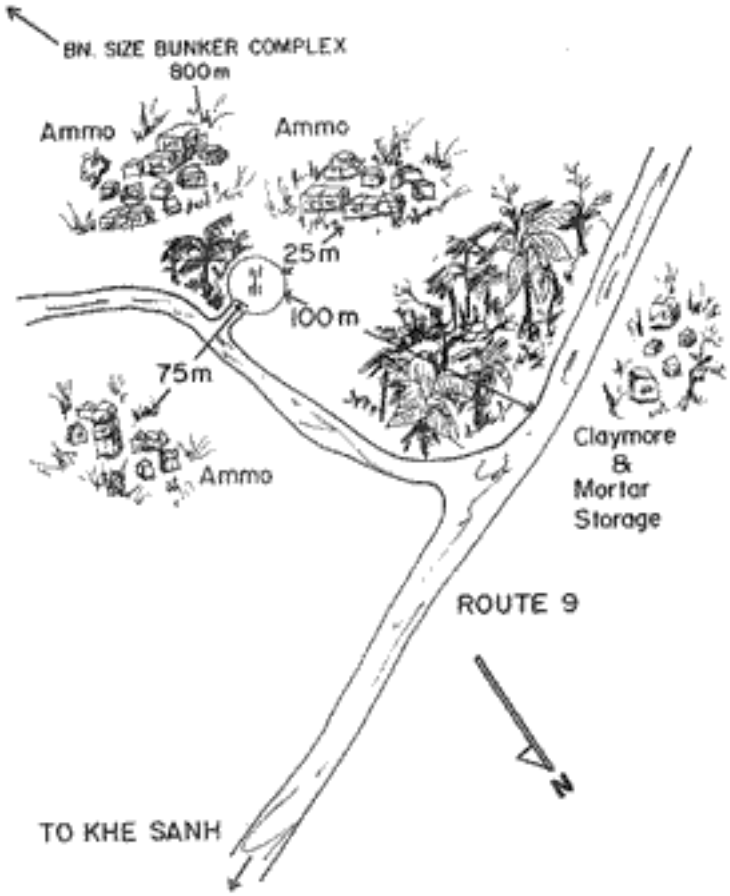


Linear 12.7mm AA Position (Fig 5)

The positions were located on a ridge-line which extended from XD 844316 to XD 850305 in a southerly direction. Each position afforded an excellent view of the surrounding terrain. No attempts had been made to camouflage either position, although the command and control bunker in figure 5 had been camouflaged prior to a fire which had burned across the position. Trenches connected each gun position within either complex but the two main positions were connected only by a trail and communications wire. Both positions had short escape trenches leading to a concealed area 60 feet away. No evidence of a living or storage area was seen from either ridge. However, subsequent photography revealed two large bunker complexes at XD 844315 and XD 854312.

The holes were well constructed, especially the ammunition storage and protective bunkers associated with each position. These bunkers afforded adequate protection from anything but a direct hit. The bunkers had 3 feet of mounded overhead cover consisting of 3-inch logs, rock, and earth fill. One or two holes in each complex contained center pedestals 8 inches high and 2 feet in diameter.

The linear position measured 100 feet long. A 4x6x4 foot command/control bunker was located 20 feet to the rear. Connecting trenches had one 3x6x3 foot protective bunker cut into the side. Communications wire was scattered throughout the area.



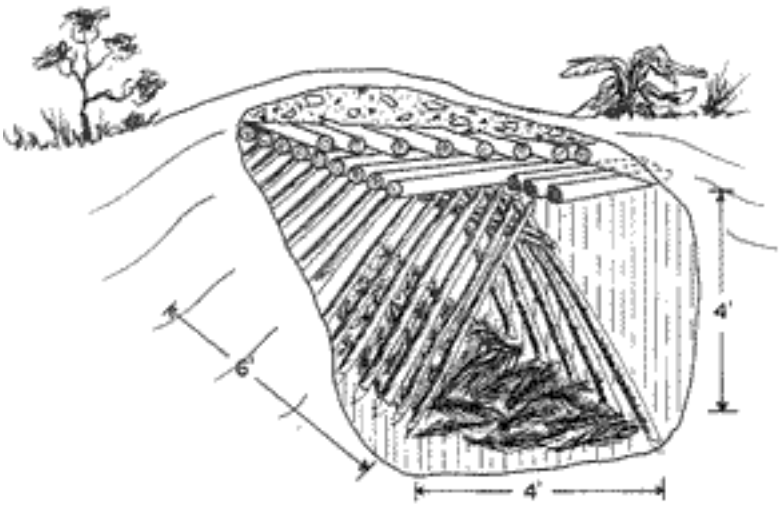
57mm AA Site (Fig 6)

During Operation Pegasus, elements of B/2/5 Cavalry, 1st Air Cavalry Division discovered an S-60, 57mm AA gun site at XD 833378 (**Fig. 6**). The terrain in the area was flat and consisted of knee-high grass and scrub growth. A well used trail leading from Route 9 indicated that the gun had been towed into position by a tracked vehicle or truck. Few fortifications were found in the area. The circular gun pit was 30 feet in diameter, 6 feet deep, and the spoil had been flattened out around the position. The gun itself had been damaged from a near miss. Numerous other bomb craters were located within 30 feet of the pit. The carriage was broken in two places, two wheels were broken off, and the sights, range finder, and miscellaneous on-carriage equipment had suffered heavy damage. There was no apparent damage to the tube. A large battalion sized bunker complex was located within 800 meters of the site. CHICOM claymore mines and mortar rounds were found within 150 meters of the gun. Again, the pattern of protection for the ammunition storage and living areas was as described previously.

Of the sites inspected and photographed, the triangular position at XD 847317 had been attacked with the greatest accuracy. Figure 3 shows the single 500/750 lb. bomb crater placed directly in the center of the three positions. There was no visible damage to any of the positions, or to the living/storage bunkers cut into the side of the gun pit. The accuracy of the bomb placement and comparison of the crater to others within 100 meters of the position indicated that the position had been visually acquired and then attacked.

NVA Hilltop Defensive Positions

On Hill 663 (XD 828321) Marines encountered a defensive positions that consisted of forty to fifty 'tepee' style living and fighting bunkers arranged in mutually supporting concentric circles just below the topographic crest of the hill.



A-Frame 'Tepee' Bunker (Fig 7)

The hill was partially wooded with large patches of elephant grass and low shrubs. The gradient on the western slope averaged 45 degrees. The hill sloped to a small plateau located 150 meters to the east on a small finger. The soil was of laterite composition with no rock present. Excellent observation and fields of fire were available in all directions. The NVA had used the hill as a defended observation post and strong point protecting the southern approach to Khe Sanh. The position presented a defense in depth from any approach. No booby trap devices were encountered by the troops occupying the hill.

The 'tepee' style bunker consisted of an A-Frame and the overhead cover arrangement was unique among the various bunkers seen on the battlefield. There were numerous reports confirming its widespread use throughout the Khe Sanh area. The bunker was constructed in the standard 4x6x4 foot fighting hole, giving it an underground 'pup tent' appearance (**Fig. 7**). This type of construction offered the best protection, exposed very little to the observer, and was one of the strongest construction styles devised. The 4x6x4 foot trench provided the basis for the bunker with each side entrance faced at right angles to the direction in which the bunker was oriented.

Overhead cover for these bunkers consisted of locally procured materials and maximum use was made of cover and concealment. The bunkers presented a low silhouette and blended with the terrain. Most of the bunkers were not capable of being seen from the ground beyond a distance of 10-20 feet. There were several standard characteristics noted for this style of bunker:

- Use of hardwood logs 3-10 inches in diameter arranged across a 4x6x4 foot trench.
- Woven elephant grass and bamboo leaf matting used as floor covering and to prevent the overhead fill from filtering into the bunker.
- Logs and miscellaneous debris combined with the laterite to form a light blast layer overhead.

The 'tepee' bunker and its unique overhead demonstrated a basic knowledge of engineering by the NVA soldier. The overhead logs measured 5-6 feet long and were embedded six to ten inches in the floor of the bunker at a 45 degree angle, forming an equilateral triangle. At the apex, the logs ware lashed to a 12-inch center support beam. Where the 12-inch logs ware not available, several smaller logs had been laced together. Entrances sloped from ground level to the bunker floor at a 45 degree angle, leaving a small hole that could be seen only from overhead. Each bunker contained a 6 inch air vent in the wall furthest from the entrance. There were no apertures found in these bunkers. Many of the bunkers were blown by the US forces with internally placed charges. This method destroyed the overhead protection but did not

break the timbers or logs. In a few hours the bunker could be reconstructed.

The hill was attacked with general purpose (GP) bombs, rockets, napalm and artillery. The napalm had burned away much of the underbrush on the eastern slope exposing several bunkers. Of those exposed all were charred on the inside, but only the grass matting had burned and the structure had not been weakened. Numerous 250 and 500 lb bomb craters were in close proximity to the positions, but no bunkers were found that had received a direct hit.

Soil and bunker composition required attack utilizing delay fuzing; however, the artillery delay penetrated the soil six to eight feet before detonating and was of limited use against the bunkers. Surprisingly, the employment of quick fuzed artillery would have been more effective in lieu of a shorter delay, mechanism.

Eleven bodies ware found in the complex above ground. Most were uncovered in their bunkers as the US troops dug in for the evening. The fact that they had stayed on the hill in the face of heavy aerial and artillery bombardment attested to the hills significance. Although the bodies had been on the hill from 10-15 days, many were observed to have large fragment holes and similar disfigurations. One skull had a 2x5 inch hole, and several helmets with fragment holes were lying about the hill. The dead appeared to have been caught above ground by the bombs and artillery.

The foremost question that faced the supporting arms planner in attacking a complex of unknown size and composition normally involved fuzing requirements. Although the tendency to employ delay fuzing was strong, the planner had to consider that soil composition may, on occasion, render the delay fuze useless. The probability of a direct hit was small, and the delay often penetrated through the bunker, exploding underground. In some cases, high angle surprise fire employing VT and quick fuzing had more effect than a reliance on delay fuzing.



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US Ambush Operations



INTRODUCTION

"An ambush is defined as a surprise attack upon a moving or temporarily halted enemy with the mission of destroying or capturing the enemy force"



Based on their frequency of use by US forces, the ambush was considered a basic technique in countering guerilla warfare. The use of ambushes was not considered as a defensive tactic. Instead, when properly planned and aggressively employed they represented an effective offensive operational means of defeating enemy forces and limiting his freedom of movement. In Vietnam, where the enemy movement was frequently carried out under the cover of darkness, the use of night ambushes took on great significance.

The effects of a successful ambush program were not measured merely in terms of the numbers of enemy casualties. The denial or restriction of the enemies freedom of movement, both during the day and the night, was considered an important benefit since it was viewed that, in order to survive, the enemy had to keep moving. As a result, the continuous harassment, restriction of movement and inability to acquire supplies resulting from such a program was thought to have an adverse effect on the morale and efficiency of both the NVA and the VC.

Some important points about ambushes are contained in these comments by a USMC battalion commander:

> "Ambushes are one of the most effective measures for inflicting personnel casualties on the enemy. The imaginative and skillful use of ambushes can also have a detrimental psychological impact. Aside from normal local security, ambushes should be at least 500-1000 meters distant from unit night defensive positions. The tendency to make ambushes too large should be avoided; five to eight men is a good size. Occasionally, daylight

ambushes should be left in a unit position occupied during the night in order to take advantage of the tendency of local Viet Cong to search positions for materiel that might have been left behind. "

The last observation made by the battalion commander, concerning the VC tendency to return to a previous ambush site, was often used as a method of springing a secondary ambush on the enemy. Friendly ambushes sprung along jungle trails usually did not have all of the enemy in the killing zone because of the limited fields of fire. Unless a very unusual ambush site was found, part of the enemy element invariably escaped. Experience showed that the VC almost always returned to the area of the engagement within a relatively short time to retrieve bodies and weapons. As soon as a patrol had carried out an ambush, a team, or larger unit, would sometimes move in the direction of the enemy withdrawal, approximately 200 meters, and reestablish another ambush position. In one particular instance, this technique was employed three times by one company patrol with the second ambush making contact within thirty minutes on each occasion.

AMBUSH OPERATIONS

Ambush operations were dependent on current information of the enemies location, movement pattern, and the size of his forces. Since the bulk of the enemies movement was at night, most of the ambush operations were conducted at night. US units would patrol during the day and set ambushes at night. The size of the ambush force that was to be employed and the method of execution depended primarily on it's purpose, i.e. whether the ambush was to harass or destroy the enemy by the use of a deliberate ambush or an ambush of opportunity.

Missions Performed by Ambush Forces

- Capturing or destroying the enemies attacking or raiding forces in the vicinity of populated areas
- Ambushes utilised as a defensive measure in protecting hamlets and villages
- Capturing or destroying groups of the enemy as they attempt to leave or re-enter their war zones
- Ambushes executed in order to kill or capture enemy leaders
- Ambushes set by stay-behind forces in conjunction with tactical operations
- In search and clear operations ambushes were set to intercept the enemy being driven into the ambush position by the searching element. This ambush mission was used in conjunction with the 'fire flush' and 'rabbit hunt' techniques of searching an area.
- Ambushes conducted against targets of opportunity

Types of Ambushes

The two general types of ambushes employed were deliberate ambushes and ambushes of opportunity. They were employed against both vehicular and personnel targets.

A deliberate ambush was one in which the ambush unit was assigned a specific mission. It was normally

based on detailed intelligence, which included the size, composition and organisation of the enemy force, and the time in which that force could be expected to reach certain points or areas. Al Baker, B Company Commander, 4/9 Infantry stated,

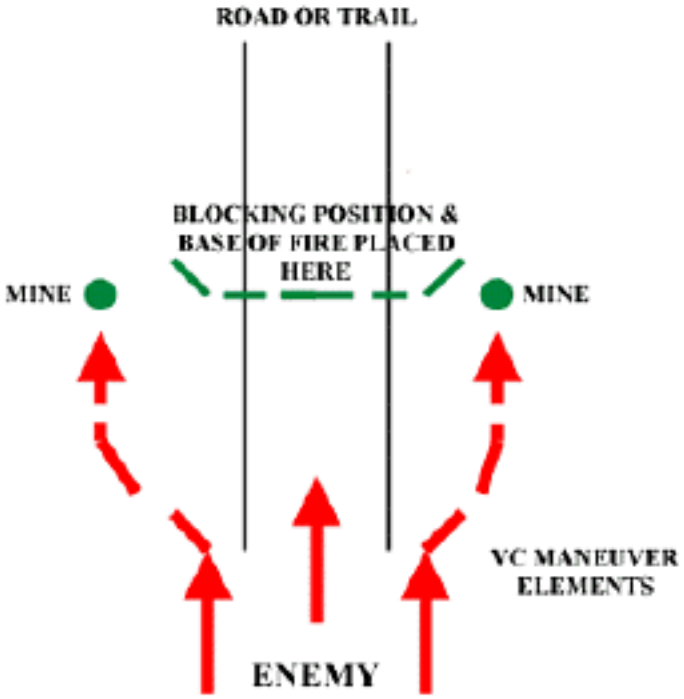
> "I read your piece on ambushes and believe that it is correct as far as the book went. Then their is the real thing. In my 3 and 1/2 years there I never saw intelligence that would dictate the time and place of an ambush. Therefore we ambushed all night on likely avenues of approach. This was particularly difficult because we operated all day and everyone needs sleep. I was fond of three man positions with one asleep and two awake. You can survive on 4 hours sleep if it is continuous. That's what we survived on."

'Delta Mike 2' concurs with Al Baker on the subject of prior intelligence,

> "As far as ambushes go, there was never any G2 provided and neither were selected AP sites... "

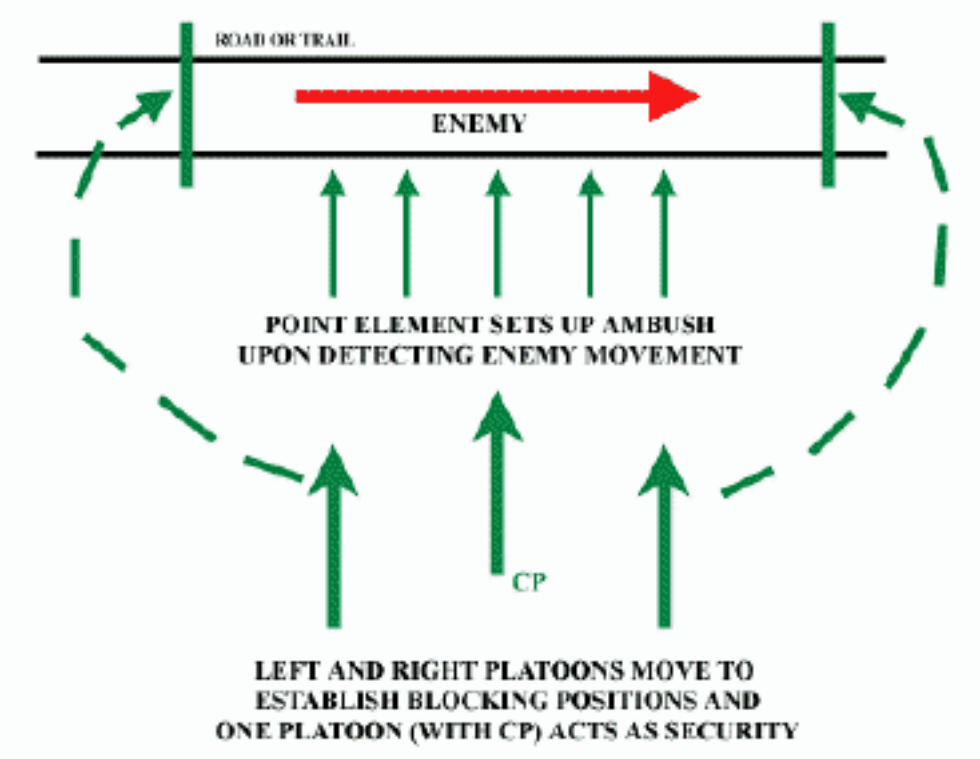
When this information was not available an 'area' ambush would be established with several deliberate 'point' ambushes located along the probable avenues of approach. Also, stay-behind patrols could establish an area ambush by placing deliberate ambush positions on several objectives that had previously been cleared. Deliberate ambushes were also employed outside strategic hamlets for defence of the hamlet and to warn of an attack.

DELIBERATE AMBUSH WITH USE OF MINES



An ambush of opportunity was one in which available information concerning the enemies activity did not permit planning or the establishment of an ambush at a specific point or in a specific area at a specific time. This type of ambush was normally employed when enemy forces were unaware of the presence of US forces and an ambush could be quickly established in order to surprise and destroy the unsuspecting enemy. The course of action which was followed was determined at the time the opportunity for the ambush arose. Units were continually and thoroughly trained in the techniques of rapidly establishing ambush positions. Also, patrols were often simply directed to move to a particular area, establish an ambush, and ambush the first profitable target that appeared.

AMBUSH OF OPPORTUNITY



Composition of the Ambush Force

The ambush force was usually composed of an assault element, support element, and a security element.

The assault element captured or destroyed the enemy. It consisted of the commander, a killing group and a search party. The mission of the killing group was to kill or capture the enemy. The mission of the search party was to search the dead and wounded for documents, and to pick up weapons, ammunition and equipment.

Al Baker,

> "In the killing zone the machine guns were sighted in so that the long axis of the beaten zone would coincide with the long axis of the enemy. This meant the that those guns

would be firing parallel to the friendly troops... "

The support element provided fire support for the assault element. This element was generally armed with machine guns and/or mortars and mines. The support element prevented the enemy from escaping through the front or rear of the killing zone. if a demolition team was to be employed it was always as a part of the support element.

Al Baker,

"We used lots of Claymore mines in the kill zone and to protect the security elements. In a linear ambush I would built a ring main on the far side of the kill zone. The ring main was made with a web of hand grenades linked together with detonation cord so they would explode simultaneously. The firing mechanisms were unscrewed and removed, non-electric blasting caps crimped on det cord replaced them. The grenades were strung in trees on the far side of the linear ambush giving air burst effects to the grenades. It was very effective."

The security element protected the assault and support elements and covered the avenues of approach into the ambush site that the enemy may have tried to use in order to reinforce the ambushed force. The security element also covered the withdrawal of the assault and support elements as well as securing the rally point.

Appropriate Ambush Areas and Sites

With regard to ambush areas, numerous night ambushes would be laid along railroads, roads, trails and waterways which the enemy had to use in order to approach hamlets and villages. these likely avenues of approach were often deduced if the required intelligence was not known. Sites for ambushes were often found in remote areas by a close study of the those locations where the enemy contacted the population as they were working in the fields. These ambushes would be set before dawn and prior to the arrival of the workers in the fields. Since the enemy had to leave his safe areas in order to enter populated areas, ambushes were also set along roads and trails anything up to 15-20 kilometers out from the perimeter of populated areas.

Once the area for ambush operations had been determined, the actual sites where then selected. Ambushes were most effective when the site selected confined the enemy to an area where he could be destroyed. natural obstacles were numerous in Vietnam for ambush positions, such as cliffs, streams, embankments, and narrow trails and roads with canals on either side.

Al Baker,

"Artillery barrages where planned to ambush sites to be fired after withdrawal to the rallying point. It was to prevent pursuit of the ambushing forces and disrupt other forces...

"

An indirect approach would be used to enter the ambush site, otherwise the enemy could possibly detect friendly movement and employ a counter ambush. At times the use of a circuitous route could involve three or four days march in order to reach the ambush site. A patrol could often find itself occupying an ambush site well ahead of the arrival of the target and in these circumstances patience was essential if secrecy, and hence security, was to be maintained. In some instances it was necessary for units to remain in ambush areas for a minimum of a week and often as long as a month.

Frequently the Viet Cong followed a patrol, waiting for the unit to make a mistake or for a chance to ambush from the rear. There were three recommended ways to counter this VC threat:

- Drop a fire team or squad ambush on a prearranged signal.
- Circle back on the patrol route forcing the VC to worry about his rear (see also Security on the Trail).
- Alter direction of movement every few hundred meters to confuse the enemy as to location and direction of movement of the patrol.



NEXT PAGE

Sources:

Vietnam Lessons Learned No. 39: Ambush Operations. US Army Military Assistance Advisory Group Vietnam (MAAG), March 1964.

Al Baker, B Company Commander, 4/9 Infantry, 25th Infantry Division, RVN, 67-68.

Fleet Marine Force Reference Publication (FMFRP) 12-40, Professional Knowledge Gained from Operational Experience in Vietnam, 1965-1966

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EAGLE - FLIGHT

INTRODUCTION

An Eagle Flight operation was a tactical concept which involved the employment of a small, self-contained, and highly trained heliborne force. Tactical planning emphasised the use of this force to locate and engage the enemy or to pursue and attack an enemy which was fleeing from a larger friendly force. As an airmobile force it was also prepared to engage any enemy force which had been located and fixed by other friendly forces. The inherent flexibility of the Eagle Flight as a force that was ready for immediate commitment, either alone or in conjunction with other forces, was it's most significant feature.

An 'Eagle Flight' was a variation of the normal heliborne operations developed in Vietnam in order to:

- **complement the operations of committed heliborne or ground forces**
- **extend the combat effectiveness of such forces**
- **operate independently, either alone or reinforced, on a variety of missions**

As it's name implies, it was a force that was designed to search for, pursue and attack it's quarry.

AREA OF OPERATIONS

The Delta region of South Vietnam (IV Corps Tactical Zone) was an ideal area for the Viet Cong and insurgency operations. Characterised by it's lack of an adequate road network, great expanses of inundated land during the monsoon season, vast and intricate networks of tree-lined rivers and canals, and dense yet widely dispersed population centers, made it an extremely difficult area of operations for conventionally equipped land forces.

Finding, fixing and destroying the enemy in this type of terrain seriously challenged the imagination of US tactical planners. The Eagle Flight was an answer to this challenge and was created exactly for this particular area of operations. So successful was the concept of Eagle Flights that they were eventually adopted, with some adaptation, to any area which was suited to heliborne operations but in which the location, pursuit and destruction of enemy forces were principle problems.

OPERATIONS

i) Task Organisation

The basic Eagle Force consisted of four squads of soldiers, plus command elements - Company Commander, Executive Officer, four squad leaders and an optional Artillery Forward Observer - mounted in four troop carrying helicopters, as shown below. In the case of ARVN units, advisory elements such as a US Advisor and interpreter would also be present. As an aid to command and control, as well as for identification purposes in expediting loading and reloading, each person would wear a scarf or piece of cloth affixed to his uniform of an appropriate colour (red, green, blue and yellow).



"Eagle Leader"
Company Commander
Radio Operator
Artillery FO
1st squad
'RED TEAM'



Squad Leader
2nd Squad

'GREEN TEAM'



Executive Officer
Squad Leader
3rd Squad

'BLUE TEAM'



"Eagle Trail"
Squad Leader
4th Squad

'YELLOW TEAM'

ii) Planning Considerations

Several of the following considerations resulted directly from local conditions and which were peculiar to operations in RVN where, in particular, language difficulties were encountered in supporting an ARVN Eagle Force with armed escort helicopters operated by US personnel. In circumstances where the entire Eagle Force was manned by US personnel, several of the following considerations would have been unnecessary.

1. **It was considered highly desirable that an additional flight of four troop carrying helicopters were available on standby commencing two hours after the initial operation started. These helicopters would be dispatched to the operational area to replace the original helicopters when refueling became necessary and thus would eliminate any delays in the conduct of the operations.**

2. **When operating independently from other air-mobile or ground forces an Eagle Force would normally be supported by Tac Air.**

3. **Helicopter availability often dictated alterations in the loading plans and in accommodating these changes the tactical integrity of the squads was always the primary concern. In operations involving ARVN with US support, any loading plan had to make provision for the need of maintaining the US Advisor in close proximity to his interpreter.**

4. An O-1 'Bird Dog' aircraft, capable of operating on the US radio net was essential for the purposes of spotting and marking, and to act as a radio relay as needed. In ARVN operations, a second O-1, operating on the ARVN radio net, was considered desirable.

5. It was also highly desirable that the armed aircraft were be capable of communicating on the infantry FM net in order that air-ground operations could be coordinated effectively, especially in the case of ARVN operations where coordination between all ARVN forces and US units and personnel participating in the operation was the responsibility of the US Advisor on the ground. The US Advisor had a radio with him on the ground and would normally wear the crew chief's head set while airborne in the lead helicopter.

iii) Missions

Reconnaissance in Force



An Eagle Force, supported by Tac Air and with light observation aircraft attached, could be assigned the mission of probing for the enemy in several 25-50 square kilometer areas, depending on the population densities in those areas. Sectors of search were assigned to the observation aircraft which, operating 'on-the-deck' would report on fleeing groups, armed persons, camouflaged individuals and positions, concentrations of sampans and the general reactions of people in the search areas. They would also recommend possible landing zones.

The eagle Force commander would be responsible for target selection while orbiting in the lead helicopter and would perform closer inspections of the potential objectives. He would also coordinate landing and/or assault plans with the armed escort helicopters and Tac Air. The armed escort helicopters would make assault passes prior to landings by the troop carrying helicopters. The eagle Force would then land and assault the enemy or else screen the area and interrogate civilians.

During the course of this operation, reports were continuously made to higher headquarters using the airborne observation aircraft for radio relay where necessary. The observation aircraft also scouted beyond the area in an attempt to detect enemy forces who had reacted to the Eagle Force landing, either by fleeing or preparing to attack.

If no enemy contact was made, or upon completion of the action, a pickup was then arranged. The troop carrying helicopters, under the cover of the armed escort, complete the pickup and the Eagle Force was then ready to continue it's search or else pursue any enemy reported by the observation aircraft.

Reinforce an Airmobile Force

An Eagle Force could be committed to reinforcing an airmobile force. By scheduling the arrival of the Eagle Force on-station to coincide with the arrival of the initial lift of a heliborne force at it's objective, the Eagle Force was in a position to immediately engage any enemy fleeing the AO.

Reinforce a Ground Force

An Eagle Force was quite capable of reinforcing a ground force by being placed on-station to operate in areas adjacent to the committed unit. In this situation, the armed escorts could perform low level search and target marking missions whilst coordination between the Eagle Force and the ground force could be accomplished as shown above.

Reinforce Itself

When heavy opposition was encountered by a committed Eagle Force, or if it was required to block an exit from the area of contact, the Eagle Force could reinforce itself quickly by using it's four empty troop carrying helicopters to bring additional squads into action. Within a few minutes after receiving a request for assistance relayed from the Eagle Force commander, four squads of soldiers from the nearest unengaged friendly unit could be made ready for pickup. Since the helicopters were in radio contact with the requesting eagle Force's commander, the reinforcements could be briefed on the situation, assigned objectives and given landing instructions whilst enroute.

Reinforce Air Strikes

An eagle Force could be landed immediately following the completion of an air strike in order to inflict additional casualties and damage or to engage surviving elemets of an enemy force.

Vertical Blocking Force

In areas of generally open terrain, an Eagle Force could assist ground troops whose movement had become slowed or halted by fire from snipers or small groups of enemy in covered or concealed positions. The threat posed by the hovering Eagle Force and the fires of the armed escort helicopters were used to pin down the enemy while ground forces were maneuvered to destroy them.

Immediate Reaction Force

Of particular use and value was the ability of an Eagle Force to react immediately in support of isolated outposts or units. Upon request being made by such, either that intelligence suggested enemy activity in the area or that the outpost or unit was under attack, an Eagle Force could be dispatched to assault the enemy or reinforce the position.

Covering Force

An Eagle Force could be given a mission to provide cover for surface movement in the protection of boat and road traffic. Since this was considered to be a very costly mission in terms of forces and equipment it was only given in cases involving extremely high priority movements.

OPERATIONAL LIMITATIONS

In some respects the Eagle Force concept had inherent weaknesses. Some of those remained for the duration of the War whilst others (notably communications) were gradually minimised or eliminated through technological improvements. One of the most notable difficulties was that of language arising from the participation in operations by personnel of different nationalities. To overcome those problems it was necessary to employ additional communications equipment and procedures which were adapted to the conditions. This limitation was not a consideration in the operations of a homogeneous force.

The Eagle Force could not move by stealth since it's mode of transport advertised it's presence well in advance.

The force was dependent upon considerable support and the more independent it's mission, the more support it required. As a consequence, coordination of the force and it's supporting elements was of paramount importance.

Some other limitations were as follows;

Reliance on Suitable Terrain

An Eagle Force could only be employed successfully in generally open terrain appropriate for helicopter operations. Extended areas without suitable LZ's, which would tend to 'swallow' a small force or which would render the armed escort useless, or which would limit LZ's to only a few that could be ambushed by the enemy prohibited their successful employment.

Vulnerability of Helicopters

Helicopters, and the Eagle Force itself, were particularly vulnerable to enemy ground fire during assault landings. In many cases, to be effective and to preclude an exhausting and possibly unsuccessful pursuit on foot, the eagle Force had to be landed amidst or immediately adjacent to the enemy.

Quite often the force would be separated by a terrain feature (e.g. canal or tree line). If, upon

landing, these small forces were surprised by a large enemy force they could not be extricated easily since the helicopters were extremely vulnerable to loss if called in during a heavy engagement.

Limited Combat Power

An Eagle Force was, basically, a small platoon sized force and upon landing it's combat power was limited to the skill and fire power of the squads. The force itself usually carried no heavy weapons and only a limited number of machine guns (if any).



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SOURCES

US Army Military Assistance Advisory Group Vietnam (MAAG) - Lessons Learned No. 32 Eagle Flight Operations (October 1963)

Viet Cong Tunnels



Allied Operations Against Tunnel Complexes

The use of tunnels by the VC as hiding places, caches for food and weapons, headquarter complexes and protection against air strikes and artillery fire was a characteristic of the Vietnam war. The 'fortified village', usually underlaid by an extensive tunnel system containing conference, storage and hiding rooms as well as interconnected fighting points had also been frequently encountered. However, as operations progressed into the war zones subsequent to January 1966, an even more extensive type of tunnel complex had begun to be encountered which combined underground security of personnel and supplies with an integrated, tactically located defensive system of fighting bunkers.



US tunnel rat prepares to enter enemy tunnel system

The tunnel/bunker complexes encountered in the war zones were obviously the result of many years of labour, some in all probability having been initiated as early as WWII, with extension and improvement continuing throughout the war against the French and up until the time of their discovery by the US troops. These complexes presented a formidable and dangerous obstacle to operations that had to be dealt with in a systematic, careful and professional manner. Additionally, they were an outstanding

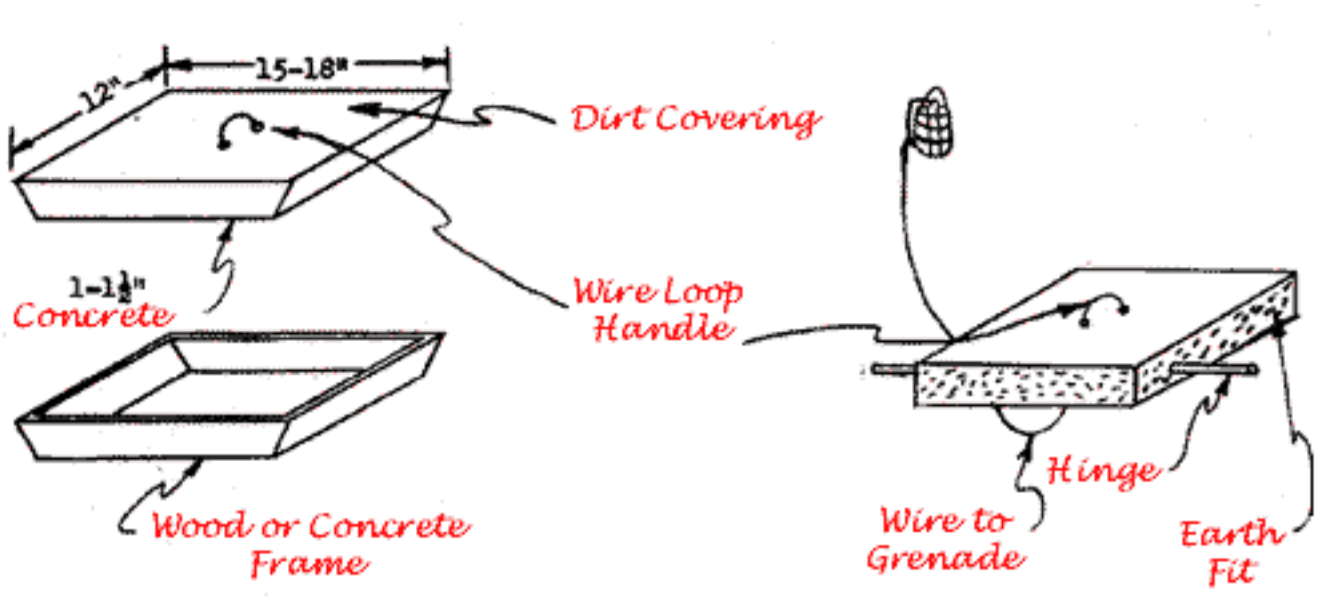
source of intelligence, as evidenced by the several tons of documents found during the clearing of the Saigon-Cholon-Gia Dinh headquarters complex in Operation Crimp, January 1966.

Tunnel Characteristics

The first characteristic of a tunnel complex is normally superb camouflage. Entrances and exits are concealed, bunkers are camouflaged and even within the tunnel complex itself, side tunnels are concealed, hidden trapdoors are prevalent, and dead-end tunnels are utilised to confuse the attacker. In many instances the first indication of a tunnel complex was fire received from a concealed bunker that might otherwise have gone undetected. Spoil from the tunnel system was normally distributed over a wide area.

Trapdoors were utilised extensively, both at entrances and exits and inside the tunnel complex itself, concealing side tunnels and intermediate sections of the main tunnel. In many cases a trapdoor would lead to a short change-of-direction or change-of-level tunnel, followed by a second trapdoor, a second change-of-direction and a third trapdoor opening again into the main tunnel.

Trapdoors were of several types; concrete covered by dirt, hard packed dirt reinforced by wire, or a 'basin' type consisting of a frame filled with dirt. This latter type was particularly difficult to locate in that probing would not reveal the presence of the trapdoor unless the outer frame was actually struck by the probe. Trapdoors covering entrances were generally a minimum of 100 meters apart. Booby traps were used extensively, both inside and outside entrance and exit trapdoors. Grenades were frequently placed in trees adjacent to the exit, with an activation wire to be pulled by a person underneath the trapdoor or by movement of the trapdoor itself. Typical trapdoor configurations are shown below;



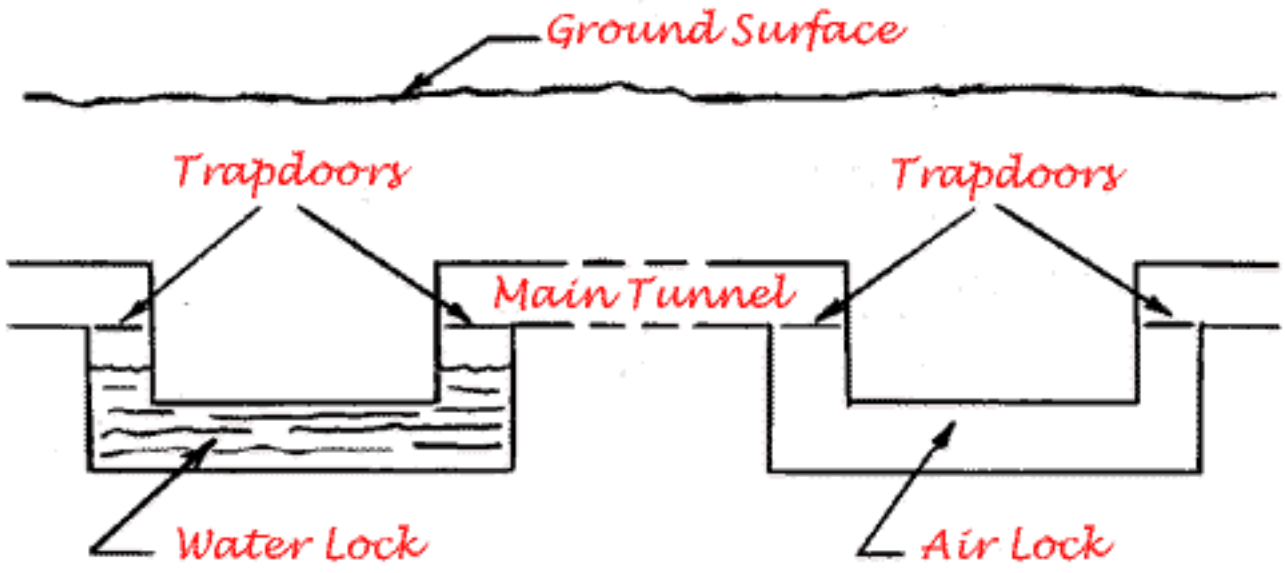
Tunnel complexes found in the War Zones were generally more extensive and better constructed than those found in other areas. In some cases these complexes were multileveled, with storage and hiding rooms generally found on the lower levels. Entrance was often gained through concealed trapdoors and

secondary tunnels. In the deeper complexes, foxholes were dug at intervals to provide water drainage. These were sometimes booby-trapped as well as containing punji-stakes for the unwary attacker.

Although no two tunnel systems were exactly alike, a complex searched by 1st Battalion, RAR, during Operation Crimp may serve as a good example. The complex had the following characteristics;

- Main tunnel length was approximately 700-meters
- Longest straight stretch was 10-meters
- Shortest stretch was 1-meter
- Every 50-meters there was a 50-foot side tunnel, or offshoot
- Average tunnel size was 2-feet wide and 2.5 to 3-feet high
- Air shafts were spaced at intervals throughout the system and were generally conical in shape, approximately 12-inches at the base and 2-inches at the top
- About every 100-meters there was a room, approximately 4 x 6-feet and 3-feet in height with shelves along one wall together with seating
- These rooms were also found at the end of secondary, offshoot tunnels
- At 30 to 40-meter intervals in the main tunnel wall, small offshoots were noted with bamboo backwalls. Investigation revealed excavation shafts leading to the surface from behind the bamboo wall with the shafts being filled in with dirt after the adjacent tunnel section had been completed.

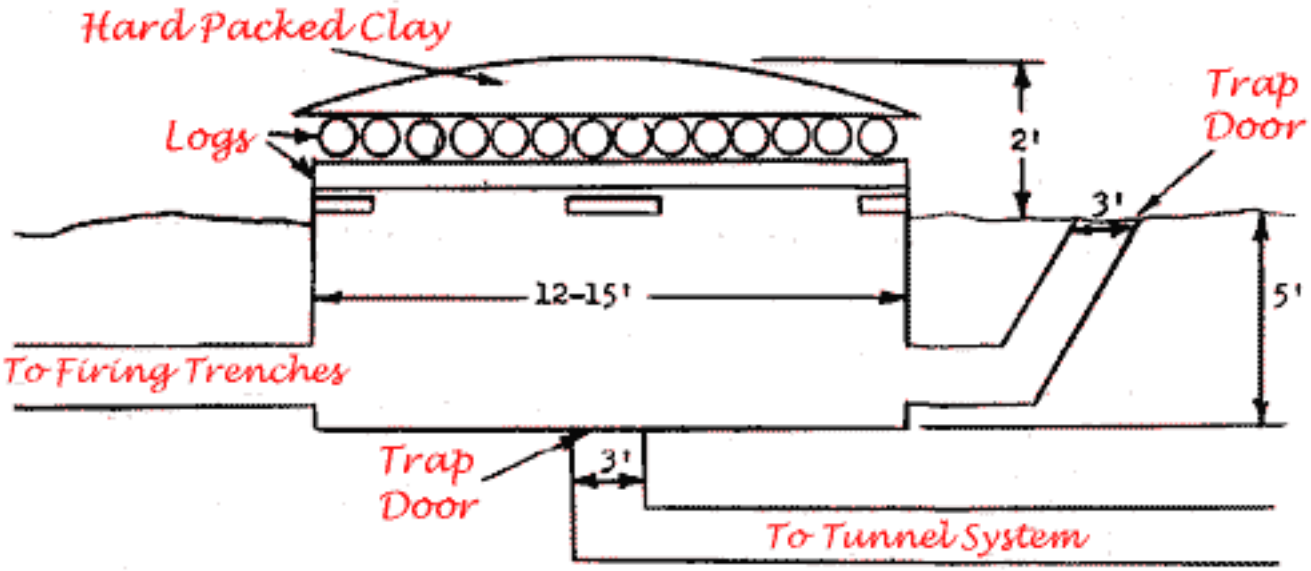
Another tunnel characteristic of note was the use of air or water locks that acted as 'firewalls', preventing blast, fragments or gas from passing from one section of the tunnel complex to another. Use of these 'firewalls' is illustrated below;



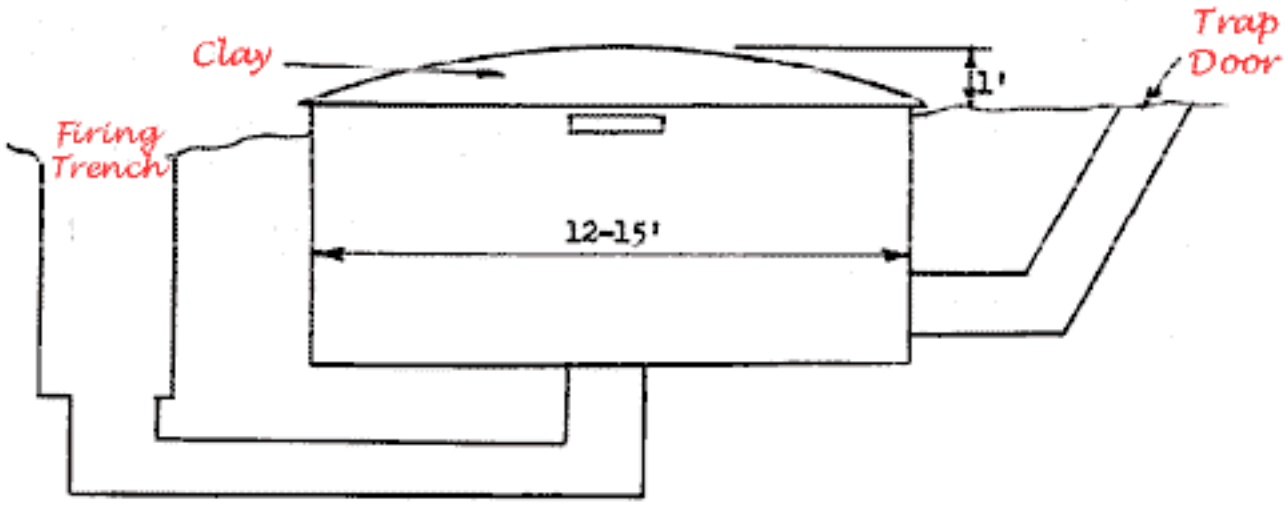
Recognition of their cellular nature was important for understanding these tunnel complexes. Prisoner interrogation indicated that many tunnel complexes were interconnected, but the interconnecting tunnels, concealed by trapdoors or blocked by 3 to 4-feet of dirt, were known only to selected persons and were

used only in emergencies. Indications also pointed to interconnections of some length, e.g. 5 to 7-kilometers, through which relatively large bodies of men could be transferred from one area to another, especially from one 'fighting' complex to another.

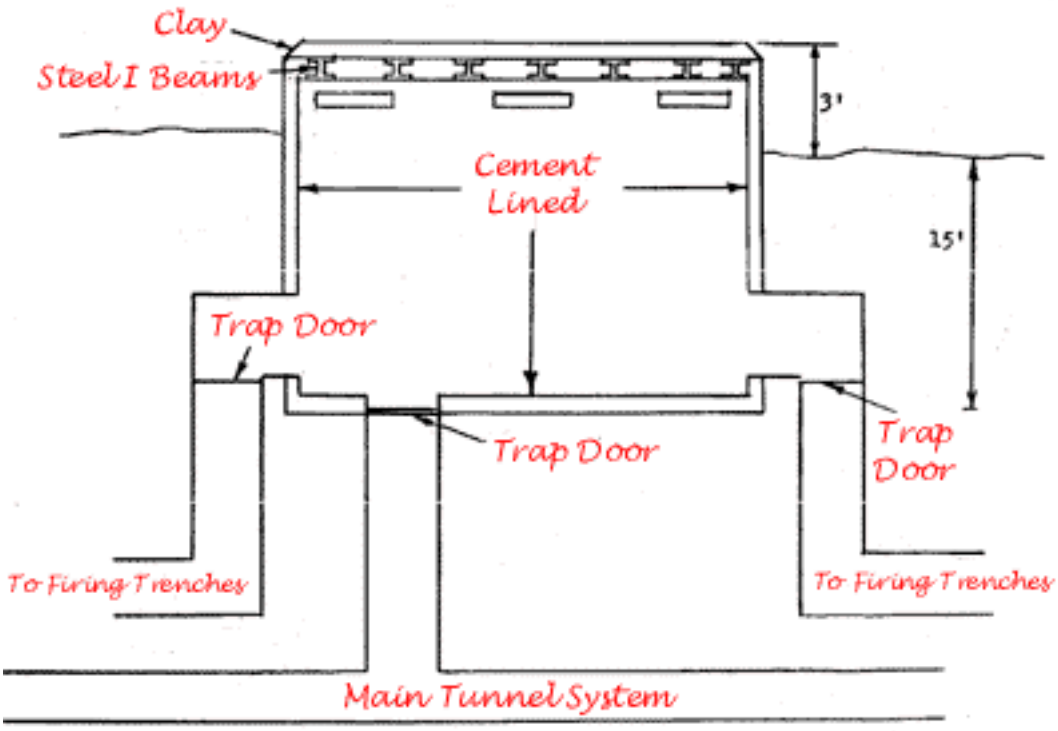
The 'fighting' complexes terminated in well-constructed bunkers, in many cases covering likely landing zones in a war zone or base area. Bunker construction is illustrated below with examples uncovered by 1st Battalion, 503rd Airborne, during Operation Crimp;



Bunker raised three feet with four firing ports



Bunker raised approximately one foot with one firing port



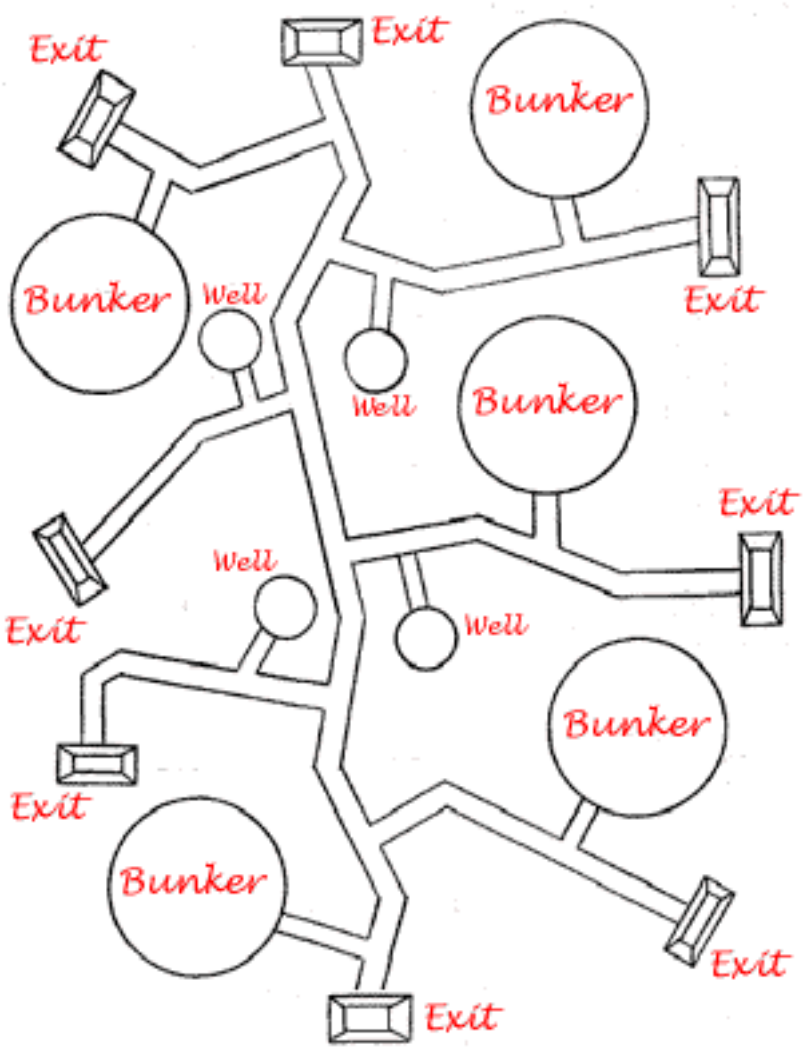
Command Bunker

Integration of these bunkers into a 'fighting' position is illustrated by the following diagram apparently used as a guide for VC construction in the CRIMP area;

The following experience of the 1st Infantry Division in the Di An and Cu Chi area is representative of tunnel operations;

Tunnel Exploitation and Destruction

- The area in the immediate vicinity of the tunnel was secured and defended by a 360-degree perimeter to protect the tunnel team
- The entrance to the tunnel was carefully examined for mines and booby traps



- Two members of the team entered the tunnel with wire communications to the surface
- The team worked it's way through the tunnel, probing with bayonets for booby traps and mines and looking for hidden entrances, food and arms caches, water locks and air vents
- As the team moved through the tunnel, compass headings and distances traversed were called to the surface where a team member mapped the tunnel
- Captured arms and food items were turned over to the unit employing the team

As other entrances were discovered and plotted, they were marked in such a way as to indicate if the VC used them after discovery, but before destruction could be accomplished. In many cases tunnels were too exstensive to be exploited and destroyed in the same day and the VC mined entrances and approaches during the night after the tunnel team departed.

Upon completion of exploitation, forty pound cratering charges were placed fifteen to twenty meters from all known tunnel entrances and, where exstensive tunnel complexes existed, ten pound bags of CS-1 Riot Control Agent were placed at intervals down the tunnel at sharp turns and intersections and tied into the main charge. Where sufficient detonating cord was not on hand to tie-in all bags of CS-1 to the main charge, bags of CS-1 were dispersed in the tunnel by detonation with a defused M-26 fragmentation grenade fused with a non-electric cap and a length of time fuse. Sharp turns in the tunnel protected the demolitions man from the grenade blast, if the detonation occurred before he exited the tunnel.

Tunnel Flushing and Denial

The infantryman discovering a spider hole or tunnel entrance during intensive combat lobs an M-25 CS 'baseball type' grenade in the hole, followed by a fragmentation grenade. The bursting of the CS gas grenade places an instantaneous cloud of CS in the tunnel and the fragmentation grenade blows the CS

through a section of the tunnel while killing any VC near the entrance.

The low level contamination resulting from this method would serve only to discourage rather than prevent future VC use of that tunnel entrance.

Hasty Tunnel Flushing and Denial

In some areas the combat situation would permit a hasty search for hidden tunnel entrances but either lack of time or VC occupation of the tunnel would not permit exploitation by the tunnel team as described above (Tunnel Exploitation and Destruction).

In this case the Mity Mite Portable Blower could be employed to flush the VC from the tunnels burning CS Riot Control Agent grenades (M-7A2). In addition, the smoke from the grenades would, in most cases, assist in locating hidden entrances and air vents.

After flushing with CS grenades, powdered CS-1 could be blown into tunnel entrances to deny the tunnel to the VC for limited periods of time. In either case, these methods were only effective up to the first 'firewall' in the tunnel.

Representative Equipment List;

Protective mask; TA-1 telephone; one half mile field wire on 'doughnut' roll; compass (x2); sealed beam 12-volt flashlight (x2); small calibre pistol (x2); probing rods (12-inch and 36-inch); bayonet (x2); M7A2 CS grenades (x12); powdered CS (as required); coloured smoke grenades (x4); insect repellent and spray (4 cans); entrenching tool.

Small calibre pistols or pistols with silencers were the weapons of choice in tunnels, since larger calibre weapons without silencers had been known to collapse sections of the tunnel when fired and/or damage eardrums.

Careful mapping of the tunnel complex often revealed other hidden entrances as well as the location of adjacent tunnel complexes and underground defensive systems. Constant communication between the tunnel team and the surface was thus essential to facilitate tunnel mapping and exploitation.

Coloured smoke grenades were often used to mark the location of additional entrances as they were found. In the dense jungle it was often difficult to locate the position of these entrances without smoke.

Dangers

Dangers inherent in the above operations fell into the following categories and had to be taken into account by all personnel connected with these operations;

- Mines and booby traps in the tunnel entrance/exit area
- Punji pits inside entrances
- Presence of small but dangerous concentrations of carbon monoxide, produced by burning-type smoke grenades after tunnels were smoked. Protective masks would prevent inhalation of smoke particles, which were dangerous only in very high concentrations, but would not protect against carbon monoxide
- Possible shortage of oxygen as in any confined or poorly ventilated space
- VC still in the tunnel who posed a danger to friendly personnel both above and below ground

Conclusions

A trained tunnel exploitation and denial team was essential to the expeditious and thorough exploitation and denial of VC tunnels since untrained personnel may have missed hidden tunnel entrances and caches, taken unnecessary casualties from concealed mines and booby traps and may not have adequately denied the tunnel to future VC use. To facilitate this, teams were trained, equipped and maintained in a ready status to provide immediate assistance when tunnels were discovered.

Tunnels were frequently found to be outstanding sources of intelligence and would therefore be exploited to the maximum extent possible. However, since tunnel complexes were carefully concealed, often extensive, and well camouflaged, search and destroy operations had to provide adequate time for a thorough search of the area to locate all tunnels. Complete exploitation and destruction of tunnel complexes was very time consuming and operational plans had to be made accordingly in order to ensure success.

The presence of a tunnel complex within or near an area of operations posed a continuing threat to all personnel in the area and no area containing tunnel complexes could ever be considered completely cleared.



Back to Tactics

Sources:

US Army Military Assistance Advisory Group, Vietnam (MAAG), *Lessons Learned No. 56 Operations Against Tunnel Complexes*, April 1966

Tom Mangold & John Penycate, *The Tunnels of Cu Chi*, Pan Books, 1985, ISBN 0-330-29191-2

VILLAGE SEARCH OPERATIONS

PART I

INTRODUCTION



Counterinsurgency is a war of many faces and at all times the requirement to ultimately separate the people from the insurgents, and induce them to support the local government dominates every action. Village searches presented one of the most tedious and dangerous 'faces' of counter-insurgency operations in RVN.

When confronted with a government force they did not wish to meet, the VC would attempt to evade, hide or meld with the local population. Experience had indicated that many times hiding or melding took place within the many villages and hamlets of SVN. A quick but thorough search of villages and hamlets became a requirement under these conditions.

The problem was how to successfully ferret the VC from his hiding place in the village while refraining from actions which would alienate the populace and at the same time minimize risk to the unit which was conducting the search.

VC HIDING TECHNIQUES

General

VC attempted to evade and avoid all contact with government forces for any one of many reasons and this was the normal reaction for a VC unit when confronted with a superior government force.

Frequently however, GVN tactics or time/distance considerations made it necessary for the VC to evade by physically hiding in villages, or becoming one of the local population. This article is concerned with this one aspect of VC escape and evasion technique and is especially oriented to the situation presented when search operations were made more difficult because they were conducted in the presence of a friendly or passive populace.

Equipment

While VC equipment was generally limited in quantity, that which they did have was remarkably effective and highly prized.



Protection of equipment was equally important, if not more so, than protection of personnel. In some instances elaborate steps were taken to hide equipment of all types; in other instances only the simplest steps were taken on the assumption that the obvious hiding places would be overlooked.

Almost any place above or below ground in a village was a potential hiding place in which equipment of all types could be cached. Weapons were buried in gardens, floors of houses, in animal pens (especially if the animals were cantankerous) or any place which could be prepared to hide the weapon. In many instances they were thrown into a rice paddy, stream or canal with or without a waterproof cover (locally produced plastic material, commonly used as a rain cape, provided an excellent waterproof cover for weapons which were to be stored underwater for prolonged periods).

Munitions were hidden in haystacks (more than one haystack had exploded when it had been burned), buried, or hidden along with weapons. Weapons and equipment were also found concealed in false ceilings in dwellings with thatched roofs. Both mud and thatch false walls provided equally deceptive hiding places. Treetops also formed an effective hiding place for small pieces of equipment. VC equipment, including flags and propaganda signs, which were found in obviously exposed places had to be treated as suspect. Experience had indicated that many pieces of equipment were booby-trapped and had resulted in death and injury to careless personnel who had attempted to recover those items. Ordinary precautions had to be observed in the removal of equipment which might be booby trapped.

Personnel

Hiding places for personnel were almost as limitless as they were for equipment, however, underground and underwater appeared to be the favourite personnel hiding places. Personnel frequently attempted to hide underwater by completely submerging themselves while breathing through a hollow reed or a short piece of bamboo. Any canal, stream or rice paddy in or near the objective village had to be regarded as suspect. Mud banks along streams and canals were also used as hiding places but usually no breathing tube was used. The individual simply burrowed into the mud, covering himself and any exposed parts with the ooze. Since a standing man would sink to above knee-deep in the soft mud, a man could easily conceal himself in this manner and not be

detected even at short ranges.

Individuals also hid underground by being buried alive. Again the reed was used as a breathing device and the man was simply buried in a spot where a new excavation need not be explained e.g. in a garden. More elaborate means of hiding personnel and equipment underground ranged from simple 'spider-trap' holes to elaborate reinforced underground rooms. From the surface these underground installations or tunnel systems were most difficult if not impossible to detect. Critical points were entrances and emergency exits which were usually concealed in gardens, thickets, animal pens, below water surfaces or wells and streams, under piles of refuse, in or under any structure, and other similar locations. Primary entrances could also be found under fireplaces in dwellings, under food storage bins, water containers and even in conjunction with real or false latrines where there was an easily explained excavation.

Any thicket, refuse pile, hay stack, structure (including shrines) or dwelling common to the locals had to be suspected of concealing an entrance or exit of an underground installation. While there were few instances of VC attempting to evade government forces by hiding in trees, this readily accessible but frequently overlooked hiding place had to be examined also.

The technique of 'playing possum' was also encountered. Of course, this was effective only after there has been an exchange of fire in the area but VC had been known to attempt to hide by playing 'dead' while retaining weapons and/or grenades so that if investigated closely, escape could be attempted.

SEARCH TECHNIQUES

General

Although the VC was a cunning enemy who knew and used many unusual devices and techniques to evade and hide from attacking government troops, he could be found and defeated. Trained troops, employing good search techniques and, when available, special equipment and material, could quickly, thoroughly and safely search villages without unnecessarily destroying property or jeopardising the safety of the populace.

Planning Village Searches

A village search mission was a common one in counterinsurgency, usually conducted in conjunction with other combat operations. Each village search mission had to be carefully and completely planned and based on current intelligence. Orders had to contain considerable detail and would be accompanied by briefings using a sand table type mock up of the village. If possible, within the security restrictions detailed below, rehearsals would be conducted using a similar village.

Security and counter-intelligence took on great importance during all planning and briefing phases preceding the search operation. Since VC intelligence nets always sought information about impending operations, every effort had to be made to deny this information to the enemy. By the same token during movement to the objective area, proper physical security to include deceptive methods, had to be employed to prevent the VC from learning the true destination and route of march of the search unit. In the helicopter provided an excellent means of rapid and secure movement to the objective village at a speed which surpassed that of the VC warning net. Proper security permitted surprise. A surprised enemy did not have time to effectively evade or hide thus simplifying search operations.

Search Tactics

Since there were no front-lines in counter-guerrilla operations, the first step was to isolate the village.

The area of the village had to be sealed so that there could be no escape from, nor entry to the village during the conduct of the operation.

The second step was to clear the isolated area up to the village itself. Ideally, guerrillas discovered outside the village were killed or captured outside the village. This maneuvre was often accomplished by tightening the line of encirclement around the village or by holding the line of encirclement and moving a task force through the area clearing as they went.

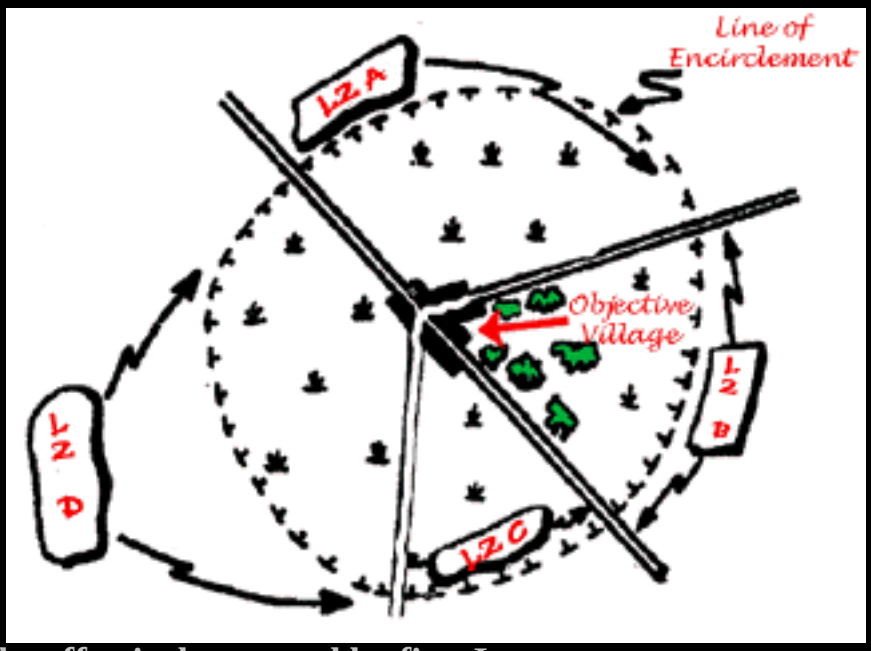
The third step was to search the village. This part of the operation was like conventional 'town and village' fighting, except that in the presence of a friendly or passive populace, the application of force had to be accomplished with extreme caution.

The final steps of the search operation were;

- **Capitalise on the opportunity of convincing the populace of the merits of the GVN through rigorous civic action and Psywar**
- **To execute a successful withdrawal from the objective village when the mission had been accomplished**

ORGANISATION OF SEARCH FORCES

Blocking Forces



Troops were positioned to both prevent escape from and deny entry to the village whilst the search was in progress. Sufficient forces had to be available to hold the line of encirclement as well as provide a reserve capable of dealing with whatever enemy threat intelligence may have indicated as present.

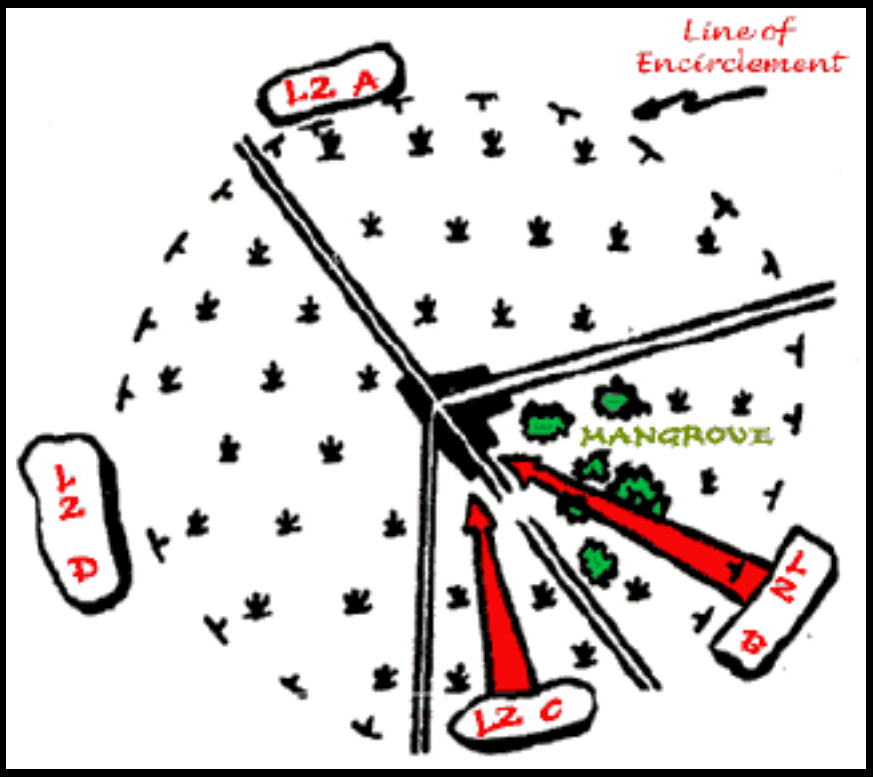
While it was desirable to utilise natural obstacles and fires to assist in sealing the objective areas, experience indicated that the VC invariably escaped by passing over obstacles or through areas which could not be effectively covered by fire. It was essential then that sufficient troops were allocated to the blocking forces to isolate the objective village. These forces were brought to positions on the line of encirclement by airlift or they advanced overland to the line from more distant positions. Air insertion was preferred as it resulted in greater surprise due to the speed with which it could be executed. However, an overland advance, whilst slower, generally succeeded in destroying VC forces who may have been in outlying fields.

As blocking forces assumed their final positions on the line of encirclement they had to remain alert for;

- **Possible escape attempts by individuals or small groups who tried to exfiltrate from the village**
- **Determined breakout attempts in force**
- **Determined attack from VC forces outside the line of encirclement who were attempting to relieve the isolated village**
- **Possible emergency exits from underground installations which were outside the line of encirclement (tunnels over 4 kilometres in length were not unknown in RVN)**

A portion of the blocking force would be designated as a reserve and ideally it would be highly mobile in order to counter enemy threats which may have developed. The use of an airmobile force, for example an Eagle Flight, or Mechanised Infantry mounted on M113's, was frequently used in this role. This reserve, rather than units from the line of encirclement, would be used to deal with individuals or groups who were evading in order to avoid creating a gap in the line of encirclement.

Assault Forces



Once the village was sealed, the second major operating force, the assault force, would move to the objective village itself. A variety of methods were used to conduct this movement;

An inner line of encirclement would be formed which tightened on the village, or the troops would advance from one or more principle directions in small task forces

During this movement, any VC encountered would be killed or captured before they could reach the village. It was also during this phase that the advancing units had to be especially alert for ambush and booby traps.

If the force was well organised and of sufficient size, it was unlikely that the VC would attempt to defend the village but if the village contained a hard core VC unit or vital supplies, or if the government units gave early evidence of poor training or appeared to be poorly co-ordinated, the VC were very likely to take more overt offensive actions against the attacking forces.

The assault forces were organised into the following teams;

1. Reconnaissance Team

This team, which led the way into the objective village from the line of encirclement, generally numbered less than one-third of the total assault force. Its mission was to secure the area from the line of encirclement. Once the Search Team entered the objective village, the Recon Team performed local security missions and acted as a small local reserve for the assault force commander.

2. Search Teams

These teams, which made up about one-half of the assault force, were used to search out the VC in the village. They would move quickly but carefully into previously assigned search areas moving alternately by bounds from house to house under the cover of one another. All areas were carefully and thoroughly checked, literally leaving no stone unturned in order to dig out the VC and their equipment.

Search Teams would be armed with automatic weapons, fragmentation and offensive

grenades. In some instances they would also have special equipment attached (see below).

3. Fire Support Team

This team, usually no more than one-quarter of the assault force, positioned itself where it could give fire support to the search teams should it be needed. The team was equipped with light mortars and if the situation warranted it, light recoilless and automatic weapons. The team would approach, but rarely enter, the village except with its flat trajectory weapons, since its value was in the indirect fire support which it provided for the search teams.

4. Civilian Control Team

This team assumed temporary control of civilians which were uncovered and grouped them together out of the way of the search teams. During the time available to them, they segregated and interrogated civilians, checking documentation and gaining whatever intelligence was available. They were especially alert to detect VC who were attempting to 'meld' with the populace and arrested all persons who could not establish their identity or account for their presence in the village. Suspects were usually evacuated from the village for more detailed interrogation at a later time.

The team was often augmented with Psywar and Civic Action personnel in order to carry out CA and Psywar activities (see below)

5. POW Team

A very small portion of the assault force was used to secure and process all POW's. the normal principles of handling POW's applied; Seize, search, Segregate, Silence and Speed in evacuation.

SPECIAL EQUIPMENT & MATERIAL

Items of equipment and material, which were available to speed up the search and make it more thorough, were often utilised and included some of the following;

1. Mine Detectors

Mine detectors were used to detect all kinds of VC metallic booby traps including spike traps, grenades and mines. Some detectors, like the AN/PRC-3, could even detect underground 'cavities' which may have been underground rooms or foot and man traps. More importantly, mine

detectors could locate buried weapons, ammunition and other metallic objects. For instance, a rifle could be detected under 30cm of mud or 50cm of water.

Since in rural RVN the use of metal in construction was uncommon, the mine detector was also used to search the walls and ceilings of buildings for concealed hiding places for metallic objects. The use of mine detectors by search teams not only speeded up the search and made it more effective, but also helped to minimise friendly casualties from booby traps as well as preventing the unnecessary destruction of dwellings.

2. Dogs

Military dogs, trained as scout dogs, not only helped to locate underground installations but also warned the handler if they were occupied. In dry areas the dogs were also effective at locating buried equipment. Dogs were also sometimes used to lead the units to the objective village and alert the handler at the approach to enemy ambushes. When used in search operations, dogs increased the speed of the search, helped to ensure thoroughness, and provided a degree of security to the assault force.

3. Riot Control munitions and WP Grenades

Search teams were often equipped with all type of riot control munitions as well as smoke and WP grenades. The primary use of these devices was to drive the VC from their underground installations. WP was not only a smoke producer but also a casualty producer as well as being capable of use as a fire starter to burn buildings if necessary.

4. Demolitions Equipment

In many instances the only means of destroying underground installations was with high explosives. Demolitions were also used to dislodge VC from their underwater hiding places.

Captured weapons, ammunition and equipment was often destroyed, in situ, by the use of explosives.

ACTIONS OF SEARCH TEAMS

The actual conduct of the search operation was not unlike conventional town and village fighting to the degree that the search teams had to employ the same techniques of movement from house to house, clearing and thoroughly searching each possible hiding place both inside the dwelling and in the village itself.

Whilst in most instances the VC would not fight for the village, attempting rather to escape and

evade, the search teams had to remain alert at all times since the threat of VC counter action was always present.

Great emphasis was placed on using only that level of force required to conduct the search operation with the desired degree of thoroughness. Too little force would result in either an inadequate search, or would give the VC the opportunity to react and attack the searching units. Too much force would result in the alienation of the populace, making the ultimate task of establishing government control more difficult.

CIVIC ACTION

In order to obtain maximum benefit from the search operations, it was necessary to capitalise on GVN presence in the village. The ultimate goal in counter-insurgency was to re-establish government control over the people and no opportunity to prepare the people to accept government control could be overlooked.

Often, it was impossible to leave Civic Action cadre behind in the objective village but they, or members of the participating military units, were aware of what they could do whilst in the village both during and after the search. Details of Psywar and Civic Action activity was pre-planned so as to gain the greatest possible effect during these operations.

FORCE WITHDRAWAL

Withdrawal of the assault forces from the objective village was carried out over a different route than that taken during the advance. Withdrawal of the assault force was to the line of encirclement which remained in position until joined by the assault forces. All forces then withdrew with those not using airmobile extraction using multiple routes which different to those used during the approach. VC ambushes were most common when units were returning from operations and extreme caution and vigilance needed to be exercised during the withdrawal and return to home station.

CONCLUSION

Speed and thoroughness were the key elements to success in all village search operations. Speed was essential in order to achieve surprise and to capitalise on its effect. However, thoroughness could not be sacrificed for the sake of speed. Once an objective village had been entered, the search had to be completed and thorough. Only by proper training, planning, coordination and execution could a village search operation achieve its greatest success.

SOURCES

US Army Military Assistance Advisory Group Vietnam (MAAG) - Lessons Learned No. 25 Search Techniques (December 1962)

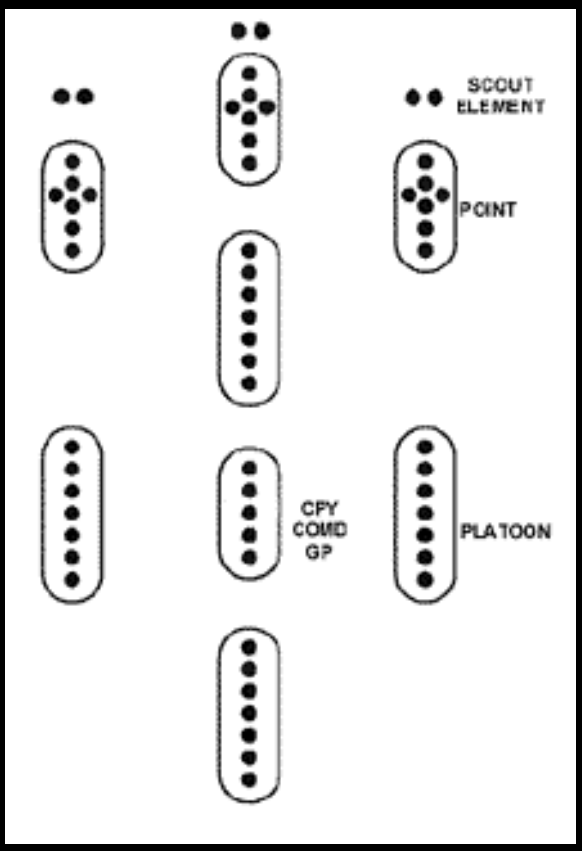
COUNTERING AMBUSHES

THE COMPANY IN MOVEMENT

The formation adopted which best served military movement over a diverse landscape was decided upon by a consideration of what the force commander was seeking to achieve: Security, Control and Concentration of fire power, without undue loss of time or personnel.

These considerations were not to be viewed as separate objectives since each impacted upon the others. Security and Control were desired so that fire concentration could be achieved at the critical time when nothing else counted more. This being the case it was generally held that the more complicated a formation and the more numerous it's parts, the greater the danger that control would be lost in a moment of emergency, especially when moving over countryside which prohibited visual contact between the various elements of the formation.

WEDGE FORMATION

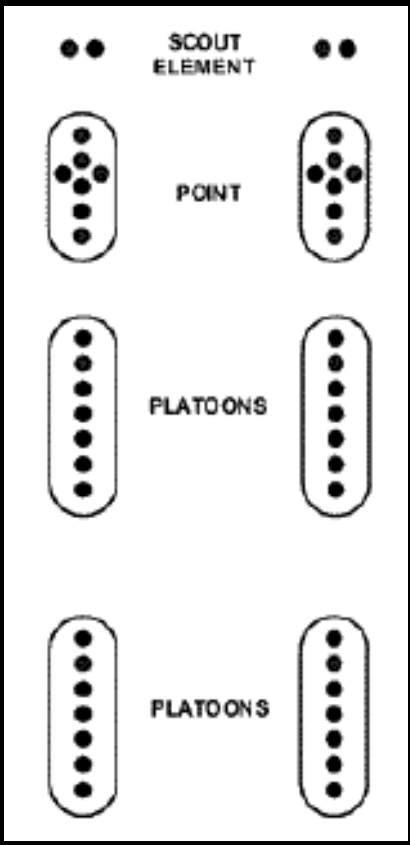


The 'Wedge', and its numerous variations, was the most widespread formation adopted by US rifle companies during advances into enemy territory, yet it was extremely difficult to control and possessed no inherent advantages in bringing fire power to bear quickly against any threatened quarter. In fact it had several built-in disadvantages.

The forward platoon in the center and the two platoons, right and left, each used a point, with scouts out. So there were never less than seven elements to control, which was several too many should the body have to reform suddenly to meet an assault from an unexpected direction.

Formed in this way, the company extended over a wider area than if the columns were more compact, though the advantage was marginal. The 'Wedge' neither strengthened security on the move nor favoured rapid and practical deployment for combat. If the formation should be hit from either flank, greater confusion would ensue than with a more simple formation. Should the enemy be set up and ready to fight on a broad front directly to the fore, all three columns were likely to become engaged before the commander had a chance to weigh-up whether full-scale involvement was desirable.

2-COLUMN FORMATION

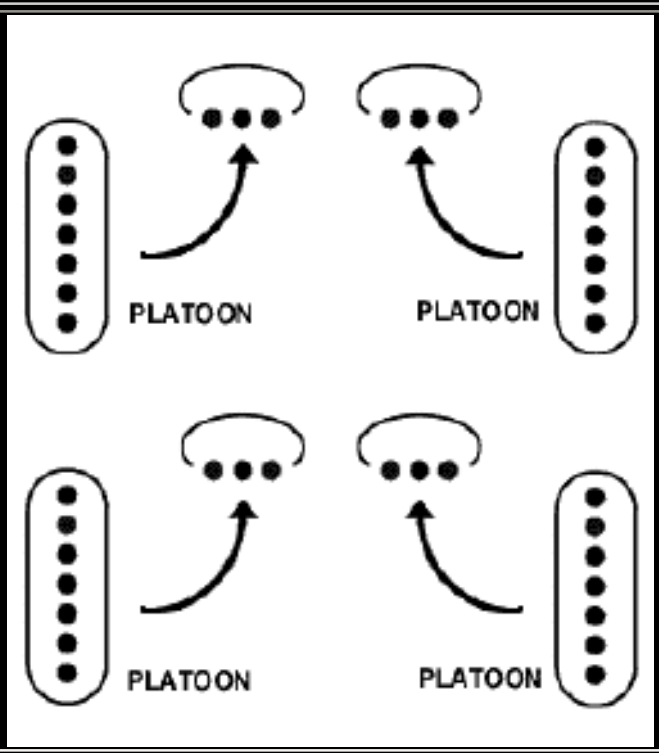


However, the situation is very different when the company is making its approach march in 2-column formation (left).

The width between columns would be approximately equal to their length when the terrain permitted. If either column was hit from the flank and faced toward the fire, the other was automatically in place to serve as a reserve and protect against a turning maneuver. Further, if the advance guard (scouts and point) drew fire in volume, signifying the enemy's determination to stand, the force was in a position to be either committed whole at once, or to fight on a narrower front with half of it's strength while retaining a 50% reserve (see Fig.1 below).

When the enemy fire and the condition of the advance element permitted it, the scouts and point would displace to rearward as the company shifted to a line of skirmishers (see Fig. 2 below).

In this way the whole formation would not be drawn willy-nilly into a full-scale commitment, a disarrangement that occurred frequently in attacks upon fortified positions. In circumstances where the scouts or the men in the point became engaged and took casualties, the lead platoon would become scattered and disorganised in the effort to extricate them and the fire line thereafter gradually became reformed on ground too far forward, greatly to its disadvantage and harshly limiting the supporting air and artillery fires.



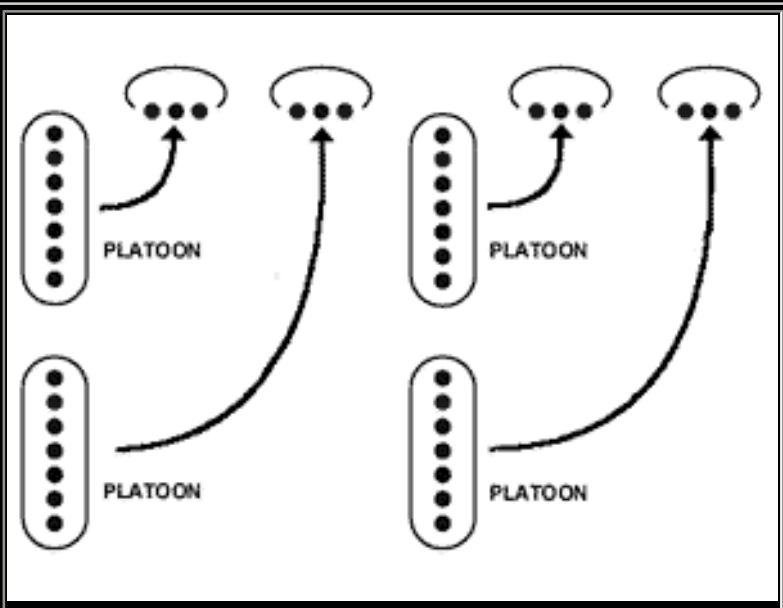


Fig. 1 Column Partially Committed	Fig. 2 Column Fully Committed

COMBAT AGAINST ‘L’ SHAPED AMBUSHES

In the ‘L’ shaped ambush, the tactic gets it’s effects from an intensifying concentration of fire. The NVA/VC normally fought out of natural cover, and the flanking side usually ran parallel to a trail. The twin column company formation was far more properly disposed to cope with the threat than was the wedge or any other eccentric formation, particularly if it was moving with a few flankers out, a practice which should have been adopted whenever conditions permitted (Fig. 3 below).

The right-hand column, in the correct position, needed only to face right to engage. The left-hand column moved into line against the enemy force blocking the line of movement. The company CP was located according to the intensity of fire and the availability of cover (Fig. 4 below).

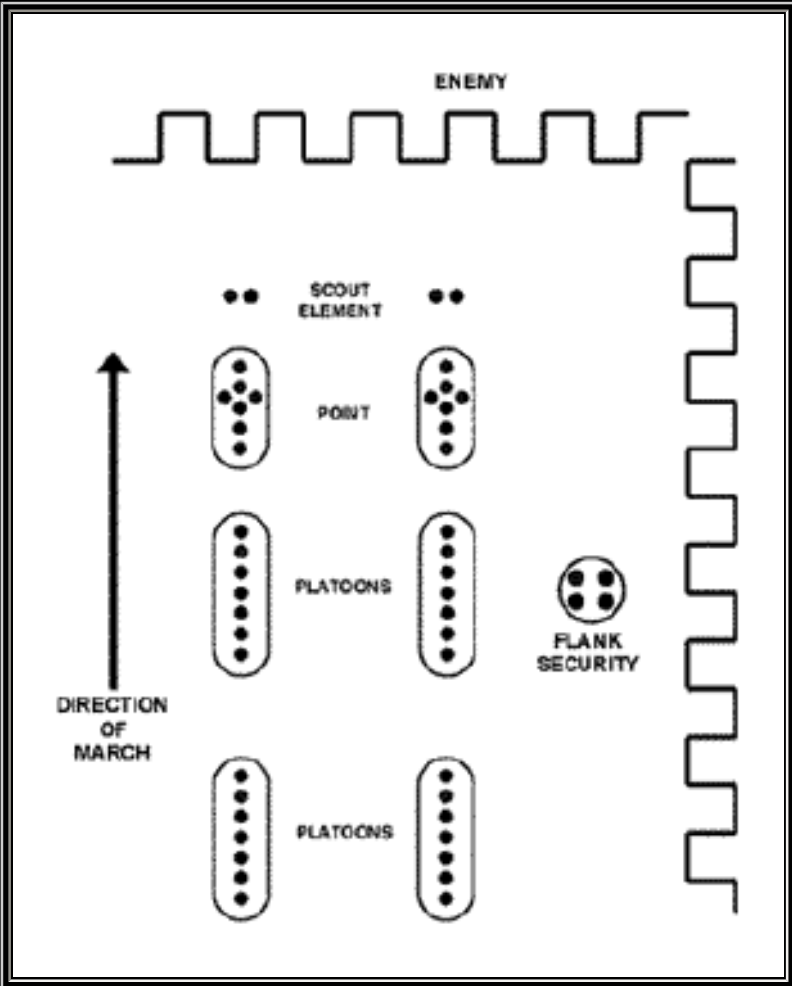


Fig. 3 Flank Security

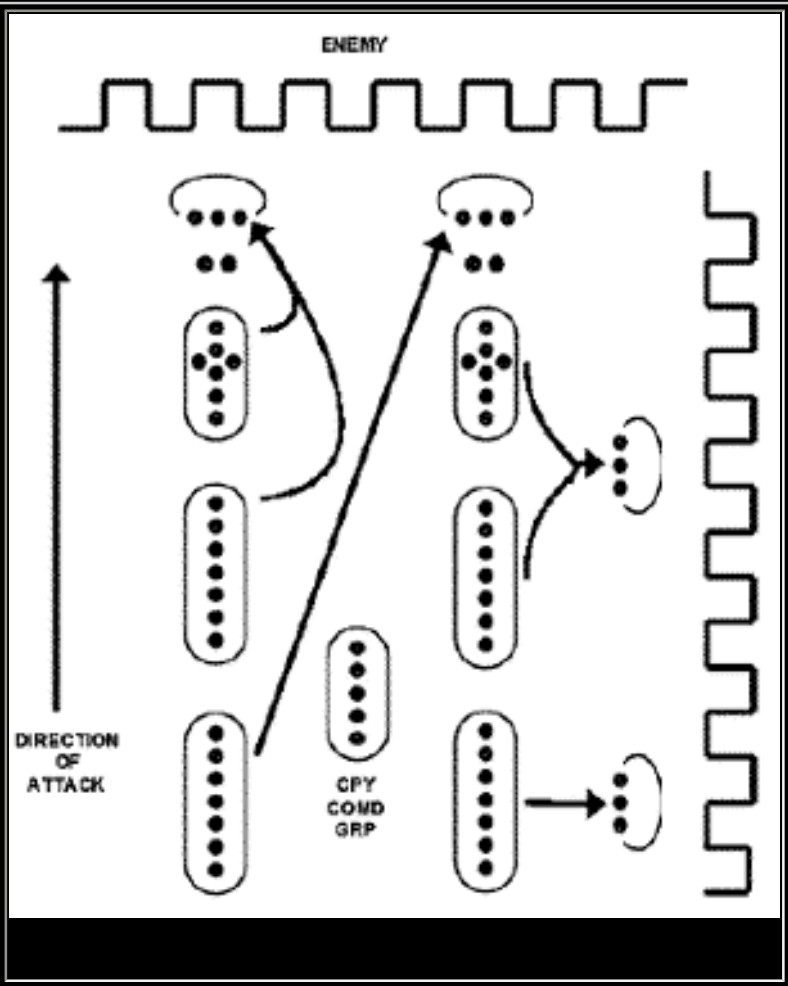


Fig.4 Maneuver against 'L' Shaped Ambush

So confronted, the enemy lost any initial advantages in fire or maneuver, and his problem of collecting forces to alter the terms of the engagement was probably more complex, since he had planned to execute a set piece.

NVA/VC reserves were usually placed to support the vertical bar of the 'L', with envelopment of the US force as the ultimate objective, and would be maneuvered in an attempt to block the US line of withdrawal. Usually this took the form of setting an ambush along the first stream or trail crossing in the immediate rear. Withdrawal over the same route used in advance was therefore to be avoided. The movement away from the 'L' ambush needed to be an oblique from the open flank where the enemy had not engaged.

Whether to accept line-against-line engagement was the prime question for the US force commander. Initially he may not have had an option because his position may have been weakened by early losses. At any stage it was preferable to maintain loose contact with the enemy whilst backing away with the main body as promptly as possible. At the same time the US force commander would call for maximum striking power against the enemy positions. The 'L' shaped ambush, by reason of its configuration, was an ideal target for artillery and Tac Air operating in combination. The vertical bar was the prime target for the artillery – gun-target line permitting – because it could be worked over with maximum economy and minimum shifting of the guns. The horizontal bar was the proper target mark for Tac Air because the boundaries of the run may be more readily marked manually when a withdrawal was perpendicular to the line of advance than when the strike parallels the line of advance and withdrawal.

AVOIDING AMBUSHES

NVA and VC ambushes were normally established on natural routes of movement such as trails and streams. Perhaps the best way of avoiding NVA and VC initiated ambushes was, as Al Baker, Company Commander, explained,

> The ambush was my greatest concern. Giving the enemy the opportunity to sucker us into a killing zone. I avoided that by never giving him a terrain feature to ambush. I explained it to my soldiers, by asking them where we ambushed. We ambushed trails and so did the enemy. We never ambushed jungle, we set up on some terrain feature that would give us the opportunity to catch the enemy. So that's how we moved, never using an identifiable feature....

Enemy ambushes were conducted at all hours of the day and night however, the majority of ambushes occurred during daylight hours. Almost one-third of all NVA/VC ambushes occurred during the morning hours, at which time friendly troops were moving out from their base camps and NDP's to conduct daily operations. Often the NVA and VC set up ambushes behind US patrols after they had left their patrol base in order to ambush the patrol on it's return and there were many cases where patrols which retraced their routes were caught in ambushes at times when the patrol members were tired and security was lax.

In order to combat these tactics the US commanders often resorted to unusual and imaginative techniques, as described by Al Baker,

> We would drop off stay behind patrols to try and catch followers. In one instance, when I

couldn't catch the bastards following me, I picked up a platoon in helicopters. Moved across a big field, halted the company on the far side and reinserted the platoon on the near side. Then I caught the bastards in the middle...

AMBUSH INDICATORS

The observations and experiences of US troops revealed, over time, a number of ambush 'indicators' which, when encountered, gave the commander reason to tighten security and move with caution.

- **Tied-down brush which may be a firing lane for an ambush**
- **Empty villages which may conceal ambushes**
- **Herds of cattle and well-tended crops in areas which are sparsely populated**
- **An unusual amount of activity in a specific area**
- **A steady delivery of small arms fire from one position which, whilst it appeared to be aimed at checking and delaying movement, was actually being used to encourage pursuit**
- **Sniper fire was used to draw US forces into ambush positions. The snipers would fire harassing rounds and, upon pursuit, fall back and draw the enemy into an ambush.**

In particular, US commanders were well advised to take note of local intelligence and in particular reports of unknown units in the area as well as sightings of NVA and VC reconnaissance elements.



NEXT PAGE

SOURCE:

Military Operations; Vietnam Primer - Dept of the Army, 1967 by Brig.Gen. SLA Marshall (Ret.) & Lt.Col. David Hackworth (Ret.)

Al Baker, Commander B Co, 4/9 Inf, RVN '67 - '68

Friendly Fire Incidents



CASUALTIES FROM FRIENDLY FIRES

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1. INTRODUCTION

There can be few situations in warfare that are as unpleasant and demoralising as sustaining casualties as the result of your own friendly fire. However, such fatalities inflicted by friendly fires on friendly forces are as old as warfare itself. Stonewall Jackson, one of the most brilliant general officers the Confederacy produced, was mortally wounded at Chancellorsville by the fire of his own men. As technology increases the complexity of modern warfare, such mistakes are apt to occur more frequently. This was true especially in an environment like Vietnam where there were no "front lines" and firepower was continually massed in support of ground operations.



Early in 1964, the increased rate of accidental casualties became a matter of grave concern to COMUSMACV who stated, " ... one mishap, one innocent civilian killed, one civilian wounded or one dwelling needlessly destroyed is one too many." Commanders were directed to maintain a personal interest in these accidents as they occurred and take appropriate corrective action to drastically reduce or eliminate such occurrences. This was to be accomplished by constantly reviewing and updating training programs and safety directives, and strictly enforcing approved operational procedures and rules of engagement. The goal was to eliminate, to the maximum extent possible, all friendly casualties due to human errors.

To ensure continuing command attention and emphasis on this subject, a quarterly analysis of friendly casualties caused by friendly fires was initiated. Subsequent to this analysis, data was disseminated to subordinate commanders for information and necessary corrective action to minimize casualties inflicted on friendly forces and civilians.

2. TRENDS 1967-1968

In the first and second quarters of Calendar Year 67, fire direction center errors and firing battery errors were the most prevalent, with a total of 56 incidents. Faulty ammunition created 30 incidents; lack of coordination accounted for 24 incidents; unit disorientation was responsible for 20 incidents; forward observer and forward air controller errors caused 16 incidents; and violations of rules of engagement, particularly delivering ordnance into villages without the sector chiefs approval, accounted for 13 incidents. Fixed wing aircraft delivered ordnance incidents, although infrequent, had devastating effects when they occurred. Numerous miscellaneous incidents occurred after all prescribed rules of engagement and established standard operating procedures had been followed. These primarily involved civilians returning to hostile zones which had been cleared for harassing and interdiction fires or civilians violating curfew laws.



In the third quarter of Calendar Year 67, a rising trend was noted in the number of incidents and friendly deaths. This represented an increase of 24 percent in the number of incidents and an increase of 71 percent in the number of friendly deaths over the second quarter of that calendar year. Artillery fires and air delivered munitions accounted for 63 percent of the incidents, 83 percent of the deaths, and 70 percent of the wounded. Remaining casualties were by mortar fires, smal1 arms, naval gunfire, water surface craft, and miscellaneous incidents. Although all of the reports of investigation were not available, those analyzed revealed that the most prevalent causes of incidents were human errors by Forward Observers (FO), Fire Direction Center (FDC) personnel and gun/howitzer and mortar crews. During this quarter, coordination problems resulted in 35 incidents; faulty ammunition caused 27 incidents; disorientation was responsible for 20 incidents; and pilot/Forward Air Controller (FAC) error caused 11 incidents. The principle cause of most incidents was failure to follow established procedures, directives, and safety checks. Incidents also continued to occur when civilians violated curfews, entered fire areas, or inadvertently became involved in fire fights.

In the fourth quarter of Calendar Year 67, the upward trend of total incidents was reversed. The number of incidents was down 30 percent, deaths down 28 percent, and casualties were down slightly but remained at a high level. The preponderant cause of incidents was the result of supporting fires being too close to friendly positions (see Weapons Minimum Safe Distances). The enemy's tactic of "hugging" the friendly positions complicated the task of delivering supporting fires without a margin of risk in inflicting friendly casualties. Although in the minority during this quarter, incidents continued to occur as a result of human error.

The country-wide trend for the first quarter of Calendar Year ‘68, as compared with the quarterly averages for Calendar Year ‘67, showed a decrease in incidents by approximately 51 percent, a decrease in deaths by approximately 17 percent, and a decrease in wounds by approximately 33 percent. One

accidental air strike accounted for 25 percent of the total number of deaths for this quarter. In view of the increased number of operations for this quarter, friendly casualties caused by friendly fires showed a significant improvement.

The downward trend in casualties continued during the second quarter of Calendar Year ‘68. A comparison of the second quarter results with the first quarter, Calendar Year ‘68 showed a reduction in incidents by 18 percent, deaths by 55 percent, and wounded by 18 percent. An in the first quarter of Calendar Year ‘68, artillery and fixed wing air incidents continued to cause the majority of the casualties. During this same quarter, as a result of the 5 May 1968 VC/NVA Tet offensive against Saigon, 127 civilians were killed and 2950 by enemy/friendly actions. This resulted in a study being made to determine those measures that needed to be taken by friendly forces to reduce noncombatant casualties and destruction of civilian property. Corrective action was then initiated.

3. INCIDENTS AND CAUSATIVE FACTORS:

The causative factors involved in incidents of inaccurate or accidental delivery of ordnance, resulting in the injury or death of friendly military forces or noncombatants, were myriad. Lessons Learned #70 could not detail the multiplicities of causes in each and every such incident that occurred throughout the Republic of Vietnam. However, representative ground incidents and air incidents have been selected and are discussed from the point of view of (1) what caused the incident and (2) the lessons learned. Causative factors are summarized at the end of each section.

4. SUMMARY:

The statistics and examples of incidents, although important,, cannot and do not of themselves reveal the complete picture of the deplorable loss of 1ife by fire from friendly sources. All service components were acutely aware of the seriousness of these incidents in terms of lowered effectiveness of the fighting forces, lessened rapport between US forces themselves and Vietnamese Nationals, and the unquestionable adverse effect on the overall military effort.

The lessons learned were not new. They were merely a restatement of lessons which had previously been publicized in various forms and in great detail by commanders at all levels. They also served as a reminder that the battlefield was and always has been a strict and harsh disciplinarian. Those who deviated from proven techniques, used "short cuts" because it was the "easy way out" or failed to follow directives and established procedures, invariably did so with disastrous results. While adherence to proven techniques and established procedures did not completely eliminate the possibility of error, it certainly reduced the probability. Therefore it was incumbent upon commanders at all echelons to constantly press, with every means available, for a solution to the vexing problem of "friendly casualties from friendly fires.”

US Defence against Standoff Attacks



COMBAT EXPERIENCES AND LESSONS LEARNED

Combat experiences tended to indicate that the frequency and resultant damage of enemy standoff attacks against military installations in South Vietnam were, in most cases, directly proportionate to the effectiveness of countermeasures and internal protective measures which prevailed at each individual installation.

Here are excerpts from some of these combat experiences as revealed by combat after action and intelligence reports which best illustrate the NVA and VC methods of operation, employment tactics, effects of such attacks, and lessons learned from those attacks.

COMBAT EXPERIENCES

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 (sixty-six were launched but only sixty-four impacts were recorded). 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 watercraft with crews were waiting at the edge of the river.

The rockets were placed in the boats and then 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.

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 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. 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 ....

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.

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

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

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.

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

Lai Khe Base Camp.

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.

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....

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).

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 ....**

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. This finding indicated the method of operation by the enemy and the effects of counterfire.

Tan Son Nhut Air Base.

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.

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. 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 030310406, 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.**

LESSONS LEARNED

As reflected in the preceding accounts, certain Lessons learned were realized from each of the attacks;

Da Nang Air Base.

- **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.**
- **The threat of counterfire caused the enemy to abandon the launch site before he could successfully launch more than half of his weapons.**
- **The majority of friendly casualties on the air base resulted from personnel exposing themselves while attempting to take cover in bunkers.**
- **More than 500 enemy personnel are involved in an attack of this magnitude.**

Lai Khe Base Camp.

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

- The enemy demonstrated new tactics by launching his attacks during daylight hours and from many directions.
- The enemy was forced to launch his rockets from improvised launchers because of the need for maximum security while infiltrating the rocket belt.
- 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.
- Artillery response was timely and relatively effective as demonstrated by the short duration of each attack and the abandonment of enemy weapons.

Tan Son Nhut Air Base.

The attack on Tan Son Nhut demonstrated one of the NVA's basic tactics, that of preceding each assault on an installation with some form of standoff attack or harassment action. This complicated 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 had to take into account installation ground defense requirements. This required that the earliest pre-warning 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 could be met under standoff attack conditions.



NEXT PAGE

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NVA & VC Ambush Operations



INTRODUCTION



The NVA and VC adopted very similar approaches to the US in their doctrine regarding the role of ambushes as part of their overall offensive strategy. Whereas the US saw the benefits of ambush as being the denial of the enemy's freedom of movement and his dislocation from the indigenous population, from where he drew much of his support, the NVA and VC saw the use of ambush as a means of attriting the enemy and keeping him off balance and thus requiring him to dissipate his forces in order to guard against such actions. In this manner, large numbers of US troops and resources were constantly tied down in route security missions and thus prevented from engaging in independent offensive operations.

As part of their approach to offensive operations the NVA and VC conducted ambushes in addition to their assaults on fixed installations. Ambushes were a preferred operation since the element of surprise often compensated for the lack of fire support.

The preparation for a planned ambush was as detailed as that undertaken for a attacks on fixed installations. In the planning of a deliberate ambush, doctrine followed that which was associated with most offensive operations - the concept of one slow, four quick as detailed in Offensive Operations

Organisation of the Ambush Position

The NVA/VC always attempted to achieve three basic advantages in their ambush planning: prepared battle plans, terrain of their choosing and the benefits of fighting from prepared positions. In particular, the terrain for the ambush had to meet strict criteria:

- provide concealment to prevent detection from the ground or air

- enable ambush force to deploy, encircle and divide the enemy
- allow for heavy weapons emplacements to provide sustained fire
- enable the ambush force to set up observation posts for early detection of the enemy
- permit the secret movement of troops to the ambush position and the dispersal of troops during withdrawal

One important feature of the ambush was that the target units should 'pile up' after being attacked, thus preventing them any easy means of withdrawal from the kill zone and hindering their use of heavy weapons and supporting fires. Terrain was usually selected which would facilitate this and slow down the enemy. The terrain around the ambush site which was not favorable to the ambushing force, or which offered some protection to the target, was heavily mined and booby trapped or pre-registered for mortars.

The NVA/VC ambush formations consisted of :

- lead-blocking element
- main-assault element
- rear-blocking element
- observation posts
- command post

Other elements might also be included if the situation demanded, such as a sniper screen along a nearby avenue of approach to delay enemy reinforcement.



When deploying into an ambush site, the NVA first occupied several observation posts, placed to detect the enemy as early as possible and to report on the formation it was using, its strength and firepower, as well as to provide early warning to the unit commander. Usually one main OP and several secondary OP's were established. Runners and occasionally radios were used to communicate between the OP's and the main command post. The OP's were located so that they could observe enemy movement into the ambush and often they would remain in position throughout the ambush in order to report routes of reinforcement and withdrawal by the enemy as well as his maneuver options. Frequently the OP's were reinforced to squad size and served as flank security.

The command post was situated in a central location, often on terrain which afforded it a vantage point overlooking the ambush site.



NEXT PAGE

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See Also

Countering Ambushes - The US Company in Movement

NVA / VC OFFENSIVE TACTICS

INTRODUCTION



Apart from the brief offensives of '65, '68, '72 and the final assault on Saigon in '75, the NVA and VC adopted a primarily defensive posture throughout the war (see Defensive Tactics). However, they did conduct limited offensive operations throughout, which included attacks on fixed installations as well as ambushes and indirect fire against targets of opportunity.

The NVA/VC did not fight to win and hold territory, even less did they seek large-scale set-piece battles, in which the US could concentrate their firepower or use their mobility to reinforce at speed. Instead, they waged the 'war of the flea', thousands of hit and run attacks aimed at exploiting to the maximum those vital weapons of stealth and darkness.

All major attacks were characterised by close attention to planning and detail. Planning was usually very long term, anything up to six months from conception to execution, and cancellation was a constant possibility at any stage in the process. Each phase of the operation was broken down into it's constituent parts and rigorously rehearsed. Only when and if all parts of the plan appeared practical and achievable was the operation put into effect.

'ONE SLOW.... FOUR QUICK'

Attacks were invariably characterised by adherence to the principle of 'one slow, four quick' - a doctrine which prevailed in both attack and defense.

In offensive operations the 'quick attack' was further broken down to incorporate 'three strongs' - strong fight, strong assault and strong pursuit. Presented in sequence the doctrine can be summarized as follows;

SLOW PLAN - This involved a steady but low-key logistical build up in forward supply areas,

being positioned ahead of the fighting forces to make a solid base for the operation. The degree of planning and preparation necessary to undertake a large operation could take as long as 6 months and often included numerous 'rehearsals'.

QUICK ADVANCE - This was a rapid movement forward, up to 40kms in as little as six hours, generally in small and inconspicuous groups to a forward staging area from where the attack would be launched.

QUICK ATTACK - Here the attacking forces would be concentrated at the weakest point of the target as identified by prior reconnaissance. The duration of an attack could often be measured in minutes and involved;

- **STRONG FIGHT - an attempt to achieve and exploit the element of surprise**
- **STRONG ASSAULT - against a pre-arranged position using concentration of force, effort and mass to overwhelm the defense.**
- **STRONG PURSUIT - the attacking force's reserves would be committed to exploit the breaches in the targets defenses so as to deliver a decisive blow**

QUICK CLEARANCE - The attacking force would rapidly re-organize and police the battlefield so as to remove weapons and casualties and was pre-planned to prevent confusion on the objective

QUICK WITHDRAWAL - Involved a quick egress from the battle area to a pre-arranged rendezvous point where the attackers would again break down into smaller groups to continue their dispersal. A successful withdrawal of this kind was calculated to create an aura of doubt over the enemy because of speed of execution and lack of evidence of ever having been in the area

During the early years of the war, attacks against installations were directed almost solely against Government and Police outposts. As the war progressed these operations escalated to full-scale, multi-battalion attacks against US and ARVN military installations and Fire Support Bases.

Whilst the unit or units delegated responsibility for the attack itself were tasked with the responsibility for the planning , preparation and execution of the attack, they were assisted by more senior headquarters. This headquarters was the final arbiter as to whether the operation was to proceed at all. All operations were studied from the political as well as military point of view. Invariably it was the political considerations regarding the effect which the attack was likely to have rather than the military ones which were of primary concern.

ATTACK PLANNING

If the operation was approved by the Province Committee, then the Military Affairs Committee would divide the tasks associated with implementing the operation amongst it's three staffs:

- **Military Staff** - sends a reconnaissance unit to study the objective and to construct a sand-table model

- **Political Staff** - sends a cadre to contact local civilians to learn their views and reaction to the proposed attack and to study the morale of the attacking troops

- **Rear Services Staff** - tasked with ascertaining whether local populace can sustain the attacking force and provide necessary labor for policing the battlefield

In order to accomplish their task, the recon element would gather all possible information on the terrain, enemy troop strength, weapons (especially the location of crew served weapons), morale and operating procedures of the target. Also studied were questions regarding possible support that the target could be expected to receive as well as the reaction times of air and artillery support. In certain situations, information which could not be gathered from sources external to the target was often supplied by infiltration of the target itself by teams of sappers.

Studies were also made of the time, type, quality and quantity of the reinforcements which the target could expect to be dispatched to it's relief. Likely avenues of approach for these relief forces were reconned to determine the best locations for ambushes aimed at slowing or stopping their advance. Local VC forces and political cadre were questioned regarding their knowledge of the target as indeed were civilians who worked in the vicinity of the target.

Once all of the preliminary reconnaissance of the target was completed the plan of attack was resubmitted up the chain of command for final approval.

FINAL PREPARATIONS



Once approval was given rehearsals for the assault began in earnest. Sand table mock-ups of the target as well as 'stake and string' replicas were constructed. Each unit commander of the attacking force, (squad leaders for a company attack, platoon leaders for a battalion sized assault), was instructed on these models as to the role of their unit in the overall operation and, while the assault forces practiced their attack, local guerrillas and labourers began to move supplies and materials to forward positions.

An attempt was made to keep the objective of the attack as secret as possible right up to the point of execution. Knowledge of the target was on a 'need to know' basis and if it was felt that the operation had been compromised (e.g. a soldier rallying to the ARVN under the Chieu Hoi program) the operation was invariably called off. Cancellation of an operation was more common than execution and it is estimated that for every assault that did take place, over one hundred were abandoned at some stage of the planning process.

One of the major considerations for the NVA/VC in the process of approval for an assault was that the attacking force would be numerically far superior to the defending force and able to achieve an overwhelming superiority of numbers at the point of engagement. The ratio of 10:1 was not an uncommon goal. However, it was quite normal for an NVA/VC battalion of around 500 men to attack a US company of 100-120 men.

THE ATTACK

The attacking force would rapidly advance from it's bivouacs and base camps to the objective after sundown. The assault force was broken down into various components:

- Sappers
- Heavy Weapons
- Main Assault Force
- Diversionary Force
- Ambush Force

The ambush force would set up on the approaches to the objective along which a relief force could

be expected to approach along. Their task was to delay reinforcements sufficiently long for the main assault to be completed and withdrawn from the battlefield.

A diversionary force was often positioned to make a feint attack in order to draw defenders to another part of the target prior to the main assault being launched.

Sappers led the attack; clearing approaches to the objective through barbed wire, disarming mines and trip flares, often turning around emplaced claymore mines to fire back at the troops who placed them. Once the sappers had cleared the main avenues of approach for the assault force they would continue on into the target area itself loaded with satchel charges. Their primary targets were heavy weapons emplacements and command and control centers.



Immediately the sappers initiated their first attacks, or upon detection of their infiltration of the target, the previously emplaced and positioned heavy weapons teams began firing upon the target from protected positions in order to suppress the defenders just as the main assault was launched.

The main assault was concentrated on a single main axis of advance and was made from the best-concealed or the least-defended direction. Attacking units would have target priorities already assigned and these usually consisted of communications positions, artillery and mortar gun pits, automatic weapons pits, command posts and ammunition dumps. If rotary wing aircraft were parked at the objective then these would be high-priority targets.

Numerical superiority was of no use if the US could bring heavy firepower to bear and in order to deny the enemy this opportunity attacks would be launched in the period between midnight and about 2.00am in order to achieve surprise but also to afford the attackers sufficient time to clear the area prior to daybreak and be back in their sanctuaries before US ground attack aircraft and helicopters could interdict them.

Following the attack, the battlefield would be policed of weapons and equipment, the wounded and the dead. Quite often small ambush forces would be set up along the routes of egress in order to prevent or discourage pursuit of the main attacking units. Pre-registered mortar fire was also utilised for the same purpose. The attacking force would then make it's way back to a prearranged rendezvous point from where it would subsequently break down into smaller elements and disperse.

SOURCES:

Inside the VC and the NVA by Michael Lee Lanning & Dan Cragg, Ivy Books
ISBN 0-8041-0500-6

Buckle for your Dust by Greg McCauley, paddy Griffith Associates
ISBN 0-9521-488-2-X



NVA / VC
DEFENSIVE TACTICS



Whenever a unit arrived at a new destination it would immediately start preparing defensive fighting positions. If in a village, Squads would be assigned to houses and sectors of the perimeter. Villagers were not allowed to leave the area and reconnaissance elements would set up outposts along likely enemy avenues of approach.

Sites were selected according to strict criteria: had to provide good defensive terrain for the defenders while at the same time offering little protection for an attacker; dense overhead cover was sought in order to protect the site from aerial observation; it was important not to have physical obstacles likely to prevent or hinder a quick, safe withdrawal.

Two defensive belts of fortifications were constructed approximately 50 to 200 meters apart depending on the terrain in the shape of an L, U or V in order to offer interlocking lines of fire.

Fighting positions were L-shaped with an open trench at one end approximately 1.2 meters long and deep by about 0.5 meters wide. Dirt excavated from the trench was piled in front of the position with an embrasure left as a firing port. At a right angle to the trench was a bunker 1 meter long by 0.5 meters wide with a roof of tree trunks and earth up to 0.5 meters thick. Trenches deep enough to conceal a crouching man were dug to connect the individual positions with combined fighting holes and bunkers.

Using these positions the defenders could fire upon an advancing enemy, thus forcing them to withdraw, and then take refuge in the covered portion of the bunker when the inevitable air or artillery support arrived, only to re-emerge when the enemy infantry resumed it's assault.

It was important that the second line of positions not be visible from the first line of positions and the distance between the two belts was dictated by terrain sufficient to accomplish this. The second line of defense provided a protected position to which the first line of defenders could withdraw. From the second fighting line they could then withdraw further from the contact area or they could counterattack to take back the first line of defenses - a tactic known as 'rubber banding'. This system also meant that allied forces which had taken the first belt of defenses still had to advance further in order to engage the second line and were denied the opportunity of using the captured fortifications as a position from which to launch their assault.

The 'two belt' defensive system was cynically employed by the NVA and the VC when the site chosen was a village or hamlet. The outer belt would be positioned outside of the village boundaries while the inner belt was constructed within the village itself using bunkers and protected positions

integrated into the village structures. US Rules of Engagement prohibited the use of heavy weapons and Air/Artillery supporting fires within 1000 meters of inhabited areas in order to avoid civilian casualties and collateral damage and in order to utilise fire support of this nature clearance was required from higher military and often civil authorities.

It was not uncommon for dummy fighting positions to be constructed, designed to be spotted by aerial observers, with a view to drawing away US artillery and air attacks from the main defensive positions or at least requiring the US to expend ordnance and troops better employed elsewhere.

In remote jungle bases, which were usually out of the range of US artillery and sufficiently isolated so as not to be the target of frequent US sweeps, semi-permanent base camps were developed which consisted of extensive defensive fortifications. Base camps followed the same two-belt design as smaller sites but with two major differences - a third belt was added in the larger camps and fighting positions and bunkers were larger and better protected. Base camp bunkers were typically 8' by 5' , with a depth of between 3' and 4' and covered by a two feet thick layer of logs and dirt. Small entrance ways at either end of the bunker doubled as firing ports. Trenches connected the fighting positions within a belt as well as those to the rear and hence offered protected avenues of withdrawal.

The US answer to these positions was to surround them and then lay on artillery, air and helicopter gunship attacks. The VC/NVA attempted to counter this by 'hugging the belt' of the enemy, that is, attempting to stay in very close proximity to the US troops in order to prevent the use of air and artillery supporting fires due to the proximity of friendly troops. Another tactic was a simple but well executed counter attack.

It should be pointed out that invariably the objective of the VC/NVA forces was to withdraw, break contact and live to fight another day. Unless they were initiating the combat, which would always be done under favorable conditions of terrain and numbers (see Offensive Tactics), the VC/NVA always tried to avoid combating US troops in circumstances which were anything less than favorable. The tactic of counter attacking would only be used against a numerically inferior enemy force or, as in the case of the ARVN, against a force which was poorly motivated, led and supported.

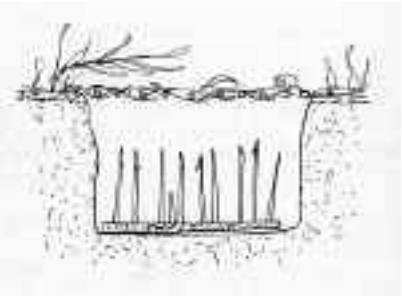
SOURCES:

Inside the VC and the NVA by Michael Lee Lanning & Dan Cragg, Ivy Books, ISBN 0-8041-0500-6

NVA and VC Booby Traps



INTRODUCTION



What the Viet Cong (VC) and the North Vietnamese Army (NVA) lacked in the way of firepower they made up for in ingenuity. Concealed devices used to inflict casualties, booby traps were an integral component of the war waged by Viet Cong and People's Army of Vietnam (PAVN) forces in Vietnam. These devices were used to delay and disrupt the mobility of U.S. forces, in fact, the threat was often enough to slow any advance to a snail's pace, divert resources toward guard duty and clearance operations, inflict casualties, and damage equipment. They were a key component in prearranged killing zones. Booby-traps could be covered by snipers to further annoy the enemy or they might be the signal to spring an ambush.

The use of booby traps also had a long-lasting psychological impact on Marines and soldiers and helped to further alienate them from civilian populations that could not be distinguished from combatants. The fear of booby-traps and mines was so great that units in the field (the boondocks) and the jungle (the zoo) were under stress the whole time. This created severe mental fatigue on both the commanders at platoon level and the individual soldiers.

Many of the materials for the mines and booby traps were of U.S. origin. These included dud bombs, discarded and abandoned ammunition and munitions, and indigenous resources such as bamboo, mud, coconuts, and venomous snakes.

The imaginative use of booby-traps by the NVA and VC caused many casualties amongst their opponents. Between January 1965 and June 1970, 11% of the fatalities and 17% of the wounds among U.S. Army troops were caused by booby traps and mines. To give one historical example, Charlie Company of the First Battalion, 20th Infantry sustained over 40% casualties in 32 days. They scarcely saw the enemy and took the casualties mainly from booby-traps and snipers. The effect on morale was such that these losses in men and the fact that they included virtually all of the experienced NCO's was said to have been more than partly responsible for the My Lai massacre that occurred.

Booby traps can be divided into explosive and non-explosive antipersonnel devices and anti-vehicle (i.e.,

tank, vehicle, helicopter, and riverine craft) devices. Antipersonnel booby traps were concentrated in helicopter landing zones, narrow passages, paddy dikes, tree and fence lines, trail junctions, and other commonly traveled routes. Anti-vehicle booby traps were deployed primarily on road networks, bridges, potential laager positions, and riverine choke points.

NON-EXPLOSIVE BOOBY-TRAPS

Non-explosive antipersonnel devices included punji stakes, bear traps, crossbow traps, spiked mud balls, double-spike caltrops, and scorpion-filled boxes.

By far the most common types of booby trap was the single punji stake. Punji stakes were sharpened lengths of bamboo or metal with needle-like tips that had been fire-hardened. Often they were coated with excrement to cause infection. Dug into shallow camouflaged holes and rice paddies and mounted on bent saplings, this was a common booby trap. Another similar device was a spiked mud ball suspended by vines in the jungle canopy with a trip-wire release. It functioned as a pendulum, impaling its intended victim.



The simplest pit type was a hole about 20 to 30cm deep. The floor of this trap was then set with punji stakes which could easily pierce the canvas and leather jungle boot. For added misery the spikes could be smeared with poison or human excrement to induce blood poisoning or worse. There were many variations which allowed the spikes to attack the sides of the leg. This was particularly favored after the introduction of the reinforced soled jungle boot.

Punji traps were laid wherever the enemy soldiers were likely to land with force. The purpose of the pit was to increase the downward force of a walking man. Such places included the places that soldiers would throw themselves to escape gunfire - ditches, behind logs, in long grass etc; or where they would land with some force - stream banks, likely helicopter landing zones etc.



Side closing traps were also to be found. These ranged from the same size as the punji pit up to man-sized traps. These were more sophisticated versions of the punji pit and were likewise smeared with excrement or poison.

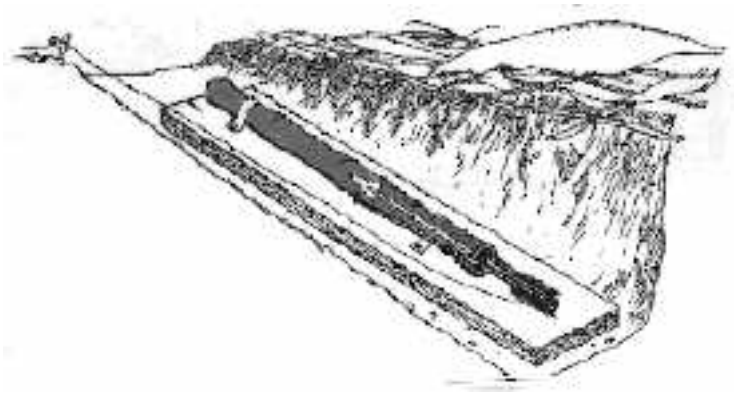
The second group of non-explosive traps used some form of mechanism to set them off - usually a trip wire. The wire could be stretched across a track as a delaying tactic or linked to a hidden man to be released on command as part of an ambush or to hit a selected target.

The swinging man trap was positioned on jungle trails and heavily camouflaged. It comprised a weighted beam pivoted so that when the pressure plate was pushed down the other, spiked end swung upwards with enough force to impale the victim. The target area was the chest in order to inflict a messy fatal wound.

The bamboo whip was encountered on trails and was set off by a tripwire. It comprised a length of bamboo under tension and set with spikes (poisoned in the normal fashion) at chest height. The unfortunate victim would receive severe, it not fatal, wounds to the chest as it whipped across the trail



The spiked ball was another trap designed for jungle use. It was sprung by a trip wire which released the heavy clay ball set with sharp spikes. The force of gravity and the height of release combined to inflict horrific, usually fatal, wounds in the head and shoulders region.



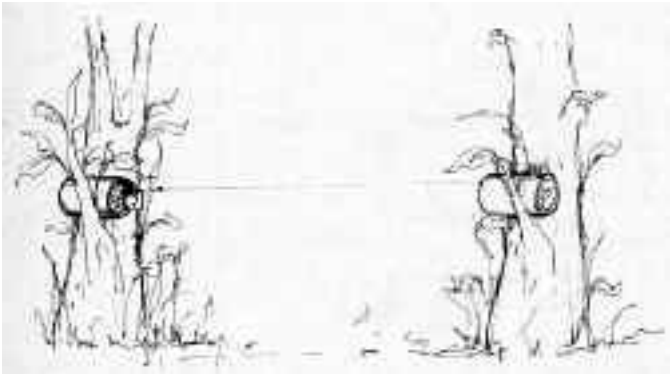
The bow trap was a favorite in the heavily forested mountainous areas - though it was not limited to these. It too was tripped by a wire which released a tensioned bow set in a shallow pit. The target area was the leg. The arrow was normally tipped with poison or human excrement.

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EXPLOSIVE BOOBY-TRAPS

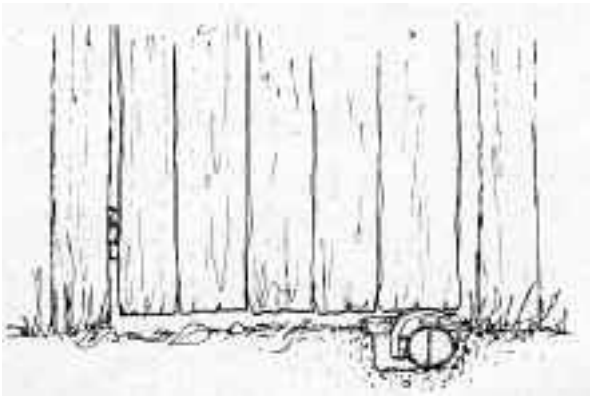
Variations of explosive antipersonnel devices encompassed the powder-filled coconut, mud ball mine, grenade-in-tin-can mine, bounding fragmentation mine, cartridge trap, and bicycle booby trap. The mud ball mine was a clay-encrusted grenade with the safety pin removed. Stepping on the mud ball released the safety lever, resulting in the detonation of the mine. The cartridge trap was a rifle round buried straight up and resting on a nail or firing pin. Downward pressure applied to the cartridge fired it into the foot of the intended victim.

These were normally set to give warning of an approaching force or as part of an ambush. They were also employed to slow down a follow-up force after an ambush or to cover a withdrawal. The generally poor quality of the grenades used by the VC and NVA combined with their (relatively) long fuse of 5-6 seconds made them much less effective than they might otherwise have been. If circumstances permitted captured US fragmentation grenades gave a much better performance.



The simplest trap was a trip wire connected to one or two grenades. The grenades were placed in tubes of bamboo or tins to keep the safety lever from releasing when the pin was pulled. The victim tripped the wire, set at whatever height, pulling the grenades from their containers.

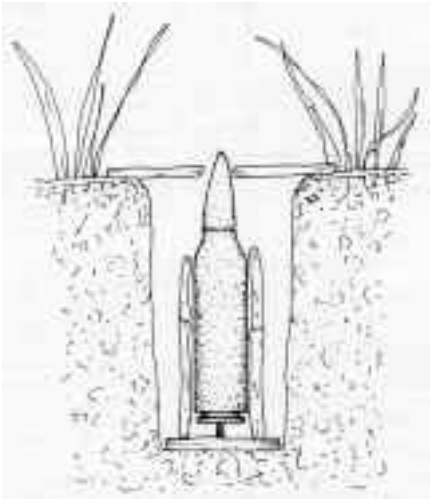
Command-detonated grenade '~daisy chains" were set along trails where patrols were likely. These grenades were set close together to inflict casualties at a point where there would be a bunched target. Bunched targets could occur naturally at certain terrain features or be created by using other traps to create casualties and then hitting the evacuation teams. The number of grenades chained together would be dependant on the strength of the puller and the length of the wire.



Grenades were also set in the ground below gates so that the slightest movement of the gate would detonate it right below the victims' feet. In areas where the vegetation closed above the trail grenades were often set to shower splinters of wood and metal downwards, causing messy wounds which would require urgent casualty evacuation.

Claymores were an especially lethal form of mine with both the US and Chinese versions hurling fragments in a 60 degree fan. The locations that were usually mined were roads, edges of roads, enemy escape routes from ambush sites, crossing places, village approaches, behind fallen logs, behind walls, gaps of any type and so on.

Dud shells and bombs were salvaged and turned into traps, mines or sources of explosives. The shell most commonly available for this was the 105mm artillery shell.



A small variation of this used a 12.7 mm machine gun bullet set in a bamboo tube with its primer resting on a nail or firing pin. The tip of the bullet just protruded from the earth. A foot would press down sufficiently to set it off. The bullet would explode shattering the victim's foot. If he was unfortunate enough to be wearing the reinforced soled jungle boot then the steel or plastic plate turned into shrapnel. The grunts called these 'toe poppers". They were usually set in long grass.

Traditional anti-personnel mines of all sorts from WW2 vintage onwards were used as they were intended and as part of booby-traps. One of the most common, and most hated, was the "Bouncing Betty". These mines were triggered by the release of pressure on the arming mechanism. Thus a soldier could stand on one, hear the arming mechanism operate and freeze. There he was standing erect knowing that if he moved his foot the mine would jump into the air and explode at chest height. Combat engineers came up with many extemporized methods of saving trapped soldiers.

The VC and NVA did not booby trap "souvenirs" to the same extent that the Japanese and Germans did in WW2. They did do it, but it was uncommon and possibly the more effective for that.

ANTI-VEHICLE TRAPS & MINES

Anti-vehicle devices included the B-40 antitank booby trap, concrete fragmentation mine, mortar shell mine, and oil-drum charge. The B-40 was a rocket-propelled antitank grenade, which in this instance was placed in a length of bamboo at the shoulder of a road and command-fired at a vehicle crossing its forward arc. The mortar mine was simply the warhead of a large-caliber mortar that had been separated from its body and retrofitted with an electric blasting cap. The oil-drum charge was based on a standard U.S. 5-gallon oil drum filled with explosives and triggered by a wristwatch firing device. This booby trap had immense sabotage applications for use against fuel dumps.

Soft vehicles could be destroyed by several of the anti-personnel mines or booby-traps described above. The VC and NVA used large numbers of mines to destroy enemy AFV's and were so proficient that the drivers and crews of the lighter sorts of AFV's rode on the outside of the vehicles. The crews of all vehicles would attempt to reduce the effectiveness of mine blast by putting layers of sandbags on the floor. This naturally affected the mobility of these vehicles. Some M-113's and M-551's were overloaded by doing this.

Captured artillery ammunition was prized for destroying tanks. The shell would be set in a culvert or similar location and command detonated under the track of the target. This was highly effective, particularly against the M-41's and M-551's. It was also very difficult to do correctly.

The habitual riding on the top of AFV's exposed the crews to sniper fire or to the anti-personnel traps set high enough to catch them. The threat must indeed have been real enough for the crews to accept the loss

of their armour protection.

ANTI-HELICOPTER TRAPS

As the war progressed the prediction of likely helicopter landing zones became an art at which the VC and NVA became adept. The edges could be trapped or mined, the LZ's could also be mined or registered as mortar and heavy machine gun targets. However, a booby trap for helicopters consisted of wires connected to grenades atop posts at the edge of the LZ at a height to inflict blast and splinter damage on the debussing troops and splinter damage on the helicopters themselves, with the rotors being particularly vulnerable. Another particularly nasty anti-helicopter trap was the claymore mine sited on it's 'back' to fire up into the air as the helicopters were on final flare, sending hundreds of steel pellets through the soft belly of the helicopter. Still other mines were rigged into the tops of trees to be detonated by the rotor wash of nearby helicopters.

These devices were used on a scale never before encountered by U.S. military forces. As the war progressed and the casualty list stemming from booby traps mounted, U.S. forces employed numerous countermeasures. The most effective countermeasures were proactive in nature and focused on the destruction of underground VC/PAVN mine and booby trap factories and the elimination of raw materials used in the manufacture of such devices.

Tactical countermeasures included using electronic listening devices and ground surveillance radar; patrolling; deploying scout-sniper teams and Kit Carson Scouts; booby trapping trash left by a unit; and employing artillery ambush zones. Principal individual countermeasures were wearing body armor, sandbagging the floors of armored personnel carriers (APC's), and abstaining from the collection of "souvenirs".



Back to Weapons and Equipment

See Also:

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NVA Sappers



Introduction, Training and Objectives

The NVA realised that small advance detachments could save casualties while facilitating victory by enhancing the shock of combat. The NVA found that sapper spearheads could pave the way for power raids or breakthrough assaults and also reduce casualties to the main body.

By infiltrating, or penetrating, enemy defences before a main assault force, and then attacking from within the enemy perimeter, the enemy would be forced to fight in two directions simultaneously. Or, if the penetration force was acting independently, their sudden appearance within a fortified position terrorised the defenders and dislocated their counteraction.

Most sappers were trained for six months – six times as long as the regular NVA infantryman's one month of training.

Sapper success depended on the training, experience, determination, and, most of all, focused concentration of the sapper unit and its leaders. Sappers approached their military art with serious dedication and controlled application.

Sapper platoons originally served with infantry battalions to clear obstacles and lead attacks on defensive positions. In the years following Tet in '68, the NVA virtually abandoned attempts to overrun US or ARVN positions by frontal attacks. An interim tactic during these years of rebuilding was to stage raids by sapper units.

To accomplish this, sapper platoons were combined into companies and battalions that operated independently from the infantry battalions. When the infantry units had a need for sappers, a unit of platoon size was attached for the specific mission.

Training

Before formal acceptance into the sapper units, soldiers received as much as three months additional training at a special base near Son Tay, in North Vietnam, or on the job with their unit in the South. They

learned how to move quietly, to penetrate bases surrounded by mines, barbed wire and detection devices, and how to use all types of explosives.

HOURS	SAPPER TRAINING COURSE
40	Explosives: Xit Dit, black powder, TNT, Safety, Explosives in mines
120	Wiring & Electric Power; electricity - measurement, sources; Types of wiring; Protecting wire
48	Reconnaissance: Principles, Organisation of a Scout Team, Scouting airfields, bases, routes, ports, docks, and bivouacs
72	Camouflage: Methods, Individual Movement, Lighting
120	Overcoming Obstacles with Explosives: barbed wire, trenches, mine fields; Bangalore torpedoes; Assault Planning
144	Penetration of Enemy Positions; Night Training
72	Coordination: Among sapper cells; Formations; Weapons and Explosives Preparations; Assault opertaions
168	Overcoming Natural & Artificial Obstacles: mud, deep water, ditches, dry leaves, lime, sand, grass; Using ladders and planks to negotiate barbed wire obstacles.
216	Ambushing
24	Power Raiding
24	Close Assault
72	General Review
48	Final Test

Sappers were regarded as an elite and the NVA emphasised specialised training as being very important to sapper performance.

Combat training consisted of pure assault pioneer course work; reconnaissance techniques, barrier and defence penetration, assault tactics, stealth, demolitions and the destruction of barriers, installations, logistics facilities and munitions dumps.

Sapper training itself was not extraordinary, the manoeuvre, execution and discipline of sapper units was what made the difference.

Because use of the explosive charge was the key to sapper effectiveness and because survival and success might well depend on competence with this weapon, demolition training was extensive. Sappers were taught to recognise, arm and disarm conventional explosives as well as those of local manufacture. Instruction included the characteristics and uses of detonators; the characteristics, properties, maintenance, and force of all available explosives; and the quantity and positioning of explosives required to destroy fences, buildings, bunkers, aircraft, fuel tanks, and munitions. Sappers were also

instructed on the details of allied mines, flares, and booby traps, which they were taught to disarm, and convert to their own use.

Sapper Objectives

The NVA Sapper Corps was an assault engineer combat arm trained to oppose a greater force with lesser strength, and to move in complete silence. Their primary mission was to erode the strength of allied forces by carrying out special missions. Usually preceded by infiltration/penetration, these special missions included: target destruction, command decapitation, sabotage, reconnaissance, close combat, ambush warfare and spearheading attacks.

- Demolish war materials and strategic and tactical objectives.
- Penetrate and destroy command facilities, outposts, billets, service bases, supply bases, signal centres, radar stations and military schools
- Penetrate and sabotage defence firms and factories of military value
- Reconnoitre and conduct battlefield preparation for the infantry
- Secure bridgeheads to pave the way for infantry advance
- Support infantry operations during offensive and defensive campaigns
- Forestall enemy mop-up operations
- Mounting ambushes and counter-ambushes

Many sapper raids were independent operations, without participation by infantry or other forces. However, there were six primary ways that NVA sappers could be utilised:

- Penetration assaults without infantry
- Support of infantry assaults
- Penetration assaults with infantry support
- Urban terrorism, sabotage, and propaganda action
- Naval sapping against shipping and bridges
- Mechanised sappers trained to seize and employ enemy mechanised equipment

Most Military Regions controlled at least one sapper battalion, early in the war. Sappers from that battalion were regularly attached to regional battalions for special operations. Few real sapper troops were organic to regional or provincial Viet Cong Main Force battalions. However, the NVA Sapper Corps was being constantly expanded from 1969 onward with COSVN converting several infantry battalions to sapper battalions and sapper training being given to all infantry units.



NVA Sappers PART II

POWER RAIDS

VC and NVA breakthrough, or power raids, often caught the allies by surprise. In many cases allied defenders were unaware of the enemies presence until it was too late. Sometimes they could hear NVA and VC fire support elements digging weapons positions within fifty to one hundred yards of their perimeter just before an attack. What they did not not often realise was that those sounds meant that the enemy sappers had already begun to infiltrate and neutralize their base's barbed wire and mined approaches along a narrow front.

The defenders of the Base Camp usually came to realise that they were under attack only after heavy direct and indirect suppressive fires began to hit specific targets along and inside of, the defensive perimeter. Mortar, recoilless rifle, and machine gun fire was directed against selected bunkers and other defensive works. Other mortar fire fell on the interior of the position, discouraging deployment toward the threatened sector.

Supporting fires provided cover for a small breaching detachment, usually composed of elite sapper troops, which systematically breached all mine and wire barriers . Cutting narrow lanes in the defensive barrier, the sappers moved rapidly toward the nearest bunker or firing position, whose fire could command the breach. They destroyed bunkers with B-40 rockets, satchel charges and grenades.

Following on the heels of the sappers was the main assault force, running forward firing from the hip, straight for assigned objectives.

When attacking an enemy post or fire base, the NVA/VC were guided by a specific power raid doctrine;

- **the attacking force had to be superior to the defending force**
- **the assault force concentrated its power along a single attack axis**
- **surprise was valued over supporting fire**
- **the main effort was concentrated against enemy weak points**

The assault force was usually given a detailed battle order by their commander. The shock force was broken down into sub-units with each one assigned a specific task.

Most attacks were undertaken in darkness to impede the technological advantages of US fire-support and mobility.

The power raid assault force usually included two elements.

- **An attack force which was further subdivided into three offensive elements (breach, shock and reserve) and two supporting elements (fire support and porters).**
- **An ambush force whose mission was to destroy relief columns. In many cases the ambush element was larger and had the primary mission.**

OFFENSIVE ELEMENTS

Breach

The breach group was usually composed of sappers armed with explosives and B-40 rockets. They began to surreptitiously clear and mark paths through the enemy wire and minefields before the attack started. Their mission was to get the shock group through the enemy mine and wire belt.

If the breach group was discovered before it had time to clear paths through enemy obstacles, all support weapons would cover it until the breaching mission was accomplished. After paths were cleared through the enemy defensive belt, the breach group would lead the charge forward and assist in destroying specified targets.

Sappers of the breach group usually had two missions;

- **Prepare openings in the barbed-wire and mine fields for the main assault units**
- **Blow up specified targets inside the enemy base.**

In many situations, the firing of sapper demolitions, placed on important targets within the enemy perimeter, signaled the initiation of the shock assault.

Shock

The shock group was the main assault force and usually included eighty to ninety percent of the total force. This element would attack from at least two different directions, with the main assault party attacking down the lane cleared through the defensive barriers by the sappers. If no lane through the enemy barrier was cleared, the shock force would have to clear it's own.

The shock force would advance quickly, firing and throwing grenades and satchel charges on the run. After the enemy defensive perimeter was penetrated, sub-units of the shock group would peel off in all directions, attacking pre-designated targets with demolitions and direct fire.

Reserve

Shortly before the shock element launched its attack, a reserve element might launch a diversionary attack and then withdraw to its reserve position. That reserve element was used to exploit enemy weak points or to reinforce success, it was never supposed to be used to attack a part of the enemy line that was too strong for the shock troops to break into. Frequently the reserve force was used as a rearguard to protect other withdrawing assault elements.

SUPPORTING ELEMENTS

Fire Support

The fire support element included all direct and indirect fire weapons such as, mortars, rockets, recoilless rifles, and heavy machine guns. These weapons were used to suppress enemy reaction, interdict movement toward the breakthrough area and to destroy point targets. A small part of the fire support element was always detailed to act as a diversionary force by drawing attention to itself and away from the main breakthrough area.

The main effort of the supporting fire was directed against point targets in the enemy camp, including machine guns, mortar emplacements, command posts, communications and ammunition dumps. The NVA/VC did not use their supporting weapons to 'soften up' their objective area since preparatory fires sacrificed surprise and they valued surprise more than the suppressive effects of prolonged bombardment. This is why most NVA/VC fire support did not actually begin until just before the shock element went in.

Porters

The other supporting element consisted of carrying parties charged with clearing the battlefield. This unit was composed of support personnel, as well as locally impressed civilians. They often went into action whilst the battle was still raging.

The attack would reach it's climax as the shock unit violently drove home its assault. Every man and weapon was dedicated to making this element succeed. Yet, the NVA/VC commander was prepared to withdraw the shock element and his whole force, if any change in the battle situation convinced him that he was risking failure or annihilation.

Although NVA/VC conventional assaults usually followed the same maneuvre rules as power raids and used similar tactics, there was a distinct difference. Conventional assaults were usually

undertaken to hold objectives for a longer period of time. Conventional assaults were usually very similar to allied assault methods and frequently incorporated a complex scheme of preparatory fires which was almost studiously avoided in the power raid.

Hill Traps

NVA HILL TRAP MANEUVERS

In or around 1966, the NVA began to develop a new maneuver, which was called the 'Hill Trap' maneuver. This maneuver sought to exploit the known battle habits of US troops by drawing them into a mountainous killing ground where a defence in depth, combined with standoff bombardments and rear attacks, would likely annihilate them.

Hills and mountains in each of South Vietnam's four Corps areas were prepared as battlefields. Conscripted labourers prepared mountain strongholds where they dug tunnel complexes, bunkers and trench lines. Most of this work was concentrated in I Corps in and around the strategic A Shau/Da Krong War Zone, west of Hue, and in the strategic Triborder/Chu Pong War Zones, west of Dak To, in II Corps.

To ensure that these preparations were not impeded, NVA troops occupied the A Shau valley in early 1966 and established strong anti-recon screens to the west. The same procedure was followed between the Triborder Zone and Dak To.

DAK TO



Early in '66, allied intelligence indicated a strong build-up in the Triborder area where two NVA Infantry Divisions (1st and 10th) were supposedly preparing for action. The US 4th Infantry Division began scouting the staging area in early 1967.

The US 4th Infantry Division had already been engaged in skirmishes with the NVA further south along the Cambodian border, near the Ia Drang River where, in May 1967, the K4 and K5 Battalions of the 32nd NVA Regiment had been encountered.

NVA attacks began to flare up near the Cambodian border. In June '67, the NVA initiated rocket attacks against Pleiku. In July '67, elements of the 66th NVA Regiment severely mauled the US 1st Battalion, 12th Infantry, near Duc Co.

The 6th Battalion, 24th NVA Regiment, appeared near Dak To on June 22nd, 1967. The Regiment had recently been engaged with the US 1st Brigade, 101st Airborne and, in a bloody battle, the 6th Battalion had destroyed Alpha Company of the US 2nd Battalion, 503rd Airborne, Bob Fleming wrote,

> **I know, because I had arrived in Vietnam on that very day and was a assigned as a replacement to it. It lost around 70-80 men in a short period.**

In August '67, ARVN troops fought the 2nd Battalion, 174th NVA Infantry Regiment near Dak To while in early November the US 4th Battalion, 503rd Airborne suffered severe casualties when it assaulted an NVA bunker line near Dak To.

NVA battlefield preparations were extensive. In mid 1966, the 24th NVA Infantry Regiment moved into the mountainous area twenty miles north-east of Dak To and began to occupy fortified positions centred on Hill 1416. This position directly threatened the Route 14/Route 512 road junction West of Dak To.

Ten miles to the South of Dak To, the 32nd NVA Infantry Regiment carried out similar deployments, occupying a series of fortified mountain redoubts. Primary defensive areas were concentrated around Hill 1262 and Hill 1338. Fortifications had also been established along the 32nd's intended line of retreat, following a watercourse southwestward toward the Cambodian border. Forming the hinge of that escape route was fortified Hill 823.

Ten miles west of the Triborder Zone (less than ten miles south of Ben Het) was another fortified area occupied by the 66th NVA Infantry Regiment accompanied by the 40th NVA Artillery Regiment. These two regiments were well dug-in along a fortified mountain front, which centered on Hill 823.

Only five miles south of Hill 823 was the prepared battlefield of the 174th NVA Infantry Regiment, it's own defensive area being centered on Hill 875, just five miles due west of the Cambodian border.

General Peers, Commander of the US 4th Infantry Division, later commented, "The enemy had prepared the battlefield well. Nearly every key terrain feature was fortified with elaborate bunker and trench complexes. He had moved vast quantities of supplies and ammunition into the area. He was prepared to stay..."

NVA B-3 FRONT

The B-3 Front, which controlled the Triborder and Chiu Pong War Zones launched it's 1967/68 Winter-Spring Campaign in II Corps with the following objectives in mind;

- **to draw allied troops into the Triborder Area where some of their elements could be annihilated.**
- **if the campaign went badly, to withdraw rapidly into the Cambodian/Laotian sanctuaries**
- **to practice the 'Hill Trap maneuver' in the prepared battlefields**

For the campaign around Dak To, the B-3 Front assigned a formidable collection of units to the NVA 1st Infantry Division;

- **32nd NVA Infantry Regt**
- **66th NVA Infantry Regt**
- **24th NVA Infantry Regt**
- **174th NVA Infantry Regt**
- **40th NVA Artillery Regt.**

The Division controlled approximately 7,000 combatants, or the equivalent of seven USMC Battalions. It was, however, spread quite thinly over a vast area of some 900 square miles of jungled terrain with fortified mountain redoubts too far apart to mutually support each other.

In early November, 1967, the US 4th Battalion, 503rd Airborne, fought small elements of the 66th NVA Infantry Regiment on Hill 823.

In mid-November, 1967, the 2nd Battalion, 503rd Airborne, was informed that the 174th NVA Infantry Regiment was being used to cover the withdrawal of the 'beaten' NVA 32nd and 66th Infantry Regiments and that the 174th was dug-in on Hill 875, five klicks from the Cambodian border.

HILL 875



Hill 875 was thick with vegetation and tall trees. Its steep slopes were covered with mixed bamboo and scrub brush. Arriving at the foot of the hill, two rifle companies (Delta and Charlie) of the 2nd Battalion, 503rd Airborne, lined up abreast facing the objective area. They intended to advance up the gradual, 100-meter wide ridgeline leading to the top of the hill and, if the enemy were there, they would use Tac Air and artillery to attack him.

Although the two assault companies were fighting side-by-side, they were fighting independently since there was no overall commander on the ground with them. When the three companies of the battalion jumped off in their assault, the battalion commander was not present.

It was expected that when the enemy was encountered, the US troops would form into a defensive perimeter and watch as air and artillery decimated the enemy. Then the US troops would simply occupy the positions.

As the two assaulting rifle companies advanced, they were soon pinned down by an enemy bunker line which was defended by NVA from 2nd Battalion, 174th Infantry Regiment who not only pinned the US troops, but also left their fortified lines in an effort to close assault the US companies.

Behind the front line, the US reserve Company (Alpha) chopped an LZ and set up outposts covering the rear of the assault. Two platoons from this Company then began ferrying wounded from the front line back to the LZ.

Observing the US Company around the LZ were the two other battalions of the 174th NVA Infantry Regiment who were preparing to execute a Hill Trap Maneuver. In all likelihood, the maneuver was to be prosecuted by the 174th NVA Infantry Regiment in the following manner;

- **pin the US assault force on Hill 875 in front of the defences of 2/174th, causing as many casualties as possible such that, after several hours, the US reserve company would be spread very thinly carrying casualties and protecting the rear**
- **at the right moment, bombard the US reserve company with a deployed mortar platoon and then hit it with the 1st Battalion, 174th NVA Infantry Regiment. The 1st Battalion, 174th, would then drive through the US reserve company and into the rear of the US assault forces pinned on Hill 875.**
- **as the enemy reeled from this blow, the 3rd Battalion, 174th, which was deployed behind a nearby hill, would also be committed to attack the enemy perimeter from another direction.**

Four hours after the battle began, the NVA 1/174th Battalion struck the US rear guard Company, charging through the position with such force that two US platoons were destroyed. Split, and

under fierce assault, the US Battalion reserve was in immediate danger of being overrun. Most of the paratroopers were already dead or wounded when the six-man command group was wiped out in hand-to-hand combat.

The force of the NVA assault drove the remnants of the reserve Company up the hill and into the rear of the two assaulting Companies. The battered US battalion formed a perimeter and was attacked relentlessly for the next 24-hours. Whilst supporting fires rained down onto the attacking NVA the US perimeter barely survived. During the course of this period an unfortunate friendly fire incident resulted in a US pilot accidentally dropping a 250-lb bomb into the US perimeter on Hill 875 which killed forty-two and wounded a further forty-five, in effect, destroying one whole Company of the US 2nd Battalion, 503rd Airborne.



The US 4th Battalion, 503rd Airborne, attempted to relieve the beleaguered 2nd Battalion and tried to attack up the hill, towards its surrounded comrades. As they did so they were met with volley-fired RPGs and machine gun fire at point blank ranges. NVA mortar shells impacted all over and around the US positions as the NVA constantly struck at the flanks and rear of the battalion. Massive artillery and air support saved the US 4th Battalion as it reeled back down the mountain.

That night, while two decimated US paratroop battalions littered the slopes of Hill 875, the NVA 174th Infantry Regiment slipped away and crossed into Cambodia without further losses.

Despite the losses inflicted on the two US battalions, losses which left them as skeleton commands with Companies of only twenty or more effectives and platoons reduced to six or seven men, the NVA were not able to successfully complete the Hill Trap Maneuver all the way to annihilation of the US force. Nonetheless, they had managed to gut the 173rd Airborne Brigade, which was never again deployed as a complete combat unit.

Read Bob Fleming's recollection of events on Hill 875

NVA Standoff Attacks



A standoff attack has been defined as an attack using '*a weapon launched at a distance sufficient to allow the attacking personnel to evade defensive fire from the target area*'. The prime requisite of standoff weaponry is superior mobility. Whilst the NVA were very aware of the importance of fire support, their particular war of mobility forced them to travel light and despite all the differences in weapon characteristics, all NVA/VC mortar, recoilless rifle, and rocket units shared one key attribute – superior mobility. The weapons themselves and the ammunition could be man-packed to just about any launch location.

The NVA/VC considered US and Government of Vietnam (GVN) military installations as being both vulnerable and lucrative targets and that standoff attacks against these installations allowed them to accomplish the following objectives:

- Destroy valuable US and GVN military combat assets.
- Demonstrate their capability to attack and inflict damage on major US and GVN military establishments at a time and place of their choosing.
- Cause the US and GVN to use a considerable portion of their military capability to protect military installations.
- Weaken the morale of military personnel located on these installations.

This philosophy was supported to some extent by a prisoner of war, a 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....

There were a number of weapons in the NVA arsenal that met both the definition and fitted the philosophy of standoff attacks:

- 57mm and 75mm direct fire recoilless rifles
- Mobile mortars
- Light weight 70and 75mm Pack Howitzers
- Heavy artillery, mortars and rockets
- Man-transportable rockets

Recoilless rifles, whilst effective, were nonetheless extremely vulnerable and could not properly evade defensive fire unless only a few rounds were fired and the crew dismantled the position rapidly.

Mortars, particularly the heavier 81/82mm with their greater range, were were generally pre-sited in emplacements and aimed at specific targets which were generally not mobile (e.g. base camps, airfields etc). Ammunition was brought in by a crew and rapidly fired. The crew then hid the mortar and fled on foot. In many cases, mortars employed in this role were often spotted by allied aircraft and destroyed in-situ before having fired off their basic load. The smaller, 60mm mortar, was much more suited to the role of standoff attack and met the 'high mobility' definition.

In the fight against the French in the First Indochina War, pack howitzers had played a decisive role. In the war against the Americans however, pack howitzers could only be used in areas where US airpower could not strike within forty minutes and by 1966 there was nowhere in South Vietnam that met this criteria. As US airpower became increasingly pervasive these weapons, that had to be transported by pack animals, disappeared from the battlefield. Besides, the Chicom 70mm howitzer weighed nearly four times as much as the 81/82mm mortar, had less explosive power and about the same range. It was not therefore an adequate standoff weapon.

The overwhelming presence of US airpower also meant that heavier mortars and artillery were generally not sited for use in South Vietnam but rather fired from Laos, Cambodia or North Vietnam.

Over time, the most effective standoff weapons proved to be man-transportable rockets.

Regimental and Battalion Weapons

Mortar, recoilless rifle and heavy machine gun companies were organic to infantry combat support regiments and were employed at all echelons as combat support units. A typical infantry combat support regiment was assigned an 82mm mortar company, a 12.7mm heavy machine gun company and a 57/75mm recoilless rifle company. Each of these companies was officially authorized six weapons and approximately 80 personnel although these numbers were often exceeded. These companies were supported as required by one signal and one reconnaissance company organic to the regiment. The subordinate battalions were also armed with 60mm mortars, some 81/82mm mortars and a few 57mm recoilless rifles.

- NVA Regimental Mortar Company: 100–120 men divided into 3 platoons and 9 squads, containing 9 x 81/82mm mortars; or 6 x 81/82mm mortars and 3 x 75/57mm RRs. Each squad

contained 10–12 men. Two to six mortars made up an NVA mortar platoon.

- NVA Regimental Heavy Machine Gun / Anti Aircraft Company: 100–150 men divided into 3 platoons with 8 to 10 squads, using 12.7mm Soviet HMG or .50 cal US HMG. Each squad contained 10–15 men. These weapons were often sited so as to give anti-aircraft cover for the other standoff weapons.

- NVA Infantry Battalion Weapons Company: 300–400 men divided into 3–4 platoons and 9–12 squads, containing 3-6 x 60/81/81mm mortars; 3 x 57mm RR; 3 x 75mm RR. Each squad contained 6-10 men.

Mortars and Recoilless Rifles were employed as separate standoff attack forces, as a composite force, or in conjunction with rocket standoff attacks.

When employed as individual weapons systems, care was exercised to position these weapons in a relatively well concealed area. They were known to have been positioned within hamlets, at the edge of small villages, in churchyards or in close proximity to individual dwellings. The capability of allied counterfire appears to have been the key to their method of employment.

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

A prisoner of war interrogated in December 1963 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.

Standoff Rocket Bombardment

By 1966, rockets began to dominate over mortars as the NVA's standoff weapons of choice. Their light-weight, salvo fire capability, and increased explosive power, meant they could be more flexibly employed and substantially increased the standoff threat. This threat was further enhanced by the fact that the standoff range of the 120mm mortar, 5,700-meters, was doubled by the range of the 122mm rocket, 11,000-meters.

Rocket Units were organized into regiments, battalions, companies and platoons. Each regiment was assigned a headquarters squadron, a signal and reconnaissance company and three rocket battalions. Within a typical rocket battalion there was a headquarters company and three rocket companies. Each 122mm rocket company was authorized six launchers and 18 rockets. The 107mm rocket company was normally authorized 12 launchers and 24 rockets. The 140mm rocket company was normally authorized 16 launchers and 16 rockets. All rockets could be employed from improvised launchers. When employed

in large-scale standoff attacks, rocket units were often supported by elements of an infantry combat support regiment.

It was usual for mortar and recoilless rifle units to operate separately from rocket units, but sometimes they worked together in varying combinations. If they were used as part of the same standoff attack, they were fired sequentially in the order; rockets, mortars, recoilless rifles, RPGs and MGs.

In support of direct attacks against allied positions, rockets and mortars were used to fire on area targets such as ammo dumps, aircraft parking areas, fuel dumps and troop cantonments. The recoilless rifles and other direct firing weapons would hit point targets such as bunkers, weapons positions and command and communications centers.

Reconnaissance

Prior to a standoff attack, and in keeping with the NVA practice of thorough preparation, the NVA would conducts a thorough reconnaissance of the installation.

Each installation to be attacked was normally reconnoitered at least three times before the attack. The reconnaissance element normally consisted of three teams of three individuals each. Intelligence agents and recon units would scrutinize the target and visit it several times. Reconnaissance entailed 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 were often supplemented by enemy agents (male and female) located on and off the installation.

After studying the reports by the reconnaissance element, final reconnaissance of the target was normally conducted by the rocket force company commander prior to making final decisions and preparation for attack.

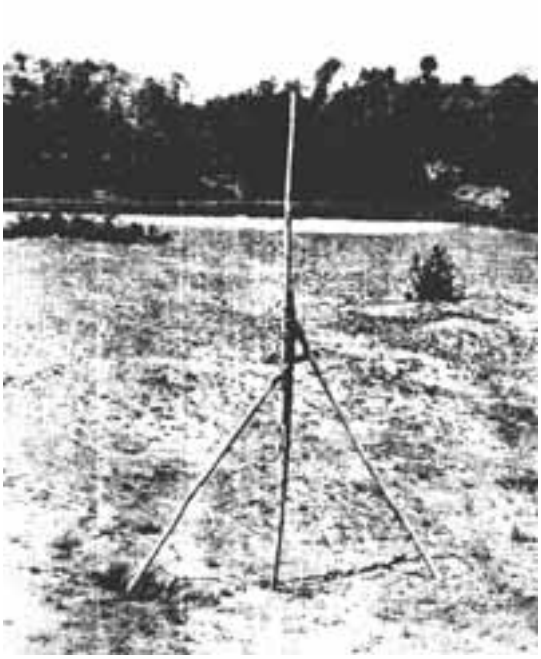
In order to maintain maximum security, it was normal for the the launch crews not to be informed of any details regarding the operation ahead of time. They were guided to the sites unaware of the exact time of the attack or location of the launch site.

Point targets within the target area were precisely identified and individual standoff weapons resources were allocated to it. After that, an operational plan was drawn up which included the date and time each of the following actions was to occur:

1. Identification of firing position.
2. Pre-positioning of munitions.
3. Approach and withdrawal route selection and reconnaissance.
4. Site survey preparations.
5. Movement of weapons and crews into position and preparation of weapons for firing.

6. Movement of forward observers to target area. Commence firing.
7. Cease firing and withdrawal.

Weapons Site Preparation.



Aiming Stakes

Rocket accuracy depended on precise firing data calculations utilizing such instruments as theodolites and transits. Prior to each rocket attack, a survey team arrived and conducted a survey of the launch site to establish and align each rocket launch position. The survey team decided on the position, azimuth direction and firing elevation of every launcher or rocket. They also decided which launching mode, whether ramps, pits or improvised stick tripods was necessary. This survey was usually conducted the afternoon before the attack and as the survey progressed, aiming stakes were placed on and in the ground to serve as a reference for positioning, aligning and aiming each rocket or rocket launcher.

Following the preparation of the site, rocket launch crews arrived at the launch site after dark. Armed with tools such as picks, shovels and machetes, they would cut a trail from the rocket storage point to the launch sites and take an inventory of the hidden rockets.

Using the reference stakes placed by the survey team, the launch crews positioned and aligned the rocket or rocket launchers and double checked against survey party calculations. The rocket launcher firing pits were prepared and dug out and the rocket launch systems were wired for firing. Once all of these preparations was completed, the rockets were finally loaded into position.

Rockets were grouped into firing batteries of six rockets and located twenty meters from the other rocket groups. Within each firing battery, rockets were individually spaced ten meters apart. Total time to prepare rocket launch positions, after arrival of the rocket launch crews, varied from 20 minutes to an hour, dependent upon the size of the force and the type of launchers being used.

Employment of mortar and recoilless rifles required preparations similar to those required to fire rockets, except the aiming stakes were normally 20 to 30 meters in front of the firing position. Weapons positions were normally established in a semicircular 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 were usually positioned in a circular foxhole 1.7 meters deep and two meters wide with a dirt bank around the position. This position was usually camouflaged with branches, grass or other like material. Recoilless rifle positions were usually located on high points offering concealment.

Weapons Movement.

Weapons were transported 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 was accomplished, with few exceptions, at night and by foot. The staging or assembly area was seldom more than one and one-half hours travel time from the launch site and in some cases, was as close as three to five hundred meters to the launch site. 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. 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. It took two personnel to carry a rocket. One person carried the main body and another the warhead and fuse....

This same POW stated that he did not know how the rockets were transported to the resupply or staging location. However, other prisoner of war reports reflected that rockets were 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 were conducted in daylight under cover of heavy foliage. If insufficient foliage cover existed then the movements would be conducted at night.

Staging areas were normally within one to two hours foot or sampan travel from the launch site. Exceptions to this were mortar units which supported battalion size operations involving a combination of standoff and sapper attacks on an installation. These movements were usually by foot and required up to two hours travel time from the staging area, dependent upon the distance to the launch site. However, in some cases weapons would be located adjacent to the launch site itself.

From five to 30 days preceding an attack, the NVA normally attempted to locate his weapons approximately three to five kilometers from the launch site. In some cases, these storage points were 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 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 was made to conceal these locations by natural foliage or similar methods.

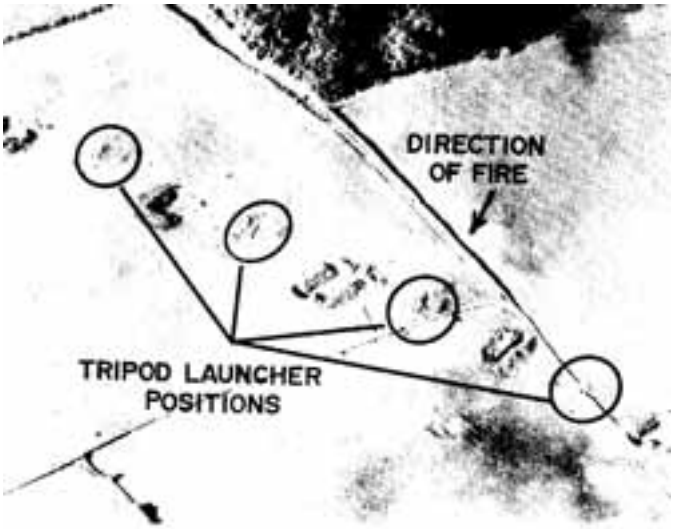
In his book 'Lima-6, A Marine Company Commander in Vietnam', R D Camp describes how his Marine rifle company discovered a rocket launching site near Khe Sahn:

About twenty meters in front of us, in a lightly wooded area on the side of the hill we had been approaching, were a dozen or so long black objects, right out in the open. Each was about seven feet long and about fifteen inches in diameter. They were obviously 122mm rocket launchers. Beside each launcher was a line of long stakes with vines wound around them. It was easy to see the NVA rocketmen could erect the stakes and vines as bipods to support the rocket tubes at angles from which the rockets could strike the Khe Sahn Combat Base, which was directly at our backs, though miles away. We found three 122mm rocket warheads, aiming stakes, fuses, and fuse boxes in among the launchers, each with Chinese markings. It was difficult to tell if the rocket site had ever been used, for we found no telltale burn marks from rocket ignitions. However, bark had been burned from several of the trees, so it was possible that the site had been used. The launchers were manufactured, of course, but they were stabilized on bipods constructed of wooden poles cut in the forest, pounded into the ground, and tied off with jungle vines. Neat!

Attacks by rockets usually lasted 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.

If counter-fire reaction was slow, fire adjustment was made after the first two or three registration rounds. Forward observers, near the target area, called in launch data corrections to the rocket commanders by radio or field telephone.

NVA rocket units were organized into regiments, all of whose rockets could be fired from improvised launchers. Each regiment contained a headquarters company, a signal and reconnaissance company and three rocket battalions. Each rocket battalion included a headquarters company and three rocket companies.



Launcher positions and L-Shaped Trenches

The NVA normally employed rockets in salvos of three, six, twelve, and eighteen. On occasion, in the case of the 122mm and 140rnm rocket, as many as two battalions of eighteen rockets each were employed. A 122mm rocket battalion was equipped with three rocket batteries (one battery per company), each of which had six launchers or a capability of the battalion to launch 18 rockets in one salvo. In the case of the 107mm rocket, this capability varied 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 could be launched from launcher tubes mounted on dirt pads or from improvised dirt and mud mounds. The number of rockets that could be launched was dependent upon availability of rockets, firing system and size of the launch site.

In an attack against Da Nang Airbase in February 1967, one hundred and thirty 140mm rocket launchers were emplaced at a single launch site. Because of malfunctions in the firing system and individual rocket motors, only 66 were successfully launched of which fifty-six impacted on Da Nang Air Base and eight hit an adjacent village. The other two fell harmlessly outside of the target area.

In large standoff attacks, infantry weapons units protected the rocket sites. The potential reaction time and firepower of allied counter action by fixed-wing aircraft, helicopters, and artillery determined how long rocket attacks lasted. However, rocket attacks usually lasted two to twenty minutes depending on the availability of antiaircraft protection for the launch sites, the size of the assault force and ammunition availability. As the war progressed, rocket attacks increased in both ferocity and duration.

As a result of the increasing success of allied countermeasures, the NVA began 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 the captured 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 he 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. Consequently, 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....

NVA rocket troops soon learned that they had to follow these 'rocket raid rules' if they were to survive.

Withdrawal

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



Return to Tactics

See Also:

US Defence against Standoff Attacks

Sources:

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VC and NVA Base Camps



Area Control and Mobility

INTRODUCTION

NVA units were capable of controlling their area of operations through the construction of fortified camps which were interconnected through a system of multiple, controlled, routes. NVA units, which operated as battalions until 1965, roamed these routes and regularly stayed in what were relatively safe fortified positions. In adopting this seemingly random method of movement they were able to maintain their elusiveness through mobility and, when surprised, were perfectly capable of defending themselves by withdrawing and taking up positions in a myriad of fortified camps and villages. This method of control through mobility was termed 'nomading'.

Large NVA units, up to regimental size, used this technique. For example, battalions of the 22nd NVA Infantry Regiment of the 3rd NVA Infantry Division, headquartered in II Corps' Binh Dinh War Zone, were separately deployed, each some distance from the others, and it was their practice to spend five to seven days at base camp before relocating forces although continuing to remain in the general area.

Because of the dispersed nature of this type of operation, special communications systems were also maintained in order to support and control the movement of units. It was standard operating procedure that the regiment talked with the battalions four times each day and the battalions called regiment as many times. However, only the signals units knew the times at which these communications were to take place and this knowledge was kept secret.

This system of movement, or nomading, adopted tactics used in classic infiltration techniques whereby large units were split down and organised for movement in smaller groups so that even regular NVA regiments, such as the 22nd NVA Regiment, moved in battalion sized or smaller groupings.

In order to strengthen their control of the local population, camps, fortifications and the routes interconnecting them, were deliberately sited so that they remained a constant threat to contiguous civilian living areas. The population that lived near to, or within, these zones of control were left with no choice but to support the unit that controlled it. Not only was the civilian population left with no choice

but to finance, feed and sometimes billet the controlling units, but they were also forced to maintain, expand and develop the zone itself through the construction of roads, fortifications, tunnels, and food caches. The peasantry were also required to manufacture explosives and weaponry while simultaneously providing military manpower, porterage and information.



NVA column moving south

By 1964 most South Vietnamese provinces had been organized into nomading zones. For example, Dinh Tuong Province, consisting of some 124 villages, each ranging in population from 1,800 to 17,000 (with the average being about 5,500) was controlled by a few NVA battalions which never represented more than two percent of the total populace. These few NVA battalions were never fully driven out despite being under constant pressure from locally assigned ARVN divisions and the powerful U.S. 9th Infantry Division's Riverine Brigade.

COMMUNIST CAMPSITES

The Viet Cong eventually managed to construct a very wide-spread and deeply rooted nomading system that had well established standard operating procedures, and which afforded to it a high degree of mobility. Even when located by allied forces, this system made it difficult to entirely destroy NVA and VC units since they could retreat to any number of fortified positions within their zone and finally withdraw under the cover of darkness.

South Vietnamese villages were composed of smaller population groupings, called hamlets. Each hamlet usually included about one hundred families and could accommodate one Viet Cong battalion. The village, consisting of numerous hamlets, was kept under control through the construction of fortified installations which the NVA and VC called "campsites." South Vietnamese provinces eventually became riddled with a myriad of such campsites with combat formations and their transport/logistics service units

remaining in constant motion between the various sites. Whilst they always moved on the same network of trails, the NVA and VC rarely made the tactical error of falling into the habit of using a single avenue of approach. It was a deliberate policy to have several routes connecting each site so that an apparently random number of choices as to the approach route was open to unit commanders.

It was common practice that at least one NVA regiment controlled each province. The regiment was normally composed of three battalions of main force troops, consisting of two regional force and one provincial force battalions. The provincial force battalion was usually the best combat unit.

NVA and VC battalions operating independently, moved along their own routes and used their own campsites, with each battalion controlling a network of approximately twenty to twenty-five campsites, usually located in one specific sector of a province. Most campsites were within one night's march of four to seven other sites. Campsites were selected according to three geographical criteria:

1. Defensibility - the site had to be geographically positioned so that it offered suitable potential for defense, and several covered routes of withdrawal.
2. Cover - the site had to be undetectable from the air and masked by foliage which enhanced its camouflage.
3. Distance - the camp had to be no more than fourteen hours, or one night's march, from one or more other camp sites.

Many of the sites in South Vietnam met these criteria and although some campsite criteria were occasionally overlooked, no compromise was made with regard to defensibility, the criteria for which were rigidly observed.

CAMPSITE DEFENSE

NVA and VC requirements for their campsites and fortified areas were essentially the same as the ground configurations preferred by U.S. military forces and based on sound and proven military principles. American ground commanders commonly assessed terrain for: Observation, fields of fire, cover and concealment, obstacles and avenues of approach. The NVA and VC considered similar principles;

1. Withdrawal routes - the several routes out of a campsite must not be impeded by rivers or highways.
2. Surrounding area - campsite perimeters must be surrounded by terrain offering the minimum cover to advancing enemy troops.
3. Defensibility - Hamlets and villages surrounding the campsite must be sited favorably for defensive operations.

Of particlur concern were potential enemy avenues of approach into the vicinity of campsites and these were closely scrutinized. It was generally preferred that campsites be surrounded by open fields or paddies so that they tended to avoid villages surrounded by high ricefields, berms or dikes, graveyards or

trees since these terrain features could provide cover to advancing enemy troops.

Whilst each NVA or VC battalion maintained control of its own network of campsites, they were sometimes occupied by detachments from other units who were in transit. Battalions tended to have particular campsites, or campsite complexes, which they preferred to others and where they stayed for longer periods of time. These 'permanent' campsite complexes were sometimes inhabited for periods as long as three or more months although no single campsite would be occupied that long but rather the unit would move among three or four campsites within a small geographical area for a prolonged period.

Due to the nature of the conflict in RVN, NVA and VC units maintained a high-degree of both mobility and independence as befitting a maneuver army. A consequence of this was that it also had to decentralize its command structure. Commanders of battalions, and lower level units, were frequently given mission orders with the specific plan of execution left up to them. Within the provinces of South Vietnam, the usual mission order was area control and the nomading system was the vehicle. However, the movement schedule, or itinerary, was left up to the unit commander. As a result, battalions were in constant, apparently random, flux. Nomading units periodically interrupted their movements for supply replenishment, the exercise of population control, or in reaction to an allied sweep.

Despite impressions to the contrary, the NVA and VC battalions that controlled a province did not spend a great deal of their time actually fighting. Control of an area, it's population and resources, is what primarily guaranteed it's survival so that the majority of their time was spent in maintaining this stance. The consequence was that they might not fight more than once or twice a year, and only then after very careful preparation. Only incursions by allied troops seemed to interfere with this nomadic, area-control lifestyle. The routes, supply caches, campsites, mini-bases, strongholds and war zones had to be protected and as long as they remained inviolate, there was no need to fight.

Unit commanders would attempt to maintain what appeared to be a random method of selecting their next campsite, or at least made such choices in an unpredictable fashion. The imperative to maintain secrecy and unpredictability often meant that even trusted junior officers were not informed as to where their commander planned to move next. An assistant platoon leader of the 514th Battalion claimed that he could only guess which of several campsites was the next likely stopping point,

> "For instance, if while being stationed in Binh Ninh, we got shelled during the day, I could guess that we were moving to one of these three villages: Quan Long, Thanh Binh or My Tinh An. To know for sure which of them would be our next campsite I had to wait until we began to move. Then seeing the direction my unit takes, I would know where we were going."

In this example it can be surmised that the area being referred to had relatively fewer trail and campsite options than was normal since in areas that were covered with a complex pattern of trails and sites, even the direction of movement was no indicator of destination. A platoon leader of the 262nd VC Battalion described the movement flexibility which occurred in those areas where larger numbers of campsites and

radial avenues of approach were located,

> "There are no fixed regulations for moving. Because it had to avoid strafings and shellings, the battalion lately has reconnoitered and used new roads. The short or long marches don't follow any fixed regulations either. Sometimes the battalion reaches a village at night and leaves it for another village at 4AM . . . "

Whilst an NVA battalion commander possessed the independence to decide upon which camp to move to next, his actual choice of routes was more severely restricted since allied defensive positions and camps, as well as contiguous road and canal locations, often dictated route selection. Quite often the shortest path between two campsites was not taken, since it was necessary to avoid areas of high trafficability or government control/observation. This often resulted in the unit having to make a lengthy bypass in order to reach it's eventual destination.

In particular, roads and canals had to be crossed and, because of security requirements, crossing points were few. In many cases such crossing points were used so exclusively and habitually that they constituted a real and perplexing vulnerability,

> "The 514th battalion had its own route to follow when it has to move, and especially some fixed crossing points on Highway 4. For instance, whenever this battalion has to go through Binh Phu or Binh An village. On the stretch of road between Cai Lay and Long Dinh districts, it has to go through Nhi Qui Village. So far it has always stayed inside Nhi Qui until it came to the highway and crossed."

As a consequence, road and canal crossings had to be selected with a great deal of care. Standard practice was to use local guerrillas to outpost and secure such crossings.

Another frequent obstacle to battalion movement also had to be taken into account and that was when allied posts or positions were encountered. Such situations resulted in time-consuming and dangerous detours,

> "It took my unit about 4 hours . . . because we have to make a detour to avoid passing by the Than Nhut military post. This GVN post is manned by one platoon of Civil Guards and one platoon of Popular Force soldiers."

METHODS of MOVEMENT

In relatively secure or otherwise inaccessible areas, it was possible for NVA and VC units to become complacent in their operations. However, the majority tended to adhere to experience-based doctrinal guidelines for nomading operations. When planning a unit move, a communist battalion commander had to consider several relevant factors including:

- Reconnaissance of the route and objective area.
- Security of the route and objective area.
- Preparation of the objective area (i.e. the presence of nearby food/ammo caches, or preliminary organization for victual confiscation from nearby villages).
- Movement formation.
- Road, canal and other danger area crossings required.
- Enemy presence and activity within the objective route area.
- Security and secrecy methods to be employed.

Standard operating procedures required that units not stay longer than specified periods in various types of campsites and that permanent bases were to be inhabited for not more than seven days at a time while regular campsites were to be evacuated within four days, although they might be visited as much as five times within the same month. In contested areas, campsites were to be moved every three days or sooner.



Another NVA column on the move

In the twenty-four hours prior to a battalion move, a reconnaissance element would be dispatched along the avenue of approach to the objective area. This reconnaissance element, led by battalion reconnaissance assets, included a liaison party composed of food supply coordinators and representatives from battalion and company headquarters. Communist district and village cadre would be contacted by the liaison party to arrange housing and provision for the battalion. Local communications-liaison personnel, experts on local route conditions, were also contacted.

To maintain secrecy and security, unit moves invariably took place under the cover of darkness. The battalion would usually move out after four PM, expecting to bed down at its destination after midnight, and before daybreak. Companies received their march orders verbally, often only an hour or two before they were to move out. Everything was then gathered up and the current campsite area was checked to ensure that it remained camouflaged and undetectable from the air. All fortifications were left

undisturbed since they were frequently reused.

APPROACH MARCH

After all necessary arrangements had been made, the unit was ready to move and formed up in a battalion column of companies, the battalion would move off toward their new campsite. A long-range recon element composed of commo-liaison personnel or local militia advanced about one half kilometer ahead of the column and some two hundred meters behind them was a battalion reconnaissance-intelligence team.

In the battalion column two rifle companies and the battalion command staff formed the advance guard. Following them in order would be the combat support company and/or a heavy weapons company, sufficiently close to the battalion headquarters in order that they could be rapidly deployed and controlled. Next in the column would be the third rifle company, minus one platoon which would be following the battalion column as a rear guard. Stretching in a single file along the approach route, the battalion column would be anything from four to eight kilometers in length.

Units that were marching in single file would maintain two to four meters separation between men and in daylight hours that separation would be increased to five to ten meters between each man. Platoons were usually separated by fifty meters, and companies marched one hundred meters apart.

Daylight movement required heavy camouflage, especially appropriate when crossing open areas, which were avoided as much as possible in any case. Daylight routes were always chosen through the most vegetated areas available.

Areas of particular danger, especially road and canal crossings, were approached with especial caution. For road crossings, a special battlegroup was organized that was composed of a recon team, an infantry platoon and two road security squads. The road security squads, usually armed with RPG antitank weapons, took up positions to the left and right of the crossing site, where they set up to defend against enemy armored vehicles. The rifle platoon then established a shallow bridgehead on the opposite side of the road, while the recon unit patrolled deeply to insure area security.

If the coast was clear, the battalion began to cross the road rapidly. The entire crossing procedure usually required two to three hours of time. Viet Cong battalions usually crossed roads and canals at the same points every time. That habit, although never exploited by allied forces, jeopardized the crossing operation.

THE OBJECTIVE AREA

As the battalion moved into its bivouac objective area, liaison personnel assigned units to housing or shelter, usually one squad per "hootch." Heavy weapons were placed in the center of the bivouac area, near battalion headquarters. Recoilless rifles and light machine guns were distributed along likely enemy

areas of approach, among perimeter rifle companies. An outpost line of friendly guerrillas or self-defense militia was usually deployed around the battalion bivouac area, which was also outposted with close-in battalion security posts.

After the first night in the new bivouac area, the battalion coordinated its defensive plans for the area with local militia or other units. Contingency plans and withdrawal routes were rehearsed and the area was intensely patrolled.

An anti-recon screen of local units was thrown out along all likely avenues of approach into the bivouac area. That screen had several purposes including:

- Provide early warning of approaching enemy.
- Destroy enemy reconnaissance assets.
- Monitor and shape enemy movement.
- Delay enemy movement.
- Locate and scout enemy campsites.
- Surround enemy campsites with an anti-recon screen.
- Guide Main Force units into night attack positions around the enemy site.

SUMMARY

As a means of maintaining control over an area, the nomading system worked very well and in spite of the fact that the allies had increasing success in locating NVA and VC campsites, the system was so extensive that the enemy remained relatively elusive. Even when the enemy was found and engaged, it was invariably only a smaller component of the battalion so that allied forces rarely had the opportunity to decisively engage and destroy battalion sized elements. Also, even if NVA and VC elements were driven out of an area, allied resources were insufficient to maintain control and it was not too long before the enemy began to move back and reclaim it's former territory, often with much of it's prepared positions and supply caches still undetected and intact.

As a consequence of this, it was often decided to completely uproot and resettle entire communities in order to deny the enemy a lot of the resources that he depended upon. Once an area had been cleared in this fashion it could then be declared a 'free fire zone' which further limited the options open to NVA and VC commanders. However, the area control system was so well established that it was not long before an enemy battalion simply relocated and set about the business of establishing itself somewhere else.

VC and NVA Base Camps



GENERAL

Fortified base camps were the pivots of Viet Cong (VC) military operations and, it was believed, if denied their use, the VC movement would wither. Local force units tended to place reliance on numerous small base camps dispersed throughout their area of operations and each unit attempted to maintain at least one elaborately fortified refuge. The larger local force units normally constructed a tunnel complex which housed their hospital and headquarters. The camps were usually extensively booby trapped and protected by punji stakes, mines and spike traps. Main Force base camps, on the other hand, were usually not so well guarded by mines; they were however, larger and frequently included training facilities, such as rifle ranges and classrooms. Main Force units invariably had pre-stocked base camps throughout their area of operations and often shifted their forces as the tactical situation dictated, either for offensive or defensive reasons.

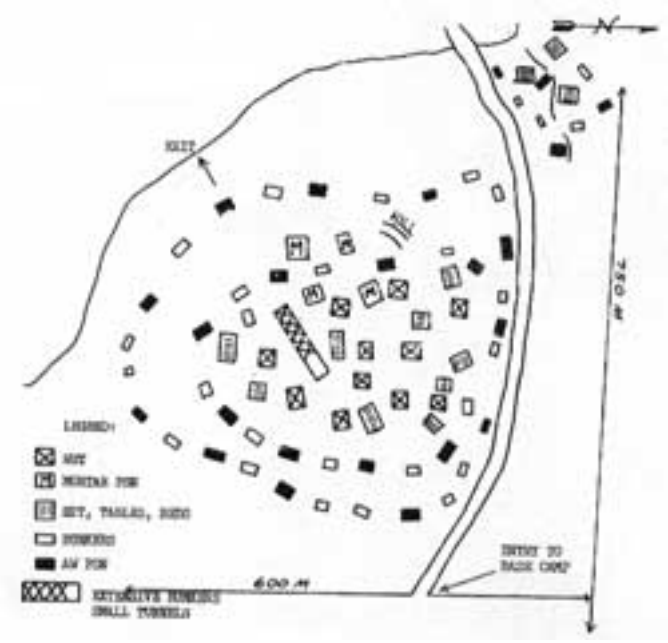


Figure 1 (Click Image to Enlarge, 27Kb)

Years of labor and an immense amount of material went into building a complex network of base camps throughout the country. It was this network which sustained irregular operations. A semi-guerrilla army,

such as that of the VC, could no more survive without its base camps than a conventional army could survive when cut off from its main bases. However remote and concealed, the base camps could not be easily moved or hidden indefinitely. To find and destroy these camps was a prime objective of the allied military effort.

Defended base camps presented a formidable obstacle to the attacker. They were normally somewhat circular in form with an outer rim of bunkers, automatic weapons firing positions, alarm systems and foxholes. Within the circle there was a complete system of command bunkers, kitchens and living quarters constructed above the ground from a wide variety of materials. (Figs. 1, 2 and 3 illustrate the various types of VC base camps which were encountered by tactical units in South Vietnam).

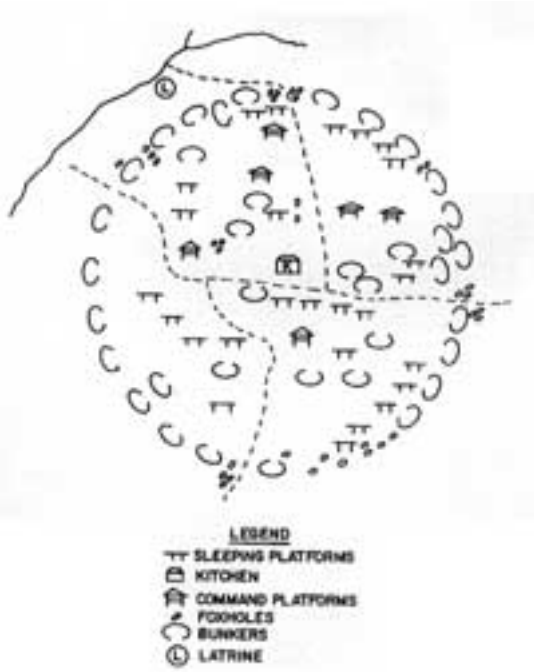


Figure 2 (Click Image to Enlarge, 23Kb)

The exact shape of the camp varied in order to take maximum advantage of natural terrain features for protection and to restrict attack on the camp to one or two avenues. Some of the camps, particularly those used only for training or way stations, had minimum defensive works. However, in all cases, the enemy was prepared to defend his camp against a ground attack. Even though natural terrain features may have caused a given camp to resemble a cul-de-sac there was at least one prepared exit or escape route opposite the anticipated direction(s) of attack. Tunnels connected the bunkers and firing positions, enabling the defenders to move from one point to another. This technique enhanced the effect of their firepower and gave them a significant advantage over the attacker. An unfordable river often paralleled one flank of a typical camp while open paddy land bordered the other.

The apparent lack of escape routes made the position appear like an ideal target for ground attack. However, until bombardment had removed most of the foliage, any maneuver into these areas on the ground was a complex problem. One local force squad had been known to withstand the assault of two US Army infantry companies, and a VC sniper or two, firing from within a mined camp, could inflict

numerous casualties on the attacking force.

LOCATION AND DETECTION OF BASE CAMPS

The 1st Brigade, 101st Airborne Division (US), made a study to determine if patterns existed for the establishment of enemy base camps and defensive fortifications. It was found early in the operation that the enemy invariably established his bases in the upper reaches of draws where water was available and dense foliage precluded aerial observation. Fortifications were found on the "fingers" covering the base camps and were mutually supporting. A comparison with information obtained from other sources such as agent reports, trail studies, etc., indicated that a pattern did exist and that potential base areas and bunkered positions could be predicted with reasonable accuracy. Based on this finding, information obtained from the Combined Intelligence Center, Vietnam (CICV), photos, Red Haze, visual reconnaissance and special agent reports was placed on overlays and the density of activity plotted. The plot was then transferred to maps using the color red to represent probable base camp locations. A careful study of surrounding terrain was then made to determine likely defensive positions and these were entered in blue on the map. Thus, commanders were presented with a clear indication of the most likely areas which would be defended. This method of identifying probable base camps and defensive positions proved to be relatively accurate.

During OPERATION MAKALAPA, the 25th Infantry Division (US) found that VC base camps were normally located along streams and canals and that extensive bunker complexes were built into the banks. Bunkers were usually constructed of a combination of mud, logs and cement. The bunkers presented a low silhouette and had extensive lanes of fire along the main avenue(s) of approach. Excellent camouflage negated the effectiveness of allied aerial and ground observation.

In OPERATION WHEELER, the 1st Brigade, 101st Airborne Division (US) found that "People Sniffer" missions effectively produced intelligence in areas of heavy vegetation where visual reconnaissance was ineffective. These missions were also invaluable in verifying agent reports as well as specifically locating enemy units, hospitals or storage areas as revealed by detainees or captured documents.

The After Action Report of the 25th Infantry Division (US) for OPERATION JUNCTION CITY, reflected that of the sixteen base camps discovered, two wore considered to be regimental size, ten battalion size and four company size or smaller. All base camps were located 200 meters or closer to a stream or other source of water. Each camp was encircled by a bunker system with interconnecting trench systems. The defensive positions showed evidence of careful planning of fields of fire and were well camouflaged and expertly organized. Enemy claymore mine positions were marked on the enemy side of a tree, usually with a single strip of white cloth or an "X'" cut into the tree.

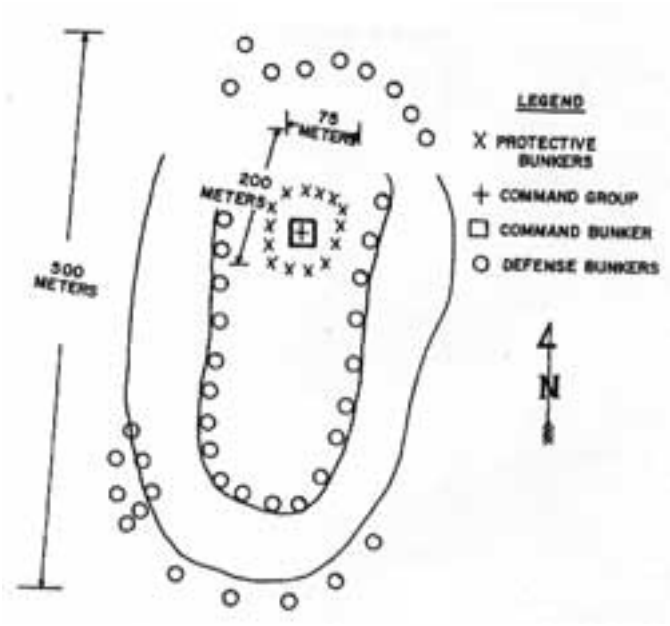


Figure 3 (Click Image to Enlarge, 20Kb)

The 3rd Brigade, 1st Infantry Division (US) reported, after the completion of OPERATION JUNCTION CITY, that most base camps were located near streams or roads. It appeared that the plan was to locate all installations close to transportation routes. This Brigade made the same comment in their After Action Report for OPERATION BATTLE CREEK.

The 3rd Battalion, 22nd Infantry, 4th Division (US) After Action Report for OPERATION BREMERTON, which was conducted in the Rung Sat Special Zone, reflected that the most likely base camps in that area existed on the high ground. Therefore, caution had to be exercised when entering dry ground from the swamps. Also, all base camps encountered were within 150 meters of some type of waterway. Further, these camps, without exception, were well concealed and effectively bunkered. Similarity of these base camps enabled units to plan their method of approach to minimize friendly casualties.

In the conduct of OPERATION BENTON by the 196th Light Infantry Brigade (US), it was noted that in almost all cases the enemy installations were within 1000 meters of a valley or actually in the valley. This indicated that in this area, the VC avoided the rugged and more formidable higher elevations.

The 1st Brigade, 101st Airborne Division (US) found in OPERATION HOOD RIVER, that the VC continued to utilize mutually supporting draws, each characterized by a water supply, dense foliage and fortified positions guarding accesses to base camp areas. This same unit noted in their After Action Report for OPERATION BENTON that the VC guarded his base camps with local forces who wore well trained and very capable of executing all aspects of guerrilla warfare.

Following OPERATION YELLOWSTONE, the 3rd Squadron, 17th Cavalry (-) (US) reported that sightings of previously unlocated base camps were reported daily. As each sub-area was searched in detail, large bunker complexes were located along every large stream in the jungle area. Enemy lines of communication interlacing the fortified base camps were found and plotted. Many of the base camps

were vacant but a large percentage proved to be occupied and well defended.

The After Action Report of the 1st Brigade, 25th Infantry Division (US) for OPERATION LANIKAI reflected that during this operation VC base camps were normally found along stream beds adjacent to built-up areas or in the midst of occupied villages. Bunkers were found in most homes, astride or strung along roads and dikes and in the corners of hedge rows. Pagodas were normally VC meeting places and were often protected by bunker complexes.

The use of the "Open Arms" program to obtain intelligence of specific areas and for guides to areas could be very effective. During OPERATION DAN TAM 81, conducted by the 11th Armored Cavalry Regiment, the exact locations of VC base camps were revealed by a Hoi Chanh.

The 1st Battalion, 18th Infantry, 1st Infantry Division (US) reported upon completion of OPERATION BATON ROUGE that whenever a unit moved into an area where there were indications that much wood had been cut, the unit expected to find a base camp within 200 to 500 meters of the cutting area. (Note: VC regulations prescribed that wood cutting must be done at least one hour's walking time from such facilities.) Upon completion of OPERATION LEXINGTON III, this same unit reported that base camps and facilities were generally found near streams, indicating the need for easy accessibility in the type of terrain encountered in the area.

During OPERATIONS MANCHESTER, UNIONTOWN/STRIKE and UNIONTOWN I, the 199th Brigades 503rd Chemical Detachment conducted twelve "People Sniffer" missions during the period 17 December 1967 to 13 January 1968, identifying 94 hot spots of probable enemy activities. The "People Sniffers" enjoyed several successes by identifying VC base camps and supplementing other intelligence means in locating areas of enemy activity.

The After Action Report of the 199th Light Infantry Brigade for OPERATIONS MANCHESTER, UNIONTOWN/STRIKE and UNIONTOWN I contained the comment that the humane and considerate treatment of Hoi Chanhs reaped high dividends, saving countless man-hours of operational time. Once the confidence of these returnees was gained and sincere concern for their well being was established, they willingly provided information leading to identification and destruction of Viet Cong forces or their base camps.

For a long time it was thought that because of their superior knowledge of these areas, the Viet Cong habitually established base areas deep in the interior. Operations conducted by the 1st Brigade, 101st Airborne Division tended to disprove this belief. Apparently the Viet Cong did not regularly inhabit the interior of dense jungle areas unless they were accessible by trail. Instead, they operated from bases within two or three kilometers of the jungle periphery.

Upon completion of OPERATION JUNCTION CITY, the 196th Light Infantry Brigade reported that defoliation flights cleared away brush and effectively revealed the enemy's base camps and supply routes.

The 5th Special Forces Group (Airborne) reported that the questions most frequently asked local VC PWs and ralliers, especially Hoi Chanhs, pertained to the location of their base camps and AOs. The 5th SFG found that the two frequently used methods of map study and aerial observation were unsuccessful. Most PWs and Hoi Chanhs did not know direction, could not read a map and, when they were taken aloft for Visual Reconnaissance (VR), it was usually their first flight so they could not associate what they saw from the air with what they saw on the ground. However, most of these people would not admit that they were unable to read a map, tell direction or do a terrain analysis from the air. As a consequence, they usually replied in the affirmative when questions were asked. When detainees were re-interrogated using the same techniques, the information received in the second interrogation frequently differed from the first interrogation. One method of interrogation which proved successful was based on direct terrain orientation questions by the interrogator. First the detainee was asked the direction of the sun when he last left the base camp. He was then asked how long it took him to walk to the point where he Chieu Hoi'd or was captured. Judging from the type of terrain and health of the detainee the distance to the camp could generally be determined. The subject was then asked to enumerate significant terrain features he saw on each day of his journey, i.e., open areas, rubber lots, hills, rice paddies, swamps, etc. As the subject spoke and his memory was jogged, the interrogator found these terrain features on a current map and gradually plotted the subject's route and finally identified the area in which the base camp was located.

METHODS OF DESTROYING OR RENDERING BASE CAMPS UNTENABLE

The 1st Australian Task Force used tactical airstrikes, immediate and preplanned, against occupied enemy base camps during OPERATION INGHAM. Assessment of damage revealed that one strike was on target and destroyed two underground rooms, collapsed 60 yards of tunnel and blew in several weapons pits. One strike was not assessed as the camp was not revisited. The Task Force also reported that airstrikes were directed against the camps to force the enemy out of occupied camps during OPERATION PADDINGTON.

The 1st Brigade, 101st Airborne Division's method of rendering base camps untenable, as reported in their After Action Report for OPERATION MALHEUR, was to contaminate them from the air using CS. The CS concentration remained effective for a period of from four to six weeks.

During OPERATION DALLAS, the 2/2 Infantry (Mech) conducted jungle clearing operations in the Vinh Loi Woods with tank dozers and Rome Plows. During jungle clearing, when contact was made which indicated the presence of a VC base camp, the mechanized elements developed the situation by deploying laterally while directing supporting air and artillery fires into the suspected base camp. The jungle clearing vehicles immediately began clearing a swath completely around the base camp. When the circle was completed, additional swaths were progressively cleared into the center of the camp. The configuration of the cleared jungle took on the appearance of a spoked wheel superimposed on the base camp. After occupation and security of the base camp by mechanized elements, the camp would be systematically destroyed by dozers. The 2nd Brigade, 1st Infantry Division also reported the use of both Rome Plows and demolitions to destroy enemy base camps during this same operation.

The 4th Infantry Division utilized tactical air to destroy bunkers during OPERATION FRANCIS MARION. Battle damage assessment (BDA) indicated two bunkers destroyed and one or two bunkers damaged severely, depending upon point of impact. Eight-inch artillery did not affect the bunkers unless there was a direct hit and then only the bunker receiving a direct hit was destroyed. The 3rd Brigade, 4th Infantry Division reported after OPERATION NISQUALLY that enemy base camps were destroyed by burning but that during the dry season caution had to be exercised to prevent the fire from spreading to the adjacent jungle.

The 1st Infantry Division's tactic for destroying VC base camps during OPERATION TUCSON was that of backing off, destroying them with air and artillery, and then sweeping through the base camp with troops. During OPERATION CEDAR FALLS, this same division found that a dozer team of two tank dozers and six bulldozers was very effective, particularly when working in a joint effort with infantry. The infantry provided the security and the dozers destroyed the base camps and fortifications.

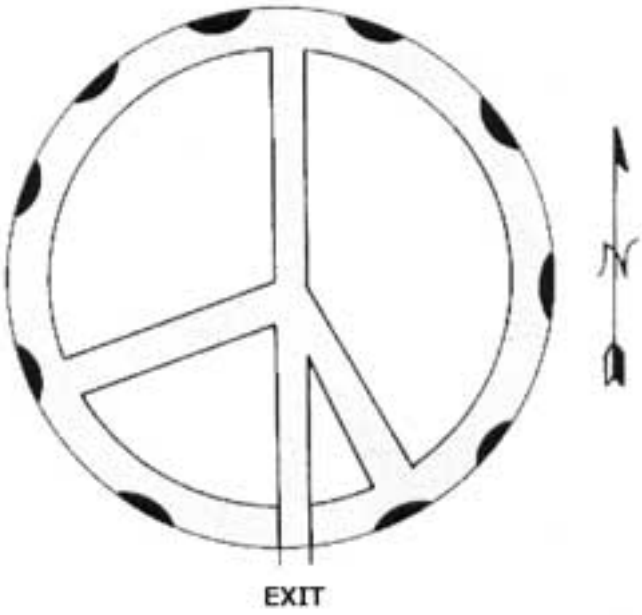


Figure 4: Base camp circular bunker

During OPERATION ATTLEBORO, elements of the 2nd Brigade, 1st Infantry Division discovered nine base camps, all of which had the same type fortifications. These ranged from open trenches and foxholes to bunkers with overhead cover. The largest base camp had fifty bunkers with overhead cover. Overhead cover consisted of logs with a layer of dirt. Destruction was difficult. At times units would physically remove the overhead cover and fill in the holes. The most elaborate was a circular bunker (See Fig 4). The bunker was 50 meters in diameter and the trench was 5 feet deep and 2 feet wide. 10 dugout holes in the trench were large enough for one man's protection against artillery. 6 claymores were wired and in the trench ready for ground emplacement. Control to fire the claymores was located at the southern exit. When demolitions were available they were used to destroy the bunkers. The primary means, however, of destroying the enemy installations was to call for air and artillery after evacuating the area.

SUMMARY OF SALIENT LESSONS LEARNED WITH RESPECT TO VC BASE CAMPS.

- Fortified base camps were the pivots of VC military operations. Denied their use, VC operations suffered significantly.
- When a base camp was discovered, it had to be thoroughly searched and all facilities destroyed, even if it took two or three days.
- Offensive operations were more successful if units knew where to search for different types of base camps in varying types of terrain.
- The VC normally re-entered a base camp area after US forces departed to remove items not located or destroyed.
- The VC camps were seldom found high in the mountains or far from supporting populated areas.
- Base camps were normally guarded by well trained local forces.
- The time-distance factor in planning operations had to be sufficiently flexible to permit ground commanders to fully exploit and search any located base camp without having to conform to preplanned schedules.
- A unit moving into a base camp had to do so with a definite plan. The plan included a minimum force to locate the base, a security element and a force to react to the enemy in the base camp.
- Prior to the initiation of an operation, a clear intelligence picture needed to be obtained and presented to commanders to include, if possible, the exact location of VC base camps in the area of operations.
- Exploitation of hard intelligence often resulted in disruption of the VC logistical base and denied the enemy the use of supplies.
- The detailed and painstaking compilation of intelligence and its dissemination in concise graphic form, often permitted the smallest elements to plan their operations in detail.
- When a base camp was uncovered, units had to be given time to conduct a thorough dismounted search.
- Special consideration was given to Hoi Chanhs from the moment of surrender to expeditiously capitalize on their knowledge and previous experiences, their ideas and impressions.
- Plotting of known resupply routes provided reliable intelligence for probable locations of base areas.
- A mechanized battalion could effectively destroy an enemy base camp with armor and Rome Plows.
- Tactical air was an effective means of destroying enemy base camps. Artillery was less effective.
- Caution needed to be exercised when burning huts in enemy camps during the dry season so as to prevent fires from spreading to the adjacent jungle.
- Hoi Chanhs and PWs, when properly interrogated, could be a productive source or information as to base camp locations.
- Where there were indications that a lot of wood has been cut, units could expect to find a base camp within 200 to 500 meters.
- "People Sniffer" missions effectively supplemented other intelligence means in locating areas of enemy activity including base camps.
- Defoliation flights cleared away brush and effectively revealed enemy base camps and supply routes.
- A supply of cratering charges, demolitions and blasting devices, held at battalion level, ready for

delivery by helicopters, proved to be of great value in the destruction of installations in the Rung Sat Special Zone (RSSZ).



NVA and VC Supply Caches

Source:

US Military Assistance Command, Vietnam, *Counterinsurgency Lessons Learned, No.68: Viet Cong Base Camps and Supply Caches*, July 1968

NVA and VC Supply Caches



GENERAL

The combat experience of allied forces confirmed that supply caches were the lifeblood of the enemy's offensives. Without them, the Viet Cong's (VC) capability to sustain operations was seriously impaired. Cache destruction had an adverse affect upon the morale of the enemy individuals and units, and had a significant military impact on his operational plans and logistical support. Loss of medical supplies further compounded the VC's problem of maintaining unit effectiveness and conducting propaganda and recruitment operations.

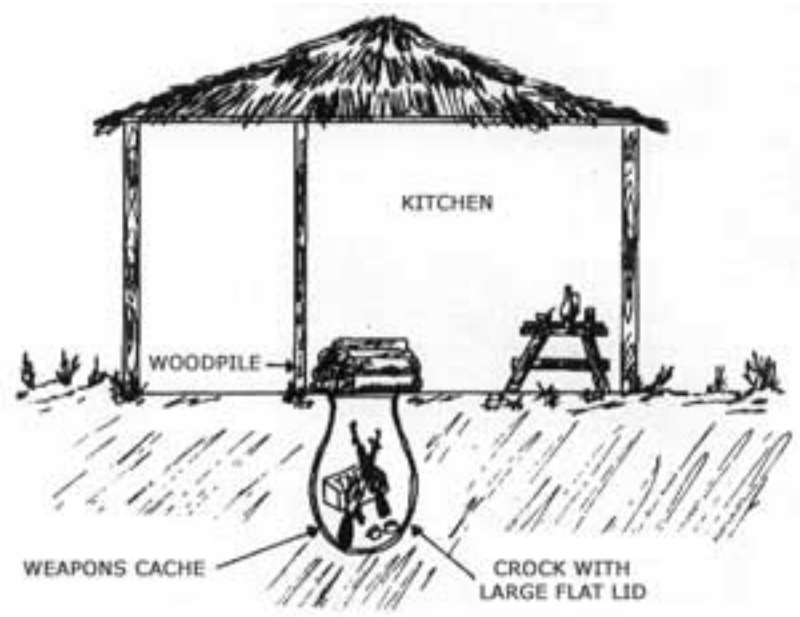


RPG's from captured enemy cache

A Combined Intelligence Center, Vietnam (CICV) Study (ST 68-09, Logistics Fact Book), dated 14 April 1968, stated that the enemy used an intricate system of caches and depots from which supplies were distributed to their units. In the past, the enemy had used large central caches at locations which provided quick and easy access to units in the field. As allied operations uncovered and destroyed these large depots and caches, the enemy found it necessary to disperse them. The VC began to store rice in homes of private citizens, but there were still instances when they maintained large central depots. Most caches served as temporary consolidation points for out-of-country supplies coming into SVN for distribution to units. It also appeared that highly accurate records were maintained of the supplies in the caches but there was normally little reference to cache locations.

Caches varied in size as to their content, and the unit or operation they supported. One example of a VC

directive on construction of storehouses (caches) and the maintenance of supplies and facilities, as published by Doan 84 (Group 84), Rear Service Unit, SVN Liberation Army Headquarters, is at Appendix 1. (The document was found in a hut by K/3/11th Armored Cavalry Regiment and translated by the Combined Document Exploitation Center, J2, MACV.) Caches were usually well concealed or camouflaged and search operations had to be thorough and methodical.



Pottery Weapons Cache

Emphasis was placed on evacuation of rice and other food caches for use by the GVN since evacuation of captured food caches served two important purposes. First, it denied the VC a much needed staple and second, it increased the food available to the local populace. However, evacuation was not always feasible due to the remoteness of caches, lack of helicopter or ground transport, and operational considerations which precluded units remaining in the area for an extended period of time. As stated by one commander, "Under some situations, it would be less expensive and more feasible to ship rice from Louisiana than to extract the same amount from the jungle caches." Destruction or denial measures then became necessary to prevent enemy retrieval of this critical resource. The requirement existed for a lightweight and effective system for contaminating or destroying large quantities of rice in a short period of time. The use of chemical contaminants was impractical for political/psychological reasons.

LOCATION AND DETECTION OF SUPPLY CACHES

On two occasions during OPERATION MANHATTAN, 1st Infantry Division interrogation of VC PWs led to the capture of two large VC weapons and munitions caches. One of these was the largest discovery of its kind at that time in Vietnamese war. Two VC officer PWs provided information concerning caches in the division AO. The most significant was located inside a concrete lined warehouse, guarded by a double ring of claymore mines. The caches contained;

- 220 - 7.92 Mauser rifles
- 147 Chicom type 53 rifles

- 20 VC claymore mines
- 500 rifle grenades
- 7,500 - 12.7mm AP rounds
- 1 BAR (US)
- 1 VC type 7.62 SMG
- 1500 - 60mm mortar rounds
- 2,000 - 82mm mortar rounds
- 250 radio tubes
- 25 - 57mm RR rounds
- 25 - 75mm RR rounds
- 1600 mortar primers
- 71,000 - 7.92 rounds
- 231,000 - 7.62mm rounds
- 100 lbs. TNT
- 200 shoe box mines
- 50 US AP mines
- 7,800 rounds of .50 caliber ammunition and a number of other items.

The 199th Light Infantry Brigade, upon completion of OPERATIONS MANCHESTER, UNIONTOWN/STRIKE and UNIONTOWN I, reported that the VC had ingeniously used "anthills" to provide caches for small arms, munitions, grenades and claymore mines. On numerous occasions, natural anthills were found to be "hollowed out" in a manner not visible from the exterior. Each "hill" housed a cache from which individual defenders could replenish their ammunition stores as they either defended or withdrew. The 1st Infantry Division rendered a similar report upon completion of OPERATION CEDAR FALLS. Their observations were that weapons and munitions caches were generally located in bunkers resembling the anthills that were frequently found in the jungle. The bunkers had two entrances, were not booby trapped., and were located within 75 meters of a trail large enough to allow passage of an ox cart.

Upon completion of OPERATION MAKALAPA, the 1st Brigade, 25th Infantry Division reported that in the PINEAPPLE region (Northern Long An Province) all weapons and ammunition caches were located near canal banks and close to bunker complexes. The storage containers were usually 55 gallon drums or other metal containers buried at ground level with straw or other types of mats for lids. The Brigade also reported that areas which produced large caches of arms, medicine and other important supplies were heavily booby trapped. The booby traps were usually in a circular pattern around the cache and were sometimes marked with crude signs.



Rice Bag Booby Trap

The 11th Armored Cavalry Regiment reported that during OPERATION CEDAR FALLS any time a flock of small birds had been frightened away by approaching friendly troops, a large rice cache was discovered in the vicinity. Accordingly, any time a flock of birds was noticed, a search for a rice cache followed. It was also noted that intense booby trapping of a particular area was a good indication that valuable stores were hidden nearby.

The 173rd Airborne Brigade (Sep) reported, upon completion of OPERATION SIOUX CITY and THE BATTLE FOR DAK TO, that the use of scout dogs at company level aided in discovering enemy caches. However, it was noted that dogs became fatigued and were limited to approximately ten hours of work each day.

EXTRACTION and DESTRUCTION OF CACHES

The 5th Special Forces Group (Airborne), 1st Special Forces, reported that during a three month period when the bulk of the rice harvest had taken place within a province, units conducting combat operations had discovered large numbers of rice caches. Because of distances involved, and the location of these caches, it was difficult to extract or destroy this rice.

During OPERATION ATTLEBORO, the 1st Brigade, 1st Infantry Division found that rice located in crudely constructed bins could be effectively scattered by placing 43 pound cratering charges inside the bin and tamping them with loose or bagged rice. To preclude the use of scattered rice by the VC, CS in 8 pound bags was wrapped with one loop of detonating cord, spread over the scattered rice, and detonated. This unit further reported that a fast effective method for destroying bagged rice was to stack the bagged

rice in a circular configuration, placing a 43 pound cratering charge in the center and tamping with bagged rice. Thirty to forty 200 kg. bags of rice were destroyed by one charge when using this method. All rice was so effectively scattered that contamination with CS was unnecessary.



Large enemy cache uncovered by 3/4 Cavalry

The 1st Brigade, 101st Airborne Division reported that VC rice caches, particularly the larger ones of twenty to one hundred tons or more, were often located in inaccessible areas and were extremely difficult to extract. One possible solution was to arrange with the District Chief or Province Chief before an operation began to have two hundred to three hundred porters under the protection of military forces, available and ready. Evacuation by helicopters had sometimes been accomplished, but the suitability of employing this method to remove large quantities of rice was questionable.

Upon completion of OPERATION WHEELER, the 1st Brigade, 101st Airborne Division reported that of the total rice tonnage (198.7 tons) captured by tactical elements of the brigade, 49.6 tons had been located in areas that were inaccessible to helicopters or, due to the tactical situation, could not be extracted. This rice was destroyed by engineer and chemical personnel by seeding the caches with CS and then scattering it throughout the area using cratering charges. A total of eight hundred and ninety three pounds of bulk CS powder was utilized in these operations.

During OPERATION MALHEUR, an eighty ton rock salt cache was discovered by A Co, 2nd Bn (Airborne), 502nd Infantry. It was not tactically feasible to extract the salt and therefore, it was decided to destroy the salt in place. Twenty, eight pound bags of CS were dispersed throughout the cache and blown simultaneously with a cratering charge, spreading the salt and CS throughout the area. The next day an additional four hundred and eighty pounds of CS was dropped on the cache from the air. A low level flight was made over the area seven days later and the CS concentration was still heavy; there were no signs of activity in the area or that any of the salt had been removed.

During OPERATION CEDAR FAILS, the 11th Armored Cavalry Regiment (ACR) captured a considerable quantity of rice from widely dispersed caches in the IRON TRIANGLE. Since the 11th

ACR could not extract or evacuate the rice, due to its combat mission, all possible means of evacuation were considered. Consideration was given to the use of surface transportation such as trucking companies. However, at the time there was insufficient transportation available to move the rice. Efforts were made to have the rice transported by the trucks organic to an ARVN Division. Although the request was not denied outright, the Division set a pickup date so far in the future as to be unacceptable. The 11th ACR then appealed to Province. After considerable pressure had been applied through advisory channels, the rice was partially extracted from the 11th ACR centralized collection point.



Enemy grenades being inventoried

During OPERATION MASTIFF, the 1st Infantry Division reported that an effective means of destroying rice by burning had been found. Gasoline, diesel oil and unused artillery powder increments were mixed with the rice to insure a hot fire. In this same operation, the 2nd Battalion, 2nd Infantry discovered a 50 ton rice cache which had been booby trapped. This rice was destroyed by pushing it into the Saigon River with a tank dozer. One other 75 ton rice cache was also destroyed by throwing it into the same river. During this same operation, a medical technical intelligence team was attached to the 3rd Brigade to examine and obtain samples of VC medical supplies taken from one of the base camps destroyed in the area. The team later reported that the antibiotics were of a type and brand that could be purchased on the open market in the Republic of Vietnam. The vitamin K (Ampoule K) found at the base camp was manufactured by laboratories TEVETE in Saigon. Large quantities of this item had been reported secretly captured by the VC in several places. The majority of the other drugs found were of the type normally found in VC captured medical supplies. The lot numbers and other information obtained from these medical supplies were of valuable assistance in determining and eliminating sources of supply to the VC.

SUMMARY OF SALIENT LESSONS LEARNED WITH RESPECT TO VC SUPPLY CACHES

- The use of information provided by PWs and Hoi Chanhs materially assisted units in locating caches. Information provided by such people had to be considered and, whenever possible, exploited to the utmost.
- The VC used natural and man made anthills as caches for weapons and munitions.

- Caches were more easily identified if units recognized the key protective measures used by the VC.
- Flocks of birds were a frequent indicator of the proximity of rice caches.
- Analysis of the disposition of booby traps in an area could lead to the discovery of valuable VC stores and material.
- When searching for caches, operations had to be methodical, deliberate and thorough.
- Operational planning needed to include methods of extracting rice or destroying it in place.
- Rice caches could normally be effectively scattered by the use of cratering charges and effectively contaminated with CS.
- Rice caches were frequently booby trapped.
- The VC frequently placed grenade type booby traps inside bags of rice. Therefore, it was advisable that all rice bags should be sanitized by EOD and Engineer personnel prior to handling.
- Engineer bulldozers could be effectively utilized in the destruction/extraction of rice caches by pushing them into rivers or constructing suitable LZs close to the caches to allow evacuation by air.
- Caches were usually well concealed, located in the proximity of transportation routes, and not placed in any discernible patterns.
- The extraction of rice caches were ideal missions for RVNAF's organic transportation units and Province/District Headquarters in carrying out Civic Action Programs.
- Nipa palm trees were used by the VC to store equipment. The foliage of these trees offered excellent concealment for caches.
- Medical supplies were be evacuated through intelligence channels rather than being destroyed in place.
- The use of probes and mine detectors in locating buried caches proved to be effective.



Source:

US Military Assistance Command, Vietnam, *Counterinsurgency Lessons Learned, No.68: Viet Cong Base Camps and Supply Caches*, July 1968

Fire Support Coordination



Field Artillery Support (Annex A)

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1. INTRODUCTION.

At present in the RVN, FA units are using 105mm and 155mm howitzers (towed and SP), 8" howitzers (SP), and 175mm guns (SP). Some units have 4.2" mortars which are used primarily in base camp defense missions, e.g., illumination and final protective fires, and in a few cases to provide coverage to FSBs which are out of range of other suitable FA support. Basically, FA provides maneuver and territorial support in the RVN.

2. COMMAND AND CONTROL.

a. Basic Considerations.

FA is most effective when control is centralized at the highest level consistent with the unit's capabilities and the mission. Contrasted to a more conventional war, the nature of operations in the RVN, conducted in abnormally large AOs, dictates a greater decentralization of fire support. Planning and control are decentralized to provide flexibility for offensive operations; on the other hand planning and control are centralized and detailed for defensive operations. In the RVN, both offensive and defensive operations are frequently conducted simultaneously within a brigade AO, and the FA is faced with the task of executing both offensive and defensive doctrine simultaneously.

b. Positioning.

Artillery must be positioned to support tactical operations and to provide area support for installations and main supply routes. The concept of greater area coverage, plus the mobility provided by the helicopter, make it possible for some artillery to be within range of a maneuvering force at all times. This concept generally outweighs the desirability for massing the fires of an FA battalion against the relatively small targets usually found in the RVN. Centralized tactical control 'by corps-level artillery headquarters is considered essential to insure maximum coverage of the AO. Instances occur where the displacement of a direct support battery requires the approval of a corps-level artillery headquarters.

c. Tactical Missions.

(1) The four standard tactical missions of FA are direct support, reinforcing, general support, and general support-reinforcing. Each of these missions has certain inherent responsibilities which are outlined in Figure A-2. While complete agreement will not be obtained, the majority of USA artillery commanders and staff officers believe that deviations have been made from the responsibilities inherent in the standard tactical missions as executed in the RVN. These deviations are outlined in Figure A-3.

(2) The assigning of a different tactical mission to an artillery battery from that assigned to its parent battalion is common in the RVN. An example is a division artillery battalion with a general support mission, while one battery is in a direct support role and two batteries are in general support-reinforcing roles. These situations result from the many and varied types of operations being conducted simultaneously by an infantry battalion with one or more batteries in support.

(3) Operational control is a status normally associated with infantry and armor operations, but frequently used by artillery in the RVN in lieu of one of the standard tactical missions. Those favoring operational control believe that it is more flexible in meeting the rapidly-changing artillery support requirements in the RVN. It is used primarily when a battery operates under control of other than its parent battalion, and the distances involved make tactical and logistical support by the parent battalion impossible or impractical. The inherent responsibilities of operational control as an FA tactical mission are not well defined and its use requires considerable coordination.

d. Liaison.

The infantry battalion commander's relationship with his artillery LO was touched upon in the opening paragraphs of this publication. It is stressed here because the need for effective liaison has never been greater than it is in the RVN. The large size of AOs, plus a frequent shortage of aircraft for command liaison purposes, make it difficult for artillery commanders to maintain personal contact with maneuver commanders. The requirement to obtain artillery fire clearances, from up to five separate military and political HQ, results in a demanding liaison requirement. The need for mature professionally-qualified LOs is a constant problem for all artillery commanders. Other factors which may limit liaison are great distances between HQ, insecure or nonexistent road nets, and shortage of TOE personnel.

e. Control of Observers.

The method of controlling FOs depends largely an the manner in which they are used.

(1) The divisional DS battalions normally use their FOs with the companies of the

supported maneuver battalions. Therefore, the most efficient control of the FOs is usually obtained through the artillery LO at the maneuver battalion.

(2) The non-divisional GS battalions have two methods of using their FOs, and two methods of control. The FOs are assigned either to the companies of the supported maneuver battalions, or they are assigned individually to specific units for specific operations. In the latter case, there are no LOs to control the FOs; they are independent and work directly with the S3 or artillery units providing fire support. When a GS battalion provides support similar to a DS role, the FOs are controlled by the artillery LO.

(3) Air observers are normally used by the HQ to which they are authorized, frequently being consolidated at division or group level. In both cases, the air observers are primarily controlled by the HQ using them, the control being quite flexible. Given a sector of operation, the air observers conduct registrations and visual surveillance, engages targets with artillery, and performs many other functions. The control exercised by the using HQ does not usually restrict the observers' operations.

3. TACTICS AND TECHNIQUES.

a. Doctrine.

Artillery doctrine has been shown to be sound for employment in the RVN although the operations bear such relatively new designations as counter-guerrilla, counterinsurgency, and stability operations.

b. Clearances.

(1) The requirement for military and political clearances for artillery fire on or near populated areas has an adverse effect on the responsiveness of artillery fire. The goal of having rounds in the target area within two minutes after receiving the fire request is seldom met for targets near any populated area. It is common for missions to be delayed up to ten minutes to obtain all the necessary clearances - the average delay is about seven minutes but it is not uncommon for the artillery to be unable to fire at all because of lack of clearances near populated areas. The establishment of Combined Fire Support Control Centers (CFSCCs) in some areas has significantly reduced the time required to effect clearance. (See Figure A-9 and Annex E.) This lack of responsiveness is a source of constant concern and frustration at all echelons of command.

(2) A special type of clearance is used in most areas of the RVN when friendly artillery fires are to be placed within 600 meters of friendly forces or installations. This is considered a "DANGER CLOSE" situation. All such missions must be observed and special precautions must also be used to insure the safety of friendly troops.

(a) The ground commander is ultimately responsible for the decision to fire and for the safety of friendly troops. He must know the location of friendly forces at all times and insure that observers and FDCs are kept informed of these locations.

(b) When artillery fires are to be placed within 600 meters of friendly forces, the observer must inform the ground commander that a DANGER CLOSE situation exists. In his fire request the observer will specify "DANGER CLOSE" immediately after the target description.

(c) The first round for adjustment is usually a highburst marking round, either WP or smoke. Corrections will be in increments of no greater than 100 meters; contrary to normal adjustment procedures, "creeping" is encouraged in this situation.

(d) Within 200 meters from unprotected or lightly protected troops, there is a significant risk of friendly casualties. The decision to place the fire within 200 meters will be made by the ground commander.

(3) The following minimum safe distances maybe used as a guide for a reasonably casualty-free risk to friendly troops,

(a) For artillery fires within 400 meters, troops should be prone.

(b) For artillery fires within 200 meters, troops should be protected. e.g., in armored vehicles, bunkers, trenches, or foxholes. As a minimum, they should be prone and behind cover, such as an armored vehicle or rice paddy dike. FACS, LOs, and observers should be consulted for specific safety criteria for various weapons.

c. Concepts and Emphasis.

The concept of using the majority of the artillery for area defense was used by the French and later by the ARVN. In practice, this concept is still in effect by US artillery, but with equal emphasis on support of maneuver units. Non-divisional artillery is concerned primarily with providing area coverage, emphasizing main supply routes and populated/logistical areas. Divisional artillery is concerned primarily with supporting the maneuver elements. There is, of course, no precise dividing line between these areas of primary concern and overlap exists.

d. Fire Support Bases.

(1) Artillery positions in the RVN are usually known as fire support bases. (The term "fire

support base" has become a generic term in the RVN and is sometimes used for various types of military installations even though fire support may not be their mission.) The selection of FSBs is rarely left completely to the artillery commanders concerned. The prime consideration is the capability to support the maneuver element throughout its AO; coupled with the size of many AOs and the absence of clearly identified enemy and friendly areas, this dictates a requirement for 360-degree (6,400 mil) coverage. The ability of FSBs to be mutually supporting is also considered by many to be paramount. Other considerations in order of priority are:

(a) Type of soil to support the weapons.

(b) Defensible position.

(c) Capability of being resupplied by air.

(2) Where a choice exists, high ground is selected for an FSB in preference to one in defilade. The defensibility of high ground is the primary reason for this preference. Enemy control of high ground surrounding a defiladed position enables him to deliver effective fire into the position. The enemy's principal counterbattery weapon is the mortar, against which a position in defilade offers little protection.

(3) It is exceptional to find an FSB where the artillery-commander was consulted prior to designating areas of occupation within the perimeter. The highest portion is usually occupied by an infantry battalion or company command post. Positioning the artillery on the higher ground would greatly increase its direct fire capability; conversely, it would be more vulnerable to enemy direct fire.

e. Type Operations.

(1) The airmobile operation is conducted frequently in the RVN.

(a) The complexity of the operation, caused by the number of different fire support means, requires that the operation be controlled and coordinated very closely. The success or failure of an airmobile assault preparation depends on the exactness with which FSC is accomplished.

(b) The preparation of LZs is the most common artillery preparation fired. Preparations are fired on LZs used for airmobile insertion or landing of groups of personnel varying from small patrols to several companies. The purpose of the preparations is to reduce or eliminate resistance, clear away helicopter mines or other mines and booby traps, and reduce foliage in the area. In some cases, preparations are used to deceive the enemy into thinking

that an insertion is being made.

(2) Availability of artillery support is one of the primary factors in determining whether operations will be conducted. Prior considerations for artillery support normally insure that operations will not be limited because of range, projectile characteristics, or lack of continuous support; there are few instances where operations are limited by lack of artillery support.

(3) The major portion of artillery support is for tactical operations, however it is provided also for civil affairs, psychological, and intelligence operations.

(a) Representative types of offensive fires include intelligence and interdiction missions, preparations, counter-mortar/ counter-rocket fires, and augmentation of B-52 strikes.

(b) Representative types of defensive fires include defensive targets near FSBS, base camps, etc; final protective fires; on-call targets along convoy and patrol routes, axes of advance, and in AOs for general use; blocking fires for patrols, around LZs, and around cordoned areas; counter-mortar/counter-rocket fires planned for use in case of attack; illumination; fires using VT fuze and beehive rounds planned on friendly positions in case they are overrun; and prearranged direct fire in defense of base camps, FSBS, and defensive positions.

(4) Figure A-5 gives an indication of the types and distribution of ammunition available to support operations in the RVN.

4. FIRE SUPPORT COORDINATION.

a. General.

Operations in the RVN present many new and challenging situations in FSC. The basic concepts of fire support have not changed as a result of the "6400 mil" environment in the RVN. Fire support remains flexible and is one of the principal resources available to the maneuver commander. No new concepts of FSC have been devised; however new procedures and techniques have been developed. Fire and meneuver are very much interdependent and are planned concurrently. The maneuver commander at each echelon is responsible for the coordination of fire and maneuver. The senior artillery officer of the force is the FSCOORD and is responsible to the commander for the total integration of fire support. The establishment of FSC procedures and agencies is flexible; no rigid system is equally effective at all echelons or in all organizations. Procedures to accomplish the FSC task vary with the headquarters, type artillery organization, the amount and type of fire support available, and the type of operation. Most operations at maneuver battalion level involve planning time varying from a few hours to two days.

Because of this short planning time, the majority of the planning procedures have been standardized and include in SOPs.

b. Applied Principles.

Primary consideration is given to furnishing the type of fire support requested. Fire missions are assigned to or requested of the agency that can deliver the most effective and safe fire within the requested time. Fire support is provided by the lowest echelon having the necessary means available. When appropriate means are not available, assistance is requested from higher echelons of FSC. Fire support is coordinated at each echelon to the degree required by the mission. Final action is taken at the lowest level which can effect complete coordination of the fire support mission. The necessary precautions to safeguard friendly troops and RVN civilians and their property, aircraft, vessels, and installations are taken at each echelon where fire support is coordinated.

c. FSC Agencies.

The FSC agencies established in the RVN are flexible; the composition of the agency is determined at each level of command.

(1) The divisional and separate brigade DS battalions provide FSC agencies according to their TOE. The agencies consist of the DS battalion commander as the FSCOORD, LOs and sections with each supported brigade and maneuver battalion, and FOs with each maneuver company. The majority of the divisional DS battalions are responsible for operation of AASWCCs in the division AO and obtaining fire clearances for the batteries under their control.

(2) GS battalions are not usually organized with FSC agencies. Their normal mission is to provide reinforcing fires to other artillery battalions. Frequently the GS battalions in the RVN have this normal organization modified to assist fire support of specific tasks or missions. These modifications include:

(a) DS to a maneuver force, which requires providing LOs to battalions and FOs to companies.

(b) Operation of AASWCCS.

(c) Artillery support and the coordination of other fire support for defense of base camps.

(d) Organization of CFSCCS.

(e) Obtaining clearances for fires of the batteries under their control.

(3) Artillery group headquarters in the RVN, for the most part, function in the conventional manner.

(4) Division artillery headquarters.

(a) At the division level, a more formal agency is established for FSC purposes; this is the FSC element of the division TOC. The FSC element normally performs the function of coordinating supporting fires on surface targets which cannot be done at a lower level, allocating and positioning fire support, means for operations and area defense, nominating targets for B-52 strikes, supervising the AASWCC program within the division AO, obtaining clearances for fires outside the division AO, and sometimes operating a targeting section.

(b) Within the RVN, most division artillery headquarters retain a conventional organization while others are modified in varying degrees. The differing organizational concepts have no major influence on FSC as most operations are conducted at a lower level.

(5) The organization of the field force and corps artillery headquarters in the RVN varies. Two of these headquarters divide FSC into two parts - the ground-to-ground fire support means are under the artillery FSCOORD and air-to-ground means are under the G3. The third headquarters operation involves total integration of fire support under the FSCOORD. Again, these varying organizations have no major influence on FSC as most operations are carried out at much lower levels.

d. Functions of FSC Agencies.

(1) The FO with the maneuver company submits target lists to the artillery LO at the maneuver battalion. The FO also assists the company, commander in coordinating the fire support available to the unit.

(2) The artillery liaison section at the maneuver battalion incorporates the target lists from the FOs into the battalion fire plan which is sent to brigade for approval. The artillery LO also works closely with the maneuver battalion commander in coordinating the fire support available to the battalion.

(3) The artillery liaison section and the FSCOORD at brigade coordinate the fire support available to the brigade and make recommendations for support of various organizations.

(4) The division, corps, and field force FSC elements coordinate fire support for major

operations.

e. Artillery Fire Request Channels.

(1) Those established and used within the divisions in the RVN are standard or similar, for the most part. Figure A-7 shows the channels most commonly used within the divisions. The fire request channels established within the artillery groups are similar.

(2) The channels are not normal for GS battalions, as a result of the varied missions of the battalions. (See Figure A-3.) It is common for group batteries to reinforce specific artillery batteries and battalions; this has led to the establishment of modified fire request channels which frequently follow "short cuts" and by-pass the parent artillery battalion. The group headquarters usually is not aware of the missions being fired by its batteries. Figure A-8 shows typical modified fire request channels used for obtaining GS reinforcing fires from group artillery batteries. Rough percentages of total fire requests for each channel are indicated.

f. Accomplishment of FSC.

(1) In about nine out of ten cases, FSC at maneuver battalion or lower is done on an informal basis. Very few detailed fire plans are written. Most operations are begun with little advance warning; therefore, plans are made informally, follow SOPs and are kept simple, and are passed on verbally or by secure radio. Those fire plans which are reduced to writing are usually for contingency plans or for large-scale or joint/combined operations. Day-to-day operations are planned at the lowest possible level. In most cases, they are planned on an informal basis and coordinated by radio or telephone. The written fire plans are usually abbreviated and consist of only a target list.

(2) The artillery LO at maneuver battalion fills a key position. He is responsible for most of the fire planning and eventual coordination of all fire support. He usually accompanies the maneuver commander on all tactical missions.

g. Air Advisories.

(1) All artillery, from battalion up, has a vital interest in air advisories over their AOs. Air advisories above 5,000 feet are controlled by the AF and below 5,000 feet by the appropriate tactical commander. Each field force and corps is responsible for the air advisory activity in its AO. Habitually, the responsibility of operating the air advisories is assigned to lower levels; about three out of four DS battalions operate an air advisory. The air advisories are given local names, such as AASWCC in the south and "Save-a-plane" agencies in the north. Regardless of their names, the functions are the same - to advise aircraft of indirect fires. (See Figure A-9.)

(2) Except when troops are in contact, firing data is posted with the responsible air advisory before fires are delivered into, out of, or across the air advisory's area of responsibility, which normally conform to RVN political boundaries or to tactical AOs. Aircraft entering the area check in for clearance; they are given either the locations of all fires or a safe route to travel. Aircraft operating in the area are notified of fires by monitoring the air advisory net. Data on fires is given in the clear and usually consists of grid from, grid to, maximum ordinate, and the direction in degrees.

h. Artillery in Populated Areas.

Areas populated by friendly civilians create conditions not experienced in previous wars. Populated areas are essentially no-fire zones. Fires near or into these zones require rigid controls and special clearances. (See Figure A-9.) Some of the effects are -

(1) Populated areas complicate the coordination of artillery fires, especially HE and illumination. In many cases, both HE and illumination are precluded, restricted, or delayed to such an extent that their value is greatly reduced.

(2) Maintaining current and accurate population overlays is a continuing problem. In most cases, they are obtained from province HQ and are no more accurate than the province map. The constant shifting of population further compounds the problem.

(3) The enemy, realizing that fire cannot be rapidly placed on or near populated areas, uses them as sites for rocket and mortar attacks.

(4) The dangers from the falling baseplate, burning flares, and empty shell impact limit the use of illumination over or near populated areas.

5. SUMMARY OF FA SUPPORT.

a. The ground commander in the RVN has more firepower available to him than in any previous war. It can be delivered accurately and rapidly on almost any point desired by the ground commander.

b. The principles of artillery employment are the same as they have been for years, but many new techniques are being used in the RVN. As infantry operations are characterized by large AOs, numerous movement, violent actions of short duration, and an almost complete absence of front and rear, artillery supporting the operations is less centrally controlled than in a conventional situation.

c. The principles and techniques of fire control and FSC remain valid in the RVN but the environment makes the job of the fire direction officer and the FSCOORD more difficult and exacting than ever before. In World War II and Korea, gunnery errors, e.g., 10 and 100 mil errors, seldom resulted in friendly casualties. (Any round that cleared friendly lines was considered a good round.) In the RVN, about 50% of all artillery missions are fired toward friendly troops or into an area virtually surrounded by converging forces. Any error (over, short, left, or right) may result in friendly casualties.

d. The LO from the DS artillery battalion to the supported infantry battalion, functioning as the infantry battalion commander's FSCOORD, has a particularly vital role in coordination of artillery support. If any single artillery job can be classified as the most important, it is that of the FSCOORD at any level. The normal tasks, plus the tasks of airspace management and control, the distances involved in operations, the frequency of operations, and the speed with which operations are conducted, demand competent individuals in the FSC agencies.

e. Mastering fire control and coordination is one of the most important challenges faced by commanders and staff officers in the RVN. Effective use of the experts (the FOs, LOs, FDC personnel, and FSCOORDS) is a must to insure proper, safe, and effective use of artillery.



Return to Fire Support Coordination

Source:

Vietnam Lessons Learned No. 77: Fire Support Coordination in the Republic of Vietnam. United States Military Assistance Command, Vietnam, 20th May 1970

Fire Support Coordination



Armed Helicopter Support (Annex B)

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1. INTRODUCTION

As with other types of fire support, the mission of armed helicopters is to support the ground commander in combat. Helicopter operations are not ends in themselves, but must all be keyed to provide the best possible support for the ground forces.

2. DEFINITIONS

Aerial Rocket Artillery. Those armed helicopters within the aerial artillery batteries of the aerial artillery battalion organic to the airmobile division artillery.

Armed Helicopter (Gunship). A helicopter equipped with an attached weapons system which is fired by the pilot or co-pilot. The presence of machine guns and door gunners aboard helicopters for defense and 'security does not constitute an armed helicopter (gunship).

Armed Escort. Accompanying armed helicopters used for escorting other helicopters, ground convoys, or for protection of personnel and equipment of damaged aircraft.

Heavy Fire Team. Three armed helicopters operating as a tactical element.

Lift Helicopter (Slick). A helicopter used for lifting troops and/or cargo.

Light Fire Team. Two armed helicopters operating as a tactical element.

3. SOURCES OF ARMED HELICOPTER SUPPORT

Armed helicopter support for the ground commander may come from several organic sources.

(1) Airmobile divisions -

- The aerial weapons company of the assault helicopter battalion.
- The air cavalry troops of the cavalry squadron.
- The aerial artillery batteries of the aerial artillery battalion organic to division artillery.

(2) Infantry divisions -

- The aviation GS company of the aviation battalion.
- The air cavalry troop of the armored cavalry squadron.

(3) The air cavalry troop of the armored cavalry regiment.

Non-organic sources of armed helicopter support include..

- Separate armored cavalry squadrons.
- Various units, such as assault helicopter companies, aviation companies (escort), and aerial weapons companies of the 1st USA Aviation Brigade. These units are normally under operational control of XXIV Corps, I FFORCEV, II FFORCEV, or DMAC.

Although local procedures may vary, aerial rocket artillery support is normally requested through artillery channels while other armed helicopter support is requested through command channels. Armed helicopter support is usually in the form of a "package" of air assets, e.g., one light fire team and one heavy fire team, allocated for a specific period of time.

4. AIRCRAFT AND ARMAMENT

Aircraft

The following are the armed helicopters now in use in the RVN:

- The Bell Huey UH-1B and UH-1C are utility helicopters equipped with armament systems which provide accurate and variable firepower.
- The AH-1G is the "Huey Cobra", a high-speed, tandem-seated attack helicopter having a fully integrated weapons system, coupled with wing-stored armament.

Armament

Any of several armament systems may be found on armed helicopters in the RVN.

(1) The M-5 system is a fully automatic 40mm grenade launcher flexibly mounted in the nose of the helicopter. The gun has a maximum rate of fire of 220-240 rounds per minute and an effective range of 1,200 meters. The system is reliable, accurate, and very effective against personnel. Most ships mounting the M-5 system also have a 2.75" rocket system for added firepower.

(2) The XM-21 system consists of a 7.62mm externally mounted minigun and a seven-round rocket pod on each side. Each gun can fire 2,400 rounds per minute; there is a three second maximum firing time with a momentary delay between firings.

(3) The XM-18 system is, at present, mounted only on the AH-1G. It is a 7.62mm electrically-fired weapon, with one pod mounted on the inboard store of each wing. The rate of fire is 4,000 rounds per minute.

(4) The XM-157, XM-158, and XM-159 are 2.75" FFAR rocket launcher systems. The XM-157 and XM-159 systems are 7 and 19-tube pods respectively, used only on the AH-1G; the XM-158 is also a 7-tube pod, but it is not adaptable to the AH-1G aircraft.

(5) The XM-35 system is a 2omm cannon kit that can be mounted on the left inboard wing of the AH-1G. The weapon, the XM-195 20mm cannon, has a fixed elevation and azimuth and the pilot maneuvers the aircraft to adjust the strike of the rounds by use of the XM-73 sight. The co-pilot/gunner can also fire the weapon but has no sight. The system carries 950 rounds and can fire 750 rounds per minute.

(6) The XM-28 system is a twin-gun nose turret used on the AH-1G. The system is comprised of any one of the following combinations of weapons:

- One 7.62mm machine gun and one 40mm grenade launcher.
- Two 7.62mm machine guns.
- Two 40mm grenade launchers.

The XM-28 system is usually controlled by the co-pilot/gunner through a floor-mounted sighting station, but can be fired by the pilot in the stowed position.

General Capabilities and Limitations

In addition to the inherent capabilities and limitations of helicopters as a class, armed helicopters have the following:

(1) Capabilities.

- Rapid delivery of relatively large volumes of fire on point or area targets.
- Selective fires on point targets.
- A wide assortment and flexible use of munitions.
- Responsiveness to changing missions or situations.

(2) Limitations.

- Night and weather - The pilot must be able to see the target
- Range and payload - Range or time on station, or both, must be reduced to obtain greater payload.
- Crew on the AH-1G - The crew consists of two, the pilot and the co-pilot/gunner. Rearming and refuelling require a ground service crew for minimum turn-around time. The small crew also makes VR missions less effective.

Helicopter Gunnery.

It is a truism that effective armed helicopter gunnery is achieved only by crews who are knowledgeable, trained, alert, and properly motivated. Effective gunnery is a team effort. Team-work must be developed within each aircraft crew, between aircraft crews in the fire team, between fire tea-as in the platoon, between the armed platoon and the lift aircraft, and between the armed platoon and the supported ground forces.

Armed helicopters operate at or near maximum weight limitations. Weight must be a constant consideration. In many cases, it will be necessary to reduce ammunition or fuel, or both, to accomplish a mission. The helicopter is an especially agile but a relatively unstable gun platform.

Probably no single factor, with the possible exception of gunner proficiency, contributes more to the accuracy of helicopter gunnery than proper bore sighting of the weapons. Since most weapons systems consist of multiple guns/rocket launchers, each gun/launcher must be individually adjusted so that the axis of its bore is parallel to the axis of the sight.

(a) Rockets are fired, normally in one or more pairs, by the pilot, who must aim them by aiming the entire aircraft at the target. Helicopter gunnery is extremely complex and will not be treated in detail here. Some 10-12 interrelated factors affect rocket gunnery. Of these, probably the most important single one is the proper alignment of the aircraft, and therefore the rocket system, into the relative wind; it rockets are fired when the aircraft is not properly streamlined into the relative wind, accuracy will be seriously degraded.

(b) The 2.75" rocket warheads available include the ten and 17 pound HE, the ten pound smoke, and the flechette. Fuzes include both the proximity (VT) and point detonating (PD).

(c) Machine gun techniques have been developed and proved over years of experience. These flexible systems, when properly used, are highly accurate throughout their limits of travel. Deflection and elevation angles change constantly throughout the firing run; the co-pilot/gunner must determine the lead or lag for targets at varying angles from the line of flight and for varying ranges and airspeeds. The necessary lead or lag is Learned only through experience and practice.

(d) The velocity of the 40mm round is relatively slow, making still different gunnery techniques applicable for this system. A satisfactory degree of accuracy can easily be obtained with practice.

There are few "iron clad" gunnery tactics for helicopters. Tactics and techniques are basically applications of common sense principles and a thorough understanding of the aircraft and it weapons. Variables such as mission, enemy situation, terrain, and equipment affect gunnery tactics. Helicopter fires can generally be categorized into two types - point fires and areas fires.

(a) Point target fires are directed at a specific point with the intent to destroy the target. The two methods used to engage point targets are diving fire and low-level, or running, fire. Diving fire has the advantage of producing a relatively small and roughly circular beaten zone and range error; its chief disadvantage is in the increased exposure time to enemy fire. Low-level fire has the advantage of minimum exposure time, provided the enemy is confined to the area of the point target and not deployed along the approach route. The chief disadvantage is that the pilot and gunner have minimum time to acquire the target and fire, plus the larger probability of the range error.

(b) Area fires are directed at less restricted strike zones in which specific targets have not been identified; these fires, in LZs for example, are intended more for suppression than for destruction. Area fires may be delivered by diving, low-level, or even hovering/ stationary modes as the situation demands. Hovering/stationary fires produce a highly elongated beaten zone and do not significantly increase weapons accuracy; with some weapons, e.g., the 2.75" FFAR, the lost accuracy causes this firing mode to be impractical.

5. ARMED HELICOPTER MISSIONS

Mission

The armed helicopter was conceived to increase the fire support available to the ground commander. The mission of armed helicopter units is to provide security for airmobile forces and to engage in offensive, defensive, and delaying actions as part of a highly mobile combined arms team.

Operational Missions

Typical operational missions which armed helicopters may perform in support of the ground commander are escort, recon and security, and fire support. Each is discussed further below.

(1) Escort missions may be further classified as aerial escort (for lift helicopter formations) and ground escort (for vehicle convoys).

(a) The aerial escort mission is most common and may be carried out in a variety of ways. The fire teams may fly on the flanks or slightly ahead of the lift formation and may be at various altitudes. Flying at low level, the armed helicopters have the advantage of surprise and better observation; however, low-level flight is not always the best choice. While escorting lift formations, the mission of the armed helicopters is to suppress or neutralize ground fire to allow the lift formation to pass through the danger area. Destruction of enemy positions or troops, while a desirable bonus, is not required by the escort mission. There is no requirement for escort when a lift formation is flown at altitudes high enough to avoid ground fire; in such cases, the armed helicopters should escort only at critical points en route, on approach to the LZ, while on the LZ, and on leaving the LZ.

(b) During ground escort, the armed helicopters' mission is to provide for the uninterrupted movement of the convoy end to provide early warning of possible ambush or attack.

(2) The armed helicopter is well suited for recon and security missions. The aerial platform provides excellent observation and mobility to cover relatively large areas quickly. The armament systems provide the necessary means for recon by fire and enough firepower to engage targets effectively.

(3) Fire Support.

(a) The fires of armed helicopters may be integrated into the fire plan of the ground commander along with organic weapons, artillery, NGFS (if available), and TACAIR support., in some cases it may be the only non-organic fire support available. The responsiveness of' armed helicopters to the ground commander's needs is one of their principal advantages. In certain situations they can be on target more quickly than any other form of supporting fire.

1. Point target fires are much more effective and should be preferred when specific targets can be identified. The most effective way to achieve point target accuracy is to maneuver the aircraft as close to the target as possible before firing, but this has obvious drawbacks and is not always recommended.

2. Point target accuracy cannot usually be achieved at standoff distances. Firing from beyond effective small arms range to reduce danger to the aircraft will almost always result in area fires. Point target fires are possible

only with well trained and knowledgeable gunners using properly installed and bore sighted weapons; this is especially true with rockets.

(b) Close-in protective fires are possible in support of friendly troops provided -

- The aircrew is familiar with the tactical situation.
- The aircrew has positively identified the friendly positions
- The aircrew has radio contact with the friendly force.
- Point target firing methods are used. The inaccuracy of area fires, compared to point target fires, tends to restrict their use in close support of friendly forces.

(c) The friendly force must always mark its forward elements or perimeter by some means identifiable from the air. All participants must understand all prearranged signals for such marking.

(d) Close Fire Support Techniques.

1. When providing close fire support, armed helicopters will break from a firing run toward the friendly positions whenever possible; this will give the co-pilot/gunner a small safety zone if the pilot should make an abrupt maneuver during a break. Any deviation of the fire from the target because of the helicopter maneuver will go into or beyond the enemy position; if the break were in the other direction, the fire might be directed into the friendly position. Also, since the break puts a helicopter in a more vulnerable position, a forced landing in a friendly position is much more desirable.

2. Another technique to avoid firing into friendly positions is to make a firing run close in and parallel to the friendly position.

3. If no other direction is possible, the firing run may be made over the heads of friendly troops, holding fire until directly above them. This technique has several major disadvantages and should be used only as a last resort. When done, the friendly troops must be advised so that they will not fear that they are being fired upon and will be aware of the possibility of rocket caps and empty cartridge cases falling among them.

4. Close-in support of friendly troops must be carefully coordinated and controlled.

6. SUMMARY OF ARMED HELICOPTER SUPPORT

The armed helicopter has proved invaluable as a fire support means to assist the ground commander in the RVN.

As with TACAIR support (Annex C), armed helicopter tactics and techniques in the RVN have evolved in response to, and as permitted by, the environment that exists, i.e., friendly domination of the air. Certain of the tactics and techniques which have been developed and are in widespread use in the RVN would not be feasible if the enemy had his own air capability and more effective air defense weapons.

Armed helicopters were conceived to increase the fire support available to the ground commander and their mission is tailored to this concept. Their operations are not ends in themselves, rather they are another means to an end - the success of the ground commander.



Return to Fire Support Coordination

Source:

Vietnam Lessons Learned No. 77: Fire Support Coordination in the Republic of Vietnam. United States Military Assistance Command, Vietnam, 20th May 1970

Fire Support Coordination



Tactical Air Support (Annex C) - Part 1

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1. BACKGROUND AND ENVIRONMENT.

a. TACAIR support available to ground commanders in the RVN far exceeds that which has been available in any past conflict in which US forces have been involved. The almost complete lack of sophisticated enemy air defense in the RVN has allowed the use of TACAIR en masse with extreme accuracy. TACAIR aircraft in use in the RVN are provided by the USAF, the USMC, the USN, the Royal Australian AF, and the VNAF. The Commander, 7AF, in his role as single manager for air in the RVN, controls all FWMAF and US TACAIR assets, except those of the USN. The Navy provides 7AF with a daily number of sorties that will be available for commitment and these aircraft are provided to 7AF for employment. The VNAF manages and controls all of its assets. However, US, FWMAF, and VNAF TACAIR assets are all controlled and single managed by a joint combined 7AF/VNAF TACC at Tan Son Nhut Air Base. Figure C-1 shows the geographical deployment and location of facilities which control and direct TACAIR in the RVN.

b. In addition to the CAS provided to ground forces, 7AF conducts a DAS program designed as an interdiction campaign against enemy lines of communication and base areas in the RVN.

c. A most important type of air support, other than TACAIR, in the RVN is the massive B-52 strikes in a saturation bombing role. These B-52 strikes are under the operational control of SAC. The detailed planning of the B-52 strikes is done by SAC representatives at 7AF HQ. The decisions on where to place B-52 strikes are made at MACV.

d. Most TACAIR strikes are controlled by an airborne FAC. In the RVN, the FAC is airborne so that he can see both the target and the strike aircraft. He uses the O-1 Bird Dog, O-2A, and OV-10 Bronco light aircraft equipped with FM, VHF, and UHF radios and armed with flares and target-marking smoke rockets and smoke grenades. The other method of providing CAS is by the use of radar-controlled all-weather strikes, referred to as Combat Sky Spot. This method can be used under adverse weather conditions and at night and is executed similar to the B-52 strikes, i.e., with no warning to the enemy.

2. THE TACAIR CONTROL SYSTEM.

a. Introduction.

(1) TACS in the RVN is designed for comprehensive and responsive control of all TACAIR. It is a closely-knit composite of 7AF/VNAF/ USMC personnel, equipment, and operations centers. In addition to controlling 7AF, VNAF, and USMC (strike and reconnaissance only) air operations, the TACS coordinates and integrates USN and SAC operations in the RVN.

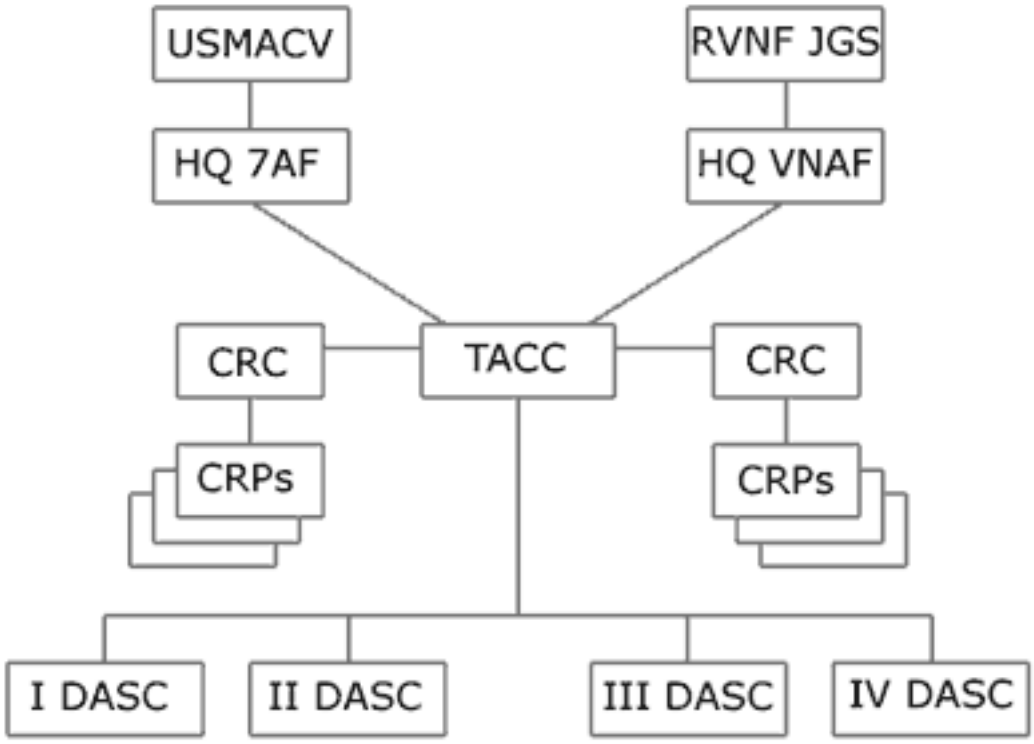
(2) A separate but allied system, the AAGS, provides for processing preplanned requests for air support and rapid exchange of battle information. The two systems, TACS and AAGS, so parallel each other that there is rapid coordination of all air and ground operations.

b. Organization of the TACS.

(1) The TACS has the characteristic and advantage of flexibility to fit any tactical situation. It provides for centralized direction while still permitting decentralized execution of specific operations. The system has proved its responsiveness to ground commanders; the reaction time to requests for immediate air strikes is usually less than 40 minutes.

(2) The TACS is centered around a joint combined VNAF/USAF/USMC operations center at Tan Son Nhut Air Base, the TACC. The schematic outline of this system is shown below, in Figure C-5.

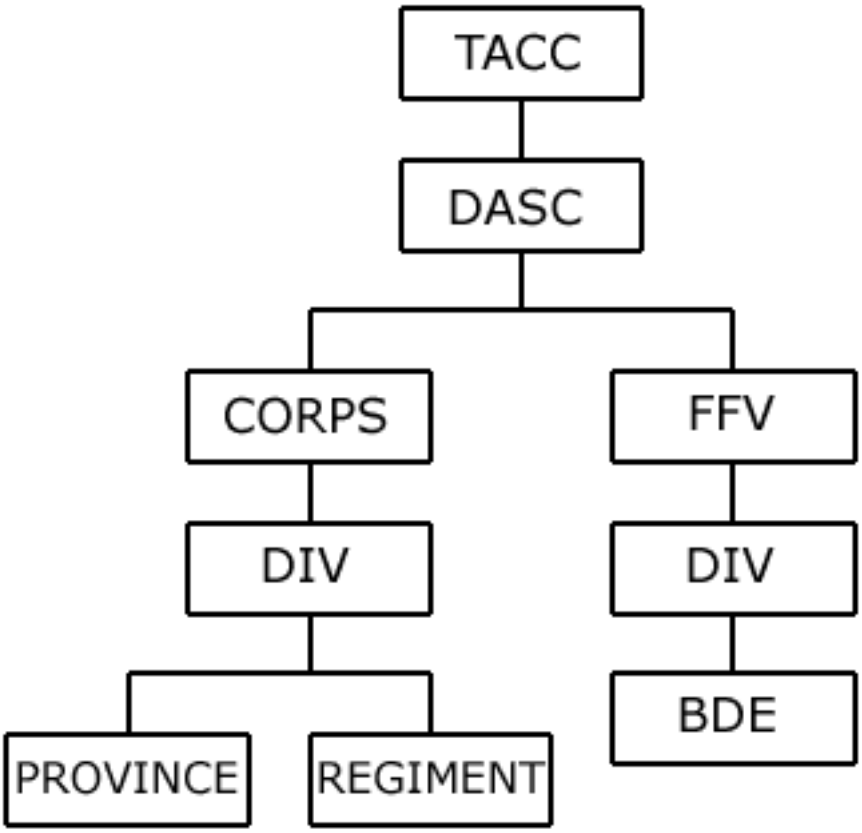
Figure C-5 : Tactical Air Control System (TACS)



Its purpose is to coordinate and control the total US and RVN air effort. There are several units and agencies below the TACC level that are involved in daily execution of air-ground operations. The 7AF provides the equipment and the TACP personnel who work closely with ground commanders. The USMC uses its own equipment and personnel. There are four DASCs operationally subordinate to the TACC. Three of them are combined USAF/VNAF centers (I DASC, II DASC, and III DASC) which support US, FWMAF, and ARVN ground commanders in ARVN I CTZ, II CTZ, and III CTZ. There are no US or FWMAF ground forces supported by US TACAIR in ARVN IV CTZ and IV DASC is entirely under VNAF control.

(3) USAF TACPs, operating under each DASC, are positioned with the ARVN corps , divisions, and regiments and the I and II FFORCEV divisions and brigades, as shown below, in Figure C-6. The responsibilities and manning of the TACPs vary, depending on the level of assignment. Each TACP includes an ALO and/or FAC, radio operators, FAC aircraft, and a vehicle with UHF, VHF, FM, and SSB radios.

Figure C-6 :



(4) The USMC provides its own ALOs, TACPS, and FACs to work with its ground units.

(5) Radar coverage is basic to the operation of the TACS. Sites are located throughout the RVN for complete coverage. For radar control purposes, the RVN is divided into two sectors; each sector contains a large high-performance radar at a CRC. Aircraft track data at the CRC is augmented by similar

information provided by outlying radars at CRPs. The USMC operates one CRP and several TPQ-10 sites (the USMC equivalent of the USAF MSQ-77 radar bombing equipment).

c. Functions and Operations of the TACC.

(1) The TACC, acting for the 7AF commander in his capacity as MACV Air Force Component Commander and the DEPCOMUSMACV for Air Operations, has responsibility for running the air war in the RVN. The TACC performs several functions:

(a) It plans, directs, and coordinates all US, VNAF, and FWMAF TACAIR operations in the RVN.

(b) It publishes fragmentary (frag) orders to the agencies concerned, including the lst MAW in I CTZ whose strike and recon aircraft are tasked by the TACC.

(c) It directs, monitors, and diverts strike aircraft as necessary.

(d) It establishes policies and procedures governing the operation of the TACS.

(2) The four DASCs are operationally subordinate to the TACC and serve primarily as extensions of the TACC. They provide a fast reaction capability to satisfy immediate requests from ground commanders for CAS, TACAIR recon, and emergency airlift (not considered further here). They also provide minute-to-minute coordination between the ground commanders in their area and supporting air elements, not only strike aircraft but recon, herbicide, PSYOP, and B-52 aircraft as well.

(3) To fill an immediate request, the DASC may, with Army/USMC approval, divert TACAIR from preplanned missions enroute to the target. In many cases there will be enough airborne aircraft on missions of lower priority to provide diverts, and these result in a quicker response than scrambled aircraft. With one exception, the DASCs do not have authority to scramble alert aircraft - I DASC is allocated USMC ground-alert aircraft for scramble purposes and need only inform the TACC of their launch. If a DASC cannot fill an immediate request by diverts within its area of responsibility, it will request the TACC to scramble ground-alert aircraft. The TACC may elect to scramble aircraft or to divert strikes from an adjacent CTZ.

(4) The TACP provides an AF communication system down to the brigade level. An ALO, who is a key member of the brigade commander's staff, heads the TACP. The ALO attends the brigade commander's meetings, briefs on air activity in the area of interest, and advises on the use and capabilities of TACAIR. Also, the ALO is a senior FAC and the supervisor of the FACs in his TACP. These FACs are AF pilots who perform several vital missions from their airborne positions in light observation aircraft. The FACS:

(a) Maintain close contact with local ground commanders.

(b) Help keep ground commanders in contact by providing airborne radio relays.

(c) Direct air strikes.

(d) Perform BDA and forward BDA reports.

(e) Perform VR during daily airborne patrols of their sectors.

(5) The radar and extensive communication network of the TACS make possible the quick responsiveness of the system. All aircraft on strike missions are picked up on radar and identification is usually established within five minutes after takeoff. Radar direction is provided to the pilot to the rendezvous point with the FAC. After the strike, radar contact is reestablished with the controlling radar facility for the return to base. Should an aircraft need emergency assistance, the radar network can provide vectors to the nearest suitable base or bailout area. Strike aircraft are also provided inflight radar advice on possible conflicting air traffic and warnings on artillery fires.



Next Page

Source:

Vietnam Lessons Learned No. 77: Fire Support Coordination in the Republic of Vietnam. United States Military Assistance Command, Vietnam, 20th May 1970

Fire Support Coordination



Naval Gunfire Support (Annex D)
Part 1

---

1. GENERAL.

a. Units of the US Seventh Fleet provide NGFS to US, RVNAF, and FWMAF in unilateral and combined operations in the RVN. This support has one objective - to assist the ground commander. To this end, flexibility and responsiveness to his needs are paramount. The basis of this support is the continuous presence of both qualified NGFS ships and spotting teams along the entire coast of the RVN.

b. Cruiser/Destroyer Group, 7th Fleet (CTG 70.8) provides NGFS for the four CTZs, plus the Rung Sat Special Zone. CTU 70.8.9, as the designated NGFS Unit Commander, exercises operational control and allocates ships assigned, as requested by COMUSMACV. Additional NGFS from US Coast Guard ships assigned to Coastal Surveillance Forces (TF 115) is available on request through Corps NGLOs when it does not interfere with their Market Time operations. Typical targets for NGFS are:

(1) Known or suspected infiltration points on off-shore islands and along the RVN coast.

(2) Designated SSZs.

(3) Specific targets such as enemy:

- Facilities, installations, and supply dumps.
- Command centers.
- Troop concentrations.
- Artillery, mortar, and rocket positions.

(4) Sensor activated targets.

2. NGFS ORGANIZATION IN THE RVN.

There are two basic organizations in the RVN designed to provide NGFS to the ground commander. In both organizations, the point of contact for NGFS is the NGLO.

a. USMC Organizations

In the USMC organizations, NGF Teams are organic and are assigned at division, regiment, and battalion level. These teams consist of Naval officers and Marine officers and enlisted men. The Naval officers operate as LOs in the FSCC and the Marine officers as spotters (FOs) with the maneuver units.

b. US Army and Other Units

Since US Army and other friendly units in the RVN do not have this organic NGFS capability, Sub-Unit ONE, First ANGLICO is present in the RVN with the mission of providing the necessary support and liaison to these units. Sub-Unit ONE, First ANGLICO, with headquarters at the MACV Annex, Tan Son Nhut, provides a corps NGLO for each ARVN CTOC and US FFORCEV headquarters TOC and NGLOs to US Army and other friendly units operating in the coastal regions of the RVN and using NGFS, see Figure D-2 below.

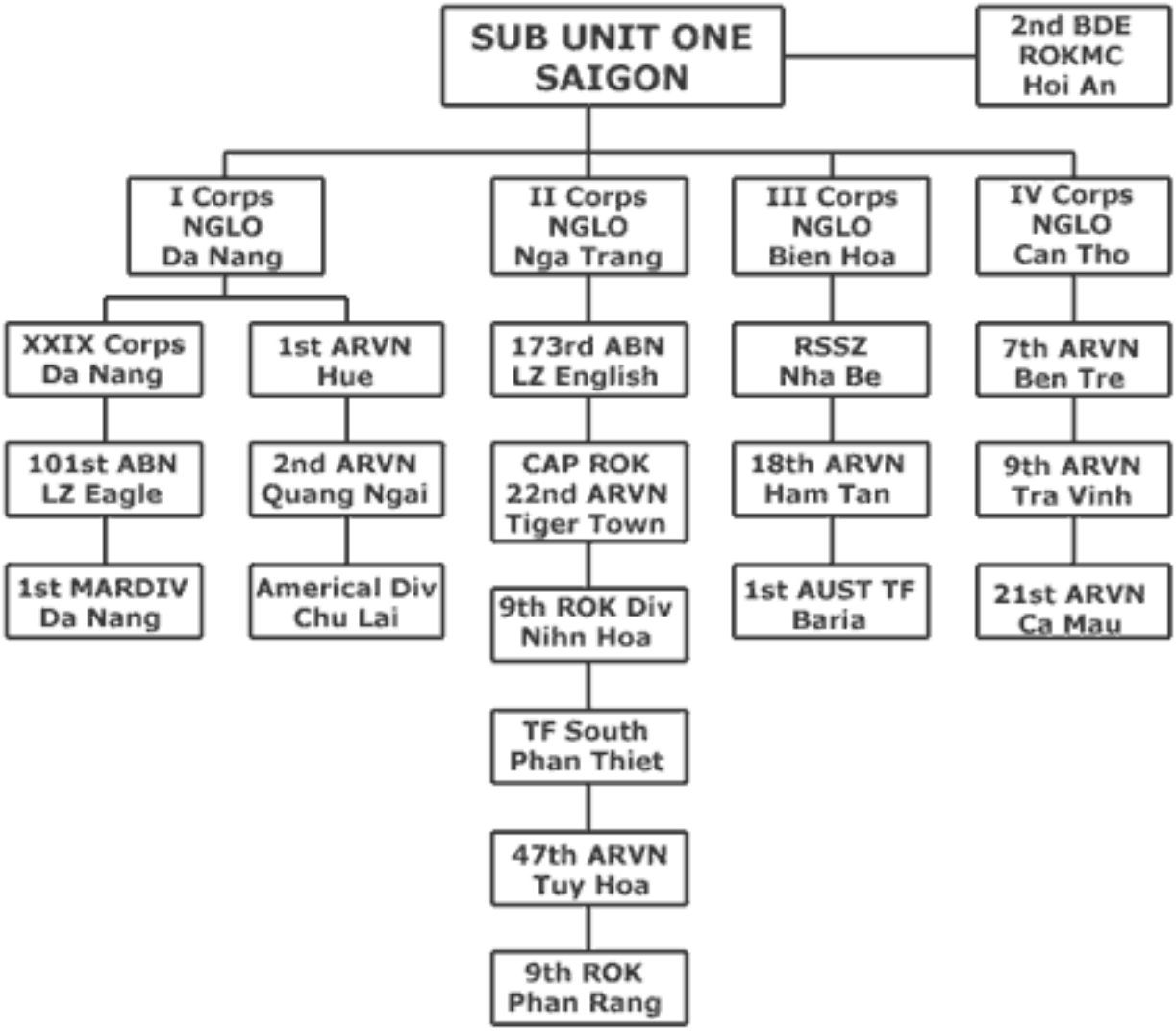


Figure D-2: Organizational Relationship of ANGLICO Units

Sub-Unit ONE, First ANGLICO spot teams call and adjust all NGFS for these units, as well as provide necessary liaison. Ships reporting to the corps NGLO for NGFS missions will be referred to an FSCC or a specific spot team. Spot teams, consisting of USMC enlisted personnel with a USMC officer, Naval officer, or senior enlisted man in charge, are dispersed with the supported units in the field. All NGFS missions are cleared through appropriate TOCs or FSCCs.

3. NGFS PROCEDURES.

a. Forces

CTG 70.8 provides a minimum of four destroyers on a continuing basis for NGFS. In addition, one cruiser is provided for NGFS when available. Additional destroyers are assigned to augment the minimum NGFS, consistent with their availability and tactical requirements.

b. NGFS Assignment

(1) CTU 70.8.9 issues periodic "availability messages" listing all ships in the unit and those about to report (see Figure D-3 as example.) Availability messages will include the period of assignment and the CTZ to which assigned. Assignments to CTZs are based on requirements of COMUSMACV or his designated representative.

(2) After receipt of the availability message, and at least 48 hours before scheduled arrival of a ship on NGFS station, the CG, FFORCEV/Senior Advisor will prepare a message (see Figure D-4 as an example), assigning the ships to specific NGFS points along the coast, using coastal reference points as a guide. This message should include station assignment, spotter identification, and spotting frequencies.

(3) CTU 70.8.9 also has other missions, e.g., investigation of unidentified submarines and search and rescue. If possible, NGFS will not be interrupted until a fire mission is complete; however, CTU 70.8.9 must decide the priority in each case.

c. Reporting for NGFS Duty

(1) Unless otherwise directed by competent authority, ships reporting for NGFS duty will arrive at designated locations by 0600H on the day of assignment. When reporting to an NGLO/spotter for the first mission it is essential that he be made aware of the ship's situation regarding capabilities and ammunition. The GURF Report is submitted via the NGLO or spotter net (see Figure D-5 for example of GURF Report). If for any reason, a ship cannot arrive at its designated station on time, CTU 70.8.9, the unit to be supported, and the appropriate NGLO/spotter will be advised of the actual arrival time as soon as possible by an immediate precedence message.

d. Mission Request.

(1) All NGFS missions will be undertaken at the request of COMUSMACV designated representatives, CTOCs, FSCCs or responsible supported unit commanders. A fire mission request for pre-planned missions will normally originate from a corps or division NGLO. The request will pass through the CTOC/FSCC for evaluation to determine which type of fire support can best be used, i.e., NGFS, CAS, or artillery. When it is determined that NGFS is to be used the request and applicable information will be passed to the NGFS ship via the NGFS ORESTES net or Fleet Broadcast. As an alternate means, the CSC net may be used to pass requests. (See Figure D-6 for mission request format.) The CTOC/FSCC is responsible to insure that all clearances to fire have been obtained; if any doubt exists, the ship should inquire whether clearances have been completed. If requests are received by voice, or without the proper addressees, the ship is responsible for retransmission to the proper addressees. To reduce communications, mission requests should be kept brief, grouping target coordinates where possible.

(2) US forces may call for observed NGFS by the most direct channel available, i.e., NGLO/spotter nets. In the case of other friendly forces, the request must be processed through a CTOC/FSCC as outlined in

paragraph (1) above.

(3) CTOCs and FSCCs will assign priorities to missions when more than one request has been made. When the requests exceed the number of ships available in a CTZ, and the importance of the mission is such that additional support is required, CTOCs or FSCCs will request assistance from COMUSMACV, who may request CTU 70.8.9 to shift NGFS assets from one CTZ to another.

e. Fire Mission Procedures

There are three types of NGFS missions in the RVN. They are the pre-planned, non-scheduled, and emergency missions.

(1) The pre-planned mission is normal for a scheduled operation where the requirement for NGFS is known for at least 48 hours in advance. The mission is requested by a ground commander as a normal fire support mission. If NGFS is selected as the best means of providing the support, the CTOC/FSCC/NGLO will submit the request by electrical means to the ship and arrange for a spotter as appropriate. (See Figure D-6 for NGFS mission request format.) The NGFS ship will notify the CTOC/FSCC and CSC when beginning the mission and when it has been completed.

(2) The non-scheduled mission corresponds to the artillery on-call or CAS immediate mission and requires a quick-reaction response. The CTOC/FSCC/NGLO or spotter requests the mission. If not already present, the CTOC/FSCC arranges for a spotter or, if necessary, an ALO, FAC, or aerial artillery observer. The ship notifies the CTOC/FSCC and the CSC when beginning the mission and when it is completed.

(a) The senior ground commander of the supported unit may request unobserved fire when such fire is determined to be essential to the scheme of maneuver. This request will be forwarded via the appropriate CTOC/FSCC/NGLO. The CTOC/FSCC is responsible for clearances. Most requests for NGFS for battalion-sized operations fall under the non-scheduled or the emergency category and, as such, are originated by the individual spot teams, i.e., the FSCCs, rather than from the CTOCs.

(b) When the NGFS ship is not under the mission control of a US FSCC, unobserved fires may be placed on targets or target areas (exclusive of villages end hamlets) declared hostile by the GVN, VN liaison personnel, observers, or FACs where -

1. The requested NGFS mission cannot be observed due to terrain, weather, or other factors, or

2. No US NGLO/FAC/spotter is available. Because of the potential hazards of unobserved fires to friendly troops, unobserved missions not under the control of a US FSCC must be undertaken as a recognized deviation from

standard procedures and only under exceptional circumstances.

(3) The emergency mission is one in which a friendly position is under attack and sufficient fire support is not available. Only a US representative of COMUSMACV may declare a fire support request as an emergency mission. Upon receipt of an emergency request, any NGFS ship in the area will proceed to the designated position at the fastest prudent speed.

The US representative will immediately notify COMUSMACV, COMNAVFORV, CTG 70.8, CTF 115, CTU 70.8.9, and other commands concerned by FLASH message. This message will contain an estimate of the time the ship will be required on the emergency mission. The ship will remain in the emergency area until released by the requesting command or higher authority (see Figure D-7 for format of emergency mission request).

f. Spotting Procedures.

(1) With two exceptions, all NGFS missions will be observed; they will be controlled by US personnel only. The exceptions to observed fire are-

(a) The situations outlined in paragraphs 3e(2)(a) and (b) above, or

(b) Targets in SSZs, when the senior ground commander of the force determines such fire to be essential to the scheme of maneuver.

(2) NGFS spotting teams will be used for spotting where available. ALOs, FACs, or aerial artillery observers may be used if they have been qualified by competent authority in NGFS terminology and request and spotting procedures. (NGFS spotter training may be obtained by requesting it from MACV; Sub-Unit ONE, First ANGLICO will provide the training.) When firing for these spotters, ships will assume that proper clearances have been obtained, notification to friendly troops in the area has been made, and that any necessary civilian evacuation of the target area has been done. If doubt concerning any of these assumptions exists, or if any factor arises which may indicate danger to friendly forces, the ship will question the spotter on the situation. The ship may refuse to fire if doubt or confusion remains, realizing that friendly forces ashore may be under fire.

(3) Ships may fire on designated targets in SSZs when authorized by the appropriate CTOC. Except for the situation outlined in paragraph 3f(l)(b) above, fires must be observed and may be spotted. SSZs are not considered static as they can be changed at any time by appropriate RVNAF authorities.

(4) Spotters will plan ammunition expenditures and generally will not call for 6" or larger caliber for harassment missions, in order to conserve ammunition. Normally, the shortest gun range that will accomplish the mission will be used.

(5) SNOOPY is an aerial recon vehicle which uses television configured for the QH-50 Drone helicopter

and is used for surveillance and NGFS spotting.

(a) Certain destroyers are equipped to operate and receive the television signals from SNOOPY. In addition, gun cruisers have an installation for display of the television picture. SNOOPY control is line-of-site and, therefore, a function of altitude. Missions are usually flown in the coastal areas and inland to about 25 kilometers. Time available over the target is affected by the distance of the ship to the target and wind aloft. About one hour over the target can usually be expected for targets relatively close to the ship.

(b) A typical SNOOPY surveillance/spotting procedure is to approach the target at 3500 feet altitude, at which the drone will probably not be seen or heard by an unaided ground observer. When the target is properly located in the camera field, SNOOPY descends in a hover until the desired picture resolution is obtained, consistent with the recognized risk of hostile fire in the event of detection. SNOOPY may be used for spotting of naval or artillery fires and is not restricted to use by the parent destroyer. Clearance for operations over land will be obtained from the NGLO. The CTU 70.8.9 availability message will indicate those ships with a SNOOPY capability. (See NOTE 3 of Figure D-3)

Figure D-3: 'PERIODIC AVAILABILITY MESSAGE'

IMMEDIATE

(DATE TIME GROUP)

FM: CTU 70.8.9

TO: AIG 460

INFO: (ALL SHIPS LISTED IN BODY OF MSG NOT PRESENTLY ASSIGNED TO 70.8.9 INCLUDE APPLICABLE EMBARKED STAFFS)

CONFIDENTIAL

A. CTU 70.8.9 (LAST AVAILABILITY MSG)

1. REF A IS SUPERSEDED AS OF 150600H.

2. SHIPS AVAILABLE AND HEREBY ASSIGNED NGFS PERIOD 160600H TO 210600H.

CTZ	SHIP	CLASS	PERIOD	EDT (Note 1)	Notes

I	SAINT PAUL (CA-73)	CA	16-21 MAY	03 JUN	4
I	BLUE (DD-744)	DD 692	16-21 MAY	03 JUN	4
II	HOPEWELL (DD-681)	DD 448	16-21 MAY	03 JUN	2
II	ROGERS (DD-876)	DD 710	16-19 MAY	19 MAY	2
III	MORTON (DD-948)	DD 945	16-21 MAY	30 MAY	
IV	S.N.MOORE (DD-747)	DD 696	16-21 MAY	06 JUN	
IV	G.K.MACKENZIE (DD-836)	DD 710	16-21 MAY	24 MAY	3

NOTES.

(1) Unless otherwise noted, ships will be available from 0600H to 0600H daily. Upon obtaining release by spotter, ships are detached without further signal on day scheduled to depart.

(2) RAP equipped.

(3) SNOOPY configured.

(4) Assigned support operation BIG SHOT until 191200H then available I CTZ.

Figure D-4: UTILIZATION MESSAGE

PRECEDENCE: IMMEDIATE (PRIORITY)

FROM: CG I FFORCEV RVN

TO:

- CG 22ND INF DIV QNH RVN
- CG CAP ROK DIV QNH RVN
- CG 9TH ROK DIV NINH RVN
- CO 3/506 ABN INF
- CTU SEVEN ZERO PT EIGHT PT NINE
- USS (SEE NOTE 1)

INFO:

- MACV CC
- CTG SEVEN ZERO PT EIGHT
- CDR ROK FV SGN
- DSA II CTZ
- SR I FFORCEV LNO TO CAPT ROK DIV
- CTG ONE ONE FIVE PT ONE

- SR I FFORCEV LNO TO 9TH ROK DIV
- SUB UNIT ONE, FIRST ANGLIGO
- COMSEVENTHFLT (WHEN FLAGSHIP UTILIZED)
- SEVENTH AIR FORCE TACC

SUBJ: PLANNED UTILIZATION NGFS ALLOCATED II CTZ *DATE* TO *DATE MONTH YEAR*

REF:

- A. PREVIOUS UTILIZATION MESSAGE
- B. CTU 70.8.9 APPLICABLE AVAILABILITY MESSAGE
- C. (AS NECESSARY)

1. REF A CANCELLED AND SUPERSEDED BY THIS MESSAGE.

2. FOR PLANNING PURPOSES, SHIPS ALLOCATED II CTZ BY REF B TENTATIVELY

ASSIGNED FSA AS FOLLOWS.

A. USS _____

(1) PSA
(2) VOICE CALL OF UNIT REPORTING TO/CKT
(3) INITIAL REPORTING STATION (COASTAL REFERENCE POINT)
(4) SPECIAL INSTRUCTIONS

NOTE 1: Ships listed in body of message. Ships will proceed to area indicated unless otherwise directed by task unit commander.

Figure D-5: GUNS UP AND READY FIRE (GURF) REPORT

PRECEDENCE

DATE TIME GROUP

FM: (VOICE CALL OF SHIP)

TO: (VOICE CALL OF NGLO/SPOTTER)

CONFIDENTIAL (USE KAG-183)

GURF REPORT

ALFA: ORIGINATOR (CALL SIGN) AND DTG OF MSG ASSIGNING SHIP TO NGFS DUTY.

BRAVO: DTG (LOCAL TIME) OF COMMENCEMENT AND END OF NGFS ASSIGNMENT.

CHARLIE: PRESENT POSIT (IN GRID COORDINATES)

DELTA: MAXIMUM RANGE OF GUNS BY BATTERY IF BELOW NEW GUN RANGE DUE TO EROSION, AND ANY REDUCED NGFS CAPABILITY REGARDING ARMAMENT LISTED IN GUN 14.

ECHO: AMMUNITION ON BOARD AVAILABLE FOR NGFS. USE CODE BELOW TO MAKE LISTING PRIOR TO ENCRYPTION.

PROJECTILE	CALIBER	POWDER
1-AAC (HE-MTF)	T-3/50	F-FULL CHG
2-AP	R-5/38	R-REDUCED CHG
5-COMM	M-5/54	
6-HC (HE-PD)	D-6" and 8"	
7-ILLUM		
8-VT, HE-CVT, RAP		
11-WP		

EXAMPLES:

- 6R850 - INDICATES HC 5"/38 850 ROUNDS
- 8T2300 - INDICATES VT 3"/50, 2300 ROUNDS
- RR68 - INDICATES 5"/38 REDUCED CHARGES, 68 ROUNDS

FOXTROT: DTG (LOCAL) AND DURATION, LOCATION AND NATURE OF KNOWN OR ANTICIPATED UNREP OR PERIOD OF ABSENCE FROM GUNLINE.

HOTEL: ANY OTHER INFORMATION DETERMINED TO BE OF VALUE TO SUPPORTED UNIT.

NOTES:

(1) All groups except call signs are to be encrypted using KAK-183.

(2) Letters in paragraph echo of GURF report are first letters of code name for ammunition caliber (Durant, Richenbacker, etc.) and should also be encrypted.

Figure D-6: NGFS MISSION REQUEST FORMAT

The following format will be used in submitting mission requests:

PRECEDENCE:

FM: (REQUESTING ACTIVITY (NGLO/FSCC))

TO: (NGFS SHIP OR HIGHER AUTHORITY)

INFO: CTU 70.8.9, MACVCC

CLASSIFICATION (USUALLY CONFIDENTIAL)

1. TYPE OF MISSION (NON-SCHEDULED OR PRE-PLANNED).

A. TYPE OF OPERATION (AMPHIBIOUS, TROOP SUPPORT, AREA FIRE, ETC.)
B. NUMBER OF SHIPS REQUIRED/NAME OF INTENDED FIRING SHIP(S).
C. COORDINATES FOR SHIP TO REPORT TO.
D. COORDINATES OF THE TARGET OR TARGET AREA. (IF SEVERAL TARGETS IN SAME AREA, CONDENSE).
E. TIME TO BE ON STATION BY LOCAL DATE-TIME-GROUP.
F. EXPECTED DURATION ON STATION.
G. TYPE OF TARGET.
H. ANGLICO UNIT/U.S. FORCE FSCC REQUESTING MISSION.
I. FREQUENCIES BY CIRCUIT NUMBER TO BE USED AND CALL SIGN OF SPOTTER.
J. UNIT TO BE SUPPORTED/OPERATION NICKNAME.

Notes;

(1) Units receiving requests for NGFS will ensure that MACVCC, COMNAVFORV, CTU 70.8.9 receive the message for information

(2) Units receiving requests for NGFS which do not have a date-time-group will assign them a date-time-group and so inform the originator.

Figure D-7: EMERGENCY FIRE SUPPORT REQUEST FORMAT

The following format will be used in submitting emergency mission requests:

PRECEDENCE: IMMEDIATE OR FLASH

FM: (REQUESTING ACTIVITY)0.

TO: (NGFS SHIP OR HIGHER AUTHORITY)

INFO:

- COMUSMACV
- CTG 70.8
- COMSEVENTHFLT
- CTF 115
- COMNAVFORV
- CTU 70.8.9
- CTF 77
- MACVCC
- SUB UNIT ONE FIRST ANGLICO

CLASSIFICATION: (USUALLY CONFIDENTIAL)

NGFS MISSION REQUEST

1. EMERGENCY MISSION REQUEST

A. UNIT TO BE SUPPORTED/OPERATION NICKNAME
B. NUMBER OF SHIPS REQUIRED/NAME OF INTENDED FIRING SHIP(S)
C. COORDINATES FOR SHIP TO REPORT TO
D. COORDINATES OF THE TARGET OR TARGET AREA
E. ANGLICO UNIT/U.S. FORCE FSCC REQUESTING MISSION
F. FREQ BY CIRCUIT NUMBER TO BE USED AND CALL SIGN OF SPOTTER OR OBSERVER
G. NON-U.S. SPOTTER IS (IS NOT) AUTHORIZED



Naval Gunfire Support Part 2

Source:

Vietnam Lessons Learned No. 77: Fire Support Coordination in the Republic of Vietnam. United States Military Assistance Command, Vietnam, 20th May 1970

Fire Support Coordination



Combined Fire Support Coordination Centers (Annex E)

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1. INTRODUCTION.

The tactical situation in the RVN is unique in many respects and requires modification of doctrine, to some degree, and considerable modification of classical textbook procedures. The CFSCC is an example of the adaptation of procedures to a unique situation.

a. Some factors which complicate FSC in the RVN were discussed in the early paragraphs of this publication. The existance of these factors, coupled with the need to share US expertise in FSC with RVNAF, strongly recommends the consideration of CFSCCs and their adoption where warranted.
b. A CFSCC is an FSCC in which RVNAF and US personnel and facilities are collocated and work side-by-side toward the same objective.

2. CFSCCs NOW OPERATIONAL.

As of October 1969, there were ten CFSCCs in operation in the RVN and others were planned as follows:

CTZ	Operational	Being Planned
I	None	Quang Tri province
II	Ban Me Thout, Kontum, Nha Trang, Phan Rang, Phan Thiet, Pleiku, Qui Khon, Tan Canh, Tuy Hoa	LZ English, LZ Uplift
III	Tan An	Tay Ninh province, Hau Nghia province
IV	None	None

3. DISCUSSION OF CFSCCs.

a. Experience to date in those parts of the TAOR of the 25th US Infantry Division where there is no CFSCC indicates that ARVN units do not request fire support routinely unless liaison personnel or some other form of quick fire channel is provided. Experience has likewise shown that the CFSCC is a means of providing RVNAF and US forces with ready access to all fire support available in the area serviced by the CFSCC. Additional benefits which result from CFSCCs in the 25th US Division TAOR are faster fire clearances, faster response to fire requests, and the provision of refinements such as electronic manipulation of meterorological data and radar registration to ARVN artillery units. The CFSCCs also provide a system which can remain in operation in the event that US artillery units are redeployed.

b. The underlying concept of the CFSCC is sound but each case must be evaluated on its own merits. Some advantages which can result from CFSCCs are:

1. Improved coordination and effectiveness of fires available within a given area.
2. Increased requests for available fires as experience and confidence are developed, particularly by RVN territorial forces.
3. Shortened reaction time to fire requests, due to more efficient clearance procedures and less language difficulties.
4. Improved training in fire support procedures and techniques for RVNAF personnel.
5. Greater area coverage and density of fire support for supported forces.
6. Improved interchange of intelligence information.
7. Centralization of clearances to fire and the removal of much of this burden from FDCs.
8. Increased safety through the coordination of information on friendly locations.
9. Improved exchange of air warning information.
10. Increased mutual understanding and respect among allied forces.
11. Increased (back-up) communications channels over those normally available.

c. Some disadvantages that can result from CFSCCs are:

1. Diversion of TOE resources, as TOEs do not provide for staffing and equipping CFSCCs. Providing these assets from organic resources may degrade some other functions of the fire support mission.
2. Reduction in smoothness of working relationships. Supported units usually prefer to work habitually with the same supporting artillery, and thereby develop smooth working relationships.
3. Possible generation of RVNAF distrust of US motives in establishing CFSCCs, including a feeling that the US is trying to dominate the RVNAF.
4. Possible generation of overreliance by RVNAF on US fire support.

d. As TOE assets are not specifically provided for CFSCCs, their establishment without due consideration of the need for them could severely tax the organic resources of fire support units. There is no standard organization or operating proceedures for CFSCCs that are entirely appropriate for all areas

in the RVN. As corps and subordinate levels in the RVN operate TOCs with FSCCs as a normal part of the organizational structure, strong consideration should be given to integrating CFSCCs into TOCs. The primary function of the CFSCC is to coordinate the fires of one or more national forces within a given area. Savings in manpower and equipment may well result by making the CFSCC another element of the TOC, even at province level. An additional advantage might accrue in closer coordination among fire support and maneuver elements, and among maneuver elements themselves, as well as eliminating the need for electrical communications links between CFSCCs and maneuver forces to clear fires.

e. In general, the advantages which might accrue as a result of establishing CFSCCs outweigh the disadvantages. US commanders are encouraged to invite the participation of local RVN officials and RVNAF commanders in establishing CFSCCs -

1. Where the need for them exists.
2. Where resources permit.
3. Where areas of coverage coincide with political boundaries, or as dictated by the situation.
4. With due consideration of including the CFSCC as another element of the TOC.

4. LONG AN PROVINCE CFSCC.

a. The Long An Province CFSCC, located in Tan An in southern III CTZ, was established in July 1969 through the joint efforts of the Long An Province Chief and the CO, 3rd Brigade, 9th Infantry Division (the 9th Div was redeployed in Jul-Aug 1969. Its 3rd Bde remained in the RVN and was attached to the 25th US Infantry Division, giving the 25th Div four brigades.) The active and enthusiastic support of the CG, 25th ARVN Division also directly contributed to getting the center off to a good start. It was conceived and established to fill a recognized need for better fire support coordination within the province. Major factors that appealed to both US and RVNAF were that it would be a province facility, operating under the control of the province chief, and that the fires available, both US and RVNAF, could thus be more fully and efficiently used. Artillery coverage extends over 80% of the province land area and over 95% of the population. The primary purpose of this CFSCC is coordination and fire clearances. In actuality, the center is a joint CFSCC, as the fires of more than one service of both the US and the RVN are coordinated in the center. Representatives of several services of both nations form the staff of the center.

b. The situation in Long An Province is more nearly ideal for a CFSCC than will be found in many other provinces. Long An is comparatively small in area; the TAORs of the major units (3rd Brigade of the 9th US Infantry Division and the 46thand 50th ARVN regiments) are within the province boundaries. Collocation of the 3rd Brigade Headquarters, the 2/4 FA Battalion Headquarters, and Province Headquarters in Tan An also tends to make Long An Province ideal for a CFSCC. The center itself is physically located next door to the Long An Province TOC.

c. The organization of the CFSCC is as outlined in the SOP at Appendix 1 and includes US personnel

from the 2/4 FA Battalion, ARVN personnel from the 253 Artillery Battalion, naval personnel from both the US and Vietnamese Navies, and both US and Vietnamese AF (FAC) personnel. US artillery personnel includes one officer and six enlisted men, most of whom come from the FDC of the 2/4 FA Battalion. The battalion FDC must also remain operational, so it is augmented by other personnel to compensate for those personnel lost to the CFSCC. The CFSCC operates around-the-clock, in two shifts of 12 hours each.

d. Basic equipment used in the CFSCC includes several telephones, six radios, one 10-KW generator, two 2-KW generators, one 1/4-ton truck, and assorted furniture and plotting equipment. This equipment is all provided by the 2/4 FA Battalion from organic resources, with the exception of AF radios which are part of the FAC equipment. The CFSCC hopes to obtain a UHF radio for direct monitoring of SLAR and Red Haze targets; these targets are now received by the 2/4 FA Battalion and relayed to the CFSCC.

e. Artillery within Long An Province which can be coordinated by the CFSCC includes:

- 4 US 105mm batteries (direct support)
- 2 US 155mm batteries (general support, reinforcing)
- 3 ARVN 105mm batteries (direct support)
- 2 ARVN 155mm platoons (general support)
- One 8"/175mm platoon in general support of IV Corps (The CFSCC does not coordinate its fires, but may refer targets to it when out of rangeof the other artillery.)

Requests for fire from US or ARVN units are processed in the CFSCC and any available artillery may be tasked with the fire mission. Requests for fire from Territorial Forces go through the District Chief, who has the option of going direct to ARVN artillery or to the CFSCC.

f. All targets developed by intelligence funnel into the CFSCC. They may come from sub-sector, sector, ARVN artillery, US artillery, the 214 FA Battalion FDC, or the 3rd Brigade, 9th Inf Div S-2.

g. Some specific advantages and disadvantages connected with the Long An Province CFSCC are listed below. These supplement the general advantages and disadvantages discussed earlier.

(1) Advantages.

- The CFSCC provides an excellent vehicle for training RVNAF personnel in US fire support techniques.
- The CFSCC provides a means of encouraging ARVN and province officials to coordinate better, not only with US forces, but also between themselves.
- The CFSCC provides meterological data and radar registration which gives technical practice and proficiency to ARVN artillery which is otherwise not available.

- The CFSCC speeds clearances to fire and FDCs are largely relieved of clearance functions.
- There is an incalculable benefit in the collection and dissemination of intelligence. The CFSCC has become an auxiliary intelligence clearing house.

(2) The principal disadvantage has been the difficulty of securing personnel and equipment, not provided by TOE, to build and operate the CFSCC.

h. Some measure of the success of the Long An CFSCC can be seen in the support that US artillery units have been able to provide to ARVN end Territorial Forces in the province. In August and September of 1969, US artillery units fired 170 such missions; this is in comparison to 82 similar missions in the other three brigade areas in the division TAOR (outside Long An Province). These totals do not include artillery support of the numerous combined operations in the area, nor do they necessarily show increased ARVN dependence on US fire support. ARVN units as well have been called upon more frequently for fire support. The decision as to which unit(s) will fire is made in the combined center, and it is not unusual for a single action to be supported by both ARVN and US artillery.

5. OTHER CFSCCs.

In contrast to the Long An CFSCC, those in II CTZ, while similar in function and operation to the Long An center, do not service areas which coincide with province boundaries. The comparatively large size of most provinces in II CTZ tends to make province CFSCCs impractical. In II CTZ, the establishment of combined centers was in response to the need to extend fire support coverage, due to the large land area and relatively scarce fire support assets available. Clearances to fire are less of a problem in II CTZ than in III CTZ, because of less population density. Artillery in II CTZ is more concentrated in "pockets' to protect population centers and lines of communication. Much of the ARVN artillery in II CTZ has a territorial defense role and US artillery in the CTZ fires a higher proportion in support of ARVN forces than in any other CTZ. As in Long An Province, the CFSCCs in II CTZ serve the purpose well for which they were established.

Appendix 1: Standing Operating Procedures, Combined Fire Support Coordination Center, Long An CFSCC

2d Bn 4th FA
Tan An, RVN
23 Sep 1969

1. GENERAL

a. Purpose:
The purpose of this Standing Operating Procedure is to establish the responsibilities of the duty personnel in the Combined Fire Support Coordination Center, and to establish procedures to be utilized in performing their assigned functions.

b. Evaluation:
The established organization, responsibilities, functions and procedures outlined in this Standing Operating Procedure are based on present requirements and the experience of actual operation. These procedures should be evaluated, and as the requirements change and experience reveals improved procedures, the Standing Operating Procedures should be updated to include the most current information.

2. ORGANIZATION AND RESPONSIBILITIES

a. The CFSCC will be organized to include the following personnel:

- ARVN Artillery Liaison Section.
- VN and US Naval representatives.
- VN and US Air Force representatives.
- US Artillery Liaison Section.

b. Responsibilities:

(1) ARVN Liaison Section:

(a) Duty Officer:

1. Is responsible for all operations performed by ARVN Artillery Liaison Section
2. Will be present for duty in the CFSCC to effect necessary coordination with the US Artillery and the Naval and Air Force.
3. Is responsible for maintaining current information on maps and charts.
4. Is responsible for the conduct and appearance of the section's duty personnel and their area in the CFSCC.

(b) Radio/Telephone Operator:

1. Is responsible for continuously monitoring his radio, and receiving and sending messages as required by the Duty Officer.

2. Is responsible for relaying requests for fire to firing units as directed by the Duty Officer.
3. Is responsible for obtaining AWCC data from the firing elements and passing it to the US Artillery Liaison section for broadcast.

(2) Naval Representatives:

a. VN and US Naval representatives are responsible for monitoring their respective operations and keeping the CFSCC personnel continuously advised of Naval activities and any requirement for fire support.
b. Are responsible for obtaining Naval clearances as requested.
c. Are responsible for coordinating Naval support as requested.

(3) Air Force Representatives:

a. VN and US Air Force representatives are responsible for monitoring their respective operations and keeping the CFSCC continuously advised of Air Force activities and any requirements for fire support.
b. Are responsible for coordinating Air Force support as requested.

(4) US Artillery Liaison Section:

a. Duty Officer:

1. Is responsible for all operations performed by US Artillery Liaison Section.
2. Will be present for duty in the CFSCC to effect necessary coordination with the ARVN Artillery, and the Naval and Air Force representatives.
3. Is responsible for maintaining current information on maps and charts.
4. Is responsible for the conduct and appearance of section's duty personnel and their area in the CFSCC.

b. Section Chief:

1. Is responsible for performing the duties assigned to him by the Duty Officer.
2. Is the senior enlisted man in the Liaison section.
3. Must be able to perform the duties of the Duty Officer in his absence.
4. Must have a thorough knowledge of the Rules of Engagement.

c. Team Leader:

1. Is responsible for performing all duties assigned to him by the Duty-Officer and Section Chief.
2. Is the senior enlisted man on his team.
3. Must be able to perform the duties of the Section Chief.
4. Must have a thorough knowledge of the Rules of Engagement.

d. Radio/Telephone Operator:

1. Is responsible for continuously monitoring his radio, and receiving and sending information as required by the Duty Officer.
2. Is responsible for obtaining all clearances as directed by the Team Chief.
3. Is responsible for knowing the duties of all personnel within the team.
4. Is responsible, when directed, for plotting all radar, SLAR, and Red Haze targets on the target overlay.
5. Must have a thorough knowledge of the Rules of Engagement.

3. FUNCTIONS OF THE CFSCC

a. The CFSCC has been established to accomplish the following missions:

1. To coordinate ARVN and US Artillery for the territorial defense of Long An Province.
2. To provide Liaison to the Province to coordinate fire support for ARVN/GVN operations.
3. To coordinate information among the artillery elements utilized in support of ARVN, GVN and US forces.

b. To accomplish the missions of the CFSCC, the following functions will be performed:

(1) The CFSCC will obtain clearances as requested by the ARVN and US artillery based on the established Rules of Engagement. Those clearances will include ARVN, GVN, US and Naval clearances as required.

- When ARVN, GVN, US forces need additional fire support.
- When ARVN artillery is the only fire support available to US forces, and when US artillery is the only fire support available to ARVN or GVN forces.
- When the attack of a target requires all available fire within range.

(2) The CFSCC will record and report all radar, SLAR and Red Haze targets.

(3) The CFSCC will pass intelligence to the appropriate personnel when it is received. Upon request, the CFSCC will coordinate the attack of their targets.

(4) The CFSCC will coordinate preplanned fires for ARVN, GVN, and US forces as requested.

(5) The CFSCC will provide liaison between Sector and the US forces for miscellaneous coordination and the passing of information.

4. PROCEDURES

a. General :

(1) In order to perform the functions as indicated above, the CFSCC will use the procedures listed in this section.

(2) In cases where there is more than one procedure that can be utilized, the quickest method will be used.

b. Clearances:

(1) Request for target clearances may come from any of the following sources.

(a) US Brigade and Battalion Artillery Liaison Sections.

(b) Direct Support Artillery Battalion FDC.

(c) Naval Operations Center.

(a) VN and US Air Force Liaison Sections.

(e) ARVN Artillery Liaison Sections and FDC's.

(f) Any other FWMAF needing artillery support.

(2) When the target is received, it will be plotted on the operations map which will have all current areas of operation plotted on it. At that time, it will be determined what clearances are required by the Rules of Engagements.

(3) Procedures for obtaining clearances:

(a) ARVN Clearance.

1. US Duty Personnel will call the ARVN unit's headquarters on the ARVN Advisor's frequency and request clearance.

2. An alternate method will be to fill out a request for clearance form (Incl 1) and give it to the Sector Duty Officer. He will in turn call to the ARVN unit's Duty Officer and request clearance. This can be accomplished on land line or radio.

(b) GVN Clearance.

1. US Duty Personnel will call to the District Advisor's frequency and request clearance.

2. An alternate method will be to fill out a request for clearance form and give it to the Sector Duty Officer. He will then call the District concerned on radio and obtain their clearance.

(c) Naval Clearance.

1. The US Duty Personnel will give the target to be cleared to the Naval representative in the CFSCC. He will then call to the Naval element concerned and request clearance.

2. An alternate method will be for the duty personnel receiving the target to call directly to the Naval element concerned.

(d) US Clearance.

1. The ARVN Artillery Duty Officer will fill out a request for clearance form and give it to the US Duty Personnel.

2. The US Duty Personnel will call the US Artillery Liaison Section concerned on the CFSCC frequency or on land line. The artillery liaison section will then obtain the clearance from the US maneuver element.

(e) AWCC Clearance.

1. All ARVN Artillery AWCC data will be passed to the ARVN Artillery Liaison Section on their artillery net.

2. The ARVN Artillery Liaison Section will fill out an AWCC form (Incl 2) and give it to the US Duty Personnel.

3. The US Duty Personnel will send the AWCC data to the agency responsible for broadcasting that information.

c. ARVN Artillery Support:

(1) When a request for ARVN artillery support is received, the request for fire form (Incl 3) is completed and given to the ARVN Duty Officer.

(2) The time and method of fire must be specified.

(3) All necessary clearance are obtained by the US Duty Personnel and given to the ARVN artillery Duty Officer.

d. US Artillery Support:

(1) When a request for US Artillery support is received, the request for fire form will be filled out by the ARVN artillery duty personnel, or whoever is requesting the support. The request will be given to the US duty personnel. An exception to this will be when the requestor can present his request in English. At this time there will be no need to fill out a request for fire form.

(2) The request will be sent immediately to the US Direct Support Artillery Battalion FDC where the mission will be processed.

(3) The time or method of fire will be specified if appropriate.

(4) All necessary clearances will be obtained by the CFSCC and sent to the US Artillery FDC.

e. Recording and reporting of Radar, SLAR, and Red Haze targets.

(1) These targets will be sent to the CFSCC by the Direct Support Artillery Battalion FDC.

(2) All targets will be plotted on overlay paper.

(3) Targets that cannot be engaged by US Artillery are given to the ARVN artillery to fire using the procedures outlined in requesting ARVN Artillery Support. The Direct Support Battalion will be notified of the disposition of the target.

(4) If the target cannot be engaged because there are ARVN or GVN troops in the area, the target will be immediately passed to the Sector Duty Officer so he can notify the friendly elements close enough to engage the target.

(5) At the completion of the surveillance period, the overlay will be given to the Sector Intelligence Officer.

f. Coordination of intelligence information.

(1) Intelligence information is normally received in the CFSCC through intelligence channels or from the District. To insure complete dissemination of intelligence information, the CFSCC will notify the appropriate intelligence agencies.

(2) Occasionally, the CFSCC will receive requests to attack intelligence targets.

(a) The CFSCC will coordinate the use of US and ARVN artillery as appropriate to attack these targets.

(b) The CFSCC will coordinate the use of ARVN, GVN, or US ground forces, Naval forces, or available air assets to check targets as appropriate and feasible.

(c) Action taken and the reported results will be disseminated to the appropriate intelligence agencies.

g. Coordination of preplanned fires.

(1) The CFSCC will coordinate preplanned fires for any element that desires them.

(2) The individual requesting preplanned fires will call, personally visit, or send a representative to the CFSCC with his request.

(3) The CFSCC will determine whether the ARVN or US artillery, or a combination of both will be best to support the requestor.

(4) Target information, the call sign, and frequency of the supported unit will be sent to the supporting unit or units.

(5) Target numbers and the call sign and frequency of the supporting unit will be given in return to the requestor.

(6) The CFSCC will obtain the required clearances and send them to the supporting unit. If the targets are permanent, the CFSCC will obtain the clearances daily. An example would be countermortar targets and all permanent defensive concentrations.

h. General coordination and communications.

(1) The CFSCC is a vital communications and coordination link between the ARVN, GVN and US forces.

(2) In addition to the specific examples previously listed, the CFSCC will be prepared to effect any type of coordination or to pass any required information that might be requested. Examples are as follows:

(a) Accident prevention: Instant communications among all elements represented in the CFSCC prevent possible accidents such as firing artillery on friendly elements or friendly units firing on each other.

(b) Significant events: The instant reporting of significant events to all elements is quite helpful in keeping all concerned knowledgeable of everything that is occuring within their areas of interest in order that they can properly react if required.

FOR THE COMMANDER:

Lawrence A. Ritcey
LAWRENCE A. RITCEY
CPT, FA
Adjutant

Inclosure 1 to CFSCC SOP: Clearance Request

DON XIN KHAI THONG DAN DAO

CLEARANCE REQUEST

TAO DO
GRID_____

LOCAI NHIEM VU — DONG-DO
TYPE MISSION:

( ) Contact

VI-TRI NGHI-NGO CO VC
( ) Suspect VC Location

MUC-TIEU RADAR
( ) Radar Target

MUC-TIEU-TINH-BAO
( ) Intelligence Target

CHUAN-BI HOA-LUC CHO CAC CUOC HANH-QUAN
( ) Preparation Fires For Operations

MUC-TIEU PHONG THU
( ) Defensive Targets

SOI-SANC
( ) Illumination:
TOA DO CAN SOI SANG
Grid of Illumination_____

TOA DO CUA DIEM CHAM
Grid of Impact _____

OANH-KICH
( ) Airstrike

XIN KHAI-TRONG TU
Request clearances From:

TEN GIOI CHUC KHAI-THONG Clearance Initials		TEN CIOI CHUC KHAI-THONG Clearance Initials	
TTHQ/TK ( ) Sector TOC	_____	( ) BEN LUC	_____
		( ) TAN TRU	_____
TRUNG DOAN 46 ( ) 46th Regiment	_____	( ) RACH KIEN	_____
TRUNG DOAN 50 ( ) 50th Regiment	_____	( ) BINH PHOUC	_____
		( ) CAN DUOC	_____
THU' THUA	_____	( ) CAN GIUOC	_____

XIN PHOI KHAI-THONG VOI
Coordinating Clearances Required:_____

Inclosure 2 to CFSCC SOP: Artillery and Air Strike Warning Control Center Form

AWCC Form

LUU-Y VUNG HOAT DONG PHI-CO
Air Warning Clearance_____

PHAO-BINH VN
(VN Arty)

TOA DO DIEN CHAM
Grid of Impact_____

PHUONG-HUONG BAM
Direction of Fire_____

DUONG-TEN TOI DA
Maximum Ordinate_____

TAM KA DEN DIEM CHAN
Range to Impact_____

DON-VI BAN
Unit Firing _____

DIA-DEM
Location_____

GIO KHAI-HOA TU
Time to Fire - From_____

GIO DEN GIO
Hours to_____Hours

Inclosure 3 to CFSCC SOP: Fire Request Form

FIRE REQUEST FORM
DON KIN YEM TRO HOA-LUC

NAME (Duty Officer Requesting Fire)_____
TEN VI SI QUAN XIN YEM TRO HOA LUG

GRID_____ NO AND TYPE OF RDS REQUESTED_____
TOA DO SO VALOAI DAN YEU CAU

NATURE OF TARGET_____
TINH CHAT MUC TIEU

CONTACT_____ RADAR_____
CHAM DIGH PHAT GIAC

CONFIRMED VC_____ INTEL TGT_____
MUC TIEU XAC NHAM CO VC MUC TIEU TINH BAO

SUSPECTED VC_____
TINH NGHI CO VC

TIME TO FIRE _____ IF ILLUMINATION:
THOI GIAN BAN TRUONG HOP CHIEU SANG

GRID OF ILLUM_____
TOA DO CHIEU SANG

GRID OF IMPACT_____
TOA DO DUOI DAN ROI

UNIT OT FIRE_____
DON VI BAN

CLEARANCES ALREADY OBTAINED
DA DUCC CHAP THUAN

LOCATION VI TRI	INITIALS KY TAT	LOCATION VI TRI	INITIALS KY TAT

Inclosure 4 to CFSCC SOP: CFSCC Report

CFSCC REPORT

FROM:_____
(DATE/TIME)

CFSCC REPORT

FROM:_____
(DATE/TIME)
TO:_____
(DATE/TIME)

1. Radar (AM Report only)

a. Total sightings _____

b. Total populated targets passed to ARVNs_____

(1) Fired by ARVN Arty_____

(2) Denied ARVN _____

(3) Denied GVN _____

(4) Denied US _____

2. Dufflebag, SLAR, and Red Haze Target (AM Report only)

a. Total targets_____

(1) Dufflebag_____

(2) SLAR _____

(3) Red Haze _____

b. Total populated targets passed to ARVNs_____

(1) Dufflebag_____

(a) Fired by ARVN Arty_____

(b) Denied ARVN _____

(c) Denied GVN _____

(d) Denied US _____

(2) SLAR_____

(a) Fired by ARVN Arty_____

(b) Denied ARVN _____

(c) Denied GVN _____

(d) Denied US _____

(3) Red Haze_____

(a) Fired by ARVN Arty_____

(b) Denied ARVN _____

(c) Denied GVN _____

(d) Denied US _____

(b) Denied ARVN _____

(c) Denied GVN _____

(d) Denied US _____

3. Total number of grids cleared during reporting period_____.

4. Remarks:



Return to Fire Support Coordination

Source:

Vietnam Lessons Learned No. 77: Fire Support Coordination in the Republic of Vietnam. United States Military Assistance Command, Vietnam, 20th May 1970

Fire Support Coordination



Operation Cobra Strike (Annex F)

ANNEX F
DEPARTMENT OF THE ARMY
US ARMY ADVISORY DETACHMENT
44th Special Tactical Zone
Adv Team #50 APO 96215
MACCZ-IV-50-3
7 December 1969
SUBJECT: Combat Operations After Action Report*
(RCS: MACJ3-32 R2)
(Operation Cobra Strike)

THRU: Commanding General
Delta Military Assistance Co
ATTN: G-3 PLANS
USAAG, IV CTZ
APO 96215

TO: Commander, United States Military Assistance Command, Vietnam
ATTN: MACJ3-05
APO 96222

1. OPERATION COBRA STRIKE

See OPLAN Cobra Strike, Incl 1 (omitted).

2. DATES OF OPERATION

301615 October 1969 to 031630 November 1969.

3. LOCATION

Reference Map VN Special Use, Seven Mtns Area, 1:50,000.

4. COMMAND HQ

44th STZ, Cao Lanh, Vietnam

5. REPORTING OFFICER:

Principal US Advisors/Commanders

- Col Hassinger, SA, 44th STZ
- Maj Carter, ALO, 44th STZ
- Maj LaPorte, SA, 67th Artillery Bn
- Maj Bridgewater, CO, MSF
- Maj Bergeron, CO, B-7/lst Air Cav

Principle RVN Commanders

- Col Duc, Dco, 44th STZ
- LTC Tro, Dep DCO Opns, 44th STZ
- Maj Lan, CO, 67th Artillery Bn
- Maj Phong, CO, MSF

All air phases of this operation were principally planned and executed by US Forces with the concurrence of CG, 44th STZ. VN phases planned and/or conducted were artillery support, ground reaction force, and PSYOP campaign. VNAF participation was planned but VNAF was unable to provide required fighter support.

6. TASK ORGANIZATION

See OPLAN Cobra Strike, Incl 1. (omitted)

7. SUPPORTING FORCES

a. HQ, 7/1st Air Cavalry Troop.

7/lst Air Cav provided one UH1H Command and Control (C&C) ship for the Senior Advisor, 44th STZ. 164th CAG provided backup C&C and one medical evacuation helicopter. The C&C ship was effective as the primary coordinating element throughout the operation.

b. 7th USAF.

Organization	Sorties	Aircraft	Mission
3rd Tac Ftr Wing	4	A-37	Fire suppression
3rd Tac Ftr Wing	6	F-100	Fire suppression
37th Tac Ftr Wing	12	F-4	Area denial
366th Tac Ftr Wing	8	F-4	Cave destruction
35th Tac Ftr Wing	2	F-100	Fire suppression
44th STZ 4	4	O-1E	FAC

All requests for mission aircraft were sent through the IV Corps Direct Air Request Net. One flight of F-100 aircraft was ordered on an immediate request for area fire suppression. All sorties met rendezvous and target timing as planned. Results: 8 caves destroyed; 2 caves damaged: all areas mined with CBU 42 generally as planned.

c. B-7/1st Air Cavalry Troop.

(1) 4 OH-6A (LOH)

(2) 4 AH-1G (Cobra gunships)

(3) 4 UH-1H (Slicks)

(4) 1 UH-1H Air Cav C&C ship

The missions of B-7/1st Air Cav were:

(1) Accurate target marking.

(2) Hostile fire suppression.

(3) Quick reaction force for downed aircraft.

The Air Cavalry Troop was employed continuously throughout the operation. Fire suppression was effective, target marking was accurate, and timing criteria were met.

d. Mobile Strike Force (MSF)

Two companies of the 3rd MSF Bn were on alert at Chi Lang throughout the operation. The commanders (US&VN) flew in the Air Cav C&C on all phase II sorties. The operation did not require the commitment of a reaction force.

e. Artillery: 47th Artillery Bn reinforced 2B/67th Artillery (Tri Ton).

(1) B Btry 47th Arty Bn - 155mm How, Chi Lang.

(2) C Btry 47th Arty Bn - 155mm How, Chi Lang.

(3) 2/B Btry 67th Arty Bn - 105mm How, Tri Ton.

Artillery fire began as planned at 301645 Oct 69, immediately following the B-52 strikes. Approximately

1,500 rounds were fired throughout the night of 30-31 Oct. Phase II was on weather hold from 310500 Oct to 020500 Nov during which time additional artillery was placed in the target area. On 030800 Nov, the arty fired approximately 500 rounds of suppressive fire in the vicinity of target #4 during a period of intense hostile ground fire.

f. 44th STZ ALO/FAC:

USAF ALO and FACs were airborne throughout the operation. Weather checks were continuous from 310300 Oct through 020600 Nov in an effort to initiate phase II of the operation. The execution and control of all phases of the air mission were directed by the ALO through the FACs.

8. INTELLIGENCE: (omitted)

9. MISSION

"The 44th STZ conducts Special Air Operations to destroy VC/NVA personnel and base camp facilities located on Nui Giai and Nui Cam Mountains and to deny the enemy further access to the area."

10. CONCEPT OF OPERATION

Operation Cobra Strike was carried out in four phases:

a. Phase I (Strike) - Consisted of B-52 strikes in target area.

b. Phase II (Strike) - This phase was the main attack whereby artillery would be massed on the target complexes upon completion of Phase I followed by the air attacks using suppressive fire (Napalm), Cobra gunships' suppressive fire, LOH for accurate target marking, and the attack of fighters with the Bullpup Guided Air Missile (GAM) for destruction of selected cave targets.

c. Phase III (Seed) - This phase of the operation consisted of a series of USAF fighters deploying CBU-42 canisters of anti-personnel mines in selected strips to restrict and deny the enemy freedom of movement throughout the target complex.

d. Phase IV (PSYOP) - This phase consists of psychological operations warning the local population of the mining of the area, the dangers of entering the target area, and a Chieu Hoi Program to induce enemy elements to rally to the GVN.

11. EXECUTION:

a. General.

Planning for Operation Cobra Strike began on 15 October 1969. Preliminary coordination was effected through 44th STZ ALO with elements of 7th USAF revealing that AF elements were willing to attempt the mission provided necessary approval was granted. On 26 Oct, an outline plan was submitted by SA, 44th STZ with concurrence of CG, 44th STZ, to HQ, DMAC and CG, IV CTZ. The plan was approved with the exception of the Mark 36 munitions requested. Additional CBU-42 munitions replaced the Mark 36 munitions in those areas. The plan was then forwarded to COMUSMACV J3 and JGS. Staff coordination and planning for OPLAN Cobra Strike began on 26 Oct 69. Concept and coordination meetings were held at 44th STZ HQ attended by commanders of forces concerned, with USAF being represented by the ALO, 44th STZ. OPLAN Cobra Strike was issued on 30 Oct 69.

b. Cobra Strike was initiated with Phase I B-52 strikes on 301615 Oct 69 with Nui Giai being hit with two B-52 strikes. One strike at 1615 was followed by a second strike at 1630. Of seven B-52 strikes requested (four on Nui Giai and three on Nui Cam), only two were approved and carried out.

(1) 301615 Oct 69 Strike Alfa damage assessment: Estimated 10 KBA, 1 military structure destroyed, 3 military structures damaged, 10 bunkers destroyed, 15 bunkers damaged and 500 meters of trenchline destroyed. There were three secondary explosions and three sustained fires; one explosion had a 150 foot fireball. 99% of the ordnance landed in the target box and 100% of the surface was covered.

(2) 301630 Oct 69 Strike Bravo damage assessment: Estimated 20 KBA, 2 military structures destroyed, 1 military structure damaged, 15 bunkers destroyed, 25 bunkers damaged and 1000 meters of trenchline destroyed. There were three secondary explosions and three sustained fires; one explosion had a 100 foot fireball. 100% of the ordnance landed in the target box and 100% of the surface was covered.

(3) 301645 Oct 69. The artillery began firing on the target complex. These fires continued throughout the night of 30-31 Oct. Over 1500 rounds of 105mm and 155mm howitzer to further suppress the area and prevent the enemy from moving were placed on the two mountains prior to Phase II, which was scheduled for 310725 Oct.

c. Phase II (Strike):

(1) This portion was developed around the primary attack weapon of this phase, the F-4 fighters with Bullpup missiles. Weather holds were taken into consideration in the plan to enable the ALO to hold all fighter sorties on the ground prior to launch, in the event adverse weather prevailed over the target area.

310630 Oct 69: All elements of the strike force, except fighter aircraft, assembled at Chi Lang, Chau Doc Province, RVN to initiate phase II. A hold was directed at 0700 by SA, 44th STZ due to weather conditions over the target areas. Phase II remained on weather hold until 311300 Oct when It was decided to postpone the operation until 010700 Nov. Artillery fires continued from 311800 Oct to 010500 Nov. Approximately 1400 rounds of 105mm and 155mm arty were fired into the target complex.

(2) A re-evaluation of the timing and sequence of events of fighter attacks was made and a decision reached to compress all fighter rendezvous times to a one-hour block, with a weather hold proceeding the rendezvous time by 1 hour. All fighter aircraft (napalm suppression F-100's and GAM attack F-4s) were placed on 15 minute scramble alert by IV DASC, in order to begin the attack at any time weather conditions would permit. The fighters were not given a specific rendezvous time. These times were to be determined by Ground Commanders at 1 hour from any time weather conditions would permit the attacks to begin.

(3) Elements of the phase II strike force again assembled 010600 Nov at Chi Lang. Adverse weather dictated that the phase be placed on hold again; the hold continued until 011300 Nov when the decision was made to postpone the phase until 020700 Nov. Artillery fires continued from 011800 Nov to 020500 Nov 69.

(4) 020530 Nov 69: Elements of phase II again assembled at Chi Lang airfield.

(a) The sequence of events was as follows.

- 0545 Weather GO decision made; rendezvous time set for 0710.
- 0650 CTC, FAC, and Air Cav elements on station. Fighters in bound.
- 0710 - F-4, GAM fighters rendezvous.
- 0712 - F-100(napalm suppression) fighters rendezvous.
- 0714 - FAC marked target #1.
- 0715 - F-100 suppressed with 2 napalm cylinders, followed by GAM dry run.
- 0718 - Cobra made suppressive run with flechettes.
- 0721 - LOH delivered 3 canisters red smoke inside target #1.
- 0725 - F-4 made 1st GAM run, with partial success.
- 0728 - F-4 made dry run on target #1 for closer look.
- 0732 - F-4 made 2nd GAM run, with partial success.

(b) A similar sequence of marking, suppressing, and launching the GAM's on targets #2, 3 and 4 took place. At 0850 a weather hold was ordered due to deteriorating weather conditions in the target complexes. Two sets F-100 (4) fighters with napalm and 2 sets of F-4 (4) fighters with GAM's expended on targets #1, 2, 3 and 4.

(c) 020900 Nov: Targets #1, 2, 3 and 4 attacked with missiles; targets #2 and #3 destroyed; targets #1 and #4 partially destroyed. Four KBA vicinity target #4. Operation placed on weather hold 0900 hrs.

(d) 021330 Nov: The SA, 44th STZ decided to postpone additional strikes of Phase II until 030700 Nov because weather conditions were unacceptable for the fighters. It was decided to initiate Phase III (seeding) in areas that would not conflict with Phase II (strike), the weather being adequate for seeding opns. Due to the required rapid sequence of fighter passes and number of marking rounds that had to be placed, it was decided to use FAC's in the front seat of Cobra gunships carrying marking rockets, and

another coordinating FAC in O1-A aircraft. This allowed the FAC to direct a Cobra pilot to mark 30+ targets accurately under cover of suppressive fire, without returning to the airfield for fuel or additional rockets. (Note: O1 aircraft carries eight marking rockets and Cobra carries 32).

(e) 021430 Nov: At 1440 the seeding aircraft arrived in the area. Two sets of fighters (4) seeded 16 strips between 1440-1535. Due to non-availability of fighter aircraft, the operation ended for the day. Arty H&I fires were placed in the remaining target areas during the night of 2-3 Nov 69. The remaining portion of Phase II was rescheduled to begin 030700 and Phase III rescheduled to begin immediately upon completion of Phase Il.

(f) At 030530 Nov all elements of Phase II again were in position at Chi Lang. The sequence of events was as follows:

- 0530 - C&C ship and control element arrive Chi Lang.
- 0545 - Weather GO. Decision made and first fighter rendezvous 0700.
- 0645 - C&C, FAC and Air Cav elements on station; fighters inbound.

Due to weather conditions over the targets, it was decided to engage targets #5, restrike #4, then targets #6 and #7 in that order.

- 0655 - F-4 GAM fighters (2) rendezvous followed by F-100s with napalm.
- 0702 - FAC marked target #5.
- 0704 - F-100 napalm suppression drop off target.
- 0706 - F-100 put two napalm on target.
- 0708 - Cobras made two suppressive runs, followed by LOH to mark target because target obscured by smoke. Target remained obscured, unable to mark.
- 0710 - Elements switched to strike target #4.
- 0712 - FAC marked target #4.
- 0715 - Cobra made 1st suppressive run followed by LOH. Both elements received ground fire. The LOH was hit and had to return to the airfield.
- 0720 - FAC directed F-100's on napalm and 20mM strikes until ordnance was expended.
- 0730 - ALO alerted GAM fighters to return to base with GAMs due to low fuel and deteriorating weather conditions.
- 0734 - Cobras continuing to make suppressive runs on target #4 expending all ammunition.

(g) C&C and Cav elements then returned to Chi Lang airfield. An immediate air strike was requested to further suppress the target area. Due to deteriorating weather conditions it was decided to hold all fighters on the ground until weather improved. Artillery fires were placed in the area and approximately 500 rounds were adjusted by VN observer in O1 aircraft. At Chi Lang, the decision was made to use the Cobras as the marking element if the LOH became too vulnerable to ground fire. The LOHs up to this point had put red smoke grenades in the entrances of the five caves, providing utmost accuracy in marking the targets.

(h) Air Cav elements made VR of targets #5 and #7 while waiting for weather to lift. The VR revealed that targets #5 and #7 were not profitable; three additional caves were discovered near target #4. The decision was made to eliminate the attacks on targets #5 and #7; to strike #6, then restrike target #4 and the additional caves around target #4. At 1050 a weather GO decision was made for a 1200 hrs fighter rendezvous.

(i) The next sequence of events was as follows:

- 1155 - C&C, FAC and Cav elements were on station for target #6. GAM fighters rendezvous.
- 1200 - FAC marked target #6.
- 1202 - F-100 napalm drop off target.
- 1204 - F-100 put two napalm inside target #6.
- 1207 - Cav made two suppressive runs followed by LOH. 1st run target observed, 2nd run red smoke placed in target.
- 1210 - F-4 made 2 GAM runs; lst GAM hit high, 2nd GAM hit and destroyed target.

All elements then shifted to south side of target complex to restrike targets #1, #4, and #3 and caves near target #4. These targets were engaged in the same sequence as earlier targets, except the Cobras were used to mark the target rather than the LOH. At 1405, Phase II was completed, with the following results: targets destroyed - #6, #4, and three additional caves in vicinity of #4. Targets #1, #2, #3 were determined to be destroyed during Phase II on 2 Nov. Total number of caves destroyed: 8. Targets #5 and #7 were cancelled; close recon of targets revealed no need for Bullpup missile attack.

d. Phase III began at 1430 with a set of two fighters scheduled every 30 minutes for a total of 10 sets. Prom the previous days experience, it was decided that the best way to successfully complete the mission in the available time was to have the FAC in the front seat of the Cobra gunships. The FAC, working with the gunship pilot, directed all marking and seeding operations beginning at 1435 and ending at 1645. Forty accurate passes were made during this period.

e. Phase IV - Chau Doc Province conducted air and ground PSYOP from 2 Nov to 2 Dec to warn the civilian population that areas on and around Nui Giai and Nui Cam have been mined and to intensify the Chieu Hoi Program in that area. The PSYOP consisted of leaflet/loudspeaker missions daily and two civic action teams conducting ground loudspeaker missions in all the populated areas concerned.

12. RESULTS

a. Phase I: 30 KBA, 3 military structures destroyed, 4 military structures damaged, 25 bunkers destroyed, 40 bunkers damaged, 1500 meters of trenchline destroyed, plus six secondary explosions and six sustained fires.

b. Phase II: 4 KBA, 8 caves destroyed.

c. Phase III: Nui Cam, Nui Giai seeded with 48 cannisters of CBU-42.

d. Phase IV: PSYOP to warn populace.

13. ADMINISTRATIVE MATTERS: (omitted)

14. SPECIAL EQUIPMENT AND TECHNIQUES

A helicopter equipped with a jungle penetrator was on standby at Chi Lang throughout the operation for immediate rescue of pilots downed in heavily-forested or otherwise inaccessible terrain. In view of the rugged terrain and heavy vegetation, the Air Cav commander decided to use flechette rockets for suppressive fires. For Phase III, the Cobra gunships were armed with smoke rockets to mark targets for the seeding aircraft. The gunships were highly accurate in marking targets and they were able to carry as many as thirty-two smoke rockets as opposed to eight that an O1 aircraft can carry. Also, their marking runs did not take as long as it would have for an O1 aircraft. For this phase a FAC flew in the front seat of the Cobra gunship to direct the target marking.

15. COMMANDER's/ADVISOR's SUMMARY AND COMMENTS

a. Operation Cobra Strike was conceived, planned, and conducted when it became evident that an enemy regiment (+) and a probable higher control HQ were located on Nui Giai and Nui Cam in the Seven Mtns area of Chau Doc Province, RVN. ARVN assets available had not been able to reduce the target and additional VN ground assets were not available in sufficient strength to undertake the mission.

b. Intelligence indicated that enemy HQ elements were using caves located in and on sides of a slotted valley known as "Death Valley" dividing the eastern and western halves of Nui Giai mountain. Due to depth and angle of entrances, multiple massive air strikes and artillery bombardment for the past two years had been unable to deny the enemy use of these caves. Due to steep and wooded slopes, heavy jumbled rock formations, and dense booby trap/mine fields, small enemy elements with automatic weapons had successfully stopped our attacks into the area. ARVN commanders recognized the threat but indicated they were unable to cope with it. Enemy on Nui Giai included anti-aircraft and sapper elements, as well as communications and CP facilities. Enemy on Nui Cam had harrassed Chi Lang Army Training Center and airstrip with indirect fire and sapper attacks.

c. As conceived and planned, Operation Cobra Strike would consist of four phases:

(1) Phase I - B-52 bomb strike on the cave area. This was to be followed by increased and sustained ARVN arty fires to keep the enemy pinned down and to suppress anti-aircraft fires.

(2) Phase II - Employment of GAMs (Bullpups) from USAF high performance aircraft to destroy/deny

cave entrances. In order to obtain the precise target marking required by the GAMs in a restricted valley, it was decided to have a FAC mark the target. A high performance aircraft would then put in napalm. Following the napalm closely, an Air Cav troop moved in with suppressive fire from Cobra gunships. They were to be closely followed by LOH scouts who would drop a bundle of three smoke grenades in the cave entrance.

(3) Phase III - Employment of CBU-42 bomblet mines by aerial seeding on Nui Giai and Nui Cam. Immediately following phase II, seeding would start. A FAC in the Cobra gunship would provide accurate marks (smoke) for 32 passes by fighters. Fighter aircraft would sow strips of mines around sides and across tops of two mountains in areas known to be used by VC. 32 strips of mines were to be laid and reported to HQ IV Corps.

(4) Phase IV - ARVN planned and conducted PSYOP campaign to warn local populace to stay out of mined areas and not to support the enemy there. Loudspeakers and leaflets and Chieu Hoi passes were to be used.

d. Execution:

(1) Phase I: Two B-52 bomb strikes were placed on Nui Giai on 30 Oct. During the night, the 67th Arty Bn fired 1500 rounds at short intervals on all suspected enemy positions.

(2) Phase II: 310700 Oct 69 - All Army elements in position at Chi Lang airstrip.

(3) Phase III: Because of bad weather and low hanging clouds, USAF fighters were on weather hold on base strips. After a series of one-hour holds, Phase II was delayed (mid-afternoon) until the next day. ARVN arty resumed H&I fires.

(a) 1 Nov 69: A repetition of 31 Oct. Bad weather forced delay.

(b) 2 Nov 69: Targets #1, 2, 3, and 4 were engaged by GAMS. Weather was marginal. A combination of napalm fighters, gunship fire, and LOH marking proved necessary and accurate. Targets #1-3 destroyed. Weather closed in to below minimums for GAMs fighters. Decision made to start first part of Phase III. Seeding accomplished rapidly, due to use of gunships with FAC as markers; two minutes per fighter pass. Areas of Nui Giai and Nui Cam around perimeters of mountains and away from remaining GAMs targets were seeded. Result - first half of Phase I and Phase II accomplished on 2 Nov.

(c) 3 Nov 69: LOH recon revealed that caves #5 on Nui Giai and #7 on Nui Cam were not accessible to the enemy; these two targets were dropped. Using planned sequence, target #4 was engaged again by GAMs. LOHs and gunships received anti-aircraft fire from cave #4 and three newly-discovered caves in the vicinity. One LOH was bit and returned to Chi Lang. Fighters placed on hold. ARVN 67th Arty CO went up with FAC and placed two

hours of 155m fire (480 rds) on cave #4. Three of four caves near #4 destroyed by GAMS. Cave #6 engaged and destroyed; burned for 10 minutes with heavy black smoke. Phase II fighters brought in and seeding operations on both mountains completed by 1700. At 1715, FAC reported 100 enemy in open moving from Nui Cam to Nui Giai. Air cavalry brought back; enemy driven into side of Nui Giai and newly seeded area, with unknown results.

(4) Phase II and III Command and Control: Coordination and precise control was the key factor. Five different aircraft (USAF and Army) were in a small and restricted area at the same time and were a mixture of high-performance fighters, helicopters, and FAC aircraft. It was necessary to have airborne control over the area at all times when targets were engaged, including seeding operations.

(5) Phase IV: 4 Nov 69 - HQ, 44th STZ and Chau Doc Province G-5/S-5 sections followed up with loudspeaker/leaflet drops from VNAF light aircraft and C-47 aircraft in the vicinity of Ba Chuc, Ba Xoai, Chi Lang, and Tri Ton. People were warned to stay off Nui Giai and Nui Cam because the area was mined. People were urged not to support VC/NVA units and the enemy was urged to rally to the government.

(6) Results: On 3 Nov, immediately following Phase III seeding operations, an estimated 100 enemy attempted a rapid daylight move from Nui Cam to Nui Giai. They were brought under fire from gunships and chased into an area recently seeded with three strings of mines. There have been continuing reports of numerous isolated explosions on the mountains from areas previously used as indirect fire positions. A Hoi Chanh reported that his unit attempted to infiltrate up Nui Giai. It took casualties and become disorganized; he rallied at Ba Chuc. In the Ba Chuc area, a number of civilians have been killed taking supplies into the mountains. Since then the local populace has refused to carry supplies into the mountains. The seeding operations have effectively denied the VC exploitation of the civilian labor force, which previously was easy to obtain. VN civilians in Tri Ton report that in a matter of days, over one hundred VC from the Z-28 Battalion were killed on Nui Cam. Usually reliable US intelligence sources indicate enemy CP operations have moved to more exposed positions on the top of Nui Giai and out in the flat areas around the base of the mountain. Movement of enemy units and personnel, as well as his capability to reinforce in the mountain areas, appear to have been curtailed.

16. LESSONS LEARNED:

a. Detailed planning, coordination and briefings at all levels are required in view of the variety of units, elements, types, and capabilities of aircraft involved. The requirement for close timing and the coordination of the use of congested and restricted air space also requires detailed planning and coordination.

b. The tactical air controller and the operation commander must remain in the air where they can view the target area at all times during the air operation.

c. Weather is a most critical factor in the planning and conduct of these operations. Available forecasts

are too general and cover too much area to be of real value to the specific target area. Planning must be flexible enough to permit weather delays with fighters on strip alert. Higher HQ must depend on and be willing to accept hour by hour Go-no-Go decisions by the ground commander. Planning should permit delays and flexibility during the operation.

d. Extensive and detailed contingency planning is a must, to include obtaining special equipment, briefing of commanders and pilots, and command and control measures.

e. Artillery is invaluable in maintaining pressure on the enemy and for anti-aircraft fire suppression during delays.

f. Seeding by aerial mines does not stop or eliminate the enemy but rather only slows and restricts his movement.

g. Some commanders desired to place artillery fires where an occasional mine was detonated in the days following the operation. It was necessary to explain that arty fire would detonate other mines in the area and clear a gap for the enemy. Conversely, if a number of mines went off it indicated an attempt by the enemy to either clear a gap or move troops through. In such cases artillery fires were appropriate, to be followed by reseeding as soon as possible.

h. GAMs are 50-75% accurate under marginal weather conditions, if detailed briefings are provided by FACs and tight control is maintained. Under better conditions, accuracy goes up to 90%+. A minimum of two GAMs per point target should be planned.

i. Fighter aircraft with napalm are required to be on station during the GAM operation.

j. There was a large number of seeding strings and a requirement to complete seeding in a short time to prevent enemy movement out of the area. Seeding is done with high performance jet aircraft with relatively low loitering time available due to fuel consumption. In order to provide accurate strip starting marks, with minimum time between fighter passes, a FAC was positioned in the front seat of Cobra gunships, which can carry 32 marking rockets. Using the gunships to go in with suppressive fire marking with WP permitted close accurate marking and a minimum of two minutes between fighter passes. Therefore, the entire area was accurately seeded within the allowable time.

k. Special techniques had to be developed to provide data for mine field reports. Using an accurate starting mark provided by the gunships, the fighter dropped on the mark and on a heading provided by the FAC. As the fighter pulled out he reported his actual heading during the run. Using the starting point and the heading reported, mine strips were recorded. They were based on the known density of mines per canister dropped and the width and length of the strip covered by one pass. On completion of the operation, the ALO and FAC prepared an overlay showing mine field coverage which was incorporated into the US/ARVN Mine Field Report and disseminated to the HQ concerned.

l. Planning should permit the engagement of targets of opportunity and/ or shift of target priority during the operation.

m. Density of seeding should be increased in heavily wooded areas due to restriction of kill radii by undergrowth. Reseeding must be considered in the original planning.

n. Restriction of planning and information to a strict need-to-know basis was instrumental in achieving the element of surprise and containment of enemy in the target area.

o. An operation of this type is an excellent way of transferring the initiative from the enemy to friendly forces.

p. As a result of Operation Cobra Strike, CG IV CTZ personally planned and directed both reseeding operations in the target areas and in other areas of IV CTZ. Province officials recommended additional seeding areas in the Nui Cam and Nui Giai areas. All three mountains were reseeded either in new areas or in greater density in previously seeded areas on 18-19 November 1969.

q. On 9 Nov, Nui Coto was evacuated and was seeded when it became evident friendly troops available could not hold the mountain.

17. RECOMMENDATIONS

That -

a. Counterpart personnel at Corps level and above, as well as subordinates, participate in the planning and execution of seeding operations.

b. The planning phase of a seeding operation include an orientation for all command personnel concerned on the capabilities and limitations of ordnance used and restrictions on firing into seeded areas.

c. AH-1G (Cobra Gunships) with FAC's on board be used for marking CBU-42 canister drops.

d. A-1E's be used in pairs for fire suppression rather than jet type aircraft or aircraft in larger numbers.

e. Extensive PSYOP be planned to coincide with or immediately follow artillery fires.

f. Any anti-aircraft fire suppression include use of all available artillery fires.

g. An alternate C&C ship with identical communications be on continuous standby in operations area to insure uninterrupted command and control.

1 Incl as (omitted)

s/R.W. HASSINGER

Col Infantry
Senior Advisor



Return to Fire Support Coordination

Glossary of Terms



A | B | C | D | E | F | G | H | I | J | K | L | M

N | O | P | Q | R | S | T | U | V | W | X | Y | Z

A

AAA - Antiaircraft Artillery
AAGS - Army Air-Ground System
ACAV - Armored Cavalry Assault Vehicle
AF - Air Force
AG - Adjutant General
AGL - Above Ground Level
Air Cav - Air Cavalry
AK-47 - 7.62mm Assault Rifle
ALO - Air Liaison Officer
ANGLICO - Air and Naval Gunfire Liaison Company
AO - Area of Operations
APC - Armored Personnel Carrier
ARC LIGHT - B-52 Bomb Strike
ARLO - Air Reconnaissance Liaison Officer
ARP - Aero Rifle Platoon
Arty - Artillery
ARVN - Army of the Republic of Vietnam
AASWCC - Artillery and Air Strike Warning Control Center

B

BDA - Bomb Damage Assessment
BLU - Bomb Live Unit
Bn - Battalion
BOQ - Bachelor Officers' Quarters

C

CAG - Combat Aviation Group
Cal - Caliber
CAR-15 - carbine version of the M-16 assault rifle
CAS - Close Air Support
CBU - Cluster Bomb Unit
C&C - Command and Control
CEP - Circular Error Probable
CFSCC - Combined Fire Support Coordination Center
CG - Commanding General
CHARLIE ECHO - Crew Chief
CHICKEN PLATE - Ballistic armor chest plate worn by aerial crew members
CHICOM - Chinese Communist
CHINOOK - CH-47 Cargo Helicopter
CIC - Combat Information Center
CICV - Combined Intelligence Center, Vietnam
CID - Criminal Investigation Division
CLAYMORE - Antipersonnel directional mine
CO - Commanding Officer
COBRA - Bell AH-1G helicopter gunship with two crew members
COC - Combat Operations Center
COMNAVFORV - Commander, US Naval Forces, Vietnam
COMUSMACV - Commander, US Military Assistance Command, Vietnam
CP - Command Post
C RATS - Standard army field rations
CRC - Control and Reporting Center
CRP - Control and Reporting Post
CS - Riot control agent similar to tear gas
CSC - Coastal Surveillance Center
CTF - Commander, Task Force
CTG - Commander, Task Group
CTOC - Corps Tactical Operations Center
CTU - Commander, Task Unit
CTZ - Corps Tactical Zone

D

DAS - Direct Air Support
DASC - Direct Air Support Center
DCO - Deputy Commanding Officer
DCS - Deputy Chief of Staff
Deadlined - a vehicle that is not operationally ready
Dep - Deputy
DEP - Deflection Error Probable
DEPCOMUSMACV ~ Deputy Commander, US Military Assistance Command, Vietnam
DEROS - Date estimated to return from overseas
Didi - Vietnamese slang for "get out of there"
DMAC - Delta Military Assistance Command
DMZ - Demilitarized Zone
DS - Direct Support
DUSTER - Nickname for the M-42 antiaircraft weapon, which consisted of twin 40mm cannon mounted on a tank chassis. It was used in Vietnam primarily for base defense and convoy escort.
DUSTOFF - Call sign of medical evacuation helicopters

E

F

FA - Field Artillery
FAC - Forward Air Controller
Fast Mover - Jet fighter or bomber
FDC - Fire Direction Center
FFAR - Folding Fin Aerial Rocket
FFORCEV - Field Force, Vietnam
Firefly - UH-1H mounted with spotlights, night observation devices, miniguns, and a .50-caliber machine gun
Flak Jacket - A sleeveless armored vest designed to protect the wearer from shell fragments
FM - Frequency Modulation
FO - Forward Observer
FOX MIKE - FM radio frequency
fps - feet per second
Frag - Fragmentary (order)
FRAG ORDER - Fragmentary order, change in mission
FSB - Fire Support Base
FSC - Fire Support Coordination

FSCC - Fire Support Coordination Center
FSCOORD - Fire Support Coordinator
FWMAF - Free World Military Assistance Forces

G

G1GAM - Guided Air Missile
GDA - Gun Damage Assessment
GP - General Purpose
Grunt - Slang for Infantryman
GS - General Support
GSR - General Support Reinforcing
GUARD - Emergency frequency, 243.0 UHF and 121.5 VHF
GUN - Cobra ("Snake") AH-1G gunship
GURF - Guns Up Ready Fire (Report)
GVN - Government of the Republic of (South) Vietnam

H

HE - High Explosive
HEAP - High Explosive, Antipersonnel
HEAT - High Explosive, Antitank
HF - High Frequency
H& I - Harassment and Interdiction
HQ - Headquarters
Hootch - Vietnamese dwelling
Huey - Nickname for the UH-1 Series of Utility Helicopters
Hunter/Killer Team - one AH-1G and one OH-6A (also known as 'Pink Team')

I

ICM - Improved Conventional Munition
ICU - Intensive care Unit
ISUM - Daily Intelligence Summary
INTSUM - Intelligence summary
IPIR - Immediate Photo Interpretation Report

J

JAGOS - Joint Air-Ground Operations System
JCS - Joint Chiefs of Staff (US)
JGS - Joint General Staff (Vietnamese)

K

KBA - Killed by (Air) (Artillery)
KIA - Killed in Action
Kit Carson - Former VC or NVA who has defected to the ARVN and act as scout for US Troops
KLICK - Military slang for 'Kilometer'
KP - Kitchen Police
KTAS - Knots True Airspeed
KW - Kilowatt

L

lb(s) or # - pound(s)
LO - Liaison Officer
LOACH - Hughes OH-6A light observation helicopter with one pilot and one or two gunner/observers
LOH - Light Observation Helicopter
LZ - Landing Zone

M

M - Model
M-16 - Colt 5.56-caliber rifle, standard US issue
M-48 - Battle tank with 90mm main gun
M-113 - US armored personnel carrier
M-551 - Sheridan armored airborne reconnaissance vehicle with 152mm main gun
m - meter(s)
MACV - Military Assistance Command, Vietnam
MAF - Marine Amphibious Force
MAW - Marine Aircraft Wing
MI - Military Intelligence
MIA - Missing In Action
MIB(ARS) - Military Intelligence Battalion (Air Reconnaissance Support)
Minigun - General Electric 7.62-caliber electric Gatling gun firing 2000-4000 rounds per minute
MK - Mark
mm - millimeter(s)
MP - Military Police

mph - miles per hour
MSF - Mobile Strike Force

N

NDP - Night Defensive Position
Net Call - a radio call made to all stations operating on a single net
NGF - Naval Gunfire
NGFS - Naval Gunfire Support
NGLO - Naval Gunfire Liaison Officer
NVA - North Vietnamese Army

O

Old Man - military slang for 'Commander'
OPLAN - Operation Plan
OV-10 - North American Bronco FAC aircraft with one or two crew members

P

PBR - Patrol Boat, Riverine
PIO - Public Information Office
PIPE SMOKE - UH-1's and CH-47's that recover downed aircraft
PPIF - Photo Processing and Interpretation Facility
PSP - Perforated Steel Planking
PUSH - radio frequency
PSYOP - Psychological Operations
PX - Post Exchange

Q

R

Recon - Reconnaissance
RED TEAM - Two AH-1G Cobra gunships
REP - Range Error Probable
RESCAP - Rescue combat air patrol
Rocks - Rockets

ROME PLOW - Heavy bulldozer for clearing jungle
ROTC - Reserve Officers' Training Corps
RPD - Chine copy of Russian PK crew-served machine gun
RPG - Rocket propelled grenade
R&R - Rest and Recuperation
RTO - Radio Telephone Operator
RVN - Republic of (South) Vietnam
RVNAF - Republic of Vietnam Armed Forces

S

SA - Senior Advisor
Satchel Charge - Explosive charge
SAC - Strategic Air Command
SEA - Southeast Asia
Shadow - USAF AC-119 fixed wing gunship
SITREP - Situation report
SLAR - Side-Looking Airborne Radar
Slick - Troop carrying UH-1 helicopter
Snake & Nape - Speed retarded bombs and Napalm
SOP - Standing Operating Procedure
SP – Self-Propelled
Spectre - USAF AC-130 fixed wing gunship
Spooky - USAF AC-47 fixed wing gunship
SSB - Single Side Band
SSZ - Specified Strike Zone
STZ - Special Tactical Zone
SUPIR - Supplemental Photo Interpretation Report

T

TACAIR - Tactical Air
Tac Ftr - Tactical Fighter
TACC - Tactical Air Control Center
TACP - Tactical Air Control Party
TACS - Tactical Air Control System
TAOI - Tactical Area of Interest
TAOR - Tactical Area of Responsibility
TASE - Tactical Air Support Element
TC - Track or Tank Commander
TOC - Tactical Operations Center

TOE - Table of Organization and Equipment
TOT - Time (on) (over) Target (also Turbine Outlet Temperature)
Track - Slang for armored vehicle
TRW - Tactical Reconnaissance Wing

U

UNREP - Underway Replenishment
Uniform - UHF radio frequency
US - United States
USA - United States (Army) (of America)
USAF - United States Air Force
USMC - United States Marine Corps
USN - United States Navy
UHF - Ultra High Frequency

V

VC - Viet Cong
VHF - Very High Frequency
Victor - VHF radio
Victor Charlie - Viet Cong
VN - Vietnam(ese)
VN - Vietnamese Navy
VNAF - Vietnamese Air Force
VR - Visual Reconnaissance

W

White Team - two OH-6A scout helicopters
WIA - Wounded In Action
Willie Pete - Military slang for white phosphorous
WP - White Phosphorus

X

XO - Executive Officer

Y

Z

Zippo - Flamethrower (usually mounted on either a tank, APC or riverine craft)

US Artillery



Fire Support Bases

INTRODUCTION
TARGETING
ARTILLERY TO&E's
FIRE TYPES
FUSES & AMMO
FIRE DOCTRINE
OBSERVATION
FIRE PATTERNS

The hallmark of ground maneuver which dominated Army tactics in Vietnam was the fire support base, often referred to simply as firebase. Conceptually, the fire support base functioned simply to provide a secure but mobile artillery position capable of rendering fire support to infantry operating in areas beyond the normal range of their main base camp cannon and howitzers. A typical FSB could be expected to deploy 6 x M102 105mm field howitzers and anything from a company to a battalion of infantry with it's supporting 81mm mortars, communications, medical and administrative personnel

This concept afforded infantry a greater degree of flexibility without sacrificing artillery protection. However, firebases quickly became targets for enemy counterattacks and bombardments, and increased defensive measures were undertaken. More sophistication meant less mobility. Over the course of the war, firebases developed to the point where ground maneuver was hampered because of their size, elaborate construction, demand on supply and protective resources, and troop reluctance to leave their comforts and safety, a condition called "firebase psychosis."

The 1st Cavalry Division (Airmobile), as the most tactically mobile formation in Vietnam, gave priority to rapid firebase deployment and construction. In order adequately to cover its large areas of operations, the division was constantly opening, closing, and reopening firebases throughout the war. The first division firebase was designated as Bill, built during October 1965 in Pleiku Province. However, by 1969 they had blossomed from jungle clearings with unsophisticated defenses into formidable semi-permanent fortresses.

The typical cavalry fire support base was a defensive area roughly 250 yards in diameter with an 800-yard perimeter, which contained howitzers and enough equipment and supplies to support the infantry with artillery fire around the clock. The firebase also supplied logistics, communications, medical, and rest facilities for the cavalrymen within its area. The division's 8th Engineer Battalion was responsible for initiating firebase construction. The engineer line companies, assigned one to a brigade, cleared the

initial area, performed demolitions work, established water points, and provided the supervisory expertise, equipment, and manpower to build sophisticated fieldworks.



Typical artillery fire base

Once the fire support base site was selected, usually by aerial photographic reconnaissance at division level, the brigade and battalion responsible for its sector began detailed construction planning. Terrain and weather information were used to determine its size, shape, and required facilities. Construction priorities were then issued, hopefully in a timely fashion. It was proven repeatedly that minutes spent in coordinated planning by all concerned units saved hours in actual construction time. The normal order of construction was: temporary helicopter pad for delivery of supplies, howitzer positions, perimeter berm, artillery fire direction center (FDC), infantry tactical operations center (TOC, the command post), ammunition supply point, "VIP" helicopter pad, garbage sump, defensive wire barrier, and, finally, medium artillery positions if applicable.

The division prepared basic firebase kits, each designed for a battalion-level fire support base and its supporting six light howitzers, which contained all the necessary materials for construction. Nails, spikes, metal culverts, chain-link fence rolls, tar paper, sandbags, pickets, and lumber were all pre-palletized or arranged in sling-loads for rapid helicopter delivery. The firebase kit required about twenty-five CH47 Chinook cargo helicopter sorties to deliver to the field.

The amount of equipment needed to clear the area of the firebase varied depending upon terrain. In dense jungle large Air Force bombs were used to demolish enough vegetation to blast out a landing zone. The more common bomb of this type was the 750-pound "Daisy Cutter" that detonated about ten feet above the ground, effectively destroying all foliage for ten feet around and knocking down trees over a considerably larger radius. The 10,000-pound "Instant LZ" opened up larger swaths of demolished jungle, while late-war 15,000-pound "Commando Vault' bombs offered the most destructive power.

Napalm was a useful supplement if tropical forests were clogged with bamboo or additional thick jungle growth.

The air assault to secure and establish the firebase site was the riskiest part of the construction task. If the site was not large enough to accommodate the landing of a single helicopter, combat engineers with axes and explosives rappelled from a helicopter hovering fifty to one hundred feet above the ground. They were escorted by small parties of volunteer infantry which provided security while the engineers cleared an area large enough for the CH-47 Chinook and CH-54 Flying Crane cargo helicopters. Using demolitions and chain saws, the assault engineers could clear a landing zone for the larger helicopters within three hours. Of course, in most instances the selection of open fields demanded only a small amount of advance clearing.

The foremost task of any firebase construction effort was to produce a tenable tactical position by nightfall on the first day, with overhead cover for every man. This "tactical phase" was a time of heavy helicopter traffic bringing in more engineers and their equipment, the infantry and artillerymen, ammunition, barrier and bunker materials, rations, fuel, water, and howitzers and other weapons. As soon as the perimeter trace was cut out, defensive positions were started.

The normal construction site required the use of one engineer platoon under the direction of a "project engineer" with two medium D6B dozers, two Case light dozers, and one backhoe. As engineers worked with explosive charges, bangalore torpedoes, and chain saws to expand the perimeter, the first vehicular machines were being flown to the area. The invaluable light dozers could be airlifted in one piece underneath Chinooks and were the first equipment in. They were used to clear fields of small trees and stumps and to level artillery positions. The backhoe dug emplacements for the TOC, FDC, medical bunker, and perimeter bunker. Heavy dozers were lifted in two pieces, the blades and tracks by Chinook and the tractor body by Flying Crane. Once hauled in, the dozer had to be assembled, which required at least thirty minutes (more if the pilot did not set the machine down on its tracks); then it was immediately put to work pushing up earth to create a four-foot berm completely around the perimeter.

As engineer dozers and backhoes carved out the main firebase defenses, the infantry and artillerymen began emplacing wire entanglements, digging perimeter fighting holes, and emplacing perimeter bunkers in backhoe excavations. "Quick Fix" combat bunkers were simply five-foot-by-eight-foot shoulder-high holes covered with lumber or natural timber and sandbags. Standard perimeter bunkers provided better protection because they were covered by wooden stringers and steel mat decking. The simplest fighting positions were the two-man foxholes, each covered by three sections of sixty-inch metal culverts and topped by sandbags. In the meantime, once the first strand of tactical wire was emplaced, the artillerymen returned to build ammo storage bunkers and parapets around their weapons.

The final defensive phase of construction began when the Chinooks had delivered enough kit material to permit the engineers to build the main infantry TOC, artillery FDC, and medical bunker. These were built using large dimensional timbers, precut to anticipated firebase requirements. The main bunkers were started at the end of the first day or the beginning of the second day and finished by the end of the

fourth day. Construction time was often shortened by employing reusable TOC and FDC bunker modules. Bunker modules were composed of two CONEX containers emplaced facing each other, with the overhead gap between them covered by steel matting. Two modules (four containers) sufficed for a battalion command center. Using these containers allowed an operational TOC/FDC complex to be completed within eight hours, including pushing earth fill around the sides and sandbagging the tops.

The infantry and artillerymen continued improving the wire barriers with tangle-foot and a second perimeter strand. Individual sleeping positions were built using metal seventy-two-inch half-culvert sections. The improvement of firebases was a never-ending job, as all structures were continually reinforced, surface drainage improved, and fields-of-fire constantly maintained by additional clearance. One squad of engineers was normally kept on any fire support base.

The life span of a fire support base depended on the tactical situation in its area. Since firebases were normally established to give a battalion and its direct support howitzer battery a pivot of operations to patrol the immediate vicinity, the firebase was closed when the battalion relocated. When the decision was made to close out a firebase, the brigade engineer usually provided one platoon to assist the infantry company tasked with dismantling it. Structural removal was aimed at salvaging the timbers, culverts, steel matting, and chain-link fencing in order to reconstitute division firebase kits, but holes were filled and berms leveled at command discretion.

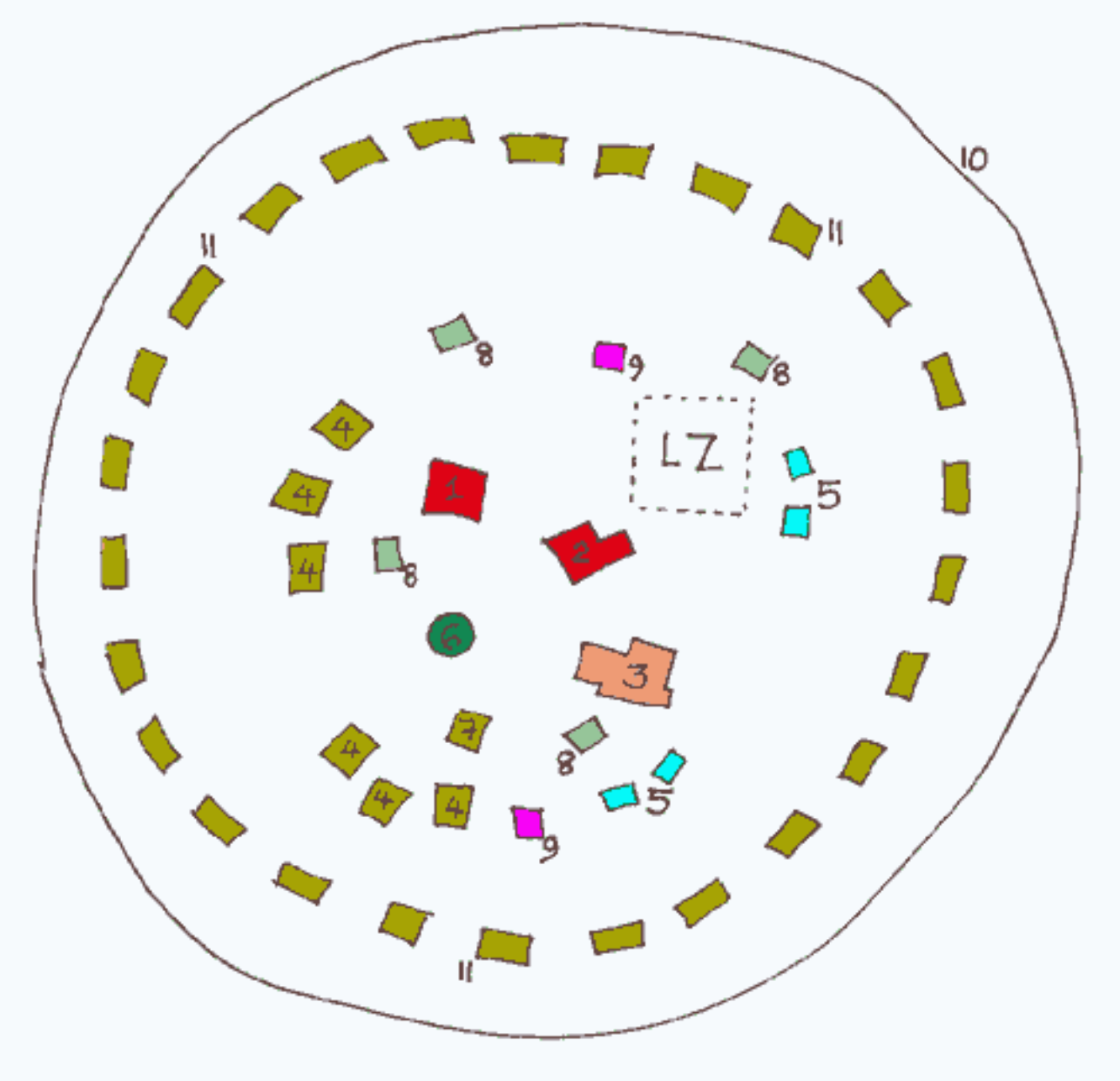
The 1st Cavalry Division's fire support bases were another example of adopting traditional frontier cavalry forts to the Vietnam environment, fusing airmobility to enhance the process. The advent of helicopter support and better material resources allowed these forts to be established more quickly and more often and projected cavalry battalions into hostile territory with greater assured safety. Once emplaced, however, they effectively limited cavalry movement to the radius of their guns. More substantial firebases of a semi-permanent nature mushroomed into major camps with recreation areas, snack shops, mess halls, and elaborate living facilities, which actively hindered field operations because of their large garrison requirements.

Construction and Layout

There was a standard drill for the construction of a FSB.

- Following recon and site selection, a stake was positioned at the center of the chosen site and a 131' (40m) rope was used to mark the bunker line
- The bunker line was marked by stakes at 15' intervals to indicate the individual infantry bunker positions
- A circle of 246' (75m) radius marked the line of the perimeter wire
- At each bunker position, helicopters dropped a standard pack of 1 shaped demo charge, 2 sheets of pierced steel planking and empty sandbags which were used to construct a 9' (2.7m) bunker
- Bulldozers excavated ground for the CP and the FSCC or FDC and pits for the guns and mortars
- A prefabricated 20' (6m) observation tower was flown in by CH-47

- Time taken for construction varied but it was deemed essential that the outer defences and infantry positions were completed by last light on the first day of the occupation of the FSB site



KEY

1. FSCC - Fire Support Co-ordination Center
2. Communications Center
3. Administration & Stores
4. 105mm Gun Pits
5. 81mm Mortar Pits
6. Observation Tower
7. Command Post
8. Ground Surveillance & Anti-personnel radar emplacements

9. Night observation devices, searchlights for visible/infra-red illumination
10. Perimeter - triple dannart barbed wire, claymores, trip flares & Fougass
11. Infantry Bunkers



US ARTILLERY

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Artillery was seen as being so central to US operations in RVN that 70 battalions of it served there alongside some 81 Infantry Battalions. This allowed for massive firepower to be placed rapidly over a large area and under all or any conditions of visibility, weather and terrain.

One particular innovation in Vietnam, prompted by the fluidity of the area battlefield was the system of interlocking Fire Support Bases and improved Night Defensive Positions which were developed to provide continuous all-around defense.

Major emphasis was put on fire support. Artillery was positioned so that any point in an AO could be reached by fire from at least one (usually two) batteries. The batteries were themselves mutually supporting so that they could fire in support of one another in case of attack.

In particular, the great range of the 175mm guns made it possible to deliver heavy and accurate fire to positions and patrols within 20 miles of the gun position, regardless of weather.

The Division Artillery in RVN contained a division artillery HQ and HQ battery, one 155mm towed / 8-inch self-propelled howitzer battalion (general support), and three 105mm towed battalions (direct support). There were originally 18 105's in a battalion, assigned to 3 batteries of 6 guns a piece. However, after '68 an additional 105mm battery was frequently assigned to each battalion. In addition, each separate Infantry Brigade had it's own 105mm battalion present (except 1st Brigade, 5th Infantry Division which had it's own 155mm self-propelled M109 howitzers).

Divisional artillery usually also had it's own aviation contingent.

1967 INFANTRY DIVISIONAL ARTILLERY

- 208 Officers
- 28 Warrant Officers

- 2,553 Enlisted
- 18 x 155mm (towed)
- 4 x 8-inch (self-propelled)
- 54 x 105mm (towed)
- 9 x OH-6A
- 2 x UH-1B

M101 / M102 105mm Towed Howitzer



The 105mm towed howitzer most often served in the direct fire support role. Light, dependable and with a high rate of fire this was an ideal weapon for moving with light infantry forces and responding quickly with high volumes of close-in fire.

Initially, units were equipped with the M101A1 howitzer, virtually the same weapon as used in WWII. Weighing 2,220-kg and with a maximum range of 11,200-meters the M101A1 could fire HE, HEAT, SMOKE, WP, CHEM and ILLUM munitions at a ROF of 8 rounds/minute.

In 1966 the new M102's started to replace the older M101A1 versions. This weapon was nearly 1-ton lighter and fully air-portable at 1,470-kg. It had an improved range of 14,000-meters as a result of having a longer barrel length. It was also capable of using the 'Beehive' flechette round.

See 105mm towed Howitzer Battalion TO&E.

M108 105mm Self-Propelled Howitzer

This weapon was obsolescent but still in the army inventory. It was too heavy at 22,452-kg to be lifted by helicopter and so it's support of highly mobile forces was restricted.



M108 105mm SP Howitzer

However, it was employed effectively in area support roles and, if the terrain permitted, in support of ground operations. Only two of these battalions went to RVN.

M114A1 Towed / M109 Self-Propelled 155mm Howitzer

Both weapons normally provided area coverage or augmented direct support artillery.

The M114A1, like the M108, was considered obsolescent for a war in Europe against a highly mobile armoured enemy. In Vietnam however, the M114A1 proved invaluable since at 5,800-kg it was light enough to be heli-lifted and so could provide medium fire support to infantry forces at ranges up to 14,600-meters. It could sustain a ROF of 2 rounds/minute and fire HE, SMOKE, WP, ILLUM and CHEM/GAS rounds.

With a range 3000 meters greater than the 105mm and a shell three times the weight of a 105mm, these howitzers provided additional punch to existing direct support weapons.



M109 155mm SP Howitzer

The M109 was used in a direct support role with 1st Brigade, 5th Infantry Division (Mechanized). Weighing 20,500-kg it had to move into position by road.

See 155mm towed Howitzer Battalion TO&E

See 155mm towed / 8" SP Howitzer Battalion

M107 175mm Self-Propelled Gun & M110 8-inch Self-Propelled Howitzer

These weapons were mounted on the same gun carriage but used different tubes. The M-107 175mm Gun fired a 174-pound projectile out to almost 33 kilometers (32,700-meters) and proved of great value in providing an umbrella of protection over a wide area. Also used in support of incursions into Laos and Cambodia where it could strike deep inland from the RVN border.



M107 175mm SP Gun

The M-110 8-inch Howitzer fired a 200-pound projectile out to almost 17 kilometers (16,800-meters) and was the most accurate weapon in the field artillery.



M110 SP 8-inch Howitzer

Since the weapons had an identical gun carriage it was common practice to install the tubes best suited to the current tactical mission, so that one day a battery may be all 175mm Guns and a few days later it may be half 175mm and half 8-inch.

See 175mm SP Gun / 8-inch SP Howitzer Battalion TO&E

SOURCES:

Vietnam Order of Battle, Shelby Stanton, US News Books, ISBN 0-89193-700-5

The US Army in Vietnam, Leroy Thompson, David & Charles Publishers, ISBN 0-7153-9219-0

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Personnel in the Open

Personnel in the open are best effected by the following, in decreasing order of effectiveness:

1. **Air burst with VT fuse**
2. **Air burst with time fuse**
3. **Ricochet fire**
4. **High-angle fire with quick fuse**
5. **Low-angle fire with quick fuse**

Sources say that going prone has no effect against air burst or ricochet fire, but would cause about 1/3 as many casualties against quick-fused fire.

Also, rolling terrain can make quick-fused fire about half as effective as flat terrain, though it has little effect on airbursts.

Short bursts at irregular intervals have a cumulative effect on morale. Surprise is essential if casualties are sought.

Personnel in Trenches

In shallow trenches, airbursts can be effective; ricochets usually don't have the right angles to penetrate the trenches; and impact fire is ineffective.

Overall, though, it is very hard to cause casualties against dug-in infantry with artillery fire -- its main effect is to keep their heads down and prevent them from moving out.

WP can be effective in driving personnel out of foxholes where HE can be used.

Minefields and Wire

Artillery is ineffective against minefields and wire, and using it thus is just squandering

ammunition. Minefields are frequently more difficult to neutralize after the ground has been stirred up by artillery fire.

Fortifications

HE shells with long-delay fuses (concrete-piercing) can be effective against fortifications, though it requires a direct hit.

Armor

AP and HEAT ammo can be effective against vehicles, and HE on a direct hit due to the minimal deck armor. AP and HEAT are nearly useless against other targets.

Artillery usually has great effect against armor only in assembly areas, when the vehicles are densely packed, or when a vehicle is immobile, when precision methods can be used. Air burst HE and ricochet can be used to force vehicles to button up.

Artillery's aim against armor is to force them to button up and to eliminate tank-riders (who can basically be treated as if they were standing). Actual kills would be rare unless it was immobile and precision fire could be used.

AT guns/Artillery/Machine Guns

Precision fire is used against guns. If under cover, neutralization is the goal; if visible, destruction fire is used. Light crew-served weapons are best attacked by neutralizing the crew.

Soft Vehicles

Soft vehicles such as trucks, halftracks, jeeps in an assembly area can be attacked by unobserved fire for neutralization or precision fire for destruction. HE with quick fuse, or WP if combustible, is effective. On roads, precision fire first stops the column then destroys each vehicle in turn. This is best done in a place on the road with no easy exit, such as at a defile or culvert.

Personnel in halftracks are about 1/10 as vulnerable as troops in the open; trucks, about 1/4. Again, direct kills will be rare, but these vehicles will be immobilized about three times more often than tanks.

Bridges

Heavy bridges are very difficult to knock out. Heavy-caliber HE with concrete-piercing fuse is most effective. It's easier when the bridge axis runs along the line-of-fire.

Wooden and pontoon bridges can be knocked out by almost any artillery.

Pillboxes, Turrets, Bunkers

Close-range direct fire is best, with cover from smoke, covering fire, or darkness. Several direct hits are usually necessary.

Roads and Railroads

Precision fire with large-caliber HE and delay fuse can create craters. It is most useful where not easily bypassed.

Woods

Quick fuse on HE shells in woods may cause detonation in the trees. This may decrease the effect if the shell goes off high in the trees, or it may increase the effect by acting in the same manner as an air burst.

VT fuse is useless in woods unless the angle of fire is very great, in which case most bursts occur at their normal height.

Woods have little effect on low-angle quick fused HE fire (other than they may make observation difficult), while high-angle fire is about twice as effective as on open ground. Personnel in the edge of woods are in great danger from direct-fire HE, as almost any shot into the tree will act as an air burst.

Smoke in woods will take about half as much ammo, since wind is reduced.

Buildings

Precision fire with pieces 155mm and larger are effective against heavy buildings; however, rubble is almost as useful in fighting as the buildings themselves. Light buildings can be destroyed with HE/quick fuse or WP. Quick fused shells striking light buildings containing infantry will usually be deadly to that infantry, since the blast is contained and highly on-target. Light buildings have many of the same effects as woods. Lower floors of heavy buildings and basements offer substantial protection and the building must basically be collapsed to get to the infantry within them.

Courtesy of Daryl Poe

US ARTILLERY TO&E's

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105mm Towed Howitzer Battalion
(MTOE 6-156G, MTOE 6-157G)

	Battery HQ	Battery A	Battery B	Battery C	Battery D
Officers	20	8	8	8	8
Warrant Officers	3	------	------	------	------
Enlisted	158	107	107	107	107
5-ton Wrecker	1	------	------	------	------
5-ton Truck	1	------	------	------	------
2 1/2-ton Truck	16	13	13	13	13
3/4-ton Truck	20	4	4	4	4
1/4-ton Truck	20	5	5	5	5
105mm Howitzer	------	6	6	6	6
40mm M79	8	5	5	5	5
7.62mm M60	8	8	8	8	8
5.56mm M16	154	108	108	108	108
Cal .45 Pistol	27	7	7	7	7

155mm Towed / 8-inch Self-Propelled Howitzer Battalion
(MTOE 6-166G, MTOE 6-167G, MTOE 6-358G)

	Battery HQ	Battery A	Battery B	Battery C	Battery D
Officers	17	4	4	4	4
Warrant Officers	2	-----	-----	-----	-----
Enlisted	144	109	109	109	110
Ammo Carrier	-----	-----	-----	-----	4
C&C Carrier	-----	-----	-----	-----	4
5-ton Wrecker	1	-----	-----	-----	-----
5-ton Truck	12	9	9	9	6
2 1/2-ton Truck	9	3	3	3	5
3/4-ton Truck	15	2	2	2	3
1/4-ton Truck	14	2	2	2	2
155mm Howitzer	-----	6	6	6	-----
8-inch Howitzer	-----	-----	-----	-----	4
40mm M79	5	5	5	5	5
7.62mm M60	9	8	8	8	8
5.56mm M16	141	101	101	101	108
Cal .45 Pistol	24	7	7	7	7

155mm Towed Howitzer Battalion

(MTOE 6-426G, MTOE 6-427G, MTOE 6-429G)

	Battery HQ	Battery A	Battery B	Battery C	Service Battery
Officers	17	6	6	6	2
Warrant Officers	3	-----	-----	-----	3
Enlisted	113	119	119	119	85
5-ton Wrecker	-----	-----	-----	-----	1
5-ton Truck		10	10	10	10
2 1/2-ton Truck	7	3	3	3	9
3/4-ton Truck	20	4	4	4	3
1/4-ton Truck	10	5	5	5	3
155mm Howitzer		6	6	6	
40mm M79	6	8	8	8	8
7.62mm M60	-----	8	8	8	7
7.62mm M14		8	8	8	
5.56mm M16	114	100	100	100	82

Cal .45 Pistol	17	9	9	9	8
Cal .38 Revolver	2	-----	-----	-----	-----

175mm SP Gun / 8-inch SP Howitzer Battalion
(MTOE 6-436G, MTOE 6-437G, MTOE 6-439G)

	Battery HQ	Battery A	Battery B	Battery C	Service Battery
Officers	17	6	6	6	2
Warrant Officers	3	-----	-----	-----	3
Enlisted	115	112	112	112	71
6-ton Cargo Carrier	-----	4	4	4	-----
M578 Recovery	-----	-----	-----	-----	1
M577 C&C	-----	1	1	1	-----
5-ton Truck	-----	4	4	4	8
5-ton Wrecker	-----	-----	-----	-----	1
2 1/2-ton Truck	7	5	5	5	8
3/4-ton Truck	21	4	4	4	3
1/4-ton Truck	10	6	6	6	3
175mm M107	-----	2	2	2	-----
8-inch M110	-----	2	2	2	-----
7.62mm M60	6	7	7	7	4
40mm M79	4	3	3	3	4
5.56mm M16	111	113	113	113	70
Cal .45 Pistol	22	5	5	5	8

SOURCE:

Vietnam Order of Battle, Shelby Stanton, US News Books, ISBN 0-89193-700-5

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FIRE TYPES

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Direct Laying

Direct laying is the term for direct-fire, when the target can be seen from the piece. Self-observation is used.

Assault Fire

When attacking a strongpoint or bunker, pinpoint fire from 2500-4000 yards can be used. Fine control of the fire is obtained by using more trial fires and possible aiming boards to get 1/4 mil deflection.

High-angle Fire

Fire at greater than the elevation that produces maximum range is high-angle fire.

Mortars effectively always use high-angle fire, and guns cannot be elevated enough for high-angle fire -- only howitzers can do both.

HE (fragmentation) shells are improved in effect when the angle of impact is high, because all the side-spray fragments are travelling parallel to the ground in a 360-degree circle, while in low-angle fire half the shrapnel is expended harmlessly in the air. Ricochet fire is not possible. Dispersion is higher than low-angle fire, since the shell is in the air much longer, so unobserved high-angle fire is avoided.

Some weapons have "gaps" for high-angle fire no combination of elevation and charge will cause the round to fall correctly. High-angle fire with delay fuze may be useful in penetrating thick jungle foliage or canopy.

High-angle fire with quick fuse Is about twice as effective against personnel standing or walking in the open.

Barrages

A *barrage* is a prearranged barrier of fire designated to protect friendly troops and installations by impeding enemy movements across defensive lines or areas.

Each battery is laid on its barrage when not otherwise occupied and fires on barrage signal or call from the supported unit. The most effective barrages are the width of an open sheaf, though wider areas can be covered by shifting the entire battery or by spreading the batter and moving each gun in small increments. Unlike normal fire, barrages can easily be at any angle relative to the line-of-fire.

Target Marking

Artillery is sometimes used to identify targets for ground-attack aircraft, using colored smoke. Coordination must be arranged well in advance of the striking crafts' arrival on the battlefield.

Counterbattery

Flash, sound, radar ranging, or direct observation can be used to pinpoint enemy artillery. US Radar was good only against enemy mortars and could only give rough map positions, so they were generally treated as targets of opportunity. Division and corps assets were used more often in the counterbattery role, either as part of a prearranged fire plan or as a heavy concentration of surprise fire on enemy mortars.

A battalion would be used for the initial neutralization, followed by a battery or two just to maintain it. WP and HE, in about a 1:4 ratio, were an effective combination.

Time-on-Target (TOT) Fire

TOT fire is a technique when the volleys from several units arrive on the target at the same time, for maximal surprise. Of course, it takes time to calculate the flight time and coordinate all the units, so this type of attack will be longer in setting up.

Courtesy of Daryl Poe

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FUSES & AMMO

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FUSES

Quick Fuse
Quick fuse is a contact fuse -- the shell goes off when it touches something hard, like the ground, a tank, or trees.

Mechanical or Powder-Train Timer Fuse
The shell goes off some time after it is fired. Usually, this is timed to give an air burst, which is most effective at about 20 yards above the target.

VT (Proximity) Fuse
The VT fuse emits a radio signal and goes off when it detects enough of this signal is being reflected back from a hard object. The height of burst will increase if over dense foliage, swamp, water, or wet terrain; and it will decrease with high-angle fire.

The minimum ranges in yards for several guns is shown below:

Weapon	Minimum Range
105mm Howitzer	2,700
155mm Howitzer	4,000
8" Howitzer	6,000

Delay Fuse
With the delay fuse, the shell goes off some time after hitting a hard target. This can be used either

to penetrate a target before detonation (such as a bunker), sink into the ground a ways before detonation (to produce craters), or to purposefully richochet and produce airburst effects. Richochets occur more frequently with low-angle fire and hard ground. Richochet fire should only be attempted if the observer can verify that at least 50% of the shells are actually richocheting. If not, another type of fuse should be specified.

AMMO

High-Explosive (HE)

When a HE shell explodes, most of the fragments shoot out in a circular pattern from the sides of the shell, with some amount of fragments from the nose and tail. Unless the angle-of-impact is very high, the fragments that shoot upwards are ineffective.

HE Burst Area

The burst area in yards for a single HE shell with quick fuse, defined as the area in which there is at least a 50% chance that a standing man will become a casualty, is given below for various guns. Depth is in the direction that the shell is travelling -- due to side-spray, the area is longer along the perpendicular. Large fragments can be thrown over a larger area, as is shown by the last column. Remember that this is the burst area for a single shell, not a volley.

Piece	Depth	Width	Large Fragments
105mm Howitzer	15	50	300
155mm Gun or Howitzer	18	60	550
8" Gun or Howitzer	20	80	

White Phosphorous (WP)

WP produces smoke, incendiary effect, and casualties. Quick fuse is preferred in all cases -- unlike HE, with WP, those fragments that shoot upward are actually useful. Because the burning is very hot, smoke tends to pillar upwards rather than spreading across the battlefield. To build a smoke screen, more ammo must be used than conventional smoke shells.

For casualties, WP should be treated as about half as effective as HE, though all shots should be treated as airbursts.

Base-Ejection Smoke

If a smoke shell penetrates the ground or hits it too hard, the smoke effect will be minimal. Base-ejection shells throw the smoke generating part of the shell backwards just before impact so it is moving at a slower velocity when it hits the ground and is unlikely to penetrate.

Most smoke is produced by hexachlorethane (HC), which burns cold, so the smoke will tend to drift along the ground as blown by the wind. Rain makes it more effective. Smoke shells take 30-60 seconds to build a cloud; 1-2 minutes to reach maximum effectiveness; and they burn 3-4 minutes.

If the wind is parallel to the screened front, the shells can be spaced by as much as 400 yards. If perpendicular, they might need to be as close as 30 yards. Ammo expenditure per minute per point in the screen is 1-2 shells for 105mm, depending on the wind, and .5-1 shell for 155mm.

Illuminating Shells

Illuminating shells burn for about a minute. In all cases, it's best to have coverage from at least two shells to minimize shadows. They should burst at about 700 yards of height; be spaced about 700 yards apart; and be fired at a rate of about 2 rounds per minute. A single 155mm shell will illuminate an area about 1000 yards in diameter.

Courtesy of Daryl Poe

US Artillery



Artillery Fire Doctrine

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The two basic elements of combat power are maneuver and firepower. Maneuver is the movement of combat forces to gain positional advantage, psychological shock, physical momentum, and massed effects. Firepower is the destructive force essential to defeating an enemy's ability and will to fight.

Throughout history, maneuver and firepower have alternated in dominating the battlefield. In World War I the new firepower technologies completely dominated the tactical situation, resulting in the gridlock of trench warfare. As a revolutionary war, Vietnam might have seemed like an ideal environment for maneuver to dominate. The American military, however, had a longstanding tradition of heavy reliance on firepower, and Vietnam was no exception.



Until the twentieth century, artillery was almost the sole source of battlefield firepower. During the Vietnam War firepower support also came from (Army) helicopters and (Air Force, Navy, and Marine) tactical aircraft. Each system had its advantages, which compensated for the disadvantages of the others. Artillery is accurate, responsive, and flexible; helicopters offer precision and direct observation; and close air support is highly destructive. The challenge for ground commanders was to integrate these forms of firepower with the scheme of maneuver to produce the desired tactical effect.

Most field artillery units had a mission of either direct support (DS) or general support (GS). A division normally had one DS artillery battalion for each maneuver brigade, plus a GS battalion to provide fires for the whole division. Non-divisional artillery units were organized into artillery groups, which had a

mission of providing general support to an entire corps (called "field forces" in Vietnam). For some specific operations, non-divisional artillery could be given the mission of reinforcing (R) the fires of a divisional unit. In the absence of large divisional operations in Vietnam, most non-divisional artillery units were used to provide support for a specific geographical area.

When supporting a brigade, the DS artillery battalion normally had three firing batteries of six guns each. In conventional operations this would mean there was one artillery battery to support each maneuver company - although the firing batteries remained under the control of the artillery battalion to provide massed fires across the brigade sector. In Vietnam, however, operations tended to be fragmented and dispersed, and the guns had to disperse in order to support them. This was a violation of the time-proven principle that artillery is effective only when fired in mass; but during the Vietnam War the enemy rarely presented massed targets for Allied artillery.

Starting at the company level, every echelon in the maneuver chain of command had a fire support coordinator (FISCOORD). The company FISCOORD was the company commander, but he was assisted in this task by a forward observer (FO) from the DS artillery battalion. FOs generally were the most junior lieutenants in the artillery. Nonetheless, good FOs were highly prized by their infantry units, and a company commander usually kept his FO within arm's reach. The enemy also appreciated the extra combat power the FO represented and made special efforts to identify and kill him quickly if possible.

At the maneuver battalion, the FISCOORD was the artillery liaison officer (LNO), a more senior captain also supplied by the DS artillery battalion. Quite often, the artillery LNO worked from a command and control (C2) helicopter, along with the supported maneuver battalion commander and his operations officer (S-3). The LNO was responsible for coordinating all fires for the battalion, not just artillery-delivered fires. Thus the LNO had to ensure that artillery, helicopters, and tactical air were synchronized on the target, yet separated from each other in time and space to preclude midair collisions.

Making the task more complicated, radios in Army and Air Force strike aircraft were incompatible. Operating a bank of radios in the C2 helicopter, the LNO had to pass messages and commands back and forth between FOs on the ground, Army helicopters in the air, and Air Force forward air controllers (FACs) on the ground or in the air - who then talked to the Air Force aircraft.

The commander of the DS artillery battalion was the designated FISCOORD for the brigade, and the division artillery (DIVARTY) commander was the FISCOORD for the division. In practice, assistant FISCOORDs at the brigade and division fire support coordination centers (FSCCs) performed the day-to-day tasks.

When a company FO called for fire on the radio, his request went directly to either the battery or battalion (depending on the situation) fire direction center (FDC). The LNO at the maneuver battalion monitored the call and had the authority to cancel or modify the request. If the LNO failed to intervene, his silence implied consent and the mission continued. The fire direction officer (FDO) made the final determination and issued the fire order. The FDC crew then computed the data and sent the fire commands to the gun crews.

Most FDCs in Vietnam, especially in the later years, were equipped with FADAC, the U.S. Army's first digital fire direction computer. "Freddy" FADAC, however, was a notoriously cranky piece of equipment and was often inoperable for one reason or another. It also was slow, requiring two-thirds of the projectile time of flight for an initial solution. A well-trained FDC using manual charts and graphical computational tools could beat FADAC every time. Where Freddy excelled was in handling multiple fire missions simultaneously.



Artillery was (and still is) the fastest of the fire support means. Under ideal conditions, a well-trained battery had the technical capability of placing rounds on the target within two to three minutes of the FO's initial request. Combat conditions are never ideal, however, and in Vietnam, the actual average was something more like six minutes for light artillery and thirteen minutes for heavy guns, which often had to shift their trails to fire. Even longer delays were caused by the political nature of the war itself. In populated areas, the local Vietnamese sector headquarters had to approve the mission before it could be fired. Later in the war, Air Warning Control Centers (AWCCs) were established to broadcast warnings to all friendly aircraft in the area. This added another element of delay. Despite these delays, artillery was still much more responsive than tactical air, which took anywhere from 40 minutes to an hour from the initial call to target attack.

A revolutionary war like Vietnam warped the traditional relationships between firepower and maneuver in subtle ways. On the strategic level, the front line of the war may have been the DMZ and the Cambodian border; but on the operational and tactical levels there were no front lines. Instead of being linear, the war was circular. The enemy was capable of being anywhere "out there." This, combined with the dense jungle in which actions were fought, reduced the effectiveness of envelopments, turning movements, and the other classical forms of tactical maneuver. Company commanders quickly learned that adding more friendly infantry to a fight quite often led to more friendly casualties.



Concern over friendly casualties was another factor inhibiting maneuver in Vietnam. More than any other war in American history, the preservation of soldiers' lives was the overriding tactical imperative. This was driven by the very shaky political support for the war at home, combined with the close scrutiny and almost immediate (and sometimes inaccurate) media coverage. The war had no clearly defined objectives, and no clearly articulated national interests were at stake. Faced with these tactical, social, and political imperatives, the only alternate course of action was to use firepower in massive quantities and to give it primacy over maneuver. The prevailing philosophy became "bullets, not bodies." The United States, of course, with its abundant materiel resources, could do this easily. But in so doing, it provided the worst sort of role model for the Army of the Republic of Vietnam (ARVN), which did not have the resources but knew no other way of operating once it had to fight on its own. Thus, infantry units in Vietnam maneuvered to achieve two objectives: first to find the enemy, and then to take up the best position from which to call in and direct overwhelming fire assets to finish the job. The automatic response to bring in heavy firepower meant that infantry units had to stay at least 200 to 300 meters away from the enemy to avoid becoming casualties of their own supporting fires. The Viet Cong (VC) and People's Army of Vietnam (PAVN) quickly recognized this weakness and developed "hugging tactics," which brought them in so close that Allied firepower became unusable.

Some U.S. commanders decried the over dependence on firepower and the corresponding loss of infantry maneuver skills. They advocated the adoption of the same guerrilla tactics used by the VC and PAVN. But even these minority voices recognized that U.S. firepower was the final trump card. As Lt. Col. David Hackworth said of his experiences with the 9th Infantry Division's 4th Battalion, 39th Infantry: "Only guerrilla tactics augmented by U.S. firepower can defeat the enemy at low cost."

Of all the forms of Allied operations, the VC and PAVN most feared the cordon. This operation normally began with multiple helicopter assault landings to isolate and encircle an enemy unit in its base camp. Once on the ground, Allied troops formed a perimeter with a radius of 500 to 1,000 meters. When the cordon was sealed, everything inside was systematically pounded with air and artillery firepower. This was both slow and methodical to avoid casualties from friendly fire. It became even more careful as infantry moved in toward the center, shrinking the circle and the target area. The slowly moving infantry always carefully marked their positions well to avoid taking friendly fire. If set up properly and sprung quickly, cordon operations were very effective.

Earlier in the war, firebases were little more than temporary artillery emplacements established to support infantry operating in a given area. They were set up quickly, usually by air, and abandoned just as quickly. But then the Communist forces drastically scaled back operations after suffering a crushing tactical defeat in the 1968 Tet Offensive. The Allies responded by using firebases as a means to lure the enemy into firepower traps. Firebases thus became semi permanent fortresses with dug-in gun pits, bunkers, and up to 25,000 sandbags for a single battery.

This basically was the same tactic the French had tried, and they failed with it on a grand scale at Dien Bien Phu. For the Americans, it was a success - on the tactical level at least - because they had both the artillery and air assets to overwhelmingly reinforce any firebase that came under attack. One result of this approach was that many infantry units were reduced to little more than perimeter security guards for the firebases. Another result was that American artillery positions routinely came under direct ground attack more than at any other time since the Civil War, when artillery was still a direct fire weapon. Artillerymen devised many innovative ways to defend themselves, including the flechette firing "Beehive" round and "Killer Junior," a high-explosive round with a time fuse set to detonate 30 feet off the ground at ranges between 200 and 1,000 meters. Communist forces never managed to overrun a single American firebase.

Operating from firebases required new ways of thinking for American artillerymen. In conventional operations the guns of a battery usually were positioned in a staggered line parallel to the infantry front line, 2,000 or 3,000 meters to the front. In Vietnam the "front" was in all directions, and only 50 or 100 meters away. The solution was to position the guns on a firebase in either a diamond (four-gun battery) or a star (six-gun battery) formation. That way the guns could fire in any direction and the pattern of rounds (called a "sheaf") impacting on the ground would be the same. Setting up to fire in all directions also required special preparations in the gun pits and modifications to the firing charts in the FDC.

The fire base concept led to a sharp increase in one particularly worthless form of artillery fire. Harassment and Interdiction (H&I) fire consisted of random rounds fired at "suspected and likely" enemy locations and routes. H&I was usually fired at night and was unobserved. It became slightly more effective later in the war with the introduction of sophisticated remote sensors, which served as firing cues. In general, however, H&I fire was largely a waste of ammunition, accounting for some 60 percent of all artillery fire during the war. In fact, only about 15 percent of all artillery rounds fired were in support of troops in contact.



From a purely "systems analysis" standpoint, artillery fire in Vietnam was rather ineffective. According to the most optimistic estimates, it took well over 1,000 rounds to kill a single enemy soldier. But these results were no different than in other wars. Artillery is effective only when used in conjunction with maneuver to produce a synergistic effect. Artillery, in fact, is most effective when used to neutralize (rather than destroy) an enemy force while friendly maneuver units gain overwhelming positional advantage for the final kill.

This, of course, did not happen during the Vietnam War. Early in the war, U.S. policy makers opted for a war of attrition based in part on an imperfect understanding and unrealistic expectations of the ability of

American firepower to send a persuasive message. The Communist forces never did crack, despite the ever-increasing levels of destruction. In the end it came down to a classic Clauswitzian test of wills and national resolve.

Robert H. Scales, Jr., best summarized the principal firepower lesson of the Vietnam War: "If a single lesson is to be learned from the example of Vietnam it is that a finite limit exists to what modern firepower can achieve in limited war, no matter how sophisticated the ordnance or how intelligently it is applied. Overwhelming firepower cannot compensate for bad strategy."

My thanks to David T. Zabecki for granting permission to reproduce this article



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US ARTILLERY

OBSERVATION

INTRODUCTION
TARGETING
FIRE SUPPORT BASES
FIRE TYPES
FUSES & AMMO
FIRE DOCTRINE
FIRE PATTERNS
ARTILLERY TO&E'S

Initial Coordinates

The US observer can pass the initial target by a number of means. For the 'azimuth' methods, the observer's position must be known and plotted by the FDC.

1. **Azimuth as determined by compass or map, plus range**
2. **Azimuth as a correction to a previous measurement (the tree is 4000 mils, add 200 to the target), plus range.**
3. **Estimated azimuth, plus range**
4. **Map coordinates**
5. **Shift from a base point, checkpoint, previous concentration, or landmark**

Height of the target is important to estimate as well.

Examples:

- **FORWARD OBSERVER ABLE, AZIMUTH 4330, 500 yards.**
- **FROM BASE POINT, RIGHT 400 yards, UP 20 yards.**
- **FROM CONCENTRATION P22, WEST 100, SOUTH 300**
- **FROM ROAD JUNCTION 615, AZIMUTH 1400, DISTANCE 900.**
- **FROM CROSSROADS 932, NORTHEAST 600**

The observer also passes or requests:

- **Target description (so FDC can prioritize)**
- **Proximity to friendly troops (CLOSE or DEEP)**
- **Type of adjustment (PRECISION, DESTRUCTION, HIGH-ANGLE, SALVO...)**
- **Fire volume (SINGLE GUN, BATTERY, BATTALION, ALL ADDITIONAL FIRE)**
- **Ammo type (HE, SMOKE, AP, ILLUM...)**

- **Fuse (QUICK, VT, TIME, DELAY, ...)**
- **How control will work (WILL ADJUST means he can adjust each volley; AT MY COMMAND means observations is intermittent or difficult and to fire whenever corrections are sent; CANNOT OBSERVER means blind fire into a probable target)**

The FDC responds with:

- **WILL NOT FIRE, or**
- **ON THE WAY, as shells are fired. For long shots, a warning of impending impact will be sent five seconds ahead of time as "SPLASH".**

Initial shots will be off by ~400 yards for estimates and 100-200 for map data.

While in the US army, almost any platoon commander could call for supporting fire (though he wouldn't be guaranteed of getting it), in most other armies only the observers, HQ's, and liaison officers would call.

Corrections

The relative position of the observer-target (OT) line with respect to the gun-target (GT) line does not affect the observer procedure in the adjustment of observed fires. Errors are determined in yards, and corrections in yards are sent to the battery or battalion fire-direction center (FDC). The FDC converts these coordinates into appropriate fire commands for the pieces. This is accomplished by plotting the corrections on a target grid and measuring data from the resulting plot from the pieces in order to place the next burst at the point designated by the observer.

In area fire, the observer must select a well-defined point from which to adjust, which may be a well-defined terrain feature or some portion of the target, such as a truck or a tank. For surprise fire, he may select some nearby point, adjust on it, and then shift the fire to the area of his target.

Observers estimate distance by experience or by using a "yardstick" - two shells fired at what should be 400 yards apart. Lateral distance is easy to do using field glasses or a map. All angles are done in "mils" (1/6400 of a circle), for which there is a very easy relation: lateral distance = mils*range in thousands, which is good up to about 400 mils.

Only the part of the mission directions that need to change since last fire are sent in the correction orders.

Combined Observation

If two or more observers at different angles to the target can coordinate, fire can be more accurate and better sensed, since triangulation and error averaging can be used. This seems uncommon and would probably have to be set up before the mission starts. Combined observation seems to be about the only way to get good sensing at night.

US ARTILLERY

FIRE PATTERNS

INTRODUCTION
TARGETING
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Sheafs

A *sheaf* is the planes of fire of a group of weapons.

Parallel Sheaf
Parallel sheaf occurs when you aim all the weapons in the battery the same direction and angle. Disregarding dispersion, the shells will land in the same pattern as the guns are set up. This is the easiest sheaf to do since all guns use the same firing orders.

Regular Sheaf
Regular sheaf is when the shells are intended to land in a line with regular lateral spacing. This may, for instance, require the gun in the back of the battery to fire a little higher than the one in the front. This line usually runs perpendicular to the line between the guns and the target.

Open Sheaf
Open sheaf is a regular sheaf where the spacing is chosen so the sheaf has maximum width (given the burst area of each shell) without any gaps in between. This spacing is somewhat smaller than the width of a single shell burst to accomodate a small amount of lateral dispersion.

Heavy artillery usually uses open sheaf!

Converged (or Point) Sheaf
Converged (or point) sheaf occurs when all the guns are corrected to hit the same point. Also known as *Precision Fire*. Converged fire is called for to destroy a point target, a densely-packed target, or for point interdiction (such as on a bridge or crossroads).

Unusual Sheafs
***The normal shape for a sheaf is a line perpendicular to the line-of-fire.* Specially-shaped sheafs can**

be arranged under certain circumstances, such as strangely-shaped targets, point targets, barrages, etc, but this would be the exception. Individual gun corrections for normal sheafs can be handled by the battery itself; for special sheafs, the calculations are done at the Fire Direction Center.

Preplanned barrages, which would be planned well before the start of a game, would be more flexible in this respect in that there is plenty of time to do all the complex computations.

The Sheaf/Volley Tables

The following interesting tables are taken mostly from US manuals, with some of the time numbers being derived from ROF numbers elsewhere. The first table is the statistics for a single battery of size 4 or 6 guns, with open or converged sheaf. Area dimensions are in yards. Volleys is the number of volleys necessary to suppress troops in the area of impact, while rounds is simply Volleys times Number Of Guns. ROF 1 is the rate-of-fire during the first four minutes, when the guns are preloaded for the first volley. For longer-term fire, the ROF is greatly decreased due to ammo handling and gun cooling considerations. Time is derived by taking the number of shells divided by the ROF numbers, as shown by the ROF 2 column, and is given in minutes and seconds.

SINGLE BATTERIES

105mm Howitzer

Battery Size	Sheaf Type	Area (W x D)	Volleys	Rounds	ROF 1	Time 1	ROF 2	Time 2
4	Converged	75 x 100	3	12	16	0.45	6.6	1.49
4	Open	150 x 100	6	24	16	1.30	6.6	3.38
6	Converged	75 x 100	2	12	24	0.30	10	1.12
6	Open	200 x 130	6	36	24	1.30	10	4.48

155mm Howitzer

Battery Size	Sheaf Type	Area (W x D)	Volleys	Rounds	ROF 1	Time 1	ROF 2	Time 2

4	Converged	100 x 100	3	12	8	1.30	2.7	4.30
4	Open	250 x 100	8	32	8	4.00	2.7	12.00
6	Converged	100 x 100	2	12	12	1.00	4	3.00
6	Open	300 x 130	6	36	12	3.00	4	8.00

8" Howitzer

Battery Size	Sheaf Type	Area (W x D)	Volleys	Rounds	ROF 1	Time 1	ROF 2	Time 2
4	Converged	150 x 100	3	12	6	2.00	2	6.00
4	Open	380 x 100	7	28	6	4.40	2	14.00

Battalion Fire Table

When an entire battalion fires, the batteries can choose to put all their sheafs on the same point, or to spread their sheafs downrange so there is some or zero overlap. The following table shows the statistics for various weapons with three batteries each of four or six guns, with converged sheaf (laterally as well as longitudinally) and open sheaf with different amounts of sheaf overlap. With range spread 1, the sheafs have no overlap but are adjacent to each other.

Weapon	Pieces	Sheaf	Range Spread	Area (W X D)	Volleys	Rounds
105mm Howitzer	12	Converged	0	150x150	3	36
105mm Howitzer	12	Open	0	200x200	5	60
105mm Howitzer	12	Open	1/2	200x250	6	72
105mm Howitzer	12	Open	1	200x350	9	108
105mm Howitzer	18	Converged	0	150x150	2	36
105mm Howitzer	18	Open	0	250x200	4	72
105mm Howitzer	18	Open	1/2	250x250	5	90
105mm Howitzer	18	Open	1	250x350	7	126
155mm Howitzer	12	Converged	0	160x150	2	24
155mm Howitzer	12	Open	0	300x200	5	60
155mm Howitzer	12	Open	1/2	300x250	6	72

155mm Howitzer	12	Open	1	300x350	9	108
155mm Howitzer	18	Converged	0	160x150	2	36
155mm Howitzer	18	Open	0	350x200	4	72
155mm Howitzer	18	Open	1/2	350x250	5	90
155mm Howitzer	18	Open	1	350x350	7	126
8" Howitzer	12	Converged	0	200x150	2	24
8" Howitzer	12	Open	0	400x200	5	60
8" Howitzer	12	Open	1/2	400x250	6	72
8" Howitzer	12	Open	1	400x350	9	108

Multi-Battalion Fire Table

If multiple battalions attack a target, the effect and beaten zone is larger. The smaller areas on the following table are if careful correction is done.

Battalions	Weapon	Battery Size	Area
2	105 Howitzer	4	200x250 to 250x300
2	105 Howitzer	6	300x250 to 350x300
2	155 Howitzer	4	250x250 to 300x300
2	155 Howitzer	6	350x250 to 400x300
3	Mixed		350x300 to 400x400

Courtesy of Daryl Poe



VIETCONG



INTRODUCTION



The organisation detailed below is, in effect, a VC Main Force Company, although you could take elements of this organisation for Regional forces. Local forces were not organised to this level, being an assortment of combatants and arms.

Similarly, other than Main Force units, the weapons carried by Regional and Local forces would be an incredible assortment of old and relatively new. A lot of SKS carbines, old WWII vintage rifles, SMG's etc. Very few AK-47's would be evident, even in Main Force units until towards the end of the war.

One very important point to remember when using these units (and regular NVA) is the critically short amount of ammunition available.

Also remember that, following the Tet offensive of February 1968, the VC virtually ceased to exist as a coherent fighting force, having been almost destroyed in depth by the allies. Engagements with VC units after this date will involve confronting substantial numbers of regular NVA cadre troops within the ranks of the VC and a commensurate increase in the quality of weaponry and support fire!

For a frank assessment of the VC see Delta, Mike 2



VC Local Guerrillas

These were the archetypal 'farmers by day, soldiers by night', comprising those either too old or too young to fight in the regular VC units and dressed as local peasant farmers.

Whilst their primary activities consisted of intelligence gathering, sniping and emplacing booby traps, these troops were employed in the support of VC Regional and Main Force units operating in their locality as porters, scouts and guides.

Force size was dependent on the size of the local village or hamlet and ranged from a single 3 man cell to a platoon of 3-4 squads. Generally operated at the squad level of 12 men.

VC Mainforce Regional Guerrillas

The Mainforce Regional units of the Vietcong more often than not operated as independent companies but often split up and dispersed into platoons, squads and cells. These soldiers were full-timers and were better equipped and trained than the local guerrillas. The personnel of these units were often local to the area in which they served.

Generally these units operated within their home region and fought as fully formed units.



see
Offensive Tactics

VC Mainforce Regulars

Known as 'hard hats' since they wore the ubiquitous pith helmet, these forces operated and were organised along traditional military lines. Organised into battalions consisting of 3 Rifle Company's and a Combat Support Company these troops were, on the whole, well trained, aggressive and well led.

On larger operations they could be organised and deployed as regiments of 2-3 battalions.

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ORGANISING A VIET CONG INFANTRY COMPANY

COMPOSITION OF COMPANY

- 1 x Company HQ Section
- 3 x Rifle Platoons (each 1 x Platoon HQ Section, 4 x Rifle Squad)
- Combat Support Elements (Attached)

Company HQ Section

- 1 x Captain
- 1 x Lieutenant
- 1 x RTO
- 2 x Runner

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Rifle Platoon HQ Section

- 1 x Lieutenant
- 1 x Senior Sergeant
- 1 x Runner

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Rifle Squad

- 1 x Sergeant
- 1 x Corporal
- 1 x RPD 7.62mm MG
- 6 x Riflemen

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Combat Support

- 1 x Sergeant
- 2 x Corporal
- 1 x .30 Cal MG (3 crew)
- 1 x 60mm Mortar (3 crew)
- 1 x 57mm RR (3 crew)
- 3 x Riflemen

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NOTES

Most accounts of engagements with the VC mention almost prolific use of RPG', in particular the RPG-2 and RPG-7. In my wargames units I usually substitute 1 Rifleman in each squad for an RPG thus giving the squad significantly greater offensive firepower.

The attached Combat Support Elements of the Company are not fixed, unlike the Weapons squads of the US Rifle Platoon and are very versatile. All VC operations were carefully planned and executed and invariably involved considerable supporting fire for the Rifle Company's involved. Main Force units would often be supported by Weapons Platoons consisting of heavier weapons such as 12.7mm AAMG's, 81/82mm Mortars and larger caliber Recoilless Rifles (normally 75mm).

For a brief introduction to VC defensive tactics see **Defensive Tactics** - this relates primarily to larger VC units.

HIGHER FORMATIONS

BATTALION: Battalion HQ, Political Staff, 3 x Rifle Company, 1 x Combat Support Company, 1 x Signal Platoon, 1 x Recon Platoon, 1 x Sapper Platoon. As in other armies, battalions were organised into Brigades, Regiments and Divisions. The nature of the war however, with overwhelming US Artillery and Air power, precluded the fielding of large formations for any period of time longer than was necessary to carry out a particular mission. As a result units were dispersed quite widely, either in the sanctuaries of Laos and Cambodia or in **Base Camps** in very remote areas such as the A Shau Valley.

This dispersal of units was one of the main reasons that allied forces were unable to bring the enemy to combat in significant numbers as predicated in the classic policy of Search & Destroy and resulted in the numerous fire fight engagements rather than pitched Divisional strength engagements.

A Complete **Order of Battle for 1967** is available detailing the deployment of VC forces in the four Tactical Zones

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If you have any further information, or you know where I can find more information then please contact me



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US Ambush Operations



TYPES OF AMBUSH

It was posited that, as the Government forces regained control of an area and the villages and hamlets therein, the enemy would have to remain mobile in order to maintain contact with the local population. In so doing they would become increasingly vulnerable to ambush operations and since the enemy was forced to move in small groups and at night it was increasingly necessary to employ night ambushes.

Since the enemy was required to move from his secure areas and base camps in order to make contact with the people, ambushes were considered as being effective against him both within and without the periphery of the war zone.

Ambushes that were conducted with imagination and skill were an effective means of inflicting casualties on the enemy. Successful ambushes required patience, endurance, perseverance, aggressiveness, and a high degree of self-discipline on the part of ambush team members. Experienced ambush team leaders noted a relationship between the size of the ambush and the personal attitude of the personnel comprising the ambush unit. Members of a squad-size patrol were usually alert and vigilant en route to and within the ambush site. However, the average soldier appears to have felt less responsibility and was more relaxed when he was part of an ambush force larger than a squad. This false sense of security could result in carelessness and lax discipline which may caused the ambush to fail. In addition to the personal requirements, certain other factors were influential in the success or failure of ambushes.

Most ambushes were set at night and during early morning hours since these were the hours during which the enemy was most active. Careful consideration of intelligence information sometimes indicated the best times for intercepting enemy movement. The time factor also had counterintelligence implications. Departure from and reentry into friendly lines would be planned for a period when the patrol would be least exposed to enemy surveillance.

The proper moment to spring an ambush once the enemy was sighted had to be thoroughly understood by all members of the patrol. Pre-maturely triggered ambushes yielded fewer enemy kills and could result in friendly casualties. The first shot would be held until the patrol leader was positive that the enemy was in the killing zone. The assumption that the enemy will use the obvious trails, roads and stream crossings needed to be avoided. All available intelligence information would be collected on

enemy routes of movement to aid in the choice of ambush sites. In many instances, the enemy avoided using obvious routes in order to keep from walking through likely ambush positions.

Noise, light and camouflage discipline had an extremely important effect on the chances for success of an ambush. A breach of any one of these could well jeopardize the success of the mission. A noisy, careless soldier in an ambush site is the only warning device the VC needed. The key to a successful ambush was surprise. The absence of stealth was a common error and often led to compromise of ambushes. Every precaution needed to be taken to avoid being observed by civilians, leaving signs, or giving any other indication of the patrol's presence when moving to an ambush location. The site would be reconnoitered in such a manner that the intention to use the site for an ambush was not disclosed. If the enemy was aware of the movement to the ambush position, chances of success were negligible.

All too frequently ambushes were well laid, properly planned, and correctly positioned, only to fail because of an oversight on the part of the ambush leader or one of his men. Some of the common deficiencies were as follows:

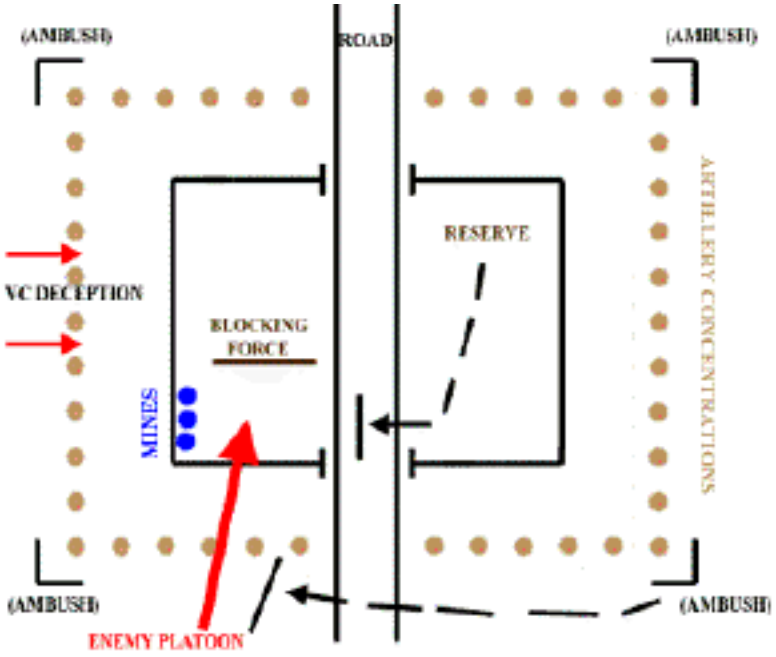
- Noise discipline - coughing, talking, shifting about, clattering of equipment, etc.
- Springing the ambush too early or with a poor signal.
- Lack of sufficient firepower being placed in the killing zone
- Failure to pursue by fire when the enemy moves into the jungle.
- Failure to quickly exploit and search the immediate area for casualties.
- Failure to establish a preplanned search of the area.
- Failure to booby-trap or block the opposite side of the trail.
- Failure to block escape routes.
- Failure of ambush leaders to use supporting arms.

Thorough consideration of these factors increased the odds in favor of a successful ambush. Supervision and discipline were the keys.

Typical ambush formations used in Vietnam were; Linear, 'L' shaped, 'V' shaped and 'Pin Wheel'. These formations could be employed effectively as either deliberate ambushes or ambushes of opportunity.

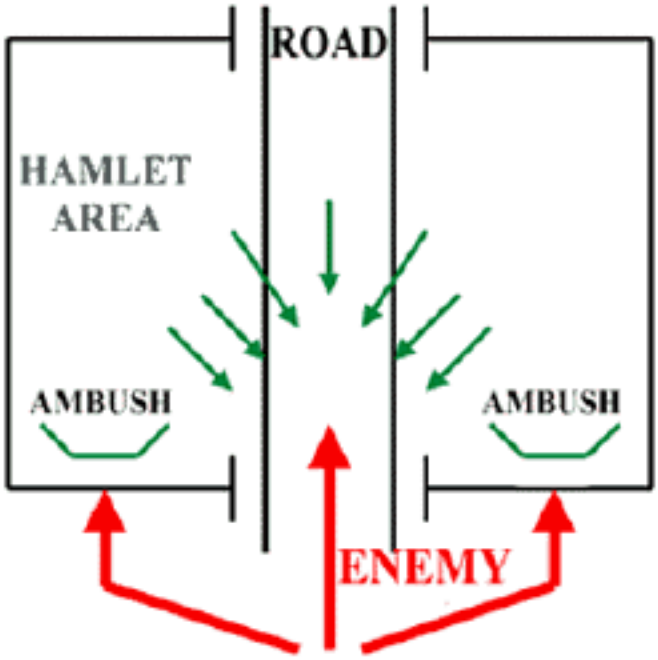
Hamlets

Ambushes were often employed in defense of a hamlet. Small size ambushes, consisting of 4-6 men, were established outside of the hamlet to warn of the direction of an attack. These ambushes were usually located 500-1000 meters from each corner or side of the hamlet and on likely enemy avenues of approach. The positions would be varied and moved one or more times in order not to establish a recognisable pattern. In addition to these ambush positions, ambushes were also planned for inside the hamlet with a planned and well rehearsed course of action for each possible situation.



The concept of this plan is to force the VC into attempting a hasty withdrawal through the front gate. If the VC attacking force attempts to withdraw through the gate, the reserve force moves into an ambush position by the gate and, with artillery support, and support from the four man blocking force, will destroy them. If the enemy chooses to break out to their left the mines will stop them and they will be in a cross fire from the blocking and ambush forces. If the VC try to back out by returning through the breach in the wall they will be stopped by artillery and the outside ambush force which has maneuvered into position to cover the enemies egress. This type of ambush could be planned for any portion or corner of the hamlet. The Lessons Learned document suggests that a 12-man squad could combat a VC Platoon using this plan whilst Al Baker suggested that the lessons learned document was completely out of touch with the reality of these types of ambush, stating, "It just didn't work that way... "

Alternatively, if the enemy is approaching the hamlet gate directly it was possible to ambush him from within the hamlet by using a 'V' shaped ambush.



Two small ambush groups take position either side of the hamlet gateway so that if the enemy attempts to change the direction of their assault so as to attack on either side of the entranceway, they can be blocked and taken under fire.

The main ambush group sets up a 'V' shaped ambush within the hamlet and ambushes the enemy as he moves through the front gate. In this instance, the two small blocking forces can be turned to provide extra fire power into the enemies flank. Again, pre-plotted artillery concentrations can be brought down on the enemy rear so as to block egress from the killing zone.

Stay-Behind Ambushes

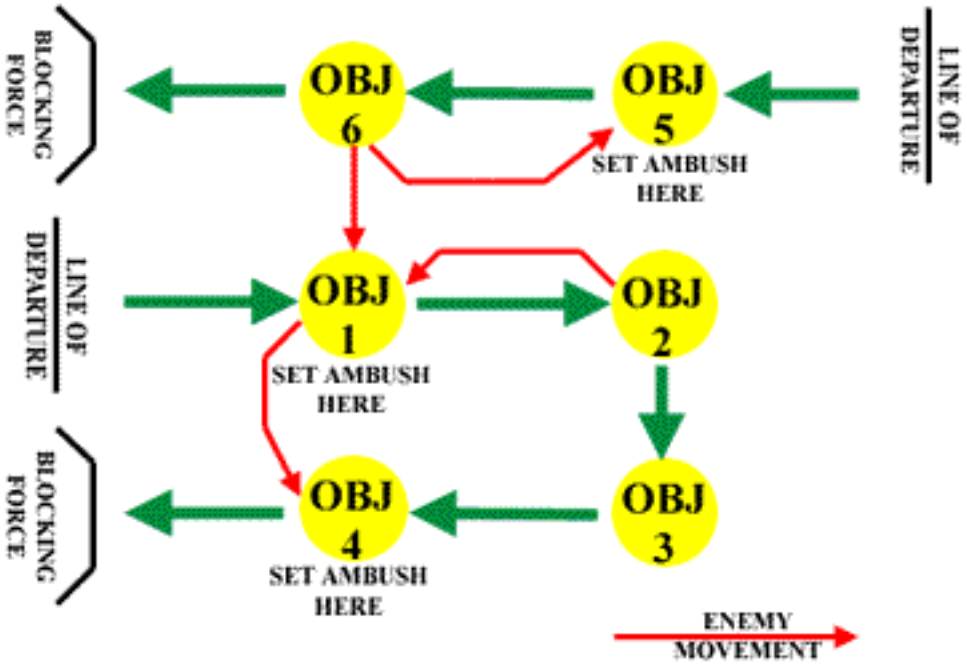
Patrol reports drew attention to a technique used by the Viet Cong to determine the size and composition of patrols. Local villagers were used to count the number of men in a patrol both on departing and entering friendly positions; the direction of the patrol's movement was also reported. When the patrol size was reduced during the course of a patrol, the VC deduced that an ambush party had been positioned somewhere along their route.

A technique was devised by the USMC to make it more difficult for the enemy to notice if patrol elements had been dropped off at some intermediate position; covert insertion of ambush elements could best be accomplished by moving them into the ambushed area as part of a regular patrol.

First, the ambush elements would be dispersed throughout the larger patrol formation; the ambush element kept its radio antenna detached and was equipped and armed similar to other patrol members. The ambush party detached itself covertly from the patrol when in the desired ambush site. Since many ambushes were positioned after sundown, the darkness and surrounding foliage hide their maneuver from enemy observation. The next day another patrol would drop off a different element and pick up the other

ambush party. Except for the first time, the patrol size remained constant, making it difficult for the enemy to notice that an element had been dropped off.

In search and clear operations, search forces would often establish stay-behind ambushes in areas where the enemy were most likely to return. These ambushes could be ambushes of opportunity or deliberate ambushes.



In this example, blocking forces are inserted to prevent the enemy from escaping the AO and then the objectives are approached and searched in a methodical manner by the area search forces. Following the search of certain objectives, a small stay-behind ambush force is left in place as the main search force moves off to it's next objective.

Should the enemy attempt to evade the main search force by doubling back to objectives which have already been searched they will be ambushed by the stay-behind ambush group left at the previously searched objective.

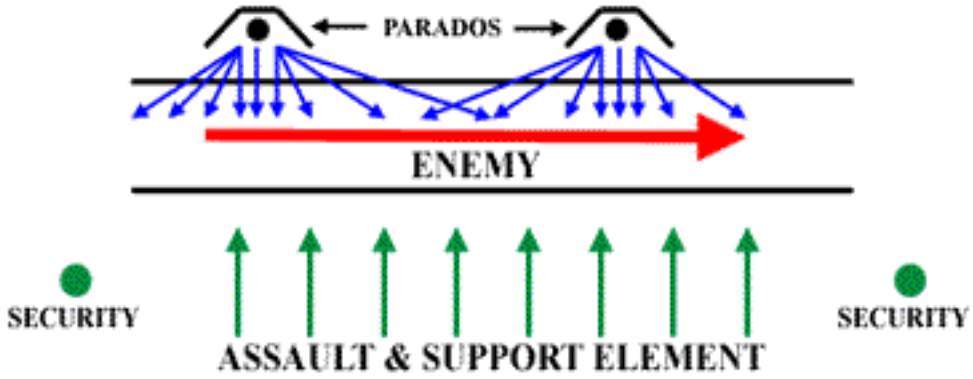
Demolition Ambushes

Point or area ambushes could be what were termed 'demolition' ambushes, deliberate or opportunity ambushes using mines in conjunction with assault and security elements. In this case, the demolition personnel are a part of the support element. There were a number of factors which were always considered in the planning of a demolition ambush;

- In selecting the terrain, emphasis was often placed on siting the ambush along a path, trail or road bordered by woods, brush, swamp, cuttings or water. Wherever possible, the ambush would be

placed on a hill or curve since the enemy would be slowed down when negotiating these features and therefore more vulnerable to fire.

- Wherever possible, prior to selecting the ambush site, intelligence information concerning the terrain and movement of the target as well as his expected time of arrival, was critical.
- The types of mines, fragmentation charges and demolitions which were to be used had to be taken into account as well as the laying of lines.
- Naturally, both the placement and the quantities of mines and explosives had to be given careful thought dependent on the size and type of target being engaged.



In this example two electrically detonated explosive devices (60-mm or 81-mm Mortar shells or Claymores etc) are sited using 'parados' (this is a shield of excavated earth packed behind the explosive device and used to control the direction of the explosion as it occurs). The explosive devices are blown when the enemy enters the killing zone. Immediately following the explosion, the assault and support elements move forward to engage the remaining enemy. Security elements prevent any of the enemy from the head or rear of the formation from escaping.

The positioning of the ambush elements was flexible since they could also be placed behind the mines or on the flanks of the mines.

Al Baker wrote,

> "They were also mechanical ambushes. Trip wire activated groups of Claymore mines. Like booby traps these devices were very effective in areas where they was no civilian population. They were relatively easy to disarm and disassemble. Set us similarly to the ring main the det cord and lead Claymore were battery detonated using an electric blasting cap, the others were fired by no electric blasting caps crimped to det cord. The circuit would be trip wire activated so it did not have to be attended... "

Night Ambushes

The principles which governed daylight ambush operations were also applicable to night ambushes. However, at night it was necessary to adopt certain modifications Whilst concealment is plentiful at

night, observation is limited and fire is less accurate. It was necessary therefore to properly sight weapons in order to ensure that complete coverage of the killing zone was achieved. Weapon fields of fire were often fixed by stakes and positions were closer together than in daylight ambushes in order to better facilitate command and control.

Ambush positions would generally be occupied after dark and following, where possible, a daylight reconnaissance. Once the ambush was sprung then flares would be used to illuminate the killing zone. Infrared weapon sights as well as starlite scopes were often utilised so as to be able to view and identify enemy personnel and objects in the darkness and to make it possible to fire on appropriate targets.

For an example of a night ambush see After Action Report #1 which details an ambush carried out by 1st Squad, 2d Platoon, Company C, 2d Battalion, (Airmobile), 327th Infantry.

Ambushes launched from Waterways

In areas which were partially inundated with water, such as in the Delta, small boats were often used to position the ambush force and to conduct rapid pursuits or withdrawals from ambush sites. Boat-transported forces were not limited to laying waterway ambushes since they could operate in any area which was reasonably accessible by water.

Stealthy movement to the ambush position was achieved by using poles or paddles to propel the boat instead of motors although motors were fixed to the boats so that they could be used upon enemy contact. Boats could also be allowed to drift to position with the current or tidal flow. Small ambush parties were sometimes left behind when patrols stopped or and disembarked in order to observe or reconnoiter. Such a technique was only considered useful if the boat forces commonly operated with frequent halts and debarkations and if the stay-behind ambush party was small in comparison to the total force.

Whether the ambush was employed to cover a road, trail or waterway, the force normally debarked and took up concealed positions. The boat crewmen would remain in or near their craft, which were carefully concealed. The ambush security team leader was responsible for the security of the boats. The boat crewmen were placed under his control during occupation of the ambush site.

Because several hours of waiting were usually required at the ambush site, consideration had to be given to changes in both the level and direction of water flow. The ambush commander had to anticipate these changes and plan his ambush around them. Changes in the level of the water due to tides often required the relaying of weapons in a waterway ambush. At ebb tide, boats could be left stranded or some withdrawal routes become too shallow for use. All of these factors had to be considered in determining the location, time and method of ambush.



NEXT PAGE

Sources:

Vietnam Lessons Learned No. 39: Ambush Operations. US Army Military Assistance Advisory Group Vietnam (MAAG), March 1964.

Al Baker, B Company Commander, 4/9 Infantry, 25th Infantry Division, RVN, 67-68.

Fleet Marine Force Reference Publication (FMFRP) 12-40, Professional Knowledge Gained from Operational Experience in Vietnam, 1965-1966

Fleet Marine Force Reference Publication(FMFRP)12-41,Professional Knowledge Gained from Operational Experience in Vietnam, 1967

COUNTERING AMBUSHES

SECURITY ON THE TRAIL



In areas such as the Iron Triangle, trails were unavoidable if moving overland. Similarly the bush and the forest covered flats flanking Highway No. 13 had a network of crisscrossing trails, with as many as five intersections in one acre of ground. In these situations it was almost impossible to move without getting onto a trail. However, despite repeated warnings against the use of trails, with their increased risk of surprise and NVA/VC ambush, the reality was that more than half of the time the U.S. rifle platoon or company was moving it would go by trail either the full distance or at least for some stage of the journey.

Platoon and Company Commanders argued that trails were where to find the VC and the NVA and this argument had a certain elementary logic in its favour provided that maximum security measures when moving by trail were punctiliously observed. Precisely what measures were most effective under varying conditions was a moot subject and almost without standardization or doctrine. As a consequence the young infantry commander often had to feel his way and make his decisions empirically, according to the various pressures bearing upon him.

In the case of the rifle company that was not in file column, but formed more broadly for movement toward the likelihood of contact, the commander had no firm doctrinal guide. As a result of this the formations adopted varied widely. Often, within a single Battalion, there could be as many designs as there were companies for traversing exactly the same piece of terrain.

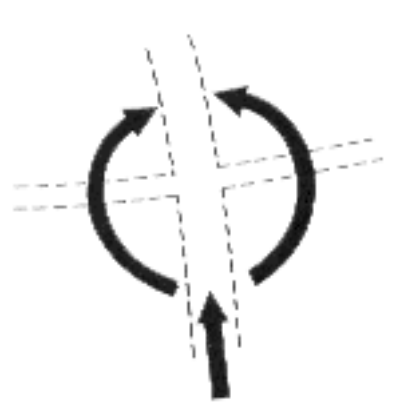
Al Baker, Company Commander, 4/9th Infantry,

> **Most of our operations were in flat jungle. For that terrain, I moved in a modified V formation with Platoons in column. This formation gave me relative easy of movement. We would never operate on a trail or follow a stream bed or other ambushable feature and it gave me flexibility to maneuver. No matter where the action originated I could quickly get two platoons with a base of fire and one to maneuver to flank the position. If the situation did not permit a maneuver, I had a reserve. I would change lead platoons daily and point men we changed every few**

hours. I was always with the lead platoon and just behind the point man. It was where 95% of our actions initiated. The point man was always in sight of the platoon. In most terrain, he was 10-20 meters ahead. Usually there were two point men.

"Main trails" or "speed trails" in the Vietnam bush averaged about 3 1/2 feet in width except at intersections. Consequently when a unit went by trail through the heavy bush, it had no alternative except to move in single file. The practical working distance between the point and the front of the main body varied according to the roughness of the terrain and how far one could see ahead. The scouts would be at 20 and 10 meters beyond the van of the point squad, observation permitting.

FORWARD HOOK



The point squad itself was generally relieved every hour in order to assure continued vigilance and at each relief it button-hooked into the bush until the main body came up, although this was not the practice if the column was approaching an intersecting trail or streambed or coming to a built-up area. In these instances the scout element (including the point squad) proceeded to check it out, after reporting the sighting to the main body. Its best maneuver was a hook forward through the bush over both flanks that would close beyond the objective, in sufficient depth to abort any ambush (left).

If the main body closed to within sight of the point while it was so moving no real additional jeopardy resulted, provided the column marked time and maintained interval. During such a halt, any attempt by the main body to form a partial perimeter merely caused bunching. Depending on conditions of terrain, visibility, and like factors, the rear of the point could be anywhere from 200 to 50 meters ahead of the lead platoon's front man. At distances of less than 50 meters its security value dwindled since the VC would often let scouts pass an ambush in order to get at the point, or would pass up the point to hit the main body. The double hook forward by the point thus reduced the danger for all concerned.

Nature itself often limited the threat of lateral ambush against a column going by jungle trail as opposed to one going through tall elephant grass or over a path where banks or bushes on either side offered concealment for the enemy. The bush was quite often too thick, so that to put fire on the trail, the field of fire from Claymore or machinegun would be too short and too few targets would he within reach of any one weapon. As a result, a 5 to 10-meter break between squads, which did not retard movement, nonetheless enhanced security.

When making its circular deployment to check out any suspected ambush site, the machinegun often supported the scout element and was best placed with No. 2 man of the point. An alternative to this move was to have the gunner recon the bush forward with fire; if the bush was extra thick, the M-79 would also recon-by-fire. The RT was with the point's last man, who served as

breakaway, running the word back should there be instrument failure.

DOUBLE HOOK

In those instances where a stay-behind party was dropped off from the column to check on whether it was being trailed, it would peel off from the front of the main body and enter the bush without halting the latter's advance. Its maneuver was S-shaped so that it automatically took up a full ambush posture instead of being a simple fire block (Figure 1). The column would continue to move on and through the stay-behind group (2 fire teams, with a machinegun in the down-trail team). The forward team would spring the trap on the enemy party whilst the rear team fired only if the enemy doubled back or was too numerous for the forward weapons.

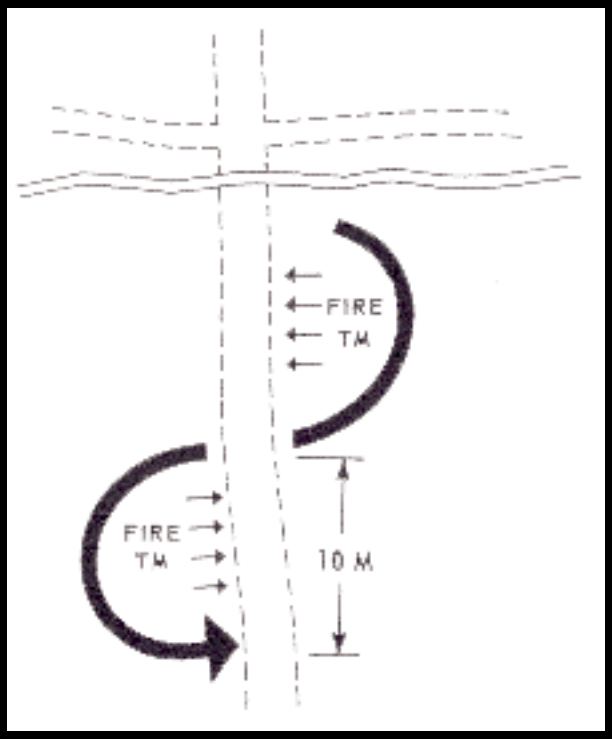


Figure 1'Double Hook'

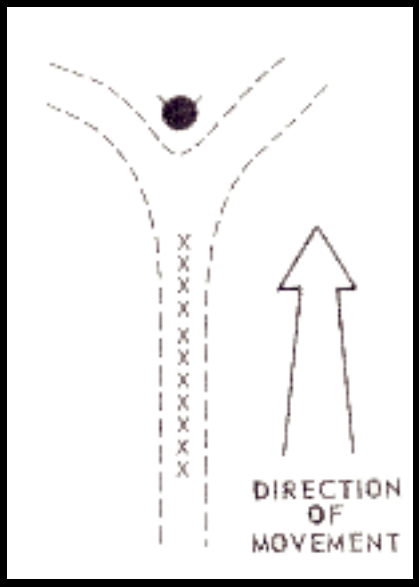


Figure 2 'Claymore Ambush'

DANGERS FROM CLAYMORES

Other than in attack on road columns, the NVA/VC did not appear to use front-and-rear ambushes, i.e., the delivery of surprise fire from cover by a block up front, quickly followed by an attack on the rear or middle of the column. Except along the wood line of a clearing the almost impenetrable jungle did not lend itself to such tactics in assault against a column moving by trail. More common to the VC and NVA was their use of killing fire from out of concealment against the head of the column from a wide spot in the trail. This was frequently by automatic fire or a command-detonated mine. Their Chicom-Claymore was a potent weapon when so employed. Well hidden and concealed the mine was set to command a long stretch of trail and was one of the major hazards of moving along it (Figure 2).

There was often no warning and no follow-through; it was a one-weapon affair. During Operation Attleboro, a single command-detonated Claymore set in a tree killed or wounded 26 men strung out over 40-meters of trail. It was fired from 5-meters forward of the front man. The column, which was rushing as a result of battle urgency, and the scout element, did not take enough time to look over the ground thoroughly. The first scout alone had been permitted to pass up the trail beyond the weapon. Obviously the formation, point and the front of the main body, had become closed too tightly. On the wide trail the advance was moving in a fashion that served only to put more people at the mercy of the weapon.

CLOVERLEAF

Periodic "clover-leafing" or some variation of that maneuver by the column in movement was supposed to be SOP for field operations in Vietnam. The objective was to beat out a limited area around the base of the command during a security halt or rest halt or before the troops set up the night defence. In this all around sweep four patrols would be sent out anywhere from 100 to 500-meters.

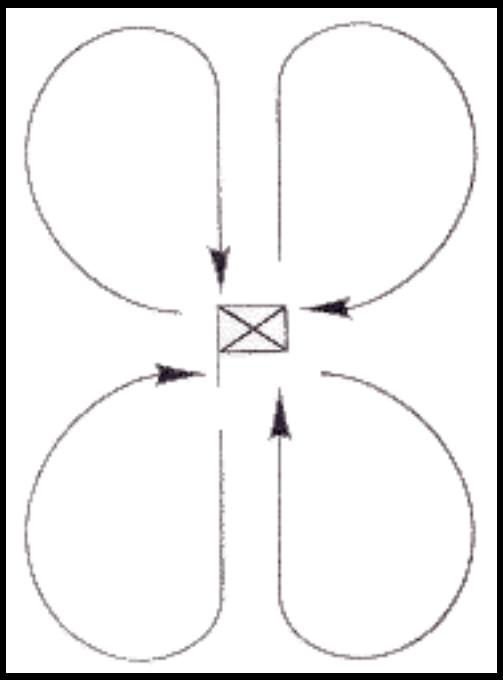


Figure 3 'Correct'

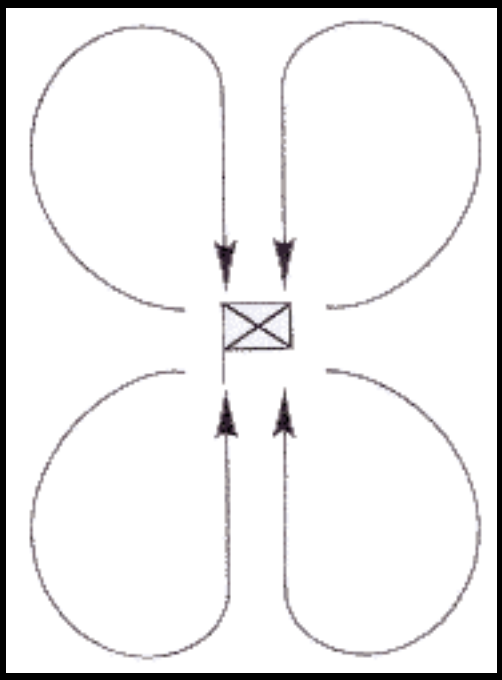


Figure 4 'Incorrect'

Among the many cloverleaf variations possible, one quite clearly had obvious advantages. The preferred option (Figure 3) afforded a double check time-wise both forward and rearward of the column's route of advance and made maximum use of the deployment. At all stages of the sweep it also exposed a smaller element to the danger of surprise and ambush. The "buttonhook", used extensively by the Australians for ambushing an enemy force that was following one of their columns, was in essence the covering of one quadrant of the four-circle cloverleaf. It was executed usually over a much smaller radius.

NIGHT DEFENCE

When a company or platoon-size patrol conducted sweeps of the vicinity before setting up for night defence, the priorities were;

- **the arc covering its line of advance into the ground**
- **the intervening ground between the perimeter and the LZ**
- **the sector judged least defensible**

If darkness was imminent, the organisation of the position (meaning the assignment of sectors and the placing of men and weapons, but not necessarily digging in) preceded the dispatch of watering parties and the placement of LP's.

Both Division and Brigade commanders constantly contended that the cloverleaf kind of precaution was always taken by patrols, or by a company moving cross-country in search of the enemy. The same story was often told at Battalion. However, analysis of more than 100 company operations at the fighting level revealed that their claims very rarely stood up. Just as trails were used despite all the strict taboos, most of the time little scouting took place outward from the U.S. column traversing them, despite all admonitions.

Contributing to this almost habitual carelessness was the vagueness on the part of many superiors in stating the mission and making it specific as to its several essentials. The unit would often be told simply to "check out" a certain area, or to "run a patrol through the jungle patch ahead and return' as if it were the simple problem of putting a policeman on a beat.

CONCLUSION

Since it risked considerable hazard to gain something, each patrol needed to have a stated purpose and it should have been told what it was after; Prisoners; Ambushing of the enemy; Destruction of a bridge; Caches; Location of a suspected base camp; Observe signs of enemy movement but not engage; Seek a trail entrance? The list of possibilities was long. But if the average leader was given only a general instruction he would, in most instances, comply in the easiest way, and nine times out of ten that meant taking the trail, probably the same trail going and coming. If he was told at the start, "Be at LZ Lazy Zebra by 1800 for extraction" and he discovered that too little time had been allowed to do anything well, the door was open for him to go forth and do all things badly. Command had to keep itself informed of where its patrols had moved most recently and thus safeguard upcoming patrols against the danger of becoming trapped from having beaten over the same old route.

SOURCE:

Military Operations; Vietnam Primer - Dept of the Army, 1967 by Brig.Gen. SLA Marshall (Ret.) & Lt.Col. David Hackworth (Ret.)

Al Baker, Commander B Co, 4/9 Inf, RVN '67 - '68

EAGLE - FLIGHT

TECHNIQUES OF PLANNING AND EMPLOYMENT

Factors in Planning a Landing

Experience was to show that several factors had to be considered in planning for a landing. The planning had to be accomplished almost immediately upon arrival over the selected target area since the enemy would already have commenced to react to the presence of the attacking force. Consequently, planning, decision making, and the communication of those decisions in the form of instructions to the force and it's supporting elements had to be almost simultaneous.

The following are some of the factors which had to be considered by the Eagle Force commander;

1. In the case of suspected personnel, it was necessary to determine if they actually were enemy forces since there existed every possibility for mistaking Vietnamese friendly forces, armed and dressed in black or nondescript uniforms, for Viet Cong. Lack of communication and a positive means of identification often compounded this problem. However, it was also the case that invariably if the suspected personnel were enemy then this would be confirmed by their running, attempting to hide or firing at the helicopters.

2. Care had to be taken in selecting the LZ especially when the target was located in close proximity to heavy vegetation so as to minimise the possibility of landing in a preplanned ambush based on hidden enemy forces.

3. The commander was required to consider whether the enemy force was massed or scattered, organised to fight or disorganised and in flight. His decisions regarding the use of pre-assault airstrikes, choice of landing formation and the selection of a suitable LZ were all affected by the answers to these questions.

4. If the logical target was bisected by a canal or similar terrain feature then the choice of landing formation, selection of LZ's and decisions regarding the capability of a split force against the enemy had to be considered.

Techniques of Target Designation

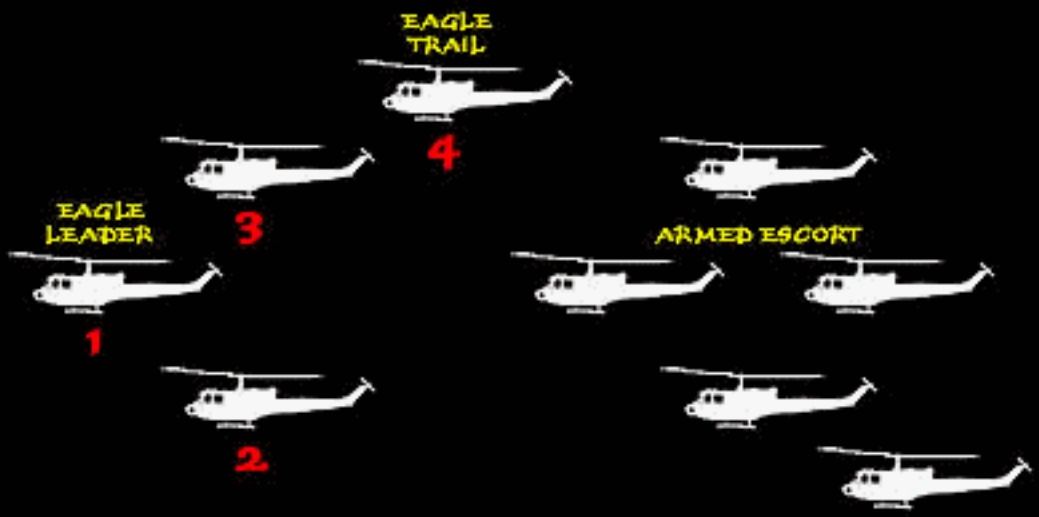
The use of compass and clock directions in orally describing a target and landing zone was almost mandatory since in an area dense with canals and groves the mere reference to a single canal would be meaningless. A typical landing instruction to the helicopter leader might be,

" ....The canal running from NE to SW about 500 meters out on our 2 o'clock position is the baseline, do you see it? At 3 o'clock on the base line, a small clump of trees on the canal is the center of mass, can you identify it? land numbers one and two on the NW side and numbers three and four on the SE. Keep both sections 300 meters out from the canal.... "

The target could also be identified by marking it with tracer or smoke grenades and by vectoring helicopters over the target by pilots of other aircraft who have observed it.

Flight Formations

TRAIL FORMATION



COLUMN FORMATION



Landing Formations

Commanders had a wide range of choices regarding landing formations and selection was based on the nature and size of the target and the terrain features within the target area. Some of the formations used were as follows;



To assault against enemy forces in groups of up to 50, disorganised and in the open, and depending on how heavily they were armed, a landing formation known as the 'half box' was chosen. It provided a '3 o'clock exit' for all troops, thus eliminating the necessity for any troops to move around the helicopters before assaulting. the enemy were caught between the two lines of assaulting forces.

To screen a large open area following an air strike, or to search for an enemy who was hiding, the Eagle Force troop carrying helicopters would land in a line formation, with about 100-meters seperation between helicopters.

To attack a large enemy force reported to be in dense vegetation the helicopters would be landed in line formation about 300-meters away from the objective. A closer landing could possibly have placed the force in an enemy ambush. If the enemy force was reported to be small, the helicopters would be landed in line much closer to the enemy in order to prevent him from escaping before the assault could take place. As the troops attacked the near side of the tree line the armed escorts make attack passes on the far side in order to restrict the enemy from retreating (fig 1).

Fig 1

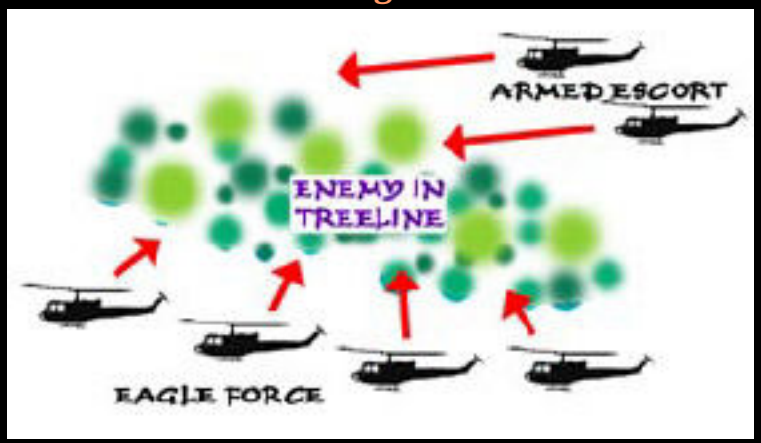
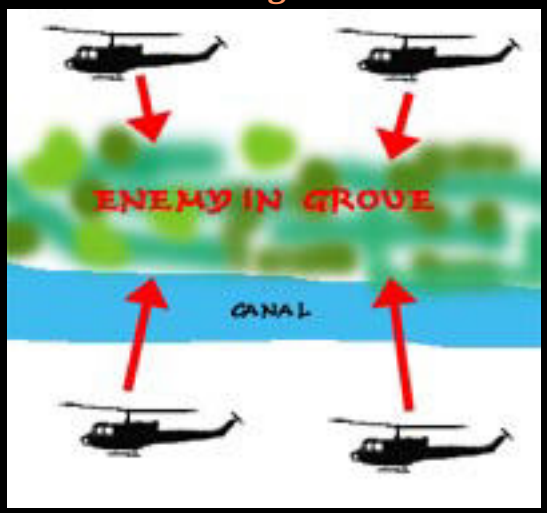


Fig 2



In order to trap an enemy force hiding in groves along the banks of a canal, the 'open box' landing

formation could be used. Two aircraft landed on either side of the canal forming a box roughly 300-meters on a side. squads would assault and direct their fires at the enclosed target (fig 2).

Execution of Assault



Once a commander had selected his target and decided upon his landing formation and plan of assault, he had to communicate his decisions to the helicopter pilots and the armed escort helicopter flight leader.

Generally a lack of time would not permit the prior briefing of each squad in helicopters 2, 3, and 4. Since the forces are not thoroughly briefed on either the landing formation or the assault plan, unless ground winds absolutely prohibited it the pilots would attempt to land in a direction which provided the troops a 3 o'clock exit from the aircraft toward the objective. Sometimes the crew chief of the helicopter would indicate to the soldiers the direction of the objective as it would appear to them as they emerged from the helicopter.

Immediately upon landing, squads were rapidly assembled and the commander and his squad leaders would quickly take control. radio contact with the orbiting empty helicopters, the armed escort helicopters and the O-1 observation aircraft were immediately established and situation reports passed to higher headquarters.

Once on the objective, the troops would work rapidly to screen the area, kill or capture the enemy, apprehend suspects and then prepare to reload. Since an Eagle Force was considered to be more effective when airborne and in a position to attack, excessive time was not spent on the ground following the assault or capture of the enemy. If a more lucrative target was reported to the empty orbiting helicopters by other units then a red smoke grenade or some such pre-arranged signal would be dropped to indicate to the commander that the troops should be organised for extraction.

Reloading the Force

Upon completion of the ground action the commander would study the area and determine the disposition of his squads. he was responsible for insuring that the area was secure before the helicopters came in to land. If the terrain permitted it, the troops would be formed up in column of squads, approximately 30-meters between squads, with the last squad up-wind. However, if a squad was widely separated from the rest of the force, possibly seperated by a canal or other terrain feature, it could be reloaded in place, provided that a suitable LZ was available.

The commander would contact the helicopter flight leader and inform him of the wind direction

and identify the LZ. It was Standard operating Procedure that should radio communications fail, then the formation of troops in line of squads was a visual cue that the area was secure and that the force was ready to reload. Each squad had a colour code (indicated by a scarf or piece of cloth worn on their uniforms) and each helicopter was designated by a corresponding colour code and thus identification for pickup and reloading was simplified.

Whilst awaiting the return of the helicopters and during all loading operations, each squad would maintain close security of the area whilst the armed escorts continued to orbit and protect both the troop helicopters and the troops themselves during the course of the reloading operation.

Reloading was done while the helicopters maintained partial power. If the helicopter was carrying nearly a full fuel load, or if prisoners aboard caused the load to exceed twelve men (all passenger seats are removed from the cargo compartment), it required an obstacle clear distance of about 900 meters in an up-wind direction for takeoff. each helicopter would take off as soon as loaded in order to minimise time on the ground, a period of great vulnerability.



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SOURCES

US Army Military Assistance Advisory Group Vietnam (MAAG) - Lessons Learned No. 32 Eagle Flight Operations (October 1963)

Viet Cong Tunnels



Operation CRIMP

Air bombardments and the increased use of artillery concentrations had little effect on most of the enemy's completed tunnels, and a new problem faced the US infantrymen who would participate in Operation CRIMP: find the enemy's tunnel complexes, clear them, and insure that the enemy could not use them again; until this had been accomplished, no area could be considered safe.

Operation CRIMP was a joint operation - it involved elements of the 1st US Infantry Division, the 173d US Airborne Brigade, and the Royal Australian Regiment and took place in January 1966 in a search of the Ho Bo woods north of Cu Chi for the politico-military headquarters of the Viet Cong's 4th Military Region. Intelligence reports had pinpointed that headquarters as the one which controlled Viet Cong activities in a large part of South Vietnam.



Viet Cong emerges from tunnel to surrender

The area in which the operation took place was a rich farming region of Binh Duong province just west of the Iron Triangle. Numerous farms and rice paddies were intersected with hedgerows, rubber plantations, streams, and thick jungle. Since the operation would be conducted during the dry season, the farm land, and even the rice paddies to some extent, provided good cross country mobility for the heavy tracked vehicles that would participate.

Civilians in the area had lived under Viet Cong rule for many years; they had been thoroughly indoctrinated and willingly supported the enemy. Because this was so, one of the early US decisions made was to evacuate the population to a secure location where the people could not interfere with or betray the operation. After an initial interrogation, those civilians not confirmed as Viet Cong members, would be further evacuated to a refugee processing center at Trung Lap.

On 7 January 1966, the 1st Battalion, 28th US Infantry, 1st US Infantry Division, was air lifted from Phuoc Vinh to Phu Loi by US Air Force transport aircraft. From Phu Loi, the battalion conducted an airmobile assault into Landing Zone Jack on the heels of the 1st Battalion, 16th US Infantry; the two battalions had the mission of blocking along Phase Line Pecan until the 2d Battalion, 28th US Infantry could be introduced into an area to the north.

As the 1st Battalion, 28th US Infantry, settled down on the landing zone, the men of the battalion could see that the 1st Battalion, 16th US Infantry was in trouble and receiving fire from the north edge of the landing zone, from the same place that they had to go. The battalion commander, Lieutenant Colonel Robert Haldane, could see that his men were apprehensive, particularly when they saw soldiers from the lead battalion fall under the enemy's fire and grenades.

Because of the firing, Captain Terry Christy, commanding Company B, knew that he had to get his unit off the cleared zone and into the tree line quickly and shouted orders to his platoon leaders and non-commissioned officers to get moving. His orders moved the company into the tree line, but the enemy had suddenly disappeared. Where?

Just a few meters inside the tree line at the edge of a rubber plantation, Christy's men located a large trench, the start of the most elaborate underground fortification complex that the men of the battalion would see for the next several months. But the battalion's mission was to reach a blocking position, and Haldane did not have sufficient time to check out what appeared to be a regimental sized position. Yet it was hard to believe that the enemy soldiers who had engaged the 1st Battalion, 16th US Infantry could have fled undetected through the relatively open rubber trees. Haldane planned to check on this later because his unit would operate in this very same area for several more weeks until the newly arrived 25th US Infantry Division could establish its base camp north of Cu Chi.

As the battalion advanced with three companies on line toward its assigned blocking position overlooking a small stream, reports started filtering into the battalion's command post that cache after cache of rice, salt, and other foodstuff were in the area, enough to feed at least an enemy regiment. That the battalion was, in fact, in a large enemy base complex was further confirmed when the three leading

companies reported an extensive mine field across the wooded north end of the area. Apparently, the enemy had planned the area as a permanent complex.

After breaching the mine field, the battalion reached its blocking position where it remained until the 2d Battalion, 28th US Infantry pulled abreast. Then, leaving its blocking position, the 1st Battalion shifted direction and moved to the east, on line with the 2d Battalion.

As the 1st Battalion moved toward Phase Line Pine - the Saigon River - what was once thought to be an enemy regimental camp took on the dimensions of a division base, for during the next two days its soldiers reported foxholes, trenches, mines, caves, and well used trails - but no people - all across the battalion's 1,500 meter front. The march was not completely without incident: soldier after soldier was hit by fire from enemy snipers; Haldane hoped that his men could pin the enemy unit against the river and there take retribution for their losses.

But when the battalion arrived on 9 January at the wide expanse of rice paddies that linked the dry ground with the Saigon River, his soldiers had seen only one or two fleeting enemy soldiers. That night they occupied a deserted village surrounded with foxholes, bunkers, trenches, and mines. Without boats the battalion could not move further to the east.

Then a breakthrough was announced - the 173d US Airborne Brigade and the Royal Australian Regiment to the north had located the Viet Cong, underground!

On the morning of 10 January, the 1st Battalion began retracing its steps, and two hours later one of the companies reported finding a 100-man classroom that had been missed on the previous day's sweep. Fortified with the knowledge of the known successes of the units to the north, Haldane halted his battalion and after establishing all around security, started a detailed search for tunnel entrances.

Finding a tunnel entrance, however, proved not to be easy. A few soldiers – reluctantly - lowered themselves into a trench which ran the length of the classroom and then took a sharp bend to the west. Seconds later they reported that the trench led to a hole in the side of a slight rise of ground to the west. Returning to their start point, the soldiers were given flashlights to assist in their further exploration efforts; but they still could not find the sought after tunnel complex. The hole, although extensive, and with steps and a room large enough to contain 100 occupants, was no more than an elaborate air raid shelter. It seemed time to move on to renew the search in another area.

But then it came - the sought after opening! Platoon Sergeant Stewart L. Green, a wiry 130-pound soldier, jumped from the ground with a curse, thinking that something had bitten him. The country was full of aggravating scorpions and snakes so Green had good reason to jump. But as he disturbed the dead leaves on the ground with the muzzle of his rifle, he saw what had "bit" him: a nail! A further search disclosed a wooden trap door perforated with air holes and with beveled sides that kept it from falling through into the tunnel below. The long sought after tunnel had been found, and the shout of discovery brought Colonel Haldane on the run.

The question Haldane had to answer was: what should he do now? The battalion had trained for combat at Fort Riley under an intensified combat training program, but the program had not covered tunnels. Sergeant Green provided the answer to the question as he stepped forward and volunteered to be lowered into the dark depths of the black hole he had so recently uncovered. Like a contagious disease, others standing around the hole volunteered to help Green. Several men followed Sergeant Green down into the hole and within minutes supplies started flowing up from the very bowels of the earth, and bag after bag of supplies were soon on their way to the classroom where Haldane had established his command post.

Captain Marvin Kennedy, the battalion's S2, after inspecting the supplies determined that the unit had uncovered a major hospital Complex. Even as Kennedy looked over the captured booty, a sudden cry turned him around in time to see the soldiers who had entered the small entrance to the underground hospital pop out to the surface as if shot from guns. Sergeant Green was the last out, and he told how he had seen a side passage leading off the main run; as he had looked into the smaller passage, Green said, he first heard and then saw about 30 Viet Cong soldiers in the dim light of a candle that one of them held. He said that the enemy troops had seen him at about the same time and extinguished the candle.

Calling to one of his interpreters, Captain Kennedy asked him to go with Green back into the tunnel to tell the enemy soldiers to surrender. The interpreter agreed and the two men soon disappeared from sight, on a mission that lasted but a few minutes; for when the two men had returned, Green told Kennedy how the interpreter had refused to talk to the enemy troops. The interpreter retorted that he had had to hold his breath in the tunnel because there, was no air and he would have died had he started to talk.



Smoke reveals another tunnel exit

Colonel Haldane decided to seek a different solution and ordered a Mity Mite (a small lightweight, gasoline powered blower) to be brought to the tunnel entrance and turned on. One of the soldiers then dropped several red smoke grenades into the entrance hole while others stuffed their jackets around the air hose of the blower to seal the tunnel entrance as the smoke was pumped down. The soldiers providing security around the area were instructed to look for any sign of the smoke.

For several minutes nothing happened. Then reports came in from every direction of red smoke

appearing from numerous holes in the ground. But now a new problem arose: Colonel Haldane had just received orders to destroy the tunnel and to regain contact with the 2d Battalion to the north which was outrunning its flank security, Haldane's unit.

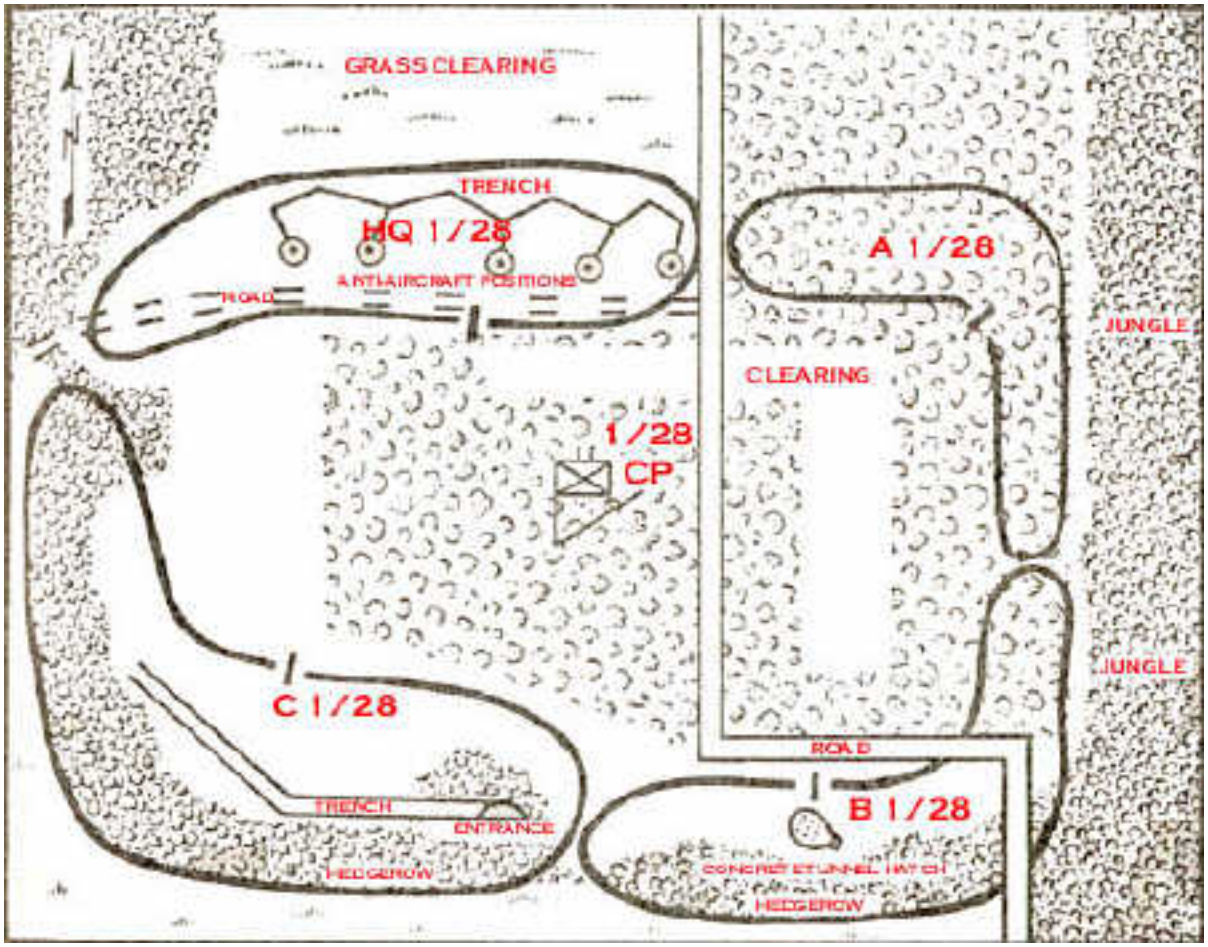
Almost in desperation, CS, a non-lethal, riot control agent, was pumped into the tunnel to rout out the enemy soldiers; but the latter still refused to abandon the tunnel. For a third time Sergeant Green entered a tunnel, this time accompanied by a demolitions specialist. The men placed charges with short fuses in the main tunnel on each side of the secondary tunnel passage, and then made a rapid withdrawal to the surface, warning away all who stood nearby. The earth erupted and an ear-splitting explosion shook the ground; with this accomplished, Haldane moved his unit to catch up with the 2nd Battalion.

But the story was not finished. Two nights later, on 11th January, the battalion returned once more to the rubber plantation on the northern edge of Landing Zone Jack and established a tight defensive perimeter. All of the units participating in the operation - the name of which had been changed from CRIMP to BUCKSKIN - had suffered casualties from random enemy bands who had continued to appear and disappear almost at will. This time, the 1st Battalion occupied the trenches which had been dug by the enemy and which overlooked the landing zone; ambush patrols were put out and the area inspected.

The trench work was quite extensive and ringed the battalion. At the north edge of the perimeter, the trench was fortified with anti-aircraft firing positions; a huge crater caused by a bomb dropped from a B52 bomber raid - 50 feet across and at least 15 feet deep - had hardly damaged the trench or the gun emplacements. In fact, it had collapsed only about a meter of the main trench system.

By now tunnel conscious, the men of the battalion were quick to check out any suspicious looking holes. One of the soldiers pointed out a hole about a foot in diameter which descended into the ground at a 45 degree angle. Some thought it might be an air hole for a tunnel; others thought it might have been caused by a bomb dropped from a B52 which had failed to explode. The hole remained a curiosity until the following day.

It was in the late afternoon when Captain Arnold Larsen radioed that his Company C had discovered an American soldier's helmet at the bottom of a trench and that the helmet covered a booby-trapped mortar round. In a small wooded glade, his soldiers had also found two booby trapped 105mm artillery rounds and a cave with another booby trapped 105mm round in the entrance. Captain Larsen had his soldiers detonate the booby traps by exploding charges placed next to them. He also reported that the first soldier to enter the cave had seen a trap door in the floor, but since darkness was coming on he had decided to place a guard on the door and continue the search in the morning.



Battalion positions amongst enemy trench-lines and tunnels

The battalion was not to be allowed to rest this night, however, for in the gloom of the rapidly fading light several grenade explosions were heard followed by several quick shots from a carbine. Viet Cong soldiers used carbines and since the shots had come from within the battalion's perimeter, the enemy was inside, too. But how ? And how many were there? Running over to where the action had taken place, in Company B's sector, Colonel Haldane and several members of his staff were met by Sergeant Green and a number of other Company B soldiers, who were standing around a small concrete hatch, shaped like a commode seat on a hinge and perforated with air holes. One of the soldiers said to Haldane: "We were sitting there almost on top of that damn thing heating our C rations, when it sprang open and this Charlie popped up. He threw two grenades, and reached down, grabbed a carbine, and sprayed a few magazine at us before we could even lift our weapons. Then he went back down into the ground."

Sergeant Green once again led a team into an enemy tunnel, and did not surface again for two and a half hours. When he did return, Green reported that he had not been able to find the end of the tunnel; he described it as having an uneven floor which would provide protection should anyone fire down it, and that there were many vestibules in the walls, apparently put there for further protection. Green estimated that he had traveled at least a mile and a half underground before returning. He also requested that he and his men - now called "The Tunnel Rats" - be given several doughnut rolls of communication wire, a telephone, gas grenades, gas masks, flashlights, pistols, and compasses.

When Green was asked whether he wanted to wait until morning before going underground again, he

demurred, pointing out that it made no difference in the tunnel as to whether it was day or night on the surface. After a quick meal of rations, Green took his men back into the enemy's tunnel. But this time he could talk with the battalion, and his progress could be measured by the wire as it rolled out. Another group was stationed at the entrance to record Green's progress. Thus, while most of the rest of the men in the battalion slept, Green and his "tunnel rats" were engaged in the hazardous task of exploring the rat-infested tunnel complex.

At the mile and a half mark on the wire, Green called to say that he had spotted a light ahead. His next transmission was more urgent and he notified the anxious men on the surface that he and his group had engaged an unknown number of the enemy in the tunnel. Colonel Haldane told them to don their masks, throw their gas grenades, and return to the surface. This they did, but the firefight continued until Green and his men reached the tunnel's entrance where the soldiers gathered there could hear the dull thuds of the weapons as the men below fired at the enemy. A quick count of the "tunnel rats" caused some concern, for one of the number was reported missing. Green ducked back into the tunnel and found the missing soldier who had crawled past the exit in the dark; as the soldier made his way out of the tunnel, Green held off the Viet Cong soldiers while other members of his team re-entered the tunnel with sufficient explosive charges to block the passageway; the fuse was lit and they scampered to the top.

As the sun came up, Haldane instructed Captain Larsen to raise the trap door in the cave which his soldiers had located the previous evening. When this had been done and the men had climbed through, they saw only a large room, containing nothing more than a basket of grenades; but the soldier who removed the grenades reported that the basket covered a second trap door. This led downward to another large room which contained 148 service records of men who belonged to the D308 Viet Cong Company. Removing the records disclosed still another door, this one leading to a third underground level, and in which a tunnel shaft led away and then branched in two directions. The branch to the west had been rendered almost impassable, and had only a small escape hole just large enough for a small Vietnamese to squeeze through; but the other branch led to the same shaft that Sergeant Green had been in earlier. The hole in the ground discovered in the north portion of the battalion perimeter the previous day turned out to be an air hole for the tunnel.

By this time, the battalion realized that it had entered upon another dimension to the war in Vietnam, and more fully realized it when Company A found yet another tunnel complex the same day. One of its soldiers was killed by a Viet Cong soldier who shot from a small aperture in an ant hill. Several American soldiers rushed the ant hill and discovered an entrance at the rear, while an unattended weapon and a heavy blood trail told a grim story of the effectiveness of their fire. Another pack of "tunnel rats" was born as the soldiers traced the bright red blood through a three-layer tunnel complex that ended 60 feet below the level of the ground, and where a large weapons cache was uncovered as well as the camouflaged parachute from a US Air Force forward air controller who had been shot down in the area on an earlier operation.

But the wounded Viet Cong soldier made good his escape; his trail of blood led to still another opening which was too small for the American soldiers to get through. There was nothing to do but give up the chase.

The experience gained by the 1st US Infantry Division's "tunnel rats" clearly shows that an insurgent or defending force can be expected to burrow underground more and more as heavy bombardment increases. The enemy, therefore, must be cleared from below the ground as well as from the top of the ground before an area can be considered properly secured. Once cleared, the enemy's underground defensive systems must be destroyed, although an enemy can be denied the use of the positions through partial destruction and through the use of the riot control agent, CS. Essentially, though, the underground war can be won in the same manner as the war that goes on above ground: by training in, and the application of, new techniques, and by the use of initiative and sound tactical decisions.



Back to VC Tunnels

Source:

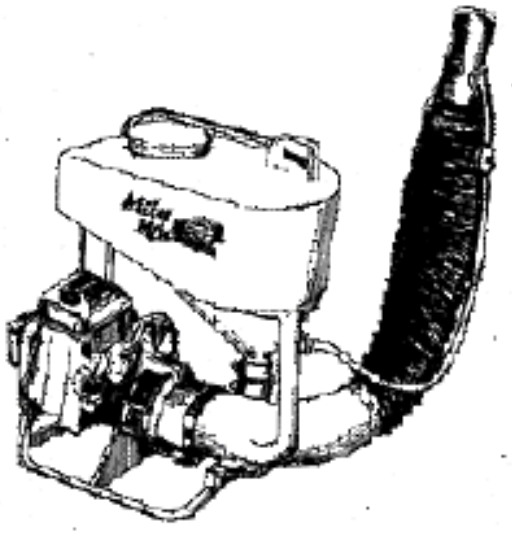
Reproduced from *Infantry in Vietnam: Small Unit Actions in the Early Days 1965-66*, edited by LTC Albert N. Garland, USA (Ret.), The Battery Press, 1982 Edition

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Viet Cong Tunnels



Tunnel clearing operations using the Mity Mite blower



The Mity Mite portable blower when properly used in conjunction with smoke pots or smoke grenades would force the smoke throughout a tunnel system and generally reveal the entrances and vents, if any were present.

The Mity Mite was an agricultural backpack spray-duster. It was powered by a two-cycle gasoline engine, weighed 25-lbs (without fuel or agent) and displaced 450-cubic feet of air per minute. The fuel tank held approximately one quart of gasoline-oil mixture which would permit operation in excess of 30-minutes. It was equipped with a two foot long flexible tube that had a metal nozzle on the end. The Mity Mite had a polyethylene agent tank which could be filled with either 10-lbs of powder agent or 3-gallons of liquid agent.

The Mity Mite portable blower could be used to;

- Force the evacuation of unmasked personnel from a tunnel system using smoke or riot control munitions
- Locate vents and entrances of a tunnel system using smoke munitions
- Generate an agent cloud for use against unmasked personnel in the open using a powder agent

The first tactical employment of Mity Mite was during a search and destroy operation conducted by 8th Infantry Regiment (ARVN), 5th Division, in III Corps Tactical Zone that took place 8th -11th October 1965.

The objective area selected was the Iron Triangle which was known to contain many VC tunnel systems. The US Chemical Advisor to III Corps participated in planning the operation, and proposed the use of Mity Mite.

The III Corps Chemical Advisor contacted the ARVN 5th Infantry Division Chemical Team Leader and coordinated the time and location for organising and training a tunnel tracing and flushing team. On 7th October 1965 a team was organised from the Division Chemical Team as follows;

- Team Leader – 2nd Lieutenant (Div Chem Team Ldr)
- Mity Mite Operator – Sergeant (carried the blower)
- Assistant Operator – (carried two gallons of gasoline, one quart of oil, tool kit and two ponchos)
- Munitions Bearers – 3 Privates (each carried three smoke-pots, HC, 10-pound, M-1 and five smoke grenades, M-8, HC or M-18 coloured smoke)

Training for the newly organised tunnel tracing and flushing team included operation and maintenance of the portable blower, and practical exercises in operation of the blower with smoke. The team also prepared for the operation by cutting a five gallon can in half. A hole the size of the blower nozzle was cut in the upper half to facilitate blowing smoke into vertical entrances of tunnels. It was planned to use the lower half to block tunnel entrances (see Fig. 1).

Initial plans for employment of the tunnel tracing and flushing team called for it to initially remain with the 8th Regiment CP and respond to requests from the attacking battalions. However, this plan was later amended to place the team and an engineer platoon in direct support of one of the attacking battalions for each day of the operation. This method of employment insured that the tunnel tracing and flushing team could respond rapidly to requests, and the engineer platoon could promptly destroy the tunnel system after it was traced and flushed.

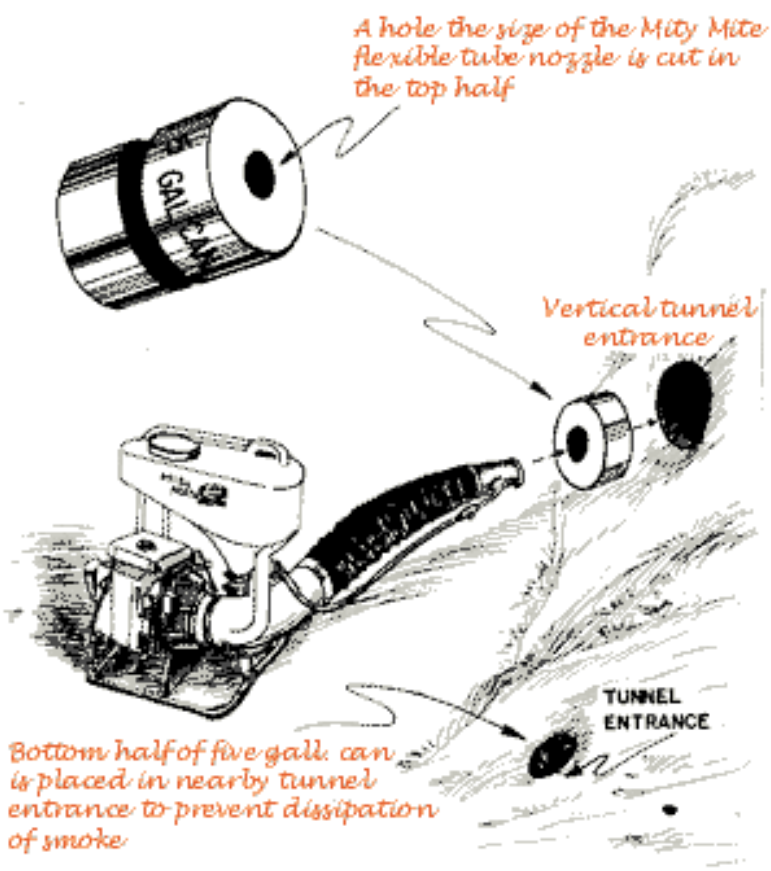


Fig. 1

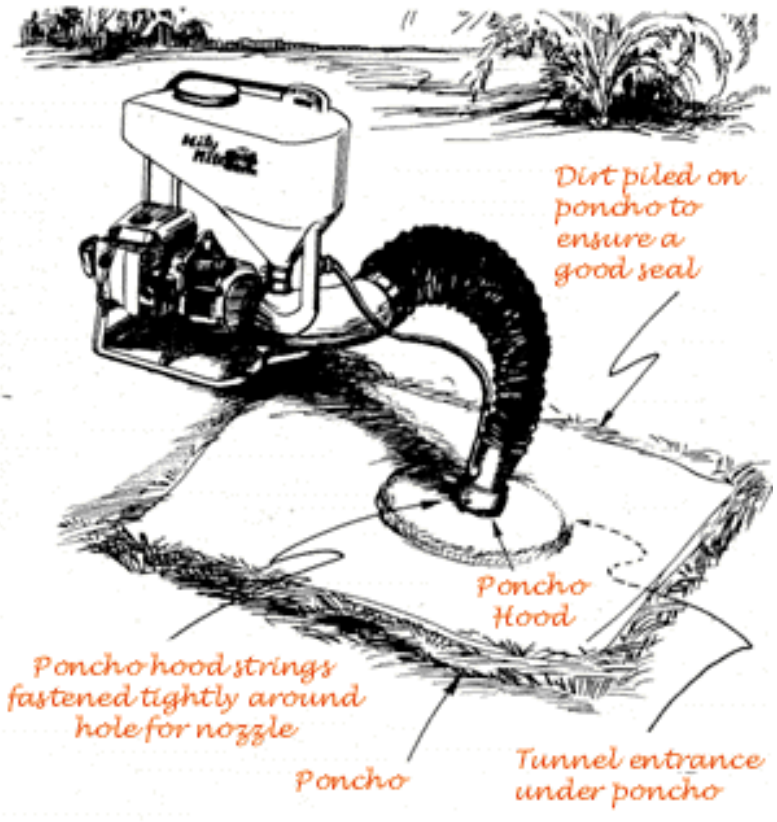


Fig. 2

A tunnel was discovered on the first day of the search and destroy operation by the 2nd Battalion, 8th Infantry Regt. The area surrounding the tunnel was secured by the 2nd Bn while the tunnel tracing and

flushing team went into action. The techniques which they employed were as follows;

(1) The Mity Mite blower was placed near the tunnel entrance and a poncho was spread over the horizontal aperture. The hose nozzle was placed through the head opening of the poncho and the hood strings were fastened tightly around the hose nozzle. Earth was placed around the edges of the poncho to form a good seal (see Fig. 2).

(2) The lower half of the five-gallon can was inserted in another tunnel entrance which was a few feet away from the original entrance to prevent the smoke from dissipating before penetrating all portions of the tunnel system.

(3) One corner of the poncho was raised and a smoke grenade was placed in the tunnel (approximately three feet away from the poncho to prevent burning it). At this time the Mity Mite blower was started. A smoke grenade was used initially so that if the tunnel was small an entire smoke-pot would not have been expended. Further, the 10-lb smoke-pot burns approximately eight minutes while the smoke grenade burns for two minutes.

(4) 2nd Battalion troops moved out in all directions (360-degrees) from the blower while smoke munitions were continuously placed into the tunnel entrance. The troops detected smoke escaping from tunnel vents and entrances, and were on the look out for escaping VC. However, no VC were discovered in this particular tunnel system. As vents and entrances were detected, the apertures were marked and sealed.

(5) When it was determined that all entrances and vents of the tunnel system had been detected and the tunnel trace was apparent, further smoke munitions were unnecessary. However, the blower was left running until all smoke had been cleared from the tunnel system.

(6) The engineers then searched through the tunnel system for possible asphyxiated VC, booby traps, weapons, equipment and supplies. Once this had been accomplished, the engineer unit set the charges and destroyed the tunnel system.

This experience with the Mity Mite blower was successful and established that the blower could be used to trace tunnel systems. It should be pointed out that, although only HC smoke was used with the blower on this operation, the use of riot control munitions employed either singly or in combination with HC smoke could also be very effective in flushing VC from tunnels.

The principles of operation and employment of the Mity Mite portable blower were learned quickly and easily by members of the 5th Inf Div (ARVN) Chemical Team.

- Plans for search and destroy operations using the Mity Mite team had to allow sufficient time for proper tunnel tracing and flushing.
- The tunnel tracing and flushing team was most effectively employed when attached to infantry maneuver units. If the team stayed at a rear location with the headquarters or reserve unit, time was lost and security for movement to the tunnel site was limited. In addition, the team enjoyed relatively good security with the infantry maneuver element.
- Both smoke grenades and smoke-pots were taken with the team on an operation. Smoke resources could be conserved by using a smoke grenade for initial tunnel tracing.

- Extra fuel for the blower had to be taken with the team because the blower's fuel tank capacity was only one quart. Teams determined fuel requirements by totaling the burning times of all smoke munitions (smoke-pot = 8 min; smoke grenade = 2 min).
- The upper and lower halves of a five-gallon can were effective field expedients. The lower half was used to seal any nearby tunnel entrances and prevent dissipation of the smoke. A hole the size of the Mity Mite blower nozzle would be cut in the center of the upper half. Employing this half with the blower simplified blowing smoke into vertical tunnel entrances. The poncho when tied securely around the blower nozzle was effective on horizontal entrances to tunnels.
- The Vietnamese soldier was quite capable of carrying the 25-pound blower for extended operations. Further, the desirable smoke munitions load for the ARVN munitions bearer was three smoke-pots and five smoke grenades.



Back to VC Tunnels

Source:

US Military Assistance Command, Vietnam, *Lessons Learned No. 52, Operational Employment of the Mity Mite Portable Blower*, November 1965

Friendly Fire Incidents

WEAPONS MINIMUM SAFE DISTANCES

WEAPONS TYPE	Minimum Distance (Meters)
1000-lb bombs and larger bombs	240
750-lb bombs, low drag	193
750-lb bombs, high drag	148
500-lb bombs, low drag	218
500-lb bombs, high drag	142
All smaller bombs	142
Napalm (all types), parallel to friendly troops	75
Napalm (all types), over friendlies toward enemy	112
CBU (all except CBU-24)	105
CBU-24	1000
Rockets (all pods)	217
Cannons and guns (20mm, 50-cal, 7.62mm)	25

Distances indicated are minimum safe distances for protected troops, i.e. in armored vehicles, bunkers, trenches or foxholes. Troops must be shielded from point of weapon detonation. Distances offer reasonable casualty-free risk for protected troops. Delivery of weapons closer than minimum distances indicated will introduce the risk of friendly casualties. Minimum distances include 150 percent expected delivery accuracy, 200 percent weapon lethal radius (LR), 60 meters target identification error for high angle delivery, and 30 meters error for low angle delivery.

Napalm flame pattern is approximately 35 x 100 meters. Best delivery is parallel to friendly troop positions. U-shaped friendly formations must have at least 1000 meters width for parallel delivery. U-shaped friendly formations smaller than 1000 meters in width are restricted to delivery over friendlies toward the enemy position.

Normal CBU patterns (except CBU-24) are about 30 x 400 meters. Delivery of CBUs parallel to friendly formations with positions well marked. Caution must be exercised in the vicinity of friendly troops near the ends of the CBU pattern, since delayed releases may extend patterns beyond desired areas. Aircraft should never fly over friendly positions once they have initiated CBU passes because some bomblets may dribble from dispensers.

CBU-24 pattern size is approximately 300 x 365 meters; therefore, this weapon is not for use near friendly forces.

Introduction **Ground Incidents** **Air Incidents**

SOURCE:

Extract from Seventh Air Force Conventional Airmunitions Guide, contained as an Appendix in US Army Lessons Learned No. 70, 17th October 1968

Friendly Fire Incidents



GROUND INCIDENTS

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1. INCIDENT:

a. This incident occurred while a US infantry company was establishing a night defensive perimeter. In firing their planned defensive fires, the initial 81mm mortar round fell short, 35 meters from the tube, wounding three US soldiers (one later died of wounds). The platoon sergeant, located in an adjacent gun pit, saw the round flutter and drop. He immediately yelled, "Short round", but the enlisted man who died of wounds started running rather than taking cover.

b. Following this incident and after troops were cleared from the immediate area, an additional round was fired using the same data and ammunition lot number. This second round functioned normally and landed in the planned impact area.

c. The cause of this incident was attributed to ammunition malfunction and not human error on the part of the gun crew.

d. Lessons Learned:

(1) Personnel must take cover when notified of a "short round."

(2) Prompt action must be taken to suspend and report any suspected lots of faulty ammunition.

2. INCIDENT:

a. A US infantry platoon conducted a mounted combat patrol and established an ambush position in the vicinity of a district headquarters compound. During the evening, US troops engaged an enemy force. A Light Fire Team (LFT) was requested and within a few minutes arrived on station. The sub-sector advisor directed the LFT commander to engage

the wood line north and west of the compound. On the first firing pass, the LFT's fires impacted in the vicinity of the friendly troops. The battalion commander requested that fire be shifted to the west. The LFT was informed but almost immediately the battalion commander reported that the gunships had again fired on the US troops. The advisor gave a cease fire and released the LFT. This incident resulted in the death of one US soldier and injury to nine others.

b. The primary cause of this incident was the employment of a LFT too close to friendly troops at night without clearance from or communications with the ground commander. The primary factor contributing to the incident was a misunderstanding between the subsector advisor and the LFT as to the exact location of friendly troops. The advisor failed to give specific coordinates of friendly troop dispositions and US military units in the immediate area were not monitoring the advisor's net which controlled the LFT.

c. Lessons Learned:

(1) Friendly troop dispositions must be given to the supporting LFT by coordinates and in the clear if necessary.

(2) If doubt exists as to the location of friendly units, the LFT must request marking or identification of friendly positions.

(3) Prior to a night engagement by an LFT of a suspected VC position, the enemy force locations must be verified with the ground commander concerned.

(4) Friendly units operating in the immediate area of contact must monitor the net controlling the LFT.

(5) Equipment for night marking of positions is required for all units.

3. INCIDENT:

a. This incident occurred when a Forward Observer (FO) with an infantry company requested a 100 meter shift away from a previously fired Defensive Concentration (DEFCON). The DEFCON had been fired during darkness, in thick growth, and apparently was much closer to the battalion's perimeter than estimated. The observer's target description misrepresented the criticality of the situation and caused the Fire Direction Center (FDC) to fire the DEFCON as a contact mission not requiring safe fire adjustment of the battery. This action resulted in the death of three US soldiers and injury to nineteen others.

b. Causes of this incident were a misrepresentation of the nature of the target in a fire

mission and failure to comply with established policies for the conduct of non-contact missions close to friendly perimeters.

c. Lessons Learned:

(1) Defensive concentrations should not be adjusted closer than 300 meters to friendly perimeters unless expressly requested by the unit commander.

(2) Unit commanders must include FOs and Liaison Officers (LOs) in supported unit fire to the greatest possible extent.

(3) The fire request must accurately describe the target and tactical situation of the supported unit.

4. INCIDENT:

a. This Incident occurred when a 105mm artillery battery fired an unobserved "trail runner" mission. When fired, due to a misunderstanding on area clearance, six rounds impacted in the proximity of friendly personnel resulting in the injury of one ARVN soldier and three Vietnamese civilians. The mission was passed from one artillery battalion to another due to a boundary change in two brigade Areas of Operations (A0s). When questioned, the original firing battalion Fire Direction Officer (FDO) indicated that the areas to be fired were cleared. The FDO of the receiving battery then assumed that all required area clearances had been obtained but in reality targets had been cleared only within the AO of the old firing battalion. All gunnery data and procedures were found to be correct.

b. This incident was caused by the failure to clarify exactly what clearance had been obtained and the statement that the areas were cleared should have been amplified as had been the practice on previous occasions to indicate what clearances had been granted.

c. Lessons Learned:

(1) FDOs must be alert to the possibility of misunderstanding on clearances, especially for areas which must be cleared by Vietnamese agencies.

(2) Units passing areas to other units for firing must be specific in stating what clearances have been obtained.

(3) Regardless of the source of targets, FDOs, in whose AO the target falls, are responsible for obtaining all clearances necessary. If any doubt persists, clearances must be reverified prior to firing.

5. INCIDENT:

a. One tube of a 4.2 inch mortar platoon fired with a 200 mil discrepancy in deflection while firing a registering round in support of the defense of a battalion perimeter. One round impacted in a company sector and four US soldiers were killed and ten wounded.

b. The cause of this incident was determined to be a failure on the part of the gunner to refer his sight as directed and was compounded by the failure of the squad leader to make the required safety checks.

c. Lessons Learned:

(1) Mortar platoons must be constantly trained and tested to ensure their proficiency.

(2) established procedures must be rigidly adhered to by each crew member during all firing missions.

6. INCIDENT:

a. This incident occurred while a US squad was conducting patrol activities in the vicinity of a fire support base. The squad leader saw a Viet Cong with a weapon and decided to call for artillery support. He sent his fire command to the artillery reconnaissance sergeant on the company internal radio net. The reconnaissance sergeant determined that the range to the target was 350 meters, verified this with the observer and inserted ‘Danger Close, 250 meters’ into the fire request. This was transmitted to the artillery liaison section in the infantry battalion Tactical Operations Centre (TOC), cleared, sent to the supporting artillery battalion and further assigned to a firing battery who processed the fire command and a smoke round was fired. This round was spotted in a rice paddy about 300 meters to the right flank of the observer, who then adjusted with ‘Left 150, repeat smoke’. This second round impacted again to the right flank of the observer who then erroneously repeated ‘Left 150’. The reconnaissance sergeant, monitoring the mission, asked the observer if he desired Shell, HE, Fuze Quick. The observer replied that he did and was warned to get his troops down because of the close proximity of the adjustments. The round was fired and impacted in the vicinity of the squad, injuring three personnel.

b. The squad leader became disoriented during the adjustment of the mission. He unconsciously faced the second round as it impacted, estimated the distance to the target as being 150 meters, and gave a correction of ‘Left 150’ instead of ‘Add 150’. The FDC had no way of knowing that the observer had changed his Observer - Target (OT) azimuth by 1600 mils and accepted the "Left 150’ as the desired shift.

c. The cause of this incident was the incorrect adjustment of artillery fire by an inexperienced observer.

d. Lessons Learned:

(1) All individuals who may be required to adjust artillery fire must be thoroughly oriented in forward observer procedures with frequent practice sessions to ensure proficiency.

(2) Unseasoned observers should not be permitted to adjust artillery fire any closer than 600 meters to friendly elements unless the tactical situation is extremely critical.

(3) OT azimuth errors can be precluded by inexperienced observers through the safe use of cardinal direction for subsequent corrections; i.e. ‘East 100, North 150, Repeat Smoke’.

7. INCIDENT:

a. This firing incident resulted from a change of coordinates during clearance for fire procedures between the operations centre of an artillery battalion and the TOC of the infantry division artillery. In the telephonic transmission of the fire request, the grid coordinates were transposed from XT6324 to XT6423. This error resulted in one killed for the requesting infantry unit.

b. The cause of this incident can be attributed to a lack of double check procedures on fire requests by each element in the clearance chain.

c. Lessons Learned:

(1) Confirmations of coordinates must be accomplished by each element in the clearance chain prior to granting approval to fire.

(2) The firing unit and the ground unit LO must coordinate to ensure that the area of impact is still clear and that no error in coordinates is made during clearance of the mission.

8 INCIDENT:

a. The LO with an infantry battalion called the FDC of the supporting artillery battalion and gave target coordinates for an adjust fire mission and indicated a platoon or larger size enemy force. The mission was passed to a firing battery and was followed by the artillery battalion FDC. After adjustment had been completed, the LO called for fire for effect on the same target. Since the battery had only four guns available at the time, it was directed to fire a battery six rounds. Due to a breech-lock malfunction, the number four howitzer

was called out of action and the number five howitzer was directed to fire three additional rounds in order to complete the fire mission. Shortly thereafter the LO with the infantry unit notified the artillery battalion FDC that several rounds had landed in the vicinity of the unit's perimeter and that one gun appeared to be firing out of lay. This incident resulted in two US soldiers being wounded.

b. The cause of this incident was attributed to a 100 mil deflection error by a howitzer section of the firing battery.

c. Lessons Learned:

(1) The firing battery officers and noncommissioned officers must follow prescribed detailed procedures for checking laying data and for controlling the firing of all sections.

(2) The firing battery must perform fire missions exactly as given by the FDC. Checks must be established to ensure that there are no deviations.

(3) All information must be accurately recorded, properly maintained and checked to prevent possible firing errors.

9. INCIDENT:

a. A battery of US artillery fired fifteen 105mm rounds which detonated near a bridge being secured by US and Vietnamese Popular Force (PF) soldiers. This fire mission resulted in the wounding of one US and one PF soldier.

b. The fire mission was called in by a PF soldier and relayed through the district chief and the US liaison representative at district headquarters. US target clearance was obtained from the appropriate US artillery battalion liaison officer who was unaware that a US armored personnel carrier was positioned at the bridge. The target was mis-plotted 1000 meters by the ARVN district chief and the observer target direction was also incorrectly given as 3200 mils instead of 320 degrees.

c. The first round in adjustment was fired and the correction given was 'Drop 300'. The second round was fired and a correction of 'Right 300, Fire for effect' was requested. At this time the firing battery FDO informed the Vietnamese that the "fire for effect" plot was within 200 meters of the bridge. The Vietnamese confirmed the request and the FDO then requested that personnel at the bridge be warned to take cover. A battery of three rounds was fired which resulted in the two casualties.

d. The cause of this incident was the error in the determination of the target. The PF at the bridge either disregarded or did not receive the warning of the close proximity of the fire

for effect rounds. As a result, the US personnel were not aware of the danger although they had observed the round adjustments prior to the fire for effect.

e. Lessons Learned:

(1) The importance of current and accurate location reports of all maneuver elements must continually be emphasized to supported units.

(2) US personnel should adjust US artillery whenever the tactical situation permits. This eliminates the problem of a language barrier and allows the FDO to better evaluate the progress of the mission and the competence of the observer.

10. INCIDENT:

a. A FO with a US infantry company was firing a destruction mission with one gun of the supporting artillery battalion on a well fortified B-40 rocket position 30 to 40 meters north of the company location. Adjustment was difficult due to terrain and proximity of the enemy rocket position to friendly forces. The FO had to adjust by sound and could only observe those rounds which became air bursts after hitting trees. The FO's last correction, as sensed from the previous round, was correctly computed by the FDC, checked by the section chief and fired. Because of the uneven terrain and the probable error of the range fired (9,920 meters), the round impacted outside the company perimeter, resulting in the death of one and the injury to a second member of the infantry unit.

b. The two personnel involved in this incident were outside the unit perimeter. This was a direct violation of the unit commander's order that all personnel would stay under overhead cover until the fire mission was completed.

c. Cause of this incident was a violation of orders to remain under protective overhead cover while artillery was being used for close-in support. A contributing factor was the proximity of friendly troops to the target.

d. Lessons Learned:

(1) The effectiveness of orders issued is dependent upon command supervision at all echelons.

(2) Protective cover must, if available, be utilized by all personnel during close-in fire support missions.

11. INCIDENT:

a. During a contact mission, one round of 175mm impacted on a friendly position resulting in several casualties.

b. The cause of this incident was that a newly assigned member of the firing section selected different lots of powder during the mission.

c. Lessons Learned:

(1) The same powder lot must be used throughout the mission. Powder must be segregated by lots, and powder lots that are not fired during registration must not be used for other than adjust fire missions.

(2) Detailed instructions and training must be given to newly assigned personnel.

12. INCIDENT:

a. Friendly casualties were caused when an unknown number of 105mm rounds impacted on their position during a contact mission.

b. Cause of this incident was that the mission was started by a ground FO, however, he was unable to observe the rounds. The mission was then taken over by an airborne observer who made shifts along the gun-target (GT) line, while the FDC was plotting the shift along the OT line.

c. Lessons Learned:

(1) When the observer changes, a new OT azimuth must be given.

(2) The FDO must constantly check firing data in order to preclude firing errors.

13. INCIDENT:

a. One round of 155m impacted on friendly troops during a contact mission.

b. The cause of this incident was FO error. An airborne artillery liaison officer, in a command and control helicopter, attempted to adjust fires of four batteries at one time. During the confusion he gave a correction which caused the round to fall left and short of the target.

c. Lessons Learned:

(1) Each member of the artillery team must know his own capabilities and limitations and not over extend himself.

(2) Continuous emphasis must be placed on proper FO procedures.

14. INCIDENT:

a. Friendly casualties were sustained during a contact mission when rounds impacted in a hamlet.

b. The cause of this incident was that both the F0 and the company commander had mis-plotted their location. The rounds were adjusted by sound and neither the FO nor the company commander could see the hamlet in which the rounds impacted.

c. Lessons Learned:

(1) All friendly locations and no-fire zones should be plotted by the FDC on the firing chart or map.

(2) The creeping method of artillery adjustment should have been used to place rounds on the target.

(3) FO training programs be conducted concurrently with tactical operations.

SUMMARY OF CAUSATIVE FACTORS

1. Fire Direction Center:

a. Computation errors by FDO.
b. Deflection errors due to inadequate supervision and lack of adherence to double check procedures.
c. Failure to reorient range deflection protractor upon change in azimuth of fire.
d. Current meteorological message not applied to firing data.
e. Failure to follow established SOPs.
f. Failure to maintain up to date unit locations.
g. Erroneous azimuths as a result of poor plotting.
h. Transposing numerals in coordinates.
i. FDO failed to plot canister point of impact.
j. FDO failed to secure proper grid clearance.

k. Lack of completeness of computer's records.
l. Poor judgement on the part of the FDO.
m. Maps and charts not up to date in the FDC.

2. Firing Battery:

a. Incorrect powder charge
b. 100 Mil quadrant error (QE)
c. 200 Mil error in battery lay
d. Failure to establish minimum QE
c. Deflection errors
f. Ammunition container thrown in path of round.
g. Errors in boresight and lay
h. Failure to adhere to established check systems.
i. Incomplete records.
j. General lack of adequate supervision by supervisory personnel from, in some cases, the Battery Commander down to the Chief of Section.
k. Chief of Section acting an a working section member and not adequately performing his principle duty of overall supervision.

3. Forward Observer:

a. Incorrect OT azimuth.
b. FO did not know locations of friendly forces.
c. Failure to change OT azimuth with change in location
d. Fires adjusted too close to friendly forces.
e. Map outdated.
f. FO misread map by 1000 meters
g. Error in position location and azimuth to target.
h. FO (Sgt) not familiar with compass
i. Target incorrectly located.
j. Deviation from sound FO procedures.
k. Disorientation.
l. FO did not require readback.
m. Lack of coordination between FOs.
n. FO adjusted close-in with limited visibility.
o. FO not familiar with new terms
p. FO repeatedly switched back and forth one frequency to another.

4. Liaison:

a. Lack of coordination with friendly forces

b. Language difficulties
c. Liaison Officer (LO) did not forward friendly locations to the FDC
d. Oversight in computation of target list
e. Judgement error of supported unit CO and LO
f. Direction of movement and precise location of supported unit was not accurately reported to the artillery FDC
g. Personnel were not warned and did not take cover during a close fire support mission
h. Improper clearance of a preplanned fire by a District Operations Center.

5. Mortars:

a. Mortar section clearance to fire error
b. Faulty ammunition
c. 1000 Mil FDC plotting error
d. failure to adhere to established check systems
e. liaison clearance to fire error
f. 200 Mil error in placement of aiming stakes
g. 100 Mil deflection error on mortar
h. use of restricted ammunition over the heads of friendly troops
i. 100 Mil elevation error on mortar
j. lack of adequate training and experience
k. failure to follow established clearance procedures
l. failure to comply with published directives
m. Tactical Operations Center (TOC) situation map not up to date with "No Fire Zones"
n. Lack of clearly defined employment and control procedures for displaced mortar sections

6. Other

a. smoke canister ricochet
b. firing too close to inadequately protected troops at the request of the supported unit CO
c. incorrect azimuth transmitted by a relay station
d. communications difficulty
e. survey control not available
f. infantry battalion did not have an SOP in effect for close-in artillery fires
g. lack of coordination

1. patrols moving through friendly ambush sites without knowledge of their locations
2. units advancing prematurely into artillery preparation fires
3. artillery placing H&I fires on friendly units not knowing they were there

h. unit disorientation

1. patrols wandering into free fire areas
2. unit leaders and forward observers failing to determine their proper location, and calling for fire on coordinates in which friendly forces were located, in some cases, in which they themselves were located.

i. Artillery firing outside area of responsibility
j. Civilians returning to hostile zones which had been cleared for H&I fires, violating curfew laws, or inadvertently becoming involved in fire fights.



Introduction | Air Incidents | Weapons Safe Distances

Source:

Vietnam Lessons Learned No. 70: Friendly Fire Incidents. United States Military Assistance Command, Vietnam, 17th October 1968

Friendly Fire Incidents



AIR INCIDENTS

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1. INCIDENT:

a. The number two aircraft of a flight of two F100s, under the control of a US Forward Air Controller (FAC), delivered Cluster Bomb Units (CBU) approximately 1000 meters southeast of the FAC marked target. As a result, two US soldiers were wounded.

b. Investigation revealed that the pilot of the number two aircraft, while reversing direction of flight after the first pass momentarily lost sight of the target. Upon completing the turn, he lined up on smoke previously laid down by a helicopter. Thinking that this was the same target, he delivered his ordnance. The target area and impact area were similar but fairly well separated.

c. Lessons Learned:

(1) Pilots must keep the target in sight at all times.

(2) The Importance of the FAC briefing the strike aircraft pilots on the position of the nearest friendly forces cannot be overly emphasized.

2. INCIDENT:

a. The number three man of a Vietnamese flight of three F5 aircraft delivered two BLU-1B Fire (Napalm) bombs on an element of a US infantry division engaged in combat with Viet Cong forces in Binh Doung Province resulting in two US killed and 18 US wounded. The wounded were serious enough to warrant evacuation out of country.

b. The cause of this incident was threefold.

(1) Although the FAC and the VNAF flight leader understood each other,

the pilot of the number three aircraft did not. This was not apparent to the FAC at the time of the incident since the VNAF flight leader spoke fluent English.

(2) The number three pilot did not know the exact location of the friendly ground troops.

(3) Smoke and haze in the target area partially obscured the enemy target as marked by the FAC and the smoke marking the friendly troop's position looked similar to that marking the target.

c. Lessons Learned:

(1) Air Liaison Officers (ALOs) and FACs involved in control of VNAF strike aircraft during the conduct of close air support operations must recognise that a communications problem may exist between USAF and VNAF aircrews.

(2) FACs must take all possible measures to ensure that positive understanding exists between the FAC and VNAF strike pilots before attacking targets.

3. INCIDENT:

a. This Incident occurred In the Klamath Falls area of operation. Two B57 aircraft were returning from a Combat Skyspot mission when they were diverted to support a Vietnamese Civilian Irregular Defense Group (CIDG) in contact with an enemy force. The strike was being controlled by an airborne FAC. Friendly ground forces marked their position with green smoke. This was considered necessary because heavy jungle vegetation prevented visual sighting of friendly troop locations from the air. Prior to the attack by the B57s, several changes as to target position and attack headings were made between the ground commander, the FAC and the strike aircraft. After several changes, one of the strike aircraft strafed the suspected target area with 20mm cannon. During the strike, the rounds impacted on the friendly positions resulting in 4 CIDG killed, 28 CIDG wounded and 2 US advisors wounded. The second aircraft did not make a strafing pass.

b. Contributing factors to this Incident were:

(1) The heavy vegetation precluded positive identification of the target.

(2) The close proximity between friendly troops and target (100 meters) in an area which was not clearly discernable except by smoke.

(3) Too many changes concerning target position and attack headings were

given the pilot prior to the strafe pass.

(4) The pilot did not confirm the target with the FAC prior to engagement.

c. Lessons Learned:

(1) Ordnance must not be expended upon positions in close proximity to friendly positions unless the strike pilot can positively identify the target.

(2) In situations where friendly troops are in close proximity to a target, it is imperative that the target be clearly marked and acknowledged.

4. INCIDENT:

a. This incident occurred when two F100s were scrambled to support an element of a US division. After minor difficulty in establishing visual contact between the FAC and the strike pilots, preliminary pre-strike coordination between the FAC and the pilots was accomplished, and the target marked. Friendly positions were identified and the strike began. After the fourth pass, an unidentified aircraft was sighted, so the two aircraft terminated the bombing passes to make positive identification of the aircraft. When the aircraft returned to the target area, the FAC marked another target for strafing and warned the two aircraft that he was moving them closer to the friendly troops. Two strafing passes were made by both aircraft. While on the strafing run, one of the Pilots observed a trail which he requested to strafe. On his second pass, clearance to strafe the trail was obtained from the FAC. In the attack that followed, five friendly troops were wounded.

b. This incident reflects the need for stressing proper target identification and marking by the FAC. The strike pilots must be apprised of the precise location of friendly troops at all times; any errors in distance or azimuth can be disastrous. It is apparent that the friendly position as originally given by the FAC to the strike pilots was inaccurate and only general terms were used to brief the strike pilots on target and friendly positions. The trail strafed by the pilot was not the same trail envisioned by the FAC. The FAC should have given specific instructions as to trail location in meters from a specific known point. He should have briefed the trail orientation (north to south). Also, it was noted that the trail the strike pilot saw while at the low altitude was not distinguishable at pattern altitude.

c. The cause of this incident lies in the fact that the lead strike aircraft strafed a trail leading out from a friendly position which had not been identified by the FAC. Factors contributing to the incident were:

(1) Miscalculation of ground distance by a relatively inexperienced FAC and relayed to strike pilots. As a consequence, the pilots believed that friendly

forces were well clear of the target area.

(2) Heavy jungle growth obscured the small trail evident to the strike pilot at low level but not evident after he had ascended to pattern altitude for the strike pass. As a result, the pilot made a mistake and strafed the wrong trail only a short distance from his first pass which was on target.

d. Lessons Learned:

(1) Pilots must be briefed on the distance and direction of friendly forces from the target area.

(2) The FAC must provide the strike pilots with a complete description of the ground situation in specific terms rather than generalities.

(3) The FAC must receive acknowledgement from the strike pilots of instructions given prior to clearing aircraft for strike.

(4) Low level, over the target recognition does not always present the same picture as that viewed from higher altitude or positions further from the target area.

5. INCIDENT:

a. A flight of two F4Cs was scrambled to support friendly troops in contact with the enemy in the vicinity of Ban Me Thuot. Ordnance load for the lead aircraft was six Mk-82 High Drag General Purpose bombs. The wing aircraft carried four unfinned napalm bombs and two CBUs. The fighters rendezvoused with a FAC and began their strike. A series of seven attack passes were made, four by the lead aircraft and three by the wing man, the last of which was dry. As the wing man was about to begin his fourth pass, the FAC held the fighters “high and dry” as a napalm bomb was observed to have landed near a church. A recapitulation of events revealed the napalm tank inadvertently dropped as the wing man was turning to the attack on his third pass. This incident resulted in 13 civilians killed and six wounded.

b. Post-flight inspection of the aircraft was considered routine. No discrepancies were recorded pertaining to the inadvertent release of the napalm bomb, consequently, no maintainence check was performed. On a subsequent mission, two sorties after the inadvertent release of napalm, another malfunction developed. A hung bomb malfunction occurred on the same bomb rack. Maintenance investigation revealed a bent and cracked bomb rack and slow cartridge burn.

c. The primary cause of this incident was the malfunction of the bomb rack mechanism.

d. Lessons Learned:

(1) That greater and continuous emphasis be given to weapons systems quality control.

(2) That unsatisfactory ordnance system operation be promptly reported for corrective action.

(3) That maintenance and armament crew daily inspection and equipment check-outs be thorough and complete.

6. INCIDENT:

a. This incident occurred south of Hue. Resultant casualties were four USMC personnel killed and two wounded.

b. Two companies of US Marines were in heavy contact with NVA forces. Both companies were taking casualties from small arms, automatic weapons, 60mm mortar fire and were having difficulty advancing against the enemy position. Air strikes were requested and provided by two Marine A4s. The air strike was controlled by a USAF FAC. The ground commander requested that the strikes be moved closer to his troops. He was aware of the close proximity of friendly troops to the target, but decided that the situation warranted such action. The aircraft made three passes with all weapons on target. On the fourth pass, bombs also hit the target area, but fragments were thrown into friendly lines and caused the casualties.

c. The primary cause of this incident was air delivered ordnance being dropped too close to friendly troops. Further, the tree cover in the target area precluded visual observation of the friendly troops from the air.

d. Lessons Learned:

(1) FACs must be fully informed by ground commanders as to the exact locations of all friendly elements.

(2) Ground commanders must know and consider the dispersion effects of all types of air delivered ordnance.

7. INCIDENT:

a. This incident occurred as the result of an immediate air strike by two F100s in support of two companies of a US infantry division in close and heavy contact with the enemy. The

air strike was controlled by a USAF FAC. Each F100 delivered four bombs about 250 meters northeast of burning napalm (dropped by a previous strike) which was being used for identification and orientation of the target area. The ground situation became intense, with enemy snipers firing at friendly troops from a distance of 30 feet. At this point, the ground commander requested that strafing passes be made along the western edge of the burning napalm. The F100s made two strafing passes each approximately 65 meters friendly positions. On the last pass, the rounds of one of the aircraft hit the friendly perimeter resulting in two killed and seven wounded.

b. This incident apparently resulted from two factors: approaching darkness (last light conditions) and pilot's disorientation with reference to his attack heading on the last strafing pass. Both pilots received the FAC's instructions, one pilot strafed the target successfully, the other strafed the friendly troops. It appears that the pilot who strafed the friendly troops either failed to understand the instructions, or became disoriented and fired short of the target area.

c. Lessons Learned:

(1) FACs must require strike pilots to confirm run-in headings in cases where heading variation would result in overflight of friendly positions.

(2) When a "troop in contact" situation exists, especially under diminishing light conditions, every effort must be made by aircrews to determine the exact friendly location and situation prior to delivery of ordnance.

(3) A requirement exists for the development of a standard terminology for strike pilot/FAC air-to-air communications in order to eliminate misunderstanding of instructions.

8. INCIDENT:

a. This incident occurred during the conduct of a preplanned strike on an NVA headquarters location in support of a US infantry division. The flight consisted of two F100s armed with MK-82 High Drag General Purpose bombs. The lead pilot had completed three passes, expending all four bombs on target. The second pilot had expended two bombs on target when, on his third pass the bomb fell short (1200 - 1300 meters) killing one US soldier and wounding four others. Attack headings were generally north to south passing 200 meters west of friendly troops on the run-in.

b. The main friendly element position was marked with smoke; however., the forward element (southernmost and closest to the target) was not marked with smoke for fear of giving away the position to the enemy. The FAC observed the colored smoke marking the

main element and was verbally given the location of the forward element. The fighters were unable to see the colored smoke of the main element and it is doubtful whether they would have been able to see the smoke had the forward element been marked.

c. The primary cause of this incident was accidentally thumbing the bomb release button on the stick grip while attempting to trim the aircraft with the stick trimmer button. Contributing factors were:

(1) The pilot did not obtain a precise attack heading and therefore overflew the friendly forces.

(2) The closest friendly elements were unable to mark their positions with smoke.

(3) The low experience level of the pilot.

d. Lessons Learned:

(1) A requirement exists for providing ground units with an effective means of position marking in heavy dense jungle, especially in two or three canopied jungle areas.

(2) Command and control helicopters can effectively mark those friendly positions nearest the fighter's flight pass, enemy situation and weather conditions permitting.

(3) The FAC and fighter aircraft patterns should not be over friendly troops.

9. INCIDENT:

a. This incident occurred wh0en two F100 tactical fighters were scrambled to strike a respected Viet Cong target in support of a brigade of a US division. The area of operations was heavily fortified and the brigade was seeking to employ only high explosive ordnance. When it became apparent that the brigade would be receiving aircraft with mixed ordnance loads, it was decided to select a dump grid for the CBU. Since the fighters could not deliver the CBU on target they were diverted to the dump grid target. Upon arrival, the FAC observed Army gunships striking a target about 2000 meters north of the target coordinates. The FAC had previously confirmed with the brigade Tactical Air Party (TACP) that no friendly troops were in the target area. He assumed the target coordinates were in error and that his target was the same the gunships were fioring upon. He then obtained from an Army gunship in the area, what he assumed to be clearance for delivery on the new target and cleared the strike flight. Two CBU-2A units were dispensed on the marked target by one of the strike fighters. Twenty-three casualties (wounded) were sustained by the friendly unit in the area. The brigade TACP had not been informed that

troops had been air assaulted into the area that morning.

b. The primary cause of this incident was the changing of the CBU dump area, by the FAC, without obtaining clearance from the TACP.

c. Lessons Learned:

1. FACs must ascertain from all sources the location of friendly forces prior to granting clearance to strike a target.

2. Brigade TACPs must keep abreast of the movement of friendly forces in their area of operations.

3. Brigade TACPs must keep their FACs informed of all friendly positions in the target area of operations.

4. Friendly units must mark their positions if requested or whenever air units are maneuvering overhead with any indication that a strike is imminent.

10. INCIDENT:

a. A F4D under FAC control dropped an M-117 Low Drag bomb within the perimeter of an element of a US Army brigade. The friendly forces were in close heavy contact with an unknown size enemy force. The bomb impacted approximately 225 meters east of the briefed target area resulting in three missing in action and twelve wounded.

b. The airborne FAC had fired a white phosphorous (WP) rocket to mark the target but it landed 75 meters to the west. The friendly position was not marked by smoke. Although the FAC was certain of the friendly troops location, it is obvious that the F4D pilot had misinterpreted the FACs description. Since the target was located 75 meters east of the rocket and the friendly forces were also located to the east of the target (approximately 225 meters), the strike aircraft were required to estimate the distance and drop between the WP mark and the friendly position. As stated in 7th Air Force Conventional Airmunitions Guide (see Appendix), the minimum safe distance for M-117 Low Drag bombs is 193 meters for protected troops in armored vehicles, fox holes, bunkers or trenches. Since friendly forces were an estimated 225 meters from the target, this left only a 32 meter margin for error.

c. The primary cause of this incident was lack of judgement in determining distances. Contributing factors were the use of M-117 bombs in such a close tactical situation. If the marking rocket had been on target or between the target and friendly positions, an error in distance estimation by the strike pilot would probably have been of no consequence. The

FAC failed to request that friendly units mark their position by smoke.

d. Lessons Learned:

(1) Friendly forces must mark their positions, if possible., for each set of strike aircraft.

(2) Strike aircraft should not deliver initial ordnance between the FAC's mark and the ground force position without requiring the FAC to re-mark the target or to mark between the target and the friendly forces.

(3) A reference distance should be established by FACs and this reference be used as the means for judging the estimated distances during air strikes.

SUMMARY OF CAUSATIVE FACTORS

1. Pilots not knowing the exact location of friendly ground troops

2. Smoke and haze obscuring targets that were in close proximity to friendly forces.

3. Language difficulties

4. FAC's charts not up-to-date

5. Pilot and FAC disorientation.

6. Dispersion of air delivered ordnance.

7. Too many changes concerning target position and attack headings being given to pilots prior to the strafe pass.

8. Pilots failing to confirm the target with the FAC prior to engagement

9. Failure of FACs to properly identify and mark targets.

10. Failure of FACs to properly calculate ground distances and relay this information to the strike pilots.

11. Malfunction of a bomb rack mechanism.

12 Accidental delivery of ordnance.

13. Air delivered ordnance being dropped too close to friendly troops.

14. Accidentally thumbing the bomb release button on the stick grip while attempting to trim the aircraft with the stick trimmer button.

15. Pilot failing to maintain a precise attack heading and overflying friendly forces.

16. Friendly forces being unable to mark their positions with smoke due to the tactical situation.

17. Low experience level of pilots.

18. Changing of a CBU dump area by the FAC without obtaining clearance and without checking with all available sources for the location of friendly forces.

19. Brigade TACPs failing to keep FACs informed of all friendly positions in the target area of operations.

20. Improper selection of ordnance for close-in tactical support missions.



Introduction | Ground Incidents | Weapons Safe Distances

Source:

Vietnam Lessons Learned No. 70: Friendly Fire Incidents. United States Military Assistance Command, Vietnam, 17th October 1968

N. VIETNAMESE ARMY



The North Vietnamese Army was a formidable fighting force. Although ostensibly fighting what was originally a guerilla war, after Tet in 1968 the NVA took on the main responsibility for the war in South Vietnam. Organised and equipped as a regular army the NVA were extremely well motivated; tenacious and merciless when on the attack (see Offensive Tactics) and elusive on the defense (see Defensive Tactics). If they had a single weakness it was, like many communist armies, an inflexible approach to the changing tactical situation. The consequence of this was extremely high rates of attrition amongst it's soldiers. Many NVA units were completely decimated (battle of the Ia Drang for instance) and subsequently withdrawn from the theatre to be rebuilt.

Fighting against the NVA was a totally different situation than confronting VC, even Main Force VC units, since the NVA had integral weapons platoons and, certainly in the DMZ, reasonable artillery supporting fire. For a frank, first-hand, discussion of what it was like to fight the NVA see Delta, Mike 2

ORGANISING AN NVA INFANTRY COMPANY

COMPOSITION OF COMPANY

- 1 x Company HQ Section
- 3 x Rifle Platoon (each 1 x Rifle Platoon HQ Section, 4 x Rifle Squads)
- 1 x Weapon Platoon (1 x Weapons Platoon HQ Section, 1 x Mortar Squad, 1 x HMG Squad, 1 x Recoilless Rifle Squad)
- 1 x Recce Squad

Company HQ Section

- 1 x Captain
- 1 x Senior Sergeant
- 1 x RTO
- 1 x Runner

Rifle Platoon HQ Section

- 1 x 2nd Lieutenant

- 1 x Senior Sergeant
- 1 x Runner

Rifle Squad

- 1 x Sergeant
- 1 x RPG
- 1 x RPD LMG
- 6 x Riflemen

Weapons Platoon HQ Section

- 1 x 2nd Lieutenant
- 1 x Senior Sergeant
- 1 x Runner

Mortar Squad

- 1 x Sergeant
- 2 x Corporal
- 6 x Rifleman
- 3 x 82mm Mortar (3 crew/ Mortar)

HMG Squad

- 1 x Sergeant
- 2 x Corporal
- 6 x Rifleman
- 3 x 12.7mm HMG

Recoilless Rifle Squad

- 1 x Sergeant
- 1 x Corporal
- 6 x Rifleman
- 3 x 75mm Recoilless Rifle

Recce Squad

- 1 x Senior Sergeant
- 1 x Sergeant
- 10 x Rifleman

NOTES:



All soldiers are equipped with the AK-47 (see also NVA Smallarms)

See NVA Rank Insignia

The RTO in the Company HQ section is used rather differently than that in an Allied force. The NVA communications were with Battalion only and very infrequent - usually involving a single situation report on a daily basis. The RTO was NOT used as a means of communication between the Company HQ and it's constituent Platoons - this was generally done by using a runner, signal rockets etc.

A complete NVA Order of Battle is available for the year 1967 detailing NVA deployments in the Four Tactical Zones.

Unlike their counterparts, the Viet Cong, the NVA were not indiginous to their Areas of Operation. As a result, apart from as security around their bases, their use of Booby-Traps was not as extensive as the VC use of such devices.

SOURCES



Inside the VC and the NVA, Michael Lanning & Dan Cragg, Ballantine Books, 1992, ISBN 0 8041 0500 6

Buckle For Your Dust, Greg McCauley, Paddy Griffith Associates, ISBN 0 9521 488 2 X

Armies of the Vietnam War 1962-75, Men-At-Arms Series 104, P. Katcher & M. Chappel, Osprey (Reed International Books), ISBN 0-85045-360-7

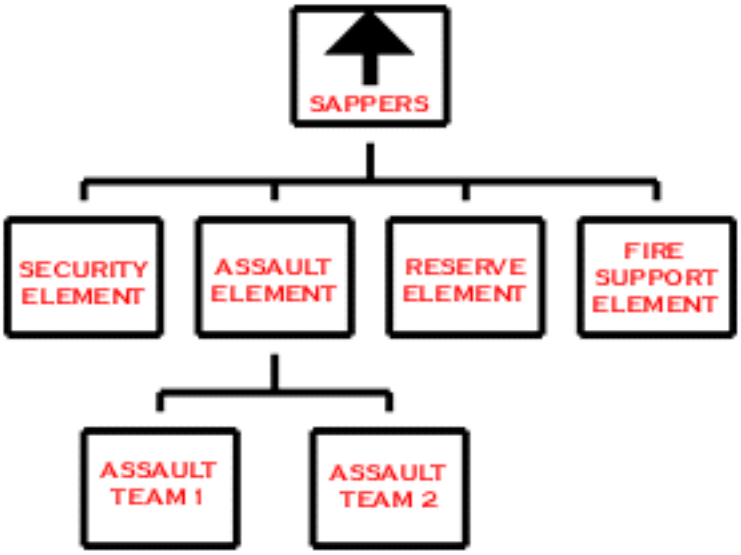
NVA Sappers



Organisation and Tactics

Every sapper operation was tailored to the needs of the situation, which caused sapper organisations to vary in size and composition. The basic sapper battalion was composed of four or five companies. Each company contained three fifteen- to twenty-man platoons, each split into two squads. Each squad was further subdivided into three-man cells.

A sapper raiding party, organised to attack without infantry support, consisted of a security element, an assault element, a fire support element and a reserve element.



Security

The security element was the smallest element of the raiding party and seldom exceeded one reinforced cell - 4 men armed with 1 x RPG, 2 x AK-47 and several mines. Its task was to keep allied reinforcements from entering the battle area. Direct fire weapons such as RPG-2s and RPG-7s and directional mines enabled the security element to carry out its mission.

Reserve

Reserve elements, usually a reinforced infantry squad, were formed only under unusual circumstances and furnished close-in support and assistance where required. Consisting of 13 men, the reserve elements were armed with 1 x MG, 1 x RPG, 9 x AK-47s and about 30 shaped explosive charges.

Indirect Fire Support

The indirect fire support element was included in most attacks. It provided general indirect fire support for the raiding party and was composed of several weapons crew cells protected by a security cell - 27 men, 2 x 82mm mortars with 60 rounds a piece, 4 x AK-47s and possibly a single K-63 radio. Fire support elements never used mortars heavier than 60mm or 82mm, and usually the former. Rarely were more than two mortars committed to a single raid.

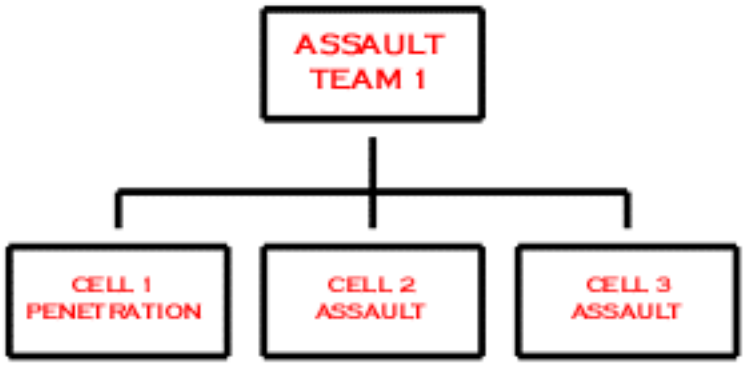
The mission of the indirect fire support element was:

- to mask any noise made by sapper penetration units
- suppress enemy reaction and movement within the target area
- distract enemy attention away from that sector of the perimeter where the assault element was operating.

Assault

The key component of the sapper raiding party was the assault element composed of two or more 'arrows' (assault teams). Each arrow was responsible for moving along a single approach route to the target. There were normally three types of cells in each arrow; shock, penetration, and direct fire support. The assault arrows carried most of the demolitions material.

ARROW ONE

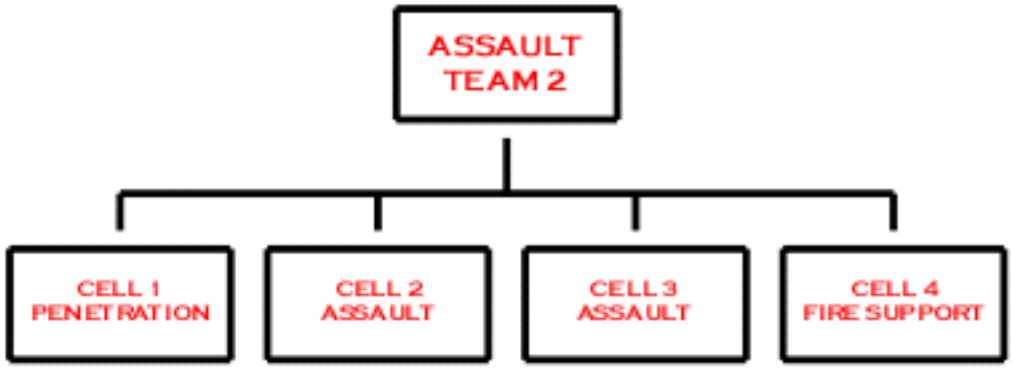


CELL 1 Penetration: 4 men, 2 x AK-47, 2 x Wire Cutters, 3 x Bangalore Torpedoes

CELL 2 Assault: 5 men, 2 x RPG, 3 x AK-47, 70 x Shaped Charges and 4 x Antitank Grenades

CELL 3 Assault: 4 men, 2 x AK-47, 1 x RPG, 50 x Shaped Charges and 5 x Antitank Grenades

ARROW 2



CELL 1 Penetration: 4 men, 2 x AK-47, 4 x Bangalore Torpedoes

CELL 2 Assault: 5 men, 1 x RPG, 2 x AK-47, 45 x Shaped Charges and 4 x Antitank Grenades

CELL 3 Assault: 4 men, 1 x RPG, 2 x AK-47, 3 x Antitank Grenades and 35 x Shaped Charges

CELL 4 Fire Support: 2 men, 1 x RPG and 1 x AK-47

Sometimes cells were even broken up so that the arrows could be tailored exactly to overcome the peculiar characteristics of a specific perimeter defence. In lieu of explosive charges, a penetration cell might carry wire cutters, bangalore torpedoes, stakes, tape, cloth strips and probing devices. It might also dispense with AK-47s and drop one man from each cell.

A direct fire support cell might use RPGs instead of demolitions and also vary in unit size. However, every effort was made to preserve cell unit integrity in the shock arrows, whose only mission was to destroy enemy troops.

PREPARATIONS

Sapper unit commanders made personal reconnaissance of enemy targets. Primarily interested in the size, disposition, strengths and weaknesses of enemy base defences, the commander secured every scrap of intelligence available on the target.

After the intelligence data was analysed, the commander developed a plan of attack, which defined:

- approach, infiltration and withdrawal routes
- fire support positions
- target priorities
- organisation of the raiding party

The sapper commander specified the size, composition, and armament of every unit in the assault force and great effort was expended on ensuring that every man knew his elements mission and the mission of other elements.

As in nearly all NVA/VC operations, rehearsals were carried out making full use of maps, diagrams, mock-ups, sand tables and terrain similar to that found in the target area and its environs. Rehearsals, vital to the success of the mission, could require from three days to three months of practice.

Sapper attack plans were usually complicated and the failure of any part of the plan jeopardised the whole operation. Each sapper, and sapper subunit, was expected to know his role in the operation so completely that he could act independently after the attack began.

Attacks without infantry were designed to eliminate the need for fire support and at the same time thwart the massive fire support commanded by allied units. Secrecy, stealth, surprise and manoeuvre replaced fire superiority whilst diversions, feints and deep thrusts into the enemy base, combined with simultaneous attacks on several targets, were aimed at confusing the defenders and dispersing their fire support.

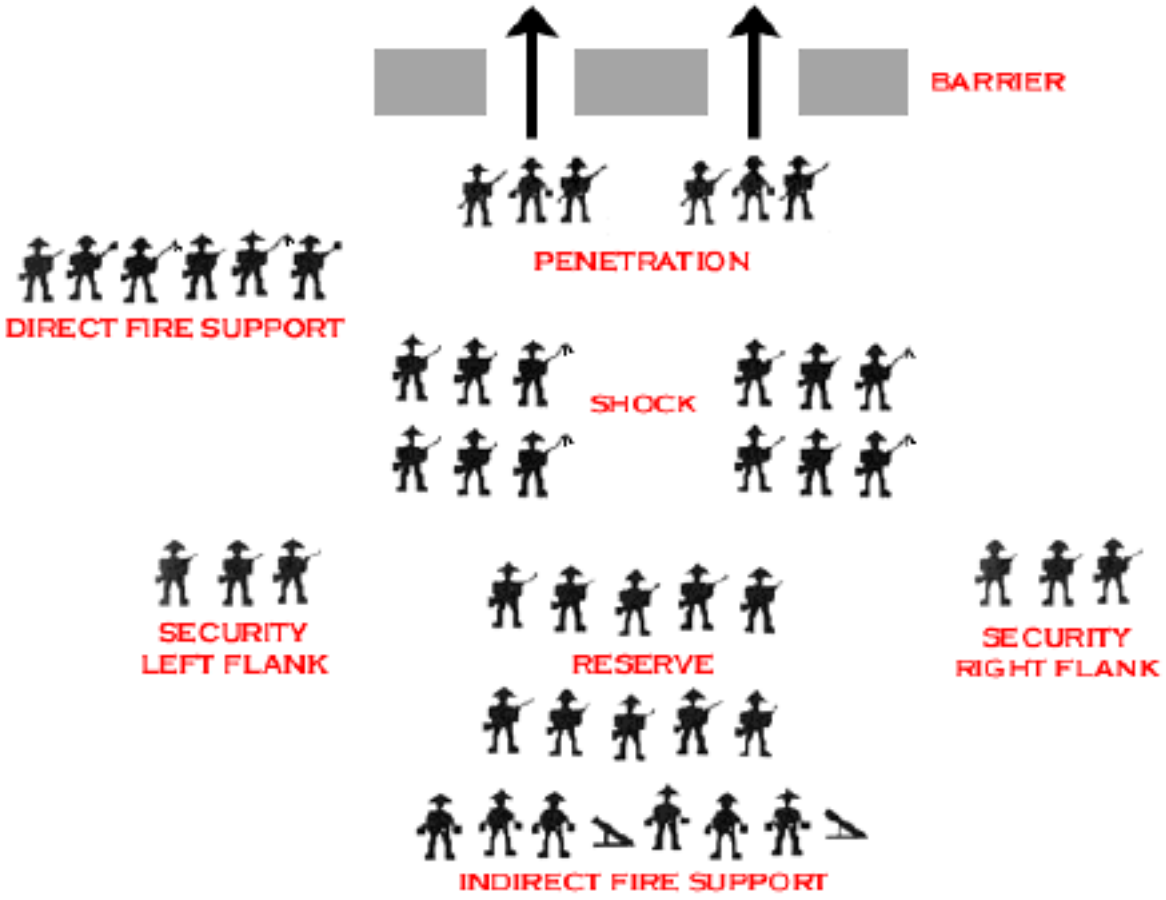
RAID TACTICS

Sapper penetration cells began their operations at dusk because it took a long time to penetrate base camp defences. Sappers often took six to seven hours to cover the last 200 meters to the objective. Modern defensive barriers with their maze of barbed wire and other obstacles required special penetration procedures. When breaching wire obstacles, the sappers used bamboo poles to raise it, mats to crawl over it, or wire cutters to go through it. If the defensive wire could not be breached by one of these methods it would be blown apart by bangalore torpedoes or small charges of plastic explosive.

The painstaking application of proven penetration methods was the hallmark of the sappers. A single cell of three men clad only in loin clothes or shorts and camouflaged with mud usually carried out penetrations. Standard gear consisted of an automatic weapon, wire cutters, knife or bayonet, a sharp

metal rod to probe for mines, bamboo sticks to prop up barbed wire, and a quantity of small pins to disarm mine fuses.

Diversionary attacks, feints and other ruses were frequently coordinated to distract the defenders attention away from the area selected for sapper penetration. One standard tactic employed the fire support element to disguise the raid as a standoff attack so that defenders would take cover in their bunkers.



Penetration cells would mark paths through the obstacle barrier for following assault cells and infantry troops. Usually two or more arrows, led by their penetration cells, advanced into the enemy defensive perimeter under cover of darkness. Wire cutters were used whenever possible as lanes were cut through the wire, and mines, trip flares and anti-intrusion devices nullified.

If necessary, the penetration cell would employ bangalore torpedoes to blow a way through the barrier. Sappers tried to avoid using bangalore torpedoes if possible so as to avoid attracting attention to their penetration lanes through the enemy barrier field. They might use them if discovered or to rapidly penetrate the final barrier. If forced to employ bangalore torpedoes, sappers sometimes threw satchel charges or fused demolition blocks to attract attention away from the bangalores and make the defenders think that errant mortar rounds were impacting in the area.

If the penetrating sapper force was prematurely detected or pinned, assault cells would use RPGs to suppress the defenders and try to ram the assault through at high speed. Sappers who were prematurely detected began throwing explosive charges in all directions, attempting to blast through the perimeter and assault the interior of the target before they were annihilated themselves.

If assault arrows could not overcome opposition, they would retreat rapidly. Otherwise they would drive ruthlessly forward without regard for casualties or their flanks. Neither the security of their rear nor their own escape concerned them until the mission was accomplished or a withdrawal was ordered.

Once the perimeter was penetrated or the raid detected, the sappers moved to their targets in an attempt to complete the mission in thirty minutes or less. Demolition charges would be placed on key targets while satchel charges and RPGs would be fired in all directions to suppress reaction. After attaining their objective, the sappers withdrew through their lanes in the perimeter. Fire support and reserve elements covered their withdrawal.

All elements of the raiding party then moved to a rallying point, normally the same place as the assembly area. Then the sappers rapidly regrouped and quickly returned to their base camp.



Sapper Attack

Hill 875

Recollections of a Veteran

Since first presenting the article on NVA Hill Trap Maneuvers I have been contacted by Bob Fleming, an ex-member of Delta Company, 2nd Battalion, 503rd Airborne. Bob was the Delta Company battalion net RTO during the course of the Hill 875 battle and was responsible for operating the radio for the Company Commander . He has pointed out a number of errors in the original article as well as clarifying some historical misrepresentations. Here is an edited version of what he wrote as well as some more general information on the role of the RTO:



I read your article on the "Hill Trap Manuever". Found it to be very interesting. I was on Hill 875 with Delta Company, 2nd Battalion, 503d Infantry, 173d Airborne Brigade. I found just a couple of errors. The 2nd Battalion, 503rd, (minus B Company) did not go up the hill as stated. The unit went up the hill in two columns. Delta Company was on the left side, Charlie Company was on the right. Alpha Company was equally divided between both columns in the rear. The plan was that when contact was made Delta would go right and Charlie would go left, meeting in the middle to close the perimeter at the front. Alpha would close from both columns in the rear.

I was D Company battalion net RTO (radio telephone operator), I carried the radio for the Company commander (1Lt Bart O'Leary). I was present when the senior officers on 875, Captain Kaufman, 1Lt O'Leary and Captain Kiley (A Co. CO) made the plans.

Going up the narrow ridge (approx. 50 meters wide) in column was the only way to go. If the units were on line the curvature of the hill would have put both flanks out of sight of each other. As for over-confident, I don't believe the officers thought there were that many NVA on top. During the trip to 875 the day before, I saw some NVA (can't miss those pith helmets) running on 875. I could see them through a break in the vegetation. By the time Lt O'Leary looked, after my warning, they were gone, of course. He said there wasn't anyone up there. I knew. I had been listening to the SF (Special Forces - Green Berets) Mike force that had been attempting to go up that hill for a couple of days. They had been using our battalion frequency. I knew we were in trouble for sure when we found their "CHIEU HOI" leaflets. The leaflets that were on 875 were like ours, "US aggressor why do you come 10 thousand miles to fight in a war that no one wants?" etc, etc. It was scary.



All three companies were maneuvering. We were all on the move. The NVA were dug in right at the point where the ridge lost most of its angle. It was not as steep from that point, but that's where they dug in. I heard afterwards that the bunkers and tunnels were extremely well constructed, triple overhead cover with a layer of dirt above each. Formidable is an excellent word. It would have taken a B-52 strike to eradicate the bunkers, 105's, no, 155's, only if the round went down the hole. What are the odds of that? I saw fourteen hand grenades thrown in one hole and they still kept jumping up and shooting. The bunkers had sumps and baffles. They knew what they were doing.

After the NVA had our attention at the front of the columns, he then flanked us (after ensuring that we were busy), attacking Alpha at the rear. The rear of the columns "imploded" up the hill, the perimeter collapsing into itself.

But for the heroism of Carlos Lozada, a machine gunner from New York, who finally stopped the implosion, who knows what would have happened. Carlos received the MOH (Medal of Honor) posthumously for that action. He was in A Company, 2/503.

Why did'nt Charlie and Delta move? Withering is a good word for the fire coming at us. Stand up, attempt to move, get dead. A friend told me that he could hear the fire from the FSB (fire support base). He said it was non-stop and sounded to him like dozens of chain saws all going at one time. He said it was the worst thing he had ever heard. Of course, I had tunnel vision being involved. Most people in a situation as severe as that are mainly worried about getting out alive and miss a lot. I remember the fire as horrendous, but I cant make the leap to a chain saw analogy.

There was hand-to-hand fighting, but that occurred at the rear of the column with A Company. At the front of the column, the point of contact, we could also lay down sufficient fire to keep the NVA pinned down. Also, fire support had been called and was coming down ahead of us.



The bomb is what caused the majority of the problems. Most of the wounded, all of the medics, and the two living Company Commanders (Kiley was killed at the rear of the column when we were flanked and hit). The radios were at the CP where the majority of the bombs effects were. I am one of the few who walked away. I always thought that if the NVA had one platoon ready to go when that bomb hit us, they could have wiped out the rest of the battalion. We were in such condition that it was possible. Fortunately for us, the NVA were probably pretty screwed by then too.

When the bomb came in on the CP (command post) it wounded me for the 2nd time and blew me unconscious so some bits of the battle are in that fog. When I first came to, I had no idea what had even happened. Our 319th Arty FO RTO was killed by the bomb. He was sitting next to me. A large piece of tree came down across his mid-section. He lived for awhile afterwards. He gave us the arty frequency and that's how we made our first contact after the bomb

We had artillery and air support all day. We were on the gun-target line of our 105, 155s and 4.2 mortars, so everything came directly over our heads. Less than an ideal situation. When the bomb came in, there was no FAC (forward air control - small aircraft with a spotter). We had no direct access to the air, we had to work through the FAC. We did not know that a plane was coming. And worse yet, it was getting too damn dark for air support. It might have been different if we were being over run, but we weren't. They, like us, were probably licking their wounds. Not a lot was happening. I have had many discussions with a few of our officers, some disagree with my views. The main difference between our opinions usually is that I was there.

158 US paratroopers were killed on 875. No one even remembers the young Vietnamese (ARVN) interpreter that was killed there.

RTO's



There is only one battalion net RTO per company, who carried an AN/PRC-25 radio for the company commander (a Captain or 1st Lt). The company commander also had a company net RTO. Each platoon leader also had a platoon RTO on the company net. If one was available, companies were also authorized one commo sergeant. When no commo sergeant was available, the battalion net RTO was in charge of communications.

The TAC Air and Dustoff were called on the battalion net. Each company had one FO attached from its major units artillery, in our case the 3/319th Artillery, who also brought along his RTO from his battery. All on different frequencies of course.

Each RTO carried an AN/PRC-25, weighing approx 25 pounds, 2 handsets, 2 short antennas, 2 long antennas, and as many batteries as they felt like carrying, but at least two. Batteries were one of those items that came on every supply chopper. The plastic bags that the battery came in were in constant demand. Great to keep personal items like wallets dry. The company commander or the battalion net RTO would carry the SOI (signal operating instructions) which contained the frequencies/call signs of all units in the area and day codes. We could send/ receive coded messages. These were your standard alpha code 3 letter groups. Each 3 letter group ABC (alpha-bravo-charlie) could mean a word, or a short sentence. Every day it changed. We also had to verify it with

another code word as I recall. They were a real pain in the ass when received at night, since you had to write it down and then decode, preferably in the bottom of a hole with a poncho over top by flash light. Everything else we used our mil-speak codes to try and hide our transmissions. Every hour day and night a sit-rep was called in.

As for the company TOE, I remember 3 platoons, but it was probably 4 (3 rifle and one weapons) plus the HQ section. I am not sure about that. How many squads in a platoon, I'm not sure, its been too long. All of the medics are attached from Battalion. The engineer (the demolitions guy) is attached from our engineer unit. Dog handlers/dogs attached from our brigade K-9 unit. Look at the units attached on the 173rd Airborne web site and it will give you an idea of the Brigade TOE.

The problem, aside from time, is also that the 173rd Airborne Brigade (Separate) was a "bastard" unit. It really did not belong. Westmoreland used it as he saw fit. At least at first. While other units fell into recognizable TOE configurations, the 173rd did not. The 173rd Airborne also had Australians (1/RAR) and New Zealand (arty) attachments who were under the CG 173rd Abn. So the 173rd Airborne may not be the best example of a US Infantry model. Since Airborne units may differ from non-airborne (we call them LEG units - not a complimentary term in airborne units). The only exception we make is to our Aussie and NZ counterparts. They may not have been airborne but we would not think of calling them legs. They were/are quite exceptional soldiers....

Radio Alphabet & Jargon

'A' Alpha	'B' Bravo	'C' Charlie	'D' Delta
'E' Echo	'F' Foxtrot	'G' Golf	'H' Hotel
'I' India	'J' Juliet	'K' Kilo	'L' Lima
'M' Mike	'N' November	'O' Oscar	'P' Papa
'Q' Quebec	'R' Romeo	'S' Sierra	'T' Tango
'U' Uniform	'V' Victor	'W' Whisky	'X' X-ray
	'Y' Yankee	'Z' Zulu	

Authenticate	A demand for a code word to make sure that the transmission is not by an enemy imposter. Response might be "I authenticate Zulu Niner" or "I authenticate Tiger Pitcher The Bird"
Break	Announces the end of part of the message
Correct	Confirms that a repetition matches the message sent out
Correction	Announces that a previous message is to be sent out with corrections added

Flash	**Announces the beginning of an emergency message**
From	**Announces the source of the message**
Green	**Conditions are safe**
Hotel Alpha	**"Haul Ass!" or get out quickly**
Hotel Echo	**"High Explosive" warns of immediate incoming explosive rounds or a request for same**
I Say Again	**Announces the repetition of a message**
I Spell	**Announces that the next piece of information will be spelled out letter by letter. For example, "Flash! Call Penny Nickle Nickle. I spell Lima, Oscar, Papa, Sierra, India, November, Golf. Break" - means call 155mm rounds on Lopsing.**
Immediate	**Announces the beginning of a priority message**
Out	**Announces the end of communication**
Over	**Used at the end of every section of a message when a reply is expected. If listening to someone you would say nothing until you heard 'Over'**
Radio Check	**Checking that there is still a connection**
Read Back	**Read the message you just received back in order to confirm it is correct**
Red	**Situation is dangerous**
Roger	**Used to acknowledge that a message has been received**
Routine	**Announces a non-priority message**
Say Again	**A request that the last message be repeated**
Silence	**tells everybody to stop transmitting, often because enemy eavesdropping is suspected or because the sound of the radio may alert an enemy who is close by**
Silence Lifted	**It is OK to start talking again**
Six	**Commander**
Wait	**Announces a pause**

Also, for an insight into US infantry radio operations see Delta Mike 2 - Radio Communications

For further information on communications see Radio Equipment

For further information on US Armoured Cavalry Communications see The Radio Net

NVA and VC Weapons



Characteristics of NVA and VC Recoilless Rifles

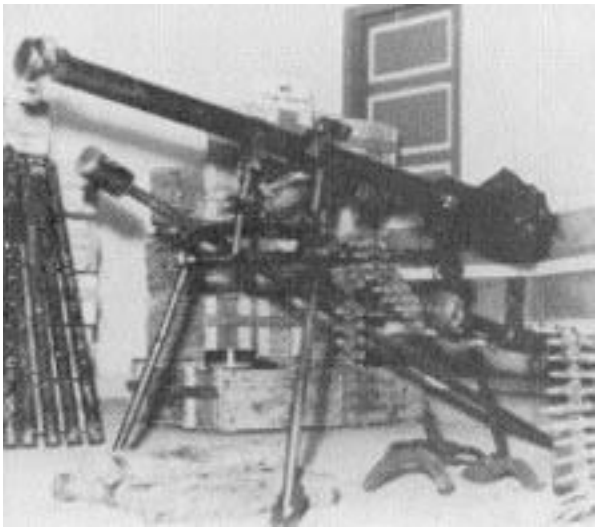
Recoilless rifles were usually employed to fire from the flanks of NVA units or from high points offering concealment and longer fields of fire.

57mm Recoilless Rifle (CHICOM Type 36)

The recoilless rifle that had the best mobility was also the lightest, the 57mm. The 57mm recoilless rifle weighed about 52-lbs and could be fired from the shoulder or affixed to a machine gun tripod for greater accuracy. Maximum effective range was about 1500 yards and it could destroy point targets although it had little effect on armored fighting vehicles. The Type 36 was a copy of the US 57mm M18 recoilless rifle.

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

- Weight - 52.25 lbs (tripod 26 lbs)
- Maximum horizontal range - 4,375 meters
- Rate of fire - 5 rounds per minute
- Ammunition weight - HEAT - 5.7 lbs, HE - 5.6 lbs
- Armor penetration - 2.75 inches at 0 degrees.

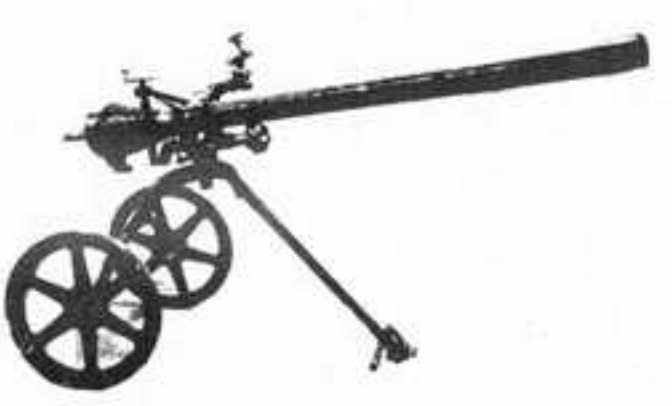


ChiCom Type 36

75mm recoilless rifle (CHICOM Type 52/56)

Particularly favoured by the NVA and VC, the Type 52 combined firepower with light weight and could fire both PRC (Chicom) and US ammunition. This weapon was frequently used in attacks on fire bases and other strong-points. This was a breech-loading, portable weapon, designed to be fired from a machine gun tripod. The barrel and breech of the 52/56 weapon were copied from those of the US 3.5inch M20 rocket launcher.

- Weight w/o carriage - 132 lbs
- Maximum horizontal range - 6,675 meters
- Rate of fire - 10 rounds per minute
- Ammunition weight - HEAT - 21 lbs/9.5 kg, HE -221bs/10 kgs.



Chicom Type 54/56

The longer ranged 75mm RR weighed about 130-lbs and had to be carried by two or more crew. It fired high explosive rounds to a maximum range of 7300 yards and HEAT shells to an effective range of 875 yards. The long dismantling time and heavy weight of the weapon made using it in standoff attacks involved exposing the crew to a lot of risk from return fire or air attack. However, it was a very effective anti tank weapon.

Soviet B-10 (RG82) 82mm recoilless gun

Used by the Viet Cong, the B10 was a smoothbore, breech-loaded and percussion-fired gun mounted on a tripod-supported pedestal. The trigger and bolt being accommodated in a pistol-grip located above and to the right of the tripod mount, whilst the optical sight is on the opposite side in front of a rectangular, perforated guard. The gun was designed to be transported in a truck or armoured personnel carrier, but can be towed by its four-man crew on its small two-wheeled carriage using the conspicuous tow-bar fitted below the muzzle. The small castor wheel below the tow-bar is designed to prevent the muzzle touching the ground while the gun is being maneuvered or set up for firing on the tripod. The latter can be adjusted to give either a low silhouette or a better field of view, but the weapon can, if necessary, also be fired whilst still on the wheeled mount. A rate of fire of 6-7 rpm is attributed to the B10.

Recognition features were the two-piece tube, the detachable wheels, the multi-perforated guard on the left side, and the towing handle.

- Calibre 82mm
- Weight (firing) 72.2kg
- Length (traveling) 1.91m
- Width 0.71 in
- Rate of fire 5-6rpm
- Max range (HE) 4,470m
- Effective AT range 390m
- Sight Optical (PBO-2)
- Ammunition types BK-881 HEAT, OF-881A HE
- Muzzle velocity (HEAT) 322m/sec
- Muzzle velocity (HE) 320m/sec
- Shell weight 3.6kg-HEAT, 4.5kg-HE
- Armour penetration (HEAT) 240mm
- Crew 4





Czech T-21 (Tarasnice) 82mm recoilless gun

The Czech T21 recoilless anti-tank gun was a very versatile weapon, capable of being fired from its small two-wheel carriage, from the shoulder or from a fixed mount.

It was a smooth-bore weapon, firing a shaped-charge fin-stabilised HEAT round, which is breech-loaded, and fired electrically - as with the P27 anti-tank grenade launcher, the trigger action works a magneto. To cope with the direct and indirect fire capability, the T21 was equipped with ordinary iron sights graduated in 50m intervals and also a telescopic sight graduated at 100 m intervals.

The HEAT round, 2.1 kg in weight, could penetrate up to 230mm of armour at an effective range of 300m if the target was moving, and up to 650m if the target was stationary. Rate of fire was about 5rpm, but this was adversely affected by the absence of a used round extractor in the breech, which had to be cleared manually with the aid of an asbestos glove.

The T21 was usually transported in a truck or armoured personnel carrier, but could be towed for short distances using the long tubular towing handle, normally kept folded over the top of the tube.



Czech T-21 Tarasnice 82mm

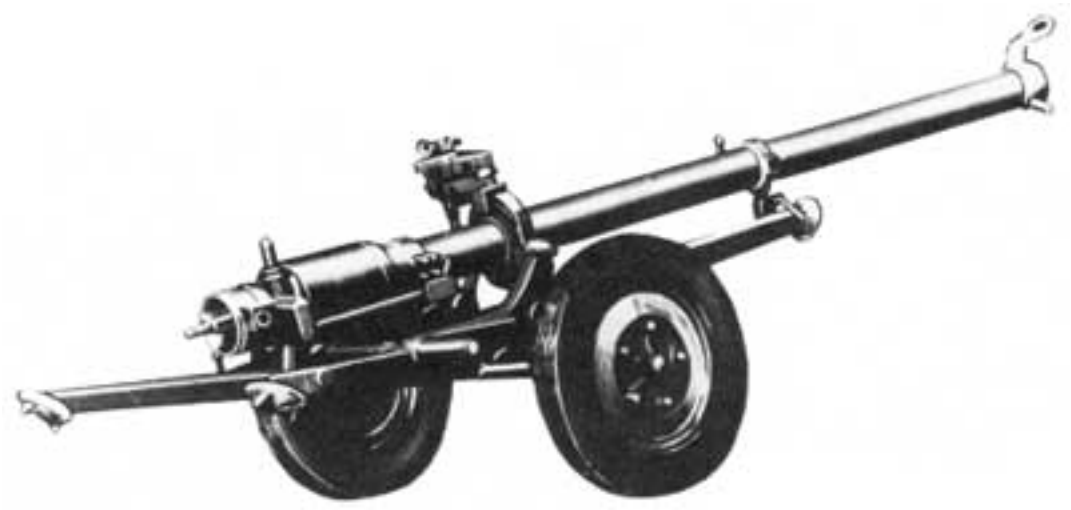
- Calibre 82 mm
- Length 147 cm
- Weight 20 kg (with carriage)
- Range 300 m (direct), 2800 m (indirect)
- Sight Optical and battle
- Ammunition HEAT
- Effect Penetrates 230 mm of armour plate

Soviet B-11 (RG107) 107mm recoilless gun

Use by both the NVA and VC, the B11 (or RG107) was the biggest recoilless gun manufactured by the

USSR, having been developed (along with the B10) from knowledge gained from United States weapons captured during the Korean War.

Whilst the B11 was designed primarily as an anti-tank gun, able to pierce 350mm of armour at 450m, it was light and mobile enough on its two-wheeled carriage to be maneuvered in battle by its five-man crew using the light tow-bar attached below the muzzle. Although the B11 can, like the smaller but similar B10, be fired from its wheeled mount, the motor-car-type wheels were awkward and were often removed whilst the gun was raised on its tripod.



Soviet B11

The two main recognition features of this weapon were the tripod which, while traveling, was spread with the front leg attached to the tube and the two rear legs raised and carried at an angle to the rear, and the limber loop above the muzzle by which the gun was connected to its towing truck.

The B11 is breech-loaded, using a shaped-charge, fin-stabilised HEAT or HE round. The PBO4 direct and indirect fire sight was mounted high and centrally on the gimbal mounting of the barrel.

- Calibre 107mm
- Weight (firing) 305kg
- Length (traveling) 3.56m
- Width 1.45m
- Rate of fire 5rpm
- Max range (HE) 6,650m
- Effective AT range 450m
- Sight Optical (PBO-4)
- Ammunition types BK-883 HEAT, OF-883A HE
- Muzzle velocity (HEAT) 400m/sec
- Muzzle velocity (HE) 375m/,sec
- Shell weight 7.5kg-HEAT, 8.5kg-HE
- Armour penetration (HEAT) 380mm

- Crew 5

NVA Regimental Recoilless Rifle Company

- 100 men divided into 3 platoons and 9 squads, containing 6 x 75mm RR and 3 x 57mm RR; or 9 x 75mm RR or 57mm RRs. 75mm RR squads contained 10 men, 57mm squads contained 6 men.



Return to Standoff Attacks

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NVA and VC Weapons



Characteristics of NVA and VC Mortars

Easily portable and simple to operate, the mortar was ideally suited to the terrain of South Vietnam and the tactics of the NVA and, in particular, the Viet Cong. Ever conscious of US firepower, a well trained mortar team could set up a mortar position out of the sight of the enemy, loose off a number of rounds at maximum range and, due to the mortar rounds long flight time, be moving away from the firing site before the first rounds impacted on the target. Such maneuverability severely restricted allied counter-mortar fire or retaliation by air.

The mortar was particularly suited for attacking standoff targets such as US firebases or installations where its greater accuracy over the rocket allowed it to be used against point targets.

The VC and NVA deployed a wide variety of mortars, ranging in size from the small 50mm to the breech-loaded 160mm. However, the most common types were: the light Chicom Type 63 60mm mortar, Soviet M1937 and M1943 82mm mortars and the Soviet M1938 and M1943 120mm mortars.

NVA mortar positions were often cynically sited near to inhabited areas in order that the crew could seek refuge from air attack after firing a few rounds. The mortar position itself was generally a hole approximately 1.7-meters deep and 2-meters in diameter, invariably excellently camouflaged, with only the mortar tube fire path uncovered during firing. These mortars were frequently sited to fire along the long axis of the target in order to take advantage of the their small deflection error.

The lightweight 60mm mortar, weighing only 45-lbs when assembled for firing, was an ideal standoff weapon. The crew could fire it, then pick it up and move with it. With a maximum range of nearly two kilometers and a minimum range of only 90-meters, it also made for an excellent infantry support weapon.

LIGHT MORTARS: 60mm mortar (CHICOM Type 31 and Type 63, Soviet M40 series)

The Type 31 was a copy of the American M2 60 mm, and both were modelled on the French Stokes-Brandt M1935. These mortars had a square baseplate with a spade underneath for stability after bedding in. The front bipod could be screwed up and down for ranging. There was a handcrank at the end of the

elevating screw housing. The Type 31 had a firing weight (mortar with bomb) of just over 20 kg (44 lb), and the M2 of 19 kg (41.8 lb). The maximum range was 1,530m (1,673yd) for the Type 31 and 1,820m (1,990yd) for the M2. Both were drop-fired weapons, in other words there was a fixed firing pin at the base of the barrel inside and when the bomb was dropped down the tube its own weight drove the ballistite cartridge on to the pin with enough force to fire the cartridge.



VC Mortar Team firing what appears to be
a Type 63 60mm Mortar (note square baseplate)

The Type 63 was really an updated version of the Type 31, with emphasis on portability for use in irregular and guerrilla warfare. It was much lighter in the firing position at 12.3 kg (27 lb) and had the same range as the Type 31. The basic features were the same except that there were angle plates at the rear corners of the baseplate for bedding in, rather than a rectangular spade. The Type 63 had one recoil cylinder, where the Type 31 had two. The weapon folded together for carriage, with the baseplate and bipod being placed under the barrel. Using the carrying handle on the top of the barrel, one man could easily carry it in rough country with the Number 2 mortarman carrying the ammunition. A consequence of this was that the mortar could be set up, sighted and ready to fire in a very short time. It had a slightly slower rate of fire at 15-20 rpm compared with 20-30 rpm for the Type 31 and M2, Its barrel length was also slightly shorter at 610 mm (24 in) as opposed to 675 mm (26.6 in) for the Type 31 and 726 mm (28.6 in) for the M2. All these mortars fired HE rounds, but the M2 also had an illuminating bomb, the M83.

- Model : M40
- Calibre : 50mm
- Weight : 11.5kg
- Barrel Length : 78.8cm
- Elevation : +45º and +75º
- Traverse (total) : 5 ½º
- Range : 807m at 45º and 129m at 75º
- Crew : 2-3



Soviet 50mm Mortar Model M40

The Soviet light mortars (M38, M39, M40 and M41) were of 50 mm calibre. The M41 50 mm did away with the bipod and shock absorber of the earlier models and used a supporting yoke which was mounted on the baseplate for elevation, traverse and cross level. Gases from the firing were ducted away from a gas regulator by a pipe under the barrel. This system was used utilised for range adjustment by rotating a sleeve in the base of the mortar which opened or closed a number of gas ports. To extend the range, the ports were all opened and to achieve the minimum range the ports were all closed. Its firing weight was 10 kg (22 lb) and it had a barrel length of nearly 600 mm (23.6 in). It fired HE rounds only and had a range of 800 m (875 yd).

MEDIUM MORTARS: 82mm mortar (CHICOM Type 20 and Type 53, Soviet M1936, M1937, M1941 and M1943)

Whilst the 82mm mortar was the standard calibre for communist forces the PRC and North Vietnam did produce 81 mm mortars mostly as copies of the American M1, with the PRC manufacturing 81mm fragmentation projectiles based on the American M43A1 ammunition. 82mm mortars (classified as 'medium' mortars) proved very popular as they combined high portability with firepower. Apart from the North Vietnamese copy of the M1, 82mm weapons in use were the Chicom Types 20 and 53 and the Soviet M36, M37, M37 New, M41 and M43.



Viet Cong 82mm Mortar being set up for firing

There was little variation between these types, although the PRC (and some of the older Soviet models) fitted wheels to the ends of the bipod legs. The weapon could then be towed from the muzzle. These wheeled versions had disadvantages in stability and maintaining cross level when firing, and the Soviets abandoned the idea with the M37 New. Although the Communists' weapons were usually 82 mm, they could fire NATO 81 mm rounds. This adaptability did not apply in reverse. The Communist weapons were automatic drop fired and had quite sophisticated aiming devices attached to the barrel about half-way up its length. Some used square or rectangular baseplates (M36 and M1 North Vietnamese copy), but most had circular ones. They all used a Brandt-type bipod with elevating screws and traversing gear at the top. They all weighed around 57 kg (114 lb) and had a barrel length of about 1,200 mm (1.31yd). The rates of fire were between 15 and 25 rpm. The ranges were at a minimum about 100 m (109 yd) and at maximum approximately 3,000 m (3,281 yd). The bombs were impact detonated and weighed about 3 kg (6.61b) each. They were of HE and smoke natures. The Vietnamese developed a chemical delay fuze, which was activated on impact and delayed the explosion. This was used with HE and fragmentation rounds. The M1 copy was popular with the VC because it could be broken down into three one-man loads.



Soviet 82mm Mortar M1937

- Model : M1937
- Calibre : 82mm
- Barrel Length : 122cm
- Base-plate Dimensions : 50cm diameter
- Barrel Weight : 19.6 kg
- Bipod Weight : 20.1 kg
- Baseplate Weight : 21.3 kg
- Weight in Firing Position : 56 kg
- Range : 3040 meters (minimum 100 meters)
- Rate of Fire : 15-25 rpm
- Operation : Automatic
- Sight : MPM-44
- Ammunition : HE (3.05 kg) and Smoke
- Crew : 5

With a range of over two miles, the 82mm mortar could be considered as an ideal standoff weapon. However, weighing over 100-lbs when fully assembled, when used for standoff attacks, the crew would have to drop the rounds in rapidly and then move since counter-battery fire by US aircraft was too effective and it took time to break the mortar down into three or four carrying loads. For this reason the medium mortars were often used from established positions and the mortar either camouflaged or dismantled and hidden after use.

This was a conventional muzzle-loaded, drop-fired, smoothbore weapon. The M1937 consisted of three basic components: tube, bipod, and baseplate. The recognizable features of this mortar were 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.

HEAVY MORTARS: 107mm (Soviet M107 and M38); 120mm (Soviet M1938 and M1943, Chicom Type 55); 160mm (Soviet M1943)

Heavy mortars, of calibres above 100 mm, were not much used by the VC as they were not as portable as medium and light mortars, but they were used by the NVA. They were all moved on a two-wheeled carriage. The USSR had weapons of 107mm (the M107/M38), two designs of 120mm (M38 and M43) and one of 160 mm (M43). The PRC Type 55 120 mm was a version of the Soviet M43. The M38 107 mm was a scaled-down version of the M38 120 mm for use by Mountain Divisions. Both could be broken down into three loads for animal pack transport, or could be moved complete on their two-wheeled carriages, towed behind any suitable vehicle. The 107mm M38 has a five-man crew, and the M107 a six-man crew. All these types could be drop fired (automatic) on to a protruding firing pin, or manually fired using a trigger device and lanyard. With the exception of the M43 160 mm they were all muzzle loaded. The 160 mm mortar was breech loaded and as a result could only be fired by lanyard and trigger. The barrel was swung upwards from the base, being pivoted on trunnions located not far from its

centre point. The bomb was inserted and the breech closed. The barrel was then swung back down to the firing position. The shock from firing was absorbed by shock absorbers and a disc-shaped baseplate.

All these weapons had surprisingly short ranges when compared with NATO mortars: The M43 160mm had a maximum range of 5,150 m (5,645 yd) and a minimum of 630 m (689 yd); the M43/Type 55 120 mm had a range of 5,700 m (6,234 yd) maximum and 460 m (503 yd) minimum; M38 120 mm had the same ranges as the M43 120mm; and the M38/M107 107mm mortars had a maximum range of 6,300m (6,890yd) and a minimum of 800m (875 yd). The minimum ranges made for problems of sighting in the close country of Vietnam, and the maximum ranges left a lot to be desired - nevertheless the NVA did spectacular damage with these weapons.

107mm mortar (Soviet M107)

This mortar was a scaled down version of the 120mm M1938, reduced in weight and size to suit its normal role as the regimental mortar of mountain units in the Soviet army. Ideally suited to the NVA and VC operating in difficult terrain, the mortar could be broken down into barrel, bipod and base-plate for man-packing or else folded together for towing on a two-wheeled carriage.

- Calibre : 107mm
- Barrel Length : 167cm
- Base-plate Dimensions : 94cm diameter
- Weight in Firing Position : 170 kg
- Carriage Weight : 340 kg
- Range : 6300 meters (minimum 800 meters)
- Rate of Fire : 12-15 rpm
- Operation : Manual or Automatic
- Sight : Optical
- Ammunition : HE (9 kg), Smoke and Chemical (7.9 kg)
- Crew : 6

120mm mortar (Soviet M1938, M1943 and CHICOM type 55)

The M1943 replaced the earlier M1938 which, when first developed, had a unique design: it consisted of four components (tube, base-plate, bipod and carriage) that could be quickly broken down for movement over short distances. For normal travel the whole weapon folded together and could be towed on its two-wheeled carriage or, if necessary man-packed in it's four component parts.



Soviet 120mm Mortar M1943

The only differences between the two weapons are that the newer M1943 had much longer shock absorber cylinders and the elevating and traversing gear was more sophisticated. Apart from these changes, the ballistic and performance details, as well as the methods of handling, remained the same.

The Chicom Type 55 was a direct copy of the Soviet M1943.

This was a conventional, muzzle-loaded, smoothbore mortar that could be either drop-fired or trigger-fired. An anti-double-loading device could be attached to the muzzle.



Soviet 120mm Mortar M1943

- Model : M1943
- Calibre : 120mm
- Barrel Length : 185cm
- Base-plate Dimensions : 100cm diameter
- Weight in Firing Position : 170 kg
- Carriage Weight : 340 kg
- Range : 5700 meters (minimum 400 meters)
- Rate of Fire : 12-15 rpm
- Operation : Manual or Automatic
- Sight : MP-41/MP-42
- Ammunition : HE (15.4 kg), Smoke (16 kg), Incendiary (16.7 kg)
- Crew : 5 or 6



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NVA and VC Weapons



Characteristics of NVA and VC Rockets

INTRODUCTION

The Soviet enthusiasm for multiple rocket launchers (MRLs) was not lost on the NVA and VC who readily employed rockets in the standoff role for which they were ideally suited. However, whereas Soviet systems were fully motorised, because of US fire superiority the NVA and VC had to rely almost entirely on man-packed single rocket and launcher tubes.

The Vietnamese Communists used three types of artillery rocket; the 140mm BM14-16 and the 122mm BM21 came from the USSR and the 107mm Type 63 from the PRC.

The BM14-16 was mounted on a ZIL-151 or ZIL-131 6 x 6 truck and the BM21 on a Ural-375D 6 x 6, although both could be mounted on any suitable vehicle - even American ones. The Type 63 was mounted on a rubber-tyred split-pole carriage which could be towed by any suitable vehicle, or even yoked animal transport. It could also be mounted on a 4 x 4 or 6 x 6 truck, and on the PRC K-63 APC which the NVA used. A special model for use by mountain and airborne troops was developed which weighed 281 kg (618 lb) in the firing position (as opposed to 602 kg (1,324 lb) for the standard model), and this was ideal for guerrilla use. It could be broken down into man-packable loads. It had three banks of four 107mm barrels mounted on the carriage. When in the firing position, the carriage's wheels were removed and the towing trails opened out into two legs to the rear. There were two further short legs in the front. The rockets were spin stabilized by the rifling in the barrels. The rockets could be fired from a single-round launcher as well as the 12-round assembly.



Soviet BM14 140mm MRL

The Soviet BM14-16 was a 16-round 140mm multiple-rocket system which first appeared in 1953. It was designed to be mounted on wheeled vehicles such as the ZIL-131 6 x 6 truck. It threw a 40 kg (88 lb) rocket to a range of about 6,000 m (6,562 yd), with a CEP (circular error probability - the average distance on impact that a projectile has deflected from its point of aim, some 50 per cent can be expected to land within the CEP) of 100 m (109 yd). Such CEPs made Soviet rocket systems almost into point attack weapons, rather than the area weapons that artillery systems normally are. The M14-OF rockets of the BM14 were spin stabilized by the rifling of the launcher barrels.

The 122mm BM21 was a 40-round system mounted on a Ural-375D 6 x 6 truck, although any suitable lorry could be used. The rockets were fin stabilized, and two types could be fired from the four banks of ten launcher tubes. There was a 1.9 m (2.1 yd) short rocket with a range of 11,000 m (12,030 yd), and a 3.23 m (3.53yd) long rocket with a range of 20,380 m (22,288yd).



Soviet BM21 122mm MRL

The DKZ-B anti-building and anti-personnel free-flight rocket launcher was, in fact, a single tube from a BM21 with a tripod mount especially intended for use by guerrilla-type forces- this too was used by the

NVA and VC. It broke down into two loads., the 2,460 mm (96.9 in) long, 22 kg (48.4 lb) tube and the 28 kg (61.6 lb) tripod mount. It had a range of 10,900 m (1 1,920 yd) and fired a 46 kg (1 01.2 lb), 122 mm rocket measuring 1,905 mm (75 in) in length. It was both f in stabilized and spin stabilized by the rifled tube. The mount had a panoramic sight and fitted quadrant. The missile could be set to impact detonation or delayed-action detonation.

The DKZ-B single-rocket system used the short rocket. The short rocket could also be fitted with an additional motor to reach a range of 17,000 m (18,591 yd). The warhead types used included smoke, chemical, and HE-fragmentation. In Vietnam, the NVA used the HE-fragmentation type to attack FW positions. These systems appeared briefly during the 1968 Tet Offensive, later during the 1972 Easter Offensive, and again in 1975.

107mm Rocket (CHICOM Type 63)

A spin-stabilized, barrage rocket of Chinese communist manufacture equipped with a high explosive, fragmentation warhead. This rocket was employed against both point and area targets. One man could easily transport the complete round, rocket and fuse. The lightest of the rockets, it could be introduced into otherwise inaccessible launch sites. The 107mm, with an effective range of 6-8 kilometers, could be fired from launch tubes, earth banks, bamboo frames or improvised crossed sticks.

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

- Length with fuse - 33 inches
- Weight with fuse - 42 pounds
- Range - 6000 to 8000 meters
- Fuse - super quick, short delay, long delay
- Launcher weight - two tubes - 48.75 lbs, twelve tubes - 547.5 lbs
- Tube length - 35.42 inches.

An NVA 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 semicircular 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....

122mm Rocket (Soviet BM-21)

This Soviet rocket possessed the longest range, three to eleven kilometers, of any of the rockets fired at the allies and was used extensively by the NVA and VC. A fin stabilized weapon with more destructive power than any others, this rocket was lethal within a 163 square meter burst area. Although the use of launch tubes ensured greater accuracy, the 122mm could be fired from improvised launch sites with a range of three to eleven kilometers.



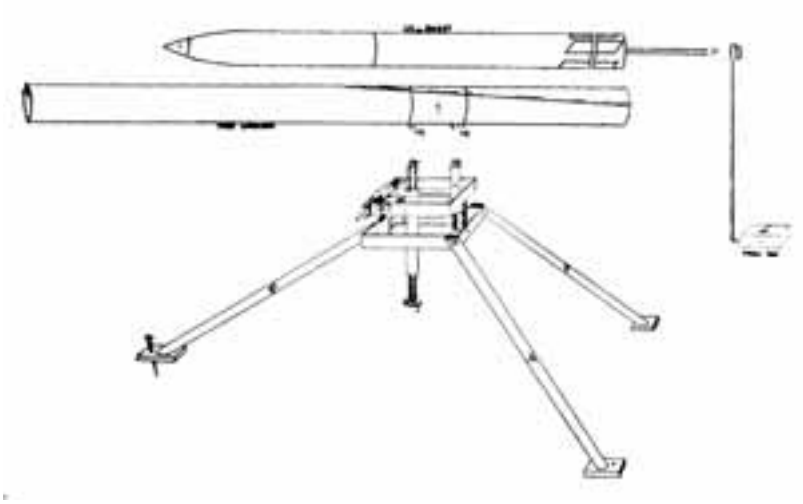
Soviet 122mm rocket (short version)

The 122mm rocket was fin stabilized and possessed a greater range and destructive power than either the 107mm or 140mm rocket. Without the need for a thick iron casing there can be more explosive and the 122mm rocket also has a greater punch than its equivalent 122mm howitzer shell.

- Length - 75.4 inches
- Weight - 101.86 lbs
- Range with spoiler ring - 3,000 to 7,000 meters. Without spoiler ring - 6,000 to 11,000 meters
- Warhead - 14.5 lbs explosive
- Launcher length - 8.1 feet
- Launcher weight with tripod - 121 lbs.

The first military installation in South Vietnam to be attacked by 122mm rockets was Camp Carroll in early March 1967. Following their initial use, these rockets were used not only against military installations, but also against urban areas, ports and bridges throughout South Vietnam.

Attacks by these rockets were usually of longer duration than attacks by 140mm rockets since more than one 122m rocket could be launched from the same launch position when using the rocket launcher. The 140mm rockets were usually launched from individual launch tubes positioned on dirt or mud launch pads. These tubes were seldom reloaded for follow-on attacks.



Artist Sketch of Soviet DKZ-B 122mm Rocket & Launcher



Soviet DKZ-B 122mm Single Shot Launcher

A 122mm rocket battalion was normally assigned three companies. Each company was authorized six launchers with three rockets each. POW reports indicated that attacks could be conducted by individual companies with 18 rockets, by a battalion with 54 rockets or, in rare cases, by a platoon with six rockets.



122mm rocket crater

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

140mm Rocket (Soviet BM-14)

With a lethal area of 140 square meters the Soviet 140 was more useful against material targets. Very easy to deploy, it could be fired from a board-mounted tube or earth mounds. With an effective range of one to ten kilometers, the fin-stabilized 140mm could be fired close to its target.



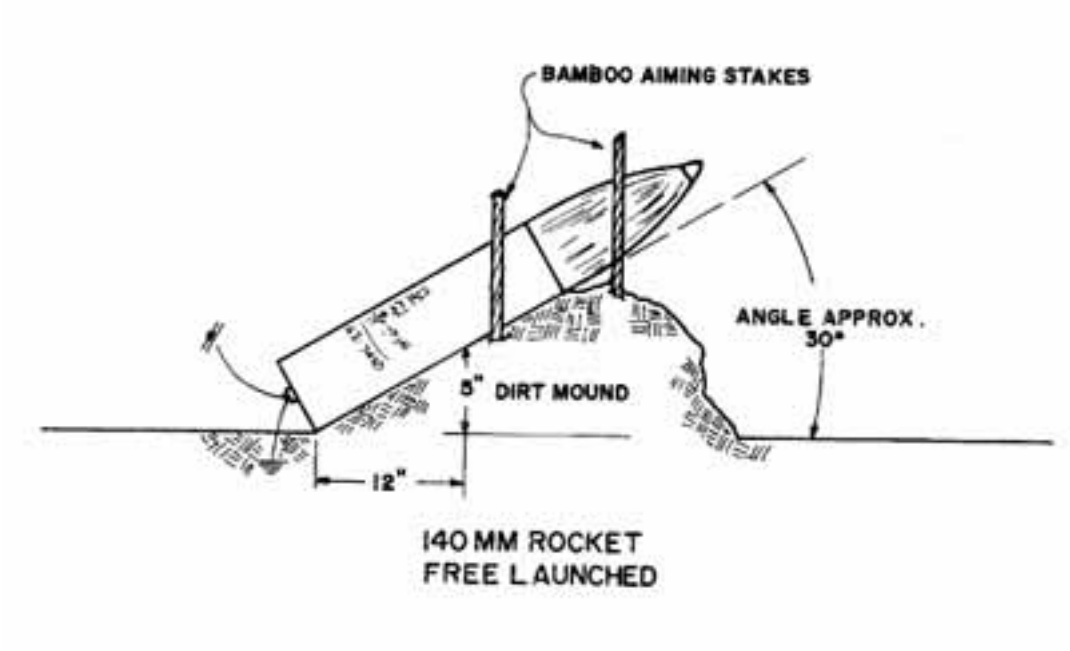
Soviet 140mm rocket components (fuse is on the right)



Soviet 140mm launcher and rocket. The launcher is secured to a wooden plank.

The 140mm rocket could be launched from single tubes mounted on a board or from earth mounds. Its greatest advantage was its ease of employment.

- Length with fuse - 42.3 inches
- Weight with fuse - 90 lbs
- Range - minimum - 1,000 meters, maximum - 10,000 meters
- Fuse - super quick, long delay - 1 second, short delay -.5 seconds
- Launcher tube length - 45 inches
- Tube weight - 22 lbs.



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

GARBAGE CAN ROCKETS

Sometimes the NVA launched short range 107mm or 122mm rockets with oversized warheads containing twelve to ninety kilograms of explosive. "Garbage can" rockets were very inaccurate but they could be fired from earth mounds.

107mm CHICOM/VC Over-caliber Rocket

This rocket was a modification of the standard 107mm CHICOM rocket. Unlike the overcaliber 122mm rocket, its components were machined. Though its configuration reduced its accuracy, it was a relatively effective weapon at close range.

- Length - 54.25 inches
- Weight - 84 lbs
- Range - 1,500 to 2,000 meters
- Warhead - 27.75 lbs explosive
- Fuse - CHICOM type 1 in nose and DK 2 in base
- Launcher - improvised trough or dirt mound.

122mm Soviet/VC Over-caliber Rocket

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

- Length 83 inches
- Weight 281 lbs
- Warhead 120 lbs explosive
- Fuse DKZ-B in nose
- Range 1,000 to 1,500 meters
- Launcher - improvised rail type.

122mm Over-caliber Rocket (Improved Version)

These rockets were first found in a cache complex on 9 February 1969, at XT 544719, 28 kilometers southeast of Katum, Vietnam.

- Length - 78 inches
- Weight - 182 lbs
- Warhead - 115 lbs HE, 82 lbs RDX explosive
- Range 800 to 2,500 meters
- This rocket was launched from a rail launcher.

107mm Over-caliber Rocket (Improved Version)

These rockets were found in the same cache complex as the 122mm rocket above.

- Length - 44 inches
- Weight - 73 lbs
- Warhead - 42 lbs HE, 27 lbs RDX explosive
- Range 700 to 2,000 meters
- This rocket was launched from a rail launcher.



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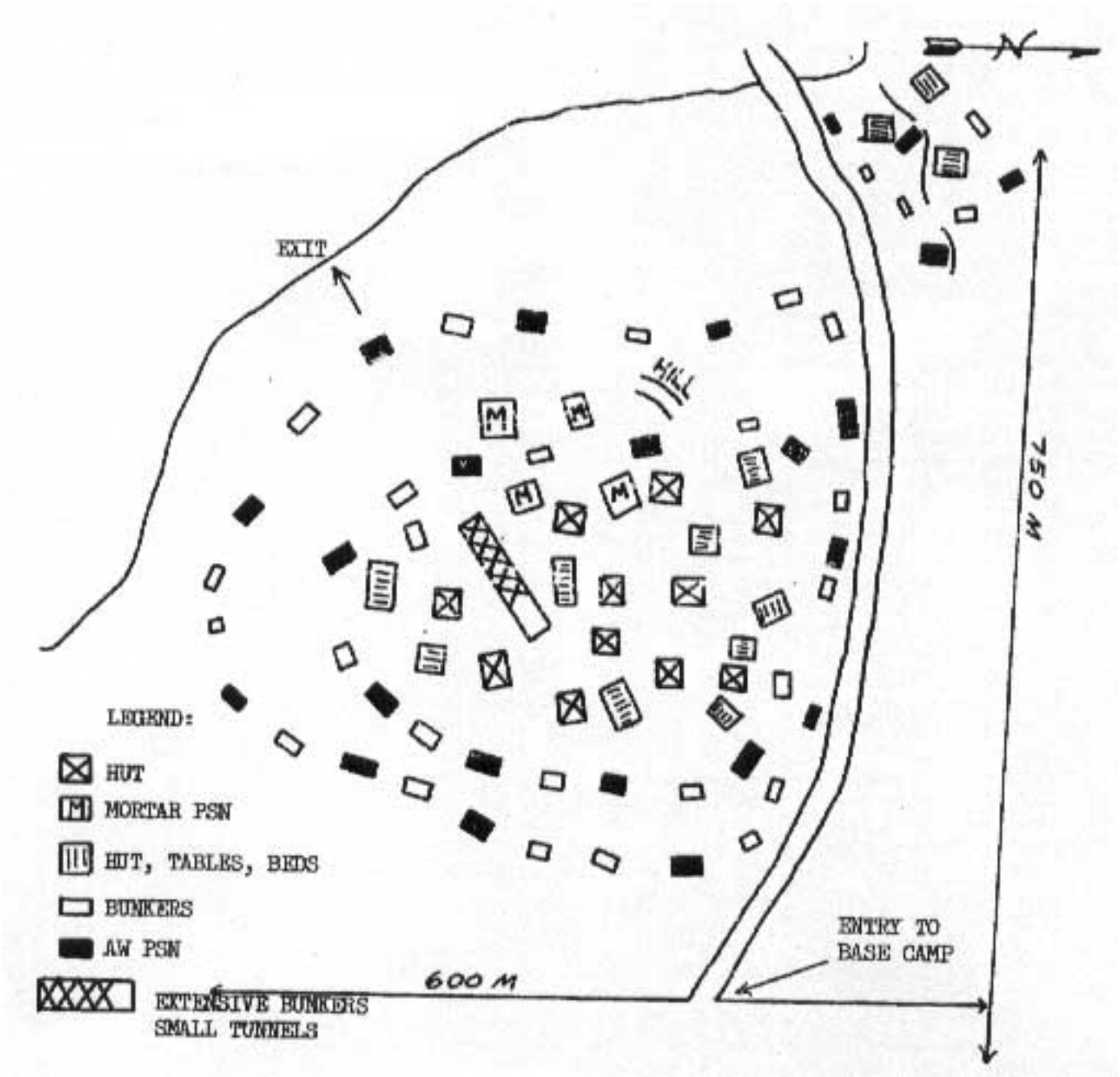
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VC and NVA Base Camps



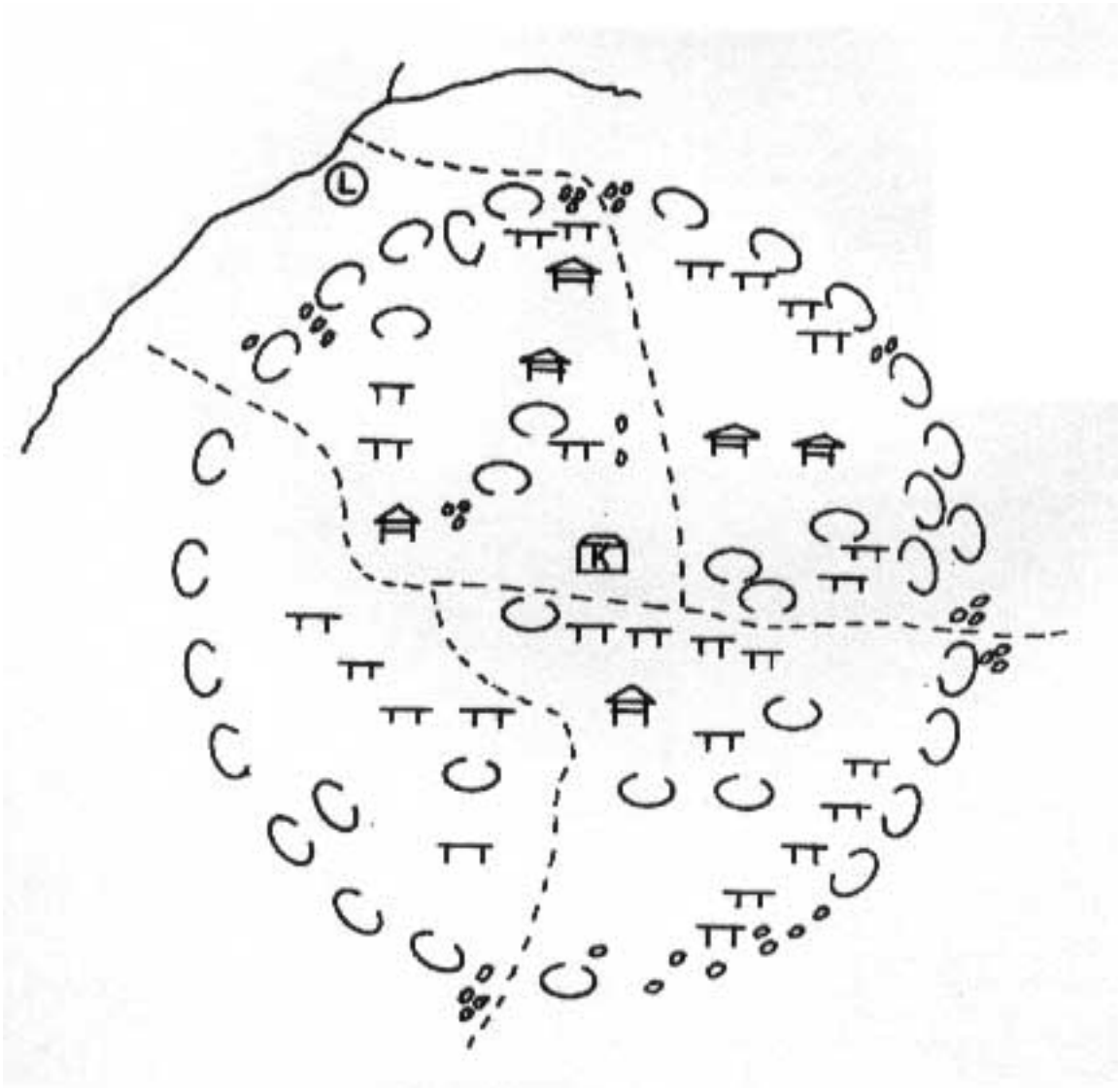
FIGURE 1

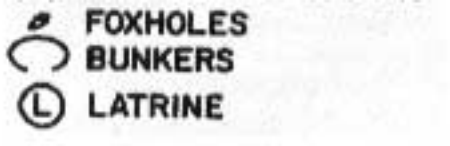


VC and NVA Base Camps



FIGURE 2







BACK

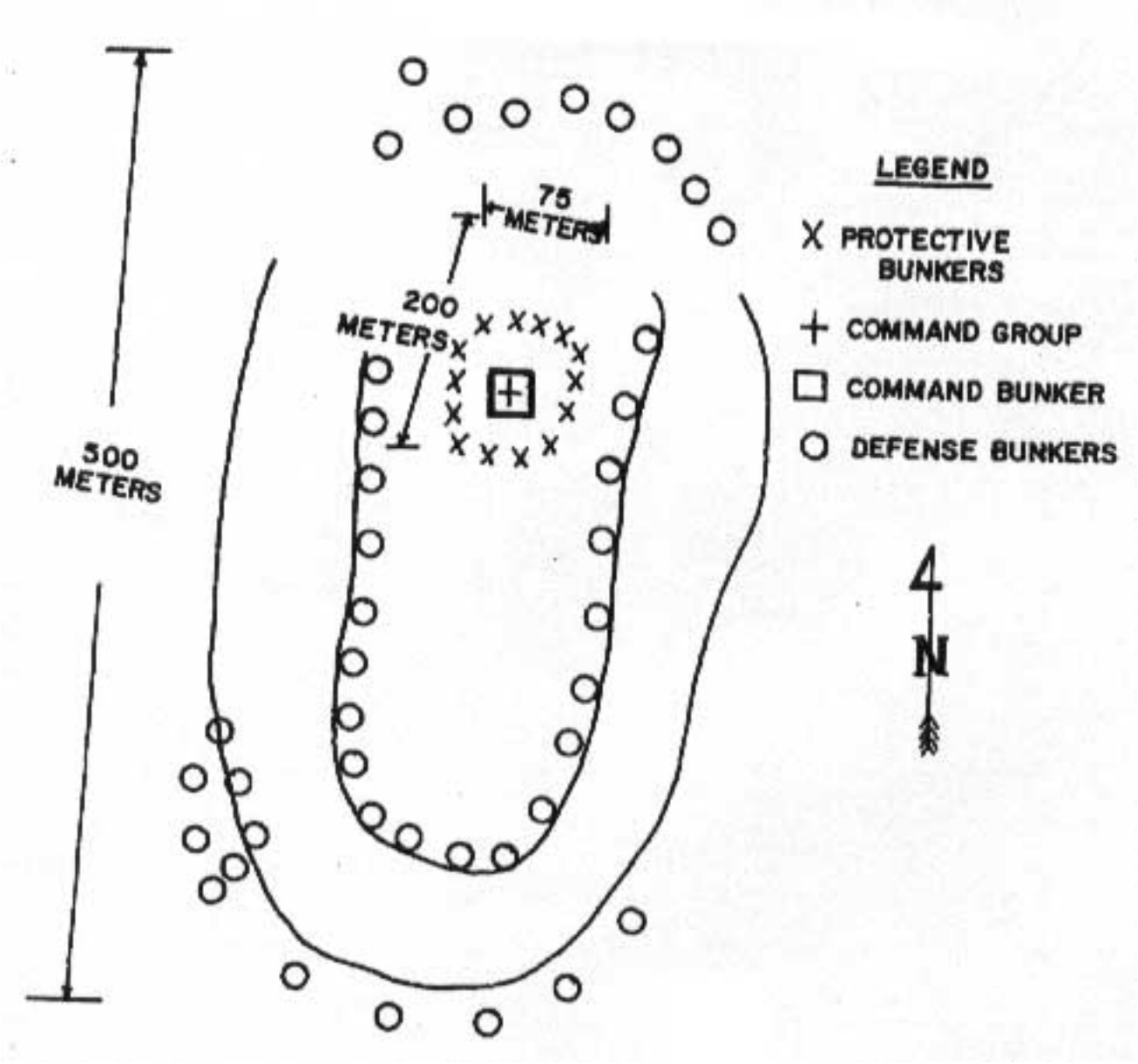
Source:

US Military Assistance Command, Vietnam, *Counterinsurgency Lessons Learned, No.68: Viet Cong Base Camps and Supply Caches*, July 1968

VC and NVA Base Camps



FIGURE 3



Australian and New Zealand Forces

Organisation of an ANZAC Infantry Company



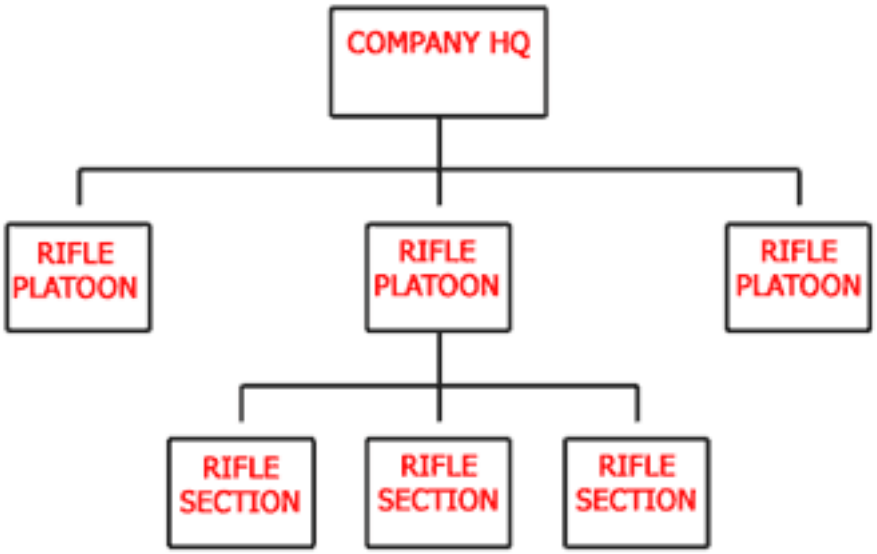


The organisation presented here is representative of a standard Company of either the Royal Australian Regiment or the Royal New Zealand Infantry Regiment as deployed in Vietnam.

The New Zealanders were actually organised differently to their Australian counterparts, but when deployed to Vietnam under 1st ATF they were attached to an Australian Battalion and obliged to adopt Australian unit organisation. The RAR Company had significantly more personnel than the RNZIR Company (120 men as compared to 80 men).

Both 'Victor' and 'Whisky' Companys of the RNZIR were attached to an RAR Battalion (from December 1967 to November 1970) and formed what was to be known as 2RAR/NZ (ANZAC) Battalion.

The ANZAC Rifle Company had the following organisation (a few experiments by different battalions being the exception):



1.0 Company HQ

- 1 x Major (OC, Owen SMG/M-16)
- 1 x Captain (2IC, Owen SMG/M-16)
- 1 x Warrant Officer Class 2 (CSM, L1A1 SLR/ M-16)
- 1 x Private (OC's Batman/runner/ sometimes Signaller, L1A1 SLR)
- Support Section consisting of :
    - 1 x Corporal (Section Commander, Owen SMG/M-16)
    - 1 x Lance Corporal (Section 2IC, Owen SMG/M-16/M-203/L1A1 SLR)
    - 2 x Privates (M60 GPMG machine gunners) - also carried a service pistol for when moving around in harbour
    - 2 x Privates (No. 2 on the gun, L1A1 SLR/ M-16)
    - 1 x Private (Forward scout, L1A1 SLR/ M-16)
    - 2 x Privates (Riflemen, L1A1 SLR/ M-16)

The CSM normally took overall responsibility for the Support Section with routine work being supervised by the Corporal.

Note- these weapon guidelines are pretty flexible- I've seen photo's of CHQ where M-79's, M-16's and even shotguns are visible (see ANZAC smallarms).

Also, the support section could carry either 2 x Bazooka (3.75"), or two L14A1 Carl Gustav. The "number one" for these weapons would be carrying an Owen SMG/M-16 while the number two would be carrying an L1A1 SLR. With this fit-out a fifth digger would be carrying the M-60. Due to ammo problems (the Swedes wouldn't allow the use of the the Carl Gustav in SVN) quite often the section carried two M-60 with tripod instead. This section was the first to go as replacements to the rifle platoons and may not be in existence at any one time.

1.1 Attached

The following may accompany the Company HQ;

- 1 x Lt or 2Lt (FO - Fire Officer for Artillery)
- 1 x Gunner (FO's batman)
- 1 x Corporal (Engineer)
- 2 x Sappers (Engineers)
- 1 x Corporal (Medical Corps/Medic, L1A1 SLR)
- 1 x Corporal (Signals Corps/Signaller- BN Tac net, Owen SMG/M-16/ L1A1 SLR)
- 1 x Private (Signal Corps/Signaller- BN Admin net Owen SMG/M-16/ L1A1 SLR)
- 1 x Private (tracker with tracking dog and M-16 - later war and not all battalions)

2.0 Rifle Platoon

The three rifle platoons had the following organisation:

2.1 Rifle Platoon HQ

- 1 x Lt or 2LT (Platoon CO, Owen SMG/M-16)
- 1 x Platoon Sergeant (L1A1 SLR)
- 1 x Private (Signaller/runner, Owen SMG/M-16)
- 1 x Private (runner, L1A1 SLR)

2.2 Three sections, each of:

- **Command and Scout group**
  - 1 x Corporal (Section Command, Owen SMG/M-16)
  - 1 x Private (1st Scout, Owen SMG/M-16)
  - 1 x Private (2nd scout, L1A1 SLR)
- **Gun Group**
  - 1 x Lance Corporal (Section 2IC, L1A1 SLR - Could have M-79 and later M-203)
  - 1 x Private (No 1 Gunner, GPMG M-60 and 9mm Browning pistol - if he bothered with it)
  - 1 x Private (No 2 gunner, L1A1 SLR and spare barrel for M-60)
- **Rifle Group**
  - 1 x Private (No 1 Rifleman, L1A1 SLR and may have M-79/M-203 if one wasn't carried by the 2IC)
  - 1 x Private (No 2 Rifleman, L1A1 SLR)
  - 1 x Private (No 3 Rifleman, L1A1 SLR)

- 1 x Private (No 4 Rifleman, L1A1 SLR)

Each man carried at least two M-26 (earlier No.36 Mills) fragmentation grenades. Typically there would be two to four Claymores (as well as a couple in each of the Pltn HQ, Coy HQ and Support Section) and, when available, up to 5 x M-72 per section as well. There were also a number of coloured and white phosphorous smoke grenades carried. For ambushes, some patrols and other tasks the weapons could be modified (eg extra M-60 or more M-16).

However, the section strengths were depleted for many reasons and the above perfect case was probably rare, first to go was generally the No3 Rifleman, then the No2 Rifleman.

Dallas Gavin wrote;

> The problem is that all battalions had their own SOP and thus there were differences between the way 6RAR did things compared to 8RAR. My instructors during IET's were a mix of 1RAR, 2RAR, 8RAR and 7RAR blokes and used to point out these differences. I served in 8/9RAR and then 2/4RAR and so saw the differences for myself. The above is "by the book" and only reference to Battalion histories can say what exactly was used at any time.

3.0 Back at base

Sections 1.0-2.0 was the strength of the Company when on operational work away from base. However, remaining back at base were the following;

- 1 x Staff Sergeant (Company Quartermaster - CQMS - Owen SMG/M-16)
- 1 x Lance Corporal/Private (assistant to CQMS/Storeman, L1A1 SLR)

  These 2 were responsible for supplying rations, ammo etc to the troops in the field. They were also responsible for packing up the personal belongings of troops killed or seriously wounded or injured.

- 1 x Corporal (Company Clerk - clerical duties etc, L1A1 SLR)
- 1 x Lance Corporal (assistant to Company Clerk - this person's job also included formally identifying troops KIA or subsequently died of wounds if the wounded was still in country, L1A1 SLR)
- 1 x Sergeant (Cook)
- 2 x Corporals (Cooks)
- 1 x Private (Cook)

LOBD's (left on base defence); those taken from the Platoons and left at base to defend the Company perimeter. These people were also supplemented by those who were recovering from injury/illness.

Battalion

The RAR Battalion was organised with four Rifle Company's, a Support Company and an Admin Company. The Support Company varied but generally had all of the following;

- Mortar Platoon - 8 x 81mm Mortars
- Sustained Fire Machine Gun Platoon - 6 x GPMG M-60 on tripod
- Assault Pioneer Platoon - organised as a rifle platoon but with access to specialist engineering stores such as bangalores, satchel charges, beehive charges and flame-throwers
- Anti-Armour Platoon - 4 or 6 x 120mm Wombat (but in SVN could have US 90mm RCL and later ['69?] 106mm RCL).

There could also be any of the following:

- Recce Platoon/ Tracker Platoon - two or three 5-7 man sections, with dogs if the latter.
- Regimental Police Section - 1 x Sergeant and four to six other ranks.
- 13 Platoon - more or less a BHQ defence Platoon

There was also a Signals Platoon that provided Company HQ, Battalion HQ and rear echelon signals.

The Support Company platoons could be assigned to companies as needed for specialist tasks or serve in direct/indirect fire support roles.

New Zealanders

Dallas Gavin wrote;

> As for the Kiwis, here I'm on shaky ground. I do know that W COY, 2 RAR/NZ in '69 or '70 was an "Independent Rifle Company" organisation in that it had two 81mm, two tripod-mounted M-60 and a section of pioneers (all Kiwi) attached to it. However I don't know exactly what the internal organisation was- I know it was three rifle platoons of three sections organised roughly along our lines but... TO&E varied more than the above suggests.

COMMENTS

Bob Buick, MM, has pointed out the following;

> "..... section had a Cpl, LCpl, 2xM60, 2 x scouts and 3 riflemen. The Pl HQ had no medic

> that was with CHQ. During operation a Bandsman (Stretcher Bearer maybe attached from CHQ to the platoon)..."

Dallas Gavan wrote;

> I joined the Australian army in 1975 as a rifleman and all my training, etc, was conducted by Vietnam Vets. The section Bob Buick mentions was, by the look of it, something peculiar to his battalion.

Another Australian Veteran wrote;

Mike,

I was in B Company of 7RAR on its second tour of Vietnam.

I served in Support Section attached to CHQ. There were 8 of us and we carried 3 x armalites; 2 x M60 machine guns; and 3 x SLR's. We were the most heavily armed Section in the Company. On operation we were mainly attached to CHQ, often being its sole defence when the Platoons were on independent patrolling. On these occasions we would harbour up in very heavy jungle. Compared to the Platoons we had it fairly easy - I often wondered why and found out when the Company first hit bunkers. We were ordered to spearhead the attack - very scary business. When we were working out of either Nui Dat or the Horseshoe we would conduct independent ambushing every second night.

Our Stretcher Bearers were our own. Many of us did a 2 week Stretcher Bearer's course - 1 week in-house at Holsworthy and the other week in the casualty section of St Vincent's Hospital in Sydney.

Our officers included a Captain who was 2IC of the Company.

1.0 Stretcher Bearers

The primary function of the Stretcher Bearer was as an Infantryman. We were trained to:

Stem blood flow, set splints, dress minor injuries and inject if necessary and with permission - These were to stabilise the wounded prior to evacuation to proper medical facilities

Identify tropical diseases

Most of the more thorough medical inspections were carried out on re-supply day by the Medical Corps Corporal attached to CHQ. I think that the term "Stretcher Bearer" is a hangover from past wars. In effect, anyone who could had to help carry a stretcher.

2.0 Mix of equipment

There was no problem with spares for the mix of equipment. Our main problem was carrying a full compliment of ammo for both of the M60's. In the Platoon Sections there was nominally 10 people to share carrying the ammo for 1 gun. In our Section there was 4 per gun. But then again we didn't do as much patrolling as the Platoons.

3.0 CHQ Harbour

For longer term harbours CHQ would always have a Platoon in support. These harbours were always in more open positions and close to water and a good LZ for helicopters.

For short term harbours (1 to 3 nights) often CHQ would move into position with the support of a Platoon, but the Platoon would immediately move on for their own independent patrolling.

On such occasions the dense jungle was a deliberate choice as this provided a natural defence.

(When moving the normal order of march would be to have the Platoon in front followed by CHQ heirarchy, with Support Sect bringing up the rear.)

On arrival at the selected harbour site we normally would locate the first gun on the track we used to come in - on the perimeter of the harbour - just in case we were being followed. Once in position we would "stand to" for 10 or 15 minutes until we were satisfied that all was safe. Once "stand down" was given then we placed early warning sentries anywhere between 20 to 50 metres to the front of the guns. Claymores were placed out in front of the sentries position. Standing orders were that if contact with the VC was made then the sentry would fire the claymores and all sentries would scamper back to the harbour by pre-determined routes. Those in harbour were also advised of the routes so that they knew where friendlies should be sighted.

While the sentries were out there was also people on the guns. (Support Section found this very difficult with 2 guns and therefore 2 sentries. On most occasions we were under strength and had to rely on variable support from the batmen, medic, engineers. The normal roster for us was 2 hours on, 4 hours off, alternating between gun and sentry duties during the day and on the gun at night. At night support from others was restricted because they had to maintain a radio coverage. I must admit that we did not have entire faith in non-infantry troops except for our Medic Corps Corporal who proved his reliability many times.)

After "stand down", back in harbour when appropriate, work would begin on digging shell scrapes, latrine and rubbish hole. The Sig people would also establish radio communications.

All instructions for the above was done by field signals or close range whispers.

Please contact me if you have any further information, or you know where I can find more information.

SOURCES

The Killing Zone; New Zealand infantry in Vietnam (1967-1971), Colin Smith

See also Caught in the Killing Zone by Colin Smith

My particular thanks to Dallas Gavin for his patience and continued help, and also to GS and GL for their excellent contributions.



NVA and VC Supply Caches



Appendix 1 - Translation of VC document

Liberation Army
Doan 84

No. 44/cv "DETERMINED TO FIGHT AND DEFEAT US AGGRESSORS"

TO: Subordinates: K., K2., K3-, K7., C200. (Doan = Group; K = District; C = Company).

According to the agreement signed between Doan 84 and the local forward supply council; Doan 84 was to secure and store all supplies required for 1966 before August 1966. This agreement was sent to the various K (District). Now, we wish to remind you of building storehouses:

1. Based on the criteria of your branch, you should draft a specific plan for construction of various storage and issue sites.

2. You should use the requirements to calculate and estimate the materials and instruments needed for building the storages. The Group will study the estimate and approve the amount of money to be expended. At the same time, you must try by all means to purchase the necessary materials in advance in order to satisfy the immediate needs of holding the supplies.

3. During the rainy season, the provisions must be kept in high and dry places in order to prevent damage by termites and rain. Store keepers must kill termites, sweep the store, and repair leaks in the roof. The maintenance task must be looked after.

h. Following the construction of the storages, their defense must be rapidly set up to include: making fences, camouflaging, digging spike pits and laying minefields. Although temporary, the storages should be well camouflaged.

According to the criteria, each K (District) must have many caches which can accommodate assorted goods. The method of Construction should be carefully and scientifically studied. The caches must be appropriate to the goods. For example:

- Salt caches must be built underground. The floor should be lined with nylon sheets or straw. Only a small amount of salt should be stocked in the above ground storages.
- Salt fish should be kept in wooden airtight barrels set on stilts. They should be shaded with a roof.
- Rice depots: Cache frames must be set on stilts
- Clothing equipment storage: High, floored and with safe roof. This storage must be covered with curtains to shield light. Next to these curtains should be a layer of nylon or thatch used to prevent rain damage. Equipment must be set on the stilts. The blind must be tight so that mice cannot creep into the storage.
- Gasoline must be kept in cellars.
- Drug storages must be built as carefully as rice depots. Drugs should be set on a high and dry place.

Due to the great number of storages, the maintenance of storages must be concentrated. Ks (Districts):

- Know the number or storages, and the goods held in each store.
- Make a clear register in order to control issues and receipts.
- Unit leaders must control their storages and provide guidance for the cells.

Requisition and purchasing, transportation, and storage are three important tasks. Especially, in the storage task, the maintenance of goods is most important.

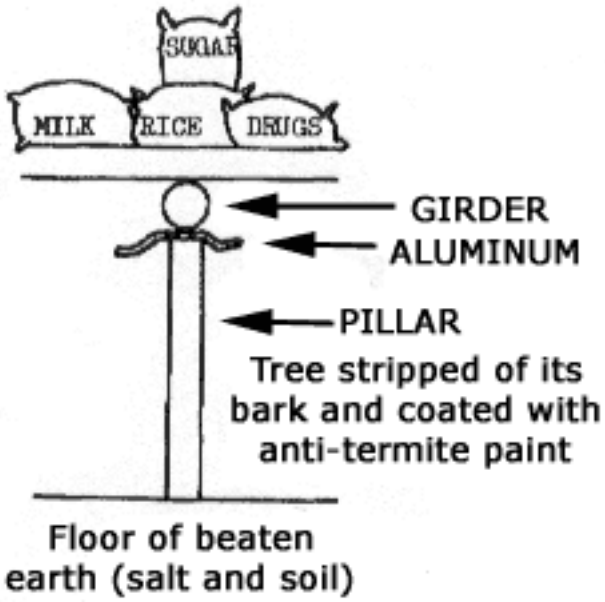
In the past, transportation was carried out well, but maintenance was still deficient.

You should try to step up this task because in the near future, provisions will be continuously sent to your unit in large quantity.

12 May 1966
Commander of Doan 84
NGUYEN VAN HUE

Method of preventing damage by termites:

In the maintenance task, some places applied an anti-termite method by using an aluminum plate. This method obtained favorable results. Now, we disseminate it to you for study and use:



- Bury the pillar in the soil (soil mixed with salt).
- Put the aluminum plate on the end of the pillar. The perimeter of the plate must be at least two times larger than the pillar.
- Set a girder on the plate.

Thus, when climbing up to the plate, the termites can not reach the girder, and must climb down.



Source:

US Military Assistance Command, Vietnam, *Counterinsurgency Lessons Learned, No.68: Viet Cong Base Camps and Supply Caches*, July 1968

Fire Support Coordination



Artillery Fire Support: Charts & Tables

Figure A-2: Inherent Fire Support Responsibilities

An FA unit with a mission of...	Has as it's zone of fire...	Furnishes forward observers...	Establishes liason with...	Establishes communication with...	Answers calls for fire in priority from...	Has it's fires planned by...	Is positioned by...
Direct Support	Zone of supported unit	To each company size maneuver element of supported unit	Supported unit, down to battalion level	Supported unit	1. Supported unit 2. Own observers 3. Force arty HQ	Develops own fire plan	Unit commander as necessary or ordered by force arty HQ
Reinforcing	Zone of fire of reinforced arty unit	Upon request of reinforced arty unit	Reinforced arty unit	Reinforced arty unit	1. Reinforced arty unit 2. Own observers 3. Force arty HQ	Reinforced arty unit	Reinforced arty unit or ordered by force arty HQ
General Support	Zone of supported unit	No inherent requirement	No inherent requirement	No inherent requirement	1. Force arty 2. Own observers	Force arty HQ	Force arty HQ
General Support - reinforcing	Zone of supported unit, to include zone of reinforcd arty unit	Upon request of reinforced arty unit, subject to prior approval of force arty HQ	Reinforced arty unit	Reinforced arty unit	1. Force arty HQ 2. Reinforced arty unit 3. Own observers	Force arty HQ	Force arty HQ or, subject to prior approval, the reinforced arty unit

Figure A-3: Field Artillery Tactical Missions (Deviations in the RVN from Inherent Fire Support Responsibilities)

An FA unit with a mission of...	Has as it's zone of fire...	Furnishes forward observers...	Establishes liason with...	Establishes communication with...	Answers calls for fire in priority from...	Has it's fires planned by...	Is positioned by...
Direct Support	N/A	N/A	N/A	N/A	All observers within range	N/A	Displaces only on orders of force arty HQ
Reinforcing	Range of it's weapons	N/A	N/A	No requirement for external wire	1. Reinforced unit 2. All observers within range	N/A	N/A
General Support	Range of it's weapons	N/A	N/A	N/A	Direct from all observers within range	Units to which rendering general support	N/A
General Support - reinforcing	Range of it's weapons	N/A	N/A	No requirement for external wire	1. Reinforced unit 3. Direct from all observers within range	Reinforced unit	N/A

Figure A-5: Typical Army Ammunition Basic Loads

Type Ammo	Rounds per Weapon	Battalion Weapon Strength	Total Rounds Battalion	Total Rounds Firing Position	Unit Trains
Howitzer, 105mm	(285)	18	(5130)	(1008)	(4122)
HE	214		3852	756	3096
HEAT	5		90	18	72

Illum	15		270	54	216
WP	18		324	54	270
Smoke	7		126	18	108
Beehive	6		108	36	72
Select	20		360	72	288
Howitzer, 155mm	(225)	18	(4050)	(1280)	(2770)
HE	150		2700	810	1890
Illum	25		450	225	225
WP	12		216	75	141
Smoke	18		324	98	226
ICM	20		360	72	288
Howitzer, 8-inch	(155)	6	(930)	(465)	(465)
HE	148		888	444	444
Select	7		42	21	21
Gun, 175mm	175	6	1050	525	525

Figure A-7: Artillery Fire Request Channels, DS Battalion

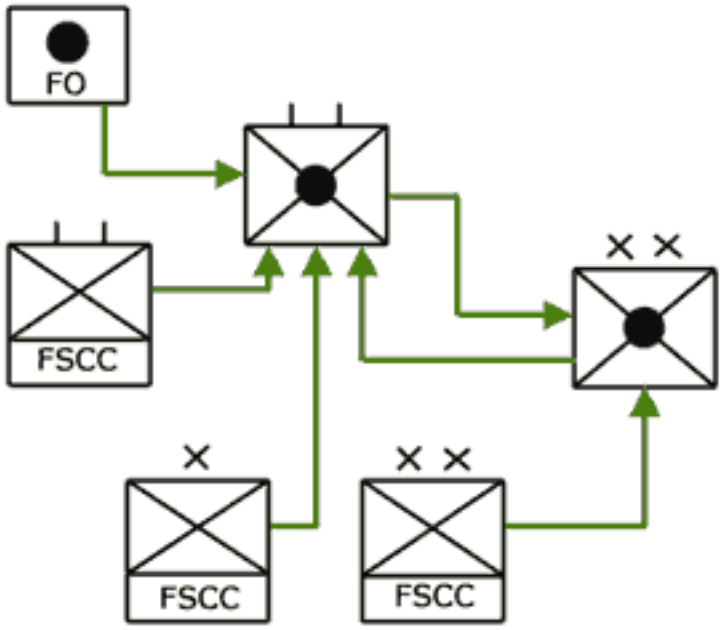


Figure A-8: Modified Artillery Fire Request Channels Divisional to Group Artillery Units

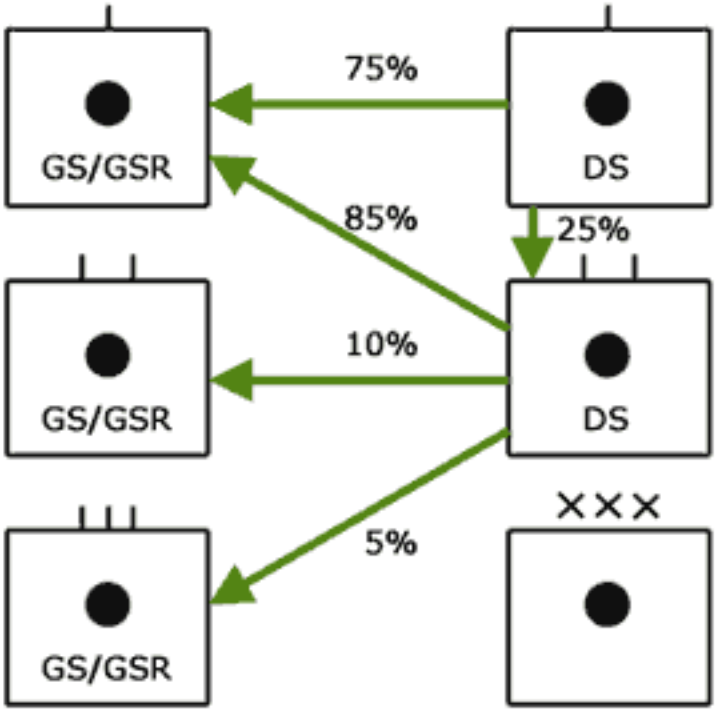
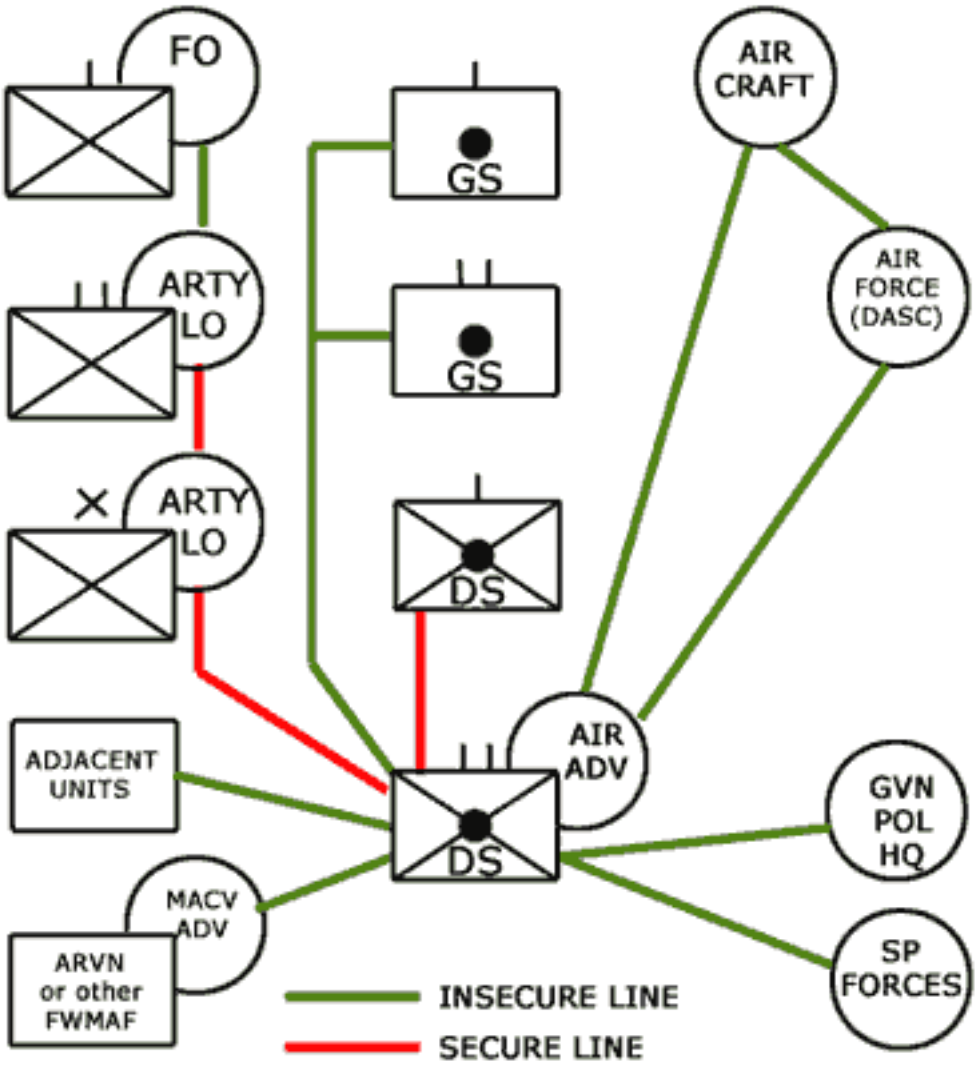


Figure A-9: Typical Clearance and Air Advisory Radio Nets





Return to Field Artillery Support

Source:

Vietnam Lessons Learned No. 77: Fire Support Coordination in the Republic of Vietnam. United States Military Assistance Command, Vietnam, 20th May 1970

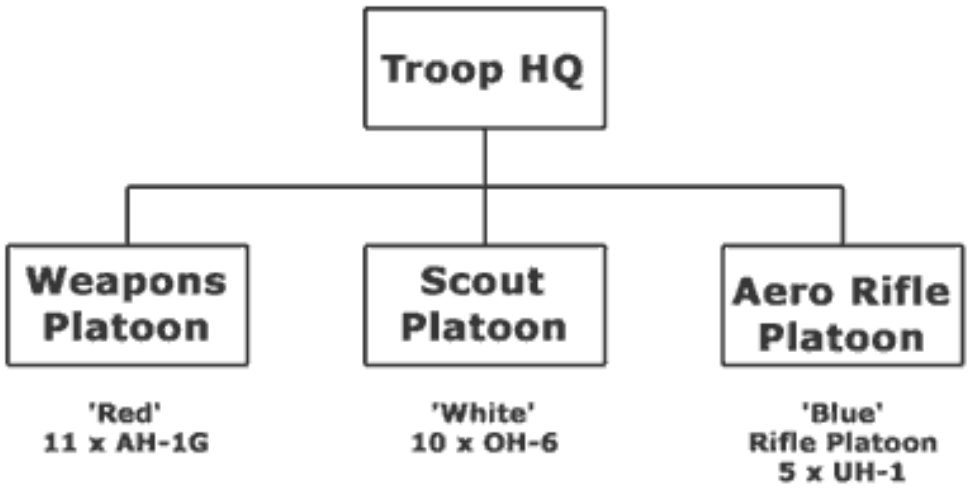
Air Cavalry Troop



BACKGROUND



There was normally a single Air Cav Troop organic to each Armoured Cavalry Squadron and three Air Cav Troops organic to the Air Cav Squadron of the Airmobile Division. For a full commentary on the role and organisation of an actual Air Cavalry Troop see D Troop 3/5th Air Cavalry. An Air Cav Troop contained an Aero Weapons Platoon, an Aero Scout Platoon and an Aero Rifle Platoon.



The high proportion of Warrant Officers is due to the fact that most air crew were of this rank. In the schematic below I have only shown the 'combat' elements of the Troop - there was also a Maintenance Section and an Aviation Section.

AERO WEAPONS PLATOON

PLATOON HQ



1 x Captain (Pltn. CO)
1 x E-5 (Crew Chief)
1 x AN/PRC-25
XM-28 and XM-159



1 x E-7 (Pltn, Sgt.)
1 x WO (Helo Pilot)
1 x AN/PRC-25
XM-28 and XM-159



1 x WO (Crew Chief)
1 X e_5 (Crew Chief)
1 x AN/PRC-25
XM-28 and XM-159

AEROWEAPONS SECTION (x2)



1 x Lt. (Section Ldr)
1 x WO (Helo Pilot)
XM-28 and XM-159
1 x AN/PRC-25
1 x E-5 (Crew Chief)



2 x WO (Helo Pilot)
XM-28 and XM-159
1 x AN/PRC-25
1 x E-5 (Crew Chief)



1 x Lt. (Section Ldr)
1 x WO (Helo Pilot)
XM-28 and XM-159
1 x AN/PRC-25
1 x E-5 (Crew Chief)



2 x WO (Helo Pilot)
XM-28 and XM-159
1 x AN/PRC-25
1 x E-5 (Crew Chief)

AERO SCOUT PLATOON

PLATOON HQ



1 x Captain (Plt. CO)
1 x E-5 (Crew Chief)
1 x AN/PRC-25
1 x XM-27



1 x E-7 (Plt. Sgt.)
1 x E-5 (Crew Chief)
1 x AN/PRC-25
1 x XM-27

AEROSCOUT SECTION (x2)



1 x Lt. (Section CO)
1 x E-6 (Observer)
1 x AN/PRC-25
1 x XM-27
1 x E-5 (Crew Chief)



1 x WO (Helo Pilot)
1 x E-5 (Observer)
1 x AN/PRC-25
1 x XM-27
1 x E-5 (Crew Chief)



1 x Lt. (Section CO)
1 x E-6 (Observer)
1 x AN/PRC-25
1 x XM-27
1 x E-5 (Crew Chief)



1 x WO (Helo Pilot)
1 x E-5 (Observer)
1 x AN/PRC-25
1 x XM-27
1 x E-5 (Crew Chief)

AERO RIFLE PLATOON



1 x Lt. (Section Ldr.)
1 x WO (Helo Pilot)
1 x E-5 (Crew Chief)
AN/PRC-25
XM-23

ARP PLATOON HQ
1 x Captain (Plt. CO)
1 x E-7 (Plt. Sgt.)
1 x Medic
2 x RTO
2 x AN/PRC-25



2 x WO (Helo Pilot)
1 x E-5 (Crew Chief)
AN/PRC-25
XM-23

ARP RIFLE SQUAD
1 x E-6 (Sqd. Ldr.)
2 x E-5 (Team Ldr.)
2 x E-4 (M-60 Team)
2 x E-4 (Gr'dr) M-79
2 x E-3 (Rifleman)
1 x RTO
1 x AN/PRC-25



2 x WO (Helo Pilot)
1 x E-5 (Crew Chief)
AN/PRC-25
XM-23

ARP RIFLE SQUAD
1 x E-6 (Sqd. Ldr.)
2 x E-5 (Team Ldr.)
2 x E-4 (M-60 Team)
2 x E-4 (Gr'dr) M-79
2 x E-3 (Rifleman)
1 x RTO
1 x AN/PRC-25



2 x WO (Helo Pilot)
1 x E-5 (Crew Chief)
AN/PRC-25
XM-23

ARP RIFLE SQUAD
1 x E-6 (Sqd. Ldr.)
2 x E-5 (Team Ldr.)
2 x E-4 (M-60 Team)
2 x E-4 (Gr'dr) M-79
2 x E-3 (Rifleman)
1 x RTO
1 x AN/PRC-25



2 x WO (Helo Pilot)
1 x E-5 (Crew Chief)
AN/PRC-25
XM-23

ARP RIFLE SQUAD
1 x E-6 (Sqd. Ldr.)
2 x E-5 (Team Ldr.)
2 x E-4 (M-60 Team)
2 x E-4 (Gr'dr) M-79
2 x E-3 (Rifleman)
1 x RTO
1 x AN/PRC-25

MISSION TYPES

The Troop invariably undertook missions which can be categorized as follows:

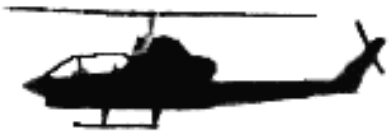
- INTELLIGENCE - visual reconnaissance of roads, areas, targets; bomb damage assessment (BDA); LZ reconnaissance and selection; target acquisition; Ranger/LRRP support.
- SECURITY - providing early warning of impending attack; screening ops; first/last light reconnaissance; convoy protection; downed aircrew and aircraft recovery.
- ECONOMY OF FORCE - artillery raids; combat assaults and ambushes; delaying actions; sustained security for construction of Fire Support Bases (FSB); base defence reaction force ops.

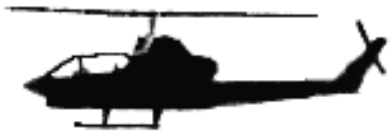
'TEAMS'

In order to carry out the various missions assigned to the Troop, the combat elements of the troop would, where necessary, be mixed, as appropriate, into teams as below.

RED TEAM

Two Gunships assigned to offensive operations.





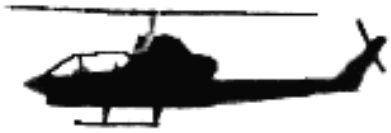
WHITE TEAM

Two OH-6 assigned to recon




PINK TEAM

Combination Gunship and OH-6 ('Hunter Killer')

BLUE TEAM

Blue's embarked to carry out ground recon and security.



TACTICS



Standard tactics for the aviation elements was to fly HIGH/LOW, that is, one aircraft would fly very low looking for targets or reconning the area (possibly attempting quite literally to 'draw' enemy fire in order for the enemy to reveal their positions) while the second aircraft flew at altitude providing cover, acting as the radio relay ship and giving the low flying aircraft navigational instructions. In operations involving OH-6's an OH-6 would always fly low.

The OH-6 would be in constant communication with the high flying AH-1G Gunship, feeding back data which would be annotated by the crew of the Gunship. If necessary the Gunship was always ready to 'roll in hot' in order to provide suppressive fire if the OH-6 came under attack. If the scout observed targets it would drop smoke marking rounds and the Gunship would roll in.

TYPICAL EMPLOYMENT OF THE TROOP

The following is an example of the way the Troop worked :

- PINK TEAM makes contact with elements of the enemy; smoke used to mark contact; contact co-ordinates are relayed to Troop HQ; Gunship engages marked targets or targets of opportunity while OH-6 keeps enemy under observation, looking in particular for route of egress or re-inforcement and making attempts to establish the composition and size of enemy force as well as their deployment and the extent of their defenses.

- Once Troop HQ receives contact information the decision is made as to whether to deploy BLUE team; second PINK team and/or RED team is redirected to contact in order to support and/or relieve team on

station. BLUE team is scrambled..

- BLUE team inserted near contact and deploys to engage the enemy; OH-6 guides BLUE team to contact, reconning forward and to the flanks of the BLUE team; BLUE team engages the enemy supported by all ships on station.

- Once enemy starts to withdraw RED and PINK teams continue to interdict their routes of egress; BLUE team secures area of contact and polices battlefield.

- BLUE team is extracted, enemy is pursued by RED and PINK teams. Occasionally the ARP's (the Aero Rifle Platoon) would be re-inserted ahead of the retreating enemy as a blocking force.

Occasionally the Blues would be inserted and then find themselves on the receiving end of determined enemy forces and usually outnumbered. In preparation for this it was common to have a regular Infantry Company on stand-by to reinforce the Blues or to be inserted as a blocking force behind the enemy which the Blues were assaulting.

COMPOSITION OF AERO RIFLE PLATOON



I strongly recommend using an Aero Rifle Platoon in your Vietnam games. The Air Cav Troop supporting an ARP platoon gives you great versatility and many options. Although technically under strength compared to a platoon from a Line Infantry Company, the ARP's made up for a lack in numbers by sheer volume of firepower. The ARP's pack a punch but they are always on the verge of being outmaneuvered and overrun since they are such a small combat element.

Nonetheless, with the aerial support which they always have on station, they can engage targets which a standard infantry platoon would avoid. Having an organic lift section of UH-1's also opens up many gaming possibilities - hot insertions, hot extractions, pilot rescue, search & destroy etc. The Air Cav Troop employed as an offensive unit against company sized enemy elements or smaller leads to some great games.

Other advantages which the ARP's 'enjoyed' as a consequence of their role, apart from being led by a captain, was extra communications equipment and a disproportionate number of NCO's. This results in greater command and control of the unit.



See Also:

Helicopters and Helicopter Weapons for further information about the helicopters and weapon systems themselves.

The Helicopter War - substantial listing of links to web sites of US Aviation units from Vietnam

The First Team for information on the 1st Air Cavalry Division (Airmobile)

A History Lesson - fictional account of an operation, written by 'War Wagon 14', a pilot in 'D' Troop 3/5 Air Cav.

Sources:

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Hunter-Killer Squadron, Matthew Brennan, Pocket Books, ISBN 0-671-74453-4
The US Army in Vietnam, Leroy Thompson, David & Charles Publishers PLC, ISBN 0-7153-9219-0
Vietnam Order of Battle, Shelby Stanton, US news Books, ISBN 0-89193-700-5

US Army Armor School, Fort Knox, *ST 17-1-3* - courtesy of Jerry Headley

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US Helicopters

Bell UH-1 Series Utility Helicopters

Bell (model 204) XH-40



HU-1

Bell began development of the XH-40 prototype in 1955 to meet an Army specification for a general utility helicopter. First flown on October 20, 1956, the XH-40 was the Army's first turbine powered aircraft. After extensive evaluation, the prototype YH-40, now designated Helicopter Utility YHU-1, was delivered for further testing. Nine HU-1 trainers were delivered in June 1959.

Bell (model 204) UH-1A / UH-1B

The "Huey" as it was called after it's original model designation, the HU-1, was essentially a stretched Bell (model 47) Sioux with room for seven troops or three stretchers in it's cargo compartment behind the pilot. It was redesignated as the Utility Helicopter UH-1 in 1962 under a tri-service agreement. The HU-1A Iroquois, initially procured by the Army in 1959 as a general utility helicopter, was the first model ordered in large numbers. It saw wide use in Vietnam following initial fielding in September 1962. The "Huey" saw service with the 82nd Airborne Division, the 101st Airborne Division, and the 57th Medical Detachment. The "Huey" became the basis for the creation of the 1st Aviation Brigade in 1966.



UH-1A

"Hueys" armed with only two M60D door guns, called "Slicks" because of their uncluttered external appearance, were the backbone of all airmobile combat operations in Vietnam. Unarmed MedEvac "Hueys" were called "Dust Offs", because of the clouds of dust they kicked-up when landing. The "Huey" replaced the CH-21 Shawnee in the combat assault role. The UH-1 had a two-bladed semi-rigid metal main rotor, a two-bladed semi-rigid metal tail rotor and had a speed of 104 mph (90 knots).

The (Bell model 204) UH-1A (1956) seated seven troops. The UH-1A was powered by a Lycoming turbine T53-L-1A 860 shp (shaft horse power) engine. The T53-L-1A was later upgraded to the more powerful T53-L-5 960 shp.

The (Bell model 204B) UH-1B (1960) seated nine troops. The UH-1B featured two long FM homing antennas and the pitot tube on the nose, and a large single window in the doors. The UH-1B was was powered by several Lycoming turbine engines; T53-L-5 960 shp, T53L-9A 1100 shp, and T53-L- 11D 1100 shp. The UH-1B had a cruising speed of about 105 mph (90 knots).



UH-1B

Length : 53' (16m)
Weight : 4,600lbs (2070kg)
Payload : 2,704lbs (1215kg)
Cruise Speed : 104mph (167kph)
Range : 208 miles (334km)

Bell UH-1B/UH-1C hybrids

Bell Helicopter proposed upgrading UH-1Bs with the "540" rotor system. This modification was made to about four-to-six UH-1B s in the U. S. The results were promising enough that additional "540" rotor heads were shipped to a very few units in Vietnam. They didn't receive the full UH-1C retrofit: "540" rotor head, new engine, new powertrain, gears, and rotorshaft, bigger canted tail, bigger tail rotor, asymmetric horizontal stabilizers; just the "540" rotor system.

(1) The first UH-1B/UH-1C hybrid was a plain UH-1B with the "540" rotor head only. It was discovered

that in Vietnam's "hot and high" flying environment, their performance was marginal, and they could exceed the tail rotor torque limits. Also, they were too heavy for the UH-1B's T53-L-5 960 shp engine.

(2) The second type of hybrid was the UH-1B with the "540" rotor, T53-L-11D 1100 shp engine upgrade, powertrain, and tail rotor. These modifications improved performance, but with the increased torque from the more powerful engine, and larger tail rotor, the tail had to be modified by adding the camber and increasing the width. These modifications were incorporated into what became the UH-1C model. One unit which flew UH-1 B/UH-1C hybrids was the 174th Helicopter Assault Company.

The Bell UH-1C (1965) could seat nine troops, had the improved rotor and had a greater range. The UH-1C was powered by a single Lycoming T53-L-11D 1100 shp engine. The rotor head was the "540" rotor system, used only on the UH-1C (and the UH-1M). This was the prototype of the rotor system later used, without stabilizer bar and dampers, on the AH-1G Cobra. The chord of the rotor blades (distance from the leading edge to the trailing edge) was much wider on the UH-1C than on all other model "Hueys". The UH-1C also featured a brace extending from the aft fuselage to the weapons mount. This support was only used on the UH-1C and the UH-1M, an engine upgrade to the UH-1C. These aircraft were also the only "Hueys" with the fuel filler cap located on the left side of the fuselage.



Length : 53' (16m)
Weight : 4,830lbs (2160kg)
Payload : 4,500lbs (2029kg)
Cruise Speed : 127mph (203kph)
Range : 314 miles (504km)

UH-1C

The UH-1M was a small number of UH-1C models that were upgraded to the more powerful Lycoming T53-L-13B 1400 shp engine for use in Vietnam. The first three UH-1Ms were were equipped with the INFANT (Iroquois Night Fighter and Night Tracker) system for night operations. All remaining UH-1Ms were simply UH-1Cs with the T53-L13B engine upgrade.

It must be noted that UH-1's were also used in considerable numbers by the US Air Force, Marines and Navy in Vietnam, the two latter services employing these helicopters in a all kinds of armed assault and rescue missions as well as for patrolling the vast Mekong Delta region. But the US Army used the Huey in greater numbers than any other Branch of Service, mainly as the standard transport of the Air Cavalry, which were the basic airborne assault units ready to be sent anywhere they were needed. Of equal importance was the use of the UH-1 in the devastating role of aerial rocket artillery (ARA). If there was a weakness in the overall mission it was that the US Army did not really hold the territory, except locally, and particularly not at night; airborne assaults were on specific objectives either to capture particular ground features or, usually, to engage an identified hostile ground force and destroy it or cause it to

retreat or disperse. Invariably it meant landing ground forces, including artillery and all the immediately needed supplies, in the face of close-range enemy fire. Skill and courage had to be backed up by progressive improvements in the helicopters to enable them to survive large numbers of small-arms strikes and even occasional hits by calibres up to 23mm as well as shell splinters, blade impacts with treetops and exceptionally heavy landings.

In each airmobile operation at least one UH-1 would be specially equipped with communications systems and would carry the force commander and other specialist personnel, including an air liaison officer whose task was to direct any close air support, TACAIR, by USAF, USN and USMC aircraft. In a major operation an air liaison officer team might number as many as five FAC pilots and eight communications specialists, with frequencies covering all ground and air (and, if involved, sea) forces in the area. Another UH-1, the leading aircraft in the formation, would carry the LZ (landing zone) control party, tasked with alighting on the LZ ahead of all other helicopters and guiding the latter in.

Selection of a suitable LZ depended on prior close helicopter reconnaissance of the area. Occasionally no LZ was available, and troops had to be put down (by abseiling down ropes if necessary) from machines at the hover. This might be necessitated by lack of firm soil, or absence of sufficient reasonably level ground. Where there was dense cover by tall trees an instant LZ would be created by exploding a gigantic bomb fused to detonate well above ground level, thus sweeping trees flat over a large radius without making a crater. Bombs of up to 15,000 lb (6804 kg) were used.

Once the operation was mounted there was little time to do any preparation at the LZ, and the LZ control party's job included warning helicopter pilots (who were mainly young enlistees given the rank of warrant officer on gaining their wings) of hazards in the LZ, location of ground fire and anything not going according to plan. The objective was to get each Huey back in the air after a ground time of less than ten seconds, and five if possible.

Throughout the operation the closest offensive support would be provided by a so-called Pink Team made up of one or more pairs of fast agile helicopters. One of the pair would be a 'Loach', a Hughes OH-6A Cayuse (named from its original designation of LOH, light observation helicopter). Extremely small and manoeuvrable, the OH-6A often carried weapon systems such as Minigun or XM27 packs or an XM75 grenade-launcher, but its main role was to carry a crew of from two to four as close as possible to any place in the LZ locality where enemy forces might be waiting. It was a highly dangerous job; one Loach pilot was collected by rescue aircraft six times after having been shot down by point-blank fire. Everything discovered by Pink Team observers was immediately radioed to the LZ and to the force commander.

Doing its best to protect the Loach and the other members of the Pink Team, the Bell AH-1 Huey Cobra was quickly developed by Bell Helicopter to replace the cancelled AH-56A, the planned USA armed helicopter gunship bristling with sensors as well as armament. The Huey Cobra was somewhat smaller and simpler, and after quick development got into action in Vietnam in autumn 1967, for the first time bringing heavy firepower into the USA airmobile companies. Slim, agile and well-protected, even the

first versions of Cobra carried devastating firepower from machine-guns, cannon, grenade-launchers and up to 76 high-velocity rockets. Subsequently, additional weapons were able to be fitted, as well as sensors such as the nose-mounted Smash (SE Asia Multi-sensor Armament System for Huey Cobra) with IR (infra-red) and MTI (moving-target indication) radar automatically linked to the weapon aiming subsystems. Cobras made a considerable difference to airmobile operations in bringing heavy suppressive fire to bear within seconds; they not only made the defenders keep their heads down, but often eliminated them.

A few of the helicopters normally used only for transport were equipped with special sensing devices, all of them designed specifically to solve problems created by the Vietnam environment. Night observation devices were numerous, most of them using IR (infra-red) or passive image-intensifying electronics in order not to give away the exact position of the aircraft carrying it. Several CH-47 Chinooks were equipped with radar and other sensing and night-vision devices, as well as three ACH-47 attack conversions with heavy and diverse armament installed as part of the helicopter, in addition to five extra guns aimed by air gunners from positions along the side of the cabin.

One of the most unusual sensors was a so-called People Sniffer, flown in Vietnam on several UH-1 Hueys. The system, comprising the sole payload of the helicopter, continuously analysed the atmosphere drawn through instrumentation tubes and recorded the presence of chemicals for example, found in perspiration and exhaled breath-indicative of human activity. The difficulties were that such chemical emissions are present in only a few parts per billion, and so did not Positively mean hostile troops were present but merely suggested humans somewhere upwind of the helicopter, and the unmistakable noise of the helicopter gave several minutes' warning of its approach.



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US Helicopters



AH-1G Cobra Attack Helicopter



AH-1G Cobra 'Snake'

Length : 53' (16m)
Weight : 8,404lbs (3780kg)
Payload : 2,500lbs (1125kg)
Cruise Speed : 138mph (225kph)
Range : 359 miles (578km)

The UH-1 "Huey" was too slow for the gun ship or escort role. Bell Helicopter won the competition for an interim fast armed escort helicopter in March 1966, against the Sikorsky S-61 and the Kaman H-2 Tomahawk, while the Army was waiting for the fielding of the AAFSS AH-56A Cheyenne. The AAFSS program was cancelled in 1972. Based on their AAFSS entry, a scaled-down Iroquois Warrior, Bell Helicopter borrowed from two important developmental programs in designing the World's first attack helicopter:

(1) Initially the Cobra mounted a modified chin-turret developed for the Bell Sioux Scout. The XM64 (TAT-102) mounted a single M134 "Minigun". Initial versions of the AH-1G Cobra were fielded with an enlarged, modified chin-turret, designated the XM28 armament subsystem (TAT-141), mounting two 7.62mm "Miniguns" or two 40mm grenade launchers, or one of each.

(2) Bell made use of existing technology by designing a streamlined fuselage using the same Lycoming T53-L-11 1100 shp engine, drive train, gear boxes, rotor system, boom and tail unit from the model UH-1C "Huey". The "540" rotor system, developed for the UH-1C was modified by development of a computerized stability control augmentation system (SCAS) for use in place of the short weighted gyro-stabilizer bar first used on the Bell (model 47) OH-13 Sioux.



AH-1G of the 1st Cavalry Division (Airmobile)

Some early model AH-1G Cobras mounted either two M134 "Miniguns" or two M129 grenade launchers in a M28A1 chin-turret (TAT-141). Because of problems with the ammunition feed systems, the twin-gun configuration was discontinued. The Cobra was first employed to Vietnam with the 1st Cavalry Division (Airmobile) in August 1967. The Cobra's primary mission was to give fire support to troop carrying "Hueys". The AH-1G Cobra was powered by a single Lycoming T53-L-13 1400 shp turbine engine, and had a speed of 196 mph (170 knots), almost twice the speed of the UH-1 "Huey". The AH-1G Cobra used the M73 reflex sight. The Cobra performed it's job so well it was possible for the first time for "slicks" and gun ships to operated as true air cavalry.

Later models of the AH-1G Cobra, or "Snake", were armed with 2.75 inch (70mm) Folding Fin Aerial Rockets (FFARS) in M158 seven-tube or M200 19-tube rocket launchers, used so effectively at An Loc in 1972. The Cobra had a chin-turret on the M28/M28A1 armament subsystem. The chin-turret mounted the M134 7.62mm "Minigun" and the M129 40mm grenade launcher. The AH-1G could also be armed with the M134 "Minigun" in fixed side-mounting M18/M18A1 gun pod, and the port (left) side mounting M195 20mm automatic gun on the M35 armament subsystem. The AH-1G could also mount the XM118 smoke grenade dispenser.



M195 six-barrel 20mm automatic gun on M35 fixed mount armament subsystem



Inboard M195 six-barrel 20mm automatic gun and outboard M158 seven-tube 2.75 inch rocket launcher

The Bell (model 209) AH-1G Cobra featured the new "540" wide-bladed rotor and a slim fuselage that gave it twice the speed of the UH-1B "Huey". It could loiter over the target area three times as long, and had an improved armament system over previous gun ships. Tandem seating of the two crew members in the Cobra, with a width of just 38-inches, presented a much smaller target than the 100-inch wide UH-1 "Huey". The Cobra had a two-bladed semi-rigid seesaw bonded all metal main rotor and two-bladed rigid delta hinge bonded all metal tail rotor. The AH-1G Cobra's mission was direct aerial fire support, armed escort, and reconnaissance.

AH-1G "Huey" Cobra Armament Configurations			
2.75 inch rocket launchers	14 rockets	28 rockets	76 rockets
M134 7.62mm "Minigun"	4,000 rounds	8,000 rounds	4,000 rounds
M129 40mm grenade launcher	250 grenades	-----	-----

Bob Shlikas wrote;

> I was searching for models of the AH-1G when I found your site. I'm writing because of the questions you raised on rocket pod configurations for the Cobra. From February 1969 until September 1970, I was a helicopter pilot assigned to the 25th Aviation Battalion, 25th Infantry Division in Cu Chi, Vietnam. While there, I flew first for A Company, a slick company, and then for B Company, a General Support or gunship company. During that extended tour, I flew primarily UH-1C gunships and Cobras. I also spent lesser amounts of time in UH-1D, UH-1H, and OH-6 helicopters.
>
> But back to the rocket pods. At that time there was no standard configuration or set of configurations. Armament was chosen to suit the mission and the fireteam leader's desires. With two turret stations and four wing hardpoints, the combinations possible were extensive. Options in the turret were the 7.62 mini-gun or the 40mm grenade launcher in any combination. The wing hardpoints gave us the option of 7.62 mini-guns, 7 shot rocket pods, 19 shot rocket pods, or a 20mm mini-gun. The 7 shot and 19 shot pod combination that you built was extremely common. When we used that combination of rocket pods, we put the larger pods on the inboard hardpoints, but I know of no reason that the combination you used should not be possible. My personal favorite configuration, since we shot primarily in support of ground troops in contact with the enemy, was 4 of the 19 shot pods with 2 grenade launchers in the turret.
>
> The most critical limitation to choice of armament was the weight of the aircraft. We were constantly battling degradation of performance due to consistently operating at high temperatures. The high turbine inlet air temperature reduced the turbine output, while the high ambient also caused a reduction in rotor efficiency. Dusty or dirty rotor blades worsened the problem. We had to be very conscious of our fuel loads in order to maintain the ability of the aircraft to hover. The UH-1 gunships were the worst offenders in this

regard. A large percentage of UH-1C departures required sliding or bouncing to get the aircraft through translational lift and actually flying. I hoped this helped with your armament questions. If there is anything else that I can offer, please e-mail me. Your models are impressive. Keep up the good work.

Early AH-1G Cobra Night Vision Systems. The AH-1G was equipped with the CONFICS (Cobra Night Fire Control System) and the SMASH (Southeast Asia Multi-Sensor Armament Subsystem for "Huey" Cobra) systems to provide the Cobra with the capability of detecting, identifying, and targeting ground targets during day or night operations.



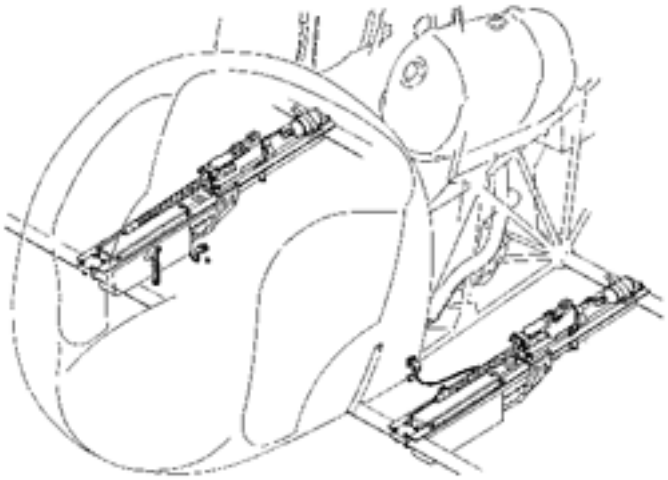
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US Helicopters



Helicopter Armament Subsystems Part I

XM1/XM1El Armament Subsystem (1960-1972). Both the OH-13 Sioux and the OH-23 Raven could be armed with twin M37C .30 Cal. machine guns mounted on the skids, on the XM1 armament subsystem. The XM1 was flexible in elevation and carried 500 rounds of ammunition per gun. The XM1E1 was the product engineering design. Both the XM1 and XM1E1 saw limited production (450 units were built). XM1E1 limited production was up-gunned to the M60C machine gun on the M2 armament subsystem.



OH-13 Sioux armed with twin M37C .30 Cal. machine guns
on XM1 armament subsystem line drawing

M2 Armament Subsystem (1961-1972). The OH-13 Sioux and the OH-23 could also be armed with twin M60C 7.62mm machine guns, with 650 rounds of ammunition, mounted on the skids, on the M2 armament subsystem. The guns were electrically controlled, flexible in elevation, and charged pneumatically using high pressure dry air or nitrogen bottles. The M2 was type classified Standard A (1,000 units were built).

Eight-tube Rocket Launcher. Two eight-tube 2.75 inch rocket launchers were installed on new UH-1B Hueys as they arrived at Camp Holloway, Pleiku, Republic of Vietnam from late 1963-1964. This system, a predecessor to the XM3 armament subsystem was used in combination with the M6 7.62mm

quad-machine gun mount. For more information and photos, go to Armament Subsystems used at Camp Holloway, Pleiku, 1963-1964.

XM3/XM3E1/M3 Armament Subsystem. UH-1B/UH-1C "Huey" Aerial Rocket Artillery (ARAS) were armed with up to two side-mounting 24-tube 2.75 inch rocket launchers on the M3 armament subsystem. The MK8 reflex sight was used for sighting the M3 rocket launchers. The M3 saw limited production. Also see the Maxwell system (XM3/M22 hybrid) and Armament Subsystems used at Camp Holloway, Pleiku, 1963-1964.



UH-1B ARA with XM3 24-tube 2.75 inch rocket launcher

M5 Armament Subsystem (1958-1975). The M5 armament subsystem was a flexible, remote controlled, servo-power driven, chin-mounted pod, which held one M75 40mm grenade launcher. The M5 could be mounted on the UH-1B/UH-1C/UH-1M "Huey" and was also used on the ACH-47A "Guns-A-Go-Go". The M5 carried 150 or 300 rounds of ammunition. Ammunition was fed from a 302 round rotary drum by an ammunition booster, through a chute, to the grenade launcher. A reflex-type flexible hand control sight mounted above the co-pilot's seat. A master armament control was accessible to both pilot and co-pilot. The M5 was type classified Standard A (over 494 units were built).


M5 gun pod on UH-1B "Huey"

M6 Armament Subsystem (1959-1972). The UH-1B "Huey" could be armed with quad M60C 7.62mm machine guns on the M6 armament subsystem. The M6 was fully flexible, with two guns per side. The

M6 carried 1,500 rounds of ammunition per gun. Sighting was done by the co-pilot using a flexible reflex type sight. The M6, in combination with seven-tube 2.75 inch rocket launchers, was upgraded to the M16 armament subsystem and to the M21 by replacing the quad M60C machine guns with two M134 "miniguns". The M6 was type classified Standard A (444 units were built). Also see Armament subsystems used at Camp Holloway, Pleiku, 1963-1964.

XM8 Armament Subsystem (1967-1972). The XM8 was a Research and Development project for a single M129 40mm grenade launcher that was interchangeable with the port (left) side mounting M27 "minigun" on the OH-6A Cayuse and OH-58 Kiowa fight observation helicopters. The XM8 held 150 rounds of linked ammunition. An integrated feed system fed ammunition from a spiral wound container through a chute to the grenade launcher. The electrically driven XM8, which was flexible in elevation, was mechanically-linked to a XM70 reflex sight. Primary sighting was done by the pilot, but controls were also provided to the co-pilot.



XM8 40mm grenade launcher on OH-6A Cayuse

XM11 Armament Subsystem (AMCOM system). The UH-1B "Huey" could be armed with up to six NATO Standard Nord SS-11 wire-guided anti-tank missiles on the XM11 missile launcher. The XM70 sight was used for sighting the XM11 missile launcher. The XM11 saw limited production. The XM11 was replaced by the M22 missile launcher.

XM14 Armament Subsystem (1963-1971). The XM14 (Air Force SUU-12/A) was a Research and Development project for a fixed-mounted gun pod for the M3 .50 Cal. machine gun that could be mounted on the UH-1B/UH-1C "Huey" or on fixed-wing aircraft. The XM14 carried 750 rounds of ammunition. The gun was pneumatically charged. The system was used with the MK20 fixed illuminating sight. The XM14 saw limited production (489 units were built).

XM15 Dispensing Subsystem (ARDEC). The XM15 cluster was a Research and Development project for dispensing XM170 flares from the UH-1D/UH-1H "Huey". Each cluster consisted of two six-tube XM18 dispensers held together by dispenser adapters with suspension lugs. One 12-tube cluster could be mounted on each side of the aircraft. Each 2.75 inch tube could hold four XM170 flares, for up to a total

of 96 flares per aircraft. Two 12-tube XM15 clusters, attached to a hinged strongback assembly, made up one 24-tube XM165 dispenser. The fixed-mounted dispenser was sighted visually.

M16 Armament Subsystem (1963-1972). The M16 was a combination of M6 flexible quad M60C 7.62mm machine guns and two XM157 or M158/M158A1 seven-tube 2.75 inch rocket launchers for use with the UH-1B/UH-1C "Huey". The M16 was upgraded to the M21 by upgunning from quad M60C machine guns to M134 high rate of fire machine guns. An M60A1 reflex-type sight was used by the pilot for sighting both guns and rockets. The co-pilot's sight was for sighting guns only. The M16 was type classified Standard B (461 units were built).



M16 quad M60C machine gun mount with XM157 launcher



Close up of M16 armament subsystem

XM18 Ejection Dispensing Subsystem. The XM18 was a Research and Development project for aft ejection of flares, munitions, or CS grenades from six-tube 2.75 inch launchers mounted on the UH-1B/UH-1C "Huey". One six-tube dispenser could be mounted on each side of the aircraft. Two six-tube XM18 dispensers, held together by a dispenser adaper, made up one 12-tube XM15 dispenser subsystem.



XM18 Pod

M18/M18A1 Armament Subsystem (1963-1975). The M18/M18A1 (Air Force SUU-11A/A/SUU-1 1B/A) was a fixed-mounted gun pod for the M134 7.62mm "minigun". The gun was electrically driven. Ammunition was fed from a 1,500 rounds capacity linkless MAU-57 storage and feeding drum through a single-ended linkless system which was gear driven by the gun motor. Suspension lugs permitted the gun

pod to be mounted on the sides of the AH-1G "Huey" Cobra or on fixed-wing aircraft. An M73E1 reflex-type sight was used for sighting the guns. The M18 was type classified Standard B (over 434 units were built); the M18A1 was type classified Standard A (over 411 units were built).

XM19 Dispensing Subsystem. The XM19 was a Research and Development project for dispensing MK45 flares from the UH-1B/UH-1C/UH-1D/UH-1H "Huey". The XM19, consisting of 24-tubes mounted in the aircraft cargo compartment, was capable of launching up to 24 three-foot long 2,000,000 candle power MK45 flares. Sighting was visual.

M21 Armament Subsystem (1964-1975). The UH-1B/UH-1C/UH-1M "Huey" could be armed with twin side mounting 7.62mm "miniguns" and two XM157 or two M158/M158A1 seven-tube 2.75 inch rocket launchers on the Emerson M21 armament subsystem. The M21 was an up-gunned M16 which used M134 "miniguns' in place of quad M60C machine guns. The M134 used a MAU56/A delinking feeder. The pilot used a XM60 reflex-type sight for both guns and rockets. The co-pilot used a flexible reflex sight which depressed or flexed the "miniguns" only. The M21 was type classified Standard A (over 406 units were built).

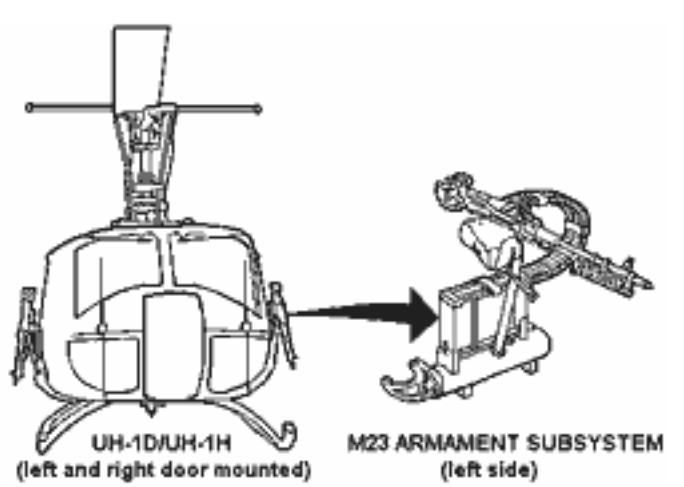




M21 armament subsystem with M134 "minigun" and M158 seven-tube rocket launcher

M22 Armament Subsystem (AMCOM). The UH-1B "Huey" could be armed with up to six AGM-22B (formerly SS-11B1) wire-guided anti-tank missiles on the M22 missile launcher. The XM58 sight was used for sighting the M22 missile launcher. The M22 replaced the XM11 missile launcher. The M22 was replaced by the XM26 airborne TOW launcher. The M22 was type classified Standard A. Also see the Maxwell system (XM3/M22 hybrid).

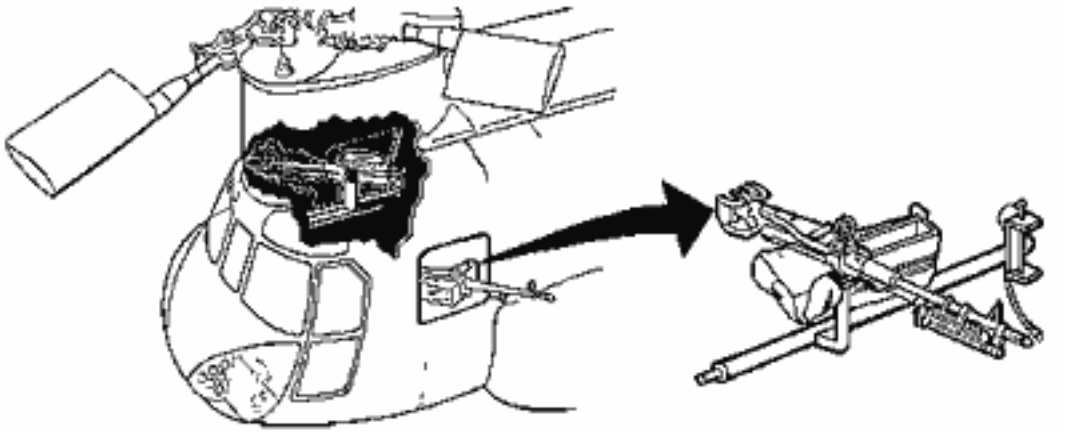
M23 Armament Subsystem (1964-1975). The M23 armament subsystem is a door pintle mount for the M60D 7.62mm machine gun equipped with an aircraft ring-type sight, with 550 rounds of ammunition, for use on the UH-1D/UH-1H "Huey". The M23 was type classified Standard A (over 4,316 units were built).





Door Mounted M-60D 7.62mm machine gun on M-23 armament subsystem

M24 Armament Subsystem (1964-1975). The M24 armament subsystem is a door pintle mount for the M60D 7.62mm machine gun, with ring-type sight, with 200 round ammunition boxes, for use on the CH-47A Chinook. The M24 was type classified Standard A (over 610 units were built).



CH-47D schematic with M60D 7.62mm machine gun on M24 armament subsystem

XM26 Armament Subsystem (AMCOM). In June, 1966 Hughes Aircraft was given an initial Research and Development contract to develop a missile launcher for the wire-guided TOW missile for use on the UH-1B "Huey" to replace the M22 missile launcher. Two three-round pods were mounted on each side of the aircraft. The gunner held the target in sight and directed the missile's flight by wire command. The program was terminated in March, 1968 and efforts were redirected to the TOW/AH-56 Cheyenne program. In 1970 studies were started on development of the XM65 TOW/Cobra armament subsystem for use on the AH-1 series Cobra. In May, 1972 the XM26 was removed from storage and rushed to Vietnam to meet the armored threat from the North Vietnamese "Easter" offensive. The XM26 was replaced with the deployment of the M65 TOW/Cobra airborne launch system.

M27 Armament Subsystem (1965-1975). The M27 armament subsystem is a port (left) side mounting gun mount for the M134 Gatling machine gun (7.62mm "Minigun") for use on the OH6/OH-6A Cayuse

or the OH-58A Kiowa. The XM70E1 sight was used for sighting the M134 "minigun". The M134 used the MAU-56/A delinking feeder, with 2,000 rounds of ammunition. The M27 was type classified Standard B (over 917 units were built).



XM27E1 armament subsystem with M134 "Minigun"

M28/M28A1 Armament Subsystem (1966-1975). The M28 (TAT-141)/M28A1 was a twin mount chin-turret for use on the AH-1G "Huey" Cobra. It was developed from the XM64 single "minigun" turret, which evolved from the chin-turret used on the experimental Bell (model 207) Sioux Scout. It could mount either two M134 7.62mm "miniguns", with 4,000 rounds of ammunition each, or two M75 or M129 40mm grenade launchers with 400 rounds each. It could also be configured to mount one M134 and one M129 grenade launcher. This was the preferred configuration since there were problems with the ammunition feed mechanisms when used in the twin-gun or twin-launcher mode. The M28 could be elevated between +20° and -50°. It could traverse 110° to the right or left of center. The M28 featured a rotary 7.62mm ammunition drum which replaced the belt feed system. The M28 saw limited production (954 units were built); the M28A1 was type classified Standard A (over 332 units were built).



M28A1 armament subsystem on AH-1G Cobra
configured with one M134 and one M129

XM29 Armament Subsystem (1964-1965). The XM29 armament subsystem was a Research and Development project for a door pintle mount for the M60D 7.62mm machine gun for use on the UH-

1B/UH-1C "Huey". Only two prototypes were built.

XM30 Armament Subsystem (1966-1968). The XM30 was a Research and Development project for a flexible twin mount of the XM140 30mm gun on the UH-1B/UH-1C "Huey", with 600 rounds of ammunition per gun.



Helicopter Armament Subsystems Part II

Sources

Aircraft Armament, Systems and Components, U. S. Army Weapons Command, Rock Island, December 1971.

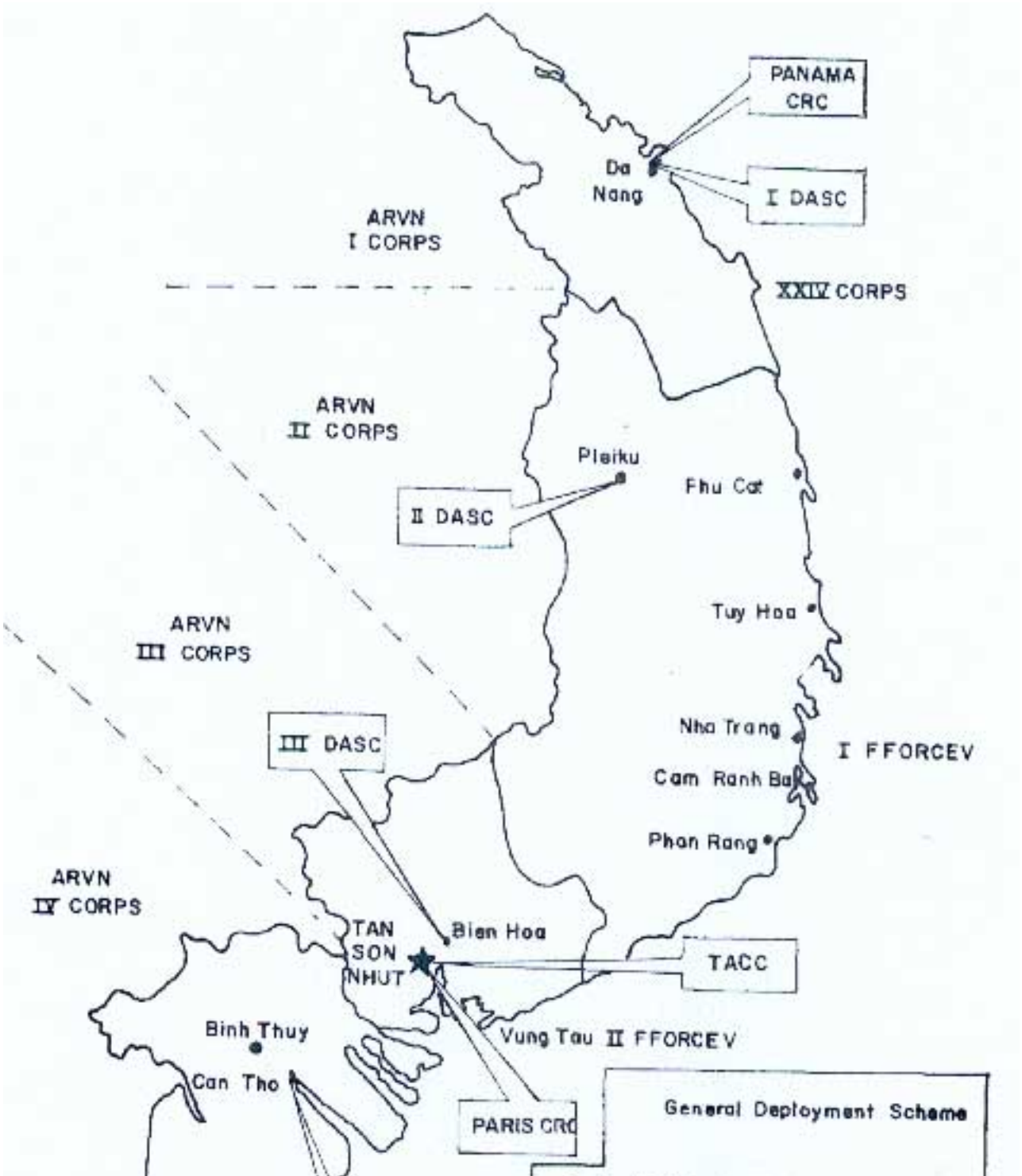
Aircraft Weaponization, Subsystem Photographs and Descriptions, U. S. Army Weapons Command, Rock Island, September 1970.

Small Arms of the World, 12th edition of the W.H.B. Smith Small Arms Manual, The Stackpole Co., Harrisburg, 1983.

Fire Support Coordination



Tactical Air Control System : Areas of Responsibility



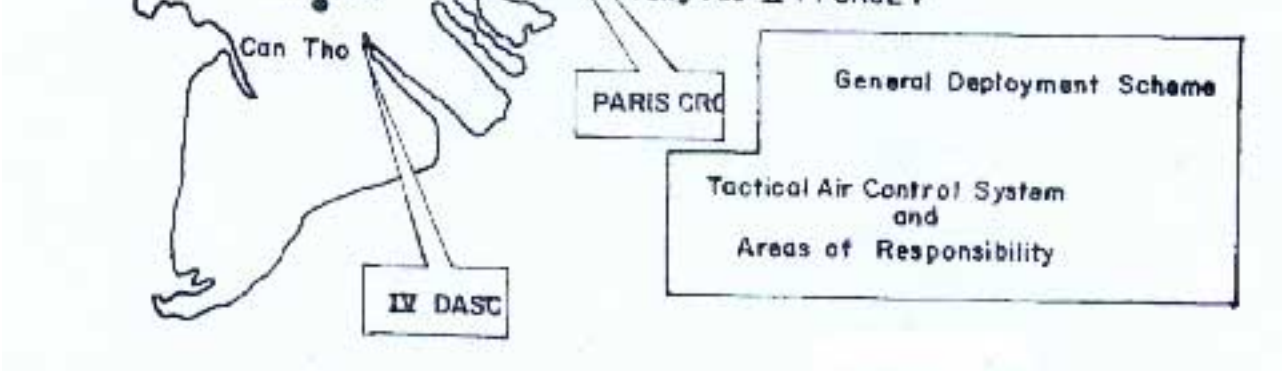


Figure C-1



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United States Aircraft



Cessna O-1 Bird Dog

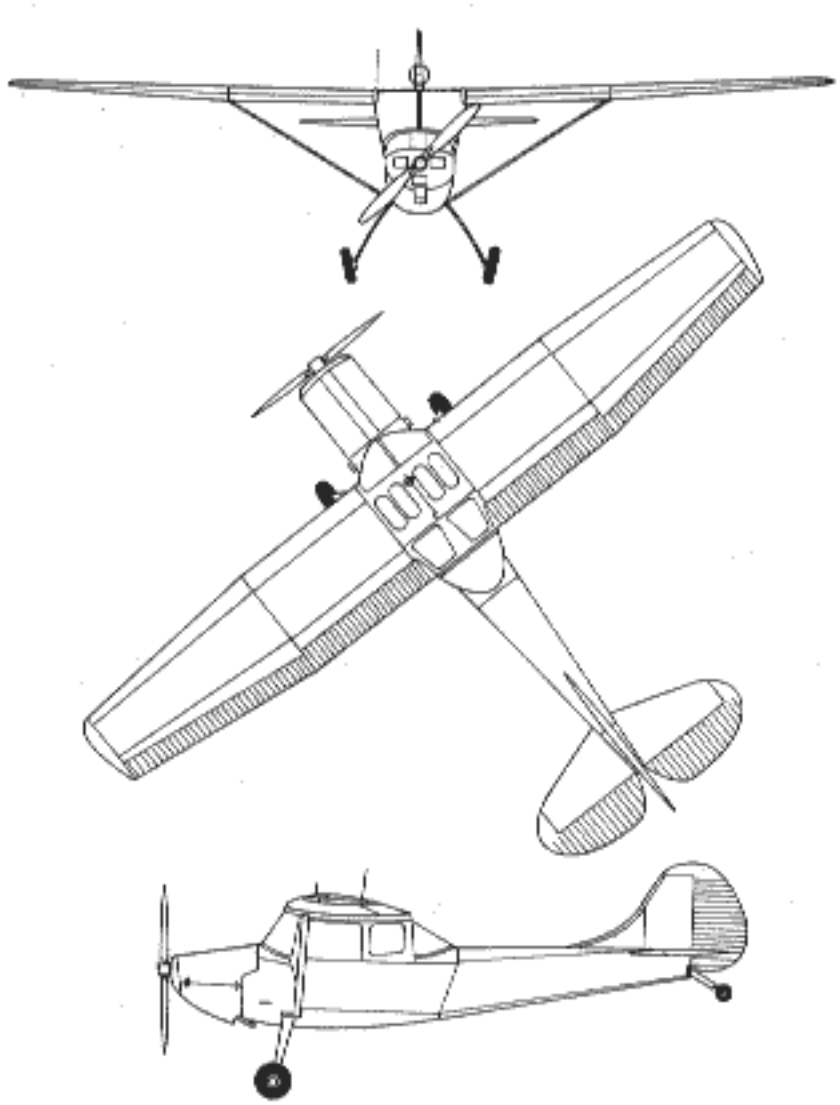
The Cessna Bird Dog was the most popular light aircraft used by the US Army for liaison and observation in the post-war period. More than 3,500 machines left the assembly lines from the end of 1950 and remained in service until the late 1970s, taking part in the Korean War and Vietnamese War (see also History of the O-1 Bird Dog). The Bird Dog was derived directly from the Cessna 170, a commercial model in production in 1950. From the first order for fourteen planes in June 1950, the numbers increased dramatically, until by October 1954 the total production of L-19As (as they were originally designated) was 2,486. Two years later another 310 TL-19D training planes were ordered, while in 1957 the final version appeared, namely the improved and more powerful L-19E, which brought the total production to 3,431 machines. In 1962 the different versions were renamed, in sequence, O-1A, O-1B, TO-1D and O-1E.

Few aircraft were as important for the efficient conduct of war operations in Vietnam as the small, unarmed Cessna O-1B, previously known as the L-19. Spearhead of the FAC (Forward Air Control), it formed part of the US Army organization until 1965, when all fixed-wing observation aircraft were turned over to the USAF. Flying at low level and reduced speed, their duty was to discover objectives, for the most part concealed in the jungle, such as groups of guerillas, convoys traveling along the Ho Chi Minh Trail, or enemy units lying in ambush for unsuspecting government troops. Having spotted the enemy, they would immediately radio the DASC (Direct Air Support Center) which, as a rule, would be able to get attack aircraft to the spot within half an hour (see also Fire Support Coordination - Tactical Air Support). The latter were again guided by the Bird Dog pilots who, in addition to pinpointing the objective with smoke or magnesium flares, would check the effectiveness of the strikes, if necessary correcting the aim. However, the O-1s were an easy target for the enemy, who could often hit them with ordinary rifle fire, without recourse to heavy anti-aircraft fire. Many Bird Dog pilots lost their lives while carrying out their duty; they were usually officers with years of experience, veterans of many battles. Among the finest fighters, they succeeded in converting their little unarmed planes into formidable offensive weapons.




USAF


72814
U.S. AIR FORCE



Technical Specifications

Aircraft: Cessna O-1E
Year: 1956
Type: observation
Manufacturer: Cessna Aircraft Co.
Engine: Continental 0-470-11, 6 cyl., air cooled
Power: 216hp
Wingspan: 36ft (10.97m)
Length: 25ft 10in (7.87m)
Height: 7ft 4in (2.23m)
Wing area: 174sq ft (16.16m²)
Max take-off weight: 2,400 lb (1.090 kg)
Empty weight: 1,614 lb (732 kg)
Max speed: 130mph (209km/h)
Service ceiling: 18,500ft (5,640m)
Range: 530mi (853km)

United States Aircraft

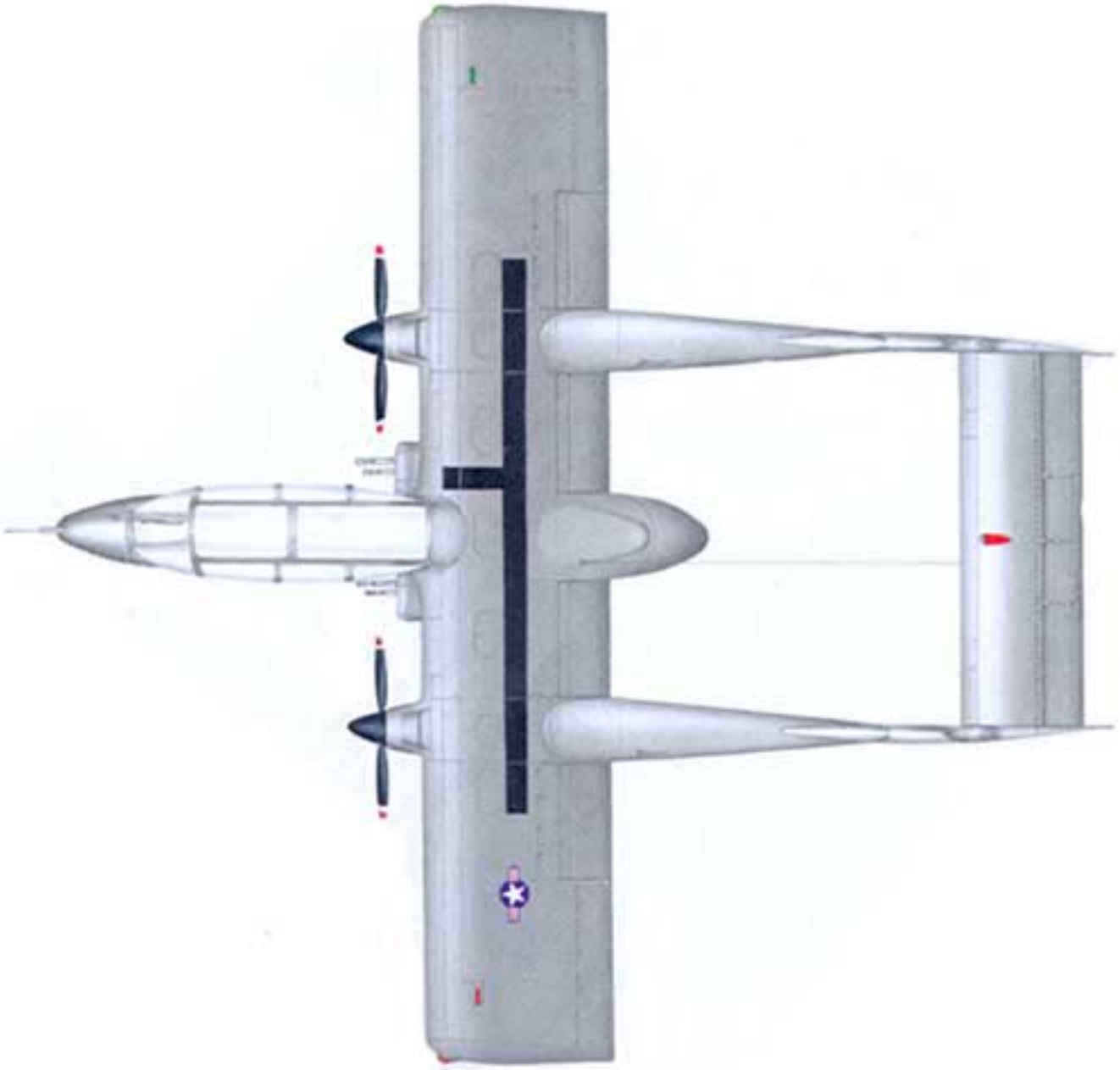


Rockwell OV-10 Bronco

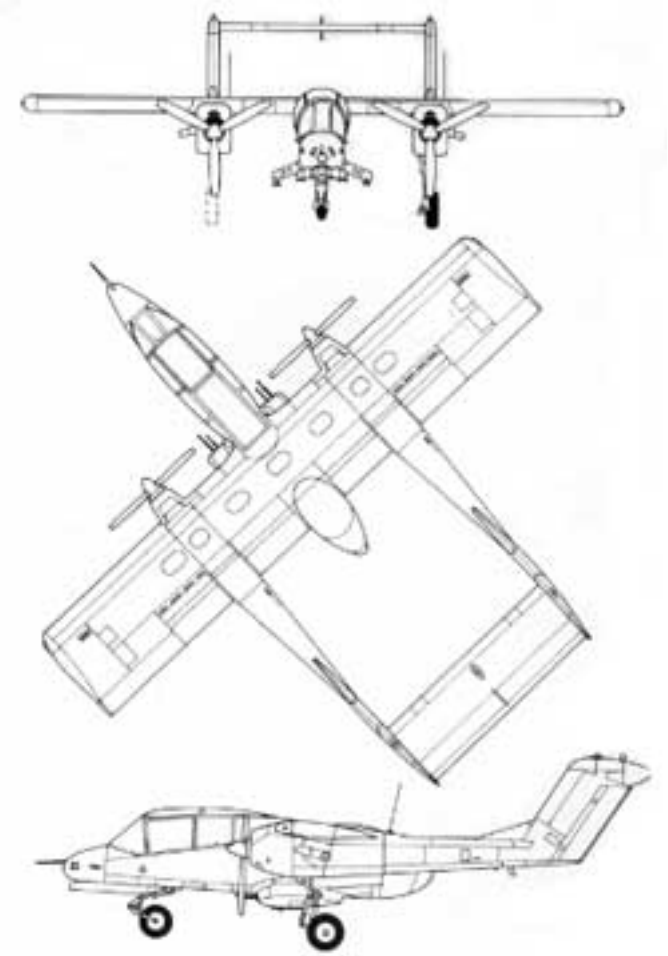
More like a helicopter than an airplane, the Rockwell Bronco was the ideal example of a tactical reconnaissance plane designed to work in close cooperation with ground forces. Planning of the OV-10 began in 1962 with orders from the USAF, the US Navy and the US Marine Corps, the objective being to produce an armed reconnaissance plane specialized in anti-guerilla operations. The definitive prototype flew on August 15, 1966, and the first OV-10A production model appeared on August 6, 1967. Up to April 1969, 271 of these planes were built, 114 for the Marines and 157 for the USAF. In Vietnam the Bronco was operational from 1967.

The only real COIN (Counter Insurgency) plane to take part in the Southeast Asian war was the Rockwell OV-10A Bronco. The first of these were sent with the Marines to the operation zone as soon as they came off the assembly line. Subsequently used both by the US Navy and the USAF, this tactical reconnaissance plane proved extremely useful and-well suited to the requirements of the FAC (Forward Air Control). Very often, confident of its own fire power, the Bronco would strike a target without even waiting for other warplanes to arrive. It went into action in 1968, barely two years after the first flight of the prototype, but did not have the chance to be used in such numbers as other planes which were admittedly less suited for the difficult and dangerous job of being the advance 'eye' of the DASC (Direct Air Support Center).






USAF
14819



Technical Specifications

Aircraft: Rockwell OV-10A
Year: 1967
Type: observation
Manufacturer: Rockwell International
Engine: 2 x Garrett AiResearch T76-G-10/12
Power: 715shp
Wingspan: 40 ft (12.19m)
Length: 39 ft 9in (12.12m)
Height: 15ft 1in (4.62m)
Wing area: 291sq ft (27.03m²)
Max take-off weight: 14,444 lb (6,550 kg)
Empty weight: 7,190 lb (3,260 kg)
Max speed: 244mph at 10,000ft (452km/h at 3,048m)
Service ceiling: 18,000ft (5,486m)
Range: 165mi (306km)
Crew: 2
Load-armament: 4x7.62mm machine guns; 4,600 lb (2,086 kg)



Return to United States Aircraft

See Also:

Review of A Lonely Kind of War; Forward Air Controller Vietnam

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Fire Support Coordination



Naval Gunfire Support (Annex D)
Part 2

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4. NGFS EFFECTIVENESS.

a. Liaison

There are few hard and fast rules for insuring effectiveness of NGFS. While the spotter is in the best position to determine the need for fire, the ship, through knowledge of the area and analysis of past and current missions, can determine and keep the spotter advised of the best method of delivery, type of ammunition, and the number of rounds required. Liaison among NGFS ships, NGLOs, spotters, and the supported ground commander is a must if maximum effectiveness of the support is to be realized and the unnecessary expenditure of ammunition avoided.

b. Ammunition Expenditure

(1) Although the primary mission of CTU 70.8.9 is NGFS to the ground commander, there are indications of cases where the number of rounds fired cannot be justified by the value or the nature of the target. Also, a large number of missions have been fired without GDA of any kind.

(2) The role of unobserved harassment or interdiction fire is widely recognized and understood. These missions in many cases provide vital perimeter or approach route interdiction support to friendly forces when other means of defense are unavailable or inadequate. On such missions, a minimum ammunition expenditure consistent with the semi-continuous nature of fire is of importance to prevent extremely high ammunition expenditures with only a minimum benefit. Intelligence of actual or intended enemy movement or activity is the basic ingredient for effectiveness of fires. If harassing fire is required for an area of known enemy presence, small amounts of fire at irregular intervals, with no spotting or GDA may suffice. If, however, interdiction fire to prevent enemy use of an area is needed, spotting and GDA are essential for proper evaluation.

(3) Spotters frequently cannot observe fires or accurately determine results because of poor visibility, heavy foliage, or terrain obstructions. A complete target description and the objective of fire missions will permit the NGFS ship to assist in evaluating the target and determining the amount and type of ammunition required. Nearly any form of GDA, other than the too-frequently used "target area well covered", is desired and is useful. Later sweeps through the target area by ground forces can provide the basis for excellent GDA. Observation of enemy activity or proof of no enemy passage through commonly-used lines of communication are GDA equivalents that can be used in assessing NGFS effectiveness.

5. PROTECTION OF NGFS SHIPS.

a. Ships have been fired upon by hostile forces ashore and, on occasion, have been damaged while engaged in NGFS. The enemy is capable of seriously damaging any ship within mortar or automatic weapon range of the beach; therefore, NGFS will normally be conducted from at least 4000 meters from the beach. If the target cannot be reached from that point and it is determined that the target is worth the recognized risk, e.g., the target is a known enemy concentration or direct support of engaged friendly forces, the ship may move in closer. In unrestricted waters and when within 4000 meters of the beach, ships will usually maintain at least five knots of speed, and more if the tactical situation and navigation will permit.

b. Ships which are required to fire from inside harbors or river mouths and areas along the Rung Sat Special Zone, will usually lie to rather than anchor, ready to move at the first sign of hostile fire from shore. At night the ship will be darkened except for dim navigation lights. When wind or sea conditions preclude lying to and the target is of an urgent or emergency nature, anchoring is permitted. When anchored under these conditions, steam will be maintained, as well as a high degree of engineering and damage control readiness. The ship will get underway as soon as the emergency has subsided.

6. PRECAUTIONS TO AVOID CIVILIAN OR FRIENDLY CASUALTIES.

a. To prevent firing on friendly troops and civilians, the following minimum standard NGFS procedures are followed:

(1) Upon receipt of target coordinates, they are recorded and plotted by at least two different stations, normally CIC and Bridge, by different persons on separate charts. The coordinates are read back to the spotter for possible error.

(2) Navigational and target positions should be compared and agreed by CIC and Bridge before reporting "Ready", and at frequent intervals thereafter.

(3) The fire mission request format must be scrupulously followed. If the request is encrypted, the decrypted copy must be checked and rechecked.

(4) Any data or information repeated to the spotter must be closely monitored and checked by all concerned, particularly the NGLO.

(5) The plotting of coordinates must be monitored and rechecked.

(6) Gun-target lines must be carefully plotted and cross-checked.

(7) CIC personnel must check target locations and descriptions against the chart for possible dangerous or doubtful situations.

(8) Watch supervisors must be alert and completely aware of the situation in progress.

(9) Spotters must be questioned by the ship on any missing or questionable elements of the standard mission format.

b. In summary, every conceivable precaution must be taken to avoid endangering friendly forces or innocent civilians. Time must be secondary to accuracy. While the above precautions are stated in naval terms, the principles stressed are common to all fire support procedures. They are included here for two purposes:

(1) To acquaint the ground commander with NGFS procedures, and

(2) To stress again a statement made early in this publication - FSC in the RVN is a complex and exacting procedure.

7. NAVIGATION.

a. Exact positioning is essential for accurate NGFS, but it is most difficult in some areas off the RVN coast. Long stretches of straight, sandy beach line, backed up by low marsh or rice paddies inland, provide few suitable navigation reference points. Anchoring is prohibited unless it can be done over 4,000 meters from the beach, except in extreme cases and then only as outlined in paragraph 5b above.

(1) A few AN/UPN-32 radar beacons are available in I CTZ. In some areas, lack of security for the beacon team may prevent its use; the NGLO will inform the ship if this is the case. The ultimate goal is the positioning of one AN/UPN-32 with teams throughout the country on a usable basis.

(2) A positioning buoy, made easily identifiable with radar reflectors, can be designed and built by each ship, anchored on the day of a mission, and recovered after the mission. After initial positioning and precise location of the buoy, navigation can be from that reference point. In all cases, any buoys dropped must be recovered or sunk before departing from the

area.

b. A simple and effective method of obtaining a ship's position when an aerial spotter is available is to use the aircraft as a navigational aid. A "mark on top" given by the air spotter directly over some readily-identifiable terrain feature, e.g., bend in a river, crossroad, or hill, gives an approximate range and bearing to a known point.

c. The "offset tracking" method of firing can be used if there is any one feature on the beach that can be locked on with fire control radar and accurately located on the chart. This feature may be only a clump of trees, rocks, or a small hill, but it could provide the one position necessary to derive an accurate solution.

d. Known navigational reference points, easily identifiable on the chart, are sometimes not readily apparent to ships new to the area. During meetings between the ship's company and NGLOs, the in-country personnel should be questioned on aids to navigation in the area.

e. For brevity and simplicity in fire mission requests and ship-spotter radio transmission, 28 reference points along the coast of the RVN have been designated. These points are all at least 4,000 meters from the beach and in at least six fathoms of water. Their use by NGFS ships is optional and NGLOs are encouraged to evaluate these points and recommend additions or changes.

8. COMMUNICATIONS.

a. The primary means of NGFS communication are simplex ORESTES circuits, HF, VHF, and FM voice nets. Frequencies and call signs are contained in CTG 70.8 Operation Order 320-(year) and will be passed to individual ships by the NGLO/spotter upon establishing communication on the NGLO/spotter circuit; call signs should also be included in the NGFS mission request. Ships assigned to CTU 70.8.9 will monitor the NGFS ORESTES circuit, designated NGLO coordination and spotter nets, and emergency and distress frequencies. The CTOCs in each CTZ continuously monitor the NGLO net as well as their respective NGFS nets. If necessary, information can be relayed through CSCs.

b. Voice transmissions concerning NGFS missions scheduled to be conducted within the following 24 hours must be encrypted. Plans for any NGFS missions scheduled more than 24 hours later must not be discussed over insecure voice nets, whether encrypted or in the clear; such information must be transmitted over secure circuits only. Voice transmissions concerning NGFS missions need not be encrypted when the mission is to begin within 30 minutes or when the mission is already in progress.

c. Three ORESTES circuits are established for the use of CTG 70.8.9. NGFS ALFA is a simplex net for NGFS units in I CTZ. NGFS Bravo is also a simplex net and is for use by NGFS units in II, III, and IV CTZs. NGFS CHARLIE is a full duplex circuit used by CTU 70.8.9. Ships enroute to the gunline should check into the appropriate NGFS ORESTES net at 0600H the day before arrival on station, if possible.

d. VHF (FM) circuits are often used for NGFS spotter nets. To increase the capabilities of ships assigned

to CTU 70.8.9, a pool of AN/VRC-46 and AN/PRC-25 transceivers has been established; this equipment is issued to NGFS units, as required, as the units are assigned to NGFS duty. The VRC-46 is a compact transceiver originally designed for vehicular field communications.

9. AIRCRAFT SAFETY DURING NGFS MISSIONS.

a. NGFS ships are required to maintain an alert electronic and visual search for aircraft during fire missions. Ships will check fire if it appears that aircraft other than those assigned for spotting, will pass through, over, or near the line of fire or impact area.

b. Each CTOC will screen fire mission requests to insure that units providing NGFS or TACAIR support do not interfere with each other. To further insure flight safety -

(1) As SOP, each CTOC informs the DASC and its own Army Aviation Element of approved NGFS missions and the expected vertex (maximum ordinate) of fire.

(2) 7AF, through DASCs and CRPs, has the responsibility to notify the TACC and airfields located in coastal areas of impending NGFS missions. In addition, 7AF is responsible to notify the Director of Civil Aviation, Saigon Area Control Center, at least 30 minutes before NGFS missions which will affect airspace within five nautical miles of major air bases in coastal areas.

(3) Before each mission, the spotter should inform the NGFS ship that a "SAVAPLANE" has been issued for the mission. This is similar to a "Notice to Airman", and indicates to the ship that all appropriate aviation agencies have been notified of the impending mission. It includes the grid squares of the ship and target, the time firing is to begin, the time firing is expected to cease, and the maximum ordinate (vertex) of the projectiles. If "SAVAPLANE" information is not provided, the ship should ask the spotter whether the notice has been issued for the mission. Aircraft are required to report to the DASC of the area through which they are to fly to determine if a "SAVAPLANE" is in effect; they are required to remain clear of "SAVAPLANE" areas.

10. LOGISTICS.

a. The cruisers and destroyers of CTU 70.8.9 get their logistical support through UNREP provided by specific task groups. Because of distances involved and other commitments of the task group, NGFS ships may be required to leave the gunline for considerable periods for UNREP. The question of when and how often to leave the line is sometimes difficult and no hard-and-fast rules can be made.

b. Spotters or supported commanders are seldom in a position to judge a ship's logistical requirements. Therefore, it is highly desirable that an early agreement be reached between the ship and the supported unit concerning off-the-line UNREP periods. If agreement cannot be reached, CTU 70.8.9 must be

informed early enough to take appropriate action.

c. Ships do not leave the gunline for UNREP simply because services are available; such actions are not within the spirit of NGFS responsiveness to the ground commander. CTU 70.8.9 ships are authorized direct communication with the logistical task group in all matters relating to UNREP. Every effort is made to forecast requirements to permit orderly planning for UNREP to avoid high-speed, disrupting transits for emergency UNREP. Ships coordinate UNREP planning with NGLO/spotter and use the fastest prudent speed for transits to and from UNREP.

d. To insure an ammunition reserve for self defense and emergencies, whenever any type of gun ammunition is expended to 25% of allowance, that type will be placed in emergency-use-only status. CTU 70.8.9 and NGLO/ spotters should be notified at that time. CTU 70.8.9 may waive the emergency-use-only restriction when the situation warrants.

11. DEPARTURE FROM THE NGFS AREA.

a. Ships will notify the supported unit spotter as early as possible, and not later than 12 hours before departure, of required time of departure for UNREP and the estimated time away from station. In case of emergency or high-priority fire mission, ships will modify times of departure or return or, if necessary, cancel any UNREP, except for an emergency requirement.

b. Not later than 12 hours before final departure from station, ships will notify the supported unit spotter of expected time of departure and whether a relief ship is available. A ship will not depart from its station until completion of any mission that may be in progress and until release by the spotter has been obtained. If a release by the spotter cannot be obtained, CTU 70.8.9 must be informed early enough to take appropriate action.

12. SHIP, GUN, AND AMMUNITION CHARACTERISTICS.

The diversity of ships, guns, and ammunition used in providing NGFS offers considerable flexibility, both to the gunline and ground commanders. Certain characteristics of these items which may be of interest, particularly to ground commanders, are included as;

Appendix 1- Characteristics of NGFS Ships and

Appendix 2 - Characteristics of Naval Ammunition

NVA and VC Weapons



Characteristics of NVA & VC Smallarms

During the early war years, the VC relied on a mix of weapons from various sources; captured French and Japanese weapons, US made .30 caliber M-1 (semi-automatic) and M-2 (semi- and full automatic) carbines and the .45 caliber Thompson M1928A1 as well as other SMG's such as the 9mm MAT-49 and the 7.62mm PPSh-41. Many of these weapons came by way of capture as well as international arms sales. However, as supplies from the North began to filter down into RVN, new weapons from the Russians and Chinese began to make their appearance.

Synonymous with the NVA regulars and Vietcong Mainforce units, the basic infantry weapon was the Soviet 7.62mm AK-47 assault rifle, or the Chicom copy Type 56. Whilst the Chicom Type 56 was the predominant rifle, the weapon was referred to generically as the AK-47 irrespective of the country of origin. Capable of firing semi- or full automatic at the flip of a switch the AK-47 was issued in several different configurations.

Almost as equally widespread as the AK-47 was the Soviet 7.62mm SKS carbine or Simonov, a semi-automatic rifle which was especially common amongst the regional and local VC forces.



Left to Right: SKS carbine, RPD LMG, AK-47

By the time of the Tet offensive in 1968, the NVA and Main Force VC were almost universally armed with modern Soviet or Chicom weapons although the regional and local VC forces still carried weaponry of mixed vintage. Main Force VC units around 1965 - 1966 were generally armed in the same manner as

their NVA counterparts and there is much evidence which exists to suggest that Main Force VC consisted of substantial numbers of early war NVA regulars.

Apart from the increasing availability of the AK-47 and the SKS as the war progressed, another more important consideration prompted their adoption as the standard infantry weapons - that of ammunition. Both weapons use the Soviet 7.62mm M43 or Chicom Type 56 cartridges. Other weapons, whilst reasonably prolific, nonetheless presented logistical problems in that not only did they comprise a mix of calibers but even weapons of the same or similar caliber required separate ammunition types.

Standardisation around the 7.62mm M43 also suited the NVA/VC in their choice of squad support weapons since the excellent Soviet 7.62mm RPD light machine gun (Degtyarev) and it's Chicom counterpart, the light machine gun Type 56, used the same M43 ammo load as the AK-47 and SKS carbine.

Larger caliber machine guns, such as the 7.92mm Chicom Type-24 heavy machine gun, were, for the most part, employed in defensive positions and used as anti-aircraft weapons as well as in a ground support role. Many of these weapons were mounted on metal or rubber wheels in order to aid their crews in deployment while others were carried by one man or a crew of two or more. These weapons were considered as particularly high priority for Allied Gun Ships attempting ground suppression and as a consequence were often employed in operations quite near to the border so that they could be extracted from an AO reasonably rapidly.

A mark of rank amongst the NVA and VC (indeed as in most armies) pistols and revolvers were carried by officers, political staff and occasionally by senior NCO's. The two most common weapons were the 7.62mm Soviet TT-33 Tokarev and the 9.5mm Makarov automatic pistols.

Although VC and NVA units carried infantry anti-tank weapons they were used more in the role of anti-personnel than anti-armour. The most common were the Soviet RPG-2 and the Chicom copy Type-56. A more modern weapon, the Soviet RPG-7 (Chicom copy Type-69) was also widely used and particularly effective against the aluminium hulled US M-113.

All of these weapons were 40mm and capable of penetrating up to 6" of armour at ranges of 100 - 500 meters. Ammunition however differed, with the RPG-2 round being fin-stabilised while the RPG-7 round was finless. One interesting feature of RPG-2 is that they could only be shoulder fired right-handed since the vent for the blast was located on the right hand side of the weapon itself close to the firing mechanism housing which would be lethal to a left-handed user.

Both the VC and the NVA were renowned for their skill with mortars. These varied from 60mm to 160mm but by far the most common were the Soviet 82mm M-1937 and the Chicom copy Type-53. Both of these had a range of just over 3kms. Comprising a sight, tube, bipod and base plate (total weight of 123lbs) the weapon required a crew of three, usually with a fourth crew member acting as an additional ammo carrier.

Another popular mortar was the French made Stokes-Brandt 60mm M-1935 and various copies of this weapon including the US 60mm mortar M-2 and the Chinese 60mm Type-31. All three of these fired any type of 60mm ammunition and with a total weight of around 40lbs could be ported by a single man, however a crew of two was normal.

Irrespective of the weapon carried and it's source, NVA units infiltrating into RVN were, by 1965, adequately armed for confrontation with Allied infantry. By 1967 the VC were also carrying a substantial number of modern arms. Where both the NVA and the VC lacked firepower was in their absence of supporting fire from artillery, air and armour and these particular systems the US had in abundance.

AK-47 7.62mm ASSAULT RIFLE



Easily recognised with its high front sights, large selector/safety switch on the right side and the long, curved banana magazine, this is the Soviet version with a conventional wooden buttstock. The AK-47 is a gas-operated, magazine-fed rifle which has a semiautomatic ROF of 40 rounds (effective range about 400 meters), increasing to 100 rounds on fully automatic (effective range about 300 meters). It has a 30 round detachable box magazine. Renowned for it's durability, the AK-47 is shorter and heavier than the M-16 but with a lower ROF and muzzle velocity.

PAGE TOP

SIMONOV 7.62mm SELF-LOADING RIFLE (SKS)



A 7.62mm semi-automatic carbine with an effective range of 400 meters, the SKS has a 10 round integral magazine and an ROF of 30-35 rounds per minute. The SKS resembles a conventional bolt

action rifle but is equipped with an integral folding bayonet under the muzzle. Used extensively by the VC, it weighed 3.86kg, had a length of 1020mm and a muzzle velocity of 735m per second.

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RPD-7.62mm GPMG



The standard infantry squad support weapon, the RPD was analogous to the US M-60 and fired a 7.62mm slug from a 100 round belt which was usually contained in a drum mounted below the gun. The drum itself could be changed in a matter of seconds by an experienced gunner and protected the ammo from dirt and hence jamming. With a maximum rate of cyclic fire of about 150 rounds per minute, an effective range of 800m and rapid reload time, this light and uncomplicated weapon was capable of laying down sustained heavy fire. The gunner was usually accompanied by an assistant acting as an ammo carrier, loader and capable of taking over as the primary gunner in the event of the main gunner becoming a casualty. The RPD was approximately 1036mm in length (521mm barrel) and had a muzzle velocity of 700m per second.

PAGE TOP

PPSh-41 7.62mm SMG



The weapon had a fire-rate selector lever positioned just in front of the trigger, allowing the rate of fire to be changed rapidly without the weapon moving off the point of aim. The two-piece bolt handle allows the bolt to be locked in either the forward or the rear position. The original weapon had two different magazines; a 71-round drum or a 35-round box. The drum magazine seems to have fallen out of favour, and most of this type of weapon seen in Vietnam used the box. This may have been a result of the Chinese connection. The PRC Type 50 SMG differed only slightly from the PPSh41, mainly in that it only fitted the 35-round box magazine. The most interesting variant of the weapon was the K50M, which was a Vietnamese modification of the Type 50. The Vietnamese removed the wooden butt stock and replaced it with a wooden pistol grip and a French-style sliding wire butt stock similar to that on the

MAT49. At the front end of the weapon, they shortened the perforated barrel jacket, left off the muzzle brake, and attached the foresight to the barrel, giving the gun a shape strongly reminiscent of the MAT49. The K50M ended up being about 500 g (1.1 lb) lighter than the PPSh41 at 3.4 kg (7.5 lb) as opposed to 3.9 kg (8.6 lb). The weapons were all blowback operated and had an effective range of about 150 m (164 yd).

PAGE TOP

MAT49 modified 7.62mm SMG



Produced by the *Manufacture d'Armes de Tulle* (MAT) in 1946 and using the 9mm Parabellum cartridge this SMG was adopted by the French Army in 1949 (hence the designation MAT49). The weapon was widely used by French forces in Indo-China and many found their way into the hands of the Vietminh and eventually the Viet Cong.

The Vietnamese modified the weapon to fire the Soviet 7.62mm x 25P ammunition and it's PRC equivalent by fitting a longer 7.62mm barrel. However, they did keep all the essential features of the MAT49 except for replacing the 32-round box with a 35-round magazine.

One of the remarkable features of the weapon was the sliding wire butt stock which could be pushed forward out of the way for carrying and pulled to the rear if it was to be used in firing. The magazine housing on the receiver could be rotated forward through 90-degrees (even with the magazine fitted) to lie along the barrel. These features made the MAT49 particularly suitable for troops who required compactness in carriage.

At the back part of the pistol grip was a grip safety, which was operated by the action of squeezing the pistol grip when firing a round. This released the safety catch. When the grip safety was not squeezed, it locked the bolt in the forward position, and locked the trigger when the weapon was cocked. The lock was released by the pressure of the palm of the hand. The weapon could not be accidentally discharged.

The Vietnamese modification increased the cyclic rate of fire from 600-rounds per minute to 900-rpm.

PAGE TOP

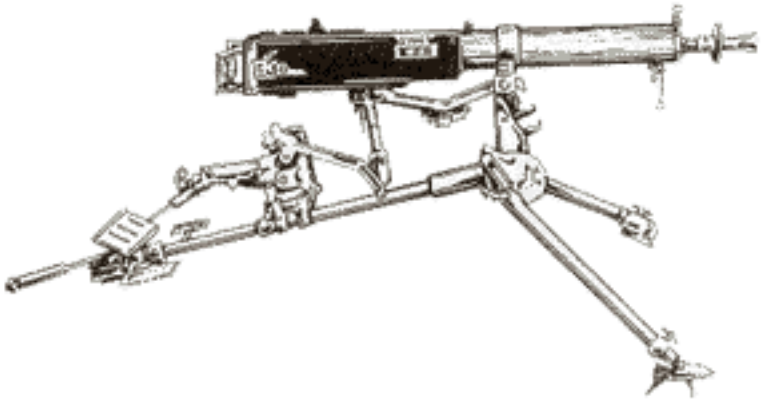
Chicom Type-56, 7.62mm ASSAULT RIFLE



The Chinese copy of the original Soviet AK-47, the Type-56 has a folding metal stock.

PAGE TOP

Type-24, 7.92mm HEAVY MACHINEGUN



A Chinese copy of the German WWI vintage Maxim machine gun often used in an air defence role.

PAGE TOP

RPG-7 ROCKET LAUNCHER



The RPG-7 (CHICOM Type-69) is a muzzle loaded, shoulder fired antitank grenade launcher. The VC and NVA used the RPG7V, a Soviet produced short-range, anti-armour, rocket-propelled grenade, from

1967 against armoured vehicles, defensive positions, personnel and even helicopters. This smoothbore, recoilless weapon consists of a launcher tube fitted with a simple iron sight or a more sophisticated telescopic range-finding sight, and a HEAT rocket grenade projectile with a caliber of 40mm. The RPG-7 has an effective range of 300 meters against moving targets and up to 500 meters against stationary targets. The projectile explodes either on impact or at its maximum range of 920 meters.

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TOKAREV TT33 7.62mm AUTOMATIC PISTOL



First introduced in the 1930's and utilising the self-cocking design from Colt, the Tokarev TT33 was used extensively by Soviet forces in WWII and was produced in nearly all Warsaw Pact countries and the PRC.

The Chinese Type-54 could be distinguished from the Soviet TT33 by the serrations on the slide and by the Chinese ideograms on the pistol grip (the Soviet weapon had a star in the center of the pistol grip). The Soviet TT33 had alternate narrow and wide vertical cuts, whereas the Type-51 and Type-54 had uniform narrow markings, to aid gripping the slide when manually cocking the weapon.

There was no safety mechanism but the hammer could be locked at half-cock and the weapon was normally carried around with a round in the chamber.

Production of the weapon in the USSR stopped in 1954, but continued in other Communist countries, notably the PRC. The pistol was widely used by VC and NVA officers.

The Tokarev TT33 fired the Soviet 7.62-mm x 25 Type-P pistol cartridge. It operated on a recoil single action and was semi-automatic, feeding ammunition from an 8-round box magazine. Maximum ROF was 32-rpm and with a maximum effective range out to about 50-meters.

The pistol was quite heavy, weighing about 1-kg (2.2-lbs) when loaded and was 196-mm (7.72-inches) in length.

PAGE TOP

MAKAROV PM 9mm AUTOMATIC PISTOL



The Pistolet Makarov (PM) replaced the Tokarev in the early 1950’s in the Warsaw Pact countries and was produced in the PRC as the Type-59. originally copied from the West German Walther PP (police pistol) of the 1930’s the Makarov was chambered for the 9-mm round rather than the 7.65-mm cartridge of the original pistol and used Soviet 9-mm x 18 ammunition rather than the original NATO 9-mm x 19.

Following it's introduction the Makarov became the standard pistol in most Euro-Asian Communist forces.

The pistol was operated by a blowback, self-loading double action, and loaded from an 8-round box magazine. It measured 160-mm (6.3-inches) in length and weighed 800-grammes (1.8-lbs) when loaded.

The pistol grip was slightly bulky, making firing it a little uncomfortable. Soviet manufactured weapons had a star in the center of the pistol grip. There was a simple safety catch at the rear of the slide, and a slide stop on the outside of the receiver, both of which could be operated by the firer’s thumb if right handed.

PAGE TOP

If you have any further information, or you know where I can find more information then please contact me



Sources:

David Rosser-Owen, *Vietnam Weapons Handbook*, Patrick Stephens Ltd., 1986, ISBN 0-85059-838-9
J.I.H.Owen (Editor), *Warsaw Pact Infantry and it's Weapons*, Brassey's Publishers Ltd., 1976, ISBN 0-904609-03-0
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DELTA MIKE 2

Recollections of a Veteran



'Delta Mike 2' is a Veteran who served two tours in RVN. His first tour was as a grunt with the 1st Infantry Division, 'The Big Red One'. His second as an MP in the 716th MP Battalion in Saigon and the Delta. I have been corresponding with him for a while and after giving the idea much thought, he has agreed to allow me to publish his writing on GRUNT! and I am much indebted. These are his thoughts, memories and observations about the War - presented from his own personal perspective. Please respect them for what they are. 'Delta Mike 2' wishes to maintain his anonymity, and in respect of that I have referred to him by using part of his RVN radio call sign and have deliberately edited some of the passages which could be used to identify him. Please respect his privacy. If you have any comments about the contents of these passages then please contact me by email.



- Steel Pots and the Poppa-san Squat (27th Jan 2001) - trusty GI headgear
- Sixth Sense & Other Stuff (25th Nov 2000) - answers to questions about NDP's
- Weapons and Penetration (28th Oct 2000) - punching holes through walls in RVN
- Rubber Plantations (2nd Sept 2000) - observations on a common terrain feature
- The Sixth Sense (8th July 2000) - the development of a combat 'instinct'
- Highway 13, Thunder Road (24th June 2000) - providing route security on QL#13
- Beans, Incoming & Stuff 10th June 2000 - general observations
- Friendly Fire (15th May 2000) - on the receiving end of US friendly fire
- GI Beans and GI Gravy (29th April 2000) - life in the field
- Ammo Loads Part 2 (15th April 2000) - 'more is better'
- Ammo Loads (1st April 2000) - the GI's could never carry enough
- Uniforms of the ARVN (8th Jan 2000) - a brief guided tour
- Critters Part II - Dopey & Dummy (8th Jan 2000) - attacked by NVA lizards
- Critters Part I (11th Dec 1999) - the enemy were not always the biggest problem
- Air Assault Part 3 (27th Nov 1999) - at the LZ
- Air Assault Part 2 (13th Nov 1999) - approaching the LZ
- Air Assault Part 1 (23rd Oct 1999) - preparations at the PZ
- US Ambush Patrols (18th Sept 1999) - preparation for an ambush
- US Infantry Radio Communications (21st August 1999) - call signs and methods
- US Organisation & Equipment (7th August 1999) - no wonder they were called Grunts!
- VC/NVA in the Wire (26th June 1999) - attacks on base camps and NDPs

- VC/NVA PART 3 (19th June 1999) - further observations on the enemy
- VC/NVA PART 2 (12th June 1999) - a look at Main Force VC
- VC/NVA PART 1 (5th June 1999) - introduction to the enemy
- GENERAL OBSERVATIONS PART 1 (5th June 1999) - introductions

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VC Main Force & NVA ORDER OF BATTLE 1967



I CORPS

2nd NVA Div.
324B NVA Div.
325th NVA Div

II CORPS

1st NVA Div.
3rd NVA Inf. Div.
5th NVA Inf. Div

III CORPS

5th VC Inf. Div.
7th NVA Inf. Div.
9th VC Inf. Div.

INTRODUCTION

I have detailed below the Order of Battle for NVA and VC units in the four Tactical Zones for the year 1967. This is by no means a definitive listing, no OOB ever can be so use it with that in mind. I am always looking for new information so if you have any, or it contradicts what is here, then please contact me so that I can build a table of footnotes - you will be credited with the contribution.

Similarly, if you know of OOB's for other years then please let me know as it would be really interesting to build up a picture spanning the entire conflict.

I CORPS

UNIT	STRENGTH	LOCATION
2nd NVA Div.	6450	
1st VC Inf. Regt. (40th, 60th, 70th and 80th Batt's)	2000	Quang Ngai, Quang Tin, Quang Nam
3rd NVA Inf. Regt. (1st, 2nd and 3rd Batt's)	1300	Quang Tin, Quang Nam
21st NVA Inf. Regt. (1st, 2nd and 3rd Batt's)	1500	Quang Tin, Quang Nam
2nd VC Inf. Regt. (1st, 2nd and 3rd Batt's)	1650	Quang Ngai, Binh Dinh
324B NVA Div.	7800	

803rd NVA Inf. Regt. (1st, 2nd and 3rd Batt's)	2600	Quang Tri
812th NVA Inf. Regt. (4th, 5th and 6th Batt's)	2600	Quang Tri
90th NVA Inf. Regt. (7th, 8th and 9th Batt's)	2600	Quang Tri
325th NVA Div.	7790	
101 D NVA Inf. Regt. (1st, 2nd and 3rd Batt's)	1800	Quang Tri
95C NVA Inf. Regt. (4th, 5th and 6th Batt's)	1550	Quang Tri
18C NVA Inf. Regt. (7th, 8th and 9th Batt's)	1650	Quang Tri
5th NVA Inf. Regt. (814th Sapper Batt. and 416th Batt.)	1390	Quang Tri
6th NVA Inf. Regt. (800th, 806th NVA Batt's. and 802nd VC Batt.)	1400	Quang Tri, Thau Thien
NON-DIVISIONAL UNITS (3200)		
1st NVA Batt., 31st Inf. Regt., 341st NVA Div.		Quang Tri / DMZ
2nd NVA Batt., 31st Inf. Regt., 341st NVA Div.		Quang Tri / DMZ
402nd VC Sapper Battalion		Quang Nam
120th VC Montagnard Inf. Battalion		Quang Ngai
409th VC Sapper Battalion		Quang Ngai
804th VC Inf. Battalion		Thua Thien
808th VC Inf. Battalion		Thua Thien
810th VC Inf. Battalion		Thua Thien

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II CORPS

UNIT	STRENGTH	LOCATION
1st NVA Div.	9525	

32nd NVA Inf. Regt. (334th, 635th and 966th Batt's.)	1760	Pleiku
66th NVA Regt. (7th, 8th and 9th Batt's.)	1700	Kontum
88th NVA Inf. Regt. (K4, K5 and K6 Batt's.)	1880	Pleiku
24th NVA Inf. Regt. (4th, 5th and 6th Batt's.)	1500	Kontum
33rd NVA Inf. Regt. (K1 and K3 Batt's)	860	Darlac
95B NVA Inf. Regt. (4th, 5th and 6th Batt's.)	1825	Pleiku
3rd NVA Inf. Div.	2870	
18th NVA Regt. (7th, 8th and 9th Batt's.)	1170	Binh Dinh
22nd NVA Inf. Regt. (7th, 8th and 9th Batt's.)	1700	Binh Dinh
5th NVA Inf. Div.	3620	
95th NVA Inf. Regt. (4th, 5th and 6th Batt's.)	1700	Phu Yen
18th NVA Inf. Regt. (7th, 8th and 9th Batt's.)	1920	Khanh Hoa
NON-DIVISIONAL UNITS (2290)		
30th VC Inf. Battalion		Phu Yen
95th NVA Arty. Battalion		Phu Yen
145th VC Arty. Battaliion		Lam Dong
186th VC Inf. Battalion		Lam Dong
407th VC Sapper Battalion		Pleiku
840th VC Inf. Battalion		Binh Thuan

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III CORPS

UNIT	STRENGTH	LOCATION

5th VC Inf. Div.	3300	
27th VC Inf. Regt. (1st, 2nd and 3rd Batt's.)	1650	Phuoc Tuy
275th VC Inf. Regt. (1st, 2nd and 3rd Batt's)	1650	Phuoc Tuy
7th NVA Inf. Div.	5250	
141st NVA Inf. Regt. (1st, 2nd and 3rd Batt's.)	1800	Tay Ninh
165th NVA Inf. Regt. (1st, 2nd and 3rd Batt's.)	1950	Tay Ninh
52nd NVA Inf. Regt. (3 unidentified Batt's.)	1500	Tay Ninh
9th VC Inf. Div.	10260	
271st VC Inf. Regt. (1st, 2nd and 3rd Batt's.)	1300	Phuoc Long
272nd VC Inf. Regt. (1st, 2nd and 3rd Batt's.)	1070	Binh Long
273rd VC Inf. Regt. (1st, 2nd and 3rd Batt's.)	1100	Long Khanh
2nd VC Inf. Regt. (267th and 269th Batt's.)	1200	Hau Nghia
69th VC Arty. Regt. (52nd and 58th Arty, and 56th AD Batt's.)	1700	Tay Ninh
70th VC Inf. Regt. (D!, D2 and D3 Batt's.)	1450	Tay Ninh
84th NVA Arty. Regt. (1st, 2nd and 3rd Rocket Batt's.)	1200	Long Khanh
101st NVA Inf. Regt. (1st, 2nd and 3rd Batt's.)	1240	Tay Ninh
NON-DIVISIONAL UNITS (2380)		
C10 VC Sapper Battalion		Binh Duong
Dong Nai VC Inf. Battalion		Long Khanh
1st VC Inf. Battalion		Hau Nghia
8th VC Arty. Battalion		Binh Duong
46th VC Recon Battalion		Tay Ninh
725th NVA Sapper Battalion		Tay Ninh

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IV CORPS

D 509th VC Inf. Battalion		Vinh Binh
D 857th VC Inf. Battalion		Sa Dec
D 7164th VC Inf. Battalion		Bac Lieu
Tay Do VC Inf. Battalion		Phong Dinh
U Minh 2nd VC Inf. Battalion		An Xuyen
U Minh 10th VC Inf. Battalion		Kien Giang
501st VC Inf. Battalion		Vinh Binh
503rd VC Inf. Battalion		Kien Phong
504th VC Inf. Battalion		Kien Tuong
512th VC Inf. Battalion		Chau Doc
514th VC Inf. Battalion		Dinh Tuong
516th VC Inf. Battalion		Kien Hoa

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SOURCES

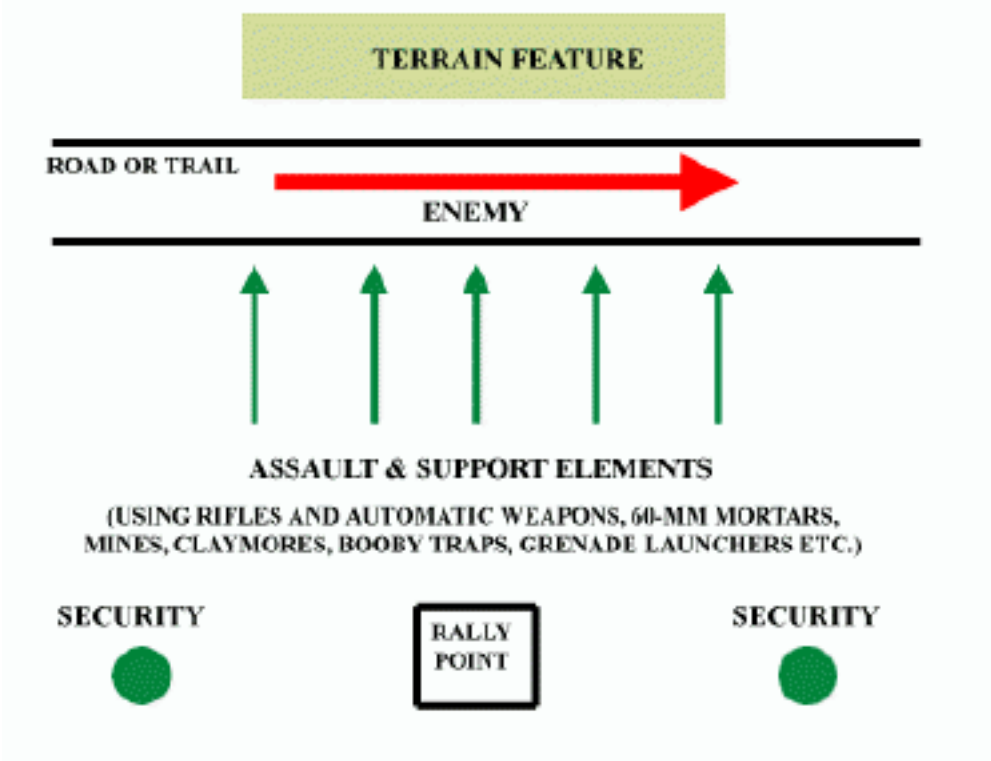
Inside the VC and the NVA, Michael Lanning & Dan Cragg, Ballantine Books, 1992, ISBN 0 8041 0500 6

US Ambush Operations



AMBUSH FORMATIONS

LINEAR AMBUSH



In this ambush formation, maximum use is made of terrain features which block the enemies escape from the killing zone. Security elements guard the flanks of the assaulting and support elements so that even if the lead and tail elements of the enemy force are outside of the killing zone and attempt to flank the assault force they will be engaged.

Al Baker wrote,

> In a linear ambush I would build a ring main on the far side of the kill zone. The ring main was made with a web of hand grenades linked together with detonation cord so they would explode simultaneously. The firing mechanisms were unscrewed and removed, non-

electric blasting caps crimped on det cord replaced them. The grenades were strung in trees on the far side of the linear ambush giving air burst effects to the grenades. It was very effective.

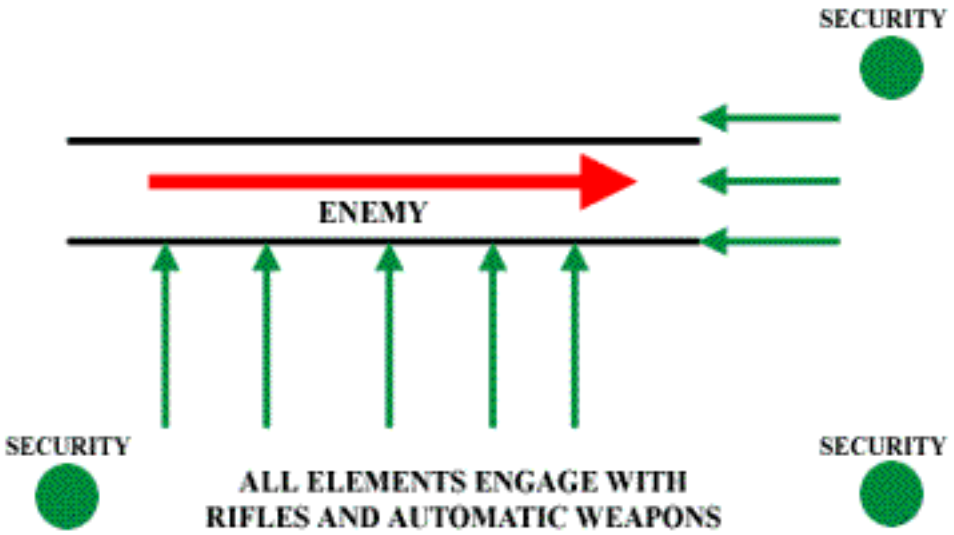
The Point and Ambushes

The North Vietnamese Army's tactic of ambushing the point unit of a rifle company was extremely effective, and unless immediate action was taken by the friendly unit, heavy casualties could result. If the enemy chose to stand and fight after springing an ambush, supporting arms would usually be used. If the enemy retreated, that was normally the end of the encounter because of the extreme difficulty in conducting a pursuit in dense jungle. In any event, the point squad leader had be able to relay to the company commander, via the platoon leader, an accurate estimate of the situation. Fire superiority had to be gained as soon as possible by the point element. Though this may appear difficult, small arms fire, LAW's, M- 79's, and hand-grenades fired in the direction of the enemy would usually do the job. By the time fire superiority was gained, the platoon leader would be up front communicating with the company commander concerning his estimate of the situation. As most ambushes of this nature took place at extremely close ranges, the leading elements usually had to withdraw a considerable distance if supporting arms were to be employed.

Before moving into an area where an ambush was likely, it was a good idea to consider the following:

- Brief the point in detail of what actions were to be taken upon ambush include details on when to commence the attack or withdrawal in countering the ambush.
- Inform supporting arms of the patrol route and plan concentrations on likely trouble spots.
- Always know the location of the point so no time was lost in adjusting supporting arms.
- Have a workable casualty evacuation system.
- Consider having the point reconnoiter danger areas by fire. This usually caused NVA units to flee or spring the ambush prematurely.

L-SHAPED AMBUSH



In the 'L' shaped ambush the head of the enemy force takes fire from both front it's front and flank whilst the rest of the enemy element is engaged along it's length. Note the use of three security elements which guard all flanks of the ambush position.

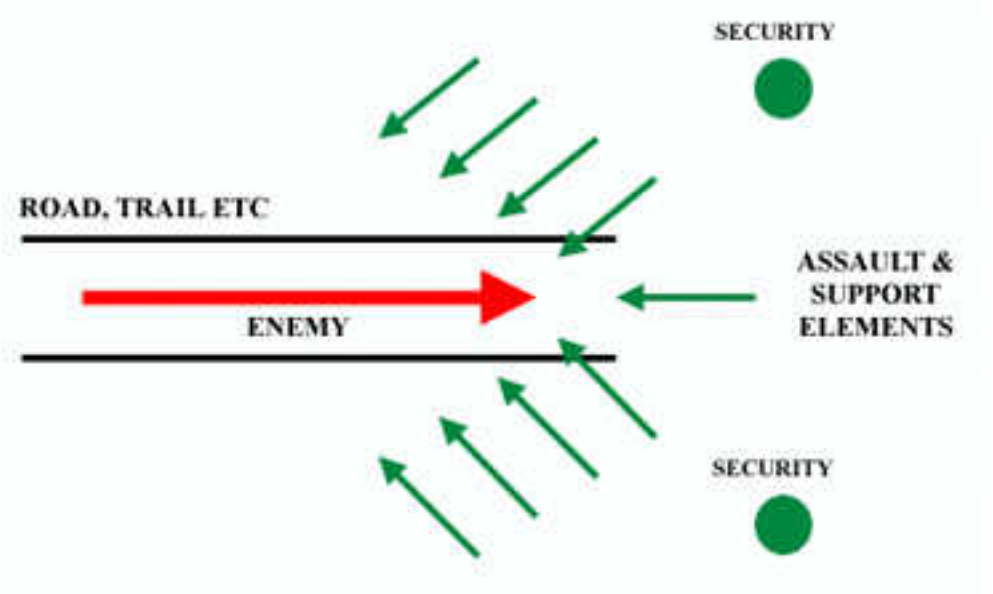
Al Baker wrote,

> We used lots of Claymore mines in the kill zone and to protect the security elements. In the killing zone the machine guns were sighted in so that the long axis of the beaten zone would coincide with the long axis of the enemy. This meant the that those guns would be firing parallel to the friendly troops.

Delta Mike 2,

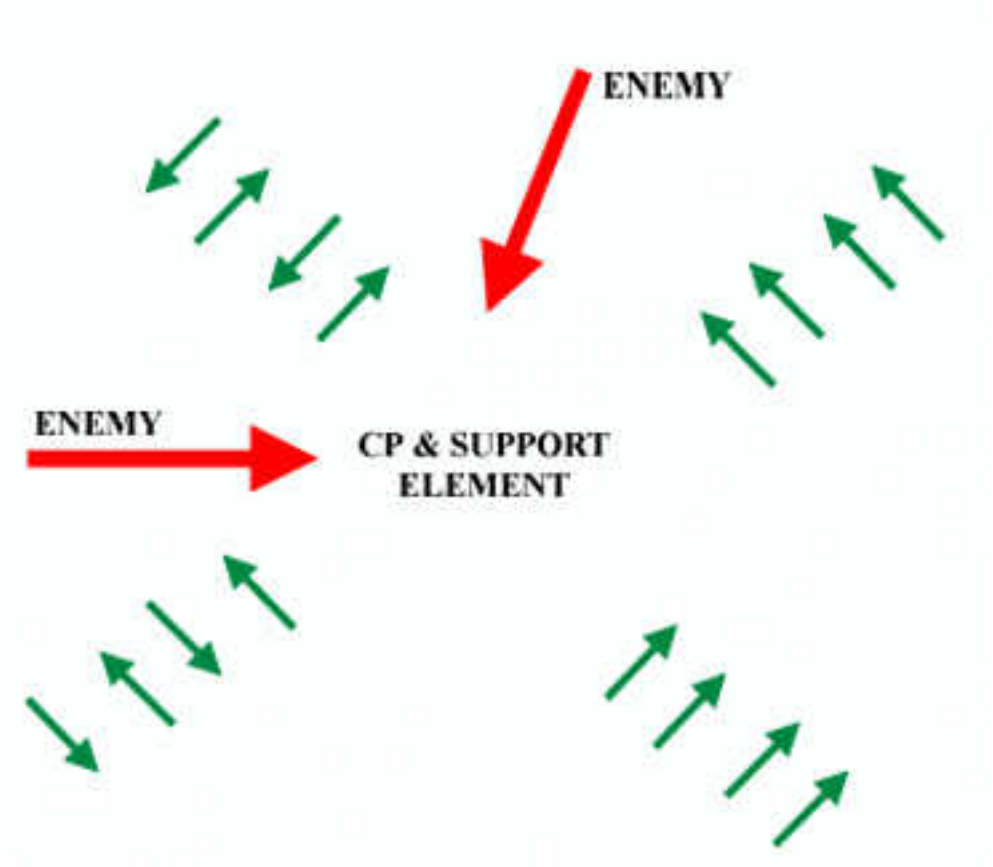
> "... we used the 'L', with the MG at the short end of the 'L', shooting down the length of the enemy unit and almost always used at roads and trails... "

V- SHAPED AMBUSH



In this ambush formation maximum fire is delivered against the head of the enemy force.

PIN-WHEEL AMBUSH



The Pin-Wheel formation is essentially a combination of two 'V' formations and could be employed at road or trail junctions, or in jungle areas. In this formation the enemy can approach from any direction

and still be ambushed. Where an element has it's 'back' to the enemies line of approach then the ambushing force turns alternating troops in the element to engage the enemy (as in the South west and North West arms of the wheel in the diagram above).

In order to provide effective and secure Command and Control, as well as Support in all directions, the CP and Support Element are deployed in the center of the ambush position.

It has been pointed out by a number of Veterans that this particular formation may well have looked good on paper but was, in their experience, never used and particularly dangerous and likely to cause friendly fire casualties;

Delta Mike 2 wrote,

> "I can say this right away; I am glad that I never saw a pin-wheel ambush in use! It looks like a bad, bad, bad accident waiting to happen! Too much high velocity lead and other lethal stuff flying about addressed 'Return to Sender' in addition to whatever the gooks managed to deal out.
>
> The pin-wheel ambush had to designed by some lifer fighting from behind a desk in the Pentagon. It is one of the better pieces of Vietnam fantasy that I have ever come across."

Al Baker, B Company Commander, 4/9 Infantry, wrote,

> "I never saw a pin wheel and never hope to. Especially in limited visibility you need to do all you can to prevent fratricide. So you never want friendly fire going in the direction of friendly forces. Our bullets will kill our troops the same as enemy fire..."



BACK TO TACTICS

Sources:

Vietnam Lessons Learned No. 39: Ambush Operations. US Army Military Assistance Advisory Group Vietnam (MAAG), March 1964.

Al Baker, B Company Commander, 4/9 Infantry, 25th Infantry Division, RVN, 67-68.

Fleet Marine Force Reference Publication (FMFRP) 12-40, Professional Knowledge Gained from Operational Experience in Vietnam, 1965-1966

Fleet Marine Force Reference Publication(FMFRP)12-41,Professional Knowledge Gained from Operational Experience in Vietnam, 1967

See also;

The full texts of both Al Baker and 'Delta Mike 2' regarding US Ambushes as detailed in Lessons Learned No. 39

After Action Report



Number One

DEPARTMENT OF THE ARMY
22d Military History Detachment
101st Airborne Division (Airmobile)
APO San Francisco 96383

SUBJECT: Combat After Action Interview Report

1. **Name and Type of Organization**: 1st Squad, 2d Platoon, Company C, 2d Battalion, (Airmobile), 327th Infantry.

2. **Date of Operation**: 19 December 1969.

3. **Location**: Grid ZD083004; Map, Phu Loc District, Vietnam, 1:50,000; Sheet 6541 I, Series L7014.

4. **Control Headquarters**: Company C, 2d Battalion (Airmobile), 327th Infantry.

5. **Persons Interviewed**: 2d Platoon, Company C, 2d Battalion (Airmobile), 327th Infantry.

NAME	RANK	AGE	JOB TITLE
Keller, Robert G.	1LT	25	Plt Ldr
Sprangenberg, Robert L.	SGT	21	Sqd Ldr
Hardison, Toney J.	SP4	21	Sniper
Cruz-Arroyo, Regino	SP4	25	Pt Man
Poe, Garret C.	SP4	21	Gun Tm Ldr
Ratcliff, Walton W.	SP4	20	M79
Sexton, Russell E.	SP4	20	M60
Cahoon, Clifford	PFC	20	Rifleman

Olmer, Donnie L.	PFC	19	M79
Garrick, Tommy D.	SGT	21	Rifle Tm Ldr
Kendrick, Richard D.	SGT	23	Slackman

6. **Interviewing Officer**: CPT S. V. Olive, Asst S3, 1st Brigade, 101st Airborne Division (Airmobile).

7. **Task Organization**: 1st Squad, 2d Platoon, Company C, 2d Battalion, (Airmobile), 327th Infantry.

a. 1 Patrol leader.
b. 1 M60 Machinegunner.
c. 2 M79 Grenadiers.
d. 1 Kit Carson Scout.
e. 1 Sniper
f. 11 Riflemen.

8. **Supporting Forces**:

a. 81mm mortar squad, E/2-327th Infantry.
b. C/2-320th Arty (105mm T) (DS)
c. B/1-39th Arty (155mm) (GSR).

9. **Background**: The 2d Platoon had been conducting night ambushes in the Phu Loc area to interdict enemy lines of supply, to deny the enemy an opportunity to obtain rice, and to provide security for the populated lowlands.

10. **Intelligence**:

a. Enemy - Information was gained from popular force soldiers (PF) that an unknown number of enemy soldiers had entered the village of Cau Hai two nights earlier for the purpose of gathering rice. No specific information as to identity, strength, organization, equipment or operating habits of the enemy was known. The villages in the immediate area were considered pacified and the populace was not considered sympathetic to the enemy forces. The village contained a sizeable amount of stored resources (rice and foodstuffs).

b. Terrain - The terrain was generally flat and consisted primarily of inundated rice paddies with interlacing dikes providing primary routes of movement. Vegetation consisted of hedgerows, rice stalks, brush and small trees (mainly fruit trees).

c. Weather - The prevailing light conditions for the night were: SS 1821 H, EENT 1911H, PMI 79% (although cloud and fog conditions created a moderate to heavy overcast) and the moon was in the first quarter and waning.

11. **Mission**: The mission of the 2d Platoon, Company C, 327th Inf (Airmobile) was to conduct night ambushes to interdict VC/NVA movement into the village.

12. **Concept of Operation**: One squad (reinforced) was deployed on the western edge of Cau Hai (ZD083004) to conduct a night ambush to interdict enemy movement into the village.

13. **Execution**:

a. A reconnaissance of the ambush position was conducted during the day prior to occupation of the site. Personnel conducting the reconnaissance included the platoon leader, platoon sergeant, squad leaders, radio operators, and one man for each of the positions to be occupied during the ambush. The actual position sites were reconnoitered while moving through the area during a routine patrol. Each patrol member was briefed beforehand and made mental notes enroute without stopping or otherwise drawing undue attention to his actions. The location of the ambush position was selected based on a calculation that the enemy would most likely travel along the main trail located to the S and SW or from the west along the paddy dikes. The primary killing zone was oriented to the S and SW (See Inclosure 1: Map of Ambush Site).

b. Following a final briefing, Sergeant Sprangenberg's patrol begin its movement to the ambush position at approximately 1855 hours. Moving by a direct route, in file formation, the patrol was concealed by heavy overcast and vegetation, arriving at the pre-selected ambush site at approximately 1915 hours. Occupation of the site was accomplished, and the personnel were established in final positions within ten minutes after arrival.

c. The ambush site was occupied by four separate team positions, the machine gun being located to cover the primary killing zone as well as a secondary route of approach from the west. Claymore AP mines were emplaced to cover the primary and secondary killing zones and were camouflaged with natural vegetation. Each team position was under the supervision of one designated trooper, and overall command and control was exercised by the patrol leader.

d. The exact tactical formation employed by the enemy could not be determined. It appeared that the point element, consisting of two or three men and restricted by a confining dike, was moving in file. Based or, the rapid return of RPG fire, it was evident that a supporting element was set up in a firing position to cover the point element. The enemy force consisted of at least seven men.

e. The only identifiable weapons employed by the enemy were AK47s and RPGs. Enemy noise discipline was excellent; however, light discipline was extremely poor. The enemy's use of a flashlight (believed to be a signal device) confirmed the point element's presence and identified its location.

f. The enemy's weakness lay in his selection of a route of movement. His strong points were dispersion, stealth, and accurate and responsive supporting fire.

g. The first sighting of the enemy occurred at 2130 hours, when one man from the rear security element observed movement on the dike to his right front. He quickly directed a trooper employing the night vision device to scan the suspected location and conformed the presence of two NVA/VC. At that time, the enemy personnel were stationary, apparently continuing their reconnaissance of the village to their front. The remainder of the US ambush patrol, already on 100% alert, began to scan the area for additional movement. Then, the lead enemy soldier appeared to signal with a flashlight toward his rear (west). Suddenly, he moved forward, appearing to have detected a Claymore mine. As he approached for a closer examination, the Claymore was detonated, and the patrol members delivered an instantaneous volume of grazing fire within their assigned sectors. Within a few seconds, the enemy returned fire with one enemy RPG round from the west, followed shortly afterward by two additional rounds. The enemy fire struck a house to the rear of the ambush site, injuring one Vietnamese woman. During the initial phase of the action, another enemy soldier was observed to the west, and engaged by M79 HE and M60 MG fire. Following a rapid estimate of the situation, the platoon leader requested 8lmm mortar, 155mm howitzer, and helicopter flareship support. The first 81mm mortar illumination was overhead in less than two minutes and the 155mm howitzer illumination in approx1imately three and one-half minutes. Unfavorable weather conditions precluded the employment of flareships, and hand-held flares were employed until 81mm mortar illumination was received. Although the enemy returned small arms fire, it was totally ineffective, and artillery blocking fires were employed to seal off the suspected enemy routes of withdrawal. Following a quick check of personnel and redistribution of ammunition, the ambush petrol conducted an aggressive sweep to locate any remaining enemy forces. The sweep revealed the bodies of two enemy engaged by the first Claymore, one NVA/VC body approximately 50 meters to the west who appeared to have been hit by a Claymore, and further west, another body also killed by a Claymore. One RPG round was found near the last body. When the patrol leader determined that no enemy remained in the area, he regrouped and relocated the patrol and had the slightly wounded civilian evacuated. At first light, another sweep was conducted with negative results. A combat tracker team was employed but was unable to discover the enemy's trail due to the high volume of civilian and animal traffic that had previously passed through the area. The patrol was subsequently debriefed and released for maintenance and rest.

14. **Results**:

a. Friendly losses: Stone (one VN civilian slightly wounded).
b. Enemy casualties: KIA - 4 (2 VC, 2 NVA)
c. Enemy equipment losses: 4 AK47s.

15. **Analysis**:

a. This contact was significant in that the enemy was engaged by the rear security element which accounted for the majority of enemy killed. Previous experience had demonstrated that, when the enemy was not engaged in the primary killing zone, the likelihood of a successful engagement was considerably reduced.

b. The ambush squad employed a high ratio of tracer to ball ammunition in all weapons. Squad and fire team leaders employed a 1:1 ratio, while riflemen employed either a 1:2 or 1:3 ratio. This combination of ball and tracer ammunition improved accuracy, fire distribution end control, individual confidence, and increased the psychological impact on the enemy.

c. The designation of one individual to control each team position facilitated commend and control.

d. The enemy employed the standard tactic of covering the movement of a small reconnaissance element with supporting weapons, which, in this action, consisted of one RPG launcher. The enemy supporting fire was immediately countered by M60 machine gun and M79 grenade launchers. The employment of an instantaneous heavy volume of grazing fire prevented the enemy from delivering accurately aimed RPGs.

e. The employment of a combat tracker team failed to produce positive resents since heavy human and animal traffic had passed through the area earlier in the day, making it impossible to isolate and follow enemy trails.

f. Secondary kill zones, properly covered by fire, provide significant results. In this case, a properly established rear/flank position effectively engaged the enemy without diverting assets from the primary killing zone.

16. **Summary**:

The success of this action is attributed to timely response to local intelligence, detailed planning, reconnaissance, position organization, the integration of organic and supporting weapons, effective command and control, and violent ambush execution and pursuit. The operation demonstrates the results of a well-planned and executed small unit action in the 1ow1ands area of Thua Thien Province, RVN.

s/Carl A. Wesneski
CARL A. WESNESKI
MAJ, Armor
Commanding

1 Incl
Schematic Drawing - Map of Ambush Site



Back to The War

See also:

US Ambush Operations - an examination of US Army ambush tactics and techniques

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EAGLE - FLIGHT

OPERATIONAL SUMMARY

The following is an operational summary of an actual Eagle Force operation carried out by the 21st Infantry Division, ARVN;

NAME: Duc Thang 17/42

DATE: 22 may 1963

PLACE: 21st Division tactical Area, Vicinity Bac Lieu, Ba Xuyen Province

CONTROL HQ: 21st Infantry Division

MISSION: 21st Division (-) attacks at 220700 May, north from Xom Phuoc Thanh to kill or capture enemy forces in the area; heliborne strike force "Eagle" attacks targets of opportunity.

NARRATIVE: The plan envisioned one battalion attacking on two "axes of advance", a Ranger Company in a mobile blocking role; one M113 company with one Ranger Company in a screening role and the 21st Division Reconnaissance Company and one Ranger Company as "Eagle" forces. The plan was considered to be tightly controlled for ground troops but extremely flexible in regards to use of "Eagle". The 21st Recon Co and the 362nd Ranger Co provided 40 selected personnel to be employed as the "Eagle" strike force hovering over the area of operation, prepared to strike targets of opportunity, block escape routes and reinforce units on the ground.

The "Eagle" force was divided into four 10 man squads, each squad wearing a distinctive colored scarf for identification and control purposes. Six (6) armed UH-1B's (escort) and four (4) unarmed UH-1B's (troop transport) were employed. "Eagles" mission were, blocking, searching, reconnaissance in force and attacking enemy troops flushed by foot troops.



The armed UH-1B's in addition to their normal mission of escort and close-in fire support, provided an excellent means of rapidly evacuating POW's from the area of operation. POW's were evacuated by the armed UH-1B's on their return trips from the area of operation for refueling. Evacuation thus relieved the ground units from having to sacrifice much needed troops for guard duty.

During this operation "Eagle" conducted seven landings, accounted for 32 enemy KIA and captured 21 prisoners. Ground units captured an additional 34 POW's. Armed UH-1B's of "Eagle" evacuated all of these prisoners.



BACK TO TACTICS

SOURCES

US Army Military Assistance Advisory Group Vietnam (MAAG) - Lessons Learned No. 32 Eagle Flight Operations (October 1963)

N. VIETNAMESE RANK INSIGNIA

INTRODUCTION

Prior to 1960 NVA Rank Insignia was displayed on both a collar tab and shoulder boards. In the early 1960's this was changed and rank insignia was then only displayed as a collar tab. However, NVA soldiers rarely wore any insignia of rank when in the field so as to avoid giving enemy intelligence any information should they be captured or killed in combat. Given a lack of distinguishing radio equipment and no visible rank insignia it was almost impossible to target NVA officers specifically. It was only due to the fact that officers (who were invariably cadre) led from the front that distinguished them from the rank and file soldiers.



Private 2nd Class



Private 1st Class



Corporal



Sergeant



Senior Sergeant



Student Officer
(Officer Candidate)



2nd Lieutenant



Senior Lieutenant



Captain



Senior Captain



Major



Lieutenant Colonel



Colonel



Senior Colonel



Major General



Lieutenant General



Colonel General



Senior General

SOURCES

Armies of the Vietnam War 1962-75, Men-At-Arms Series 104, P. Katcher & M. Chappel, Osprey (Reed International Books), ISBN 0-85045-360-7

Armies of the Vietnam War 2, Men-At-Arms Series 143, Lee Russell & M. Chappel, Osprey (Reed International Books), ISBN 0-85045-514-6

NVA Sappers



Sapper Attack

It was 24 February, 1969; the day of the planned attack had arrived. The objective had been painstakingly reconnoitered; detailed sketches made of all installations; natural and man-made obstacles plotted; mortar concentrations laid in, checked and rechecked; attack signal, password and signals for rally point and withdrawal memorized by all hands. Every conceivable detail was worked out, down to and including sand table briefings and several rehearsals on terrain similar to that of the target area. All was in readiness.

The attack forces moved out from their base camps at 0730, and using previously reconned routes executed a covered approach to final assembly areas. At 1800 all attack groups were 100 meters from the concertina wire obstacles, which encircled the objective. The time between 1800 and 0200, 25 February, was spent crawling to positions, which were just outside the defensive wire. Promptly at 0200 the mortar sections commenced their accurate fires on previously selected primary targets within the enemy position. The defender's mortar positions, command bunker, communication bunkers and artillery positions were singled out for accurate and intense fires. As the rounds were tubed, they could be heard by the defenders, and the incoming mortars were amazingly accurate. Aside from the damage and noise and confusion caused by the increasing volume of mortar fire, the defenders were forced to go to their bunkers. All positions had been painstakingly constructed for just such an eventuality. All individual crew-served positions had been overheaded and bulwarked with at least four layers of sand bags. The outboard defensive positions, or those that were on the perimeter, were not subjected to the same firepower as the key installations previously mentioned. The majority of mortar fire was placed on the inboard positions. The volume of fire increased as the gunners laid on previously observed and selected positions. The defenders would later wonder about this particular point. Why had not the perimeter positions, including the first line of passive obstacles and strong fortifications, been subjected to the same accurate mortar concentrations? They had not been overlooked however, the rationale of the assaulting units was based on several very fundamental and essential military considerations.

First, the so-called "key installations" were given the major attention. That is, the Command Operations Center (COC - the nerve center of the entire base); the mortar positions of the defenders; the ammunition bunkers; the Fire Direction Center; and the artillery battery. The latter, of course, was the focus of the attention on the majority of the attacking elements; "hill top" artillery had proved to be one of the

defender's key tactical innovations, and one which he had used consistently and with surprising success.

Secondly, the psychological factor of heavy volumes of fire being placed on key installations within the perimeter was a significant one. Personnel on the perimeter could see and hear these fires, and there were undoubtedly those who were wondering when their turn would come. It definitely contributed to a certain wariness and wonderment on their part.

Thirdly, under the cover of these fires, the assault elements made final preparations before breaching the fixed, defensive obstacles, rapidly penetrating all such outer defenses. And manifestly, fires placed on the perimeter positions would have interfered with such preparations and caused casualties to certain assault elements.

At 0215, as the mortar concentrations reached a crescendo, the assault groups commenced their efforts to breach the defensive obstacles. The initial assault wave came from the northeast and made liberal use of improvised bangalore torpedoes. These had been fashioned from ½-pound blocks of TNT, locked together in a row between bamboo sticks. The attack route lay trough one of the defender's trash pits. This proved to be an ingenious selection; there was a well-worn path from the dump to the defensive perimeter. The mortar fire on the defensive position was augmented by machine gun sections and rifle grenades. The dual effect of all these fires was a partial breaching of the defensive wire, and literally the deafening of a number of men on the defensive perimeter. A major contributing factor to the latter state was the fact that the artillery battery on this position had been firing missions for several hours in direct support of another defensive position approximately eight thousand meters to the northwest.

The primary attack was executed by three main groups. One was assigned the mission of assaulting and destroying the battery of facilities: Fire Direction Center, ammunition pits and the artillery pieces themselves. The second assault group was assigned the mission of assaulting and destroying the Command Operations Center and mortar positions. The third group was to converge on the landing zone and juncture with the other assault units to effect a mop-up. A fourth group was organized to function as an extraction force; this group was to assist in the withdrawal of those groups which assaulted the objective. The fifth group was the base of fire, which provided the supporting mortar, machine gun and rifle fires.

What have been described up to this point are the basic preparations and commencement of an actual NVA sapper attack on a Marine fire support base near the DMZ. A detailed examination, translation and analysis of documents found on the body of a sapper officer, within the perimeter, revealed the following organization of the primary assault elements:

GROUP 1

- Strength - 16 men divided into four teams led by Comrade An
- 1st Team - 4 men to attack the CP
- 2nd Team - 4 men, attack to the right and link-up with Comrade Bong at LZ

- 3rd Team - Attack to the left, advance to the LZ and link up with Comrade Tan
- 4th Team - Attack to the front
- 5th & 6th Teams - Group reserve

GROUP 2

- Strength - 15 Men, divided into four teams led by comrade Bong
- 1st Team - 4 men, attack and destroy Fire Direction Center
- 2nd Team - 4 men, attack artillery positions
- 3rd Team - 4 men, attack artillery positions
- 4th Team - 3 men, group reserve

GROUP 3

- Strength - 12 men, led by Comrade Tam
- 1st Team - 3 men, attack artillery positions
- 2nd Team - three men, attack to the left, advance and link-up with Pha (another attack group)
- 4th Team - 3 men, group reserve

The planned entry points, directions of the attack of the major attack groups and their objectives are indicated in Figure 1.

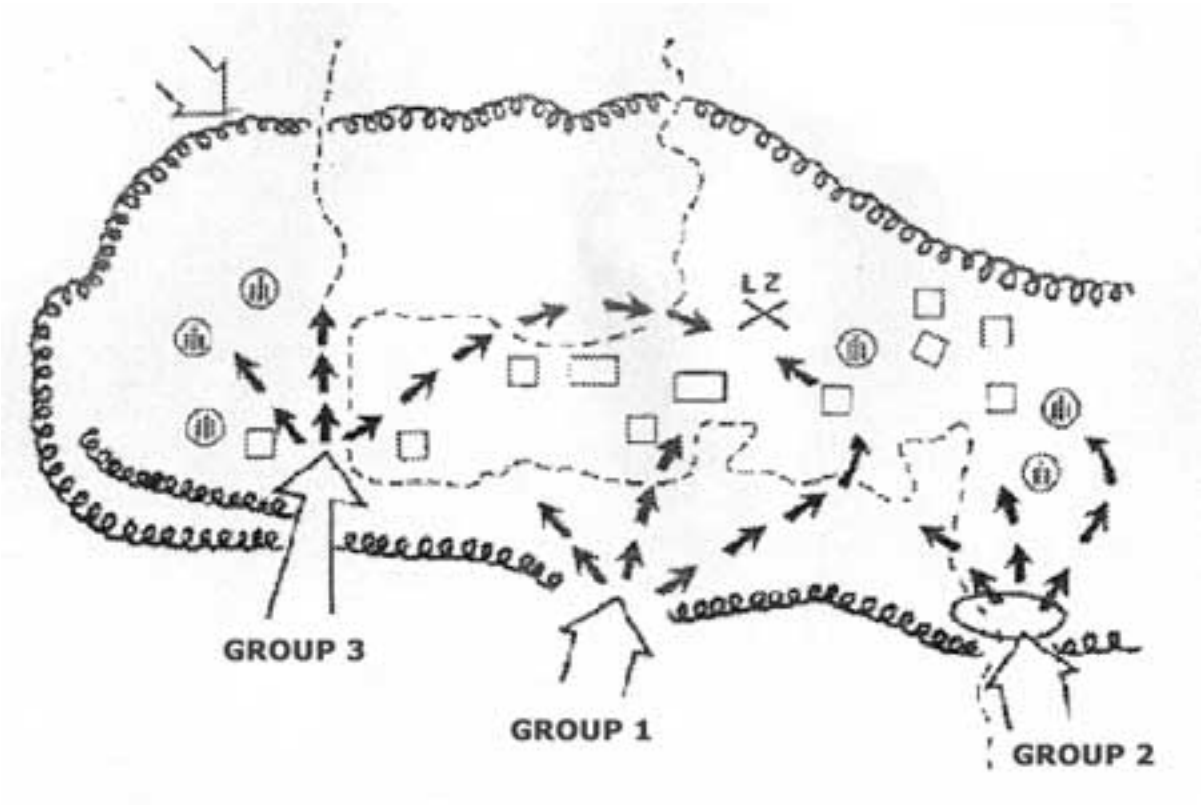


Figure 1: LZ Russell 24th February 1969

Another factor, which aided the attackers, was the reduced visibility of the objective areas. In addition to being a period when there was very little moonlight, a thin blanket of fog enveloped the entire defensive positions and all the routes of ingress.

The attack continued until about 0530. At that time, the Marines on the fire support base reorganized themselves and slowly, but methodically killed virtually all the enemy sappers who had penetrated the position. There were innumerable incidents of uncommon valor as the battle ebbed and flowed.

The officer-in-charge of the firebase found himself partially buried under a caved in bunker and as he crawled out he found himself face to face with one of the attackers. The commander had a fragmentation grenade in his hand, but he was too close to use it in its primary role. Instead, he leaped on the NVA soldier and literally bludgeoned the shocked enemy soldier to death.

The company gunnery sergeant dispatched several of the sappers in deadly hand-to-hand combat by using his personal knife as the primary weapon. Marines from the 106mm section, who were originally manning a machine gun on the southeast fringes of the position, assaulted and killed six NVA soldiers who were attempting to organize a strong point inside the firebase.

During the period from 0410 to daylight, only one of the defender's mortars remained in action. However, the mortar squad stayed on the gun throughout, re-established radio communications with the CO and fired a total of 380 rounds.

As darkness gave way to the dawn, the defenders re-established complete control of the firebase. Throughout the fight, the company commander called for artillery fires to box in the positions. A curtain of steel was brought in around the position from the batteries located on mutually supporting firebases. These fires were instrumental in preventing enemy reinforcement, or possible exploitation, and at the same time rendered the withdrawal of sappers at daylight a difficult task.

As the grimy, gutty Marines mopped up the battered firebase, they found a total of 24 NVA bodies inside the wire. Reinforced patrols later in the day and the following day located one of the enemy assembly areas, which were strewn with bloody battle dressings. Many drag marks were visible. As daylight broke, the firebase resumed a normal posture. All the guns in the artillery battery (less one temporarily out of action) were manned and ready. The perimeter was reorganized and friendly casualties med-evaced. As the resupply helicopters flew into the firebase, the small American flag, flying on a makeshift staff, was visible for all to see.

There were, and are, many lessons to be learned from this classic sapper attack. But the appreciation of standard NVA sapper tactics is fundamental to any discussion of lessons learned and countermeasures. After the announcement of the sapper company mission, the reconnaissance commences. A period of three to seven days may be devoted to a detailed reconnoitering of the objective. The terrain is minutely analyzed, defensive patterns are studied, all routes are carefully viewed, enemy positions noted and plotted, obstacles sketched and estimates made of the time required to breach the position. In short, a

detailed terrain analysis is made and terrain appreciation utilized in developing the plan of attack.

The period between the final reconnaissance and the commencement of the attack is allocated to briefings and rehearsals. Sand tables are prepared from sketches and each soldier is given precise instructions.

The attack itself is characterized by speed, firepower and shock. The movement to the objective area is initiated many hours prior to the assault phase. This phase is characterized, in many instances, by what Marines term "creeping and crawling". It is a basic assumption of the sappers that a majority of the defenders will be driven inside their bunkers by mortar fire. Once this takes place, the RPGs and automatic weapons (of support force) open up on firing slits and ports.

The skilled sapper deliberately selects the most difficult avenue of approach, or one which offers the best opportunity for unobserved approach. The use of the defender's trash dumps is an excellent example of such a tactic. As the mortar fires lift, RPGs, Chicom Grenades, satchel charges and bangalore torpedoes create the impression that the mortars are still firing. The assault itself is made with utmost speed, attempting to keep the majority of defenders in their bunkers. Mats, brush, or any local material are thrown across the wire and demolitions are used on particularly tough obstacles.

The primary objective of the sappers is to penetrate the defenses and inflict maximum casualties; destroy equipment, ordnance and installations, and withdraw. This type of attack is not designed to occupy a position or to seize and hold a prominent terrain feature.

The major weakness in the tactics of the sapper is the requirement for time. He must have time; time to reconnoiter, time to plan, and time to rehearse. This element, in turn, provides the force on the target list valuable time to prepare for such an attack. If the unit is unimaginative and unaggressive, its fate is preordained. On the other hand, professionalism, hard work and ingenuity can contribute to the development of installations, which not only slow, but also crush such sapper attacks.

What can be done?

- The best defense for any base continues to be active patrolling, ambushes and listening posts outside the position.
- Since it is obvious from enemy plans and sketches that he is able to plan his attacks precisely, we must therefore present him with a continuously changing arrangement of our defenses.
- Periodic enemy incoming has led us to increased reliance on bunkers for protection. Once ground action commences, these bunkers are death traps. Hundreds of Marines enclosed in bunkers cannot stop even a small attack. We need more fighting places and less hiding places.
- We need to experiment with all means of providing immediate alarm, some kind of illumination in fog, foolproof trip flares, increased use of tangle-foot barriers outside and inside the positions, and other methods for increasing the enemy's difficulties.
- Employment of internal wire to compartmentalize positions and impede attacks in the event of

outer perimeter defenses being breached.
- Use of fougasse, claymores, CS grenades, trip flares and other devices.
- Continual review and update of defensive plans to include defense in depth and employment of reaction forces. Practice alerts must be conducted to test validity of plans.
- Random recon fire.
- Use of daylight H&I's.
- Maximum use of night observation devices.
- Preparation and revision of local SOP.
- Consider the possibility of use of artificial moonlight.
- Alternate fighting holes and interconnecting trenches.
- Alternate communications plans and means

The foregoing checklist is only illustrative of a few of the actions that must be taken to combat the sapper threat. Possible techniques and tactics are almost endless. The point is that complacency; boredom and routine must be avoided like the plague. If aggressiveness, ingenuity and professionalism are stressed, the sapper attack is doomed to failure - no matter how well planned, for in virtually any sapper attack, the sapper unit is outnumbered by his opponent.



Source:

Sapper Attack by Col. M. J. Sexton, Marine Corps Gazette, Volume 53, Number 9 (Sept 1969)

DELTA MIKE 2

US Infantry Radio Communications

My grunt radio call sign was Mike 2, the most common nickname I had, there are a lot of other less polite things I was called during the six years I Was Gone For A Soldier..... Mike 2 means the caller is the squad leader of the second squad of the second platoon. This would be modified by a company designator, and a battalion designator. My full radio ID was thusly, ****** (battalion) DELTA (Company D) MIKE (second platoon) TWO (second squad). This was my permanent radio call sign for radio traffic or field-phone or whatever. Since this is the same as a photograph, please just use DELTA MIKE 2. There were gazillions of DELTA MIKE 2's during the war.

QUICK RADIO LESSON: each and every Battalion, Company, Platoon, and Squad had a radio ID. Same was true for Brigades and larger formations. There were radio authenticators for use when entering a radio net (passwords, and challenges), all standardized for NATO use between any NATO Army, Navy and Air Force. There still are. So anyone, with the current passwords and challenges, could enter a radio net. Now back to 'NAM and the real world.

Tactical radio was a different world in some ways in 'Nam. We had all of the above in use, but to further screw over the minds of the gook monitoring our signals we also used radio shorthand. We did not have any Indian code talkers like were used by the US in WWI and WWII. So we used SHACKLES (code word for a 10 letter word used for 0 thru 9 to read map coordinates) on our PUSHES (radio frequencies).

EXAMPLE:

"RED BIRD THIS IS FOXHOUND 6. WE HAVE MANY MANY CHARLIES IN THE OPEN, FIRE MISSION, OVER" after RED BIRD acknowledges "AHHH, ROGER THAT RED BIRD 6. STAND BY FOR A SHACKLE. I SHACKLE (and then the numbers 0 -1 are called off with a different letter for each number, and always from a 10 letter word).

To verify your location to aircraft for a strike, a grunt would say, " ROGER , JAYHAWK. I AM POPPING SMOKE" (colour unspecified for security reasons) and the aircraft would respond with 'I IDENTIFY PURPLE!" and if that was the color you used , you would comeback with "RAJAH, JAYHAWK! I POPPED PURPLE!!!" IF the gooks tried to confuse the issue by using same color, well you would pop one and wait for his, then pop another color too 'JAYHAWK, I POPPED PURPLE AND YELLOW!!!"

Commanding Officer or Senior Officer of a Unit is always a "6". Next in command is always a "5". Weapons squad leader is a "4". Third squad leader is a "3". Second squad leader is a "2". First squad leader is a "1".

Headquarters Platoon is "HOTEL". First Platoon is "LIMA". Second Platoon is "MIKE". Third Platoon is "NOVEMBER". Fourth Platoon is "OSCAR". Recon Platoon is "ECHO"'.

Company A is "ALPHA". Company B is "BRAVO". Company C is "CHARLIE". Company D is "DELTA"

HEADQUARTERS COMPANY FOR THE BATTALION IS "HOTEL", BUT IT IS NOT THE SAME AS THE CO AND THE TOC!!!

Back to radios. AN/PRC-25 called 'pricks' were the backpack field radios carried by RTO's. The number in a Company must have been around 18 or more. There was a very brief failed experiment to use the Army's vaunted helmet radio system (every man with a sergeant in his ear was the promo) that never got beyond squad and fire team leader level.

These things were sad jokes. I forget what the range was officially, but I could look and see my PLT LDR or PLT SGT talking in their pricks to us, and we could not hear shit, or usually just the deafening SHHHHHHHHH!!!!!!!!! of static or transmissions so badly broken up as to be unusable. So back to hand signals and leather lungs. We hated these damn things.

SEARS made a 2 way kids radio set that worked better over a longer range. They also got tangled in everything, so we hooked them onto the web gear straps on our chests and then they fell off every time you bent over or ducked (about a zillion times a day in the jungle) plus even when squelched, without warning they would blast out with earsplitting static crackle and rush!!! Pure junk. So, in soldier fashion, we deliberately destroyed every one handed out (steel pots, rifle butts, boots, rocks, oops it fell in the river and sunk! or shot, chopped them up with entrenching tools, knives, hatchets, or machetes) until the lifers decided they were a failure and reissued pricks as needed. HURRAY! A victory for the grunts!

WELL hope this helps some with the radio stuff. Later!

DELTA MIKE 2

BACK TO "DELTA, MIKE 2" INDEX

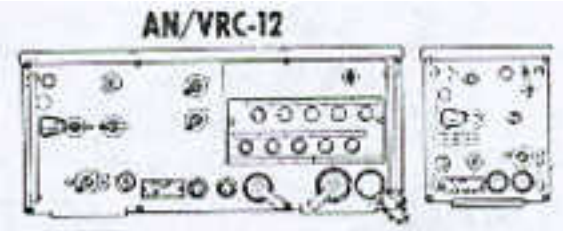
1st Infantry Division TAOR (1969)

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Armored Cavalry

US Radio Equipment

FM voice radios of the AN/VRC-12 series, provided the primary means of communication for armor units in RVN. Radio sets AN/VRC-12, -46, -47 and -49 (below), provided short range, two-way frequency modulated (FM), radiotelephone communication between vehicles or crew-served weapons. The set configurations consist of different component groupings of the Receiver-Transmitter RT-246/VRC, RT-524/VRC, Receiver R-442/VRC, and associated interphone equipment.



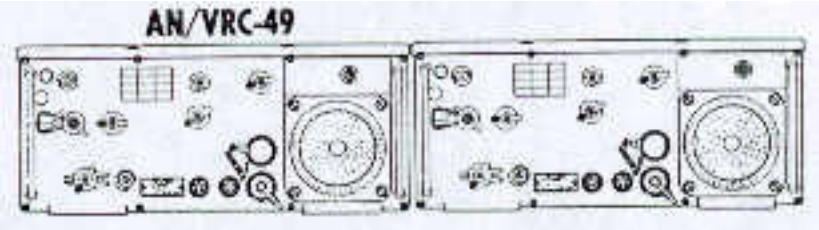
1 x Rt-246/VRC and 1 x R-442/VRC



1 x RT-524/VRC



1 x RT-524/VRC and 1 x R-442/VRC



2 x RT-524/VRC

RT-246/VRC and RT-524/VRC

These FM receiver-transmitters have essentially the same operational capabilities, the exceptions being that the RT-246 has a 10 preset channel capability and the RT-524 has no presets, but does have a built-in speaker.

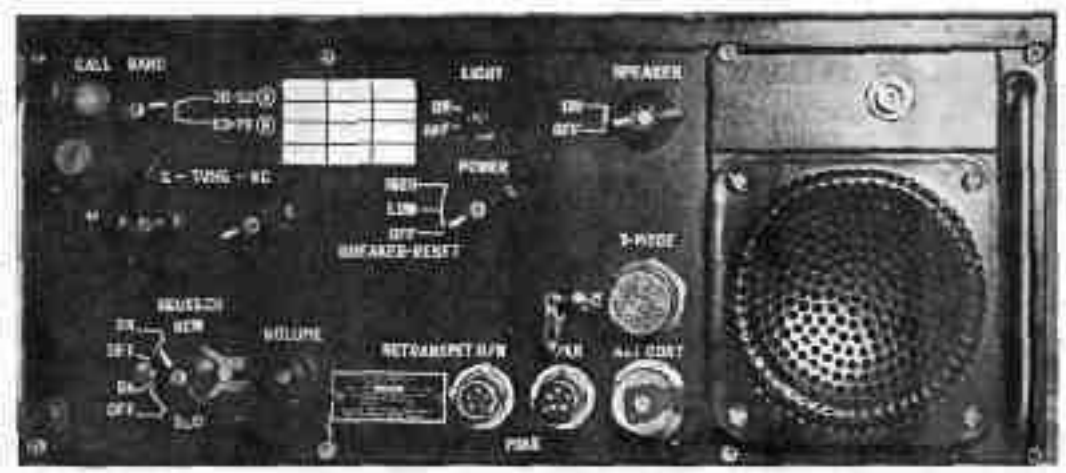
Characteristics and Capabilities

- Frequency range; 30.00 - 75.95 MHz
- Type of service; Voice

- Preset frequencies; 10 (RT-246 only)
- Transmission planning range; 20-miles stationary, 15-miles moving
- Type of operation; push-to-talk
- Type of control; local or remote
- Antenna; center fed whip
- Number of channels; 920
- Type of squelch; noise or tone
- Power requirements;
    - Vehicular; 24-volt DC vehicular power
    - Fixed; requires 115/230-volt AC for Power Supply PP-2953/U



Receiver - Transmitter, Radio RT-246/VRC



Receiver - Transmitter, Radio RT-524/VRC

R-442/VRC

The FM radio receiver R-442/VRC is used in conjunction with the Receiver-transmitter RT-246 and RT-524, giving the operator a facility for monitoring an additional frequency.

Characteristics and Capablities

- Frequency range; 30.00 - 75.95 MHz
- Type of service; Voice
- Preset frequencies; none
- Antenna; multisection whip
- Type of squelch; noise or tone
- Power requirements; Vehicular; 24-volt DC vehicular power



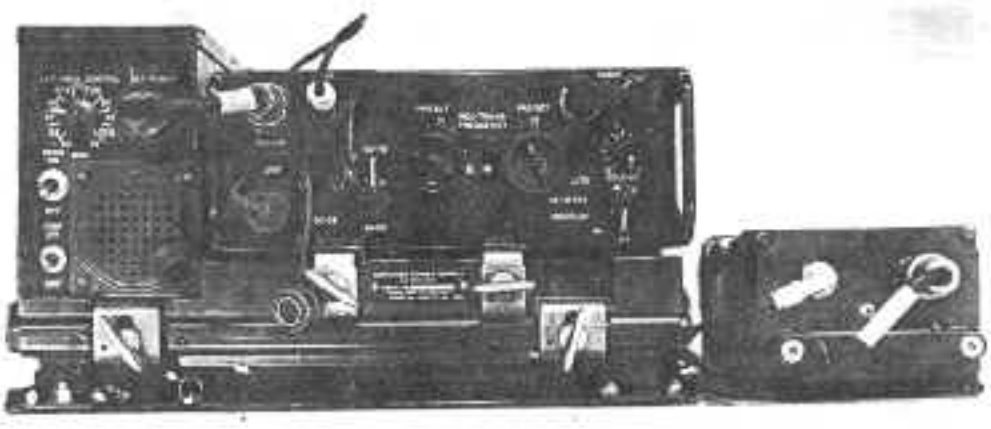
Receiver, Radio R-442/VRC

Radio Sets AN/PRC-25, AN/VRC-53 and AN/GRC-125

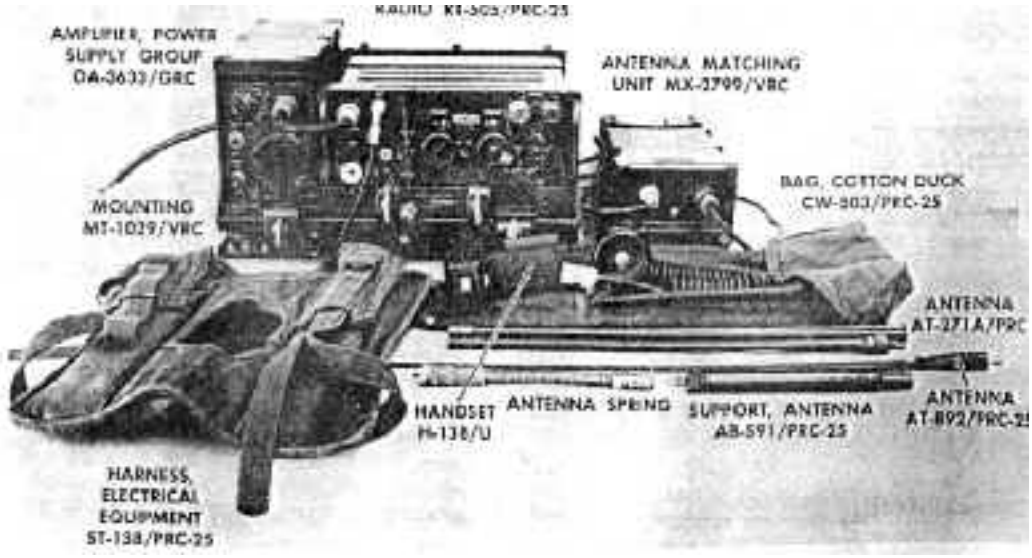
Configurations of these radio sets provide both portable and vehicular, two-way, FM, radio-telephone communication. The AN/PRC-25 is the portable, man-packed radio set; the AN/VRC-53 provides vehicular operation and the AN/GRC-125 is capable of both man-packed portable or vehicular operation.



Radio Set AN/PRC-25



Radio Set AN/VRC-53



Radio Set AN/GRC-125

Receiver-Transmitter, Radio RT-505/PRC

This is the basic component of Radio Sets AN/PRC-25, AN/VRC-53 and AN/GRC-125

Characteristics and Capabilities

- Frequency range; 30.00 - 75.95 MHz
- Type of service; Voice
- Presets; Two
- Range; 5 miles
- Type of operation; push-to-talk
- Type of control; local or remote (using AN/GRA-39)
- Types of antennas;

  AN/PRC-25;

- Short antenna - 3-foot semi-rigid steel tape
- Long antenna - 10-foot multisection whip

AN/VRC-53 and AN/GRC-125 vehicular mounted. AT-912 (10-foot vehicular whip with antenna matching unit MX-2788/VRC or MX-6707/VRC).

- Number of channels; 920
- Type of squelch; tone operated
- Power requirements

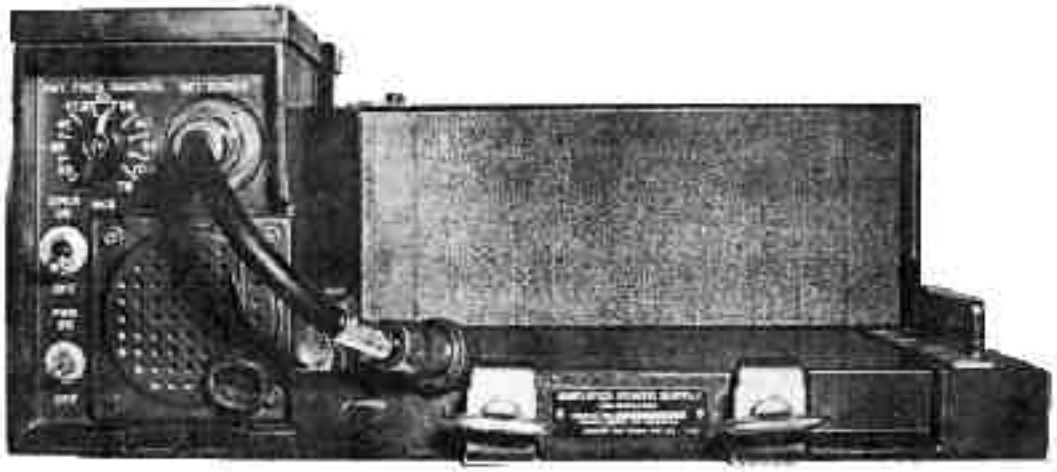
  - Battery, BA-386
  - Vehicular, 24-Volt DC



Receiver - Transmitter, Radio RT-505/PRC

Amplifier Power Supply Group OA-3633/GRC

The set consists of an amplifier power supply and a special purpose cable assembly. This equipment provides voltages for the operation of receiver-transmitter and the antenna matching unit for vehicular installation. In addition, it amplifies the received radio signals from the receiver-transmitter.



Amplifier Power Supply Group OA-3633/GRC

Radio Set Control Group

The AN/GRA-39 provides remote radio operation for distances up to 2 wire miles as well as telephone signaling and communication between the remote and local radio operators. The set consists of a local unit (used with a radio), a remote unit, handset and carrying bag.



Radio Set Control Group AN/GRA-39



Source:

US Army Armor Reference Data, Special Text 17-1-3, US Army Armor School, Fort Knox, Kentucky

See also:

US Radio Communications and Delta Mike 2 - Radio Communications

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Armored Cavalry



US Radio Communications

Since the majority of the information for this page was supplied by Veterans of Bravo Troop, 3/4 Cavalry I will use their Radio Net as the example for this section.

Call Signs

On the whole, radio call signs were changed about once a month for security reasons so the following is only valid for a small period of time and would have changed frequently.

The Squadron's call sign was 'Saber' and the 3 Line Troops in the Squadron were 'Saber Alpha', Saber Bravo and 'Saber Charlie'. The Squadron Air Cavalry Troop had it's own call sign, 'Centaur'.

The Squadron CO was 'Saber 6', however Squadron Communications was 'Saber 33' because the Squadron Executive Officer (XO) was 'Saber 65'.

The Bravo Troop HQ call sign was 'Saber Bravo 6' (the CO's vehicle) and the Troop Commo track was 'Saber Bravo 65'. Other vehicles in the HQ Platoon were numbered 'Saber Bravo 41', 'Saber Bravo 42' and so on.

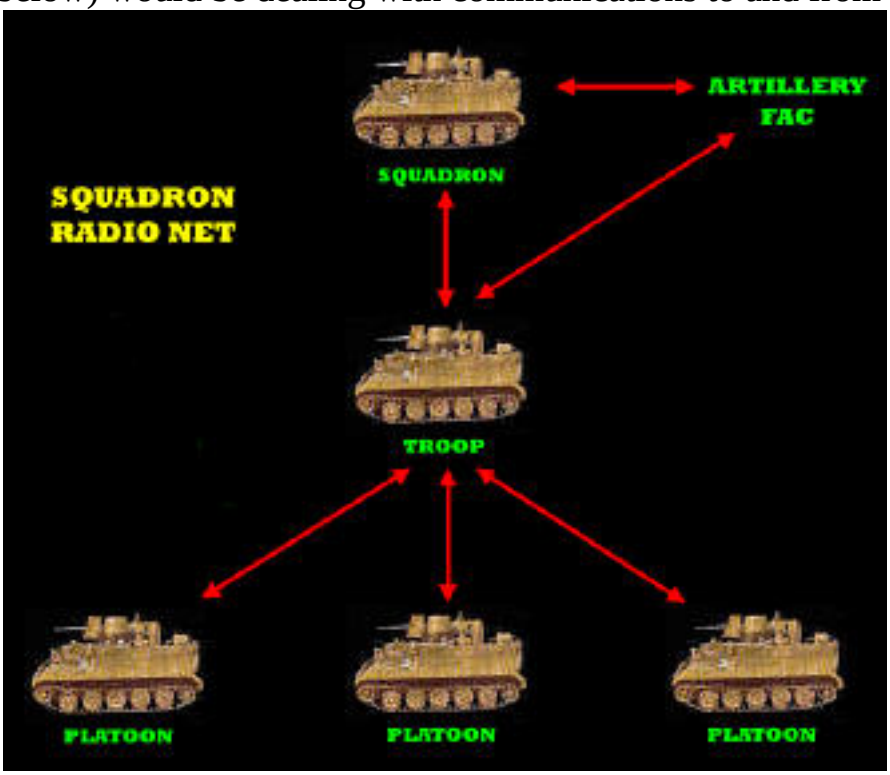
Within each troop, taking 'Bravo' as the example, the 3 Platoons were numbered 10, 20 and 30, so that the call sign of the Commander of '2nd Platoon, Bravo Troop' would be 'Saber Bravo 20'.

All other vehicles in the 2nd Platoon would be numbered as the platoon number plus 1 - 9. For example, the vehicles of 2nd Platoon, Bravo Troop would be numbered 20, 21, 22, 23, 24, 25, 26, 27, 28 and 29.

Radios and Frequencies (Pushes)

The Troop HQ (Saber Bravo 6) carried two radios. One of these was on the Squadron frequency (called a PUSH in the 'Nam) and the other was on the Platoon's frequency. In this manner the CO could communicate directly with Squadron HQ and with each of the Platoon CO's in his Troop. During a

firefight however, the CO would communicate on the Platoon Push whilst the Troop Commo Track (see below) would be dealing with communications to and from Squadron.



In addition, the Artillery Forward Observer (FO), who was usually riding with the Troop CO, also had his own radio (AN/PRC-25) which was on the Artillery Pushes to the supporting artillery units. When there was no attached FO the job usually fell to the CO or he would assign it to the communications section who would have to change frequencies on one of their radios, usually the one that Squadron was on. One thing the communications section did learn very quickly was how to read a map and use PO's (Points of Origin), these were assigned by Squadron prior to the troop taking to the field and they would vary according to the different Fire Support Bases in the AO (Area of Operations).

If it was necessary to call for Air Support to deliver air strikes, then either the Troop CO or the Commo track would call up an O2 Bird-dog FAC who would then take care of getting any air strikes necessary. If the troop was in deep trouble then there was a universal call-sign, 'Broken Arrow', which denoted a US unit in imminent danger of being overrun. When transmitted, this would result in every aircraft in that entire sector converging on the location no matter what their previous orders were, it was not used very often.

Each Troop in the Squadron had a Commo Track (Saber Bravo 65) which was the main communications center for that troop. This track carried two multi channel radios, one was set up on the Squadron frequency and the other was set to the Troop frequency, the RTO on the commo track would monitor both radios. A secure, encrypted radio was also carried by the section but the Commo Sgt was the only one allowed to install the encryption key.

All three Platoons in the Troop were assigned a frequency and the individual Platoon Leader's track had a single multi channel radio which had the pushes of the platoon and the troop in it. The Platoon Leader could communicate with his own platoon and either the Commanding Officer or the Commo Track, but not Squadron.

All the vehicles in the Platoon were equipped with a single radio on the Platoon frequency.

Crypto Codes

The only ones able to contact Squadron was the CO or the Commo track and that was due to the fact that both the CO and the Commo track had to authenticate by means of a crypto code for which only the CO and the Commo Sgt had clearance, Stanley Homiski wrote,

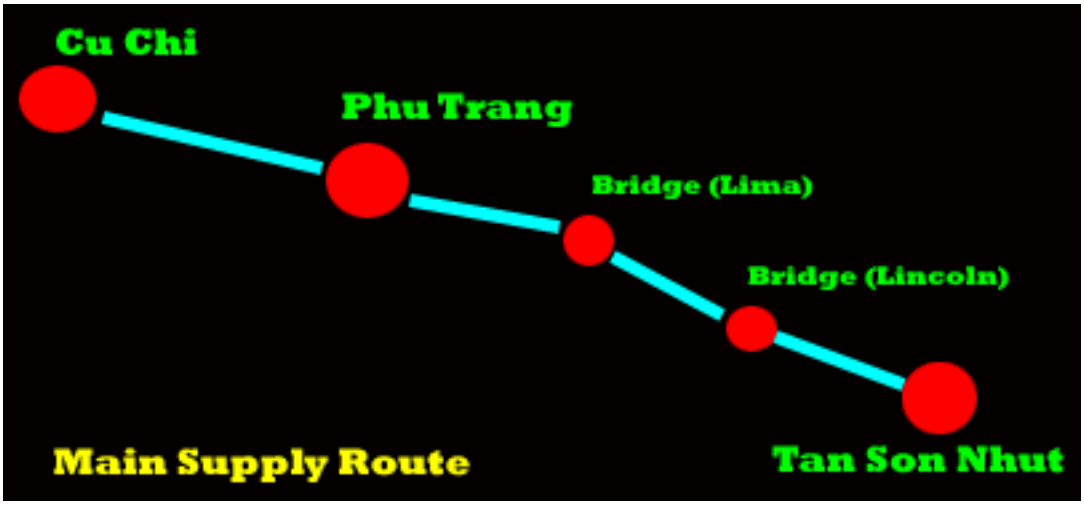
> "The crypto codes were used by the Commo Sgt or the CO in order to enter the Squadron Net, they came from a book that changed every month. The way it worked was that upon signing on to the Squadron Net, the Squadron RTO would ask for authentication by giving the entering RTO or CO a line, for instance he would say Line Alpha (just because A is the first letter of the alphabet it would not be the first line of the Authorization code) That was governed by the Date say 25 July, the Day say Sunday and the Hour and minute you signed on the Net. The code was only good for that particular sequence. There was a formula that was followed to calculate the proper line that the Squadron RTO had requested. The actual authentic code would be read back to the Squadron RTO from the line he requested, due to the fact that the code was based on day, month, day of the week, hour and minute there were conceivably hundreds of letter combinations that could only be used once... "

SAMPLE RADIO TRAFFIC

Presented below is the radio traffic concerning a hypothetical move from the Saigon area (Tan Son Nhut) back to the 25th Infantry Division Base Camp at Cu Chi for a three-day stand down. The Main Supply Route (MSR), QL 1, ran from Saigon to Tay Ninh.

The lead element and the trail element would report their positions to the Troop Commo Track, who in turn would report the positions to the Squadron Commo Track. On the maps would have been marked certain locations which were designated as Check Points (Charlie Papa).

Map Check Points along Main Supply Route (MSR)



- Tan Son Nhut (Charlie Papa Tango Sierra November)
- The first bridge NW of Saigon (Charlie Papa Lincoln)
- The second Bridge NW of Siagon (Charlie Papa Lima)
- The village of Phu Trung (Charlie Papa Papa Tango)
- The village of Cu Chi (Charlie Papa Charlie Charlie)
- Ambush gate at Cu Chi Base Camp (Charlie Papa Alpha Golf).
- ¾ Cav Motor Pool at Cu Chi (Mike Papa)

For the sake of brevity only a limited number of check points are given and in reality there would have been many more along the route.

Elements Involved

Lead Element (Saber Bravo Lead)
Trail Element (Saber Bravo Trail)
White = Bravo Troop Communications (Saber Bravo 65)
3/4 Squadron Communications (Saber 33)

The radio traffic would go something along these lines (the call signs were repeated twice initially, after the first call the call sign was used only once);

LEAD: Saber Bravo 65, Saber Bravo 65 this is Saber Bravo Lead, Saber Bravo Lead over

COMMO: Saber Bravo Lead this is Saber Bravo 65 over

LEAD: Saber 65, Saber Bravo Lead Charlie Papa Tango Sierra November over

COMMO: Saber 33, Saber 33 this is Saber Bravo 65, Saber Bravo 65 over

(SQUADRON) Saber Bravo 65 this is Saber 33 over

COMMO: Saber 33, Saber Bravo Lead Charlie Papa Tango Sierra November, over

(SQUADRON) Saber Bravo 65 Saber 33, Saber Bravo Lead Charlie Papa Tango Sierra November, over

LEAD: Saber Bravo 65, Saber Bravo Lead Charlie Papa Lincoln over

TRAIL: Saber Bravo 65, Saber Bravo 65 this is Saber Bravo Trail, Saber Bravo Trail over

COMMO: Saber Bravo Trail this is Saber Bravo 65 over

TRAIL: Saber Bravo 65, Saber Bravo Trail Charlie Papa Tango Sierra November over

COMMO: Saber 33 this is Saber Bravo 65, Saber Bravo Lead Charlie Papa Lincoln Saber Bravo Trail Charlie Papa Tango Sierra November over

(SQUADRON) Saber Bravo 65 Saber 33, Saber Bravo Lead Charlie Papa Lincoln, Saber Bravo Trail Charlie Papa Tango Sierra November over

LEAD: Saber Bravo 65, Saber Bravo Lead Charlie Papa Lima over

TRAIL: Saber Bravo 65 Saber Bravo Trail Charlie Papa Lincoln over

COMMO: Saber 33 this is Saber Bravo 65, Saber Bravo Lead Charlie Papa Lima, Saber Bravo Trail Charlie Papa Lincoln over

(SQUADRON) Saber Bravo 65, Saber 33 Saber Bravo Lead Charlie Papa lima, Saber Bravo Trail Charlie Papa Lincoln over

Radio traffic would continue in this manner as the lead and trail vehicles arrived at and departed from each check point on the MSR until all vehicles had arrived safely at the 3/4 motor pool at Cu Chi.

Note that this is only an example of the typical radio traffic that went on during a move to base camp and that a great deal of other traffic occurred across the radio net in between the check points. This also happened when the Troop was escorting convoys and the like.

For an example of the sort of radio communications that could be expected during a fictitious engagement see Air Strike and Fire Mission also by Stanley Homiski.



Source:

Mr Stanley Homiski, Communications Sergeant, Bravo Troop, 3/4 Cavalry (1968-1969)

See also:

Radio Equipment- For further information on communications

Radio Communications - For an explanation of US infantry radio operations

More information can be found by looking at RTO's

Australian and New Zealand Forces

ANZAC Smallarms



Lithgow SLR (L1A1)



The standard infantry weapon was the Lithgow SLR (L1A1) produced under license as a copy of the 7.62mm Belgian FN FAL. The L1A1 is an air-cooled, select fire weapon with a 20 round magazine.

TT
L1A1 SLR was the same as the British, i.e., semi auto. Occasionally, for a bit fun, someone would convert their weapon to automatic, with clever placement of a match stick in the trigger mechanism. Putting the match in the wrong place though, would cause the full magazine (20 rounds) to be fired off, even when trigger was released.

AN (formerly of the British Army, commenting on the match stick trick)
Could also have the working part of your own rifle try and take your head off.

BvL

The L1A1 is a SLR is a SLR is a SLR. (or Slar or Slur or "Go bang gotcha stick" or "gat" or "riffly" or "bangstick" or, as some US troops on exchange with us called it, "The Godamn Express Rifle"). The same as the Pommy one in most respects. We didn't make one with the plastic furniture like the Brits did though we did have the L1A2 (I think) that had about 150mm cut off the barrel (it could've been less) that was made for the PNG Defence Force. The Australian SAS made up "the Bitch" during the Vietnam war which was a SLR cut down to buggery, with what appeared to be an M-16 flash suppressor and rigged for full auto. A terrifying weapon to friend and foe alike.

TT was right about the matchstick under the sear to go full auto. Gangs of fun when using blanks and

playing enemy. Scares the brown out of young recruits in an ambush.



OWEN SMG

It has been suggested that some ANZAC soldiers (in particular RTO's, Commanders etc.) sometimes carried the Owen SMG instead of the M-16.

Owen SMG: Caliber = 9mm; barrel length =24.7 cm; Magazine capacity of 33 rounds and a ROF of 700 rpm. Effective range approximately 75 meters

Developed in WW2, rather similar to the British Sten except that the magazine is mounted on top because side magazines were found to snag on branches etc in jungle fighting (possibly also so that it can't be used as a hand hold, misalignment of the magazine being a common problem with the Sten).

Dallas Gavan

Known as the "Owen Sub-Machine Carbine" it (and it's replacement, the F-1, the weapon in your original photo) was replaced by the M-16 for a number of reasons - not all that pleased the end-user. One of my CPL (RM, who was with either 5 or 7 RAR in Vieties as a No1 Scout) refused to carry an M-16 even in the late '70's, preferring an SLR. He loved to recount how he put three M-16 rounds into a VC's chest, only to have to track him for a couple of days. The rounds went between the ribs and, due to the way the 5.56mm round works at very short range, had cauterised its own wounds. Only the infection that the wounds caused stopped the bloke, apparently. In Malaysia in '82 I saw what he meant when we had a bloke shot through the thigh at close range. Hardly any bleeding (just a couple of drops), just two bruised dimples in the skin where the round entered and exited. He was hit at about a range of 30-meters.

But, for whatever reason, the M-16 took over from the Owen/F-1 in infantry units at least by '68. Having seen and used the F-1 and M-16 I'd still rather use the M-16. At 100M it will at least hurt you (if you're lucky). A hanging wet blanket can literally stop the under-powered 9mm from an F-1 at that range. But at 25mm it just chops meat up, as demonstrated to us on an old beef carcass.

NM

Designed as a .22 in '39, first made as a .38 in '41, proved .38 round not suitable, main production started in 9mm mid '42. Last made Sept '45. I have details of a Lithgow SMG which started as the X3 and was standardised as the F1. Apparently well liked in Vietnam.

TT

I checked my "Australian Armed Forces of the Eighties", and it mentions that a sub machine gun, the L3

was a silenced version of the British Sterling. This was replaced by the L34A1 Sterling which is un-silenced, but otherwise the same. The F1 and the Sterling are very similar, the most noticeable difference being the F1 has a top feed magazine, while on the Sterling comes in from the side. In 1967, Australia purchased M16's, and I doubt whether combat units would have used the F1 after then.

F1A1. Had the same pistol grip and trigger mechanism as the L1A1 SLR. It replaced the Owen, though not nearly as much folk-lore surrounds this weapon as the Owen. In Vietnam, some Australian units used the American M16 where they would otherwise have used the F1. The Infantry weapon was the SLR, with the American M60 as the Section Machine Gun,

Owen SMG was a WW2 weapon, supposedly designed for jungle fighting. (Vertical magazine, that didn't get caught on things like vines, etc.) I am not aware of its use in Vietnam.

BvL

The Owen was invented by a young Lt called Evelyn Owen. No-one wanted to know him because SMGs weren't really de rigueur during the early part of the war if you were in the Commonwealth (or Empire as it was then). When the war in the Pacific broke out we needed said weapons for the close fighting in the jungle. An Australian version of the Sten called imaginatively enough the AUSten was produced but generally binned as it suffered the same breakdowns as the early British Stens. Once the Owen came in you couldn't get the Diggers to let go of them. The were very reliable, fired a 9mm parabellum cart, vertical box mag and the barrel came off for cleaning. Later models were finished in an ochre and jungle green disruptive pattern. An excellent submachine gun. The were called a machine carbine but they were in essence an SMG. My Grandfather carried one and swore by it.

They were used for a limited time in Vietnam but they were becoming quite worn by that stage. The F1 or X3 was coming in at that time as was the M16.I had the opportunity to play with one once and they are a very reliable piece of kit. The thing I remember most about them is that they felt very light, narrow and sorta dinky. I guess this is because I had carried an SLR for so long. The other submachine gun was the X3 which was later redesignated the F1. Given to signalers, officers and others not trusted with a weapon...:-) A good fun weapon to fire. Surprisingly accurate if fired instinctively with the butt stuck into your abdomen. Not to many stoppages, quite reliable. Similar in layout to the Owen. Curved box mag on top (same mag as the Sterling) SLR pistol grip and butt plate. Perforated sleeve like the Sterling and could be fitted with the SLR bayonet, though if they were that close I think I would've thrown it at them.

Mr X

The photograph originally captioned as an Owen is in fact the F1- both were similar but distinct designs. The Owen dated from WW2 service in PNG - the F1 was kind of an updated Owen with considerable design features nicked from the Brit Sterling. One of your correspondents also mentions an L3 and L34A1 SMG -

they are the same weapon and in fact the integrally suppressed version of the Brit L2A3 Sterling SMG. As far as I'm aware the L2A3 'basic' Sterling never saw service in RVN however the L34A1 did in extremely limited use by SASR for certain jobs.



The F1 (originally displayed as an Owen SMG - apologies to all concerned)

The comments about full auto SLRs - it was in fact extremely common for Oz 'green army' (i.e. line units, not SASR) scouts to have their weapons thus modified. Rather a few also took off the flash suppressor and chopped the barrel back by a few inches. The idea was to convince the opposition in a contact to keep their heads down while the patrol or platoon sorted themselves out. Lots of scouts also pilfered the 30 round mags from the L2A1 support version and used them on their chopped and fully auto SLRs.

The SASR's SLRs were generally customised in a similar manner though the SASR armourers replaced the full auto sear with a proper machined version rather than the somewhat unreliable match stick approach. They also fitted bolt hold open devices to the SASR SLRs which made mag changes faster. I have seen photos of chopped SASR SLRs fitted with twin 20-round or even twin 30-round L2A1 mags and in one notable case, an XM148 40mm GL jury rigged under the barrel! The SASR rule of thumb in RVN was 'you can have it but you've got to carry it'!

SASR also used the XM148/M203 M16A1 combo widely, once again with twin

20 or later 30-round mags taped together. Occasional use was made of the suppressed Sterling as mentioned above and other suppressed SMGs like the M3 and Carl Gustav M45. Shotguns were sometimes preferred by SASR scouts, especially before the XM148/M203 became available. Shotguns were also used in prisoner snatches- the idea being to shoot the nogs in the legs and wound them.

Craig Burnett

The original picture of an Owen is not an Owen, it's an F1. The Owen has a straight magazine. True that the Owen was used, at least to 1966, maybe later too - so not a suggestion, a fact. 1RAR had them on 1965 tour too. Akell carried one at Long Tan, when he run the spare sig set through to 10 platoon.

The F1 was a piece of s**t. The ballistic theories and all that might look good on paper, but what the staff say is different to the field anyway. Comment is right about giving it to anyone who might not really have to use it.

The SLR was the best infantry rifle. You wont see that on paper - man gets hit, even in hand and he is very sick. They say newer, modern rifles are better but it would have been better to modernize the SLR - i.e. leave it the same but make new ones!

If you want more info on Australian firearms check out an Australian author called Ian Skennerton. His knowledge on said subject almost scary. The Australian War Memorial site might be worth visiting too. Their address is http://www.awm.gov.au/

THANKS:

My thanks to all those who have contributed to this page and in particular to David Makin, Tom Woolman and especially to Nowfel Leulliot.

If you have any further information regarding these or any other ANZAC weapons then please feel free to contact me

Australian and New Zealand Forces

Caught in a Killing Zone - by Colin Smith



Further to my book "The Killing Zone - NZ infantry in Vietnam" I have received input from various NZ Infantry Vietnam veterans to considerably expand the narrative of an action relating to Sergeant Tuhiwai's DCM citation described on page 30 of the book, which is incorrectly dated 1969 and attributed to Victor 3 Company.

During the years 1967 to 1971 New Zealand committed a total of nine infantry companies which were attached to the Australian Task Force, based at Nui Dat in Phuoc Tuy province South Vietnam. Up to two NZ Rifle companies served as attachments to the various Australian Infantry battalions serving their six month to one year tours of combat duty in that time frame. The New Zealand Government had previously committed 161 Battery Royal NZ Artillery Regiment and a medical team in 1965 in response to an American call for assistance from her regional allies.

The Australian Task Force had been assigned the mission to pacify Phuoc Tuy province by General Westmoreland following an initial combat employment by various Australian units as a part of the US 173rd Airborne Brigade (Separate). This deployment had been successful but operational differences between the tactical methods of the ANZAC and US Army units had caused problems and misunderstandings.

Logistical problems had also arisen because of the equipment differences between the two armies, apart from radios, M16 rifles and M60 machine guns the Anzacs used indigenous or British equipment.

Basically the American Paratroopers aggressively sought out the Viet Cong to assault head on whereas the ANZAC tactic was to patrol silently and ambush the Viet Cong and avoid if possible immediate assaults on emplaced enemy troops. The "Body count" didn't have the impact on the career prospects of the ANZAC officers as seems to be the case with some American units.

The US Paratroops were the cutting edge of the Air-Mobile concept at that time whilst the ANZAC infantry had come from the protracted jungle campaigns of Borneo and Malaya which emphasised foot

patrolling and ambushing.

According to the official Australian Army history "Towards Long Tan Vietnam 1950-66 "by Ian McNeill, Phuoc Tuy province was chosen for the Australian Task Force because of several reasons.

Firstly the Australian logistics requirements could be resolved through the nearby port of Vung Tau.

Secondly the size of the province allowed for the Brigade sized Task Force to operate independently from the American command structure, for example if they had been based at Bien Hoa the brigade would have been managed by the US command structure present. This issue was essentially a political one but important to the Australian/New Zealand Governments to demonstrate their commitment to the Free World cause.

This autonomy also allowed the Task Force Commander to plan and implement the military and civic strategies successful in the Malayan Emergency campaign.

The New Zealand infantry were mainly from 1 RNZIR based in Malaysia/Singapore and served tours of duty of 6 months or 1 year depending on their company rotation period. The New Zealand infantry companies served as a integral whole in their respective tours with few individual replacements.

The soldiers were regular, professional troops with no conscripts or draftees. They had volunteered for Vietnam service and were specialists at a chosen infantry role, such as scout, machine gunner, rifleman, roles, which they were trained for prior to Vietnam duty.

The New Zealanders adopted Australian Rifle Company organisation of a Headquarters (Major commanding) and 3 Rifle Platoons, each of a Platoon HQ group (Lieutenant commanding) and 3 rifle sections (squads) consisting; a Corporal , Scout group (2 Privates), Rifle group (4 Privates including M79 Grenadier) and a Machine Gun group with Lance Corporal, 2 Privates with M60 GPMG.

Typically Officers, Signallers (PRC 25 radios), NCOs and 1 of each scout group carried Ml 6 assault rifles. Riflemen, including the M79 Grenadier carried the Australian manufactured FN licensed SLR (semi-automatic 7.62mm self loading rifle similar in capabilities to the US Ml 4).

The FN/MAG machine gun was generally replaced in Vietnam by the M60 machine gun of US manufacture as the section machine gun although 7.62mm calibre Bren guns also were used.

US issue M72 Rocket launchers, M26 grenades and Claymore mines were enthusiastically adopted by the New Zealand troops, along with butt packs, webbing and anything else they could scrounge from their lavishly equipped (and generous) American allies.

The ANZAC pacification strategy of mounting operations in specified areas and deploying by Helicopter

or vehicles to cordon and sweep for the Viet Cong was similar to the US strategy in execution.

The tactical methods of the ANZAC infantry were silent patrolling and ambushing for extended periods (depending on water supplies). Tracks were used for ambushing the Viet Cong but were not usually patrolled on.

Typical statistics, as supplied to the author courtesy of Major J D McGuire Commanding Officer Victor 5 Company, show that New Zealand infantrymen initiated contacts with the Viet Cong at the ratio of 10 to 1, indicating the level of dominance these professional soldiers attained against the Viet Cong "Home Team" D445 Battalion and the NVA 174 Regiment.

The narrative which follows is of the non typical end of the scale but is a situation which could potentially occur at any time as intelligence on the Viet Cong enemy in Phuoc Tuy was usually incomplete, even late in the conflict.

Prior to the New Zealand infantry committal to Vietnam the Australian D Company 6RAR had fought a large engagement at Long Tan, lessons of which set various procedures in place for operations. These included a much higher amount of ammunition, especially for the M60 machine guns, being carried than was the set amount previously, not patrolling in less than half platoon strength and operating within 105mm artillery range.

On 19 March 1970 members of 3 Platoon, Victor 4 Company, attached to the Royal Australian Regiment 6 Battalion, were caught in the killing ground of a Viet Cong ambush.

Against heavy odds the Platoon fought back superior numbers of enemy soldiers fighting from defensive bunkers on ground of their choosing, with an outflanking movement by the Viet Cong being thwarted by a contact with Victor company’s 1 Platoon and the Company HQ.

For the first time the complete story of what happened in that ambush has been related from the point of view of the soldiers present and to the best of my understanding is as follows.

Other than the DCM award to the 3 Platoon commander Sergeant T.H.Tuhiwai no awards or official recognition was given to the New Zealanders who featured in the action. The only previously published account of the action is a brief summary in the 6RAR battalion history which I referred to verify the accuracy of this narrative.

The Viet Cong actions are recounted from deductions made by various veterans and from the physical evidence left on that battleground which was found during a post-action sweep on 20 March 1970.

Victor 4 Company was tasked with a 3 day duration operation to search the nearby Nui Dinh hills for the Chau Duc VC company.

The initial deployment would be by helicopter in two lifts to Landing Zones on the top of the feature then a dispersed sweep on foot patrolling back towards the Nui Dat firebase across the eastern side of the hills to the lowland beyond. The company would be extracted by Ml 13 Armoured Personnel Carriers back to the Nui Dat base.

The Nui Dinh hills had been the subject of previous operations as they overlooked two highways, one of which was the main supply road between the Vung Tau Logistical base and the Nui Dat Fire base.

After an early intelligence estimate that an entire VC Regiment was entrenched in the heavily vegetated and broken hill terrain the first B52 bomber strike in support of the Australian Task Force was carried out. That and subsequent operations always produced evidence of the presence of the Chau Duc company in the hills but without any major combat encounters.

The short duration of the operation plus the information from a US Army radio relay station on top of Nui Ong Cau that no enemy activity was evident led to the decision being made to rest several personnel from 3 Platoon, Victor 4 Company including the platoon commander Lieutenant S D Kidd and the specialist scouts from 3 section. This was usual procedure as the NZ infantry companies operated almost continuously on extended operations.



The strength of 3 Platoon was 14 men including the acting platoon commander Sergeant Tuhiwai organised into two reduced rifle sections and a command group. The Operation code named Waipounama (probable misspelling of the Maori name for the NZ South Island - Waipounamu - the Greenstone source Island) commenced on 18 March 1970 with Victor 4 company being airlifted into two landing zones in the centre of the Nui Dinh hills by Iroquois UH 1 assault helicopters.

The Company HQ, 2 and 3 Platoons landed on the western side of the mountain top while 1 Platoon landed on the Nui Ong Cau feature.

The large re-entrant in the eastern side of the mountain was the objective of the immediate patrolling done that day, with 3 Viet Cong engaged in the early afternoon in a fleeting contact.

The Company deployed in a defensive posture at last light around the main plateau and an uneventful night passed.

On the morning of 19 March 1970 the eastwards sweep commenced.

1 Platoon covered the movement of 2 and 3 Platoons as they investigated the tracks located the previous

day. Around mid morning a command detonated mine injured Privates Paul Thomas and John White of 2 Platoon. The Viet Cong didn't follow up this ambush and the injured New Zealanders were evacuated by helicopter "Dustoff' medivac.

2 Platoon continued to patrol southeast to the bottom of the hill, following enemy tracks while 3 Platoon followed a circuit track back towards the V4 Company HQ, moving in thick vegetation, referred to as triple canopy which means jungle with plenty of large trees. At the bottom of a short steep downhill section the terrain opened out into open rocky ground which gently sloped uphill.

Various members of 3 Platoon had noticed the signs of enemy activity, such as fresh wood cutting for bunkers/hootchs and human waste as they slowly moved along in a single file patrol formation.

Private T W (Mo) Paenga led in his role of lead scout followed by Private Bill Keatch who was his cover scout. This pair worked in tandem, covering each other's movement as they cautiously scoured the jungle surrounds for the Viet Cong.

The 3 section commander followed the scouts, Corporal Olly Taukamo, from where he commanded the depleted section. The M60 Machine gun group of Private Beau Heke, the gunner, and the number two Private Ray Symons followed next followed by the section 2nd in Command Lance Corporal Graeme Goldring who was the Machine gun group commander. Three Platoon's acting commander Sergeant Tom Tuhiwai followed Goldring, with his signaller following.

The other section group followed, with another six soldiers organised the same as the 3 section and moving in single file. This section contained the 2nd M60 Machine gun group of Privates Aussie Young and Don Clark.

The limited visibility of the thickly vegetated terrain made excellent ambush country and the lead scout was placed under the stress of ensuring the platoon wasn't caught in a devastating point blank range ambush in addition to the certain knowledge that if the Viet Cong were waiting in ambush he would be the first to know.

We will never know what the lead scout was thinking about that time as the leading 3 section members emerged from the jungle and made their way up the rocky spur that led to the Viet Cong company position. No doubt he was relieved to emerge into the more open terrain where he could see more than ten feet ahead, also the ever present chance of a trip wire booby trap would be reduced.

The Viet Cong had set an ambush on the main track approaching their main camp where they had set up aiming posts for their 60 mm mortars. They were aware that enemy troops were patrolling near the camp and hoped to annihilate a patrol before retreating back to the populated lowlands. The enemy firepower required the Viet Cong to engage at close range on ground of their choice with an escape route prepared before the weight of artillery and aerial firepower overwhelmed them.

The indirect approach of the New Zealand patrol threw this plan into disarray but the Viet Cong soldiers, being veterans of this long conflict, quickly prepared to ambush the patrol from a different direction which was covered by bunker positions. RPG teams moved through covered trenches into these bunkers and quickly assembled the 85mm Rocket Propelled Grenades from their wrappings, which were then slid into place at the front of the launcher. Other comrades set up RPD light machine guns or took up position with a SKS or AK47 rifle and waited.

Private T W (Mo) Paenga, scouting ahead of the 3 section across a small re entrant, was killed instantly when a Claymore anti personnel mine was command detonated at the New Zealanders, thereby initiating the ambush.

A split second later numbers of Viet Cong soldiers popped up out of their concealed bunkers to fire RPGs (85mm Rocket Propelled Grenades) at the leading New Zealand soldiers.

Lance Corporal Graeme Goldring, who was close to the Platoon HQ just at the jungle edge, recalls the sudden shock of having the infantryman's worst nightmare suddenly occur - that of being caught in an ambush. The sheer mind numbing blast of firepower caused him to think that the leading section was being engaged by American troops in error.

The leading New Zealand infantry section was dispersed which meant the VC rocket fire and possibly several more claymore mines impacted mainly around the lead scout-Private Mo Paenga, the cover scout - Private Bill Keatch and the section commander Corporal Olly Taukamo.

Heavy automatic gunfire from an array of AK47 assault rifles, RPD light machine guns and at least one 30 calibre machine gun laced the area from the killing ground back to the edge of the jungle.

In that immediate maelstrom of incoming fire the lead section was effectively decimated, with only one soldier able to return fire amongst those caught in the open. Private Ray Symons fired approximately ten 7.62mm rounds from his SLR at the area the deluge of VC fire was coming from.

Further back at the edge of the jungle other platoon members fired their rifles with no noticeable impact on the entrenched enemy. The situation at this point was that the Viet Cong had achieved dominance over the New Zealand infantry platoon and had the initiative on the battleground.

In situations such as this the actions of individuals who seize the moment and perform beyond that which is reasonable to expect can make all the difference.

Private Ray Symons who had taken cover behind a large tree heard one of the leading New Zealand soldiers cry out in pain and without further ado ran forward into the area where the explosions had occurred. He encountered Private Beau Heke, the section M60 Machine gunner, who had just been laced with shrapnel in his shoulder an instant before when a RPG round impacted near him.

Symons pulled Heke away from the M60 machine gun and after giving him his SLR directed the shocked and bleeding man into an area of dead ground back towards the jungle.

The section commander, Corporal Olly Taukamo, who had been up front with his scouts staggered back towards Symons. Symons assisted the wounded and deeply shocked Taukamo (wounded for the third time in two tours of duty) and directed him back to where Beau Heke was. Symons decided to take the fight to the Viet Cong at this point and of his own volition picked up the M60 machine gun and moved forward to a position from which he judged he could effectively engage the enemy.

The cover scout Private Bill Keatch appeared next, walking upright and seemingly oblivious to the hail of projectiles shrieking through the air.

He was bleeding from his head and had lost his right eye. Symons paused to drag Keatch down to the ground and when Keatch was clear of his position opened up with the M60 machine gun. He had approximately 800 rounds of linked 7.62mm ammunition for the M60 with him and set about firing controlled bursts at the enemy position. His actions earned him the attention of a number of VC who fired back at him, mainly with automatic weapons as the firepower generated by the M60 machine gun would have dissuaded most of the RPG gunners from standing up out of their bunker entrances in front to fire at him. (If fired from within an enclosed space the back blast from the RPG could kill the gunner). They were still able to launch their rockets at the area behind Symons however.



Private Don Clark arrived forward to assist Symons, having been called forward by Sergeant Tom Tuhiwai with Private Aussie Young carrying the rear section M60 Machine gun. Young set up his M60 behind and to the left of Symons while Clark moved forward. Symons was concerned that the linked ammunition supply was getting low and sent Clark back to recover belts of that ammunition from the wounded men. Between firing controlled bursts from the M60 machine gun Symons repeatedly called out ahead for the missing scout Private Mo Paenga, to no avail. Covered by the barrage of bullets pumped out by the two M60 machine guns Clark attempted to crawl forward to where Symons indicated that Paenga would be. Twice Clark was literally pinned to the ground as fragments whirled around him from RPG rounds exploding. He recalls having to wipe the dirt out of his eyes while waiting for the explosions to pause. On the third attempt Clark found Private Paenga's body. At first sight Clark knew that Paenga had died instantly. The VC position was less than 50 metres away and in spite of the best efforts of Symons and Young firing the M60 machine guns the enemy fire was too intense for Clark to bring Paenga's body in. Clark picked up Paenga's M16 rifle, grenades and ammunition and scampered back to the main 3 platoon position.

The Viet Cong continued to pour automatic fire back at the New Zealanders throughout as Clark returned with enough belts of linked ammunition to enable Symons to continue a heavy rate of fire with the M60.

According to the Australian 6RAR Battalion history Clark made three trips across that exposed area with ammunition. He reported the death of Mo Paenga to Sergeant Tuhiwai during one of his forays.

Clark recalls that the other New Zealand soldiers in the main position had spotted VC movement flitting around the flanks of the ambush and after informing Tuhiwai of Paenga's fate was ordered to tell the M60 machine gunners to fall back to the main position.

Clark explained to Tuhiwai that the M60's were in a better position to engage the VC where they were and Tuhiwai consented to leave them in place. The NZ platoon couldn't move with all its casualties as the VC would have slaughtered them in a running fight and to leave the wounded to the mercy of the enemy was unthinkable. The NZ infantry had a code that they would never leave their dead behind on the battlefield, even if they couldn't recover the body immediately they would remain nearby to prevent the VC from getting to it.

For these reasons Sergeant Tom Tuhiwai and the platoon remained where they were.

The amount of firepower now being put out effectively dissuaded any thought of overrunning the New Zealand platoon the VC might have had in a frontal charge. The VC were not going to run across open ground into the combined firepower of the two M60 Machine guns but started to send out small groups of riflemen around the flanks of the NZ patrol to scout for other NZ troops prior to assaulting the ambush ground from a flank.

Back at the Platoon HQ frantic requests had been made for support from the Australian Task Force. Unfortunately the action was outside the range of friendly mortars and the topography made artillery fire impossible to safely use.

The wounded men had been placed in a stream bed at the base of the slope and were being tended by other platoon members. Sergeant Tom Tuhiwai was wounded by a mortar round hitting the tree beside him and a large white hot fragment slashing into his leg, which was the second time he was injured during his Vietnam tour of duty. The VC firepower had set fire to scattered patches of vegetation around the New Zealand platoon and efforts were required from the soldiers to contain these fires near the main platoon position.

After what must have seemed a long time of continuous fighting and constant pandemonium outside help finally arrived in the form of US Army AH 1 Cobra helicopter gunships clattering in line formation and calling on the NZ 3 Platoon HQ radio for confirmation of the Viet Cong position prior to attacking.

The order was probably shouted by the platoon HQ for the forward group to throw a coloured smoke grenade , in any case to avoid being victims of US firepower it was judged prudent by Symons to throw smoke to mark their position.

Once the gunship pilots had established the location of the NZ troops they proceeded to blast the VC

bunkers with rockets and machine gun fire, some of the fire coming perilously close to the forward NZ group in spite of the smoke marker. The VC fire noticeably eased off after the Cobra gunships had made several passes and for the first time since the ambush started the New Zealand soldiers realised they would probably survive. An order was shouted for the forward group to fall back to the main platoon group as the VC fire had ceased completely.

Before they did so both M60 gunners resumed a heavy rate of fire to enable Private Don Clark to crawl forward to recover Mo Paenga's body.

After this they rejoined the platoon in the stream bed and set up a perimeter to protect a hovering "Dustoff' medivac helicopter which by means of a jungle penetrator device extracted the casualties.

The Victor 4 Company headquarters group had come under spasmodic mortar, machine gun and rocket fire prior to this as the main VC force moved from the bunker complex.

A Viet Cong scout group had pinpointed their position but as reports of other NZ troops in the vicinity came in the Viet Cong commander decided to withdraw his forces from the area. A fleeting contact also had occurred with the NZ 1 Platoon - probably with a VC scout group probing to follow up their initial ambush success to annihilate the remnants of 3 Platoon.

The VC company moved quickly away from the New Zealand troops and were tracked later to a lowland regional South Vietnamese Army force post, where they disappeared amongst the population nearby.

The Victor 4 Company harboured that night in the mountain area, with the shock of the day's action suddenly hitting Private Ray Symons. As he relaxed with a meal and cup of coffee, alongside Lance Corporal Graeme Goldring, he realised they were the only members of 3 section left - he cried.

Further Reading

Towards Long Tan - Australian Army Vietnam 1950-66 by Ian McNeill
The Killing Zone - NZ Infantry Vietnam 1967-71 by Colin Smith
First to Fight - ANZUS Brigade 1965 by Bob Breen
Various privately published RAR (Australian) Battalion histories.

I acknowledge the assistance of Ray Symons, Aussie Young, Don Clark, Graeme Goldring, Graeme Beattie and Geoff Dixon in preparing this article, in the form of filing out questionnaires and a number of interviews, and the cooperation of the Vietnam Veterans Association secretary Alan Nixey to help me contact these people throughout New Zealand and Australia.

Armored Cavalry



US Divisional Armored Cavalry Troop



TROOP

A US Divisional Armored Cavalry Troop contained a Troop HQ (Troop HQ Track , Troop Commo Track and 2 x Troop Radar Tracks) and three Platoons (each consisting of a Platoon HQ Track , Scout Section , Infantry Track , Mortar Track and a Tank Section).

TERMINOLOGY

A Squadron was the equivalent of an Infantry Battalion; a Troop was the equivalent of an Infantry Company. Both organisations used the term Platoon.

SQUADRON ORGANISATION

A Squadron consisted of an HQ and HQ Troop, 3 Line Troops (Troops A, B and C) and an Air Cavalry Troop (Troop D). This page only concerns itself with the organisation of a Line Troop. For information on Troop D, see Air Cavalry Troop

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Troop HQ Track



SABER BRAVO 6

1 x Captain (Troop Comdr)
1 x E6 (Vehicle Comdr)
1 x E4 (Driver)
1 x 1st Lt (Forward Artillery Observer)
1 x E4 (FAO's RTO)

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Troop Communications Track



SABER BRAVO 65

1 x E8 (1st Sgt. Track Comdr)
1 x E5 (Commo Chief, RTO)
1 x E4 (Driver)
2 x E4 (Radio Operator)
3 x E4 (Radio Mechanic)

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Radar Tracks



SABER BRAVO 40
1 x E6 (Section Ldr)
1 x E5 (Snr Radar Op)
1 x E4 (Radar Op, Driver)



SABER BRAVO 41
1 x E5 (Snr Radar Op)
1 x E4 (Radar Op, driver)

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Platoon HQ Track



SABER BRAVO 16
1 x Lt (Platoon Comdr)
1 x E6 (Vehicle Cmdr)
1 x E4 (Driver)
1 x E3 (Observer)
1 x E4 (Plat Medic)
1 x E4 (Radio Operator)

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Scout Section



SABER BRAVO 11
1 x E6 (Section Leader)
1 x E4 (Driver)
2 x E3 (Observer)



SABER BRAVO 12
1 x E5 (Asst. Sqd Ldr)
1 x E4 (Driver)
2 x E3 (Observer)



SABER BRAVO 13
1 x E6 (Squad Leader)
1 x E4 (Driver)
2 x E3 (Observer)



SABER BRAVO 10
1 x E5 (Asst. Sqd Ldr)
1 x E4 (Driver)
2 x E3 (Observer)

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Infantry Track



SABER BRAVO 18
1 x E6 (Sqd Ldr)
2 x E5 (Team Ldr)
2 x E4 (M-60 Team)
2 x E4 (Grenadier)
1 x E4 (Driver)
2 x E3 (Rifleman)
1 x E4 (Radio operator)

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Mortar Track



SABER BRAVO 19
1 x E5 (Sqd Ldr)
1 x E4 (Mortar Gunner)
1 x E4 (Driver)
1 x E3 (Asst. Mortar Gunner)
1 x E3 (Ammo Bearer)
1 x E4 (Radio Operator)

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Tank Section



SABER BRAVO 14

1 x E7 (Plat Sgt, Tk Comdr)
1 x E5 (Gunner)
1 x E5 (Driver)
1 x E3 (Loader)



SABER BRAVO 15

1 x E6 (Tk Comdr)
1 x E5 (Gunner)
1 x E5 (Driver)
1 x E3 (Loader)



SABER BRAVO 17

1 x E6 (Tk Comdr)
1 x E5 (Gunner)
1 x E5 (Driver)
1 x E3 (Loader)

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NOTES



All APC's are depicted as ACAV's (see M113) unless stated otherwise, although, due to the problems associated with obtaining the ACAV kits as well as the damage inflicted on the vehicles by the bush/rubber it was often necessary to operate with standard M113's.

ACAV's were armed with 1 x .50-cal mounted on the Commander's cupola and 2 x M60 mounted one either side of the rear troop compartment. The standard crew for the ACAV was a driver, track commander (who manned the .50 cal), two M-60 gunners and two loaders. All crew were armed with an M-16 and, in addition, a single M-79 40-mm grenade launcher was also carried in the vehicle. Typical ammo loads consisted of about 3,500 rounds of M2 .50 caliber, 8,500 rounds of 7.62mm M-60, 5,000 rounds of 5.56mm M-16 and 150 M-79 40mm grenades.

Ammo loads for the tanks in the platoon typically consisted of; 500 rounds for the .50-cal, 45 rounds of cannister, 12 rounds HE, 7 rounds WP and 3 rounds of the 'new beehive'. As time progressed, the number of beehive rounds that were carried increased as the availability of this round grew.

For further information on weapons see US Smallarms

Communications Track

The Commo track was at the center of Troop communications. The crew of this track had primary responsibility for the Troop radio net and for the maintenance of all the radio equipment in the Troop.

Radar Tracks

Both tracks of the Ground Surveillance Section carried PPS-4 radars. Although not listed in the official TO&E a ground-mounted, man portable PPS-5 radar was also carried. Ground Surveillance Radar were set up in front of the Troop's NDP or Laager and transmitted to a receiver in the Radar Track. It was intended to provide the Troop CO with early warning of enemy infiltration and their direction of approach.

Medics

Medics were usually assigned from Squadron. Several medics (E4, Medical Aidman) often rode on one of the Radar Tracks (Saber Bravo 40 or 41). This was because when the Troop was in action the Troop casualty clearing station was often secured by the Radar Tracks and the Commo Track.

RTO's

In addition to the RTO's on the Commo Track, attached to the Troop HQ, each Platoon also had 3 RTO's distributed amongst the vehicles as the Platoon CO saw fit. These RTO's were not part of the Troop Commo Section but were basically Infantrymen (11B20's) who may have had a secondary MOS of RTO (05B20) or, just by the luck of the draw, were volunteered for that slot. In the example above I have attached an RTO to each of the Platoon CO track, the Infantry track and the Mortar track.

Combat Engineers

It was quite common for a Combat Engineering Team of 4 men (1 x E5, 3 x E3) to be assigned to the Troop. The engineers were invariably assigned as passengers with the Scout Section and were responsible for sweeping in front of the Troop for mines and for jobs requiring demolitions with the use of C4 explosives.

Infantry Squad

The personnel of the infantry squad were quite often split amongst the various tracks of the Troop in order to provide those tracks with extra security.

Mortar Track

The Mortar Track was a modified M113 (not an ACAV) and could be either an M106 (4.2-inch mortar) or an M125 (81-mm mortar). Irrespective of the mortar type, the crew of five actually served the mortar itself.

Tank Section

The Tank section consists of 3 tanks. Originally the tank section consisted of the M48A3 but, as the war progressed, many units received the M551 Sheridan. 'B' Troop, 3/4 Cav received their Sheridans in late January 1969. By 1970 the tank section is likely to consist of Sheridan's. Prior to the arrival of the M551, some cavalry platoons of regimental cavalry squadrons, lacking M48A3's, were actually using ACAV's as substitutes for the tanks in this section.

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OPTION

Medic Track

The medic Track was a standard M113 and was often unmarked. This Track was not actually included in the Armored Cavalry Troop TO&E since, if present at all, it was supplied from the Squadron HQ unit. All members of the crew were medics. If you include this track in your organisation then the Medics who usually rode on the Radar Track would not be included.

Medic Track



1 x E5 (Snr Medical Aidman, Track Comdr)
2 x E4 (Medical Aidman)
1 x E4 (Medical Aidman, Driver)

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Sources:

Air Cavalry Troop



D Troop, 3/5th Air Cavalry
Submitted by Don Armstrong

I. Introduction

The purpose, operation, mission, composition, and a typical day's operation of D troop 3/5 Cav.

II. Mission

To extend by aerial means the reconnaissance and security capabilities of the ground units. To engage in offensive defensive, or delaying actions within its capability and to seize and dominate lightly defended areas or terrain features. * (note: real mission was to search and destroy.)

III. Composition

A. TOE Authorized
1. 216 enlisted men
2. 14 officers
3. 36 warrant officers

B. TOE Actual
1. 221 enlisted
2. 18 officers
3. 29 warrant officers

C. Aircraft
1. 8 UH-1H lift ships
2. 10 OH6 scout ships
3. 9 AH-1G cobras

D. Troop makeup

1. Hq section
2. Aero Scout Platoon (War Wagons)
3. Aero Weapons Platoon (Crusaders)
4. Aero Lift Platoon (Longknives)
5. Aero Rifle Platoon (Doughboys)
6. Maintenance Platoon (Scavengers)

IV. Platoon Makeup & Tactics

1. Scout Platoon (Warwagons)

A. 2 Sections

(1) 2 teams each section
(2) 2 ships each team

B. OH6 Armament

(1) M60 on bunji cord-operated by door gunner
(2) 4000 rounds per minute mini gun operated by pilot
(3) 40 lbs of explosives
    (a) frags
    (b) CS gas
    (c) smoke
    (d) baby bombs-also known as W.W.A.S. (Warwagon air assault)
        [1] 1 lb tnt 2 lbs C4
        [2] 1 lb C4 a can of transmission fluid.

C. Tactics:

The scouts are given an area to work by the C & C (command and control) A/C. Only 1 team will work an area at any one time. They move into an area at tree top level and check any suspicious areas thoroughly. Some of the things the scout looks for are fresh trails, military clothing and equipment, fresh activity in abandoned areas and suspicious military age males. To help the scout to perform his mission of finding and killing VC, he uses a variety of armament which are utilized to blow bunkers, clear underbrush and kill VC. The lead scout is the one that does most of the work. The trail scout ship is closely behind the lead to give him cover at all times, and in case the lead is shot down the trail ship will be right there to pick up the downed crew. Some of the other function of the scout team was to screen for troops moving into an area, giving them constant air cover. Also, the scouts will pick out a suitable LZ for lift ships to insert troops.

2. Aero Weapons Platoon (Crusaders)

A. 2 sections

(1) 2 teams to each section
(2) 2 ships to each team

B. AH-1G armament

(1) 2-M59 Rocket Pods holding 19 rockets
(2) 2-M27 Rocket Pods holding 7 rockets
(3) 1 XM-28 turrent
    (a) 1 mini gun- 1500 RPM, or 4,000 RPM
    (b) 40 mm - 340 RPM
    (c) or any combination of the above

C. Tactics

(1) The cobra is a vital part of the Aero weapons platoon. The aircraft commander is in charge of the aircraft and sits in the rear seat and controls the firing of the rockets. The gunner (also a lot) pilot control the firing of the turret and sits up front. He can also fly from the front seat to relieve the pilot.

(2) As with the scouts, the cobras only have 1 team on station at any one time (usually). The cobras cover the scouts in the A/O (area of operation) and usually orbit around them about 1200 feet. Anytime the scouts call "taking fire", the lead cobra automatically rolls in to cover the scouts exit out of the area. While the lead cobra is rolling in the gunner in the front seat is already putting down a heavy volume of mini gun fire into the area the scouts received fire. When the lead ship is in position he fires rockets into the area. Also at this time the trail cobra is putting rockets into the area to cover the leads break and to keep constant fire in the area. By the time the trail ship is ready to break the lead cobra has already gained altitude and is ready cover the trails break.

This cycle can continue until the cobras feel it's safe for the scouts to return or until the target is destroyed. Some of the other functions of the cobras is to cover the lift ships on insertions and extractions, and to destroy targets given to them by either the scouts or the ground troops. The cobras can provide close support to the ground commander.

3. Lift Platoon (Longknives)

A. UH-1H

2 sections with 7 ships for each section

B. Lift

UH-H (Huey) carries 2 M60 machine guns, troop capacity 8 U.S. or 10 ARVN

C. Tactics

The lift platoon uses 4 A/C to carry troops. They usually will fly a staggered formation or trail formation. The main purpose of the lift platoon is to insert and extract troops into the LZ. The lift ships are usually staged out of a staging area which is usually a base camp close to the AO. Another function of the lift ships is to be used as a medevac, or ash and trash missions.

4. The Aero Rifle Platoon (Doughboys)

A. 4 squads - 40 men (10 men each squad)

B. Armament

(1) 8 45 cal pistols
(2) 8 M-79's
(3) 32 M-16 rifles

C. Tactics

The Doughboys are equipped and trained to be ground pounders. Their main purpose is to give a ground reconnaissance of areas that the scout ships cannot check out by air. They are strictly a recon element. They are not a main fighting force and only about 32 soldiers are inserted at any one time. They can handle small numbers of VC. Anything of a larger size would have to be dealt with by a regular infantry company which would be brought in by an Assault Helicopter Company. Another function of the Doughboys (outside of details) is to secure any of our downed aircraft until it can be extracted.

5. Maintenance Platoon (Scavengers)

A. 4 sections and a platoon Hq

(1) A/C maint section
(a) Cobra maint team
(b) Huey maint team
(c) LOH maint team

(2) Allied Shops section
(a) engine shop
(b) prop and rotor shop
(c) sheet metal shop
(d) electrical shop
(e) avionics shop

(3) Armament Section

(a) Cobra armament
(b) LOH armament

(4) Tec supply section
PLL

B. Mission

To maintain and repair our A/C. 110 soldiers sometimes working 24 hours a day.

V. Typical Days Operation.

During the night the aviation battalion TOC will give our troop operations a mission. The crews are already scheduled for the next days operation. Wake up 4:15 a.m. shower, shave and eat breakfast. Briefing is at 5:15 a.m. for the lead scouts, lead cobra pilots, and lead lift pilots. At this time they are briefed on the mission and any special instructions. Meanwhile the "Pete's" are out preflighting their aircraft.

The troop takes off at 0600 a.m. and reports to the staging field at 0700 hrs. The mission commander goes into the TOC to receive his briefing on the days mission. At this time he meets his backseat (US Advisor) and the ARVN counterpart. The backseat has given us several areas that he would like to check out. At this time the mission commander will ask for "free fire" in those areas and rules of engagement. Also the U.S. Advisor will indicate where the ARVN Troops are located and if there are any friendly troops in the area.

We have been given several areas along the canal to check out. These have been designated as free fire areas. The scouts move into the area along the canal checking for camouflaged hooches and bunkers and dropping CS into those areas with fresh activity around them. Meanwhile the C & C aircraft is orbiting about 800 feet above the scouts and the cobras are covering the scouts at 1120 ft. (commonly called cutting doughnuts).

After working about an hour the scouts report a lot of fresh signs and activity. The lead scout has taken fire and the cobras are "inbound". The scouts return into the area for damage assessment and continue to work the area. The scouts just reported that this would be a good area to insert troops. The mission commander agrees and coordinates with the backseat and he in turn gets approval from his counterpart. The mission commander cranks up the lift ships to bring the troops out into the A.O.. Meanwhile the scouts have found a good L.Z. near the area, to be checked out. The lift ships are in the area and called "on long final" The scouts drop smoke in the L.Z. and depart the area. The cobras's pick up the lift ships (they're in position behind and high above the slicks and lay down continuous fire into the tree line in case they receive fire). The slicks are on the ground and men are coming out. The lead cobra has broke right and the trail has picked up the slicks to cover their exit from the L.Z.. As soon as the lift ships are clear the cobras break off and cover the scouts who have moved back into the area to give constant air

cover to the ground troops. The troops are moving slowly into the area. They have come across a few hooches and are continue into the target area. The ground troops have reported coming into thick underbrush that has slowed them up. They have also reported finding several booby traps and bunkers. The ground troops also confirmed two KBA's for the scouts.

The troops are moving back out into the P.Z. and are waiting for the slicks. The scouts move out of the area and the cobras again pick up the lift ships for the extraction.

The troops have been extracted and are being returned to their base camp. The scouts make a final check to see that no one was left behind.

The mission commander notices that there isn't much daylight left and asks for a release from the backseat, which he gets and then returns the backseat and counterpart back to their base camp. It's already 1903 hrs and the troop reaches Vinh Long at 2000 hrs.- refuel, rearm fill out forms and do a good post flight.

The mission commander returns to operations to spend another hour filling out after action reports .

This concludes a typical day.



This article was taken from the D Troop 3/5th Air Cavalry web site and is reproduced here with the kind permission of Don Armstrong. This material is copyright of that site.

See Also:

The Helicopter War - a page of links to US Helicopter Unit sites
Aero-Rifle Platoon - a page about using an Aero-Rifle Platoon in games
US Helicopters - diagrams and performance details of US Helicopters
US Helicopter Weapons Systems - diagrams and descriptions of helicopter armaments
A History Lesson - an article recounting an actual engagement, written by the Scout Pilot 'War Wagon

159th ASHB

101st Airborne Division



Submitted by Charles Lee

INTRODUCTION



CH-47 Chinook

I started out as a grunt, army aviation was extra duty. I graduated OCS, "Benning School for Boys", Jan 1967, 7th Battalion / 73rd Company, 'The Student Brigade'. A 6 month tour at Benning as a Tactical officer at 51 Officer Candidate Company for 6 months.

During the last month of flight school, I just asked and my orders were changed from 25th Field Force, VN to Ft. Sill to form a Chinook unit. Lucky I guess.

We began in April 1968 as the 293rd Medium Lift Helicopter Company (Chinooks), assigned to Fort Sill, forming for RVN.

The first Commander was Merril T. Adamcik. Our XO was Samuel Kiaser, and the two platoon leaders were Maj. Leroy Jones and Captain Jeffery Fillion. Two of the four Section leaders were Captain Charles Lee, Captain Paul Cuda. The other two section leaders were senior Warrant Officers.

Captain Larry Cooper, was the unit supply officer, and CW3 Paul Clements was the Personnel / Administrative Officer for the company. Also attached to the company was a Maintenance Detachment commanded by Major Frank Shafer. Major Shafer transferred to another unit once we arrived in Vietnam.

Major Larry Karjala was initially the Company Operations Officer, then moved to Maintenance Officer when Frank Shafer left the company. Also in Maintenance Detachment were two W4 Warrants who were

maintenance test pilots. These two warrants, CW4 Harold Wright and CW4 Bed Sherrell, had been UH - 1 drivers during their first tour.

All of the Warrant Officers assigned as new unit pilots were fresh out of flight school. All maintenance personnel were also fresh from MOSQ schools. Chinook Helicopter experience did not exist at any level within the unit. However, experience from other units, i.e., Huey, Fix wing, etc., did. That and a belief that we could accomplish anything made the system work.

All the older officers, i.e., Commander, XO, and Platoon Leaders, were ex-Army fixed wing jockeys with a quick course (8) weeks, then assigned to fill helicopter unit slots. Medium and Heavy helicopter pilots, at the time - 1968, were required by army to have 1 tour as an aviator, 500 hours of flight time and then transition into Chinooks and/or cranes.(CH-54's). The army was short of pilots with all the new units forming, and rotation of pilots already in Viet Nam so the only thing available for the new units like ours were pilots fresh out of flight school.

Unit financial and equipment support for any unit about to deploy was an open door, open check book approach - "here are the men, here are the aircraft, here is a check, go get, write and deploy..." - of course the Chinook only cost $1,000,000 each then instead of the $15 - $20 million now, and, the economy was different also.

Imagine, it took 6 months to move an existing unit from Ft. Campbell to the Middle East in 1991. We drew pilots, crewmen, aircraft, parts, vehicles from the manufacturer, shipped them to Ft. Sill, trained the individuals, then completed unit level training, passed maintenance and operational readiness tests and inspections, packed and shipped all equipment, personnel and aircraft to Vietnam. All completed from start to finish in 6 months. This was done using 99% draftees and almost all of them fresh out of Warrant Officer (Flight) school or Officer Candidate School and then flight school.

We wanted, and requested "Mother's Truckers" as a call sign. We were told that it was to "gross" and therefore the Department of the Army wouldn't allow it. We were however called "Playtex", because we "supported" the division. The "Bra" was support, and there was an ex-Miss America, advertising Playtex, so we put two and two together... no pun. Everything we owned was painted pink. Our entire building complex in Vietnam was Pink. We painted a bra on the underside of one Chinook for demonstration work and exhibitions we were flying in the US before we went to RVN.

ORGANIZATION:

From memory so + / - a couple here or there.

Motor Pool personnel:

- 1 Officer - Additional duty
- 1 Enlisted (E4) Acting Motor Sergeant
- 1 Enlisted grade 2 or 3 as Mechanic

(Just a little short on people authorized for the motor pool with 100 vehicles and trailers to be maintained)

Vehicles;

- 18 jeeps
- 4 - 7ea 3/4 ton
- 3 - 5ea 2.5 ton trucks with trailers
- 3 - 4 5 ton with trailers
- 2 ea. fuel trucks - 2 1/2ton with 2 each 300 gallon pods
- 1 each 5 ton wrecker
- 1 ea. 5 ton forklift
- 1 ea. 40 ft flat bed with 5 ton tractor
- 2 ea. water trailers (buffaloes)
- 1 ea. moped motor scooter (the flight line technical inspectors)
- 2 ea. mules (flat bed cart with 5.HP Briggs and Stratton engine)
- 1 ea. D8 Cat, bulldozer. We were authorized one, Shipped it to RVN as Unit TOE property. The Seabees building our billeting area used it to clear the land for living quarters, then took it as an equipment transfer.
- 1 ea. Air Force Flight Line Tug. One of our flight crews "confiscated it" from an AF base. It was repainted, issued a log book and shipped. We were young and had no fear. You were basically authorized anything you could acquire and we had some masters at the game. With Chinooks, nothing was too large - sling it, if it was.

A typical Chinook company of an Airmobile Division consisted of;

- Command Commander and Executive Officer
- Operations (extra duties at company level, did the same job as Bn operations)
- Supply
- 2 Flight platoons – 30 Officers, 2 Majors for Platoon leaders, 4 Captains for Section leaders @ 2 per Platoon, and the rest Warrants Officers 1 - 4
- Each unit appointed a Safety officer - extra duty to flying, motor officer, supply officer, and any number of other jobs
- We had 18 Chinooks, supposedly 16 were flyable and 2 in reserve maintenance for back up
- Each Platoon had 8, therefore 4 to a section
- Unit consisted of a major as platoon leaders, if available, most of the time Captains were the platoon leaders with a Major for CO of the

unit

- Possibly a Major or senior Captain for XO
- A Warrant Officer's extra duty was assigned as Administrative Officer for the orderly room. This was in addition to the 1st Sergeant
- There was an enlisted platoon (s) with the Flight Engineers (1 per AC) and 2 - 3 Door Gunners. Usually one of the door gunners would be the Crew Chief for the aircraft
- The aircraft had 2 pilots (aircraft Commander and Pilot), Flight Engineer, Crew Chief and 1 - 2 door gunners, depending if the tail ramp was lowered and a M60 was mounted as a "stinger" on the ramp shooting to the rear...neat idea
- Total EM and Officers for the aviation company with 18 aircraft was approx. 300. This allowed minor maintenance, although would keep the crew busy. Mess hall, Petroleum crews, orderly room, weapons, motor pool, etc., in the normal company requirements made the large number of men necessary

At company level (3 Company's per Battalion) only Chinooks are authorized. At Battalion level we added 2 loaches (OH-6's) for admin flying, command and control, and in dire emergency, flying nurses to the PX, etc.,

MAINTENANCE

Attached to the company was a Maintenance Detachment with a Major as commander and 2+ Warrant officers for maintenance test pilots. These were addition to the company pilots. The Enlisted assigned to the detachment numbered about 300, same as the company. The maintenance detachment had separate shops for radios, rotor blades, engines, etc. Each shop was specialty, sheet metal work was big... the detachment, although commanded by the major, was directly responsible to the unit commander. It was a very efficient operation. Maintenance was a separate operation, yet answered directly to the aircraft company commander because it affected his mission.

This formation allowed us to fly some long hours each day. Because maintenance was assigned and not dependant on a separate unit or, separate level of command, as it is now. The yearly flight hour allocation, which we flew, was limited only by availability of spare parts and the number of pilots assigned. Now it is limited by unit maintenance, which is assigned and performed by another unit, without a command and control linkage. Where our flight hour program allowed 30,000 hours in a year for 18 birds, now a unit programs 2000 hours, and units probably can't fly all of it. It was supposed to be an improvement, Go figure.

ARTILLERY INSERTIONS



They were not called "Artillery Raids" until 1970. The "Artillery Raid" was a 1970 concept, based on the proven ability to insert and withdraw artillery units in a fast efficient manner. It involved nothing more than the missions we had perfected in Viet Nam. Chinooks taking artillery into a firebase area, a quick set up, fire rounds for 24 - 48 hours and then move the artillery to another site. Hit and run so to speak. We were doing the first two parts of this operation as a standard procedure in Viet Nam, the added phase of withdrawing after a short time was the "new" concept. A Chinook can carry a towed 105, (Howitzer pulled behind a truck or tank) with a sling load of ammo and the gun crew inside the AC. So 6 Chinooks, with one load each, can move a battery of artillery to a site with enough ammo for 2 - 3 days of shooting. Then one or more aircraft can be assigned to re-supply as needed. Although the concept was initially designed for guerrilla operations, there is no reason it would not work in a conventional war. A moving army would need the artillery moved at a fast pace to support the infantry troops.

The old Chinooks (A / B / C's) could carry up to 10,000 lbs. load on a good day, so a battery of 6 Artillery tubes (105's) needed 7 loads to move. 6 tubes, 1 command and control, and all with an ammo load attached. Even with the cyclic (Constant) rate of fire for a 105 being sustained, we could piggyback enough ammo for a couple days of firing. Then re-supplying as needed at 10,000 lbs. per load was no big deal. (Additional loads would be needed for food, water, generators, etc. For the larger 155mm howitzer we took two loads per gun; one 10,000 LB load of bullets, or "projo"s as they were called, and one load of powder. You didn't carry both items together! Mind, you'd be just as dead with 10,000 lbs. powder going off as you would be with 5,000 lbs. Guess it was the way it was packaged at the factory on pallets.

We flew insertions of artillery bases, or Fire Bases on a moments notice, radio call from aviation unit operations to 6 birds already flying to meet for an insertion, and within 10 minutes you had birds, call signs, pickup zone, and drop or insertion zones - all done while you were in the air.

The aircraft would be at 30 seconds spacing between each, thus a tube insertion every 30. The first tube would be firing before the last one was on the ground. Less than 3 min from drop to first round out of the tube. Fast. We would put an artillery battery of 6 tubes in and have ammo for 2 days with 6 - 7 loads, or 3 - 5 minutes...

When I returned to the states and attended the Infantry Advance course (9 month school for higher command and staff assignments) the "Official Army Doctrine" called for inserting an artillery battery with: 6 tubes, personnel, 8 hours of ammo, would need 37 Chinook loads... that's right, book called for 37 loads, not 6... Official Doctrine, and we couldn't get it changed. I'll bet today you'll find the same

doctrine in place, and the aircraft (AC) will haul more ammo with the tubes. The "RAIDS" of today were the same operation we did then; just they plan on 24 - 48 hours today.

OTHER LOADS



Once the Fire Base was in, the re-supply continued with loads as needed; ammo, water, supplies, PSP (Perforated Steel Planking, for building), wood, sand bags (empty), C rations, jeeps with trailers loaded with ice and beer - no joke, great moral builder. We used Connex's rigged with shower nozzles - mounted a 55-gal drum of water on the top and you had a shower. We'd sling those to the firebases so the grunts could have showers. Those were the fun loads, knowing they would help moral. We also flew the USO shows, donut dollies (Female entertainers) from USO shows or Red Cross units out to bases for brief daytime visits. Jump seat between the pilots was always reserved for a mini-skirted female.

ARMAMENT

Our normal armament was two M60, 30-cals., one on each side. The marines used two .50s on the baby Chinook (CH-46). We occasionally added a third on the ramp. With the ramp lowered to level position and a M60 on the lip. The gunner could sit with his harness on, and his legs hanging over the lip of the ramp and outside, and straddle the machinegun, and look to the rear. It was a neat seat and place to ride. However, you never saw a "stinger" gunner not sitting on a Chicken Plate. (Porcelain chest protector).

The main reason for limit on the armament was that the Chinook, with rare exceptions, was only a re-supply aircraft. In our Battalion of 3 companies, I only know of 1 Combat assault done with Chinooks. I did one, or so it was called - actually was an Infantry Company put in to secure a down aircraft site, not much of an assault, we took no fire, thank goodness. I believe the 1st Cav. tried using Chinooks for assault. They hold 33 men as opposed to the 7 - 9 for the Huey. Our problem was they were a huge target. You loose 33 men at a time or more if you crash. Also, if you have one disabled in a small LZ, you stop the assault. Size of the LZ could be the most important. In open areas like the delta you have water, which will let the Chinook wheels sink.

Lots of reasons for not using Chinooks for assault and then there just wasn't that many of them. The 101st only had 48 in the Division and that meant in I corps, Da Nang to the DMZ - 150 miles and with Marines, ARVN's, US Army, we supported 50 - 100,000 troops. Loosing one would hamper the re-supply effort. It meant you also began to have trouble getting replacement aircraft from the states. With all the units in Vietnam loosing aircraft, replacements were hard to come by for a complicated aircraft.

FUEL & FLIGHT TIME



Refueling was almost always done "hot" - with engines running. Rarely, almost never are they refueled that way today even though they are safer systems. Without the bladders (resealing bladders in tanks, standardized in mid-1960 and after) we could stay airborne for about 2.5 hrs. Now most will plan on 2 hours - 2.5. Today you have different models with larger tanks for extended operations, or even air-to-air refueling on some (Special Operations birds).

We'd run two loads of fuel, 1 - 2 hours depending on the sling load weight, the more weight hauled, the more fuel you burn in a given hour, then stop for a maintenance break. A 30-minute break was usual, then up for another two loads. During the summer 12 - 15 hr days were not unusual, and 7 days a week.

You could fly 120 hours in any given 30-day period. Say as an example, 1 May 1969 was a 12 hr day, then 30 May1969 you dropped the 12 hours from the 1st (30 day periods) and you could fly 12 hours or however much of the 12 hours you needed to bring you up to 120 hours for the period 2 May - 30 May.

Company operations job was to post, track, and ensure missions didn't put pilots over the limit. At 120 hrs you could get the flight surgeon to examine you, give you an up slip for another 10 hrs, then another for 10 hrs for a max. of 140 hrs in any 30 day period. 100 - 120 hrs was not uncommon for a Chinook pilot. Therefore he would get 1000 - 1200 hrs on a 12-month tour. XX every pilot in the unit. What you got was 18 year olds going to Flight school. 19 years old at the finish of flight school, Chinook transition (40 hrs) and then Viet Nam. At 19 or 20 this "kid" is a CW2, Army Pilot, 1,000 hours of flying, handled emergency procedures from run away engines, to engine failure, shot up hydraulics, overworked, underpaid, yet doing a job everyday, drinking at night, thinking that it was "Normal" for a 20 year old. Hell of a bunch of Guys. And they were the ones with the "easy" flying jobs. Not the combat assaults, night medical evacuations with bullets flying all the time, or the other jobs.



Next Page

Source :

Charles Lee, Section Leader/Platoon Leader/Motor Officer, C/159th ASHB, 101st Airborne Division, Bn S-2, 159th ASHB, RVN '68 – '69.

See Also:

Chinook Crews - a web site listing hundreds of ex-Chinook crewmen

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US Helicopters



OH-6A Cayuse Light Observation Helicopter

Light Observation Helicopter (LOH) program (1960-1968)

In 1960, the U. S. Army requested proposals for the LOH program, a small, maneuverable, personnel transport, cargo, MedEvac, light ground attack, artillery, and photo reconnaissance helicopter. The LOH program was won by the Hughes (model 369) YOH-6A Cayuse. Though not selected, the Bell (model 206) YOH-4A (1961), powered by an Allison T63-A-5 250 shp turbine engine, evolved into the successful Bell (model 206A) Jet Ranger. When the LOH program was reopened for an additional buy in March 1968, the Army selected the Bell model 206A, which was type classified as the OH-58A Kiowa light observation helicopter.



OH-6A 'Loach'

Length : 30' (9m)
Weight : 1,160lbs (519kg)
Payload : 930lbs (415kg)
Cruise Speed : 150mph (240kph)
Range : 380 miles (610km)

The Boeing (McDonnell Douglas - formerly Hughes model 369A) OH-6A was designed for use as a military scout during the Vietnam war to meet the U. S. Army's need for an extremely maneuverable light observation helicopter (LOH). Initially fielded in Vietnam in early 1968, the Hughes OH-6A was used for command and control, observation, target acquisition, and reconnaissance. The Cayuse was organic to division, brigade, and battalion size units. The four-passenger tear-drop shaped "Flying egg" (six-passengers with rear seats folded down) was a small, light, sturdy, maneuverable helicopter, with very low drag.

The OH-6A Cayuse was quite effective when teamed with the AH-1G Cobra attack helicopter as part of

what were known as "Pink Teams". The OH-6A "Loach" (for "LOH") would find targets by flying low, "trolling for fire", then marking the target with colored smoke to lead in a Cobra, or "Snake", to attack. The Cayuse could absorb an extensive amount of small arms fire and still bring the crew home safely. The OH-6A could be armed with the M27 armament subsystem, the port (left) side mounting M134 six-barrel 7.62mm "Minigun" or a 40mm grenade launcher on the XM8 armament subsystem. In addition, an M60D 7.62mm machine gun could be mounted in the rear starboard (right) door opening. The OH-6A replaced the Korean era OH-13 Sioux and OH-23 Raven light observation helicopters. The Cayuse had a single articulated four-bladed main rotor, a metal two-bladed tail rotor, and a V-shaped tail. The OH-6A was powered by a single Allison T63-A-5A 285 shp turboshaft engine, and had a cruising speed of 144 mph (125 knots).

"The Real Cav OH-6C"

The "OH-6C" was the creation of the Maintenance Section of "The Real Cav", B Troop 7/17th Air Cavalry Squadron, which was stationed near Pleiku in early 1972. Armed with a 40mm grenade launcher in a nose turret, and two 19-tube 2.75 inch rocket launchers, the "OH-6C" was ready to take on anything. Unfortunately, the weight of the armament kept the little bird from taking off.

Whilst the Maintenance Section's heavily modified 'Real Cav' may have been one modification too many, successful field modifications were adopted.

Rich Hefferman (B Troop, 7/17th Air Cav 'Ruthless Riders') wrote;

For what its worth in June of '68 I crewed a LOH 67915 that carried both the M127 mini-gun and a 4 shot 2.75" rocket pod. This was not the field modified 2-shot pods that some units fielded. We did trade off some power especially because of the air working the Central Highlands. By using a two man crew and using a CAR-15 instead of a third crewman using an M60 we broke about even on the gross weight. I have several photo's of the ship posted at the link above under the "Scout's 68-69" heading.





Rich Hefferman's aircraft with the modified armament system. Notice the rocket pod on the right pylon.
(Photos courtesy of Rich Hefferman)

In June of '68 B Troop 7/17th Air Cav modified aircraft 67915 to utilize both the M-27 mini-gun and a 4 shot 2.75mm rocket pod. The armorer who worked on the ship was Tony "Limey" Holmes and the Loach was crewed by myself. The rockets used, to the best of my recollection, were always W-P (white phosphorous) which were used to mark targets for our UH1-B Model gunships until we received our AH1-G Cobra's. The system did work well. The problem was that while you were scouting the area if you received fire you had to mark the target immediately with smoke to bring accurate gunship fire on the target. This was not possible unless you fired the rockets from a distance to mark the target. Although it must have shocked the NVA to see an OH6 roll in hot firing both a mini-gun and punching off rockets at the same time. At the time B Troop used a two man crew with the CE/Obs using a CAR 15. We did not use modified M-60's at the time.



Back to US Helicopters

US Army

US Army Rifle Company TOE 7-18G

US CAVALRY USMC RIVERINE MILITARY POLICE

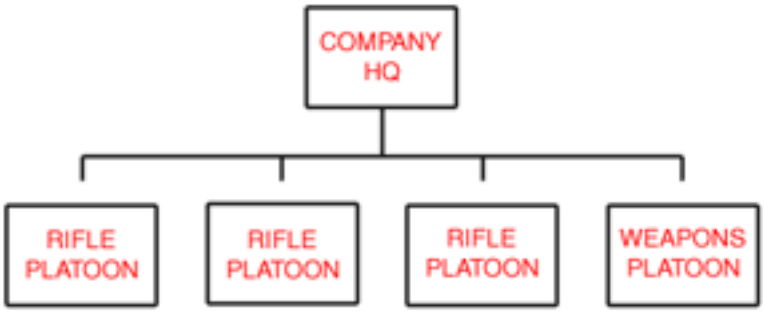
COMPOSITION OF COMPANY

- 1 x Company HQ
- 3 x Rifle Platoon (each 1 x Rifle Platoon HQ, 3 x Rifle Squads, 1 x Weapons Squad)
- 1 x Weapon Platoon (1 x Weapons Platoon HQ, 1 x Mortar Section, 1 x Antitank Section)

ARMY INFANTRY COMPANY

Company HQ

- 1 x Captain, Company Commander, Pistol .45 cal
- 1 x Lieutenant, Executive Officer, Rifle
- 1 x E-8 First Sergeant, Rifle
- 1 x E-6 Supply Sergeant, Rifle
- 1 x E-5 Communications Chief, Rifle
- 1 x E-4 Armorer, Driver, Rifle
- 1 x E-4 Clerk, Pistol .45 cal, M-79
- 1 x E-4 Equipment Clerk, Rifle
- 1 x E-4 Field radio Mechanic, Rifle
- 2 x E-3 radio Operator, Driver, Rifle
- 2 x E-3 Wireman, Rifle
- 2 x 1/4 ton (4x4) Utility Truck with 1/4 ton Cargo Trailer
- 1 x 1-1/2 ton Cargo Trailer
- 1 x 2-1/2 ton (6x6) Truck
- 3 x AN/PRC-25

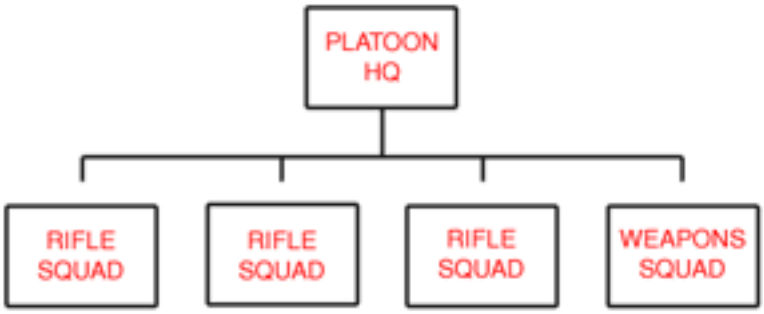


- 2 x AN/VRC-47 (mounted in 1/4 ton Utility Truck)
- 2 x AN/GRA-39 (mounted in 1/4 ton Utility Truck)

3 x Rifle Platoon

1 x Weapons Platoon

RIFLE PLATOON



Rifle Platoon HQ

- 1 x Lieutenant, Rifle
- 1 x E-7 Platoon Sergeant, Rifle
- 1 x E-3 Radio Operator, Rifle
- 2 x AN/PRC-6
- 1 x AN/PRC-25

Rifle Squad x 3

- 1 x E-6 Squad Leader, Rifle
- 2 x E-5 Team Leader, Rifle
- 2 x E-4 Auto Rifleman, Rifle with Bipod
- 2 x E-4 Grenadier, Pistol .45 cal, M-79
- 3 x E-3 Rifleman, Rifle
- AN/PRC-6

Weapons Squad

- 1 x E-6 Squad Leader, Rifle
- 2 x E-4 Machine Gunner, M-60, Pistol .45 cal
- 2 x E-4 Gunner, 90mm Recoilless Rifle, Pistol .45 cal
- 2 x E-3 Ammo Bearer, Rifle
- 2 x E-3 Assistant Machine Gunner, Pistol .45 cal
- 2 x E-3 Assistant Gunner, Pistol .45 cal

- AN/PRC-6

The E-6 SSG in the weapons squad is usually the most senior SSG in the platoon. Note that the TO&E for the Weapons Squad includes a 90-mm Recoilless Rifle (2 man team) but it was common practice for the 90mm Recoilless Rifle to be left at base camp or the NDP (troops could still carry the LAW as an anti-tank weapon) and replaced by a third M-60 GPMG or alternatively the 90mm RR team would hump extra ammo for the 60's (as above).

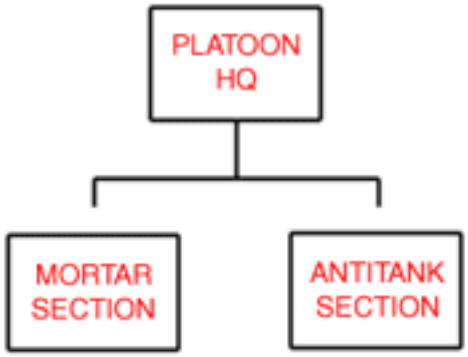
WEAPONS PLATOON

Platoon HQ

- 1 x Lieutenant, Rifle
- 1 x E-7 Platoon Sergeant, Rifle
- 1 x E-3 Radio Operator, Driver, Rifle
- 1 x 1/4 ton Utility Truck with 1/4 ton cargo Trailer
- AN/GRC-125

1 x Mortar Section

1 x Antitank Section



There were a number of operational problems associated with the employment of the Weapons Platoon. In particular, without their integral vehicles the squads were effectively immobile. Add to this the ROF of the mortars and the inability of the platoon to carry sufficient ammunition for sustained periods of fire.

Using the platoon as a fourth maneuver element in the Company also had problems since the platoon lacked integral firepower and had limited personnel. Have fun trying to maneuver and supply these guys!

Generally the Weapons Platoon stayed at the NDP and gave fire support from that location.

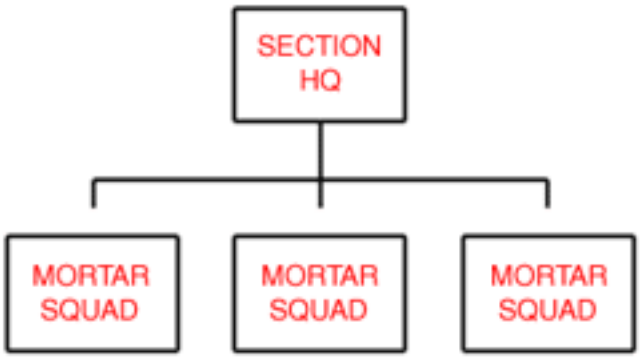
MORTAR SECTION

Mortar Section HQ

- 1 x E-6 Section Leader, Rifle
- 3 x E-5 Forward Observer, Rifle
- 1 x E-5 Fire Direction Computer, Rifle
- 1 x E-5 Fire Direction Computer, Driver, Pistol .45 cal, M-79
- 3 x E-3 Radio Operator, Rifle
- 1 x 3/4 ton Cargo Truck with 3/4 ton Cargo Trailer
- 4 x AN/PRC-25

81mm Mortar Squad x 3

- 1 x E-5 Squad Leader, Rifle
- 1 x E-4 Gunner, Pistol .45 cal
- 1 x E-3 Ammo Bearer, Rifle
- 1 x E-3 Ammo Bearer, Driver, Pistol .45 cal, M-79
- 1 x E-3 Assistant Gunner, Pistol .45 cal
- 1 x 81mm Mortar
- 1 x 3/4 ton Cargo Truck with 3/4 ton Cargo Trailer



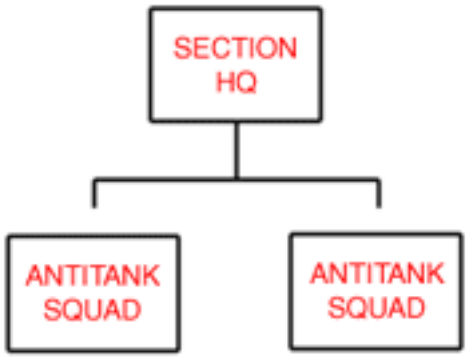
ANTITANK SECTION

Section HQ

- 1 x E-6 Section Leader, Rifle

Antitank Squad x 2

- 1 x E-5 Squad Leader, Rifle
- 1 x E-4 Gunner, Pistol .45 cal
- 1 x E-3 Ammo Bearer, Driver, Rifle
- 1 x E-3 Assistant Gunner, Pistol .45 cal



- 1 x 106mm Recoilless Rifle
- 1 x 1/4 ton Utility Truck (RR Carrier)
- AN/GRC-125

MEDICS: Nine additional E-5s (Company Aidman) with Rifle, not shown on the Battalion Medical Platoon TOE are attached to the Infantry battalion normally one per rifle platoon for field and combat operations. Likely that 1 x E-5 (Senior medical Aidman) was attached to Company HQ as the Company Senior Medic.

Forward Observers: Battalion heavy mortar (4.2") team consisting of 1 x E-5 (FO) with rifle, 1 x E-3 (RTO) with rifle and AN/PRC-25 attached to each line company.

HIGHER FORMATIONS

BATTALION
1 x Battalion HQ, 1 x Battalion HQ Company, 4 x Rifle Company (Companies A - D), 1 x Combat Support Company (Company E).

Originally the Battalion had only 3 Rifle Company's (A - C) but in mid-1967 a fourth Rifle Company (D) was added to the establishment.

Combat Support Company (see note below) : 1 x 4.2" (107mm) Mortar Platoon (four squads consisting of 6 men + 1 Mortar, plus a Platoon HQ consisting of 1 officer and 7 men) and 1 x Assault Platoon (12 x portable flame throwers, one officer and 48 men), 1 x Scout Platoon (the Combat element of the Headquarters Company) consisting of 1 officer and 48 men divided into 8 x 6 man squads.

Note : Whilst the Combat Support Company was depicted on official TO&E's (as below), I have been unable to find a single Veteran who remembers such a Company being present in RVN. Al Baker wrote,

"The combat support company did not come into effect while I was commanding in RVN. If there was an E company on the TO&E it was taken off my modification. There used to be a lot of MTOES. The Mortars, Recon and AT were all in HHC. The Platoons were called separate platoons and worked directly for the Operations officer. By doctrine the Recon Platoon and the Ground Surveillence Radar worked for the S2 but they almost never did. I can't remember the E Company TO&E. I never served in a battalion that had one. When I commanded a Battalion later, there was a Combat Support Company..."

I have tabled below the 'official' Battalion TO&E, but please note that the organisation of the Company, as given above, represents a *modified* TO&E.

BRIGADE
Battalions were organised into Brigades of 2 - 5 Battalions

DIVISION
Brigades were organised into Divisions of 3 Brigades. See Infantry Division for a breakdown of how it was organised.

Please contact me if you have any further information or comments

STANDARD TABLE OF ORGANISATION & EQUIPMENT
Source : Vietnam Order of Battle (Shelby Stanton)

	HQ and HQ Cpy.	A Cpy.	B Cpy.	C Cpy	D Cpy.	E Cpy.
Officers	15	6	6	6	6	4
Warrent O's	2	----	----	----	----	----
Enlisted	147	158	158	158	158	96
M-60	2	6	6	6	6	----
M-79	8	24	24	24	24	6
.45 pistol	15	9	9	9	9	4
M-16	149	149	149	149	149	96
81mm Mortar	----	3	3	3	3	----
90mm RR	----	3	3	3	3	----
Portable Flame Thrower	----	----	----	----	----	12
4.2" Mortar	----	----	----	----	----	4

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For a complete listing and explanation of rank and insignia see US Army Rank Insignia
See also Rapid Fire for details of organisation for use with Rapid Fire wargaming rules

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Sources

Charlie Company, Reeves & Novak 1988, Ulster Imports
SOTCW Journal Issue 31, Autumn 1998, 'US Infantry Organisation in Vietnam' by John S. Harrel

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US Helicopters



The Airborne Army

Aviation played a major role in the United States Army and was organic to most large combat formations rather than organized as a separate branch of the service. During the Vietnam war US Army helicopters, plus a smaller number of fixed-wing aircraft, were used in greater numbers and in more diverse tasks than had ever been seen before in a land war. In fact, US Army aviation had to expand so dramatically that it became, entirely on its own account, the world's third-largest air force.



UH-1 'Slicks' prepare to lift off

Helicopters used by the US Army were generally classified under five main types:

- **UH** - short for 'Utility Helicopter and used for helicopters that had a primary function as troop transports, command and communication, 'ash-and-trash' missions etc. such as the UH-1 Huey
- **AH** - this was short for 'Attack Helicopter' and used for those helicopters designed to carry weapons for ground support, and in particular, with reference to the AH-1 Cobra
- **OH** - this was used for 'Observation Helicopter'. These were helicopters designed to carry out reconnaissance missions such as the OH-6 Cayuse
- **CH** - short for 'Cargo Helicopter' and covers all helicopters designed primarily as equipment transports such as the CH-47 Chinook
- **HH** - this was short for 'Heavy Helicopter' but was invariably replaced by the UH or CH classifications.

Sometimes these classifications were changed for a helicopter that was converted to do another task, such as the CH-47 Chinook Gunship which was reclassified ACH-47, 'Armored Cargo Helicopter'. This was not always the case though as with the Huey gunships which retained their original classification, UH-1, rather than becoming AUH-1 or 'Attack Utility Helicopter' for instance.

It was largely because of the Vietnam war that one helicopter in particular, the Bell UH-1 'Huey', became the second most numerous aircraft since World War 2. It provided the backbone not only of US Army airmobility in Vietnam but also, in the later of its many versions, its aerial firepower in the form of 'Hogs' or Gunships. There was no significant clash of arms on the soil of South Vietnam in which the UH-1 did not participate and at the end of the US involvement the number of these helicopters left behind in RVN exceeded the entire helicopter strength of any air force in Western Europe at that time.

Two much larger helicopters were used for heavy lifts. The more common was the Boeing Vertol CH-47 Chinook, a large tandem-rotor transport with a fuselage able to seat 44 equipped troops or carry modest vehicles and artillery. Only the earlier CH-47A and B models were in use in the initial Vietnam conflict, with maximum payload of about 15,000 lb (6804 kg). From September 1968 these were augmented by the CH-47C, with much more powerful engines and a payload of over 23,000 lb (10433 kg) in the voluminous cabin or 28,000 lb (12701 kg) on an external hook. Chinooks could fly in as slung loads all the air-portable guns, ammunition and supply packages used in Vietnam, as well as such mundane items as trucks of drinking water. Chinooks eventually replaced the the CH-37 "Mojave" as the primary aircraft recovery helicopter. In this role they are reputed to have picked up and brought back more than 11,000 downed aircraft - worth a reported $2,990 million - in what were called 'pipe smoke' missions.

Even more powerful, but used in much smaller numbers, the Sikorsky CH-54 'Tarhe" remains the only large crane helicopter in the Western world. Most of the Tarhes in US Army service saw combat duty in Vietnam, carrying as slung loads bulldozers, graders and light armour, picking up and repositioning artillery and also rescuing over 380 downed aircraft.

Among secondary US Army types in Vietnam were small numbers of older helicopters including the Bell OH-13 "Sioux" and OH-23 "Raven" observation helicopters, the Vertol CH-21 "Shawnee" and Sikorsky CH-34 "Choctow" (designated the UH-34 "Dog" by USMC) , and the much newer Bell OH-58A Kiowa.



Back to Weapons and Equipment

See Also:

Air Cavalry - composition and employment of an Air Cavalry Troop

D Troop 3/5th Air Cavalry - commentary on the role and organisation of an actual Air Cavalry Troop

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The Helicopter War

Links to US Helicopter Units of the Vietnam War



- Helicopter Veterans Organisations
- Air Cavalry Regiments
- 1st Air Cavalry Division (Airmobile)
- 101st Airborne Division (Airmobile)
- Divisional Aviation Battalions
- Assault Helicopter Companys
- Assault Support Helicopter Companys
- US Marine Corps
- US Navy
- US Air Force
- Miscellaneous Units
- Helicopters used in Vietnam
- Helicopter Weapon Systems

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- USMC/Vietnam Helicopter Association
- Vietnam Helicopter Crew Members Association
- Vietnam Helicopter Flight Crew Network
- Heli Vets
- Jolly Green Association
- The DUSTOFF Association
- Chinook Crews

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- **1st Cavalry Regiment**
  - D Troop (Air), 1st Squadron 'Black Hawks' (23rd Infantry Division)

- D Troop (Air), 2nd Squadron (?)
- 7th Squadron (IV Corps)

- **4th Cavalry Regiment**
  - D Troop (Air), 1st Squadron : D Troop, 1/4th Air Cavalry 'Darkhorse' (1st Infantry Division)
  - D Troop (Air), 3rd Squadron : D Troop, 3/4th Air Cavalry 'Centaurs', later F Troop (25th Infantry Division)
  - F Troop (Air) - 4th Cavalry 'Centaurs'
- **5th Cavalry Regiment**
  - D Troop, 3rd Squadron : D Troop 3/5th Air Cavalry (9th Infantry Division and 101st Airborne)
- **8th Cavalry Regiment**
  - F Troop (Air) : F Troop - 8th Air Cavalry 'Blueghost'
- **9th Cavalry Regiment**
  - 1st Squadron, : see under 1st Air Cavalry Division
  - F Troop (Air)
- **10th Cavalry Regiment**
  - D Troop (Air), 1st Squadron (4th Infantry Division)
  - H Troop (Air), activated April 1972 with personnel and equipment of 7/17th Cavalry Regiment
- **11th Armoured Cavalry Regiment**
  - Air Troop
- **16th Cavalry Regiment**
  - C Troop (Air) : C Troop, 16th Air Cavalry 'Darkhorse'
- **17th Cavalry Regiment**
  - 2nd Squadron : see under 101st Airborne Division (Airmobile)
  - 3rd Squadron : 3/17th Air Cavalry 3/17th ACR Association (III Corps ; II Field Force, Vietnam)
    - HH Troop, 3rd Squadron : HHT 3/17th Air Cavalry 'Red Horse'
    - A Troop, 3rd Squadron : A Troop 3/17th Air Cavalry 'Silver Spurs'
    - B Troop, 3rd Squadron : B Troop 3/17th Air Cavalry 'Burning Stogies'
    - C Troop, 3rd Squadron : C Troop 3/17th Air Cavalry 'Charlie Horse'
    - D Troop, 3rd Squadron : D Troop 3/17th Air Cavalry 'Blue Tigers'
    - E Troop, 3rd Squadron :
  - 7th Squadron : 7/17th Air Cavalry 'Ruthless Riders' (II Corps ; I Field Force, Vietnam)
    - B Troop, 7th Squadron : 'Ruthless Riders'
    - D Troop (Air), activated April 1972
    - H Troop (Air), in Vietnam Feb 1973 (also designated F Troop)

1st Air Cavalry Division [Top of Page]

- History of the 1st Cavalry Division
- 1st Cavalry Division Association Web Pages
- Armed Falcon
- Bullwhip Squadron Association

Command

- HHC, 1st Brigade: 'Flying Circus'

Cavalry Battalions (Airmobile Infantry)

- 5th Cavalry (1st & 2nd Battalions) : History of the 5th Cavalry Regiment
- 7th Cavalry (1st, 2nd & 5th Battalions) : History of the 7th Cavalry Regiment
- 8th Cavalry (1st & 2nd Battalions) : History of the 8th Cavalry Regiment
    - B Company 1st Battalion, 8th Cavalry : B/1/8 Cavalry Regiment 'Jumping Mustangs'
    - C Company 1st Battalion, 8th Cavalry : C/1/8 Cavalry Regiment
    - D Company, 2nd Battalion, 8th Cavalry : D/2/8th Cavalry Regiment 'Angry Skipper'
    - D Company, 2nd Battalion, 8th Cavalry : Skytroopers site
- 12th Cavalry (1st & 2nd Battalions) : History of the 12th Cavalry Regiment

Divisional Aviation

- 11th Aviation Group
- 227th Aviation Battalion (Assault Helicopter) : 227th AHB 'Pouvoir'
    - B Company 227th AHB 'The Good Deal Company'
    - C Company 227th AHB 'Snakes'
- 228th Aviation Battalion (Assault Support Helicopter) : 228th ASHB 'Winged Warriors'
- 229th Aviation Battalion (Assault Helicopter) : 229th AHB 'Winged Assault'
- 11th Aviation Company (General Support)
- 17th Aviation Company (Fixed Wing Transport)
- 478th Aviation Company (Heavy Helicopter)

Divisional Artillery

- 2nd Battalion, 20th Aerial Rocket Artillery : 2/20th ARA 'Blue Max', AH-1G Helicopter Incidents for Blue Max

Divisional Reconnaissance Squadron

- 1st Squadron, 9th Cavalry Regiment (Air) : History of the 9th Cavalry Regiment
    - A Troop, 1st Squadron, 9th Air Cavalry
        - A Troop, 1/9 Cav
        - A Troop, 1/9 Cav
        - A Troop, 1/9 Cav
        - A Troop, 1/9 Cav
    - B Troop, 1st Squadron, 9th Air Cavalry
        - B Troop 1/9 Cav
    - C Troop, 1st Squadron, 9th Air Cavalry
        - C Troop, 1/9 Cav
        - C Troop, 1/9 Cav
        - C Troop, 1/9 Cav
        - C Troop, 1/9 Cav

101st Airborne Division (Airmobile) [Top of Page]

- 101st Airborne Division Association
- 101st Airborne Division (Air Assault) Home Page

Division Aviation

- 160th Aviation Group
- 101st Aviation Battalion (Assault Helicopter) : 101st AHB
    - A Company : A/101st AHB 'Comancheros'
    - B Company : B/101st AHB 'Kingsmen'
    - C Company : C/101st AHB
    - D Company : D/101st 'Lancers' (later called 'Hawks')
- 158th Aviation Battalion (Assault Helicopter) : 158th AHB
    - A Company : 'Ghostriders'
    - B Company : 'Lancers'
    - C Company : 'Phoenix'
    - D Company : 'Redskins'
- 159th Aviation Battalion (Assault Support Helicopter) : 159th ASHB
    - A Company : 'Pacyderms'
    - B Company : 'Varsity'
    - C Company : 'Playtex' (now called 'Outlaws')

See Also: 159th ASHBby Charles Lee, C/159th ASHB, RVN '68 – '69

Divisional Artillery

- 4th Battalion, 77th Aerial Rocket Artillery : 4/77th ARA 77th Artillery Association
  - A Battery (ARA) 'The Dragons'

Divisional Reconnaissance Squadron

- 2nd Squadron, 17th Cavalry Regiment (Air)
  - A Troop, 2nd Squadron : A Troop 2/17th Air Cavalry 'Assault'
  - B Troop, 2nd Squadron : B Troop 2/17th Air Cavalry 'Banshee'

Divisional Aviation Battalions

- 1st Aviation Battalion,1st Infantry Division
  - A Company
  - B Company
- 1st Aviation Battalion, 1st Infantry Division, alternate site

- 4th Aviation Battalion, 4th Infantry Division
  - A Company
  - B Company

- 9th Aviation Battalion, 9th Infantry Division
  - A Company
  - B Company

- 123rd Aviation Battalion, 23rd Infantry Division (Americal)
  - A Company
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- 25th Aviation Battalion, 25th Infantry Division
  - A Company: 'Little Bears'
  - B Company: 'Diamondhead'

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- 17th Assault Helicopter Company : 17th AHC 'Kingsmen' & 'Lancers'
- 48th Assault Helicopter Company : 48th AHC 'Bluestars' & 'Jokers'
- 57th Assault Helicopter Company : 57th AHC 'Gladiators' & 'Cougars'
- 59th Assault Helicopter Company : see 227th AHC
- 61st Aviation Company : 61st AHC 'Lucky Stars' & 'Star Blazers'
- 68th Aviation Company : 68th AHC 'Top Tigers' & 'Mustangs'
- 71st Assault Helicopter Company : 71st AHC 'Rattlers' & 'Firebirds'
- 92nd Assault Helicopter Company : 92nd AHC 'Stallions & Sidekicks'
    - see also: 92nd AHC 'Reflections of a Stallion'
- 114th Assault Helicopter Company : 114th AHC 'Red Knights', 'White Knights' & 'Cobras', 'Lancers'
- 116th Assault Helicopter Company : 116th AHC 'Hornets', 'Yellow Jackets', 'Wasps' & 'Stingers'
- 117th Assault Helicopter Company 'Beach Bums'/'Warlords': 117th AHC 'Annies Fannies', 'Pink Panthers' & 'Sidewinders'
- 118th Assault Helicopter Company : 118th AHC 'Thunderbirds' & 'Bandits'
- 119th Assault Helicopter Company : 119th AHC 'Alligators' & 'Crocodiles'
- 120th Assault Helicopter Company : 120th AHC 'Razorbacks', 'The Deans'
- 121st Assault Helicopter Company : 121st AHC 'Tigers' & 'Vikings'
- 128th Assault Helicopter Company : 128th AHC 'Tomahawks' & 'Gunslingers'
- 129th Assault Helicopter Company : 129th AHC 'Bulldogs' & 'Cobras'
- 134th Assault Helicopter Company : 134th AHC 'Demons' & 'Devils'
- 135th Assault Helicopter Company : 135th AHC 'Taipans' & 'Emus'
- 155th Assault Helicopter Company : 155th AHC 'Stagecoaches' & 'Falcons'
- 161st Assault Helicopter Company : 161st AHC 'Pelicans', 'Scorpions' & 'Roadrunners'
- 162nd Assault Helicopter Company : 162nd AHC 'Vultures' & 'Copperheads'
- 170th Assault Helicopter Company : 170th AHC 'Bikinis' & 'Bucaneers'
- 173rd Assault Helicopter Company :
    - 173rd AHC 'Robin Hoods' & 'Crossbows'
    - 173rd AHC 'Robin Hoods' & 'Crossbows'
    - 173rd AHC 'Robin Hoods' & 'Crossbows'
- 174th Assault Helicopter Company : 174th AHC 'Dolphins' & 'Sharks'
- 175th Assault Helicopter Company : 175th AHC 'Outlaws' & 'Mavericks'
    - 175th AHC 'Mavericks'
- 176th Assault Helicopter Company : 176th AHC 'Minutemen' & 'Muskets'
- 187th Assault Helicopter Company : 187th AHC 'Blackhawks' & 'Crusaders'
- 188th Assault Helicopter Company : 188th AHC 'Black Widows' & 'Spiders'
- 189th Assault Helicopter Company : 189th AHC 'Ghostriders' & 'Avengers' and 604th Trans. Det.
- 190th Assault Helicopter Company : 190th AHC 'Spartans' & 'Gladiators'
- 191st Assault Helicopter Company : 191st AHC 'Boomerangs' & 'Bounty Hunters'

- 192nd Assault Helicopter Company : 192nd AHC 'Polecats' & 'Tigersharks'
- 195th Assault Helicopter Company : 195th AHC 'Sky Chiefs', 'Ghostriders' & 'Thunder Chickens'
- 197th Aviation Company : see 334th AHC
- 201st Aviation Company (Corp) : 201st CAC 'Red Barons'
- 227th Assault Helicopter Company : 227th AHC (later the 59th AHC)
- 235th Aerial Weapons Company : 235th AWC 'Delta Devils'
- 238th Aerial Weapons Company : 238th AWC 'Gunrunners'
- 240th AHC : 'Mad Dogs, Greyhounds & Kennel Keepers'
- 281st AHC : 'Rat Pack', 'Bandits' & 'Wolf Pack'
- 282nd AHC : 'Black Cats' & 'Alley Cats'
- 334th AHC : 'Sabres', 'Playboys', 'Raiders', 'Dragons' & 'Gangbusters'
- 335th AHC : 'Cowboys', 'Ramrods', 'Mustangs' & 'Falcons'
- 336th AHC : 'Warriors' & 'Thunderbirds'
- 361st Aerial Weapons Company : 361st AWC 'Pink Panthers'

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- 132nd ASCH: 'Hercules'
- 147th ASHC: 'Hillclimber'
- 178th ASHC: 'Boxcars'
- 179th ASHC: 'Hooks'
- 180th ASHC: 'Big Windy'
- 196th ASHC: 'Flipper'
- 200th ASHC:
- 205th ASHC: 'Geronimos'
- 213th ASHC: 'Black Cats'
- 228th ASHC:
- 242nd ASHC: 'Muleskinners'
- 243rd ASHC: 'Freight Train'
- 271st ASHC : 'Bartenders' and 'Innkeepers'

See Also: 243rd ASHC by Curt Scheibel, Crew Chief/Flight Engineer, RVN '70 – '71

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Marine Observation Squadrons (MOS)

- MOS - 2 : VMO-2
- MOS - 3 : VMO-3 (later HML-367)
- MOS - 5 : VMO-5
- MOS - 6 : VMO-6

Marine Heavy Helicopter Squadrons (HMH)

- HMH - 361 : 'Flying Tigers'
- HMH - 462 : 'Heavy Haulers'
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Marine Medium Helicopter Squadrons (HMM)

- HMM - 161 :
- HMM - 162 :
- HMM - 163 : 'Ridge Runners'
- HMM - 164 : 'Yankee Tango', 'Flying Death'
- HMM - 165 : 'White Knights'
- HMM - 261 : 'Porter's Bulls', 'Raging Bulls'
- HMM - 262 : 'Flying Tigers'
- HMM - 263 :
- HMM - 262 : HMM-262 Vietnam Association
- HMM - 263 : 'Echo Golf', 'Gopher Broke'
- HMM - 265 :
- HMM - 361 : 'Ross's Rice Runners'
- HMM - 362 : 'Ugly Angels'
- HMM - 363 :
- HMM - 364 : 'Purple Foxes'
- HMM - 365 : 'The Magnificent Flying Circus'

Marine Light Helicopter Squadrons (HML)

- HML - 167 : 'Checkmates'
- HML - 367 : 'Scarface', 'Hover Cover'

Marine Attack Helicopter Squadrons (HMA)

- HMA - 369 : 'Pistol Pete'

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- HA(L)-3 'Seawolf' : DET-8 'Seawolf' (formerly U. S. Navy HAL-3 'Seawolf' Unofficial Home Page)
- HA(L)-3 'Seawolves' - recommended
- Helicopter Combat Support 7th Squadron : HC-7 'Seadevils'

US Air Force [Top of Page]

- 20th Special Operations Squadron (SOS) : 'Green Hornets'
- 21st Helicopter Squadron (Special Operations) 'Dustdevils'

- see also The Jolly Green Association

Miscellaneous Units [Top of Page]

- 1st Aviation Brigade alternate site
- 52nd Combat Aviation Battalion :
  - 52nd CAB and Camp Holloway AssociationCamp Holloway
  - US Army Aviation in the Central Highlands
- 539th Transportation Company (AGS) - 'Hexmates'

See also;

- The Marines War - links to USMC units
- The Grunts War - links to US Army units

1st Air Cavalry Division (Airmobile)

PRESIDENTIAL UNIT CITATION

BRIEF HISTORY

1st TEAM in the 'Nam

IA DRANG VALLEY

ORDER OF BATTLE

- 11th Air Assault Division (Test) raised in 1963
- 11th Air Assault Division (Test) develops airmobile tactics throughout 1964
- June 1965 the colors of the 1st Cavalry Division flown to Fort Benning and the 11th Air Assault Division's assets are transferred to the 1st Cavalry Division
- September 1965 the Division is sent to Vietnam
- Oct - Nov 1965 the Division fought the NVA in the Ia Drang valley in Pleiku Province and wins a Presidential Unit Citation
- 1966 the 1st Air Cavalry met and defeated the enemy throughout II Corps TZ
- Spring of 1966 the Division fought to clear Binh Dinh Province in operations Masher, White Wing, Thang Phong II
- August 1966 the Division returned to Pleiku Province in operation Paul Revere II
- Battalion sized elements fought also in Binh Thuan Province from August 1966 to January 1968
- October 1966 the Division joins Korean and ARVN forces in Binh Dinh Province for operation Irving
- Late October 1966 to February 1967 the Cav continues to clear Binh Dinh Province in operation Thayer II
- Thayer II is followed by operation Pershing in the northern coastal plain as well as the Kim Son and Luoi Ci valleys to the west
- Throughout 1967 the Division battled the NVA 610th Division and VC units in II Corps TZ
- January 1968 the Division moves to I Corps TZ
- Division is effectively employed against the enemy during Tet, clearing Quang Tri City and destroying the enemy on the NW and SW walls of the Imperial City of Hue, while some elements in II Corps continued the fight in Binh Dinh Province in operation Pershing II
- April 1968 the Division moves rapidly to relieve the Marines at Khe Sanh
- April - May 1968 the Division moves into the infamous A Shau valley to interdict enemy preperations for further attacks on Hue
- Rest of 1968 spent on operations along the border of Quang Tri and Thua Thien Provinces
- October 1968 the Division is deployed in III Corps TZ to engage enemy forces which pose a

threat north of Saigon

- While engaged with forces NW of Saigon along the Cambodian border, Divisional elements were employed in IV Corps TZ in operation Nav-Cav, thus becoming the first US Division to have fought in all four TZ's in RVN.
- May - June 1970 Division participates in the invasion of Cambodia but is restricted in it's efforts by the imposition of a 30km maximum advance
- Bulk of the Division is withdrawn from RVN in spring of 1971 after 2,056 days overseas
- 3rd Brigade Task Force left behind in RVN until June 1972



SOURCES:

Choppers, J. D. Coleman, St. Martins Press, ISBN 0-312-96635-0

Vietnam Order of Battle, Shelby Stanton, US News Books, ISBN 0-89193-700-5

Year of the Horse: Vietnam, Col. Kenneth D. Mertel, Schiffer Publishing Ltd., ISBN 0-7643-0138-1

D Troop 3/5th Air Cavalry

A History Lesson

This article was submitted to GRUNT! by 'War Wagon 14', a Scout Pilot in D Troop 3/5th Air Cavalry and is reproduced here with his kind permission. This material is copyright of the author and of GRUNT! and may not be reproduced without prior consent.

It looked like it was going to be a typical day in the Delta of the Mekong River for our Air Cavalry Troop. We were based at the Army airfield near the small town of Vinh Long in the Republic of Vietnam. Out of bed at 0430, perform the three S's, grab a rusty can of Coke and head for the flight line. I made a quick swing by the mess hall. Yuck! One sniff was enough, no breakfast today; my alcohol soaked stomach just couldn't handle it. I'd sneak a box of C rations from some unsuspecting slick crew later at the staging area. I hopped in the back of the Scout Platoon's old 3/4 ton Dodge truck, affectionately called the "Loach Coach", and said my "Good mornings" to grumpy fellow "War Wagons" as we headed for the Cav pad in the dark.



I was happy because today I would be flying "Pig Pen", my favorite Hughes OH6A Light Observation Helicopter, known throughout the Army as the LOACH. Painted flat black with a tail number of '398', it had been affectionately named after the "Peanuts" cartoon character. Pig Pen had the reputation not only as the Scout platoon's dirtiest, beat up and nastiest looking helicopter but it was also the most powerful. I had inherited Pig Pen from S*** when he DEROSed.**

We needed plenty of power because of the load of combat equipment that we carried on each flight. Our unit was unique in that we did things a little differently than other Scout units that were

participating in the Southeast Asian War Games in Vietnam. Not better; just different. Most Scout units operated with a gunner/observer seated in the left rear door with an M60 machine gun and an assortment of air deliverable weapons. Some units also carried an additional gunner/observer in the left front seat. The pilots flew from the right front seat. Nearly all of the other units made right hand turns while they were low level and scouting.

In D Troop 3rd Squadron, 5th Cavalry, the Scouts, call sign "War Wagons", carried their gunner/observers in only the left front seat with the pilot in the right. With the rear of the ship nearly empty there was always room for picking up a crew that had been shot down. Each aircraft had a 7.62mm mini-gun mounted on the left side. The gunner had an M60 machine gun and we only made left-hand turns. Left hand turns required a little more power but the possibility of encountering "Hughes tailspin" was minimized. The tailspin arose during slow right turns at high power settings, finally resulting in loss of tail rotor effectiveness and the helicopter would spin out of control. Not a good condition when flying very close to the ground!

In addition to the guns already mentioned, the War Wagons carried an Infantryman's field pack filled with hand grenades. Called the "fragbag", it rested on a composite covered, ceramic "chicken plate" which lay on the floor between the gunner's feet. The fragbag usually contained twenty to twenty-five fragmentation and concussion grenades. Strands of wire were stretched across open spaces in the cockpit. Hooked on the wires were an assortment of non-explosive type grenades. Twenty or more trip flares, incendiary, smoke, tear gas and Thermite canisters hung ready to be dropped on targets. Five white phosphorous grenades were crammed under the pilot's armored seat while the compact area between the seats may contain an M79 grenade launcher plus 10 rounds of high explosive (HE) ammo or perhaps a couple of homemade bombs.

The crews also carried personal weapons. The gunners carried .38 or .45 caliber pistols. The pilots usually brought along cut down and modified AK47 assault rifles in addition to their pistols. Scout pilots were issued CAR15s. These were short barreled versions of the M16 with a telescoping, collapsible stock. Most crews found the CAR15 to be useless for our mission since it's main purpose was to be a back-up weapon for a malfunctioning M60. The 5.56mm CAR15 couldn't bust bunkers or stir up debris while "reconning by fire" as well as the 7.62mm AK. Our customized AKs had shortened barrels and no butt stocks. Those loaded guns were secured on top of the helicopter's instrument panel.



With our basic load of ordinance plus 2000 rounds of 7.62 for the minigun and 1500 rounds of ammo for the M60 machine gun, we were heavy. But, after we added our side arms, chicken plates, canteens, cameras, knives, C rations, tan colored Stetson Cavalry hats, sabers and other personal gear, our average take off weight was approximately three hundred pounds over the maximum weight allowed for the OH6A. We carried no survival gear of the official type. No vests, survival radios, flares etc.

I went into our large metal storage container box (CONEX) and got my helmet out of its locker. I'd gotten soaked in the rain yesterday and there was a fresh growth of hairy, greenish gray mold growing inside the headphones. As I used an old oily, dirty rag to wipe out the headsets, I hoped there wasn't anything incurable growing in them.

I slung my flack vest, with its extra large chicken plate in the front pocket, over my shoulder and headed for Pig Pen. Sp4 R** G****** was scheduled to fly with me and he was already at the ship doing his pre-flight inspection and getting the aircraft loaded. We had landed in the middle of a thunderstorm last night and R*****, like the other gunners, was also a crew chief and had probably worked on the bird until late last night while we pilots were living it up and getting drunk at the officer's club. Enough has never been said about the tremendous job our enlisted crewmembers did and dedication they had for getting enough helicopters flyable for each day's mission, regretfully, this morning was no different, I just said "Howdy" and started my own preflight inspection.**

The flight line was alive with activity. The roar of rotors, the whine of turbine engines and the smell of jet fuel filled the humid pre-dawn air. Lots of helicopters were running, some hovering out of the protection of their revetments and lining up behind others preparing for takeoff. I could see activity in the area of the 7th of the 1st Air Cavalry, home of the Apaches, Commanches and Dutchmasters. Some Hueys from the 214th Assault Helicopter Company were just lifting off from the main airstrip. On one recent morning just like this one, a War Wagon Loach exploded during preflight, killing the gunner and pilot who were standing nearby. Preflight checks were now done very carefully.

Because of the poor condition of our Loaches, we rarely flew at night. The windshields were scratched nearly opaque from low-level grit and grime and few, if any exterior or interior lights worked. We were scheduled to take off a very first glow of dawn's light.

Our unit "hired out" to Army of the Republic Vietnam (ARVN) ground units located throughout the Mekong River's Delta region of the Fourth Military Corps. The "package" we provided consisted of a Command and Control (C&C) UH1H Huey flown by the Air Mission Commander (AMC), four AH1G Cobra attack helicopters; call sign "Crusader", four UHlH troop carrying

slicks; call sign "Long Knives" and four War Wagon scout ships. The maintenance platoon, call sign "Scavenger", was responsible for the excellent aircraft availability the unit enjoyed.

Today our mission was in support of an ARVN unit in the notoriously nasty, Viet Cong infested U Minh Forest near the southern tip of Vietnam some seventy miles south of our home base. C&C with Cpt J* S**** as AMC and the Crusaders had departed earlier. We and the Long Knives would be leaving soon although we rarely flew grouped together.**

G*** and I strapped in and I fired up ol' Pig Pen, hovered out of the revetment and set the ship down and waited for the rest of flight. The four Loaches actually consisted of two teams. Each team had a Lead ship and his wingman was referred to as Trail. I was senior lead today and after we were assembled I made the radio call, "Vinh Long tower, War Wagon one four with a flight of four sperms at the Cav pad for west departure and left turn-out".**

The tower cleared us and we lifted off, turned south at the airport boundary and climbed out to fifteen hundred feet. We flew in a diamond formation. I was at the head of the figure; my wingman was tucked in tight at my four o'clock position. Second lead was tucked in tight at seven o'clock and the newest Trail was doing his best to squeeze into the slot at my six. E* G*****, my trail, radioed that we had a complete flight and I nosed Pig Pen over to one hundred knots for the forty-five minute flight to the Area of Operations (AO).**

We taught all of our gunners to fly. They used foot long pieces of sawed off mop handles stuck into the copilot's cyclic stick receptacles and handled the ships really well. On this morning I was pretty well hung over as usual and gave the controls to G** while I leaned back, smoked a cigarette and contemplated a nap knowing the other gunners were probably flying too while the pilots were taking pictures, reading pocket novels or eating, perhaps even drinking breakfast. All except the new Trail pilot. He was probably working his ass off trying to stay in formation and re-learning how to fly.**

As we approached the airstrip at Ca Mau I maneuvered the flight to the refueling point (POL) where each Loach took on a full load of JP4 jet fuel. The fuel gauges on OH6s were notoriously inaccurate so we never stayed airborne for more than two hours. A scout mission or Visual Reconnaissance (VR) was normally planned for an hour and thirty minutes with the second scout team relieving the first on station to continue the mission.

After refueling we repositioned to a clear area, shut down and wandered over to where the guns and slicks were parked and tried to bum some food and maybe get a clue as to what we were doing today. C&C had flown off to meet with the Ground Mission Commander (GMC).

My room mate R* A*****, was the Long Knife flight leader, I visited him at his aircraft and tried begging some grub but he told me to wait until I was "really hungry" and that he had a feeling that because of the AO we were in, I'd be getting REALLY hungry later. I had recently confided in him that lately when we got a kill (KBA or killed by airstrike) that I would get really**

hungry. It seemed that the nastier or stinker the kill was. the hungrier I got. I was afraid to tell anyone else fearing they would think I had some kind of cannibalistic tendencies.

I noticed very little activity around the Crusaders, some guys were sacked out on open ammo bay doors, others writing letters or reading books. Some new guys were even checking over the rocket pods and just poking around the ships.

The familiar thumping sound alerted us to the C&C Huey that was coming back from his briefing. He landed at POL and stuck his arm out of the Huey's window and made the now famous twirling motion with his index finger indicating to "crank 'em up"!

While C&C was refueling, my trail and I started our helicopters. The Crusaders got their Cobras running and we all took off together. I lined up our two Scouts behind C&C in a loose trailing formation as we headed for the operational area. The two Cobras were effortlessly cruising at our altitude about a half a mile off to our right.

We received our mission briefing over the UHF radio. C&C described the area we were to recon and he explained that we were looking for remnants of an enemy unit. Their activity had been reported in the area the previous night. We were told that the "Rules of engagement" were "Specified Strike". Specified Strike was a more stringent rule than "Free Fire". Under the rules of specified strike we could not shoot just anybody we found but had to get permission to fire on personnel based on the descriptions we gave to the Ground Mission Commander who was riding in a rear seat of the C&C Huey. Of course we were allowed to return fire when we were fired upon. Specified Strike rules were designed to prevent killing innocent civilians who may be living in the area.

The area we were going to work in was a cleared, partially cultivated rectangle surrounded by very dense double and triple canopy jungle. The clearing was approximately one hundred yards wide and three hundred yards long. The Northern long side lay along a fifty-yard wide river. The Eastern edge of the clearing was bordered by a narrow, fifty foot wide, north and south running canal that intersected the larger river. Finally the Southern portion of the area was divided by yet another even smaller canal emptying into the north/south canal. Next to the small Southern canal was small shack or "hootch" constructed with thin sticks for walls and a nipa palm thatch roof. From altitude I could see a small sampan that had been turned on it's side and leaned against one wall of the hootch.

I was cleared to go low level and knowing that my wingman E** would have a hell of a time keeping up with me, I grinned to myself as I rolled back Pig Pen's throttle and entered autorotation. At one hundred knots and loaded the way we were our rate of descent was more than two thousand feet per minute. With a power recovery just prior to ground contact, we were m the area in less than a minute. We could come out of the sky like Simonized manhole covers!**

I headed for the hootch and saw that the bottom of the sampan was still wet and was about to

report it when C&C radioed for us to come back up to his altitude. Nuts! We hadn't even gotten started. As we climbed out I asked what was going on and C&C said that an ARVN unit at a firebase twenty kilometers (kliks) away was in a fire fight and they needed our Cobras for close air support. We did not work low level without gunship cover so we headed in the direction of the quickly disappearing Crusaders. C&C radioed to scramble the second team of Cobras and they arrived near the clearing about twenty minutes after we had departed it. We orbited four or five kliks north of the area waiting for C&C to get back on station.

We were finally cleared to go back into the clearing and had received clearance to do "Reconnaissance by Fire" meaning we could shoot the place up to uncover clues of enemy activity and maybe draw some fire from him.

This time I took the team low level about a mile from the clearing and popped in from the North. I had great respect for the enemy and a smart Scout tried not to use the same ingress and egress routes more than once.

As soon as we were low-level I immediately saw that the sampan had been moved a few feet and was now laying upside down, flat on the ground.



I looked all around the clearing, no bunkers, and no other apparent activity. I cautiously meandered over to the sampan and saw fresh footprints in the mud next to the boat that had not been there before. I had caught bad guys hiding under boats in the past so I had G*** fire up the sampan with his M60. The skiff flipped over and sure enough a dead enemy soldier was under it. Right away there was something very different about this soldier. He was wearing an NVA uniform. The majority of the enemy we encountered during late 1970 were Viet Cong. It was indeed a rare occasion to find an uniformed NVA soldier. I felt the illegally long hairs on the back of my neck stand up because I also knew that uniformed NVA soldiers rarely traveled alone and I wondered where his buddies were.**

I reported the KBA to C&C and worked my way along the smallest canal and turned left and headed north along the mid-sized one. I glanced across my right shoulder and out the right door at the forested bank on the opposite side of the water. For an instant I locked eyes with an uniformed soldier who was standing in waist high brush about fifty feet from me. As we looked at each other I caught a glimpse of the black automatic pistol in his hand as he used it to make a chopping motion. A guy lying on the ground in the bushes opened up on us with a thirty caliber, bipod mounted weapon. His buddies joined right in with an assortment of SKS and AK and RPG fire. I vividly

remember the muzzle flashes, hearing rounds go by, the WOOSH of the Rocket Propelled Grenade and feeling bullets hit the aircraft.

On the radio I yelled, "TAKING FIRE! TAKING FIRE"! I snapped a quick left pedal turn, shoved the stick forward, and hiked in full collective pitch while squeezing the trigger on the minigun. I heard and felt the RPG explode harmlessly off to my right side. I wondered how E** and his gunner were doing while I was wildly zigzagging to escape. We were starting to haul ass but things seemed to move in slow motion. Just like in the movies I could see the enemy's bullets hitting the ground beside me as the gunner tried to get his range on my helicopter.**

G*** was hanging out of his door, firing long bursts from his M60 to the rear. The mini-gun was great to have because it was so loud that it drowned out the sound of the enemy's guns. I had that trigger pulled all the way back which made the gun fire 4000 shots per minute. After three seconds it automatically stopped. I could still here the NVA firing so I strangled the trigger again. Between squeezes I could hear E****'s guns going and he was on the radio yelling enemy positions to the inbound Cobras. After what seemed like an eternity I heard the comforting sounds of the Crusader's rockets impacting the area behind me.**

After we had escaped from the area the C&C's AMC directed us to go to altitude and to return to the staging area. The Cobras were needed to cover the Long Knives who were going to insert ARVNs near the firebase that had had been in the firefight.

Back at the staging area, E*, the gunners and I excitedly talked about what had just happened and counted the many holes in our aircraft.**

I told E** that I'd had the strangest thought while we were bugging out of that clearing. I felt that the NVA leader may have taken a page from American history and had instructed his troops, "Don't shoot 'til you see the whites of their eyes".**

They did exactly as they had been told.

WARWAGON 14
AEROSCOUTS
D TROOP 3RD OF THE 5TH CAVALRY
VINH LONG RVN
5/70 - 5/71

"If we aren't willing to record our own history,
we shouldn't bitch about
the way some stranger does it for us".

US Helicopters



CH-21 Shawnee Assault Helicopter



CH-21 Shawnee

Weight : 13,500lbs
Payload : 2,500lbs cargo, 20 combat troops or 12 casualty litters
Cruise Speed : 127mph
Range : 450 miles

The H-21 Shawnee was the fourth of a line of tandem rotor helicopters designed by Piasecki. The Boeing Vertol (formerly Piasecki) H-21, commonly called the "flying banana", was a multi-mission helicopter, utilizing wheels, skis, or floats. It was used for Artic rescue because it performed so well at low temperatures. The CH-21 also served with the U. S. Air Force (as the "Workhorse"), the French Navy, the Royal Canadian Air Force and the West German Air Force. The French used an armed version of the CH-21 in Algeria, mounting guns in the doorways and on the skids. The CH-21B assault helicopter could carry 22 fully-equipped troops, or 12 stretchers, plus space for two medical attendants, in the MedEvac role.

The CH-21B was first deployed to Vietnam in December 1961 with the Army's 8th and 57th Transportation Companies, in support of ARVN (Army Vietnam) troops. The CH21B/CH-21C Shawnee could be armed with 7.62mm or 12.7mm door guns. The CH-21 was relatively slow. It's cables and fuel lines were so vulnerable to small arms fire it was even rumored that a CH-21 had been downed by a Viet Cong spear.



CH-21B Shawnee transporting 105mm howitzer

The Shawnee was the "Workhorse" of Vietnam until 1964 when it was replaced with the fielding of the UH-1 "Huey" in 1963, and the later fielding of the CH-47 Chinook in the mid-1960s. Some Shawnees were armed with flex guns under the nose. An interesting experimental version was tested stateside with a Boeing B-29 Superfortress ball-turret mounted beneath the nose. The Shawnee had two tandem fully-articulated three-bladed counter-rotating rotors. The CH-21 was powered by one Curtis-Wright R1820-103 Cyclone supercharged 1150 hp piston engine. The CH-21B was equipped with an uprated 1425 shp engine. The CH-21 had a speed of 128 mph (111 knots).



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Bell UH-1 Helicopter Gun Ships

UH-1A's armed with two .30 cal. machine guns and two eight-tube 2.75 inch rocket launchers were first used in late 1963. The UH-1A was armed with various combinations of 7.62mm machine guns, 20mm cannon, and a chin-turret mounted 40mm grenade launcher. Some early "Huey" gun ships were armed with quad M60C 7.62mm machine guns mounted on the M6 aircraft armament subsystem.



UH-1B/UH-1C "Hueys" were used with moderate success as a gun ship with door mounting M60D 7.62 machine guns on the M23 armament subsystem. They could also be armed with a pod or side-mounting six-barrel "Minigun" and seven-tube XM157 or XM158 2.75 inch (70mm) rocket launcher on the Emerson Electric M21 armament subsystem, and the M5 chin-turret mount for a 40mm grenade launcher. The UH-1B was also armed with two fixed-mounting M24A1 20mm cannon on the XM31 armament subsystem. The M60A1 reflex sight was used for sighting guns and rockets on the UH-1B, UH-1C, and UH-1M "Huey". With the fielding of the larger UH-1D as the Army's primary utility helicopter, the smaller UH-1Bs/UH-1Cs assumed the gunship role as their primary mission.

Aerial Rocket Artillery (ARA)

"Hogs" were "Hueys" equipped with side mounting 24 round 2.75 inch rocket launchers on the XM3 armament subsystem. Carrying a total load of 48 Folding-Fin Aerial Rockets (FFARs), the "Hogs" were

used effectively in the combat assault role.



UH-1B ARA with XM3 24-tube 2.75 inch rocket launcher

UH-1M "Huey" gunship

The first three UH-1Ms were equipped with the Hughes INFANT (Iroquois Night Fighter and Night Tracker) system which used a low-light-level TV (LLLTV) and Infared searchlight to aim the M21 armament subsystem. The M134 "Minigun" was equipped with flash suppressors and used a 9:1 ratio of ball to tracer ammunition because the normal ratio of 5:1 and muzzle flash blinded the LLLTV camera. The three aircraft were evaluated from December 1969 to February 1970 by the 227th Assault Helicopter Battalion of the 1st Cavalry Division (Airmobile). The INFANT equipped UH-1M was moderately successful when flown with two conventional gunships and a Command and Control "Slick". The INFANT was used to find and mark the target for the other gunships, but it was felt the AC-130A Hercules was a more capable aircraft for night operations.

The UH-1M was also equipped with the AN/AAQ-5 Forward Looking Infrared (FLIR) fire control system, a component developed for use on the AH-1G (SMASH) Cobra. The AN/AAQ-5 provided a televised thermal image which enabled the crew to detect, identify, and fire on ground targets during day or night operations. The M21 armament subsystem was integrated with the AN/AAQ-5 FLIR in positioning and fire control aspects.

The UH-1M could also be armed with an M5 40mm grenade launcher and M60D 7.62mm or M213 .50 Cal. pintle-mounted door guns on the M59 armament subsystem.



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See also: Bell UH-1 Series Huey

US Helicopters



CH-47 Chinook Cargo Helicopter



CH-47 Chinook

Length : 98' (30m)
Weight : 18,500lbs (8325kg)
Payload : 10,114lbs (4545kg)
Cruise Speed : 130 knots (A), 183 knots (C and D)
Range : 230 miles (360km)

The Boeing Vertol (model 114) YCH-47A made it's initial hovering flight on 21 September 1961. The all-weather medium lift CH-47A Chinook first entered service in Vietnam about 1966. The CH-47A was powered by either Allied Signal Engines T55-L-5 or T55-L-7 engines. CH-47B was powered by two Allied Signal Engines T55-L-7C engines. Models CH-47A, CH-47B, and CH-47C, all utilized the same airframe, but later models featured upgraded engines. The CH-47B featured a blunted rear rotor pylon, redesigned rotor blades, and strakes along the rear ramp and fuselage to improve flying characteristics. The Boeing Vertol (model 234) CH-47C had a strengthened transmission, Allied Signal Engines T55-L-7C engines, or was upgraded to T55-L-11A 3802 shp engines, and increased range. The CH-47C could carry from 33 to 44 troops or 24 litters plus two medical attendants. All three models saw wide use during the Vietnam war. They replaced the H-21 Shawnee in the combat assault role. The Chinook has two three-bladed main rotors, two engines, and a speed of 173 mph (150 knots).

The CH-47B was the standard troop transport used by the 1st Cavalry Division in Vietnam. The Chinook could be equipped with two door mounting M60D 7.62mm machine guns on the M24 armament subsystem and a ramp mounted M60D using the M41 armament subsystem. A few CH47A "Go-Go Birds" were also used experimentally in the gun ship role. Some CH-47 "Bombers" were equipped to roll-out riot control gas or napalm onto Viet Cong bunker complexes from the rear cargo ramp. The CH-47 could be equipped with a hoist and cargo hook. The Chinook proved especially valuable in "Pipe Smoke" aircraft recovery missions. The "Hook" recovered about 12,000 aircraft valued at over $3 billion during

the war.

See Also 159th ASHB

CH-47 Chinook

The CH-47 is a twin-engine, tandem rotor helicopter designed for transportation of cargo, troops, and weapons during day, night, visual, and instrument conditions. The aircraft fuselage is approximately 50 feet long. With a 60-foot rotor span, on each rotor system, the effective length of a CH-47 (with blades turning) is approximately 100 feet from the most forward point of the forward rotor to the most rearward point on the aft rotor.

Maximum airspeed is 170 knots with a normal cruise speed of 130 knots. However, speed for any mission will vary greatly depending on load configuration (internal or external), time of day, or weather conditions. The minimum crew for tactical operations is four, two pilots, one flight engineer, and one crew chief. For more complex missions, such as air assaults, commanders may consider using five crew members and add one additional crew chief.

Development of the medium lift Boeing Vertol (models 114 and 414) CH-47 Series Chinook began in 1956. Since then the effectiveness of the Chinook has been continually upgraded by successive product improvements, the CH-47A, CH-47B, CH-47C, and CH-47D. The amount of load a cargo helicopter can carry depends on the model, the fuel on board, the distance to be flown, and atmospheric conditions.

The **CH-47A**, first delivered for use in Vietnam in 1962, is a tandem-rotor medium transport helicopter. The Chinook's primary mission is moving artillery, ammunition, personnel, and supplies on the battlefield. It also performs rescue, aeromedical, parachuting, aircraft recovery and special operations missions. On June 25, 1958 the Army issued an invitation for a General Management Proposal for the US Army Medium Transport Helicopter. Five aircraft selected Vertol to produce the YCH-1B as the Army’s new medium transport helicopter. In July 1962 DoD redesignated all U.S. military aircraft and the HC-1B was redesignated the as the CH-47A. Early production CH-47A’s operated with the 11th Air Assault Division during 1963 and in October of that year the aircraft was formally designated as the Army’s standard medium transport helicopter. In June 1965 the 11th Air Assault Division was redesignated as the 1st Cavalry Division (Airmobile) and readied for deployment to Vietnam. Chinooks from the 11th Air Assault formed the nucleus of the 228th Assault Helicopter Battalion which began operations in Vietnam in September, 1965. CH-47A’s deployed to Vietnam were equipped with Lycoming T55-L7 engines generating 2650 shp. The aircraft had a maximum gross weight of 33,000 pounds allowing for a maximum payload of approximately 10,000 pounds. The hot mountainous conditions of Vietnam limited the A models performance capabilities and generated a requirement for increased payload and better performance.

The **CH-47B** was introduced by Boeing after a production run of over 350 CH-47A's . The B model introduced the Lycoming T55-L7C engine, a beefed up airframe, nonsymmetrical rotor blades, and the blunted aft pylon for better stability. Boeing began delivering the CH-47B in May of 1967 and eventually produced a total of 108 B models before production shifted to the CH-47C.

The **CH-47C** Chinook model has a maximum cargo hook capacity of 20,000 pounds. The CH-47C has only a single cargo hook below the center of the aircraft. When hooking a single load, soldiers use the main hook. They must coordinate closely with the aircrew as to which hooks to use when carrying multiple loads. The planning figure for the fore and aft hooks is 10,000 pounds each. The Army's continued need for further performance improvements lead to the development of the CH-47C. Designed to meet an Army requirement to transport a 15,000 pound sling load over a 30 mile radius, the C model boasted an increased gross weight to 46,000 pounds, increased fuel capacity, the Lycoming T55-L11 engine developing 3750 shp, and addition structural improvements. The first C model flew in late 1967 and became the mainstay of the Chinook fleet until the advent of the CH-47D. Production of the C model continued until 1980 with improvements such as the crash worthy fuel system and fiberglass rotor blades being incorporated into the fleet.

The **CH-47D** was the result of June 1976 contract for a modernized Chinook. The Army recognized that that the Chinook fleet was rapidly reaching the end of its useful life and signed a contract with Boeing to significantly improve and update the CH-47. Three airframes, CH-47A, CH-47B, and a CH-47C, were stripped down to their basic airframes and then rebuilt with improved systems to provide three CH-47D prototypes. Improvements included upgraded power plants, rotor transmissions, integral lubrication and cooling for the transmission systems, and fiberglass rotor blades. Other improvements included a redesigned cockpit to reduce pilot workload, redundant and improved electrical systems, modularized hydraulic systems, an advanced flight control system, and improved avionics. The Chinook has two tandem three-bladed counter-rotating fiberglass rotors. The CH-47D is powered by two Allied Signal Engines T55-L-712 3750 shp turboshaft engines and has a maximun speed of 163 mph (142 knots). The CH-47D was rolled-out in March 1979. The CH-47D carrys twice the load of a CH-47A and has improved performance. The CH-47D can operate at night and in nearly all weather conditions. The CH-47D is equipped with an air-to-air refueling probe. The Chinook can accommodate a wide variety of internal payloads, including vehicles, artillery pieces, 33 to 44 troops, or 24 litters plus two medical attendants. The Chinook can be equipped with two door mounting M60D 7.62mm machine guns on the M24 armament subsystem and a ramp mounting M60D using the M41 armament subsystem. The "D" model can carry up to 26,000 pounds externally. The CH-47D has three cargo hooks: a center (main) hook and two additional hooks fore and aft of the main hook.



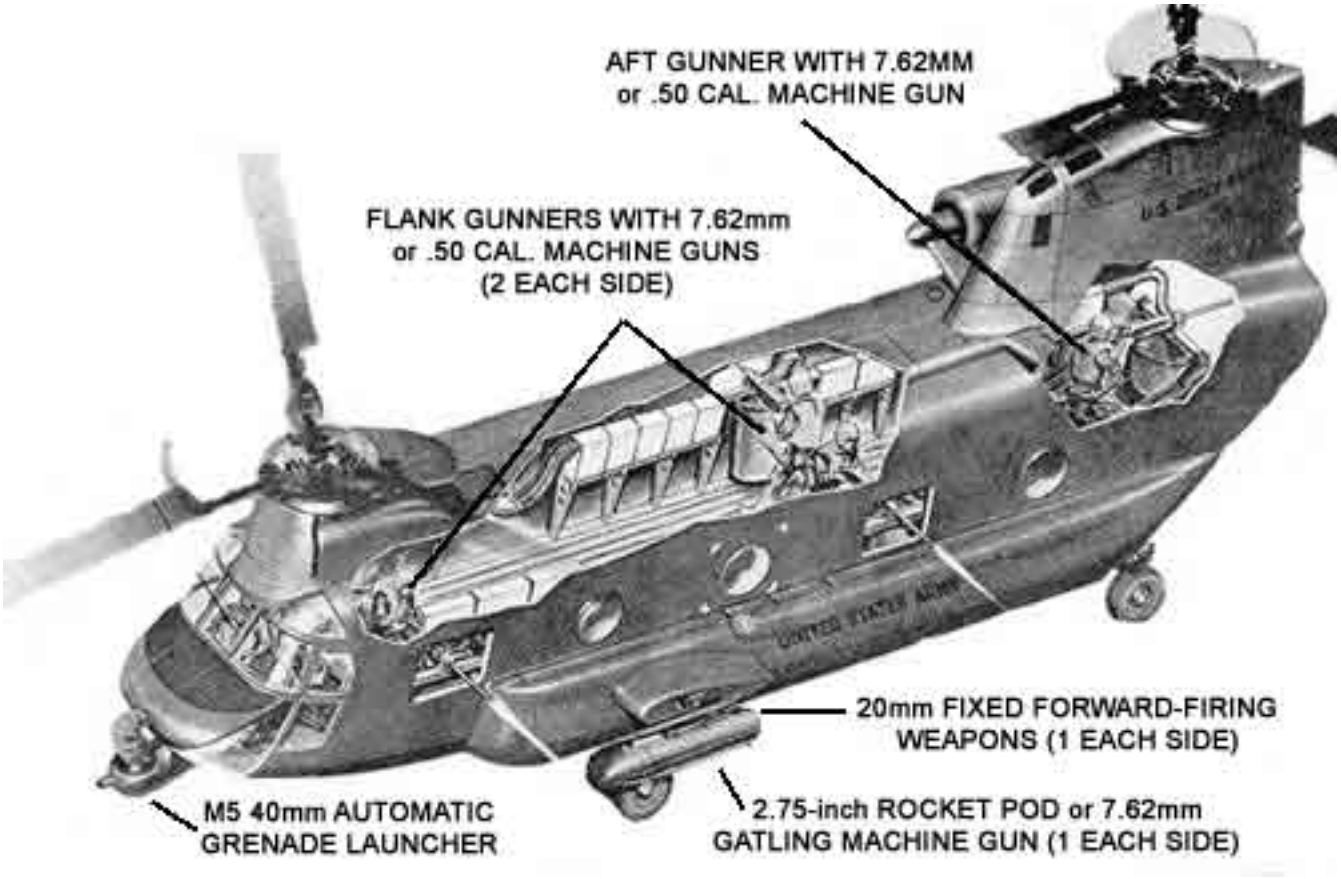
US Helicopters



ACH-47A Armed/Armored Chinook



Four armed/armored ACH-47A Chinooks were specially built by Boeing Vertol in late 1965. These four aircraft were originally fielded in Vietnam for a six-months test period as the 53rd Aviation Detachment. Following the test period, the unit was attached to the 1st Cavalry Division's 228th Assault Support Helicopter Battalion and redesignated as the 1st Aviation Detachment (Provisional). By February 1968, only one of the original four gunships was still flying. The ACH-47A Chinook "Guns-A-Go-Go", with a crew of eight, was armed with up to five M2 .50 Cal. or M60D 7.62mm machine guns (four XM32 window and one XM33 ramp mounted), and two fixed-mounted XM34 M24A1 20mm cannon and two M18/M18A1 pod-mounted 7.62mm "Miniguns", or two XM159B/XM159C 19-tube 2.75 inch rocket launchers, and a chin-mounted 40mm automatic grenade launcher on the M5 armament subsystem.



Weapons carried by the ACH-47

They also featured added armor protection for the crew and some critical components. They proved to be effective in the combat assault role, but were involved in several accidents and were difficult to maintain. The experiment was discontinued with the introduction of the AH-1G "Huey" Cobra in August 1967. Chinooks were more valuable for use as troop carriers. The AH-1G Cobra was fast enough to assume the escort mission, had greater loiter time over the target, and presented a much smaller target to small arms fire.



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Helicopter Armament Subsystems Part 2

XM31 Armament Subsystem. The XM31 was a Research and Development project for a fixed twin-mount of the M24A1 20mm cannon on the UH-1B "Huey", with 600 rounds of ammunition per gun. The gun was flexible in elevation. Only two prototypes were built.

XM32 Armament Subsystem. The XM32 was a Research and Development project for flank defense for the ACH-47A Armed/Armored Chinook. It included mounts and ammunition boxes for four M2 .50 Cal. machine guns or four M60D 7.62mm machine guns or any mix of the two machine guns.

XM33 Armament Subsystem. The XM33 was a Research and Development project for mounting an M2 .50 Cal. machine gun or M60D 7.62mm machine gun with ammunition boxes on the loading ramp of the ACH-47A Armed/Armored Chinook.

XM34 Armament Subsystem. The XM34 was a Research and Development project for a fixed twin mount of the M24A1 20mm cannon with ammunition boxes on the ACH-47A Armed/Armored Chinook.



M24A1 20mm cannon on XM34 armament subsystem

M35 Armament Subsystem (1968-1975). The M35 was a fixed-mount for the M195 six-barrel 20mm automatic gun for mounting on the port (left) side of the AH-1G "Huey" Cobra. The gun was basically a modified M61A1 Vulcan with shorter barrels and a declutching feeder. It automatically cleared itself of all live rounds at the end of each burst. The gun was pilot controlled, but controls were provided so either the pilot or gunner could fire the weapon. Two ammunition cans, containing 950 rounds of ammunition, were faired into the fuselage at the base of the stub wings. The gun has a firing rate of 750 rpm. Sighting

was accomplished using the M73 reflex sight. The M35 was type classified Standard B (over 315 units were built).



Cobra mounted M195 20mm gun on M35 armament subsystem

M41 Armament Subsystem (1966-1975). The M41 armament subsystem is a light weight quick removal ramp mount for the M60D 7.62mm machine gun, with ring-type sight, with 200 rounds of ammunition, for use on the CH-47A Chinook (similar to the XM33). The M41 was type classified Standard A (over 340 units were built).



M60D 7.62mm machine gun on M41 armament subsystem



Ramp mounting M41 armament subsystem

XM47 Mine Dispensing Subsystem (ARDEC). The XM47 was a Research and Development project for dispensing four XM2 anti-personnel mines from the UH-1B "Huey". Sighting was visual.

XM50 Armament Subsystem. The XM50 was a Research and Development project for a combination M5 40mm grenade launcher and an M21 armament subsystem with twin side-mounting M134 "miniguns" and twin seven-tube 2.75 inch rocket launchers for use on the UH-1B/UH-1C "Huey".

XM51 Armament Subsystem (1966-1972). The XM51 was a Research and Development project for a

flexible chin-mounting M129 40mm grenade launcher with 780 rounds of linked ammunition in a storage drum with associated ammunition chutes for use on the AH-56A Cheyenne. Sighting was accomplished using the XM110 helmet sight, XM112 swiveling gunner's station, or XM114 reflex sight

XM52 Armament Subsystem (1966-1972). The XM52 was a Research and Development project for a belly turret for mounting an XM140 30mm automatic gun, with 2,010 rounds of linkless ammunition in a storage drum with conveyor, beneath the AH-56A Cheyenne. Sighting was accomplished using the XM110 helmet sight, XM112 swiveling gunners station, or XM114 reflex SIGHT

XM52 Smoke Generating Subsystem. The XM52 was a Research and Development project for generating smoke from a UH-1D/UH-1H "Huey". Atomized fog was produced by introducing oil into hot engine exhaust gasses. The system consisted of a 50 gal. self-sealing rubber oil tank, pipes, nozzles, pump, and control unit.

XM53 Armament Subsystem (1966-1969). The XM53 was a Research and Development project for chin-mounting of an XM196 six-barrel 7.62mm "minigun", with 11,570 rounds of linkless ammunition in a storage drum with conveyor, on the AH-56A Cheyenne The XM53 was an alternate to the XM51. Sighting was accomplished using the XM110 helmet sight, XM112 swivelling gunners station, or XM114 reflex sight.

M59 Armament Subsystem (1968-1974). The M59 was a door pintle mount for an M60D 7.62mm or an M213 .50 Cal. machine gun for use on the UH-1D/UH-1M "Huey". The XM59 was essentially an M23 armament subsystem adapted for port (left) side mounting of the .50 cal. machine gun. There was also a Research and Development project for mounting an XM175 40mm grenade launcher. The M59 was type classified Standard B (245 units were built). > XM59 Armament Sub5ystem for M213.50 cal. machine gun > XM59 Armament Subsystem with M213 machine gun > XM59 door pintle mount with M213 machine gun

XM64 Armament Subsystem (1966-1969). The XM64 (TAT-102) was a Research and Development project for a chin-mounting turret for a single M134 "minigun", with 8,000 rounds of ammunition, for use on the AH-1G "Huey" Cobra. The XM64 evolved from the chin-turret developed for the Bell Sioux Scout. The XM64 was fully flexible. The XM64 saw limited production (169 units were built). The XM64 was replaced by the larger XM28 (TAT-141) armament subsystem which mounted two 7.62mm "miniguns" or two 40mm grenade launchers, or one of each.

XM93/XM93E1 Armament Subsystem (1969-1975). The XM93 was a Research and Development project for a door pintle mount for the M134 7.62mm "minigun" for use on the UH-1D/UH-1H "Huey". The M134 could be used on a XM93 (12 units built) flexible pintle mount or in a XM93E1 (over 383 units built) fixed forward position for remote firing by the pilot. One XM93 (or XM94) could be mounted in either door. Ammunition capacity was 10,500 rounds for the XM93 and 12,000 rounds for the XM93El. The XM93 was used with the M60E1 reflex sight. > X993 Armament Subsystem pintle installation with XM157 seven-tube 2.75 inch rocket launcher

XM94 Armament Subsystem (1969-1975). The XM94 was a Research and Development project for a door pintle mount for the M129 40mm grenade launcher, with 800 rounds of ammunition, for use on the UH-1D/UH-1H "Huey". The XM94 could be used on a flexible pintle mount or fixed in a forward position for remote firing by the pilot. The XM94 could be vertically pivoted to a stowed position inside the aircraft when not in use. The XM94 was interchangeable with the XM93/XM93E1 for the M134 7.62mm "minigun". The XM93 was used with the M60E1 reflex sight.

XM118 Smoke Grenade Dispensing Subsystem. The XM118 was a Research and Development project for launching 12 smoke grenades from launchers mounted on the wing stubs of the AH-1G "Huey" Cobra. The grenade launcher could also be strapped under the XM157B 2.75 inch rocket launcher.

XM120 Armament Subsystem. The XM120 was a Research and Development project for a chin-turret mount of the XM140 30mm gun on the AH-1G "Huey" Cobra. The XM120 was a fully flexible, hydraulically driven, electrically operated turret. > XM120 30mm gun turret on AH-1G Cobra > XM140 30mm gun on XM120 armament subsystem

M156 Armament Subsystem (1966-1975). The M156 was a twin mount for carrying external stores on the UH-1B/UH-1C/UH-1M "Huey" and the AH-1G "Huey" Cobra., including sighting and fire control. It was generally used with the seven-tube M158/M158A1, or the 19-tube XM159B/XM159C and M200 2.75 inch rocket launchers. The M156 was used with the M16 and M21 armament subsystems. The M156 was type classified Standard B (over 238 units were built).



M156 armament subsystem with M20019-tube rocket launcher

XM165 Canister Cluster Subsystem. The XM165 subsystem was a Research and Development project for dispensing CS smoke grenades from the XM15 cluster mounted on the UH-1 "Huey". Each 24-tube XM165 dispenser consisted of two 12-tube XM15 dispensers attached to a hinged strongback assembly fitted with suspension lugs, arming wire and explosive bolt. > XM165 CS Smoke Grenade Dispenser

Maxwell system (XM3/M22 hybrid). The Maxwell system was a combination of a M3 2.75 inch rocket launcher field modified from 24-tube to 18-tube and a field modified M22 missile launcher mounting only a single AGM-22B wire-guided anti-tank missile.

MINI-TAT Turret. The Emerson MINI-TAT (Tactical Armament Turret) was a proposal for an add-on turret for the M134 7.62mm "minigun" that could be mounted quickly, in about one hour, on the UH-1 "Huey" or the OH-58A Kiowa. The turret folded to the right side when not in use. It unfolded downward, beneath the plane of the skids, during operation. > "minigun" mounted on MINI-TAT Turret on OH-58A Kiowa > MINI-TAT Turret folded down into operational position

Sagami Mount. The Sagami mount was a door mount for the M60D 7.62mm machine gun for the UH-1B/UH-1C "Huey". It was very similar to the M23 armament subsystem. The Sagami mount was produced at the U. S. Army Depot, Sagami, Japan. The Sagami mount saw limited production (over 1,000 units were built).



US Helicopter Weapons

Sources

Aircraft Armament, Systems and Components, U. S. Army Weapons Command, Rock Island, December 1971.

Aircraft Weaponization, Subsystem Photographs and Descriptions, U. S. Army Weapons Command, Rock Island, September 1970.

Small Arms of the World, 12th edition of the W.H.B. Smith Small Arms Manual, The Stackpole Co., Harrisburg, 1983.

United States Aircraft



History of the Cessna O-1 Bird Dog

The Army's long association with the Cessna Bird Dog began as the result of a design competition held during the period April-June 1950. The competition itself was a result of the Army's increasingly urgent need for a modern fixed-wing, two-place observation and liaison aircraft to replace the obsolescent World War II-vintage types still in service at that time. A rigorous evaluation showed the high-winged Cessna Model 305A to be exceptionally well-qualified for the job, for its performance far exceeded the Army's original requirements as well as the abilities of the other competing designs. The Model 305A was duly declared the winner of the competition, and the first production Bird Dog was delivered in December 1950. The Army ultimately procured nearly 3000 aircraft in the following variants:

L-19A: First production version, 2222 of which were acquired. This variant was powered by a 213 hp Continental engine. All surviving examples were redesignated O-1A in 1962.



L-19A

L-19A-IT: Designations given to the last sixty-six L-19A machines built after they had been modified for use as instrument flight trainers. Modifications included the installation of full instrument panels and blind flying curtains in the rear cockpit.

TL-19A: Dual control trainer modification of the standard L-19A. The exact number of aircraft so modified is unknown, but is thought to have totalled no more than ten examples.

XL-19B: Designation allocated to a single L-19A (serial 52-1804) experimentally fitted with a 210 shp

Boeing XT50-BO-1 turboprop engine. This aircraft flew for the first time in November 1952, and in 1953 set a world light aircraft altitude record of 37,063 feet.

XL-19C: Two standard -A model Bird Dogs (52-6311 and -6312) fitted in 1954 with 210 shp Continental (Turbomeca) XT51-T-1 Artouste turboprop engines.

TL-19D: Production version of the commercial Model 305B used by the Army as an instrument flight trainer. Similar to the L-19A, but equipped with dual instrument panels and powered by a 210 hp 0-470-15 engine driving a constant-speed propeller. The Army purchased 310 examples beginning in 1956. In 1962 surviving machines were redesignated TO-1D.

L-19E: In 1958 the Army began taking delivery of the first of some 450 L-19Es, which were based on the commercial Model 305C and incorporated a strengthened airframe and other detail changes. These aircraft became O-1Es in 1962.

TL-19E: Army records indicate that some twenty L-19E aircraft were modified for use as trainers through the addition of full flight controls in the rear cockpit. These machines were redesignated TO-1Es under the 1962 Tri-Service designation system.

O-1F: Early Army combat experience in Vietnam pointed out quite forcefully the need for a fixed-wing Forward Air Control (FAC) aircraft to replace the OH-13 Sioux and OH-23 Raven helicopters initially used in that role. The two ageing helicopters were quickly found to be totally unsuited for observation work in the 'hot and high' conditions routinely encountered in Southeast Asia, and both the Army and USAF therefore fell back on the much more capable O-1. The Bird Dog's performance was excellent in comparison to that of the Sioux and the Raven, and the Cessna also had a far better maintenance record and considerably lower operating costs.



O-1F

The Army, for its part, decided to use the O-1 in the FAC role until a more suitable light helicopter could be introduced into service, and therefore procured limited numbers of O-1F and O-1G Bird Dogs on loan from the USAF. The O-1F was essentially a standard TO-1D that had been converted first to USAF O-1D FAC configuration through the deletion of its dual controls, and had later been further modified

through the addition of underwing hardpoints and a VHF radio. Most O-1F aircraft operated by the Army were returned to the Air Force or turned over to the South Vietnamese following the November 1966 introduction into Vietnam service of the Hughes OH-6 Cayuse observation helicopter. However, some examples of the O-1F remained in the Army inventory through the mid-1970s.

O-1G: Essentially a standard O-1A converted for USAF FAC use in the same way as the O-1F. As mentioned above, some examples of this type were loaned to the Army for FAC use in Vietnam pending the arrival in that country of the Hughes OH-6. A few examples of the O-1G remained in the Army inventory until as late as 1974.



Return to Cessna O-1 Bird Dog

United States Aircraft



Tactical and Strategic Fixed-Wing Aircraft



Whilst the single most overwhelming image of the Vietnam War remains that of the helicopter, there can be little doubt concerning the massive contribution made by fixed-wing aircraft of the US Army, USMC and USAF. The aerial battlefield of South Vietnam was so completely dominated by the United States that they had total and uncontested air supremacy - there is no record of air interdiction of communist aircraft in the skies over South Vietnam. With this supremacy came a freedom of operations rarely seen in modern warfare and the United States unleashed an unprecedented air campaign against the forces of the NVA and Viet Cong in the South. Wherever and whenever US ground troops required air support, it was forthcoming on a massive and almost unlimited scale and in spite of increasingly sophisticated anti-air tactics, the enemy was invariably forced to resort to the simple expedient of 'hugging the belt' of the Allied forces in order to avoid the overwhelming firepower that could be brought to bear from US fixed-wing aircraft.

- North American T-28 Trojan
- Douglas A-1 Skyraider
- North American F-100 Super Sabre
- Lockheed F-104 Starfighter
- Grumman A-6 Intruder
- Vought F-8 Crusader
- Vought A-7 Corsair
- Rockwell OV-10 Bronco
- Cessna O-1 Bird Dog
- Republic F-105 Thunderchief
- McDonnell F-4B Phantom
- McDonnell F-4C Phantom
- Douglas A-4 Skyhawk
- General Dynamics F-111
- Northrop F-5 Freedom Fighter
- Cessna A-37 Dragonfly



Back to 'The War'

Source:

Enzo Angelucci, The American Combat Aircraft and Helicopters of the Vietnam War, Blandford Press

See Also: Tactical Air Support

A Lonely Kind of War
Forward Air Controller Vietnam



Marshall Harrison, Published by Presidio Press, ISBN No: 0-89141-352-9



One of the benefits of serving in the military is the sense of humour which can develop under even the most difficult of conditions, and which helps the serviceman keep going and laugh when common sense says otherwise. Unfortunately a lot of this service humour does not reach the general public, as most memoirs tend to concentrate on the more military or traumatic aspects of conflict. "A Lonely Kind of War: Forward Air Controller Vietnam" is therefore a real treasure. Not only does the author describe the technical aspects of his war in a clear and concise manner but he also conveys the humour and absurdities of service life in a way that will appeal to both service and civilian readers. The author, Marshall Harrison, is that rare breed, a serviceman who can not only tell a good story but also put it down in writing.

Storytelling aside, from a wargamer's point of view "A Lonely Kind of War: Forward Air Controller Vietnam" is a gold mine of information about the air war in Vietnam. From my own experience of wargaming many gamers can quote reams of statistics about weapon calibres, vehicle speeds and armour thickness, but are less knowledgeable about the procedures and mechanisms by which the weapons are actually put to use. The role of the Forward Air Controller (FAC) is one such area and as such the book fills a distinct gap in our gaming knowledge.

The book describes in detail exactly what the Vietnam FAC role actually entailed – and it makes for engrossing reading. On a typical mission the FAC could be controlling numerous inbound air strikes, directing artillery fire, acting as a traffic policeman for other friendly aircraft in the area, and talking to infantry, artillery and air units on several different radio frequencies. All this would be done at the same time as flying at low level, observing the enemy and trying to avoid both ground fire and collisions with friendly aircraft and trees. The mechanics involved in such a complex activity seem overwhelming at first but, as the author explains in detail, it is all a matter of practice and confidence. The most astonishing aspect of the job however is that the FAC's fought alone, staying in contact with friendly units by radio. The following extract gives an indication of the difficulties involved:

Switching back to the ground net, I listened carefully to see if I'd missed anything while talking to the control room. The commander of the platoon that was first ambushed sounded as if he were weeping as he requested the dust-off medevac helicopters to try again for a pickup of his wounded. One dust-off had already been lost and they were understandably reluctant to make another attempt until the LZ was a bit more secure. Right now no one could even stand erect down there, much less expect a chopper to get in.

The helicopter gunships were still madly attacking and continuing to be badly hurt. They'd lost another ship and had two more pull out of the fight--one with extensive battle damage, the other with a dead gunner. Radio discipline on the aviation nets had gone to hell and the ground net continued to be monopolized by the brigade commander and his staff. Excited requests from the ground unit blended with orders, often contradictory, from the airborne staff. Gunship pilots were trying to call out positions from which they were receiving ground fire. An artillery forward observer circled above the battle in his 0-1 Birddog trying to get firing coordinates from the troops trapped on the ground. Smoke was starting to obscure the battlefield and a quick glance to the south showed that rain showers and thunderstorms would soon make our day complete. It looked like Dante's version of military hell. Or maybe a sketch by Dali.

"Sidewinder aircraft, this is Big Six." The call I'd been expecting from the CO was coming through.

"Big Six, this is Sidewinder Two-one."

"Roger, Sidewinder Two-one. It looks like we're going to need some tac air to even things up down there. If you've been monitoring, you know that we've now got three companies on the ground, almost line abreast, with their fronts facing north. In the center of the line the forward positions are farther north and there are pockets of people scattered about who don't know where they are. When you get your aircraft here we'll have the forward-most units pop smoke and let you identify them. We'd like the bombs about one hundred meters north of the main line of resistance.

The responsibility placed on the FACs seems almost overpowering and Marshall does not pull any punches when he admits to removing pilots who were not up to the job.

Regardless of the job at hand however, Marshall's main problem seemed to be in fighting the heat which built up in the cockpit of his OV-10 Bronco which had very little in the way of air conditioning or circulation (a hot sun and lots of Perspex made for a very warm pilot!), resulting in the pilots sweating so heavily that they used to carry baby bottles full of water in the pockets of their flight suits. Even after drinking several bottles of water, the pilots were sweat soaked and heavily dehydrated after a mission. During one mission enemy ground fire blew a hole in the forward part of the aircraft and, with admirable sang-froid, Marshall was less worried about the damage to the aircraft than he was grateful for the fact

that the hole allowed a stream of cool air to blow into the cockpit!

From the start Marshall follows his route to being an FAC from the initial training in the USA and then moving onto Vietnam. Initially flying as an FAC in support of US ground forces Marshall eventually moves into the shadowy world of the Special Forces war – flying as an FAC in support of SOG patrols operating in Laos and Cambodia (being shot down during one such operation and spending the night on the ground in enemy territory before being rescued). In the course of the narrative he explains the tactics and procedures in a clear and easy to follow manner which does not however detract from the story. I personally found the book to be an invaluable reference for understanding how the FAC system worked and I would recommend it to any other gamer interested in the Vietnam War.

In addition to the technical details of the FAC role however, Marshall also tells a good story - full of excitement, wit, humour and compassion. It is rare that a book on such a military subject makes me laugh, but this one had me laughing out loud on several occasions – the incident concerning the snake in the hootch bunker, and the response of the Green Beret captain, is a real gem. The daily life of a pilot in Vietnam provides a rich vein of humour that contrasts with the intensity of the flying and combat narratives and gives the impression that while a pilot could be a cool professional whilst in the air, once back on the ground he was just another small cog in a large military machine which seemed hell bent on making daily life as awkward as possible.

> The ops officer finished his brief with the usual sermons about avoiding the water, women, drunkenness, and illegal money exchanges. We were to keep our hair cut, mustaches trimmed, uniforms clean, and by God, act like military officers. We left the office to gather our belongings and try to bum a ride to Phan Rang, where our school was located. Max said very solemnly, "That man is truly an inspiration and I am going to act like an officer from now on."
>
> "I am going to get my hair cut, by God," Joe said reverently.
>
> "I am going to do my very best to avoid water," intoned Willie.
>
> "That's not fair," I complained. "You guys have already used up all the good stuff."
>
> "How about this, Major? You could not make a graven image," said Larry.
>
> "Or, how about fighting them on the beach, and never surrendering," suggested Max. They thought that sounded so nice that they began to end all of their conversations with "We will never surrender!" This finally became a little wearing, so I suggested "Fighting them on the beaches." It had a nice ring to it.
>
> Max tried very hard to be a good officer for the rest of the day, and Joe did his very best to keep his hair cut for the same period. Willie successfully avoided water by drinking beer,

> and I was fully prepared to fight on any beach I came across. Larry refused to take a vow, since he couldn't think of one offhand that he wasn't in the mood to break.

The fact that Marshall, as a squadron leader, not only coped with both the flying and the problems of day to day living, but also provided a high standard of leadership and man-management to his pilots and ground crew is an indication of his strength of personality. Despite the responsibility he retained an enthusiasm for flying, and a willingness to take calculated risks, which proved invaluable when working with the special forces (who were known to be very clannish and untrusting with outsiders).

"A Lonely kind of war: Forward Air Controller Vietnam" is both a welcome addition to any wargamer's Vietnam reference library and a good read. Highly recommended.

Reviewed by Barrie Lovell

September 2000

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Back to Book Reviews

See Also:

Tactical Air Support

Fire Support Coordination



Naval Gunfire Support (Annex D)

APPENDIX 1 - CHARACTERISTICS OF NAVAL GUNFIRE SUPPORT SHIPS

Ships assigned to naval gunfire support are basically of two types - cruisers or destroyers. To assist personnel ashore, the class of the ship will be included in the availability message. It must be emphasized that ammunition figures are approximate and will vary from ship to ship in a class. Also, the maximum horizontal range listed is that computed using standard conditions and new barrels. Day to day maximum ranges will vary considerably, depending upon bore wear and environmental conditions. The following is a list of ships by class providing NGFS in the RVN.

- MHR - Maximum Horizontal Range in Meters
- Ammo - Ammo Capacity in Rounds
- RoF - Rate of Fire in rounds/gun/minute

Type	Name	Guns	MHR	Ammo	RoF
CA	Newport News	9 x 8"/55	27,400	1,450	10
		12 x 5"/38	16,500	5,800	15
		4 x 3"/50	12,800	8,000	50
	Saint Paul	9 x 8"/55	27,400	1,450	3
		10 x 5"/38	16,500	4,520	15
		14 x 3"/50	12,800	9,060	50
	Boston/Canberra	9 x 8"/55	27,400	956	3
		12 x 5"/38	16,500	4,300	15
		4 x 3"/50	12,800	6,548	50
CLG	Galveston	6 x 6"/47	21,100	1,700	10
		6 x 5"/38	16,500	3,000	15
	Oklahoma City/Providence	3 x 6"/47	21,100	1,500	10
		2 x 5"/38	16,500	1,700	15

DD	Class 445	2 x 5"/38	16,500	720	15
		4 x 3"/50	12,800	2,150	50
	Class 448	4 x 5"/38	16,500	2,220	15
		6 x 3"/50	12,800	3,500	50
	Class 696	6 x 5"/38	16,500	2,300	15
		4 x 3"/50	12,800	2,300	50
	Class 931/945	3 x 5"/54	23,800	1,800	35
		4 x 3"/50	12,800	2,400	50
	Class 446	2 x 5"/38	16,500	780	15
	Class 692/805/713	6 x 5"/38	16,500	2,300	15
	Class 710/764	4 x 5"/38	16,500	1,700	15
DDG	Class 2	2 x 5"/54	23,800	1,200	35
	Class 31	1 x 5"/54	23,800	600	35
		4 x 3"/50	12,800	2,400	50
DE	Class 1033	2 x 3"/50	12,800	604	50
	Class 1037	3 x 3"/50	12,800	905	50
	Class 1040	2 x 5"/38	16,500	1,304	15
DEG	Class 1	1 x 5"/38	16,500	350	15
DER		2 x 3"/50	12,800	1,200	20
DLG	Class 9	1 x 5"/54	23,800	600	35
		4 x 3"/50	12,800	2,400	50
	Class 26	1 x 5"/54	23,800	600	35
		2 x 3"/50	12,800	1,200	50
Coast Guard	311' Cutter	1 x 5"/38	16,500	400	15
	378' Cutter	1 x 5"/38	16,500	400	15

CA - **Heavy Cruiser;** CLG - **Guided Missile Light Cruiser;** DD - **Destroyer;** DDG - **Guided Missile Destroyer;** DE - **Escort Ship;** DEG - **Guided Missile Escort Ship;** DER - **Radar Picket Escort Ship;** DLG - **Guided Missile Frigate.**

NOTES:

1. Optimum ammunition breakdown is approximately as follows:

- 8" and 6" - 90% HC, 10% AP
- 5" - 45% HE, 40% VT, 10% ILL, 5% COMM, up to 100 WP
- 3" - 55% VT, 35% HC, 10% AP

2. 5" HE percentage is based on combined total of HC/AAC/HE-PD. VT load should be broken down as follows;

- 60% HE-CVT
- 30% VT-NSD
- 10% VT-SD

3. There are currently no specific restrictions on ammo expenditures or loading criteria. However, the limited reserves of all types of ammunition dictate that prudence should continue to be exercised in expenditure. For economy consideration, the expenditure of the less expensive HC/HE-PD is preferred to AAC for surface bursts when operationally feasible. This is particularly applicable to 5"/54 AAC.

4. A limitation of the 5"/54 gun, of which spotters must be made aware, is the inability to shift ammo types rapidly. The loading system of the 5"/54 gun is fully automatic. Although projectiles can be and often are loaded into the drum room in the magazine, the first of these is not rammed until 47 other rounds have been fired. Therefore, unless a ship has ample warning that a special projectile (ILL/WP) will be required, a delay of 20-30 minutes can be expected. This can be avoided if only one gun is prepared for special projectiles, but this may limit the number of HE rounds per salvo.



Back to Naval Gunfire Support

Source:

Vietnam Lessons Learned No. 77: Fire Support Coordination in the Republic of Vietnam. United States Military Assistance Command, Vietnam, 20th May 1970

Fire Support Coordination



Naval Gunfire Support (Annex D)

APPENDIX 2 - CHARACTERISTICS OF NAVAL AMMUNITION

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1. Naval guns have a high initial velocity which results in a high striking velocity and a flat trajectory at short ranges. Such guns are particularly effective against targets presenting a nearly perpendicular face to the line of fire. A high initial velocity can be a disadvantage when plunging or defilading fire is required; however, this disadvantage can be overcome by either opening the range or using reduced charges. Reduced charges will reduce the miximum effective range of the gun by 20% to 50% and the fire control problem will be somewhat more complicated.

2. The normal pattern of salvos fired from Naval guns is long and narrow. This permits the most effective coverage when the long axis of the target is parallel to the line of fire.

3. When a projectile explodes, its case yields under the pressure until it fails and breaks up into sharp-edged fragments. The majority of damaging fragments come from the side walls of the projectile and are concentrated principally in a narrow zone known as the side spray. The angle of the side spray is a function of the fuze delay and the angle of fall of the projectile. A quick fuze and low angle of fall will produce a side spray almost perpendicular to the line of fire while a fuse delay and a high angle of fall will concentrate the fragments almost parallel to the line of fire.

4. Charge-to-weight ratio and size of the projectile also influence the fragmentation pattern. A high charge-to-weight ratio will yield fragments with a high velocity while a lower charge-to-weight ratio will yield larger fragments. Fragmentation efficiency will vary with the square root of the projectile payload weight. Illustrations of typical fragmentation patterns are shown on the last page of this appendix.

Range and Vertex data

a. Full Charge

Gun	Projectile	Maximum Range in Meters	Maximum Range Vertex in Feet	Effective Range in Meters	Effective Range Vertex in Feet
8"/55	AP	27,890	28,880	20,115	8,136
	HC	27,760	30,028	20,115	7,590
6"/47	AP	23,882	27,190	16,460	5,980
	HC	27,760	24,806	15,545	5,928
5"/54	HC	23,691	27,680	16,460	6,305
5"/38	AAC	15,790	18,000	13,715	7,969
	HC	15,904	17,890	13,715	7,969
3"/50	AA	11,965	13,460	10,060	5,015

Note: Effective Range = 70% maximum range

b. Reduced Charge

Gun	Projectile	Maximum Range in Meters	Maximum Range Vertex in Feet	Effective Range in Meters	Effective Range Vertex in Feet
8"/55	HC	21,408	22,076	15,085	5,570
	AP	20,420	20,010	18,295	4,920
6"/47	HC	18,395	18,280	11,885	4,140
	AP	17,307	19,380	12,800	4,660
5"/54	HC	Unknown	Unknown	10,000	Unknown
5"/38	AAC	8,114	7,507	5,485	1,645

Note: Effective Range = 70% maximum range

Projectiles and Fuzes for Shore Targets

Target	Ships Guns	Recommended Projectile and Fuzes
Heavy concrete fortification	8-inch to 6-inch	AP
	5-inch and smaller	HC (PDF) (Note 1)
Light concrete or log and/or earth fortifications, strong masonry buildings	8-inch	HC (PDF) (Nose Plug)
	6-inch and 3-inch	AP (Note 2)
	5-inch	COM (Note 2)

Dispersed targets in open such as parked aircraft, vehicles, personnel, light huts etc.	8-inch to 5-inch	HC (PDF), AAC, or VT (Note 3)
	5-inch	HC (VTF, MTF or PDF) (Note 3)
Large targets of light construction such as oil tanks, hangers, factory buildings etc.	8-inch to 5-inch	HC (PDF and Nose Plug)
Landing field runways and roads, paved or unpaved	8-inch to 5-inch	HC (Nose Plug)

Note 1: Projectile will not cause appreciable damage except to exposed personnel and equipment close to burst.

Note 2: projectile not particularly effective against this target but is recommended since a non-delay fuzed projectile would be less effective.

Note 3: MTF should be set to obtain low-level air bursts. If height of burst can be accurately controlled, MTF will be preferable to PDF. If VT action desired, use VT-NSD, HE-CVT or APP.

Note 4: To ensure fuze quick reliability, 5"/54 ships using HF-PD projectiles must set fuze safe screw to the 'ON' position prior to loading projectile in loader drum.

Projectile Travel During Delay Time of Base Fuze

Projectile	Fuze Delay (seconds)	Maximum Projectile Travel (Feet)
3"/50 AP	.016	13-24
6"/47 8"/55 AP	.033	38-60
5"/38 5"/54 COM	.010	9-17
8"/55 HC (full charge)	.010	13-20
8"/55 HC (reduced charge)	.010	12-16

Rocket Assisted Projectile

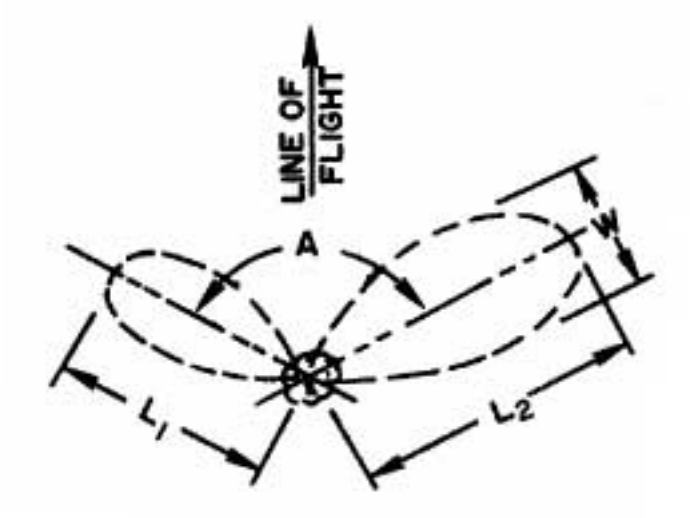
This ammunition (usually referred to as 'RAP') is designed for use against personnel and light structures. Its destructive capability is limited because of its small buster charge - only 3.3-lbs. Effectiveness results from increased fragmentation from cast projectile body. A significant advantage of RAP is its increased range, but with somewhat decreased accuracy, as shown in the table below.

	Maximum Range in Meters	Maximum Range Vertex in Feet

Gun	Projectile	RAP	Non-Rap (full charge)	RAP	Non-RAP (full charge)
5"/54	HC	31,090	23,691	34,000	28,000
5"/38	HC	23,774	15,904	34,300	17,890

Fragment Patterns

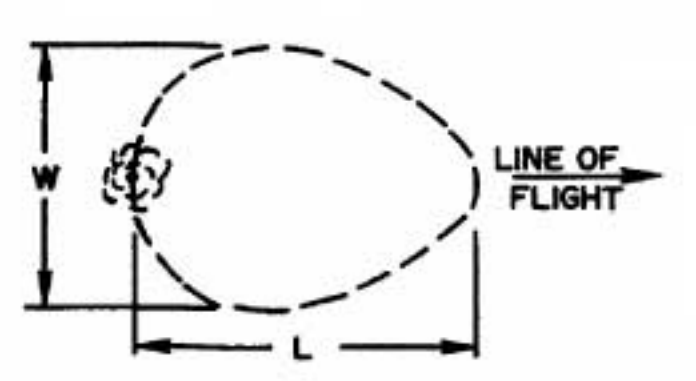
1. Approximate Fragment Pattern made on water by Service-Loaded HC Projectiles Fuzed with PDFs



Projectile	L1 (Meters)	L2 (Meters)	W (Meters)	A (Degrees)
5"	110-206	137-275	14-27	100-125
6"	146-293	206-407	14-32	105-130
8"	250-455	365-640	14-37	110-135

The immediate and 'effective' pattern is about one-eighth of the nearer portion of each lobe. The remainder of the pattern is formed by fragments which fall slightly later.

2. Approximate Fragment Pattern made on water by Service-Loaded HC Projectiles Fuzed with BDFs



Projectile	Length (meters)	Width (meters)
5"	69-137	64-108
6"	114-230	87-155
8"	185-410	137-250



Back to Naval Gunfire Support

Source:

Vietnam Lessons Learned No. 77: Fire Support Coordination in the Republic of Vietnam. United States Military Assistance Command, Vietnam, 20th May 1970

DELTA MIKE 2

Steel Pots & the Poppa-san Squat

Maybe kind of a dull topic, but it is another piece of info for your page, if you want it, and one that I am certain has received little or no attention in books about the war (which I do not read anyway).

Ever wonder what a grunt used as a chair in the field? What he used to bath in (besides sweat!)? How often did he bathe? What about clean uniforms?

I was thinking about this, after the write up I sent you about chow in the field, and realized that most folks have not the foggiest idea about any of these topics either.

To sit your butt on the ground was to invite trouble in the RVN. Bug bites, snake, bites, stickers, man eating ring worm, jungle rot, etc, were all just waiting for a chance at the poor grunt's nether regions. True there were times when you had to lay on this ground, and could not avoid contact with same. But most of the time, you had no desire to plonk your skinny (all grunts eventually have skinny butts!) butt on the soil of the RVN to rest, or perform sentry duty at the NDP or in the boonies on a sweep or patrol.

Steel pots were the solution. Even now, I can see the look of disbelief on the faces of folks who were not there, as they try and visualize a GI folding up to sit perched on his steel pot....

Well 'tis true, the ole faithful noggin protector was also a GI's best chair!

When the column stopped, or the patrol, and it was time to watch while the cloverleaf was being made or whatever, or if it was time to chow down, or the day was done and the soldier was back inside the NDP or FSB, some soldiers would remove their steel pot, turn it upside down and place it on the ground, then casually sink downwards until their butts made firm contact with the open side that formerly held their head inside of it.

AHHH! Taking a load off the always tired and overburdened legs and feet of the grunt. A luxurious moment of soldier life . The rifle could still be held at the ready, or placed butt first on the ground and muzzle up between the legs . The soldier could get a quick rest and be allowed a swig of hot, bad tasting water to be savored from one of the 2 canteens dangling off the web equipment belt, or splashed over the head in an effort to fight the always oppressive heat of the jungle, the elephant grass, or the swamp. C-rations and other meals could be eaten this way too, and were, in the patrol base or at the NDP or FSB.

This was so common amongst soldiers in the field, and at FSB, that many returned to the States, and

automatically reached for their steel pot to use as a seat instead of using the glaringly evident chairs or other furniture. This always resulted in blank looks from relatives, girlfriends, wives, and soldiers of all ranks who had never been in combat as infantrymen or artillerymen.

In the NDP or the FSB, the steel pot could also serve as a pillow, a writing desk, a sink to wash the crud from ones face hands and body, as a shaving bowl, or as a washing bucket for filthy, sweat stiffend uniforms, or as a container to hold the gasoline that was used to clean the daily crud and overnight crud off of those M-16s, as well as all other infantry weapons and ammo. I have often wondered how many zillions of gallons of gasoline was used as cleaning solvent for weapons of all sizes in the RVN. Gasoline while dangerous for the idiots, cut through grease, dirt, mud, etc like a miracle household product now seen on the tube (TV).

The steel pot also saw extensive use as a super entrenching tool, close combat weapon, urinal, bar catcher, cooking pot (seldom done but done nonetheless!) and water bucket to fill those empty canteens at times or to soak a soldier burning up with heat stroke or malaria till the dustoff chopper arrives.

Another universal type of chair and desk in use by soldiers in the field, was the common garden variety bright green plastic woven sandbag filled with the local earth. Sometimes as pillows too. Since these covered the roof and were the walls of the Dupuy bunker (IFP) as well as the sides of the shelters that were our homes (only 2 or 3 high around the shelter) they were always plentiful! Used as seat cushions on the open pit latrines in each platoon area too. Much more comfortable than plonking your bare and skinny butt down onto rough, knotty tree bark for the daily dump! Allowed a soldier to read his mail in comfort while doing something really positive at least once a day (unless you suffered from constipation, which was really really rare!).

But sometimes, there were no filled and unoccupied sandbag seats available, and for some reason, you did not have your steel pot with you in the NDP or FSB, and wanted to sit down, there was the ultimate GI expression of becoming as one with the RVN environment: the Poppa-san Squat! Also known as going Asiatic to the guys from WWII and Korea.

To do the Poppa-san Squat, a soldier, just folded up in a sitting/squatting position, with his skinny butt touching the heels of his jungle / combat boots, leaning forward with arms on knees or at the dangle (see pictures of the RVN civilians sitting this way). Once accustomed to doing so, a body could sit like this for prolonged periods of time without discomfort, but no GI could remain in this position as long as a Vietnamese!!! With practice, you could really get comfortable, and simply by pulling down the trousers, it was possible to take a dump in this pose (that is why the RVN copies of those famous old French toilets had footpads inside the bowl!). Be advised that one must be slender and fit to do the Poppa-San Squat without causing damage to muscles and tendons!

You see, most of the RVN peasantry did not own furniture other than a crude platform bed, and a maybe a table, so that is how they sat for social occasions in the vill, and even the poor folks in some of the big cities too.

Again this method of sitting has caused many weird looks from wives, girlfriends, family members, passersby, and soldiers who never served in combat in the Pacific, Burma, Korea, RVN, etc. The presence of obvious furniture is again often overlooked, and i even squatted down next to my footlocker in the barracks like this several times, to polish footwear, in spite of the big OD footlocker at the foot of my bunk - this is the Stateside, European or garrison soldier's lounge chair in the barracks environment).

LOL! It used to drive the lifers wild Stateside and in Europe to see lines of GIs (for whatever reason there was a line waiting) with the RVN vets hunkered down in the Poppa-san Squat instead of standing tall! Not proper soldiers! Bad image! Etc, etc!

Soap suds. Mostly in the field, except for shaving daily, and washing off from the steel pot bath, or during a monsoon rain storm (it always seemed to stop before the soap was removed from my bod when I was in the NDP or FSB!), or using the latex from rubber trees to get clean, grunts had daily sweat baths while going about their duties in the field.

A heavy rain might chill a soldier to the bone, but it did wash some of the crud and stink off of him and his uniform, as long as one was not getting muddy on AP or OP duty lying in the water and mud!

Uniforms soon acquired a stiff, filthy look with white salty patches on the back, under the arms, the hips, etc, and stank so bad that no one even noticed after a few days (as did the soldier wearing it!). It was just a part of life in the field. The jungle would soon turn boot leather white from constant contact with vegetation, and poplin to tatters, so soldiers in the field soon came to look like shaggy haired, clean shaven, dirty, and ragged bums loaded with weapons and gear during an extended period of operations (the weapons, and ammo were always as clean as was possible, and cleaned 2 or 3 times a day).

Running water (streams and rivers) or natural standing pools were always avoided as bathing spots, no matter how cool and tempting they looked. Reasons? Gook ambushes, leeches and bugs to name a few.

Another reason was that fording or swimming rivers usually resulted in the uniforms and bodies getting even dirtier due to the high silt content in them. Natural standing pools usually were so full of crap (algae, scum, etc) as to be uninviting as a bathing place. It was bad enough to have to strain the water through a neckerchief, bandana or hanky from rivers and pools to refill canteen sometimes, let alone bath in it!

B-52 bomb craters in plain view and weapons range of the NDP were much prized as bathing spots, and if there were any around the NDP, organized security parties, with pre-plotted fires went out with the bathers(easily ID'd on the way back as they were the ones with jungle hats, ammo carriers, weapons, boots and bare butts caring their wet, washed uniforms in their steel pots). Why? the bomb blast and heat killed off the leeches, bud, parasites, snakes, etc, and made the water a cool, beautiful and inviting blue with clear fields of fire in grassy areas (the elephant grass was blown flat, burned and uprooted by the bomb making the crater).

LOL! of course, it is really living on the edge to come under fire when buck naked except for helmet, boots , bandoliers, and weapons! Everyone is most aware of their shiny light colored body parts (white, black, brown, red or yellow) that glare when compared with the tanned pieces of their anatomy!!! Laugh, now, but more than one soldier was worried about those NVA/VC Davy Crocketts OUT THERE zeroing in on their genitals with an AK bullet! But the upside is, after it is all over, and you survive intact, you do not need to clean your clothes if you experience a catastrophic urinary tract or anal muscle control failure due to fear!!!!

No muss! No fuss! Just grab some dirt and clean up on the fly! And only your buds will know what happen, and LOL!, they will only tell the whole Division about it (such is GI humor!)!

If the operation ran a about 30 days or longer, the Division would send out a pile of clean uniforms via the daily log chopper for us to swap for our worn and dirty ones! Bless you General, and your G-4 for getting them to us! That is why so many photos show soldiers wearing uniforms with just a divisional patch and nothing else on them (besides what kind of idiot walks around in the field advertizing his rank?)

Another sight to be seen to be believed was the naked GIs strolling about near the company shower facilities after an operation! Off come the stiff and filthy uniforms outside the shower, tossed into a pile where the supply guys will collect them and turn them in for clean ones for the company, into the cold water showers assembly-line style, and out the other side to stroll about naked as a picked bird, grabassing about and selecting a new uniform from the clean stacks!

All the while , being watched by the little folks who work in the base camp (Moma-sans, girl sans, boy-sans and poppa-sans)with big staring eyes, wide mouths, laughing, pointing, ribald commentary, as they were comparing GI plumbing and hairiness to the generally much smaller plumbing and lack of body hair of the Vietnamese men. Lord what a circus! What a way to end an operation where each day could be your last! As a public entertainment spectacle!

And of course, American soldiers being the way they are, the GIs, while loudly proclaiming shocked outrage at being subjected to this, made a floor show out of it, laughing, joking, making rude and suggestive gestures while shouting rude comments to the watchers, who shot back zesty replies!

Well Mike, there it it, a long, and probably very boring piece about seating arrangements, clothing supply, and personal hygiene, and the first part of post operations entertainment (think of it as winning their hearts and their minds as Top used to say with an evil leer) as a grunt in 1967 where I was serving. Might answer some more of those questions that have gone ignored up till now!

Delta Mike Two, Out!

DELTA MIKE 2

Sixth Sense Part 2 and Other Stuff

In order to give the reader some idea as to what is being talked about in this post from DM2 I have, unusually, included my original questions.

In the case of a surprise penetration by sappers what happened if the main CP was destroyed and in effect the position lost both it's command and communications?

WELL, if by the main CP, y'all mean the B-TOC, in an NDP, or the FDC or the Battery CP of a FSB, it is important to remember this :

- Each company has its own CP in an NDP, and the Combined FDC for all of the Batttalion Mortars still exists to provide radio commo with the outside world.
- Each platoon also has its own CP inside the NDP, with two(2) AN/PRC-25s, to maintain radio commo with the outside world.
- At a FSB, the grunt company has a CP, as well as each platoon. Then there is the FSB FDC and TOC, and if it is a multi battery FSB, each battery has its own FDC and CP as well. Also, if I remember rightly, each gun section (3 per battery of 6 guns) has a pair of AN/PRC-25s and an AN/VRC-46 too; and if the guns are SP Guns, each Gun has an AN/VRC-46 vehicle radio, too.

Any of these radios can talk to ground troops or to helicopters or PBRs or FACs. I forget just how many pushes are available to these radios, but the number is incredible.

SO, y'all see if would take a real series of hits to knock out all of these locations with sappers or artillery rockets or 120mm mortars or artillery. Sappers might have the best chance to do it but it would be a real fluke for it too happen.

What happened to those units whose commanding officer or squad leader etc where absent when the attack commenced? Were you allowed to 'wander' about the NDP/FSB after dark or were you in effect confined to just your area of the perimeter?

In the FSB or NDP at night, we did not do much wandering around . Even with a pass word, there was a chance to get your butt blown off by some body with a shoot first, talk later attitude. There was a platoon latrine for each platoon area for the EM/NCOs and a smaller one for the platoon leader, so if the call came, y'all were never far from your platoon or squad.

If LT had to leave the platoon area, the Platoon Sergeant and then the Weapons Squad NCO were in

command, followed by the squad leaders as determined by seniority, then fire team leaders by seniority, right on down to the most senior SP4, PFC, and PVT. We were designed to function with losses, and most of the time this did work, but, severe casualties could produce temporary paralysis.

At company level for officers, senior LT replaced the CPT, or even the 1SG was boss until an officer became available if there was one.

Given that most attacks were at night and presumably a certain percentage of the base would be asleep, how long did it take for the sleeping troops to become involved in the fight?

Officers walked the company area inside the FSB or NDP at night along with senior NCOs to chechie-checkie on the grunts alertness. Squad leaders also eyeballed their own men for alertness within squad areas at night, but share the duty of bunker watch along with fire team leaders and lower ranking grunts. I would say all ranks, from the BN CO to lowest PVT averaged about 4 hours sleep on a good night, sometimes more, usually less.

FSB had wire obstacles strung around them as well as fougasse and flame fougasse bombs. These provide more room between the gooks and the grunts, and the gooks and the guns, hence more time to react to an attack.

Gunners sleep in shelters near their gunpits, all other gunner supports sleep near their posts. All are armed at all times, so getting it together and fighting back does not take long very long , if the unit is a good one. If it is not, or of it is a unit of FNGs, precious minutes can and will be lost as the officers, NCOs and troops run around bumping into each other in total confusion. I have seen it happen both ways . Say 2 - 5 minutes.

With grunts, the only thing between you and the gooks lurking in the darkness is an OP, a string of booby trapped claymore mines, and a wall of high velocity lead and steel from rifles, machineguns, grenades. This is a well known fact of life to a grunt. Grunts, even dead tired ones, are awake even when they are asleep. Explosions, gunshots, screams for help, of warning or orders, or a low voiced challenge, well, they seem to get through when a battery of 6 tubes conducting normal H and I over your head does not disturb a grunts "sleep" (but let the firing tempo of the battery change, and you have a groggy but awake and worried grunt looking for the reason why).

Sooo, grunts, wake up faster and tend to organized faster than other troops in the field unless they are passed out drunk (never saw this; even drunk grunts can detect incoming fire), already dead, or from a unit of FNGs or a poor unit. Say, 2 - 3 minutes tops for a good unit to go from zzzzz to an organized fighting unit.

But, Mike, time is deceptive in combat. No one is looking at watches, so my sense o f time could be off and my numbers be totally different from some one else at the same fight.

We called this "warp time". I do not where the term originated or with whom. It was just there. There are two types of warp time, Mike. Fast and slow.

Years passed while I struggled through a day in the bush, yet when I looked at my Timex, maybe 5 minutes had actually passed. This was also true for standing watch at night or laying in the darkness on AP or OP duty or waiting. Slow Time.

Seconds zipped by while I fought, dragged corpses away from the gooks, treated wounded buddies, talked to chopper pilots, MEDEVACs, FACs, or FDCs. Yet when I glanced at my watch, HOURS had passed. Or went on R & R. Fast time.

What happened when a part of the perimeter was either overrun or had to fall back?

If part of the perimeter was over run, well, everyone was in truly deep shit unless the gooks were killed off and the perimeter restored real fast. An over run perimeter, well then it was up close and personal time. Shoot when you could, throw grenades, and finally it was fixed bayonets, rifle butts, weapon slings, entrenching tools, knives hatchets, machetes, shovels, axes, steel pots, fists, boots, teeth, rocks, and even dirt become weapons. Sanity leaves, blood lust, hate, and fear rule, with no prisoners asked or offered until the gooks are dead or driven off, and the dazed, exhausted survivors re- establish the perimeter and stalk the gooks remaining inside of it, killing them. Very confusing, very bitter fighting by single GIs, or small groups of GIs vs groups of gooks.

If the perimeter is penetrated, the NDP or LZ or FSB totally over run, the fight becomes a series of isolated and bitter fights between small groups of GIs and gooks . The enemy is all around in the darkness, and comes from nowhere, is either killed, or vanishes into the darkness without a trace. GIs appear and vanish likewise. Sometimes this hell is lit by the light of parachute flares, which has to be experienced to be believed. Very surreal; like an acid nightmare, a soldier told me once when talking about it. Very surreal.

The only place to go if the gooks win the fight for the FSB or the NDP or the LZ, is to retreat into the jungle, fighting as y'all go, and to try to reorganize a new perimeter until daylight, or fight your way out, breaking off contact, and hoping for a chopper ride or artillery support.

All of these years later, I cannot give any organized clear account of such an event. It is all a jumble of shocking and very disconnected images in my mind, no sense of time. I never even saw the gook that ran out of the darkness and smacked me over the head with his AK. I was shooting at another gook in the light of a flare, then, I was face down in the wet mud, choking on it. A soldier I never saw before or since helped me up, and I rolled the dead gook off of my legs that he had shot. I picked up my weapon, and we could only see gooks around us, so we ran and shot , until we found some more GIs who were making a stand. The rest of the night is just as confusing, stalking , shooting and fighting till the sun came up and the gooks had gone, vanishing into the fog . My uniform, covered with drying blood and mud, my weapon covered with dried and drying blood and hair, my skin covered with blood and mud. Very little

of it mine, mostly other GIs and gooks. It was awful, and it was wonderful too. I know that makes no sense to y'all, but it was. Tired. Exhausted. On edge.

Well, I said more than I should maybe. I am never sure where I am going when I start. It sometimes burst out of me, and is not meant to impress or confuse anyone. LOL! I am the confused one. I still have not figured it all out. Never will. That is another area where combat and Hollywood part company. There does not have to be a sane reason for the sights, sounds, events all around. Things happen that never get answered.

DELTA MIKE TWO

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DELTA MIKE 2

Weapons & Penetration

AFTER a visit to the Charlie Company egroups site to eyeball it (nope could not / did not look at it all), what I am writing about is the statements made about the penetrating power of .303, .30-06, and 7.62-mm bullets fired into cement walls, cement filled cinder blocks, and brick walls.

During the time I was an MP and near the end of my extension in the RVN, there was another gook offensive, one that was countrywide, but not as powerful as the TET OFFENSIVE or as bloody.

Anyway, I found myself sucked into a firefight at a walled villa on the outskirts of town with some ARVN soldiers. We were supposed to be liaison and commo for them, so my driver was stuck with the jeep and I was told by WACO to see with my own eyeballs how the fight was going.

Well, it was not. The ARVNs were stuck and unable to move (or unwilling to move). I was one of 2 Americans present (my driver was the other). The ARVNs were mainly armed with M1 rifles and Browning LMG, with a few M-79 grenade launchers for support If the gooks were gonna be removed as a threat, the ARVNs had to get inside, and it was very evident to me they were not going to make any frontal assaults on the place. And the longer my driver and I had to stay here with them there was an increasing chance that we could become casualties through the ARVNs in action.

These knocked chunks of Vietnamese cement out of the villa perimeter wall and the second floor wall of the villa (ground is the first floor in the USA). Chunks about the size of my fist in width, but no where near as deep as my fist. The GL made a bigger hole, with fragmentation effects and scorching (the villa and wall were both white with a red tile roof) The GL made holes in the tile roof but this did not seem to bother the gooks any more than the occasional ARVN round from an M-79 through a window.

I was armed with an M-16, with a forward assist fitted to it (the first I had ever seen), my .45 pistol, 3 magazines and nasty words. I had 1 magazine in my rifle, 5 in punches on my belt, and 24 more in a pair of bandoliers that I had scrounged up during TET that were not on the books of the company, all 20-round type (loaded w/18 rds each).

I got me some ARVNs together, and we looked around for a place to fight that was closer to the villa, on the river side of it. And unseen by the gooks in the villa. This (God how I hated wading in the river; I do not swim, then and now) meant going into the river to find a place to shoot from. YUCK.....

Once in position, and still unseen, at about 30 yards, I started to shoot at the damned villa wall (it was too high to climb, and topped with broken glass cemented into it) ground level, really concentrating my fire

on more or less the same spot. The ARVN s watched and covered me while I worked, and one of them held my bandoliers of magazines above the waist deep water.

Each 55-gr 5.56mm bullet knocked a nice big chunk out of the wall, wide and deep. The result was that after 3 magazines (about 60 rounds), I had blasted a HOLE clear through the wall big enough for a GI to climb through. Or an ARVN.

So we moved out to the wall, and I repeated the process , blasting a HOLE through a section of villa wall this time with my M-16, at a range of about 20 yards, with 3 more magazines of ammo. My friends the ARVNs went through this HOLE and assaulted the gooks in the house with rifle fire and Hand Grenades. After all, it was the ARVNs fight!!!!

I went in behind them and then helped them secure the villa. We were buds and drank a couple of beers they got from somewhere (they probably stole them from some poor citizen) till I had to leave and find out what was going on elsewhere.

Now these were normal 5.56-mm rounds, plain 'ole ball ammo. Not armor piercing, tracer, explosive; just ball ammo. Man buster bullets.

Now I do not know if this would work in the States, as building construction codes were/are very different from those of the RVN. I discovered that during TET M-16 bullets did much more damage to buildings than 7.62-mm NATO, .30-cal bullets, 7.62mm AK bullets, or those big 'ole Russian 7.62mm bullets. So, I thought (rightly it turns out!) that the 5.56-mm bullets might cut a hole in the villa and the villa wall at close range. There were no penetrator cores in US 5.56-mm bullets way back then.

I do not know what kind of ammo these guys were shooting out of their .30-06 and .303 cal rifles, but, the issue GI ball ammo for the M-1 .30-06 rifles did not do much damage to the house or the perimeter wall. And those ARVNs were steadily pumping ammo into same.

Well just some thoughts. Have a good weekend.

Delta Mike Two, Out.

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DELTA MIKE 2

Rubber Plantations

Here are my answers to your questions about the rubber plantations.

There was a big rubber plantation that was adjacent to a stretch of HWY 13, that was on both sides of the HWY, and stretched all the way to the Song Be (a river). It was owned by the MICHELIN Corporation; at least that was what we were told repeatedly.

The trees had reached almost to the road (HWY 13) itself, but the Army had used Rome Jungle Plows to split, knock down, crush, uproot, and otherwise clear the rubber trees and undergrowth away from the sides of the highway for a distance of several 100 yards on either side of HWY 13, and then Engineer Zippos would flame the trees and undergrowth into ash after the Rome Jungle Plows had passed.

Rome Jungle Plows were built in Rome, Georgia, and were incredibly powerful, and useful vehicles. I do not know who the designer was but he was a very smart man. Rome Plows were one reason that the number of ambushes dropped off along highways: they physically removed the trees!

Zippos were Engineer tanks fitted with flamethrowers and bulldozer blades, M48s A-Something or other. These followed the Rome Plows, and burned the trees and undergrowth to ashes.

After this the Defoliate spraying Vehicles and aircraft made sure the raw red earth stayed raw and red. Mostly vehicles were used for this as the rubber plantation was right beside the road and MICHILIN would have screamed if their precious trees were ruined by Agent Purple, Green, Yellow, or Orange. I am assuming it was vehicles, as I never saw a working rubber plantation that looked like it had been soaked by aerial sprayers. They always looked disgustingly well taken care of.

The rest of the rubber plantation on either side of the highway was a WORKING RUBBER PLANTATION, with little people from the villages out there working every day. This meant that anyone strolling around among the rubber trees was not an automatic target, but had a legit reason to be there during the daylight hours. We could and did stop and search any Vietnamese we encountered during patrols, looking for weapons, explosives, blasting caps, firing devices, and electrical cords (common household variety, in assorted brilliant colors, commonly used by the VC as transmission lines for command detonated explosive devices), commo wire (used for the same purpose), and, civilian or military det cords.

This was more dangerous than it sounds, as sometime the VC would use these working parties as bait for an ambush!

And the VC/NVA moved through these areas with almost total impunity. The locals sure were not going to risk their asses by ratting on them! The armed gooks were only confirmed as present when the GIs ambushed them during day or night ops, or were ambushed by them, or accidentally collided with them!

In addition to the plantation workers, there were also the Vietnamese who roamed these plantations selling Coke, beer, water, and food to the workers. These natives often rode bicycles, or tricycles, carried their goods in baskets on them, coolers, etc, or on either end of a long pole (called a dummy stick, or a Popasan stick by GIs). They too had to be stopped and searched by GIs.

The tops of the rubber trees prevented or hindered aerial observation during daylight hours, and at night completely prohibited it! The canopy also hindered the use of starlight scopes, like the jungle did, maybe not as bad.

On a working plantation, there was little or no undergrowth, just thousands of skinny rubber trees, with cuts in the boles and buckets, bowls, etc, to collect the dripping latex. Some times these rubber trees were booby trapped with explosives, or used as an ambush site. Reason? GIs used the latex as a substitute for soap and water, rubbing it on and then peeling it off along with the dirt and crud. It smelled bad but it got you clean! If GIs got careless on patrol or during highway security sweeps, they might establish a pattern of using the same group of trees to clean their hands and faces before chowing down, knocking off a short time, etc. Or follow the same route while on patrol to save time/distance travelled, energy, etc. It did'nt mean nothing to the VC if the little people blew themselves up, or got blown up along with GIs by a boobytrap or ambush. Usually the local Vietnamese knew about these boobytraps and avoided them. The ambushes too.

Visibility was fairly good in the daytime, but at night it was bad. One of the problems with rubber plantations was that it all looked alike, and it was easy to get lost if you did not know the terrain. Another was the trees masked the terrain features under the canopy, so the actual terrain features could be way off from what a map showed. Another was that being in the rubber could cause your eyes to play tricks on you. Like looking at a cross-hatch pattern on cloth from a distance. It would all merge into a green/grayish background, especially late in the day. It was always shadowy in the rubber. Add this to the dark clothes worn by GIs, the Vietnamese civilians, and the VC and it was possible to walk into a shitstorm if you were not careful or to shoot the crap out of some poor souls out trying to feed their families by mistaking them for armed gooks.

Movement in the rubber was really fast and free. No waitaminute bushes, tanglefoot vines, etc, to make life miserable as they did all too often in the jungle. Also, not as many snakes, centipedes, and other critters to deal with or worry about. But, a grunt had to remain alert for boobytraps, ambushes, etc, just like in the jungle. Never take nothing for granted, never relax your guard, or you or your buddies might pay the price.

Armored Vehicles could roll around freely inside of a working rubber plantation, but they too need to always be on guard to avoid boobytraps and ambush. We used to see ACAV tracks, both ours and the

ARVN, inside the rubber plantations quite frequently. They were always carefully steering around those damned gazillion dollar trees instead of smashing them out of the way. Too hell with the MICHILIN Corporation!!!!!!!!!!!

The canopy of the rubber could interfere with artillery and mortar fire supports. Airstrikes and gunships had problems too. Napalm worked! Hell, Napalm worked on everything!

Again, unless YOU KNEW where you were, fire adjustment could get scary for the same reasons as the jungle. Land Navigation, depending on the accuracy of a map, especially a map based on outdated French Army maps, was a joke. All that a grunt squad had to navigate with was a map, that might or might not be worth a damn, a compass, and the pace method of determining distance traveled. People unfamiliar with the area could and did get lost. Of all ranks!

I never fought a big battle inside of a working plantation but I was involved in several successfully blown APs inside the rubber of working plantations, and a couple of complete routs resulting in APs that went all wrong inside of working rubber. These were all US conducted APs. And at night. I was also part of a platoon that was ambushed in broad daylight while moving through the rubber of a working plantation.

So y'all will need some one with the experience of a big battle (say company size and up) to talk more about how the rubber affected airstrikes, artillery, etc, in a big battle. Or, if the damned trees were a problem for them, if they blew them flat!

In broad daylight, near HWY 13, my platoon was sweeping through the rubber in a skirmish line with two squads forward and two squads back (mine and the weapons squad were the reserve that day), winding up a Platoon Op in the rubber and heading back to the NDP for the night. I am sure we had never been through that area before, yet we were ambushed by Mainforce or Local VC (never knew which ones did it).

The LT had signaled a halt. Then he signaled a command conference up front (he was with the front line). He was using hand signals relayed up and down the skirmish lines as we only had a PRC-25 for the LT and the PLT SGT. Then, before the PLT SGT, the Weapons Squad Leader or myself could even react, he signaled for the platoon to change from skirmish line with two up, two back, to the two parallel files we used mostly in the jungle. The PLT SGT told me and the Weapons SGT to stand fast, then he went forward to find out why the LT was not using the PRC-25 and what was going on.

It was NOW that the gooks blew a small homemade claymore (about 20 / 25 pounds) on the head of the right squad, which had just reformed as a file directly in front of it by shear bad luck!

I was looking forward at the confused shuffling of formation and I saw the dirty brown cloud / orange flash of the mine; it was in a rubber tree, fairly high up. It blew flat the first 7 men in the file, the LT, his RTO, and 2 men behind the command element. Eleven (11) GIs gone down in the blink of an eye, the majority of a squad, there must have been just one or two gooks, as they did not follow up with other

mines or weapons fire. They just vanished into the rubber in the confusion that followed.

What remained after we restored order, treated the wounded and put chunks of our dead into a poncho, was a fast move toward the edge of the rubber while calling for a dustoff and telling the TOC what had happened to us. The dustoff came, and took away the wounded, then a second dustoff came to take away the remainder of the wounded and the poncho full of our dead. We limped back to the NDP, with only 2 soldiers still on their feet from the squad in the killzone, the PLT SGT in command and Weapons Squad Leader as next in the chain. It was a long jumpy walk back with no other incident. We were all in a state of shock, these were our KIA and WIA in the field. It taught us a lesson we never forgot though. Vietnam Kills Without Warning. Anywhere. Anytime. Anyplace.

Overgrown rubber plantations were just as hard and bad to move through as the jungle itself. Hell it was jungle, with rubber trees added!

Our battalion CO, was always telling us, with the grim humor of the grunt, that every rubber tree we "killed" cost the USG big bucks, and made the MICHILIN CORP richer! We always laughed at this, and promised to kill no more than was necessary! Yeah, you bet!

We were also told repeatedly that the MICHILIN CORP paid bribes to the VC to be allowed to use the rubber plantations for their business. One of our patrols even ambushed a bribe collection party carrying lots of greenback USA dollars, paid by the local MICHILIN rep we assumed. We found out the VC would move through out these plantations with impunity if there were no GIs around to stop it. NVA too. ARVNS could be diverted by HQ from planned sweeps w/o any explanation. And as usual, we knew that the gooks knew where we were thanks to the intelligence provided them by the local noncombatants. This got to be so common that we started to refer to all kids on water buffalos as FOs for the gooks.

LZs for choppers were often hard to find in a working rubber plantation except at, near, or on top of the villages and the main roads. Sometime rubber trees had to be hacked/blown down to make an LZ to evacuate wounded GIs, or to insert GIs into a working rubber plantation.

Well those are some of the things I remember about rubber trees and the war. Like I have said before, things may have been different elsewhere in country.

Delta Mike 2

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DELTA MIKE 2

Sixth Sense

I went to see the movie (Blair Witch Project - Mike R) and, for a horror movie it was passable but HAMMER STUDIOS (50s and 60s) could have done it better!

I too found myself paying attention to the blackness, isolation, fear and loathing that came with the darkness of the night in the movie. And it made me think about the jungle/bush darkness of the RVN. And this made me have a round of my night horrors which was, thankfully, short.

Y'all are right, the inability to see (even starlight scopes were almost useless under the trees and in bad - rainy - fog - weather) at night in the jungle and thick bush were bad news for GIs (and the gooks to on occasions!).

We were almost totally dependent on our ability to hear, to smell, and to "feel" OUT THERE in the dark. A darkness so black it was impossible to see your own hand at arms length or the GI next to you.

I mentioned this once before, I think, the ability to "feel" things under the stress of combat environment. In an Army field manual, I believe it is called combativeness, and in another, called, I believe SEE (survival, escape and evasion), this ability is mentioned briefly. Both stress that to ignore these "feelings" and "hunches" can be fatal. Some combat experienced Army instructors also talked about this, and warned against ignoring it. So the Army recognized this "combat sense" as a para-psychological phenomena experienced by large numbers of troops who are in combat conditions.

I could, and I knew others who also could, "feel" things. I have been curious for years as to how many others could "feel" danger, rightness and wrongness this way. So since then, I have run an unofficial survey among combat vets, non combat vets, policemen, and civilians.

So far over the years it is about 50-50 results as to yes and no from grunts, and about 10% "huh?" from some vets, and 99% disbelief from non-grunts and most civilians.

All I can tell y'all or anyone else about it is that there is a heightened sense state experienced by myself and some grunts. LOL! Sounds fantastic, but, I could smell, hear, see, and "feel" things more strongly then (and as a policeman on the beat afterwards) than I could as the jungle and I were separated by the passage of time.

I literally smelled the places where gooks had been, or were hiding on occasions. They smelled very different from GIs. Same as to hearing things that were wrong or dangerous in the jungle. A noise that

did not belong, or did not exist but should have been there. Sometimes I could see little things, like bent twigs, grass, cut vegetation that was not dead yet, but had changed it's color very slightly, the darker color of recently dug dirt against the lighter color of dry surface dirt, branches with scrapes on the bark, etc.

But at night, sight was almost useless. Things can move around at night; not just imagination either, but optical illusions caused by staring intently at a thing or place. Night was the time for listening, smelling , and "feeling". And danger; the time for NVA and VC movement, attacks, ambushes, infiltrations.

Even now, more than 30 years since I went into the jungle and bush, I have spells where I am hyperaware, alert, and edgy at night.

Rainy weather still causes me a sense of unease, like that above, as the rain was also a time for NVA and VC activity, especially ground attacks on isolated units and firebases. The rain not only nullified the starlight scopes, hindered flares, but it often grounded the air support the gooks feared. It could also interfere with artillery fire support; Lightning interferes with radios, landline telephones, night vision and rain reduces visibility, Thunder makes it hard to hear, and the wet screws up the ability to smell anything but wet jungle and dirt. Rain also played hell with the damned M-l6 rifles, making them less than useless! From 1967 to 1867 in the space of a heavy rain!

Loved my M1917 pump shotgun and my M-14 rifle (which the Army took away and replaced with an M-16 crap gun), my .45 Colt, my M26 grenades and my Ka-Bar! These weapons never let me down, regardless of the time of day, or season, or if it was wet or dry.

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DELTA MIKE 2

Highway 13, Thunder Road

Most of my experience with QL#13 (HWY #13 or Thunder Road) came as a grunt and not as an MP. Here is how why.

On 3 separate ocassions my battalion made air assaults into LZs near Thunder Road with the expectation of trouble in 1967, which fortunately did not appear.

So, we established a NDP about a 1/2 klick from the road, in an area where Rome plows had destroyed the jungle and conducted operations out of same for a week at a time. In addition to all normal infantry functions (searches, patrols, OPs, ambush patrols, reconns, and population resources control - a military term used to describe taking the war to the VC by watching the civilians and making unexpected searches of body and vehicles, home and hut, etc, at gunpoint), the battalion had to clear and secure the highway for so many miles each day, along with a combat engineer detachment assigned especially for this mission.

A minimum of 2 companies of infantry plus the engineers are involved in this each day. Company number 3 is left in the NDP as a reserve, along with the battery of 105mm howitzers, and the 4th company is at base camp standing down but on call (read resting, patrolling, perimeter guards, getting drunk and having sex with the local bar girls in the village or town adjacent to the brigade base camp), along with the battalions rear echelon people.

Early, right after chow, the road clearance and security sweep starts, with the companies leaving the NDP and deploying in line, one on each side of the roadway, with the engineer minesweepers, EOD, and battalion HQ element plus some odds and ends from the mortar platoons from battalion and the companies serving as riflemen as a reserve and security element, on the roadway in a classic infantry double file.

Now I know this is not true to life, but for simplicity sake, visualize the highway as a line. On each side of this line an infantry company deploys in a line like one arm of a V, with the open end facing forward from the line that is the highway. Initially it well be a platoon online on each side with the remainder of the company trailing behind and parallel with the highway. I wish I could draw with this thing!

Grunts are loaded with weapons, ammo, water and a C-ration meal dangling from their web gear in a boot sock. The minesweepers, with their detectors, move down the roadway searching, searching, searching for mines, command detonated bombs and artillery rounds etc,

The grunts on the wings of the V have fireteam and squad leaders trailing behind the wing to keep it straight and to keep eyeball contact with platoon HQ and the roadway. All grunts and NCOs are looking for anything that is not "right" as they walk slowly forward on line, watch the trees for the enemy, for booby traps, mantraps, etc, but mostly for any wires that connect a command detonated mine or bomb to a VC command group with a command detonator!!

These wires can be hard to see as they can be buried under the surface, or they maybe exposed due to rain or stupidity. The wire is commo wire from the local ARVN or stupid or careless GI, or household wiring or extension cords wired together and connections covered with electrical tape. I have seen the latter in the following colors: sky blue, pink, white, yellow, black, brown, red, just like y'all can buy at almost any store in The World.

If you see it, you freeze and pass the word RAT NOW!!!! The whole line and the highway party stop immediately. Now, y'all look around very carefully for the booby traps that are bound to be there, snipers, LMG, anything can happen, but usually just booby or mantraps. Most common are toe poppers and HG of various types with the pins loosened and the wire run through the pin. This is for the idiot that gets excited and grabs up the wire and yanks it to see where it goes in both directions, thereby presenting himself and his buddies with armed HG that are gonna explode within seconds sailing about the area. Very, very carefully, a few inches at a time, the wire is exposed to get an idea where it leads to in the tree line and the roadway. The engineers are supposed to do this but it is usually some poor grunt that gets the job. The wire is very, very carefully cut ASAP so it cannot be used to fire the explosive at the business end! Wire must be cut carefully 1 strand at a time to avoid a short circuit and a BOOM! down at the highway. A squad is sent into the trees looking for the owners at the same time, and if a fight starts, it may suck everyone into it! Usually the gooks fade away if they cannot blow the mine, or maybe they will snipe and harass the clearing troops until killed or driven off. Back on the road the engineers are busy finding and cutting wires while the grunts are doing their thing also removing the mine and any booby traps at their end. Some time it is easier and safer to just blow it up, and have a D-9 bulldozer or tank with bulldozer blade fill in the crater.

After the designated length of road is cleared, OP from the rifle companies are posted in fire team strength inside the treeline to provide security for the road. Squad leaders now have the task of walking between their fire teams to maintain contact with them (you are really spread out here folks! a squad is holding a platoon or more of frontage, with trees, brush, etc blocking LOS and no radios).

The engineers and all the troops from the battalion now return to the NDP as a reserve. Those rifle companies are spread thin and all alone, charged with securing the road, and watching in all directions for their own safety too. In rubber plantations which are open this is nerve racking, with jungle it is really tense. The infantry is out there all day until the convoy serials roll by with their MP escorts. Some times, the rubber workers, who are nearby and could be VC or sympathizers, tell the Coke Kids where the GIs are set up, and soon the Coke Boysan or Girlsan shows up with their dummy stick and baskets loaded with Vietamese made Coca Cola and Ice with rice husks and 33 Export Beer. Some time, whores appear and service the GIs carnal needs. But this is only if there are no gooks encountered! Man the locals

vanish when there is a chance of a GI and VC/NVA shootout, so if they do not appear, the GIs get antsy and tend to shoot and talk later. So it is dangerous, not just fun and games. Still the road clearance operation was looked upon as a vacation of sorts from normal grunt duties.

At the end of the day, the fireteam at the extreme end of the line (both sides of the road remember) falls back on the neighboring fireteam, then the squad joins the next, etc. Thus the companies retire upon themselves as they retire towards the NDP and sanctuary for the night. The formation for this operation is determined by officers, but is usually a double file or a squad diamonds, circles or boxes, two forward, one trailing with flankers and scouts out.

The company that remained in the NDP is the one that usually sends out AP patrols that night, but sometimes, after the perimeter is entered, a squad will be sent out from each clearance company after darkness falls, in addition to normal LPs.

The theory is that the convoy people know that you are out there in the trees on the danger stretches and (hopefully) will not shoot at you. Now I know this was not done all the time as I describe as there simply were not enough grunts to do it, so it was high risk areas. In the Mekong Delta on my next tour, there were no grunts to do this, just an ARVN mine sweeper team to proceed the convoy serials. And with the convoys and MPs if there were any available for convoy escort security, plus MP highway patrols.

Well, this is how I spent my time on HWY 13 as a grunt. Always operating from an NDP or a firebase, not as an MP.

Delta Mike 2

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DELTA MIKE 2

Beans, Incoming & Stuff

I cannot remember - did I tell y'all in the email that a well known brand of USA Louisiana Tobasco Hot Sauce was the most favorite condiment bought by soldiers at the PX to spice up their C-rats? It was MACILHENNEY'S, and although I ate it as a seasoning before I went in the Army, throughout my Army career, I still eat it! I love that stuff! We put it on everything but ice cream!

The First Infantry Division had a good general - I cannot remember his name now - but it was his LAW that his soldiers be fed hot cooked meals and got their ice, beer and soda almost as regularly as we got bullets and water! And our battalion CO believed (rightly!) that soldiers who knew that they were cared for (as opposed to expendable!) would fight harder, longer, and more faithfully than some poor GI that was just there.

I cannot remember the Battalion CO's name either, but he was a soldier's soldier! He probably got 3 -5 hours sleep in 24 hours, and he was in the boonies when we were in the boonies! When the bullets flew, if he was not on the ground in the middle of the shitstorm, he was flying over it in his bubble-nosed Bell C and C chopper (unarmed except for any weapons carried by him and his pilot). He did a full year as a combat officer instead of 6 months in the field and 6 as a staff officer.

The beer and soda and ice was flown out to all FSB, OP, and NDP, daily, gooks and weather permitting. And nothing was less permanent than an NDP - battalion or separate company might dig in multiple times during an operation, or it may dig in just once.

Our hooches (sometimes pronounced with a hootch spelling), Mike, were made completely from ponchos as they were lighter to carry than a shelter half, and buttoned together (snapped actually) making a water tight dwelling that 3 could cram into to get out of the rain.

Hooches as I describe were set up in NDP and at FSB - we had no other barracks.

Ponchos (worn as rain gear and used as a water proof ground sheet in theory), and indeed all rain gear (including the rain-suits) as issued for individual wear, were useless in the monsoon season.

Not only did a soldier get thoroughly wet from the monsoon rain, but the airlessness, the lack of "breathing" of a rain suit invited heat exhaustion or heat stroke in very short order! It also restricted movement and was "heavy". Leave them on the ships for the Navy to wear!

A pair of shelter halves came out with the platoon HQ gear for use strictly as a "fridge".

Soldiers soon were issued two ponchos, and one was carried simply to use for a makeshift stretcher.

Poncho liners (a very light weight cotton quilt, made in woodland/jungle camou colors) were issued and used in the field and at base camps, FSB, OPs, hospitals, etc for "blankets". The jungle got cold at night, especially if you were wet! The normal heavy wool OD blankets were issued to hospitals and rear area units. But most RAMFs managed to acquire the poncho liners, causing shortages in the field until the Army finally got zillions of them.

Toilet paper, cigarettes, gum, beer and sodas were all "official trading goods" - MPC (Military Payment Certificates or Funny Money) was useless to a grunt except to buy the sexual favors of a prostitute during highway clearance ops, and actually got used as emergency TP if the soldier in need was squeamish about using his fingers as ass wipe, and leery of using vegetation!

Log choppers were the daily logistical chopper flights made to the NDP, FSB, or OP; in the Army these choppers were almost always CHINOOKS, but HUEYS were also used as log choppers. Once in a great while, for something really big, a SKY CRANE or SKY HOOK was used. The log choppers were what allowed the Army to operate scattered all over the map in the boonies with no airstrips and no roads.

Look at those maps I sent my friend! There were H and I fires flying all over the place, some with such high trajectories (howitzers, 155s and 175s) that the passing of the shell was unnoticed unless you were near the gun or the target area, or there was a misdirected shoot, or a round was short for what ever reason and you were near or at the receiving end. These rounds came in all calibers, and I suspect that most of the originators for misdirected rounds and short rounds were ARVN in nature. I think that **** can verify that a lot of worn out, but re-barreled stuff (artillery) was transferred to the ARVN for a time. And the ARVN could screw up anything, anytime, with no effort required.....

I am just surprised NOW that it did not happen more often than it did (friendly fire incidents).

From the air, the RVN looked like a green, pock marked moon! Shell and bomb craters everywhere you looked .

If a company was moving through the rubber, across the paddy fields, or even grassy areas that were too large to move around, the company would move in a 2 platoons forward in skirmish line with about 12 feet - 15 feet (less if visibility was impaired by weather or terrain) between soldiers. If the weapons platoon was present, it would form a second line, and the 3rd rifle platoon would form a 4 line as a rear guard and reserve.

Platoons and squads would also move skirmish lines in squad diamonds 2 forward and 1 back sometimes with the 2 M-60 teams placed near the LT and PLT SGT.

The platoons would be in 1 or sometimes 2 lines with 2 or even 3 squads forward, and 1 back as skirmish

lines.

If the whole battalion was there, the remaining companies might advance behind this skirmish line as 2 single files.

A company might also do this.

Illumination rounds were always fired in support of the retiring APs and to reveal any gooks trying to close on the NDP during the APs retirement! Illumination was used at base camps, NDPs, OPs, and FSB during ground attacks to illuminate the gooks! Bad light is better than no light when fighting in the darkness! Of course they could see y'all too, and the glare screwed up night vision, but so did muzzle blasts!

The 25th Inf was just up the road from us, and were a damn fine unit of grunts! They came to RVN from Hawaii if I remember right.

APs when blown, were like hand to hand, the most violent, personal, confusing and frightening combats a soldier could be involved in. No amount of practice or training or books or films could prepare a soldier fully for the intense, short lived, and bloody shitstorm to follow. And the action often intensified after it was blown, during withdrawal from the site if the gooks were able to mount a counter attack! Same for them when we were ambushed.

Some day I might talk about this in detail, but it is awful close to the horrors still for me.

Delta Mike Two, Out!

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DELTA MIKE 2

Friendly Fire

It seems to me that most folks cannot grasp the idea of death or injury of soldiers, accidentally, by friendly fire, of whatever type.

I was on the receiving end of friendly fire more than once during my time in the RVN, and I know that I was not alone. I have been told of friendly fire incidents by a number of ex- GIs and Marines who were grunts.

It is something that the military in general and the individual soldiers try to avoid, but are forced to live with by the very nature of warfare and modern weaponry.

The first time "we" came under friendly fire was as a result of an ambush patrol operating within several 1000s meters of our base camp perimeter. After we disengaged, and were falling back towards the nearest roadway and gate into the base camp, we came under small arms and machinegun fire (including a .50 cal M2 Browning HMG mounted on the bunker next to the gate itself) when we left the concealment of the rubber trees and entered the roadway. Reason? Jumpy soldiers with limited or no experience who shot first and asked questions later. Thank God the HMG gunner was so excited he forgot to blow the claymore mines controlled by the bunker and sited to cover the dirt road and the drainage ditches on each side of same. (LOL! I remember laying in the shelter of the ditch, feeling safe, when in the flickering light of an 81mm parachute flare I saw the shape of a claymore about 18" away from my face, pointing my way! Not that it would have made any difference to ME if it was pointed the OTHER WAY - the backblast would have blown me away!)

The second time "we" came under friendly fire was during an operation in the rubber trees of a plantation near Bien Hoa. The company was moving through the rubber looking for trouble with 2 platoons skirmishing on line up front, and the 3rd platoon following them in a skirmish line about a 100 yards behind.

I was fighting with that piece of shit helmet radio system the Army pushed off on us to use in combat - the so called sergeant in everyman's ear comm system. I could not make out a single word, let alone a complete sentence the LT was saying to me or anyone else, so I was watching him for hand signals and trying to keep my squad intervals as we moved. He was about 100 yards away.

Suddenly, I could (and we could) hear an incoming round, a bigger round than a mortar round. We never heard the "shot" from the artillery piece that fired it, but then y'all seldom if ever do. Everyone dived for cover and tried to crawl under their helmets in fear of an airburst resulting from the round striking a

rubber tree. It impacted on the ground in the neighboring platoon, killing a particularly loud and obnoxious lifer SSG (who came to us straight from a Basic Combat Training unit and laboring under the impression that WE were basic trainees) and wounding several other men.

We never did find out who fired the round, so we never knew if it was a US or an ARVN 105mm howitzer HE round that hit our company. We never knew if it was an H & I round targeted at map coords or was a short round that fell from the sky on us that was targeted somewhere else.

The next time "we" came under friendly fire was during an operation near the Black Virgin Mountain (Nuie Bai Dinh) on an ambush patrol one dark and rainy night out in the middle of a grassy plain, next to a dirt road. The AP down the road a couple of miles from us (actually on the intersecting road) blew an AP on a gook unit. We lay in the dark and rain, listening (on the radio and with our ears) to the running fight almost all of the way to the NDP between the surviving gooks and the AP from the other company.

And then it was our turn! We blew our ambush on a platoon sized gook unit, only to discover they were part of a gook company! And now it was our turn to shoot and scoot for the NDP. We lucked out and got away behind a shitpot load of 81mm rounds that I had preplotted earlier.

But in the confusion of pursuit and evasion, we ended up approaching the NDP from a side of the perimeter that was not held by our company. I knew this because there was no huge tree in the grass on our side of the NDP, and this tree was clearly visible in the light of the 81mm parachute flares overhead.

So when we got close to the NDP, I had the AP lay down, and stood up all alone to scream out to the OPs I knew were close-by that , '"MIKE AP IS COMING IN!"

So the OPs obligingly invited us to come on in to the NDP without shooting us to pieces. That was a sense of relief that was indescribable.

It was while we were moving toward the NDP, an 81mm mortar firing H & I to cover us had a short round! We heard the odd discharge of the round, heard the GIs screaming "SHORT ROUND! SHORT ROUND!" and I actually saw the spark as a piece of the propellant ring flew off and sailed through the darkness. Everyone ate mud and the round blew up beyond us without causing any injuries.

Later, during an operation in the howling wilderness near Cambodia, we (the battalion) were digging in for the night at the clearing that had been selected as the location of our NDP. It was in the late afternoon, and we had humped through the jungle and elephant grass most of the day to get here. There were OPs around the perimeter, working parties gathering wood for overhead cover out in the jungle, and soldiers busily digging their fighting positions all around the perimeter, to the accompaniment of howling chainsaws, the metallic clink-chunk of shovels, axes, entrenching tools and cursing GIs as we struggled to dig holes in the damned ladderite (gravel-clay mix).

It was nearing darkness, which comes fast in the jungle, when we heard the round coming in from Out

There, addressed to Whom It May Concern. We could tell it was a big round from the noise it made as it ripped through air, a real big one, and we could tell it was coming toward our NDP clearing.

Soldiers that had a hole below ground level to jump into, did so, while everyone else above ground level tried to sink into the ground, trying to get as low as possible for safety. I jumped into the open topped and incomplete fighting position along with my work mates. The shell hit the platoon area next to my platoon with a soundless red flash that tossed us about inside the hole like we were beans in a can. The explosion deafened us, and stunned us, too, literally knocking the wind out of our lungs. I do not know how long we just lay there, too stunned and disbelieving to move, but it could not have been very long. When no more monster rounds arrived, we cautiously stuck up our heads to see what had happened. What had happened was that one shell killed or wounded most of the neighboring platoon. ONE SHELL!

Later we found out it was a rogue 8" howitzer round, a damned round that was either misdirected or just short of its target, that was aimed at a set of map coords for H and I fires far from us. We were just unlucky and under the trajectory of the shoot. We were lucky that it was all alone, and not part of a battery shoot that was on target. If it had been, one hell of a lot of GIs would have killed and wounded. Those 8" howitzers are widow-makers of the first class.....

To this day, when the night horrors strike, I can see the gloomy perimeter full of laboring GIs, smell the earth, and hear the sounds of the battalion digging in. Then I can hear that 8" shell coming, coming, coming, the screams of "INCOMING! INCOMING!" followed by that soundless red flare and earthshaking blast. And I can see and smell the obscene wreckage of what had been living men such a short time before.

This last horror, was my last experience with friendly fire as a grunt. Soon thereafter (about a week or 10 days) I collapsed with malaria and was medevaced from the field to the big hospital at Long Binh for treatment.

So there are my own experiences with friendly fire as a grunt to ponder over. The hardest thing for me, for any of us to come to grips with, was the sheer random and indifferent death that just dropped from the sky on us. Death at the hands of friends who probably never even knew we were there until after the shell bursts and investigation as to reasons why it happened.

Delta Mike Two, Out!

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DELTA MIKE 2

GI Beans and GI Gravy

The subject comes from a line in an old GI ditty that I cannot remember completely:

"GI beans and GI gravy, gee I wish I 'd joined the Navy!"

It comes as a surprise to discover that most folks, American and foreign, had no idea as to the effort the US Army, US Marines, and US Navy/Coast Guard went to to feed the troops in the field and in isolated outposts, firebases, and even NDPs something other than C-rats. I can speak with first hand knowledge of the efforts put forth by the US Army.

In the field, we poor dawgfaced grunts lived at the crappy end of soldier life in the RVN. Most of our time was spent in the middle of nowhere, with just map coords to tell us where we were and nothing else!

Inside the temporary NDP we lived in shelters made from ponchos or shelter halves (mostly ponchos to save weight!) with an inflatable air mattress for a bed and a poncho liner for a blanket. The rucksack was our pillow. Two or three soldiers lived in this shelter (which was barely large enough for 2 men), with 1 man always being outside the shelter on watch at night unless the squad was on AP that night or the soldiers were on OP duty outside the NDP providing an early warning of gook activities (hopefully). The 3rd soldier, on watch, used his poncho to rig a roof extension from the front of the shelter to keep off rain, or to cover the M-16 rifle with bipod/ammo set up on the Dupuy fighting bunker roof. Other weapons/ammo were inside the shelter with the sleepers.

The shelter was erected using locally obtained wood from tree limbs and small trunks, with the tent ropes and pegs from our shelter halves (which remained in base camp with other heavy and unused stuff). Beside the shelter was a "drying rack" made from the locally available wood (2 upright wooden Ys and a straight piece of wood) lashed together and stuck in the ground with several sand bags for extra support (the same system used to erect the frame of the poncho shelter) this rack was where the 3 soldiers hung up their web harness, belts, and pouches to "dry" at night.

Not much but it was "home" for grunts, even in the large and permanent FSBs.

Back to chow.

Everyday, in the field (and in base camp prior to patrolling duties or prior to air assaults), the squad leader or a fire team leader from each squad would bring it to the squad area of the perimeter, then use his M-16's three pronged flash suppressor to break the wire on a case of C-rats, then slice it open with his

knife, and dump it upside down on the ground at his feet.

The case held 24 C-rat boxed meals, and was dumped upside down so everyone chose their breakfast and patrol meals at random. Since the meals were packed in the boxes randomly with a prescribed number of meals of each type per case, this insured that no soldier or NCO was able to deliberately select the "good ones" and leave the "bad ones" for his buddies to enjoy. If a squad was at full strength (LOL! very unlikely!) it would be 2 cases of C-rats instead of one.

If the unit had not been able to provide a hot cooked breakfast, the breakfast meal was eaten right away, and the patrol meal removed from its box, and stacked inside a woolen boot sock which was then tied to the soldier's harness for transport. The boot sock was selected as it worked well, was light weight, and easily carried the stacked cans "quietly" in the field. All soldiers were welcome to take more than 1 breakfast and patrol meal. A soldier was constantly burning calories in the jungle.

Some C-rats were truly bad, hot or cold, others passable and the best good, but all were bland except for salt.

I cannot remember all of the types now but I think there were 24 of them. The ones that stick in my mind are:

HAM PATTIES AND LIMA BEANS

BEEF PATTIES AND POTATO SLICES

HOTDOGS AND BEANS

PORK CHUNKS AND BEANS

HAM PIECES AND SCRAMBLED EGGS

These meals were all ID'd by a type number and had various desert packs, bread, crackers, etc, so there was some variation. All contained cigarettes, gum, candy, water proof matches, instant coffee mix, salt, pepper, and a TOILET PAPER ROLL containing a couple of feet of a soldiers next best friend! B-3, was the designator for a boxed ration contents. Each ration case also contained about 2 dozen small paper envelopes, each holding a wonderful folding GI can opener called a "P-38" by the Army and a "John Wayne" by the Marines.

The Army issued special 1 man stoves to each soldier to cook his meals on as well as fuel tablets to use for fuel. These were left in the base camp or thrown away as excess weight. Meals were either eaten cold (outside the NDP) or heated with a disposable home made stove (an empty C-rats can with 3 or 4 holes made around the bottom sides using a knife or a "devil's passkey or church key" - a common back in the world beer can opener that made a triangular opening in a beer or C-rats can) inside the NDP or FSB.

In the First Division, a great effort was made to fly out the company cooks and a hot evening meal with real coffee and real iced tea to the NDP every day on the log chopper flight. Some times this was simply not possible, and it was C-rats for supper with canteen water. If the cooks made it out to the NDP for the night, they cooked a hot meal with real food for the troops breakfast the next morning. This was the same as the breakfast served in the base camps and permanent FSBs and outposts. These meals were muchly appreciated too!

Special holiday meals, like Christmas and Thanksgiving were made up in base camp and flown out to the NDPs by the daily log choppers. This was done without fail, unless the grunts were engaged in a life and death struggle at the NDP with the gooks on these days! These meals were then re-prepared and sent out as soon as possible to the unit if real life prevented the meals delivery on time!

And these meals were first class, all a soldier could eat and drink, coffee, iced tea, food, same as would be served in a unit mess hall (sans Class A uniforms, white mess jackets for the cooks and KPs, and the officers, NCOs, and EM and their families as would be normal in the States and Europe). And they were very much appreciated!

The First Infantry Division also attempted (and succeeded most of the time) in supplying soldiers in the field with 2 beers and 2 sodas per man per day, along with a 100-lb block of ice for each platoon to cool these treats. This was part of the daily log chopper flights Soldiers were free to swap soda and beer amongst themselves BUT DRUNKENESS WAS NOT TOLERATED! If a soldier abused this treat, not only did his fellow soldiers beat is ass really good for him as a lesson, but he was removed from the beer and soda ration - PERMANENTLY!

To cool the beer and soda, a hole was dug in the ground, and lined with a canvas shelter half. The ice blocks were chopped into chunks with a GI entrenching tool, and then placed inside this shelter half with the beer/soda, and covered over with the upper portion of the shelter half. Within an hour or so, cold drinks for all!

But when none of the above was available, it was C-rats and canteen water.

We also had the so called LRRP rats issued for a while to us in the place of canned C-rats. These were all very good dehydrated meals to which was added cold or warm water (for a hot meal) that was made and eaten in the pouch it was carried in. These rations were not so good when eaten dry however, and more than a little "chewy". They were lightweight when dry, but a soldier had to choose between water and nice chow in a pinch! And water always won out!

And what of the waste products of GI beans and GI gravy? In the NDP, the cans, bags, and left-overs were burned daily in a burn pit, and buried when the NDP was abandoned. The human waste went into Platoon 2 or 3 seater open latrine pits (including urine) made with sand bags and logs. Outside the NDP, soldiers dug "catholes" and buried their garbage and bodily wastes in concealed holes.

Well, so much for this burning topic of GI life as a grunt in the First Division in the RVN.

Delta Mike Two, Out!

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DELTA MIKE 2

AMMO LOADS II

I started off with an M-14, with 5 steel magazines (basic ammo load), then jumped to the minimum required ammo load of 10 magazines(200-rds 7.62mm ball ammo). Then , like every one else that carried an M-14, was soon lugging 30 steel magazines (600-rds 7.62mm ball ammo). We used to fire semi-auto (SL as y'all Brits say), and reserved full auto for emergencies (we got our rifles unlocked, so we could fire semi or auto asap!). The butt-stock of an M-14 had a compartment where oil, patches, and the disassembled cleaning rod were carried. This was a heavy load!

The M-16s that we were forced to take as a replacement for the M-14 came with a basic load of 10 steel, then aluminum, 20 round magazines. These were commonly loaded with only 18-rds of 5.56mm ball in an effort to avoid malfunctions. The required minimum load for an M-16 was 20 loaded magazines, but after the first firefight, most riflemen were soon carrying 30 or 40 loaded 20(18) round magazines in ammo pouches, claymore bags, and cotton bandoliers that originally held cardboard boxes with loose 5.56mm ball rounds. Extra ammo was also carried in the pockets of the jungle fatigue shirt, and the pants cargo pockets. A heavy load but not as heavy as 7.62mm ammo and an M-14 rifle.

Plus a cleaning kit (LSA lube bottle, multi-piece steel rod, tips for the rod, bore brushes, toothbrush, cloth, patches, and a bipod for each M-16 (aluminum, clothespin type). The cleaning kit was soon stripped to the bare necessities with fully assembled rod carried run through the carrying handle and the front sight/handguard. LSA, bore brushes, patches and cloth were soon carried in pockets in a zip locked heavy duty plastic bag (letter writing paper came in these) and the bipod and carrying case lived at the NDP during sweeps.

Now y'all add the issue M-14 or M-16 bayonet 'knife' which weighed about a pound, with its self sharpening plastic scabbard.

Then add four (4) M26 Frag Hand Grenades, and four (4) Smoke Hand Grenades, two canteens of water, one (1) C-ration meal carried in a boot sock tied to the web gear, a first aide pouch with field dressing, a similar pouch with a lensatic compass (NCOs, Officers and Point man only), maps inside a heavy duty plastic zip locked bag made for this purpose. An entrenching tool and carrier. A steel pot sitting on your noggin, and either a towel or a scarf or both, for sweat and bug control (or padding in the case of M-60 gunners who put the towel, folded over their shoulder, to balance the LMG on). Every other man has a 22" long Collins machete with sheath. AND A CLAYMORE AP MINE WITH M57 DEVICE, DET CORD AND BLASTING CAPS IN A CANVAS SHOULDER BAG.

Now we come to personal weapons. A revolver or automatic pistol with holster plus 18rds (revolver) -21

rds (autopistol USG and civilian .45 ACP most common) minimum for same, a knife or hatchet.

One man in each fire team carries a minimum of 2-pounds of C-3 or C-4 plastic explosives with about 50 ft of det cord and blasting caps.

IF THERE IS ANY EXPECTED TROUBLE WITH BUNKERS OR TANKS, ADD 4 EA LAWS TO EACH RIFLE SQUAD, MINIMUM. OR 2 EA 90MM RECOILLESS RIFLES WITH ABOUT 10 ROUNDS PER WEAPON TO THE PLATOON.

If there are any known rivers to be crossed or cliff to be climbed, each squad has a 50ft coil of rope that some poor sod has to carry (this was almost always found to be missing when needed - it was at the NDP!).

NOW add 200-rds of 7.62mm linked ammo per rifleman as extra fodder for the M-60 LMG - worn as a bandolier over the chest. And sometime (if a firefight was expected) 12 rounds of 40mm M79 ammo as reloads for the grenadier.

During an air assault or a march through the jungle to set up another NDP for operations, each grunt has a rucksack loaded with toiletries, food, more ammo, 20 empty sandbags, assorted D-handle shovels, pick/mattocks, chainsaws, etc to all of the above.

RTOs add a AN/PRC-25 to all of the other crap: it is carried on the rucksack frame during an air assault or a march from one NDP to another. RTOs carried 8 smoke grenades, but no M-60 or M-79 ammo and almost always carried just a double basic load of ammo for their rifles.

Medics carry medic bags in addition to the above load, but no extra ammo for M60s or M79s or HG, and usually just a double basic load for their rifles. Some had pistols, instead of rifles, but soon went to rifles.

Platoon Leader and Platoon Sergeant are loaded with personal weapons and ammo, but seldom if ever carry extra loads for M-60s, and M-79s. Both also carry extra morphine syrettes in case doc uses all of his up on casualties.

Squad and Fire Team Leaders are loaded just like anyone else.

M-60 Gunners have the LMG and a .45 pistol as personal weapons, with 4 frags and no smoke grenades. They carried at least, at least, 400-rounds of 7.62mm for the M60, junked the 100-rd assault packs and used linked belts dangling from the gun. M-60 on the march or during air assault had a partial belt of 7.62mm loaded into it (25- 50-rds, gunners choice) with one or both bipod legs extended to use as a handle while carrying the gun balanced on their shoulders. Some used the sling that came with the gun, but most dumped this as unnecessary weight.

Assistant Gunners had rifle and carried double basic loads of ammo for same, plus grenades and other

gear as a grunt plus the spare barrel and asbestos gloves in a bag. Did not carry any extra ammo for M79s but did carry a minimum of 600-rds of 7.62mm ammo for the M-60.

The Ammo Bearers are loaded as grunts but do not carry M79 extra ammo. There are 2-thru 4 ammo bearers per gun (I think the extra 2 were really the crew of the 90mm RR that lived at the NDP). These poor guys carried a minimum of 600-rds of 7.62mm each. My cowboy math says this load is 3400rds of ammo for each M-60, carried by the gun teams And they did stagger around under more if they had too.

NO ONE MESSED WITH THE PERSONAL 20+POUNDS OF BODY ARMOR (TORSO AND GROIN) ISSUED TO US. TOO HOT, TOO HEAVY, TOO RESTRICTIVE.

STRIPPED DOWN TO THE BARE BONES ON A SWEEP, EACH SOLDIER WAS A WALKING AMMO DUMP AND WATER TANK, WITH ONE C-RATION MEAL, WEAPONS, ENTRENCHING TOOL, MACHETE, KNIFE, BAYONET, HATCHET, CLOTHES, BOOTS, AND STEEL POT. FIRST AIDE, COMPASS MAPS, RADIOS.

MAYBE IT SEEMS EXCESSIVE but when the shit hit the fan and people are wounded and dying and the gooks are trying to kill y'all and your friends, every last damn bullet, grenade, weapon, and cuss word mattered.

I want to lay another myth to rest here along with the myth that each and every grunt was a doper. Bullshit studies to the contrary, Army and civilian (I am sure there are some out there) in a firefight, everybody that could fight pulled a trigger. There were too few of us to allow for the luxury of guys shooting at the clouds to avoid killing a fellow human being, or cowering and not shooting back at the enemy. Once it became known that Joe Blow was too scared to fight back, Joe Blow's time in the field was very limited. The other grunts saw to that. Everyone is scared most of the time or some of the time in a firefight, BUT THERE WAS NO ROOM FOR COWARDS OR SHIRKERS! YOU FOUGHT WITH AND FOR YOUR FRIENDS, OR YOU HAD NO FRIENDS, AND WERE SOON JUST ANOTHER CORPSE.

There was no fighting for Mom, The Flag, or Miss Penny. It was for your buddies and for your self that you fought! Maybe for pride of unit too, but mainly for your buddies and your self.

And to add to the 'it seems excessive', make sure that it is known that nearly everyone had jungle rot, ringworms, walking malaria, intestinal parasites, infected bug bites, infected cuts, heat exhaustion, on the edge of heat stroke, and was in state of almost continual exhaustion from the constant strain, patrolling, APs at night, manning OPs and LPs, snipers, mines, booby-traps, rocket attacks, mortar attacks, friendly fire incidents, and firefights (nowhere near as common in WWI, WWII, or Korea) and knowing that the people at home seemed to hate YOU and not the enemy.

The last statement still gets my hackles up, as you can see.

Delta Mike 2

PS - remember I said that no two GI's RVN would be the same! Similar but not the same.

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DELTA MIKE 2

AMMO LOADS

AMMO LOADS; keep in mind 7.62-mm ammo is much heavier round for round than 5.56-mm NATO! A rifleman in the 1st Infantry Division HAD TO CARRY A MINIMUM DOUBLE BASIC LOAD, BUT ALL SMART GIS CARRIED MORE!!!!!!!!!!!!!!!!

M-14 DOUBLE BASIC LOAD: 10 EA 20 RD MAGAZINES, but usually 30 magazines were carried in claymore bags, ammo pouches, cargo pockets, where ever!!!! This is in addition to the 200-rds of linked 7.62mm LMG ammo, HGs (4 frag & 4 smokes), plus bayonet, water, entrenching tool, two claymore mines, rucksack, etc. GROAN!!!!! ABOUT 70-lbs weight during an air assault. All but ammo, HG, water, weapons, entrenching tool, steel pot, one C-ration meal, was left at the NDP during ops unless it was a relocation march (GROAN!!!!).

M-14A2 DOUBLE BASIC LOAD: 20 loaded magazines minimum, but see above for real life.

M-79 DOUBLE BASIC LOAD; about 50 rounds!! Or more (usually or more!)

M-60 teams lugged around about 5000 rounds per team in real life, plus all the ammo carried by the rest of the platoon.

The Army eventually got all the M-14s back and we carried the M-16 for most of my 12months (like about 8 or 9 months) and we had trouble constantly, even cleaning the damned things 3 times a day!

In fact, in 1967-68 if you look close at pix, you will see grunts with ASSEMBLED CLEANING RODS being carried by running them through the carrying handle on top of the receiver and the front sight/hand-guard. A special kit was issued that held a bipod for the M-16, disassembled cleaning rod, LSA lube, and a clean cloth , a toothbrush, bore-brushes, etc. Bipod was seldom used except for setting an M-16 up on top of a IFP (Dupuy bunker) and covering it with a poncho at the NDP for guard each night. Also note the field improvisation for carrying an M16 rifle by grunts. A grunt never has enough hands, so we ran the sling (mounted on the underside of the rifle normally) from the butt-stock swivel up and through the front sight/hand-guard. This allowed the weapon to be conveniently carried in one hand by the pistol grip, with the sling over the top of the shoulder for shoot and point ability, while leaving a hand free for other stuff. 30 years later, I see GIs still doing this as the US Army refuses to mount slings on the side of the weapon like the AK does. There was an obvious drawback to this: if you let go of the pistol grip, the M16 would flip upside down!

Soldiers carried twice the ammo for the same weight (roughly) of M14 ammo, and this was a real plus in

the jungle. M16s also could deal devastating wounds to flesh and bone! Three magazines would carve a man-size hole in a cinderblock or light concrete wall 12" thick. Three magazines of 7.62mm just knocked fist-sized hunks out of them (at best) for each bullet. But a twig or branch might deflect a 5.56mm bullet.

This is hard to visualize: but during a fire-fight, the tall grass and trees would by scythed down by the bullets flying in both directions, by explosives, etc. There was no reduction in cover however!!!! It is hard to imagine how anyone could live through all the lethal metal flying about, let alone MOVE through it, but we and they did!

I personally solved the M-16 crisis by demanding a M1917 US Army Trench Gun (12-ga pump shotgun made by Winchester during WWI and WWII) for a weapon. As an MP I knew the Army had shotguns!!! I could hold the trigger back, and work the slide, resulting in six rounds being fired before a 20 magazine was fired and reloaded (or an AK for that matter): each shot meant 9ea .30-cal lead and later steel balls were blasted at the enemy (54 rounds vs 36, or 40 or 60), and I could reload almost as fast as an M-16 or AK (almost!). Alternative ammo was a 12-ga solid lead slug that weighed about 500-grains and was hollow point too. So shotguns were used by 2-4 men in just about every platoon of infantrymen. I also carried a GI .45 that another soldier no longer needed, and the Walther I mentioned before that.

Also, usually 1 or 2 men in a platoon retained the M-14 for sniper shots with a GI telescopic sight.

Most soldiers, fired full automatic only in emergencies, or while trying to gain fire superiority, and then, short bursts, unless it was panic fire or desperation fire. This was to conserve the ammo carried, as well as an effort to avoid the damned malfunctions that plagued the M-16! The M-14 was set for semi, unless you could convince some officer or lifer to unlock it for selective fire use, or you were carrying an M-14A2 which was the BAR replacement and had a fire selector already on it.

Ammo lasted as long as it lasted. I know that answer is aggravating but it was dependent on the experience of the soldiers, NCOs and officers, who were supposed to direct and control the platoon's fire. Mostly it was the squad and fire team leaders who really did this, as well as taking up slack while the troopers reloaded, platoon leader and sergeant were usually very busy directing movement and calling in supporting fires.

Ammo re-supply, if you were close by the NDP (almost never) or actually inside the NDP, was by runner very much as it has been since the last century. My first time under fire was as an ammo re-supply runner from the NDP to the jungle where the battalion Recon Platoon was ambushed. Alpha Company was hastily sent in to re-enforce Recon, and got ambushed and sucked into the fight too. I do not remember now whether it was Bravo or Charlie that went in next, and was soon fighting for survival JUST A FEW HUNDRED YARDS INSIDE THE JUNGLE FROM THE NDP!!!!!

AMMO re-supply under fire was also done by chopper crews who hovered overhead and threw ammo, water, morphine, and dressings down to us.

Normal ammo re-supply was by daily log flights of Chinooks and Hueys.

Mortar platoon went to the field like everyone else - loaded with their personal gear and weapons plus the mortars and base plates and ammo for same! About 6-12 rounds per groaning mortar man who was not humping the tube or the base plate. Once an NDP was established the mortar platoons of each company (81mm) and the Battalion mortars (4.2") remained in the NDP to provide fire support and perimeter security while the rest of the battalion was out on a sweep (looking for a fight). Man who ever told them mortars were neglected because of artillery superiority, never had their request for artillery or air support denied, and "only" had the mortars for support. Mike, we were glad our mortars were with us in the field. Mortars Claymores and HGs were a grunts main backups and OLD FAITHFULS!!!!!! Artillery and air support were there, but SOMEONE ELSE MIGHT HAVE A HIGHER MISSION PRIORITY THAN ME!!! But I knew the mortars were ours and no one else's - dedicated to us and us alone! Our mortar guys got so good , they could shoot day or night, good weather ,bad weather, support fires, counter battery fires, etc, putting what was wanted where it was wanted within a few minutes of request!

Delta Mike 2

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ARVN UNIFORMS

IN-COUNTRY OBSERVATIONS

ARVN fatigue and combat uniforms were one and the same. In fact, I do not think most ARVN's ever owned a Class A khaki colored dress uniform. I only saw these in the USA.

ARVN's: the majority of them wore the same olive drab faded out to many and various shades of green and gray green cotton fatigues worn by the US Army, Marines, and Air Force troops all over the world. Square cut shirt with two (2) button down breast pockets, closed by buttons (dark green almost bullet proof plastic), and pants with two (2) hip pockets with button down flaps, two (2) open top hip pockets, and a button fly.

With first white name tapes over the right breast pocket and a black/yellow colored tape over the left breast pocket that bore the legend US ARMY or ARVN. These tapes later became green with solid black embroidered names. At some point the ARVN stopped using the tags all together.

The standard US Army fatigue cap (pin head model) perched atop a mass of dirty black hair. ARVN Special Forces, Airborne and Marines wore berets of different colors instead of the baseball cap. SF = rifle green (more green than the UK color), Airborne = off red, and Marines = dark green. ARVN Seals wore black berets, and I do believe that ARVN Rangers were born with pretty painted steel pots with snarling tigers and black panthers on them. I never saw an ARVN Ranger without a fancy steel pot (unless he was hiding from the VC/NVA like some did during TET).

Colored scarves similar to Old West US Army bandanas were also worn by the ARVN "elite". Yes I know that the ARVN Naval and Marines had another official designation as did their Air Force, but, they WERE ALL ARVNS TO ME!!!!!!!!!!

ARVNs also wore a cotton black - and - dark green camo pattern fatigues called "tigersuits" or "tigers". These were also worn in a brown tiger stripe pattern by some ARVNs.

This is the basic ARVN uniform for most of the war. Including those terrors of the war, the ARVN Regional Forces and Popular Forces troops (we used to say that these guys had "RUN, BABY, RUN!" for their theme song!) .

But in the 70's some ARVNs were issued the light weight US Army plain green and camo pattern

jungle fatigues. Usually the "elite" troops got these, and some officers with clout.

The standard footgear worn by the ARVN was a glorified black and white canvas and rubber combat boot that looked like the KEDS sneakers I wore as a kid. And no socks. Socks cost money that the ARVN would not spend. Later the ARVNs (in the 70's) would get issued the same jungle boots as were issued to US Armed Forces personnel in country.

ARVN web gear was the same as the US Army in the 50's, and later the same as was issued to the US Army in the 60's and 70's. Same with packs.

The ARVN Quan Canhs (military police) wore the same basic green cotton uniform from first to last. With a black painted steel pot and helmet liner with a red over white stripe running around it and large white letters "QC" in front. They also wore the black brassard with white letters "QC", and later, green with black letters "QC " on their left upper arm like that worn by the US Army MPs. QCs were equipped and trained almost exactly like the US Army Military Police Corps, performing the same myriad of missions and doing them generally very well too.

The ARVN Navy wore either the olive drab cotton uniform, or the same denim uniform as worn by the US Navy for shore duty and duty aboard their vessels.

ARVN aircraft and helicopter crews dressed the same as their American counterparts, and some pilots dressed in flight suits that were pretty flambyouant, with more patches and etc than was believable.

The Canh Sats (CS) were the Civilian National Police. They were a real joke, and a bad one too! They were called White Mice for their original all white uniforms and extremely timid behavior- unless confronted with unarmed RVN civilians, especially the elderly, women and kids. Then they were tough and aggressive !!!

Later they wore gray peaked service caps with ornate silver badges, insignia of rank on their epaulettes, white short sleeve cotton shirts and gray civilian style cotton trousers (some times silk!), and civilian style black leather shoes. They wore either web gear gun and ammo belts with cut down leather holsters, or leather gear like that worn by French police and American police. Almost invariably worn "gunfighter style ala European and American western movies.

The NP (CS) Field Forces (the paramilitary thug police) wore either the brown two tone tiger stripe uniforms or the black and green tiger stripe uniforms with black berets or steel pots or gray caps.

Always armed with a short, thick, metal-cored, white rubber truncheon that was spring-loaded for the max bop with minimum effort (see French police again; they still carry these according to my TV set).

Firearms were a variety of old US made .38 Spec caliber revolvers with barrels from 2" to 6" long, some .45 ACPs semi auto pistols, and an assortment of old French and later surplus USG military firearms, especially various versions of the US "grease gun" type SMG in .45 ACP, and US .30 Carbines. Also used the BAR and the Browning LMG for static defense at stations and check points.

When your friends do ARVNs, make sure that one ARVN in every platoon has a squawking duck or chicken tied to his web gear by its legs (dinner for the night!). LOL!!!!! I remember seeing this scene in almost every ARVN unit I ever saw on the move.... they never did develop a chicken/duck silencer....

Well, I hope this helps out those folks trying to figure out about ARVN and National Police uniforms as I saw them from 1967, 1968, 1969, and 1970.

DELTA MIKE 2

SOURCE

'Delta Mike 2' completed two tours in RVN, one with the 1st Infantry Division, the 'Big Red One' as a Grunt and the second as an MP in both Saigon and the Delta. These observations are based upon his own memories.

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DELTA MIKE 2

CRITTERS PART II - DOPEY & DUMMY

Hey Mike, no offence at all! We used to laugh till we had tears in our eyes way back then at the unbelievable place we found ourselves in, at the incredible situations the US Army used to place us in, and at the fantastic events that unfolded around us on a daily, almost hourly basis!

Those lizards would do a "push up" every time they shouted out "FUCKYOU!" which when I finally saw what scared the crap out of me the first time I heard it, made the situation even funnier later to me and everyone else.

My first encounter with a "Fuck You!" lizard was on a night op about 50 meters, maybe a 100 meters at most, outside the NDP on the very first operation we went on. I was still a SP4 E4, with no authority over anybody, and was sent out on the op with 2 guys who had been in country for almost a year. The battalion assigned a few guys like this to each platoon in our company to help us get straight, since nearly everyone (including officers and NCOs) was in the RVN for the first time and it was new to nearly all of us.

Well, as soon as we set up, these two characters looked at me and said, more or less, "Wake us up if anything happens, or about a half hour before sunrise. Whichever happens first."

Then they laid down, got comfortable, and settled in for about 12 hours of sack time (LOL! Were they ever in for a humongous bad news surprise!). They knew that being a new guy, having been in country about 10 days, 5 of that in jungle devils school, and having been rocketed and mortared for about 6 hours as a welcome from the local VC around Phouc Vinh base camp, there was no no no no way I was gonna lay down and go to sleep on them while on op, regardless of how tired I was after the days sweep.

And they were right too! I was exhausted, from the heat, the humidity, the struggle through the elephant grass, wait-a-minute bushes and tangle-foot vines. I would have sold my soul for an air-conditioner, a cold beer, and a soft bed - to hell with Raquel Welch and Ann Margaret curled up in it to ready to play! All I wanted was sleep! Alone, safe and dry!

Well the darkness came like it does in the jungle; daylight, always dim, subdued, shadowy, seems to vanish instantly, being replaced by a black so black that you, I, anyone with unaided eyes cannot see their own hands at arms length...

And with the darkness come the normal jungle noises, from unseen bugs, birds, whatever.

Also with the darkness comes the illusion of movement; I had known about this since basic 2 years before I found myself in the jungle, but in the jungle it is much more sinister than in Germany or the

States. Actually I had known about it since childhood when my Grandpa, a WWI First Infantry division grunt, told me about how the barbed wire posts, and trees would move at night as he strained his eyes on watch from the trench or LP or whatever he was doing, in the periods of darkness between flares. And my dad had mentioned the same thing once about the Pacific Islands, and moving trees. Also heard it from the other men, combat vets, in the family during the big get together bullshit sessions they always had (after I was considered old enough to hear such stuff by them) at family dos.

But this was the RVN and it was scary and real now in a way it had never been before! There might be a gook or gooks out there, razor sharp knife ready, to rush me, slit my throat and kill my buddies if I let my guard down, if I relaxed for a minute!

So the hours passed as centuries, with me struggling to get up enough balls to wake these clowns up and insist they carry their share of the load, and with me struggling to stay awake. Hours like centuries, hours like millennia...

Breaking squelch on the prick 25 when asked for a Sitrep, taking a leak down my pants leg as I lay in the dark. Centuries passed.

Then suddenly, I was aware of a change out there! What was it? Something was wrong, but what? Straining my eyes and ears, I suddenly knew what was wrong. All of the night creature noises in front of our LP had suddenly and totally stopped. There was someone or something out there that had not been there before and he, she or it had scared the night critters into a dead silence....

Then the trees started to move around a bit more, coming closer, closer, I would have to blow the Claymores soon! As I reached out to wake up the vets, directly in front of me, this high-pitched gook voice screamed, "Fuck You!!!! Fuck You!!!!!" and he started to run right at me with a levelled AK.

Well, I did what any other scared shitless, new guy in country would have done! As soon as his buddies jumped up behind him and ran forward, well, I blew all 3 Claymores on them: BOOM-BOOM-BOOM!!!!!!!!!! Then I emptied my M-16 in one long burst of auto fire, hosing down any survivors!

Needless to say, I did not have to wake my sleeping beauties! They never even asked what the! They just cut loose too, then scooped me, the prick 25 and themselves up and lit out for the NDP, one shooting to the rear and yelling for me to do so, the other babbling on the radio as we ran, tripped, stumbled throughout the dark toward the NDP and safety.

This also woke up the rest of the battalion, as there is nothing quite like the boom of Claymores and bursts of auto fire in the jungle night to get your attention!!!!!!!!!

We were damned lucky we did not get wasted by some jumpy FNG from my platoon or company as we retired to the NDP with blazing weapons. Well some were blazing; mine jammed on the second magazine, so I was armed with a short plastic club and bad language!!!!

Once back in the safety of the NDP, as the battalion settled down to intermittent H&I fire from grenade launchers, with parachute flares lighting the night sky as the mortar boys earned their combat pay, we got

to explain what had happened out there.

Actually, I got to explain what had happened out there.....

I wondered at the incredulous looks, gaped mouths, pop eyes, and snickers that accompanied my somewhat breathless report at the Company CP, and later at the Battalion CP for the Old Man. And the Sergeant Major...

Well, it was a long spooky night for everyone. Shortly after first light, a patrol went out to look for bodies or pieces of bodies near the op site. They brought back about half a lizard; weight about 3 or 4 pounds. My gook!!!!!!!

The squad leader of the patrol also recounted how we had killed a good half dozen trees with Claymores and small arms fire. We were in deep shit. The snoring beauties had sworn that they had seen muzzle flashes or gooks during our retreat. So, the whole world knew that they had gone to sleep and left me with it all night long. As an idiot, I was forgiven. As idiots (and vets) they were never forgiven. Life is hard in the jungle. They became universally known as the sleeping beauties, Dopey and Dummy.

I am just glad that my official RVN nickname became '********', and not 'Lizardman'. '********' I could handle; 'Lizardman' or 'Fuck You' would have been too much to live with for a year... Or maybe for the rest of my life.

Well Mike, there is a true-life, long-winded war story from the 'Nam.

Have a good weekend and a good week! Take care!

DM2, Out!

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DELTA MIKE 2

CRITTERS PART I

FOR a while now I have been thinking about telling y'all something about the animal life that was in the jungle with us. So, here goes!

There were small deer, rarely seen but definitely there. I remember them as being reddish colored now, with odd horns, but 33 years and all that has happened may be making mock of my memories.

There were rabbits, small, brown, with the familiar bunny ears, also rarely seen, but most definitely out there in the boonies. When I was walking point once, I scared a rabbit in some brush, he, she, or it bolted, scaring me and I cranked off 2 rounds of 12-ga 00 buckshot into the poor bunny, making bunny junk and goo out of the poor little thing. I had hunted rabbits in The World without any qualms, but somehow murdering this bunny bothered me and still does. At the time I was too high on adrenaline rush and worrying about gooks hearing the boom of that Winchester, but later that night I dream of dead, shotgun mangled Easter bunnies with baskets of corpses and accusing eyes. I still do on occasion.

There were snakes. God, were there snakes! All shapes sizes and colors, and as far as I remember all aggressive as hell and deadly poisonous, except for the huge ones!

Tiny brown snakes not much wider or bigger than your finger called kraits : One Steppers in the slang of the GI.

Snakes from 18" to about 3 foot longer, greenish brown or greenish gray in color as I remember them, with long fangs called bamboo vipers, although we found them everywhere, not just in the bamboo! We called them Two Steppers.

On a jungle patrol once, I was about the middle man of our file, moving through bamboo, when the point man yelled "Snake" and jumped off the narrow game trail (yes this is a NO-NO but we were trying to sneak through the crap, not hack a trail for everyone within a mile to hear could hear being cut). The slack man swatted at the snake with his rifle butt, missed, and tried to get clear of the viper that was making like a Snake Flash as it speed-crawled down the trail. The man next in line hacked at it with a machete, and got the slackman in the leg, swung again, hit bamboo, glanced off and sliced his own leg open to the bone. I tried to beat it to death with my shotgun butt while using the shotgun like a pole-vaulter's pole to leave the ground. The RTO threw his steel pot at it, then jumped into the bamboo and got completely hung up in the crap, and the next 2 guys clubbed each other and chopped each other trying to kill the fast moving viper, who by this time was going even faster than he, she, or it had been ! The last soldier stood frozen in place as snakey death sped towards him, and then between his legs, and

around the the curve in the game trail. I know it is my imagination, but I have a clear picture of that bamboo viper, eyes big as saucers in shocked amazement at our chance meeting looking back at us as he, she or it vanished from sight into the gloom.....

LOL! As for moving quietly, that was pretty much shot in the butt by the encounter , not to mention the Dustoff that was required to medevac our self inflicted wounded to a hospital for treatment after we staggered towards a clearing big enough for a chopper with same. Or for the slicks that had to come and get the rest of the platoon and fly us out of there before the gooks showed up looking for trouble!

End of platoon jungle patrol mission!

Then there was the time the company was conducting a jungle patrol, and a HUGE SNAKE, kind of yellow/white in color, about 24" wide, with no view of its head or tail in sight, had to be crossed by my platoon file , while the monster was slowly crawling across our path....

That was a giant step I never forgot, and neither did anyone else there that day. We do not know HOW BIG THE SNAKE WAS; like I said, we never saw its head or tail. And no one volunteered to stick around to wait for the tail to come slithering by either! We always thought it was a python or anaconda, but the Army said there were not any snakes like that in the jungle (from the safety of wherever the command authority that made the determination was!).

There were cobras in county too, but we never saw one of them. Just read about how other soldiers and marines encountered them in the STARS AND STRIPES paper. We called these Three Steppers

The One, Two or Three Stepper alluded to the number of steps the Bitten Party took before expiring from the bite. GI SWAG as to whether the cobra was deadlier than the bamboo viper: we never met a cobra, so it got lower rating until proved different!

And of course the Army never issued any snake bite venom counter agents to the troops in the field. Our beloved and trusted Docs took care of snake bite victims with CBR injectors loaded with ATROPINE, since the local poisonous snakes seemed to have venom that worked like nerve agents. Then we called for a Dustoff to get the bitten GI to a hospital for further treatment.

BUGS!! God knows there were and are still more bugs in SE Asia than the rest of the world combined. Mosquitoes that are bigger than any I have ever seen anywhere else, with a taste for human blood that is insatiable! Carriers of malaria and leaving itchy infected bites, these mosquitoes scorned the GI bug repellent, seeming to thrive on it like a health food!

Leeches! Tiny green things that attach themselves to you, and become huge obscene black horrors that hang there sucking your blood. These damned things seemed to delight in penetrating various body cavities before settling down to a meal (penis, anus, ears, nostrils, ugh!). Wounds. Infected sores. More nasty infected wounds left behind after the leech was removed!

Ticks that got to be the size of grapes almost! More infections!

Huge ants and Huge termites that seemed to relish human flesh and blood at every opportunity!

Spiders, big ones and little ones, more bad news.

Then there were my personal favorite bugs. HUGE 18" - 20" gray/brown or gray/tan armored centipedes with a poisonous bite that as far I as I know never killed anyone, but made them so sick it was medevac time for them! Aggressive giant insects, that would attack just like the warrior ants and the warrior termites. Thank God these horrors were mainly solitary, but upon occasion some lucky soul would manage to find a nest of them!!!!!!

And big black or reddish hairy millipedes to match them in size and ferocity!!! Also poisonous and requiring a trip to a hospital for treatment. Again I do not know anyone that ever died from their bite, but it always made them sick.

Big yellow eyed bullfrogs that would suddenly appear at night scaring the crap out of me and anyone else that was not expecting them to suddenly appear. LOL, FNG's must have killed millions of them during the war ! Hey, they made as much noise as a man moving through the bush at night! And were loud mouthed too!

Rabid rats! Rats, some of them as big as small cats, who were not afraid of men and would come looking for snacks at night, human or garbage! A bite or scratch meant that you were due for the extremely painful rabies shot series that could and did reduce some men to tears, and actually had some guys forcibly taken to treatment by minders.

Fleas and lice, complements of the rarely seen monkeys and birds that lived in the jungle.

And my other favorite, also the favorite of nearly every soldier that went out into the jungle, the lizard (official name unknown to me and zillions of other GIs), that was tiny or huge, with a voice to match, the infamous FUCKYOU! or FUKYEW! LIZARD. This guy, sounded just like a gook with a bad accent, lurking in the pitch-black jungle, suddenly shouting out,

"FUCKYOU!!!! FUCKYOU!!!!!!!"

No doubt in my military or civilian minds, that this lizard was the cause of zillions of dollars of ammo expenditure throughout the war! There was nothing like an unexpected, high pitched or bass "FUCKYOU!!" flying out the impenetrable black of the jungle night to cause FNGs to blaze away, blow claymores, throw grenades, etc, thereby scaring the rest of the nearby GIs spitless, and if the GIs and marines were jumpy enough, provoking a blaze of panic fire in that sector of the NDP as soon as the LPs were in (and believe me, the LPs would blow their mines and take off for the NDP, fearing to become the

isolated and soon dead victims of a ground attack!). This panic fire could sweep along the entire NDP until NCOs and Officers managed to restore order and cease firing.

There were reports of tigers in the STARS AND STRIPES, as well as bears, but I never saw these either.

Somewhere in country there were supposedly elephants but again I never saw one.

Very few cats and dogs were around anywhere except GI base camps as the Vietnamese would eat them.

Well, that's it about the CRITTERS of the jungle as I remember actually seeing them. I am sure there are countless others that I never saw, but just heard at night, that someone else has info on.

DM2, Out!

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DELTA MIKE 2

Air Assaults Part 3

I cannot tell you the formation the slicks are flying in on the way to the LZ. As a passenger, my vision was always limited to the immediate front, right and left. I could see slicks flying on either side of us, and at some point, the lift would shift into a single file of choppers (usually shortly before arrival at the LZ) with HAWGs on the flanks , to the front and rear. There are other times when I was able to see multiple single file lifts flying around us.

The lift goes into the LZ in a single file, and lands as close to the trees as it is safe to do. If the LZ is a big one, there will be multiple lifts landing in it at the same time. The slick never really touches ground, hovering a few feet above same, and the grunts jump out. Four get out on the side closest to the trees - always! The other three get out on the other side and run around the nose toward the trees - always! This way, some grunt does not run into a tail rotor, getting killed/mangled, wrecking the tail rotor and causing the chopper to swerve out of control and crash. If you are the first lift in or if there is fire from the treeline, the door gunners will recon by fire.

The grunts run/stagger toward the treeline, shaking out into a rough skirmish line as they go. The rest of the squad is in the chopper in front or behind yours, and the whole platoon is forming into a skirmish line around you, with the M-60s on each flank as the rush for the trees continues. Rounds are chambered on the run, and if there is fire from the trees, it is returned on the run also.

At the treeline, the whole unit goes right on in in a rush then flops to set up security. If there are NVA/VC and they are slow withdrawing there is a short ranged firefight, grenade tossing and hand to hand. If there are too many, the perimeter is established just inside the trees and the fight is on! If things are really bad, the grunts are chased out of the trees back into the LZ clearing or over-run, and the survivors are in for a fight they will never forget. The object is now to hang onto the perimeter as it is established and with each incoming lift, to expand it, secure it, and then move on into the surrounding jungle after reorganizing from the assault landing as soon as possible. As soon as the whole battalion is on the ground, including the mortars, this is done. If there is a fight, mortars set up wherever they can and shoot into the jungle. The slicks are then limited to an approach from one direction only, determined by the Battalion CO. Gunships orbit and waste any targets of opportunity, and if there is a fight, the USAF may also get involved with fighter bombers and napalm.

But remember, while the aircraft are making attacks at low level, their is no mortar or artillery fire support!!!! This includes gunships and scouts too. No pilot wants to fly into airspace full of incoming friendly rounds!

The battalion aide station is flown in fairly soon, and sets up where ever they are told too just inside the

trees. The medics are responsible for their own security at the aide station, as well as that of any wounded. Unless they are Conscientious Objectors, all doctors and medics are armed. They soon learn there is no Geneva Convention special status for them or their patients, and that they are fair game for the NVA/VC.

The senior officer on the ground declared the LZ secure, or unsecured. As if you need some one to tell you! No bullets or mortar rounds means secure. Otherwise means it is not!!

The enemy fire is suppressed by closing with and killing him, with fire and manuever by grunts, or by driving him away with artillery/mortar fire support, and/or air support by fighter bombers and aeroscouts and gunships (HAWGs).

The lifts were organized by company and platoon. Each Company had a clock position (look at your wrist watch) to secure on the LZ perimeter and each platoon had a position within the company area, with mortars as a reserve platoon, unless fire-support was needed.

All HQ elements, whether platoon company or battalion are split into two chopper loads, so if one goes down, all the officers, senior noncoms and RTOs do not get whacked at the same time.

Mortars flew in as part of the company lift and were on the ground almost as soon as the rifle grunts.

It should be made clear here, that the slicks were going into the LZ even if there was a high volume of fire. Slicks were called off only when losses became too high.

If there is no fight at the LZ, as soon as the battalion reorganizes, it moves out as I discussed earlier to the area where the NDP is to be established and from which operations are to be conducted. It was rare to set up an NDP in the LZ, and it usually meant there was big trouble OUT THERE waiting to be found!

Air and artillery fires into an LZ as preperation for an air assault was never a long drawn out operation. Like I said earlier, no sense in telling them you are coming! And more than one LZ site maybe hit to confuse the issue for the NVA/VC.

Any fire into an LZ or at the choppers or troops means a "hot landing zone" and maybe a real fight after hitting the ground. Cold means no enemy activity.

The battalion CO or XO if he was down, or the senior surviving officer, NCO, or private could call the landing off, or put it on hold if the LZ was a lost cause! If the later two cases were the seniors left, an over run was more than likely imminent and the lucky SOB in charge was already screaming for fires on top of his position and hoping for survival or sweet revenge. BROKEN ARROW was the call and the unit about to be overrun got first priority for everything- air support, artillery support, mortars, and naval gunfire.

If the LZ was lost, or never secured or if the grunts were fighting and running for their lives on the

ground, the extraction was called a 'shotgun extraction' - meaning under hostile fire (like shotgun wedding - ie, necessary and no way to avoid it with a hostile father in law and his shotgun supervising the ceremony). A hasty and desperate perimeter defense would be put in place. Soldiers would hastily set up claymores in front of trees or in the open, under fire, and covered by their buddies. The object is too hold the ever shrinking perimeter. Steel pots and anything else is used to scratch a hasty fighting position out of the ground if there is time or hasty barricades are thrown up.

Eventually the perimeter is large enough for a single slick or two, and the last lines of claymores are blown on command, everyone shoots on full auto, and then they run for the slicks while the gooks are recovering from the mass of high velocity metal that was sent their way and hope are still hunkered down. If not, it is a fight all the way to the choppers, who are firing suppressive fires, and the HAWGs are plastering them too. Slicks are often over loaded if the situation is desperate enough and can barely lift off the ground. The wounded first, then the fighters and the bodies (if possible). Often, the dead are knowingly loaded as wounded to get them away.

I have done a shotgun extraction, and never ever want to do another. Ever. It was really bad and it was touch and go right up to the time we got back to base camp.

Delta Mike 2

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DELTA MIKE 2

Air Assaults Part 2

In my last letter that should have read, "no extra clothes or boots or body armor" - too much weight involved. Hope that you can slice and dice in a correction or there are gonna be some confused folks OUT THERE! Also I should point out that with the tug of a singe breakaway strap, a grunt could drop his rucksack and most of his load in an emergency, just going to weapons ammo, water etc., for his load. Down to about a mere 35 pounds for a rifleman or grenadier from 70+ pounds.

The radios crackle out the message to saddle up, slicks are on their way in. So with much groaning and grunting and cussing, the grunts struggle to their feet and lean forward under the weight of their burdens, using weapons and tools to share the load. Soldiers who took off their rucksacks and etc to be more comfortable during the wait are struggling back into same, turning the air blue with a mixture of English, Spanish, Japanese, Korean, German, French, Vietnamese curses and GI slang that a linguistics expert would get a migraine trying to translate. Colorful, crude, effective, and very , very imaginative too! Makes one feel a little better about the situation. Magazines and belts are loaded into weapons, but no rounds are chambered under the eyes of noncoms and officers.

The slicks as I recall, would come into the chopper strip 5 to 7 at a time, in lifts, flying balls to the wall, flaring up and settling down onto the strip in a blizzard of fine red dirt and dust (finer than facial powder), then just squat there, rotors blasting the stuff everywhere, and 7 grunts would stagger, waddle, try to run out to each one. Four guys would load into the side closest to the soldiers, and 3 would stagger, waddle, try to run around the nose and load from the far side. To the accompaniment of the door gunners yelling "GO!GO!GO!" The last soldier is sometimes only partially inside the door-less body, when the slicks, one at a time, starting with the lead slick, lift off, hover, drop the nose, jerk up the tail, and head balls to the wall for the sky, blasting everyone on the ground with even more crud. Then they are gone. And the second lift is on its way to the ground to repeat the procedure This goes on till the recon platoon and the first assault company are gone, then there is a lull while you wait a few minutes for the next group of slicks to arrive.

There is a great deal of nervous silence as the troops on the ground , waiting to be flown out to the LZ, listen to the radio traffic for the "Hot LZ" (enemy resistance encountered) or "Cold LZ" (no enemy resistance encountered) calls from the first wave of troopers to land. A lifetime could pass while you wait for the minute hand to move on your watch and wait for THE WORD: HOT or COLD.

SLICK is GI slang for the lightly armed Huey transport choppers. Each had both side doors removed for the speedy loading/offloading of soldiers. Crew was 4: pilot, copilot, and two door gunners with M-60s on an aircraft door mount that allowed 180 degree field of fire to each side or close to that, and an ability

to fire almost straight down. Combat load was 7 grunts, all sitting on the floor, 4 closest to the gunners and 3 closest to the pilots. This was normal. Squad leader always went with the majority of his squad in one chopper, fire team leader with the remainder. Math tells you that a single 7 slick lift can carry almost a full strength platoon, so a company requires a minimum around 30+ slicks at TOE, but seldom was any unit at TOE strength in the field. Usually 5 slicks could lift a combat platoon in one lift, so a combat company was carried by about 20 odd choppers in Hueys. IN HUEYS!!!! Not larger choppers. In the choppers, weapons were pointed up (unlike nowadays) and outwards by the grunts.

Once in the air, it was a fast, noisy, bumpy ride, full of rapid climbs, quick descents, turns at high speed and steep angles (the ground would be parallel with the troop compartment!) with centrifugal force as your seat belt. Guys closest to the doors on both sides, always jacked rounds into the chambers of their rifles and if available, the M-60 was always on the side that would be closet to the LZ treeline. No one else chambered a round in the chopper except for the ones I just listed. This was for safety. A clue things may not be going good was if you were on the third or fourth wave and HAWGs joined your lift. HAWGs were Huey gunships (not Huey Cobras yet) bristling with guns and rockets, they were your airborne artillery and personal escort into and out of hell if needs be. Love them HAWGs. As I remember they went by the call sign of RAZORBACK and had a large red, Arkansas razorback boar, running full tilt and snorting smoke from the nostrils painted on them. Hence the name HAWGs. There were usually 2 to 4 assigned to cover a lift making an insertion or an extraction under fire.

The LZ during the approach of the first wave is pounded by artillery for a while, not a long time as it would say here we come! The guns were any and all available and within range I am told. Some time two or more potential LZs would be hit by artillery to keep the NVA/VC guessing as to the location of the real LZ until the choppers arrive over same. With the approach of the lift, the artillery ceases to fire, and the first gunships arrive, along with scouts. These scouts circle the LZ and the area around it at very low altitude looking for a fight., while the HAWGs loiter in orbit. MAC the FAC shows up about now too, just in case the USAF needs to get involved in the fight and circles high over head, talking with the scouts, the HAWGs, the incoming lift and the artillery fire bases if needs be. MAC had to be busier than a one legged man in a butt-kicking contest when things were slow. Also the Brigade CO or XO in their CAC choppers may appear to see and or take part in the show. The Battalion CO or XO is already on the ground and the other is airborne by now and heading in.

The HAWGs may shoot the place up just as a precaution or if the guys on the ground see something that makes them nervous. They will be blowing the place apart if the LZ is hot or some idiot NVA/VC took a shot at a scout!!! From the air, as you approach the LZ, it is possible to see if there is a fight going on long before you can hear it (unless your escorting HAWGs start shooting off rocket salvoes as the slicks make their landing run) The density of the smoke, the green and red tracers, shell bursts and the chopper really start to jerk about the sky as the pilot's make random moves to avoid being an easy target. They tend to do this even in a cold LZ -just in case.

DM2

DELTA MIKE 2

Air Assaults Part 1

AIR ASSAULTS! Well I made a few dozen of these while I was in country.

The day starts real early for the grunts and everyone else involved! Breakfast is steak and eggs to order from the company mess halls (a traditional US military pre-battle meal). Last minute briefing for Officers and Noncoms; platoon leaders in turn deliver last minute briefing as to target LZ details, the direction the platoon will move after it unloads from the slicks (transport choppers), expected enemy forces, radio call signs, artillery fires and air support on call, etc.

NCOs perform a check of their men, making sure that everyone has his approximate 70-pound assault load: 2 canteens of water, first aide pouch and jungle survival kit , 50 sandbags (empty), 3 C-ration canned meals (carried in boot socks tied to the rucksack frame), bottle of MacIhinney's Tobasco Sauce, 3 Claymore mines w/M57 firing devices (1 per mine), det cord and blasting caps (in claymore bags - 2 on the soldier, 3rd in the rucksack), toilet articles (soap, razor, toothbrush, tooth - paste/powder, steel mirror, wash clothe and towel), extra socks, entrenching tool, 4 smoke grenades (w/ cotter pins carefully splayed), 100 rounds of extra ammo carried in the rucksack, 1 D-handle shovel, 1 axe, 1 pick/mattock for each squad, every other man with a 22" long Collins machete (shades of the Banana Wars!), individual weapon with double, triple or quadruple ammo basic load (about 600 rds of 5.56 mm NATO or 100 -150 rds of 40 mm ammo for the M 79), 200 rounds of linked 7.62mm NATO for the M-60s, 4 M26 frag grenades carried in an extra canteen carrier (w/the cotter pins very carefully splayed on these), pistol or revolver (for those lucky enough to have them) w/ammo, knife, hatchet, cleaning kits, bipods, spare barrels for the M60s, bayonet/knife (issue), compasses and maps (officers and noncoms only), extra compass (designated point man), extra radio batteries, AN/PRC-25 radios w/jungle antenna (short), starlight scopes, trip flare (4 per grunt), 4lbs of C4 explosives with detonators and blasting caps per squad, 50 ft rope coil per platoon, and maybe 1 chainsaw for each platoon.

Each M60 team carried all their personal gear and weapons plus the guns and 3000 rounds of ammo for them. Doc was loaded down too and the RTOs could hardly move. Weapons platoon soldiers had it worse - mortars, base plates, ammo, PRC-25s, and all of the above personal weapons and gear.

70+pounds of stuff! You will note - no extra clothes or boots or body armor. Too heavy. Body armor was 25-lbs of torso and groin armor that was stifling hot (man, I do understand SHAKESPEARE's statement about 'armor that scalds with its protection') and it was not bullet proof, so we did not mess with it when I was a grunt - it was optional. Heavy thick ballistic nylon, not the light rattling clinking plastic/metal plates of the USMC armor. Steel pots and helmet liners were not optional- with a sweat rag tied around the head under same. I almost forgot the shelter half/poncho (raincape I believe y'all call it), the poncho liner (jungle blanket), and an inflatable air mattress and another towel carried by the troops as padding

under web gear straps. We wore our ****** scarves too - let the gooks know who we were when we showed up, like the Iron Brigade's black hats and checked shirts.

Finally, it is time to go. Deuce and a Halves show up in the company area and we load up- climbing into the truck bed (about 5 ft off the ground) w/loud groans and grunts. Off to the airstrip at base camp, then off the trucks . Line up on the red dirt, drop in place by squad, platoon, company, and battalion. Smoke 'em if ya got 'em! Sleep (never get enough sleep as a grunt) or monitor the radios, and wait for the slicks to arrive. Hurry up and wait. Very quiet as a general rule, with a few raucous bursts of grim GI humor at the expense of some poor guy who was scared more than the rest and looked it. Some guys are studies in nonchalance (some real, some for public consumption) - others with a barely controlled violence straining to be let loose. The killers, born or made, who like the slaughter and excitement of a battle. You are lucky if you have them in your unit. They are worth their weight in gold when the shit hits the fan, and a pain in the butt (some of them anyway) when in the base camp.

This is where I must stop for now. More later.

DELTA MIKE 2

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DELTA MIKE 2

Ambush Patrols

AP's (ambush patrols) were rehearsed by the squad NCOs, members and attached M-60 LMG team and RTO prior to actually going out and doing it.

Squad Leader was notified by PLT LDR or PLT SGT earlier in the day if the platoon had been fingered (now there is a phrase that had a double meaning for GIs - it came to mean more than just selected, it came to mean FINGERED - the digital signal that is universal in the Western World with its European heritage) for AP duty that night.

Squad Leader was then responsible for getting the fire team and LMG team leader together for a meeting to look over the map coordinates for the site, find out if there were any problems inside their teams he did not know about (generally health, equipment, ammo, etc). Ammo and other stuff needed or anticipated was listed here and submitted to the PLT SGT for acquisition. If there was time, Patrol Leader would get a fly over the site and surrounding area in the BN CO's LOH or Loach. This was usually not possible. So a map look was all you got.

The patrol members were assembled and told that they had the job for the night and to get ready for it. At some point, the entire patrol was assembled, briefed, shown the site on the map, told about landmarks to use if they became lost (this is a bad joke unless there is a terrain feature like a road, river or mountain - jungle is jungle and EVERYONE DOES NOT HAVE A COMPASS AND A MAP!!!!!!!!!! JUST NCO's have maps and compasses, and the point man is carrying one of the compasses). The patrol does a rehearsal of who goes where in the march column and at the AP site. A password is given out for use if needed (and you hope it is not needed!). Get chow and get rest as you can, write letters, then another last minute briefing for all and a check of everything. As soon as it gets dark thirty, move out! Single file, about 3 feet between bods, no flankers (might get lost), no advanced point (might get lost), and no detached drag (might get lost). The move out is along a compass course. Usually in a straight line, but sometimes with a zigzag.

March security is point man watches the front. Next guy watches out for him, then, alternating down the file, soldiers and NCOs watch the right and left flanks, squad leader is busy having ulcers watching everybody, the RTO has the radio handset jammed against his head, watching no one but listening for a call, the LMG is next in line with gun closet to patrol leader, then the rest of the patrol, watching left and right as above, and the last 3 guys are a fireteam leader, then a slack man and the drag man.

Compass at front, middle and rear of the file. The compass heading is checked constantly. The distance is by pace count (by guess and by God we called it). Pace is counted each time the left foot hits the ground,

and is approximately a yard. Sooo, since this is the tricky part, just getting from A to B, squad leader, fire team and gun team leaders are all counting as well as 1 or 2 others. The total each has is checked periodically, and when the numbers are bang on, you are there! More than likely, the numbers are close, or the majority of the numbers are close, and you are there, or near there, where ever there is!

If you have no terrain feature to ID, this is worrying. The patrol makes frequent halts, assumes a state of security, and waits in the dark. Listening, watching and smelling the palpable darkness all around. You are checking to see if anyone is bird dogging you (on your trail). About 50 meters from the AP site, patrol halts and squad leader and a pair of soldiers move out to look it over. Hopefully the trail, stream, track, road, or whatever is there where it should be without any NVA/VC hanging about waiting for you. If all is good, then the patrol moves up and everyone deploys to his spot and sets up. The rear security element(2-3 men) sets up facing the rear within arms reach (so much for field manuals!) of the guys facing the flanks. The majority of the patrol is deployed facing front in a line. After everyone is setup, then 2 at a time the guys go out and set up there claymore mines, bring the wire back with them. All the mines are rigged for independent fire (early) or salvo by the patrol leader (later). Being paranoid, mines were set up to fire front, sides and rear - there was NO GUARANTEE THEY WOULD COME FROM THE DIRECTION THEY WERE SUPPOSED TO!!!!!!!!!!!!!!!!

The most common formations used were the line, the L-shaped line, the box, and the circle. Patrols set up much closer together (arms reach) than field manuals specified. It was safer, and allowed a touch to alert the guys on either side. As many as 6 out of the 15 men are detailed to face the flanks and rear.

All of this (since leaving the NDP) is done with zero talking, zero light and radio squelched down. Hand signals - official and unofficial - are used. Every other man can doze but no snoring, Piss in place, and no drinking. No movement at the AP site. Just tough it out until after dawn when you head back. Constant radio contact with the NDP (CO HQ) and Sit Reps by breaking squelch every half hour. Negative report - break squelch once. Positive report - break squelch twice.

Oooops! I forgot the most interesting part of the patrol aside from actually BLOWING IT or a movement nearby as far as adrenalin flow goes. Registering your friendly company mortars for fire support.

If you are where you are supposed to be, when you call for the ranging fire, you can hear the rounds coming and see the flash/ hear the bang of impact. No sweat!

But if you are off in your count, they may land behind, in front of, or on top of you! Makes life interesting. You may still hear them leave the tube, may still hear them as they come hissing down, and hear the blast, but if you cannot see it, you cannot adjust it! Some times they just explode in the treetops. I have crawled under my helmet more than once, waiting to see if the round was going where I wanted it. Most of the time yep - there she blows! But those times when the round comes hissing down, detonates and you cannot see it - no one can see it- are buttpuckering experiences. And it must be a law of artillery, in the jungle, that the first round almost never goes where you want it. Lots of big white staring eyes and heavy sweat until this is either where you want it or you say - ENOUGH! THIS IS TOO HAIRY FOR

ME and call in a cease fire order.

And keep in mind, friends, most people adjusting the fire were grunts with a couple of hours training in AIT and maybe some more at unit level in the States and elsewhere!!!! Real FO's stayed with the NDP, Company and Platoon size units, not separate squads of grunts!

I got my lessons in fire adjustment on the job in the jungle - same with infantry tactics as, aside from a tiny bit of training in Basic, the US Army did not teach MP's below the rank of squad leader how to do this in 1967! And I was an E-4 SP4 with the inherited duties of an infantry NCO.

Hell, I was lucky in that I could read a map, use a compass, and knew radio operations procedure. Yet , my pay grade and time in service (2 years and days) pushed me to the OJT as a buck sergeant , then staff sergeant, and later acting platoon sergeant. Thank God for the guys that showed me how and told me why - the Army never did. I was trained to direct traffic and escort convoys for a European War With Russia - we all were trained to fight a big war with Russia or China, and found ourselves in SE Asia rediscovering everything the US Military had forgotten since the Colonial Wars, Indian Wars, and Jungle Wars in Mexico, Florida, Panama, Cuba, the Philippines, the Banana Wars after WWI, and the huge amount of stuff learned in the WWII Pacific jungle fighting!

Damn! Sorry, I got on my box but it needs to be told - it is the truth, and explains a lot of things that people do not know or understand about the whole mess!!

Each ambush patrol carried a starlight scope when it went out. The patrol leader carried it, with the directive from on high that was the equivalent of the ancient Spartan with your shield or on it!!!!!!!!!!!! When it worked well, the view was a very light green with a darker green black background a lot like the night vision shots that you see on CNN in war zones. Clarity was better with a full moon and no clouds. It was grainier than the CNN news shots.

But it did not work well in rainy weather, cloudy weather or inside the jungle. Picture was very bad in these circumstances, very dark and very grainy. Very hard to impossible to make out any real details in these conditions. BUT IT WAS BETTER THAN THE MARK 1 EYEBALL. The darkness in Nam is totally unfamiliar to people unless they have camped, hiked, hunted or worked in a wilderness area - and the dark of the jungle is much darker than that of the forest at night. I know - I spent a lot of time in both environments.

Some people have worse night vision than others too, which really complicates life!

Most soldiers could not see their own hand at arms length in the jungle darkness, so a lot of time was spent looking (always shifting your point of vision to avoid the "walking tree" effect) listening, listening, listening, and smelling. Also, laugh if you will but the Army does not, and neither will an experienced grunt, you also use a sixth sense, a combat sense, that helps those blessed with it. Everyone seems to have it to some extent, some have it very very strong. It is a sense of right and wrong, the ability to "feel"

the enemy even when you cannot see or hear him, and the ability to "sense" the enemy's weapons and mantraps even when you cannot see them. I paid attention to mine and I am still alive, more or less intact, and able to function. Others did not and they are dead, cripples or vegetables..... It is very real, you can take what I say as true or blow it off as you wish. I know the truth of this, I do not know how it works or why, but I know it does.

DELTA MIKE 2

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DELTA MIKE 2

US Organisation & Equipment

Companies were always short handed.

Company HQ in the field was the CO, XO. 1 SGT, 2 RTO's for each of the 2 officers, several messengers and a medic or 2.

The weapons platoon always stayed in the NDP when in the field to serve the 81mm mortars - 4 of them per company I think is right, plus the Fire Direction Center plotting team - maybe 30 to 40 soldiers in total.

Rifle platoons were the search and combat elements. Platoon HQ was 1 LT, 1 PLT SGT, each with an RTO, and 1 medic.

Weapons squad was a squad leader (the senior in the platoon), and 2 LMG teams of 4 men; the 90mm recoilless rifles were always left in the base camp or the NDP unless they were expected to be needed. LAW's were carried instead.

Rifle squads were 2 fire teams, with an M79 each, everyone else had M-16s, maybe 10 soldiers at best, usually about 8 or 9, including squad and fire team leaders. Three rifle platoons to a company.

HQ Platoon and any one not assigned to field duty remained in the base camp - basically all the cooks, clerks, truck drivers and the NCO's of these sections. They performed perimeter guard duty for the company's area of the base camp perimeter while the company was in the field.

Wastage was high in all units due to rotation, illness, injury, wounds, death, R and R, etc. I would say most US rifle companies at best had about 150 - 170 men available for duty - in the field and at the base camp. Some were really bad off, like I said, with 90 bods available for sweeps and combat outside the NDP, plus remember, 1 company was nearly always at base camp "resting". So a battalion with 4 rifle companies only had 3 in the field as a rule.

A quickie about the RVN Airborne, Rangers, SF, Seals, and Marines. They did conduct some field operations, but it would appear a lot were kept close to the capital city. By very good, I meant in comparison with other ARVN's, not US troops. and I never operated with any of these guys until TET and then only rarely. I do know that the SEAL's in MACV thought their ARVN Seal team was a good one (this was in My Tho 1969) and a friend said the Marines were alright that he worked with.

AMMO & EQUIPMENT

When I went to the RVN,the most common weapon for the US soldier as an individual weapon was the US Rifle, M-14. The M-14 was in 2 versions, both in 7.62-mm NATO caliber, and both had just finished replacing the older M-1's in the regular US Forces by about the time we started sending troops to the RVN. It was a heavy (as compared to the M-16 rifle), longer rifle (as compared to the M16 and the AK47), very rugged, very reliable, and bore a strong resemblance to its grandpa, the M-1, but with less wood, and no stacking swivels.

The M-14 used the 7.62-mm NATO round, which is shorter, less powerful than the .30-06 US Cartridge it replaced, but slightly more powerful and I believe, slightly longer ranged then the AK round (and longer ranged, more powerful than the M-16 round in 5.56mm) Both the 7.62mm NATO and the 7.62mm AK rounds were developed by the US and German Armies based on WWI and WWII battlefield experience.

In WWII, the Germans produced a very modern assault rifle in the 7.92mm Kurz which is the grandpa of the AK47. The US developed a "hot" .30-caliber round for the US Carbines that would only work in those weapons and nothing else - it was really a very high velocity pistol size cartridge. The USA worked on a replacement for the M-1 all through the 1950's and finally settled on the 7.62mm NATO round and the M-14 in the early '60s. There was a very good UK rifle in a "bullpup" configuration using a smaller HV cartridge (similar to the later M-16 round) The US rode rough shod over this weapon/round for political reasons to get the 7.62mm adopted as the official NATO round.

The basic M-14 rifle was a magazine fed, gas operated, semi/full automatic weapon, using a detachable 20 round box magazine. This weapon was issued set for semi-automatic fire (like the UK’s FN 7.62mm SLR), but each platoon leader and every officer was issued a "key" which could "unlock" a rifle so that the soldier could fire semi or fully automatic as desired. The grunt squad was mainly armed with this weapon, both in the Army and the Marines. Army squads had two fire teams, Marines had three.

There was a squad support weapon with a heavier barrel and a bipod called US Rifle, M-14(E1)A1 which was issued in the selective fire model to replace the old BAR of WWI, Banana War, WWII, Korea, and other wars (including the RVN). It used the same 20 round heavy steel magazines as the M-14. As I remember, the M-14 was issued with 5 magazines while the M-14A1 was issued with 10 magazines. At some point, I believe the M-14A1 became an A2 also.

Both rifles had about a 750 round/minute cyclic rate of fire (full automatic fire). Both rifles were battle zeroed for 450 meters (EUROPEAN WAR). Battle zero was not the max range, just the one determined to be most useful in "real life".

Ammo was issued in cotton bandoliers from GI ammo cans. Each pocket on the bandolier held a card board box with 20 rounds of 7.62mm ball ammo, loose, with a charger that attached to the magazine for reloading stripper clips (I never saw one in 7.62mm NATO) or two loaded stripper clips of 10 rounds each. Some ammo cans had only boxes of separate rounds, or loose rounds (rare). Loose rounds had to be loaded into a magazine 1 at a time. Ammo was ball, armor piercing and tracer (red-orange).

Soldiers with rifles had a knife-bayonet issued as a secondary weapon. Ammo was carried in 2 heavy

cotton web ammo pouches which held 2 magazines each, and incredible as it sounds, had provisions for attaching two M26 fragmentation grenades to each pouch…. (DUMB! STUPID! DUMB!).

Each US Army fire team (called Alpha and Bravo) also had an M-79, single shot breech loading 40mm Grenade Launcher (called Thumper or a 'thump gun' because of the distinctive "thump" it made when fired. The grenadier carried a .45-ACP caliber automatic pistol (SL Pistol to the UK types) as a back up weapon for his GL. Ammo was only HE, and Pyrotechnic (signals), but later, due to popular demand, a 40mm Anti-Personnel Canister round was added (giant shotgun shell).

Ammo came in 6 round cotton bandoliers that were removed from GI ammo cans and carried by the grenadier. Grenadiers soon acquired a claymore AP Mine bag to carry ammo in for their thumpers, and sometimes, 2 of these bags for ammo. The 40mm round would not explode until it traveled (I think) 5meters after being fired and then a twig would cause it to explode! I think the casualty radius was also 5-meters when it popped.

Three of an infantry platoons 4 squads were armed as above. The fourth had two fire teams also, each built around an M60 LMG, a truly legendary 7.62mm NATO weapon. Rugged, reliable, with a quick change barrel, using 100 round disintegrating links ammo belts of metal. Ammo was carried in 100-round steel GI ammo cans, or as linked belts worn as bandoliers by all members of a platoon.

Each gun team carried about 1200 rounds minimum, later, much more ammo. Gunner had the M-60, and a .45; assistant gunner and ammo bearers carried M-14s.

The weapons squad also had 2 each 90mm Recoilless Rifles, but these were usually left at the NDP or even the base camp as no armor was expected, and 66mm LAW's were carried instead.

All soldiers carried four M26 frags, and 4 smoke grenades in addition to their small arms and ammo as well as 1 or 2 Claymore AP mines.

Claymore bags were much in demand for use as ammo bags for loaded magazines. Some, very few, idiots also used them as toiletry kits. Hand grenades (M26) were carried in an extra canteen carrier with the cotter pins all splayed for safety. Smoke grenades were hung wherever. WP and concussion HG were special issue and not seen much in the field where I was. Why bother - the M26 was the King of HG killers and the Smokes would mark locations without raining WP flakes all over.

First thing the Army did upon arrival in country was to take the M-14's away and give them to rear area troops in 1967, replacing them with XM16s, which were lighter, but a piece of crap! We called them 'Matty Mattels', and some guys carried captured AK's or M-14's for reliability in the field until the Army threatened to court-martial the AK carriers, and again took away the M-14's that grunts reacquired for use.

The M16 was a killer, but we wondered who it killed more of - GIs or gooks. Such comments were frowned upon. It was too delicate for jungle-warfare; dirt, water, etc caused malfunctions. Badly designed magazines, buffer assemblies, and cartridge primers all aided and abetted these troubles.

It was common after the first 3 magazines or even the first magazine for malfunctions to reduce the M-16 from a high cyclic rate of fire, magazine fed weapon, to an 1860's breech loader, after the assembled cleaning rod was run down the bore to knock loose the cooked into the chamber expended cartridge!!! This while the NVA/VC are closing with you. This was when those M-60 gunners earned those Silver Stars by taking up the slack in firepower of the whole platoon, and a lot of H-to-H and grenade fights take place .

Pistols: .45 ACP's , .38 Spec, .357 Magnum, auto-pistols and revolvers, 9mm Browning HiPower's, and 9mm Walthers were also in demand. I saw at least one guy who used a Very Pistol with flare ammo as a sidearm, and later had custom loaded buckshot ammo for it.

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DELTA MIKE 2

NVA/VC in the Wire

Well, the worst and most frightening NVA/VC to penetrate the wire perimeter of base camps, fire support bases, etc, were the specially trained SAPPERS. They got in everywhere and always caused casualties and equipment loss when they did. If they were not killed at the perimeter, they were hunted down by rifle squads or MPs or ad hoc security teams depending on what was available at the scene of their penetration.

At FSB's it was a balls to the wall attack on the perimeter, often from more than one direction, and explosive charges or ladders were used to cross the wire (also to carry off wounded and dead too). Again it was rifle fireteams/squads and ad hoc security teams that handled penetrations.

At NDPs, with no wire, just your LPs firepower and claymores were all that separated the individual fighting positions and the gooks. The mortar pits, gun pits, HQ bunkers, aid station and such were all inside the double circle of NDP fighting positions. The grunts are all that was between these places and the gooks. While 2 men slept at each IFP (behind it in a tent made out of ponchos) the 3rd stood guard. Guard was rotated about every 2 hours all night long. Same thing at the positions inside the NDP. Everyone was told the password, everyone moved as little as possible, light discipline was enforced-often harshly, and everyone knew that this was a FREE FIRE ZONE IN ALL DIRECTIONS or if there were restrictions in place. Each company had an ambush patrol OUT THERE somewhere and each platoon had a 3 man LP OUT THERE in front of it - minimum! Some times there were 2 LPs in front of each platoon.

If there was an attack, and the gooks closed with the first line of IFP's, the theory was the second would sweep them clear with weapons fire and grenades. BUT reality was that if the gooks over ran the first line of bunkers (IFP's) the second was less than 30 feet behind it, so there was a really confused fight at close range, with people fighting hand-to-hand, using small-arms, pistols, knives, bayonets, butt-stocks, entrenching tools, machetes, hatchets, steel pots, pistols, fists teeth, rocks, boots, web gear, sandbags, anything and everything is a weapon. The fight is all around you, the enemy can and does come from any direction. No prisoners taken or offered. Hand grenades and explosive charges were also sometimes used in clearing or securing contested bunkers. Sometimes, if there were guns inside the perimeter, the gunners would scream out the warning BEEHIVE! BEEHIVE! BEEHIVE!!!!!!!!!! and the radio net would broadcast the warning too. All GIs that could would try and sink into the ground or get behind something quickly. Reason, the gunners were gonna cut loose with bore-sighted 105mm howitzer cannister rounds in an effort to stop the already desperate situation from getting worse inside the NDP. This, when it happened tended to stop the attackers rather suddenly and leave dazed survivors from both sides to finish the fight at close quarters.

Whoever the senior man was, could call for other nearby artillery and mortars to plaster the entire NDP

with fire for effect till the gooks were all dead or running. If air support was available it would also respond to a call of BROKEN ARROW (this code means that a ground unit has been or is about to be over run by the gooks, and all available support is diverted and placed at disposal of same.

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DELTA MIKE 2

NVA/VC Part Three

My first tour of duty was in 1967. The soldiers I mentioned were there from sometime in 1966 and near the end of their 12months, or working their way through a 6 month extension after completing a 12 month tour. As bad as things were, a lot of guys extended for 6 months to reduce the time remaining in the Army and receive an early out (honorable discharge). One, a Dutchman, had been in country for 3 years when I knew him and had gone from private to staff sergeant (our basic paper squad leader rank) - not the same as your staff sergeant - more like your corporal. Yes, the VC were largely well armed with SKS instead of French, German, or American relics. Pistols were mainly Tokarovs, but Colts, Browning Hi-Powers, and a French auto pistol were commonly carried, along with some Walther 9mm P-38s.

MAINFORCE VC/NVA pistols were mainly Russian or CHICOM made Tokarovs, but there were a few ultramodern Soviet weapons - 9.5mm Stechtkins and Makarovs in 9.5mm (could use 9mm Parabellum ammo). The Toks were 7.62mm pistols using a "hot" 7.62mm round, not the puny thing common in Europe or USA.

Apparently the local VC did visit the patrol base on occasion (but it moved if they did) and yes, when questioned by the ARVN interrogators (French and Japanese schools of interrogation!) they told everything they knew or died (drowned, mostly) trying to escape. I have seen the ARVN interrogators at work in the field as a grunt and as an MP. Water was their preferred method of torture in the boonies, and Americans were always getting into "discussions" with counterparts about this and losing.....We had no authority to stop them, short of shooting our allies, and then you would be tried for murder if THE POWERS THAT BE GOT INVOLVED. Part of the VC success was the hatred the corrupt RVN government promoted by its actions against its own civilians. And then these same farmers were abused and murdered by the VC too. It was a mess!!!!

I was gonna say, I even saw a very few (like 2) broom handle Mausers like were common in parts of the world around WW I. Both old and battered but usable and now living at some old ex-GIs house.

MAINFORCE VC WERE ALWAYS IN LARGE FORMATIONS PLATOON AND UP - MOSTLY UP IN SIZE and as well armed as the NVA and as well trained and tough. Only difference I could see was the black pjs instead of khaki or green uniforms, papasan hats and scarves, instead of pith helmets (sunhelmets). It was something that apparently started in 66 - these guys and gals did not live in the villages and hamlets normally - they stayed in regular combat units ALL THE TIME!

TET WAS AN UNQUALIFIED AMERICAN VICTORY!!!!!

THE VC, MAINFORCE AND LOCAL, ALMOST CEASED TO EXIST AFTER TET. WHOLE UNITS WERE WIPED OUT - KIA, WIA, MIA, AND POW - MOSTLY KIA DURING TET AND THE

LESSER KNOWN ATTACKS THAT STARTED UP IN JUNE 1968..... NVA UNITS TOOK HORRIBLE LOSSES TOO, BUT WERE REBUILT. OTHER NVA BECAME MAINFORCE AND LOCAL VC CADRES AFTER TET!

With my own eyeballs and from friends info, I have no doubt that the NVA were present in local and MAINFORCE VC prior to 1967. Remember the Dutchman? He had been swapping bullets with NVA in VC/MAINFORCE VC since about 1964 or 1965!!!

ALL VC/NVA PREFERRED A PREPARED AMBUSH TO A HASTY, BUT WERE VERY CAPABLE OF SAME TOO!!!

L-shaped ambushes were common, also just about any linear formation; some times, after a unit entered the kill zone, attackers would come at it from all sides, or three sides with a terrain barrier if possible. Great believers in snipers, and spiderholes during ambushes too!! Made huge claymores out of 50-gal fuel drums packed with junk (rebar, rocks, glass, anything, explosives provided by dud bombs, artillery, and mortar rounds). Command detonated by common household extension cords in really ridiculous colors using M57 firing devices, field phones, batteries, etc, to set off the charges. And bad news!!! All in all I guess the tactics, if not identical were similar to those of the US, the Russians, and Chinese.

YEP, they were able to remove a lot of dead and wounded when they retired from a fight. They did it the same way we did it - fought for the corpses and wounded!!! Some really vicious, close range fights could and did develop for the bodies of the dead. THEY MUTILATED OURS, and what they sowed, they reaped!!! Few things in this world are more remorseless than an18 year old who has seen his buddies killed and butchered by the enemy.....

Of course there comes a time when you either run out of soldiers trying to recover the dead and wounded, or you just run for it! And this also happened on both sides, when one was driven away leaving dead and wounded behind or , everyone was killed or wounded right off so there was no one available to drag away the corpses.

They buried their dead in mass graves, often very shallow ones, so that animals got at them, and/or the tropical heat caused them to stink worse than the jungle and your buddies, so it was easy to find them. They also booby trapped graves so that the stupid and the careless blew themselves to hell while DIGGING UP THE BODIES, SO THEY COULD BE COUNTED! Unfortunately, the stupid and the careless also took their nearest buds with them when setting off booby traps.

Our call sign was *******, so we went on every operation equipped with stencils and black MARKS-A-LOTS, as well as bunches of ACE OF SPADE CARDS and big nails to attach them to the corpses with (along with booby traps to blow away the guys buds when they came to get the corpse.) Bodies were used as bait for ambush patrols too.

THEY KEPT IN CONTACT WITH EACH OTHER THE OLD FASHION WAY. MESSENGERS, HAND SIGNALS, SMOKE SIGNALS (GRENADES), AND WHISTLES AMONG OTHER THINGS. THEY DID NOT SPREAD OUT ALL OVER THE PROVINCE DURING A FIRE -FIGHT!!! THEY

ALSO DID HAVE RADIOS - AMERICAN, CHICOM, RUSSIAN, KOREAN. BUT NOT MANY.

One time, I actually heard the NVA slapping the stocks of their rifles for a reference point as they formed and maintained a skirmish line to sweep through the jungle in pursuit of a scattered US ambush patrol. I was between 2 of them - they were about 8 -12 feet apart - and it was so black, no one could see a hand at arms length let alone me!!!

If things went badly, the NVA/VC had a hard time disengaging, but would use pre sighted or hasty ambushes to cover the retreat of their units just like we did. If they had mortar support, they used it to try and cover the withdrawal too.

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DELTA MIKE 2

NVA/VC Part Two

HELLO MICHAEL!

VC - NOT MAINFORCE VC - BUT PLAIN JANE VC, seem to have operated on an extended platoon organization based around a HQ squad and no set number of other squads. Each village seemed to provide it's own squad or maybe more, if it was a big village. The HQ always came from a NVA trained cadre from the MAINFORCE VC as near as I could tell at Grunt and MP level. This HQ squad seemed to always have a small squad size base camp in the jungle, and seldom entered the villages and hamlets as a unit.

Squads from hamlets and villages rendezvoused with this HQ squad for operations, and never seem to actually visit the base camp. But they always knew where to find the squad contact point.

Everyone had official RVN citizen ID cards-never saw a dead gook without one!

I think that these guys were organized in approx squads of 6 - 9 guerillas. Most had access to SKS rifles, Hand Grenades, LMG (sometimes) and an RPG. Soldiers in country almost a year before me said they used to have old French, WWII German, and ex ARVN (USA WWII) weapons. I myself picked up as a trophy a WW II German Army Walther 9mm with extra mags off of a dead VC NCO or Officer. And of course these guys all wore the papasan hat, black pjs, and flipflops in addition to weapons - hide the weapons and they were civilians. Units had men and women - men were either under age for ARVN service or overage, or "disabled" but military age.

Mainly used as rear area harassment troops, AP, mining roadways, setting up mantraps, scouts, spies, terrorists, etc. Occasionally used to fight with US troops but preferred to fight with ARVN and National Police troops. Sometime platoons would come together for company and battalion size operations - usually against the ARVN or the National Police units or installations. Operated mainly at night and during bad weather in spite of local superstitions.

MAINFORCE VC AND NVA ARE THE SAME GUYS, MOSTLY, BUT WITH DIFFERENT UNIFORMS AND COUNTRIES OF ORIGIN!!!!!!!!!!!!!!

Well trained. well armed, brave, brutal, and well led with very good morale. Good at jungle operations, very good at ambushes of any size, day or night. Very casual in their execution of POWs, the wounded, and anyone else that was a threat or as a needed example for all to see.....

Squads of 6 - 9 soldiers, always with AKs, HG, RPG, and RPD machine guns, platoons always with some kind of mortar support, sometimes as large as 120mm mortars, and 122mm rockets (company and

battalion size units only had these weapons). Operated day or night, stand fights no problem, but prefer night and bad weather operations (US airpower and artillery handicapped by same was their theory). They were NOT REAL FLEXIBLE THOUGH!!!!!!! Sometimes using the same attack plans , or continuing with what ever the plan was until casualties became too high. Officers seemed to view soldiers like rifle cartridges.

They always tried to recover weapons, wounded and bodies to hide their loses in personnel and to cut down on equipment loss. They never used our M-16s, preferring the much more reliable AK to our weapon. They would use them in a pinch. They liked our M-60s, M79s, and .45 Colts. Our mortars were used against us too - ARVNs kept them in a ready supply of abandoned or sold outright weapons.

The MAINFORCE VC/ NVA always seemed to outnumber us in firefights. This may seem odd but a lot of US companies that had 250 on paper, really had anywhere from 150 -100 in the field in real life. Some were smaller - one company in my battalion had about 90 guys. And although there are 4 fighting Co in a battalion, 1 is always standing down at base camp, so that leaves 3 in the field. My company had 200 men after just a short while in country, in 4 platoons, plus a HQ platoon (mostly at base camp).

Fights were always hard, and it was rare to see the enemy until either they assaulted you, or you assaulted them!!!!! Mostly just shoot at muzzle flashes, dancing leaves/dust (muzzle blast effect), sounds, an occasional man seen running or moving briefly. Same for them! Best way to survive was not become a target or stay in one place too long, Firefights usually start at short range , say 10 - 25 yards or less, and both sides rapidly form firing lines, sometimes trying to get around or on the flanks of the enemy, but mostly a slugfest! Eventually, when they got close enough, they would try to close with us to avoid airstrikes, mortars, and artillery fire.

Night battles always saw them rush our NDP time and time again, sometimes they would get close enough for hand to hand, or penetrate the NDP or the perimeter (you were in real trouble if you were fighting inside a circle in the jungle - you were surrounded) or the firing line.

ARVNs seem to have been organized along the lines of 1950s USA/USMC at first, and later similar to USA/USMC of the 60s.It is hard to tell as I never had much to do with the ARVN, RF or PF troops - some one that served as an MACV or Divisional advisor would be of more help here. I mainly operated with ARVN MP and National Police later. I do know that ARVN's were poorly paid, poorly led, poorly motivated, and poorly equipped with shortages of everything - including the will to fight in line units. Airborne, Ranger, Marines and Seals were all a much better story, as were the ARVN MPs (QC). The RF/PF were real losers, as were the National Police.....

Well, Michael I hope this helped answer some questions. I will answer the others as I can!

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DELTA MIKE 2

NVA/VC Part One

Hello!

I have a few bits of info that may be useful to you, all from the observations of a Grunt in 1967.

I was in the US First Infantry Division, First Brigade, operating out of the base camp at Phouc Vinh, RVN, then later from the base camp at Quan Loi, RVN, after Pappa Victor was turned over to the 101st Airborne Division.

First, all of the VC forces that I ever came into contact with had RPGs, RPDs, and SKS or AK47 rifles. Only the so-called fighting farmer VC had older weapons. There seemed to be more of a shortage of magazines rather than ammo. The VC always has one magazine for each pouch of their ammo vest, and one in their AK.

Extra ammo was carried about in cloth bundles, as was raw rice, and these were carried in a canvas rucksack. All VC seemed to have hand-grenades of some sort – Chicom, Russian, or NVA made being the most common: often augmented by captured US M26S and the older 'pineapple' US grenade used by ARVN's, RF's and PF's.

RPG rounds seem to have been, at times, in short supply, but always available for use as anti-personnel, anti-bunker and anti-armour weapons.

Mortars were very much in evidence, 60mm as well as 81mm US types, with USSR and Chicom weapons too. Mortar ammo (from my personal point of view) seemed unlimited – we were always on the crappy end of mortar rounds from the VC.

The ever popular 122mm artillery rocket also seemed to be readily available and was often used with just a pair of tree branches tied together as a rest/launcher combo.

There was no shortage of VC Mainforce or NVA soldiers in our AO. Like roaches or ants, there were always more to replace the ones that were killed. Their medical care was about par with the USA in 1861, so battle wounds were a lot less survivable for them.

They suffered from disease – terribly.

They were very good fighters, good jungle fighters, but not the seemingly all invincible forces I have

heard them described as. They screwed up, often, and screwed off, often, and when they did they paid for it in blood. Just like we did.

Most combat was between squads and platoons, at short ranges, with no quarter asked or given due to their own previous actions. Most of these fights resulted from ambushes, meeting engagements, and defence of USA NDP and VC/NVA Base Camps or supply caches. Most were fought in areas that were howling wilderness (just a set of map co-ordinates). Firefights were also fought at or near MSRS, or very isolated fire support bases.

There were also many larger engagements fought by Companies, Battalions etc. These larger engagements usually saw the US grunts outnumbered by bods but not firepower and air support.

NVA/VC nearly always fought their larger (Company and up) battles during darkness and bad weather to try and negate US firepower/airpower. Also there were thousands of night AP actions fought by squads and platoons of US Grunts vs squads, platoons, companies, and yes, battalions of NVA/VC troops. Only God knows how many night AP's the VC/NVA blew on the ARVN, and the ARVN sprang on the NVA/VC. I am sure neither side never had the faintest idea then or now.

Also, it is little talked about in these PC times, but the NVA/VC were well known for killing the US wounded and prisoners that fell into their bloody hands. They also butchered the ARVN and the peasantry with bloody and monotonous regularity. And what they sowed, they reaped.

But nearly every firefight or battle that I have personal knowledge of, saw the VC/NVA trying to close with the US Grunts or FSB or whatever, in an effort to prevent the use of airpower and artillery support.

I want to say that the NVA/VC were not shy and would mix it up in close combat, and that GI's were just as inclined to do so. Close combat is a really confusing and deadly place – anything and everything is a weapon and there were only winners and losers, with the losers mostly dead, or soon dead, and losers holding their ground to avoid falling into a trap.

The NVA/VC made extensive use of mantraps, booby traps, mines, and snipers! Mines and snipers were two of the most difficult things for Grunts to move against or through, and snipers, when caught, were not taken alive. Snipers used wounded GI's for bait to draw other targets as the victim's friends tried to go to his aid.

Oh, well, I hope this helps you with info, from an ex-Grunts point of view. It was all sooo long ago and far away, yet is still sooo near.

I was told this was a Veterans site, but, as I am a gamer in other areas, I thought I might offer my insight as a Vet.

Have a good Memorial day and do not forget the Veterans of this and all our wars. This is our weekend.

DELTA MIKE 2

General Observations

No, I was not shocked or dismayed by finding a wargames site for the Vietnam War. Long, long ago, a number of my friends (ex-Army, Navy, Marine, Air Force and Coastguard Vets who fought – not just served – but fought) who are Vets and wargamers resigned ourselves to the fact that we would see wargames and wargamers studying and playing our war in our lifetimes. We have not got a problem with this, we just do not game in this period, or in any modern period actually. We just try and gently remind everyone that everything they see, hear, and read is not the gospel truth about the war. That all GI's were not dopers and murderers, that all NVA/VC were not supermen and righteous liberators either. That we were sold out by politicians, generals, and people at home, not beaten by the enemy in the field.

In fact we usually do not talk about the damned place among ourselves even, except to laugh at the humour no one that was not there can understand or in private get-togethers where we have 'do you remember so-and-so fests'.

I know there is no way y'all can verify anything I said, and can care less. I passed along info that I thought might be helpful to you in your gaming or rules writing for the period. I also will tell you a well kept secret - if y'all talked to 1000 combat vets, you will find that NO TWO VIETNAMS ARE THE SAME!!! This is not because of any plot, but because the damned place was an entirely different war from area to area, practically from unit to unit, and year to year. You will find a lot more grunts in 67 and 68 that are willing to go all the way to win than you will find in 1970 and later. When the US pullout started in 69, the fighting morale started to rapidly deteriorate.

I also advise you to take official histories with a bit of scepticism. The Westmoreland Rot infected most senior officers, and nearly all West Point graduates. Very seldom will you find an officer above the rank of Battalion Commander who is willing to place career on the line for his men, and all too often, company commanders were more concerned with promotion and medals than their own troops.

Most people then and now do not know that a combat arms officer only spent spent 3 - 6 months in the field before being transferred to staff jobs, a far cry from the lot of the NCO and EM who was in the field and the fight for a full 12 months!! These records were some time written to reflect the need for body counts and blood trails to prove success in battle (and promotion of the responsible officers). There was an unwritten Division SOP that 3 wounds were required before being transferred from field duty (or 1 serious wound: the catch was that a serious wound required medevac out of country to Japan, or the US and no one was ever returned to duty from either place to my knowledge. On a different tour yes, same tour, no) for an NCO or EM. My platoon leader was lightly wounded once (and hospitalised), then transferred to a staff job. Nearly everyone in the boonies had jungle rot, ringworm (and not the mild civilized variety either), walking malaria, & parasitic worms in their guts: heatstroke, heat exhaustion,

infected cuts, scratches, insect bites, that turned to blood poisoning, strep, or gangrene were a part of life for a grunt, along with death, maiming, heat, cold, fear, anger, sadness, boredom, thirst, hunger, isolation, adrenalin rushes, exhaustion, revenge. I almost forgot snake bite - some of the most poisonous snakes in the world are in SE Asia - Atropine injectors were carried not for nerve gas exposure but to counteract the bite of snakes whose venom acted like nerve gas.....

YEP, it was a real nice place for a war, especially one for an Army trained and equipped to fight the Russians in Europe!!!!

Well, I have talked enough about this for a while. Take what I said or leave it as you wish. I was there and know what I saw and did. I served two tours in the RVN, one as a grunt, one as a MP, which was my MOS. I also was in Saigon during the Tet Offensive as an MP in the 7l6th MP Battalion. My second tour was as an MP in the Mekong Delta. Sooo, I was there for the Cambodia Incursion and the start of the US pullout.

Like I said, long, long ago, and far, far away, but still so very near. Today, y'all caught me in a retrospective mood, after finding your gaming page. I thought I might help y'all understand a little better what it was like where I was.. .

I enjoyed looking over your www page, and I do not mind answering any questions you might have about the place, but please not on a daily basis. I always feel "tired" after I do any talking about the place, even the funny things.

Enjoy your games and study it all carefully, check your official accounts and try to confirm them with eyewitness accounts from LTs and down - these are the people that did most of the fighting, suffering and dying - on all sides!!!

Have a nice week!

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US Ambush Operations



ACCORDING TO THE VETERANS

AL BAKER

Al Baker commanded B Company, 4/9th Infantry, in the second half of 1967 and in to early January 1968. I invited Al to comment on the US Army Lessons Learned No. 39, Ambush Operations. Here is his reply,

> I read your piece on ambushes and believe that it is correct as far as the book went. Then there is the real thing. In my 3 and 1/2 years there I never saw intelligence that would dictate the time and place of an ambush. Therefore we ambushed all night on likely avenues of approach. This was particularly difficult because we operated all day and everyone needs sleep. I was fond of three man positions with one asleep and two awake. You can survive on 4 hours sleep if it is continuous. That's what we survived on.
>
> As to the type of ambush, I never saw a pin wheel and never hope to. Especially in limited visibility you need to do all you can to prevent fratricide. So it you never want friendly fire going in the direction of friendly forces. Our bullets will kill our troops the same as enemy fire. And I never used mortars in support of an ambush. It is not accurate enough to prevent friendly casualties. We used lots of Claymore mines in the kill zone and to protect the security elements. In a linear ambush I would built a ring main on the far side of the kill zone. The ring main was made with a web of hand grenades linked together with detonation cord so they would explode simultaneously. The firing mechanisms were unscrewed and removed, non-electric blasting caps crimped on det cord replaced them. The grenades were strung in trees on the far side of the linear ambush giving air burst effects to the grenades. It was very effective.
>
> In the killing zone the machine guns were sighted in so that the long axis of the beaten zone would coincide with the long axis of the enemy. This meant the that those guns would be firing parallel to the friendly troops.
>
> Communications were with string going from man to man. Tugs would alert to enemy

sited.

The stuff about the hamlets, I would omit. It just didn't work that way.

They were also mechanical ambushes. Trip wire activated groups of Claymore mines. Like booby traps these devices were very effective in areas where they was no civilian population. They were relatively easy to disarm and disassemble. Set us similarly to the ring main the det cord and lead Claymore were battery detonated using an electric blasting cap, the others were fired by no electric blasting caps crimped to det cord. The circuit would be trip wire activated so it did not have to be attended.

Artillery barrages where planned to ambush sites to be fired after withdrawal to the rallying point. It was to prevent pursuit of the ambushing forces and disrupt other forces.

I will be in touch,

Al

DELTA MIKE 2

'Delta Mike 2' is a Veteran who served with the 1st Infantry Division, 'The Big Red One', in RVN. He has also written extensively for this site on many issues (see Delta Mike 2), and this is his reply to my invitation to look over the US Army Lessons Learned No. 39, Ambush Operations,

Well, I read the Official Ambush SOP y'all sent me.

It proves to me yet again their was "real life" and then there was Vietnam!!!

Some of the info was what was used in training in The World, but that crazy Catherine Wheel Ambush had to be designed by some lifer fighting from behind a desk in the Pentagon. That was one of the better pieces of Vietnam fantasy I have ever come across.

As far as ambushes go, there was never any G2 provided and selected AP site that I can remember. Every night was an ambush patrol for companies out in the boonies. Each company, and sometimes Battalion Recon too, had a re-enforced squad out there (usually 12 - 15 men). Sites were selected by Battalion or the Company Commanders as far as I can remember.

Sometime there would be an AP dropped off during the daytime sweep by the company or the battalion, and the AP would set up and wait for any gooks that might be following the company / battalion.

We always used mortars for AP fire support, as there was no guarantee that we could get a dedicated artillery battery. I have previously told y'all about the problems of land navigation and fire support registration and adjustment in the jungle. It is true that guns were more accurate than mortars, if the FAO was any good and knew where he was. When I had to adjust artillery or mortars, I was always ready to crawl under my helmet until I could actually see the impact point for the rounds. Which was hard to do in the jungle unless y'all were close to the impact point.

My company commander NEVER went out on an AP. Sometimes the platoon leader would go out on an AP, but that was very rare (like once when we got a new LT and he wanted to see how each squad leader actually ran his AP). He was a smart LT (and an ex NCO).

As for ambush patrol formations, we used the straight line (we could pin the gooks against an obstacle; river stream, cliff, etc), the L (with the MG at the short end of the L, shooting down the length of the enemy unit and almost always used at roads and trails), the V (again used mainly on roads and trails) but by far the most common AP formation was the circle. The circle provided good all around protection for the patrol itself, and since we never really KNEW from which direction the gooks would be coming from out in the jungle (where most AP's too place). We used lots of claymore mines, grenades rigged to explode at shoulder height in the trees, claymores sited to fire down the length of ditches and waterways, and five or ten lengths of det cord itself laid out along the bottom of a ditch, so that it could be fired, using the det cord to disembowel or blow off the arms, legs, or feet of any gooks that were laying on it or squatting/kneeling over it. Pretty nasty stuff.

We also used to string commo wire at shoulder/neck height like a garrot, at ankle height as a trip device, etc. Also as a trip wires for use with grenades.

And we used the punji sticks that they taught us to fear and be wary of.

Mechanical ambushes were used too. With claymores, grenades, mantraps, etc.

That's the way ambushes were done where I was .

Delta Mike Two

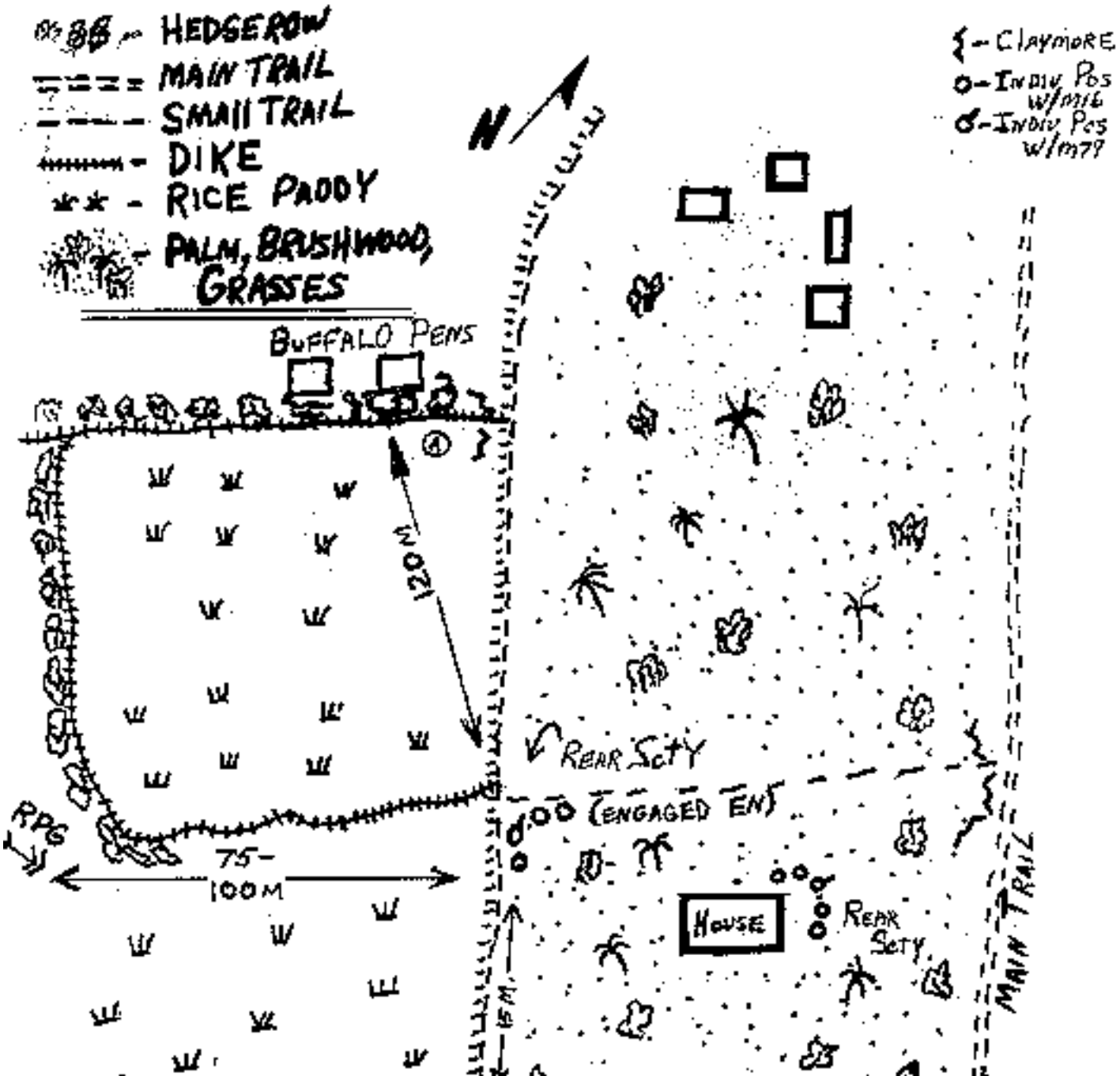


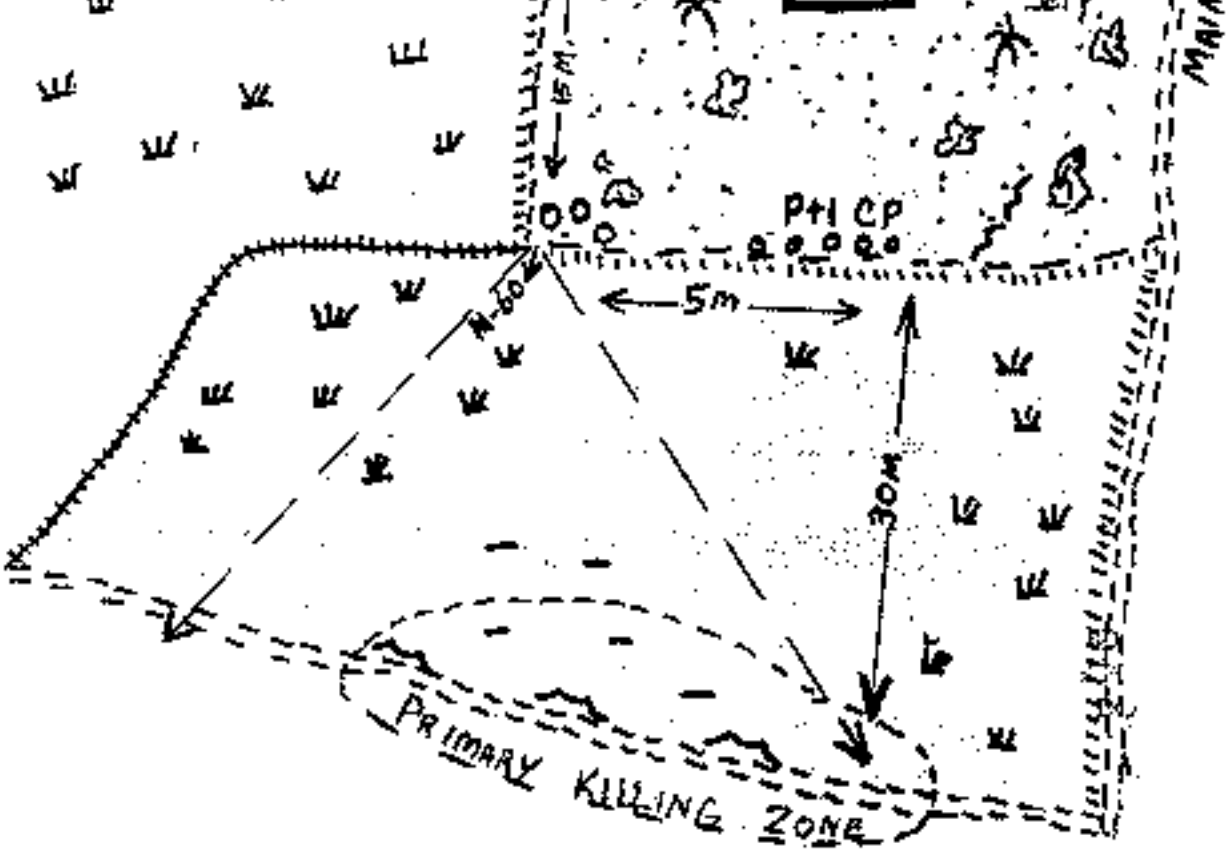
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After Action Report



Map of Ambush Site



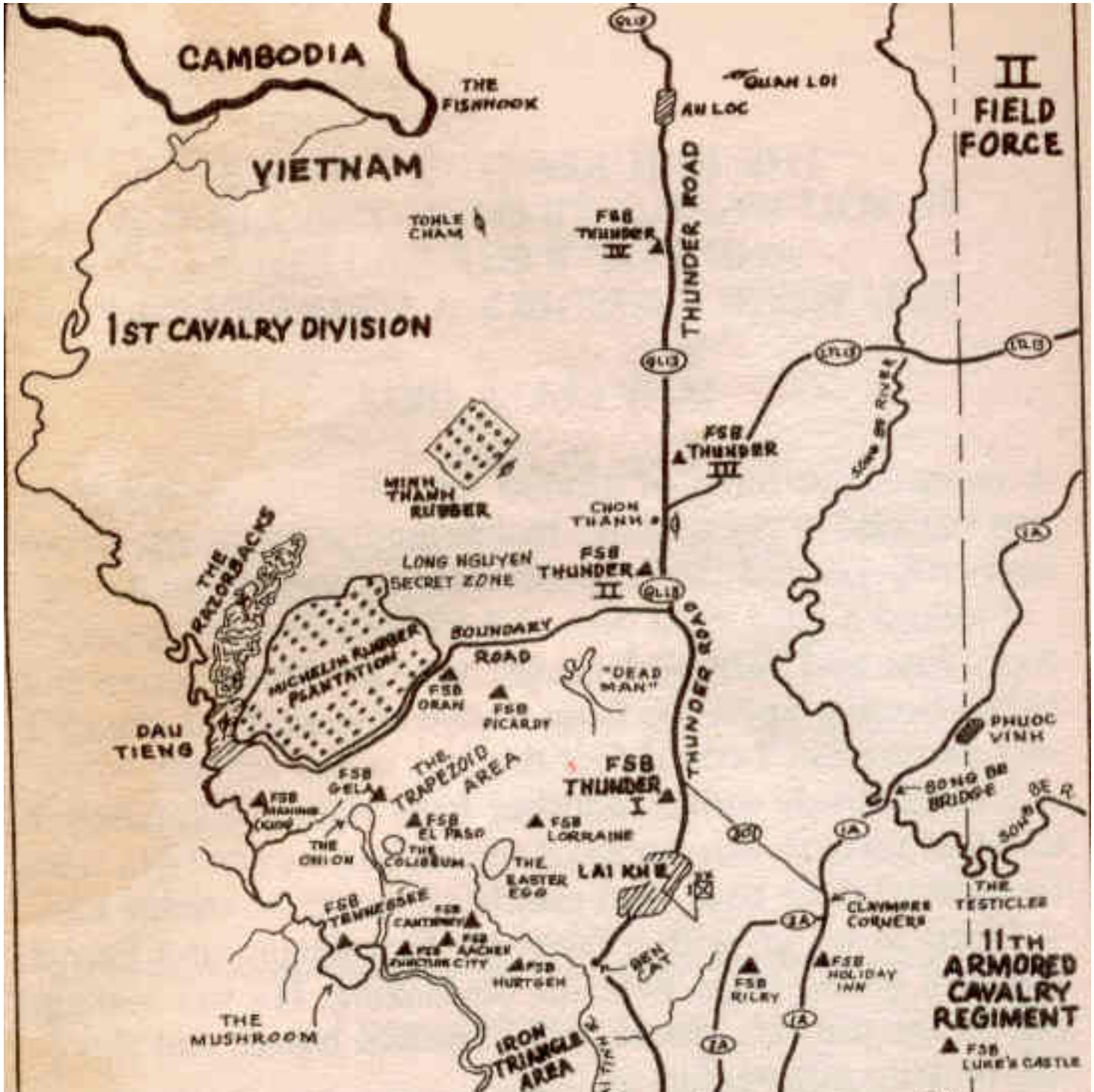


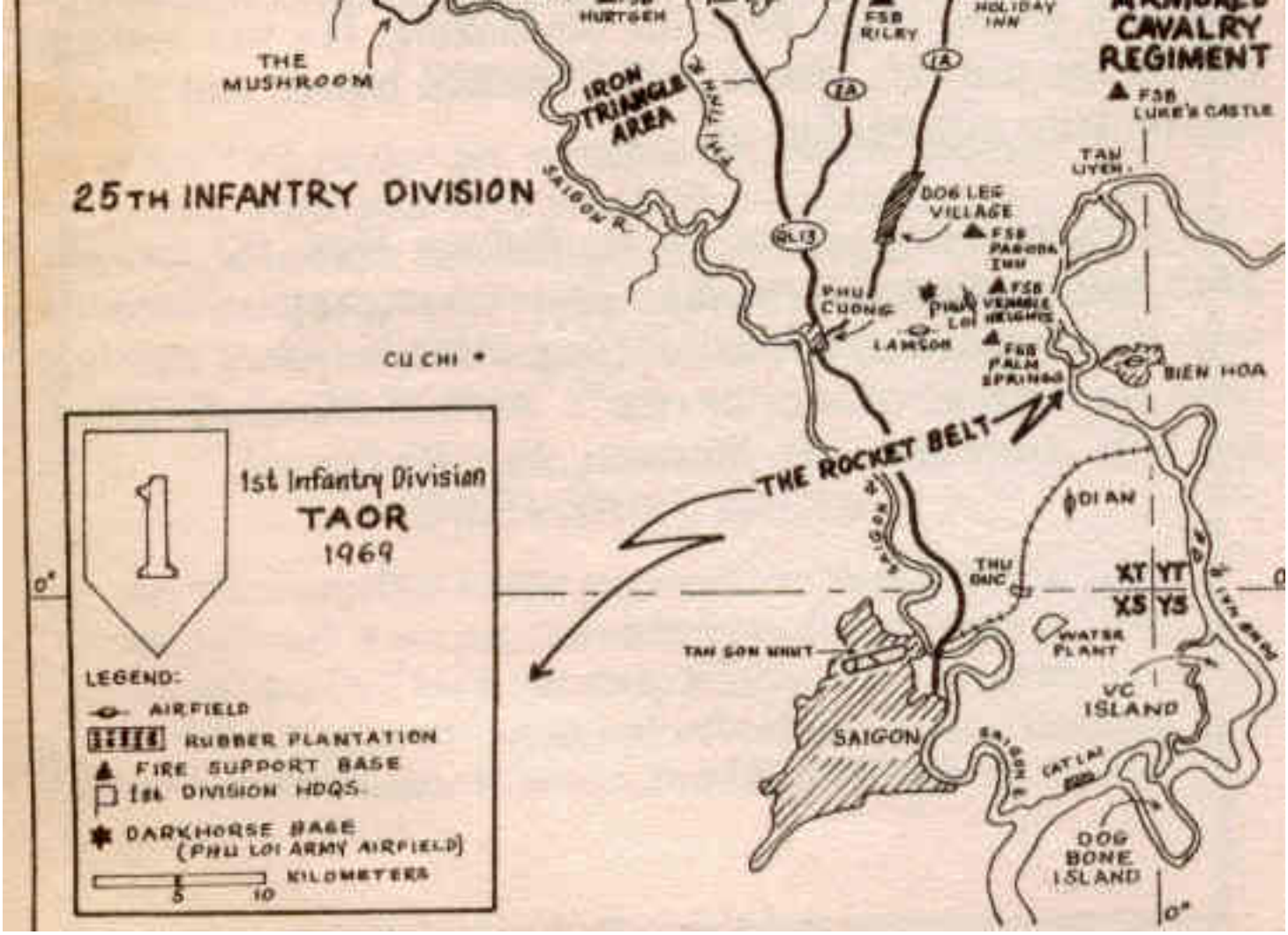


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1st Infantry Division
TAOR 1969









Source:

Hugh Mills Jr., *Low Level Hell*, Dell Books, ISBN 0-440-21549-8

Armored Cavalry



Easter Sunday, 1968

Submitted by Stanley 'Ski' Homiski

We had been working in an area of War Zone C. We had been looking for the enemy for a couple of days when, on Saturday morning, we kind of stumbled into a Viet Cong base camp. It was obvious that the VC had left the area very suddenly as we found pots of rice still cooking and there was commo wire and the like all around the area. Of course this made it necessary to do a real good check of the camp and the surrounding area. This particular region of War Zone C consisted of really thick jungle with dense undergrowth and this made the going very slow. The CO at the time was a Captain Westbrook, he assigned HQ Platoon to take charge of the base camp which meant searching for any tunnels, booby traps, bodies and wounded. The other platoons were spread out over the surrounding jungle in an attempt to locate the VC who had recently occupied the base camp.

While we were sweeping the base camp, one of the platoons on the outer sweep made contact with the enemy but with the jungle being so dense it was very difficult to pinpoint ones location on the map, which made calling in air support or artillery almost impossible. Captain Westbrook did have the platoon that was in contact fire off some star clusters in an attempt to at least get a heading in which the rest of the troop could move, however this proved to be futile as the clusters failed to penetrate the canopy.

By this time, early afternoon, the platoon (we found out later that it was the 2nd Plt) had been in contact with what they estimated as probably a reinforced company. The 2nd Platoon took some casualties during the firefight. As luck would have it, just as the enemy disengaged, the 3rd Platoon came upon the retreating VC, engaging them again. As evening began to fall the enemy broke contact and melted back into the jungle, somehow, and I really can't say how, the rest of the troop found their way back to this VC base camp.

The CO figured that we might as well laager right where we stood even though the size of the clearing made it necessary to have the outer perimeter very tight. If I remember, there probably wasn't more than 5 meters between the vehicles on the perimeter and the inner perimeter was really bunched up.



'The Morning After... ', (l to r) The Kid, Sgt Pablo Morales,
John Duddy and Glen Truitt

Due to the fact that we were so deep in the jungle and the hour late the CO opted to forego calling for re-supply. We still weren't sure of our exact location and he figured that if we all shared ammo we should be set until we could get a re-supply chopper in. In the end this almost proved to be a fatal mistake. The casualties from the firefight during the day had to be treated as best they could by our medics and the 2 dead we suffered were placed in body bags and left on the outer perimeter.

We ended up sharing our ammo as equally as possible, however, we were low on beehive and canister rounds although the .50-cal and coaxial 7.62-mm seemed to be adequate. After we ate our C rations again we put out 3 LPs and the CO decided to put an Ambush Patrol out about 400 meters along what appeared to be a bicycle trail. Most of the night things were quite. At 0300 hrs the AP was recalled, for what reason I was never able to ascertain. I came off watch at 0330 hrs, just abut the time the AP was entering our laager and shortly thereafter we started to take in-coming mortar and RPG fire from the general direction that the AP had been in.

The 3 LPs retreated to the laager and once we were sure that all our people were in the perimeter we opened up with .50-cal machinegun fire along with Main Gun Beehive and Canister. The firefight lasted about 4 hours. I guess it was about 0730 hrs when everything went quite. At this time the CO sent out patrols to sweep the area. These patrols were done dismounted and we found around 15 or so dead VC's, all in the area from which the AP had come. The CO figured that the VC followed the AP back and opened up when they were most vulnerable.

The nearest that the VC got to our location was about 10 meters. Most of the VC deaths were caused by our beehive and canister. We also found signs that the VC had removed several bodies be they dead or

wounded from the battlefield. It turned out to be a fortunate chain of events that the VC disengaged when they did as our ammo supply had been almost totally expended. We had no beehive or canister left, only a few rounds of HE and some APT's, the .50-cal and 7.62-mm numbered a grand total of maybe 6 boxes and our 5.56-mm consisted of what we had left on our own persons as all the cases were gone.

The strange part of the whole thing was that, even with the intense incoming fire, we didn't lose a single tank or APC to enemy fire - but we did suffer some heavy casualties. We added 3 more to the dead and 27 more of us to the wounded, some of us not as serious as others. We were finally able to get a good fix on our location so that by noon of Easter Sunday we were re-supplied and the most serious of the wounded dusted off. The last to go were our dead. It was an Easter Sunday that I will never forget as I still carry the reminders of that day in the form of scars from when I got hit with shrapnel from a mortar.



Source:

Stanley 'Ski' Homiski was Commo Sergeant with 'B' Troop 3/4 Cavalry, RVN, 1968-1969

My sincere thanks are due to Ski for this personal contribution to Grunt! and this page is respectfully dedicated to the men of 'B' Troop, 3/4 Cavalry who died during the course of this engagement.

AIR STRIKE !

POINTS OF ORIGIN

In order to deliver accurate air and artillery support fire, the person calling in the fire would generally refer to Points of Origin. These were locations on a map which were pre-plotted and from which other points on the map could be referenced by using 'steps' from one or other known Points of Origin.

The example below was submitted by Stanley Homiski, and gives a brief outline of the radio traffic that could be expected in the calling in of a fictitious air strike. Whilst the example given is quite heavily edited by the author (I imagine that the language was probably a little more colorful than that given here!) the intention was to keep the example simple and relatively short (without leaving out the important calls). It nonetheless conveys very well the steps involved in the process.

Stan Homiski writes....

Well, here is a go at a fictitious combat mission using Points of Origin as our starting point for calling in our position and also for calling an air strike, using a map of Vietnam (the one I have is a 1:250,000) with each grid being 15 minutes square.



The first Point of Origin I will call Papa Oscar Whiskey which is located at map co-ordinates 106 degrees 30 minutes Longitude and 11 degrees 0 minutes Latitude (top right). The second Point of Origin I will call Papa Oscar Zulu which is located at co-ordinates 106 degrees 15 minutes Longitude and 11 degrees 0 minutes Latitude (top left). The third Point of Origin I will call Papa Oscar Kilo which is located at 106 degrees 15 minutes Longitude and 11 degrees 15 minutes Latitude (bottom right). The fourth Point of Origin I will call Papa Oscar Tango which is at 106 degrees 30 minutes Longitude and 11 degrees 30 minutes Latitude (bottom left). As you can see I have merely have formed a square of 15 minutes. There are 15 intersecting lines of 1 degree each or 225 grid squares in the one large square. In Vietnam we would not place the Points of Origins on the points that I have listed here, I am doing this in an

attempt to make it understandable.

OK let see how this goes. When contact with the enemy was made a sequence of events took place;

The CO, who was the overall commander, would need to have a clear picture of what was happening so he would be getting reports from his platoon leaders of locations of the enemy, estimated strength, type of incoming fire etc.

The Commo track would act as a relay station between the CO and Squadron, the CO and the Artillery (if no Forward Observer was on board) and the CO and the Forward Air Controller in the case of an air strike. The call would go something like this;

The first thing to happen is that the Troop CO calls the Commo Track with orders to contact Squadron and give them a status report...

6 to 65 notify Squadron of our situation and location out

(notice that the call sign Saber Bravo was left off, this only happened on the troop push and was used for brevity).

The Commo track contacts Squadron, indicating that the communication is an emergency and Squadron acknowledges....

Saber 33 Saber 33 this is Saber Bravo 65 Saber Bravo 65 Flash over

Saber Bravo 65 this is Saber 33 go with Flash over

The contact with the enemy is reported and details of the enemy's location, relative to a Point of Origin, and strength are given as well as an indication of the type of fire which the Troop is receiving The Squadron acknowledges and repeats the information back to the sender in order to verify it as having been received correctly and that no mistakes have been made. Squadron also tells the sender that a Forward Air Controller will be available shortly....

Saber 33, Saber Bravo 65 Saber Bravo in contact from Papa Oscar Kilo left 5 up 4 estimate Victor Charlie Company, receiving RPG and Sierra Alpha over

Saber Bravo 65, Saber 33 I read back from Papa Oscar Kilo left 5 up 4 estimate Victor Charlie Company, receiving RPG and Sierra Alpha, Bravo Delta 2 up on your push 05 out

Once the FAC arrives at the scene he requests that the Commo track mark it's position. The Commo track pops a smoke grenade and informs the FAC who verifies that he has seen the smoke

and tells the sender what colour of smoke he has seen and this is confirmed by the Commo track....

Saber Bravo 65, Bravo Delta 2 request you mark location with smoke over

Bravo Delta 2, Saber Bravo 65 smoke out over

Saber Bravo 65, Bravo Delta 2 I verify yellow smoke over

Bravo Delta 2, Saber Bravo 65 roger over



The FAC then advises what aircraft he has available for the mission and the type of weapons that they are carrying. In this case he has some 'fast movers', a pair of F4 Phantoms loaded out with 750-lb bombs, Napalm and 20-mm canon and due on station in about 10 minutes. The FAC requests that the friendlies who are in contact be prepared to mark their position with smoke in order to identify their location to the F4 pilots...

Saber Bravo 65, Bravo Delta 2 I have a pair of Foxtrot 4's with 750's, Nape and 20 Mike Mike on station in 10 be prepared to mark positions over

The Commo track passes this information and the request for smoke on to the Troop CO, who acknowledges....

65 to 6 be advised that Bravo Delta 2 has pair Foxtrot 4's with 750's, Nape and 20 Mike Mike in 10 require position mark over

6 to 65 roger out

Once the F4's are coming up on their final approach, the FAC requests that the unit in contact pops smoke, this request is forwarded by the Commo track to the Troop CO who confirms that smoke has been popped...

Saber Bravo 65,Bravo Delta 2 mark position with smoke over

Bravo Delta 2, Saber Bravo 65 standby out

65 to 6 mark position with smoke over

6 to 65 smoke popped out

The Commo track informs the FAC that the smoke is out and again the FAC verifies that he has seen the smoke and confirms the correct colour....

Bravo Delta 2, Saber Bravo 65 smoke out over

Saber Bravo 65, Bravo Delta 2 I have red smoke over

Bravo Delta 2, Saber Bravo 65 roger over

Once the F4's begin their attack run the FAC advises that all tracks 'button up' as the strike will be close. This is acknowledged and passed to the Troop CO...

Saber Bravo 65, Bravo Delta 2 button up as strike will be within 100 meters, Foxtrot 4's will work trench line with 20 Mike Mike followed by 750's and Nape over

Bravo Delta 2, Saber Bravo 65 roger out

65 to 6 button up strike within 100, 4's on trench line with 20 Mike Mike then 750's and Nape out

Then the strike goes in.....



See also Fire Mission for a simulated radio transmission for artillery support fire and a medevac.

FIRE MISSION !

Following on from the previous example, Air Strike, this simulation uses the same Points of Origin to call in an artillery barrage and then a subsequent medical 'Dustoff'.

Again, this example was submitted by Stanley Homiski and the content is kept brief and to the point.

Stan Homiski writes....

Let's see how this one will work out, let's use the same Points of Origin as the last mission.

The first thing to happen is that the Troop CO calls the Commo Track with orders to contact Squadron and give them a status report and to make an initial request for artillery....

6 to 65 notify Saber of our situation and location request artillery support out

The Commo track contacts Squadron, indicating that the communication is an emergency and that contact with the enemy has been made. Details of the enemy's location, relative to a Point of Origin, and strength (in this case unknown) are also given and the Commo track requests details for contacting the nearest Fire Support Base....

Saber 33 this is Saber Bravo 65 Flash, Saber Bravo in contact from Papa Oscar Tango left 3 up 6 strength unknown request nearest Foxtrot Sierra Bravo over

The Squadron acknowledges and repeats the information back to the sender in order to verify it as having been received correctly and that no mistakes have been made....

Saber Bravo 65, Saber 33 I read back Flash from Papa Oscar Tango left 3 up 6 strength unknown, request nearest Foxtrot Sierra Bravo over

The Commo track acknowledges that the message has been received and repeated back correctly....

Saber 33, Saber Bravo 65 roger over

Squadron then tells the Commo track to contact FSB Glass, and gives the frequency and call sign for the artillery Fire Direction Center....

Saber Bravo 65, Saber 33 contact Foxtrot Sierra Bravo Glass, on Golden Dragon's push, callsign Golden Dragon 36 out

Golden Dragon 36 this is Saber Bravo 65 your push over

Saber Bravo 65, Golden Dragon 36 over

Once contact with the FDC has been established, the Commo track requests the fire mission using Point of Origin Tango as the reference point....

Golden Dragon 36, Saber Bravo 65, request fire mission from Papa Oscar Tango left 3 up 6 over

The artillery FDC confirms the target reference and informs the Commo track that a spotting round has been fired....

Saber Bravo 65, Golden Dragon 36, from Papa Oscar Tango left 3 up 6 marker round on the way over



The Commo track observes the fall of the marker round and gives an adjustment back to the FDC, so as to bring the fire on to the target, which the FDC acknowledges and then fires another spotting round...

Golden Dragon 36, Saber Bravo 65 left 50 up 100 over

Saber Bravo 65, Golden Dragon 36 left 50, up 100, marker on the way over

This spotting round is considered sufficiently close to the target for the Commo track to request a full FFE from the FDC...

Golden Dragon 36, Saber Bravo 65 on the mark fire for effect out

The artillery barrage continues until the Commo track calls for the fire to cease....

Golden Dragon 36, Saber Bravo 65, cease fire, cease fire over



Saber Bravo 65, Golden Dragon 36 roger out

With the fire mission over and no artillery over the area, the Troop CO orders the Commo track to arrange for a Dustoff....

6 to 65 see if we can scare up a dustoff out

The Commo track contacts Squadron to inform them that the fire mission is complete and that a Dustoff is required. Squadron acknowledges the end of the fire mission and confirms that Dustoff is available and gives the Commo track the Dustoff call sign...

Saber 33, Saber Bravo 65, sitrep, Golden Dragon complete, request dustoff ASAP over

Saber Bravo 65, Saber 33, roger, Golden Dragon complete, dustoff will be Centaur 33 on your push over

The Commo track then contacts the Dustoff directly and receives an indication of the ETA for the Dustoff. The Dustoff also takes the opportunity to enquire about the condition of the LZ and is

informed that the LZ is 'hot'. Dustoff acknowledges that the LZ is hot and advises that he will contact the Commo track when he is 2 minutes from the LZ for a further update on conditions...

Saber 33, Saber Bravo 65, Centaur 33 my push out

Centaur 33, Saber Bravo 65 over

Saber Bravo 65, Centaur 33, 10 minutes out, condition of LZ over

Centaur 33, Saber Bravo 65, roger, LZ is hot, I say again LZ is hot over

Saber Bravo 65, Centaur 33, roger on hot LZ, will contact when 02 out

Two minutes out from the LZ, Dustoff again requests an update on the condition of the LZ. The Commo track informs him that the LZ is still hot and that it is best to approach from the West. Dustoff is informed that the LZ will be marked with smoke. Dustoff acknowledges and requests that the LZ be marked with smoke for identification. Smoke is popped and both the Commo track and Dustoff confirm the colour of the smoke....

Saber Bravo 65, Centaur 33, 02 out, request update over

Centaur 33, Saber Bravo 65, LZ is hot, recommend approach from west, will pop smoke to mark LZ over

Saber Bravo 65, Centaur 33, roger, pop smoke over

Centaur 33, Saber Bravo 65, smoke out over

Saber Bravo 65, Centaur 33, I have green smoke, have you in sight, making approach from west over

As the Dustoff begins it's final approach it informs the Commo track that it is receiving incoming from a point relative to the LZ and that they are aborting this approach in order to give the troop time to suppress the fire as Dustoff prepares for a second approach....

Saber Bravo 65, Centaur 33, we are taking fire from the hedgerow 200 meters North and West of LZ will make another approach out

The Commo track informs the Troop CO about the incoming fire being received by the Dustoff....

65 to 6 Centaur taking fire hedgerow 200 meters North and West LZ out

The Troop CO contacts the First Platoon CO and orders him to use his Platoon to suppress the enemy fire...

6 to 10 have 15 lay down some main gun and coaxial on that hedgerow 150 to 15's left out

Finally the Dustoff comes in....

Saber Bravo 65, Centaur 33, we're coming in out



Well that is about how it would work I tried to make it as simple as possible without leaving out to many of the important calls.

See Also: US Artillery and US Armored Cavalry

United States Armour



The M-113 Armoured Personnel Carrier
and Variants - Part 1

M-113

Known as the "Green dragon" to the VC in the early stages of the war, the M113 was destined to become one of the most successful armored vehicles of all time, seeing action in Vietnam on a country-wide scale from the DMZ to the Delta.

Standard Vehicle Data

- Type: Armoured Personal Carrier
- Crew: 2 + 11 passengers
- Range: 483 km
- Max. Speed: 67.5 km/h (5.8 km/h in water)
- Armour: 12-38 mm, provided protection from small arms and shell fragments only.
- Fording: Amphibious
- Obstacle: Capable of traversing obstacles up to 0.6 meters high
- Crossing: Capable of crossing gaps of up to 1.68 meters
- Armament: 1 x .50 cal on commander's cupola.

Early versions of the M-113 (see Picture Gallery) were armed with a single .50 caliber machine gun. There was no armored protection for the .50 cal MG operator. Sandbags were often stacked around the rear hatch to provide some cover for the troops as well as a means of steadying their weapons while the vehicle was in motion. Early versions were powered by a petrol engine but the later M-113A1 substituted a diesel engine.



The first M-113's reached RVN in 1962. Originally destined for US units in W. Germany, 32 M-113's were used to outfit two ARVN mechanized company's fighting the VC in the Mekong Delta.

These company's were modeled on US Army mechanized rifle company's. Each was organised into 3 rifle platoons with 3 M-113's in each platoon. A support platoon with 4 M-113's carried three 60mm mortars and three 3.5-inch bazookas.



There was also a company HQ section of 2 M-113's. All the vehicles were armed with a single .50 caliber M-2 HB. In addition, a further eighteen .30 caliber Browning's were distributed throughout the two company's.

During the course of 1962, the ARVN mechanized rifle squadron was modified and the 60mm mortars were replaced with three 81mm mortars and the 3.5-inch bazookas were replaced by a single 57mm recoilless rifle



The first M113s were powered by a 209HP Chrysler 75M petrol engine. By 1964 the M113 had been superceded by the updated M113A1. The M113A1 was fitted with a General motor's 215HP Diesel engine which gave it an improved performance over the earlier M113.

Despite being designed as an armored infantry vehicle to be used for carrying mechanized infantry into combat with armored columns of M-48's and M-60 main battle tanks on the plains of Europe, the ARVN units started using them as armored infantry combat vehicles in their own right. Early M-113's supplied to the ARVN were armed with a single M-2 .50 cal heavy machine gun on a pintle mount attached to the commander's cupola. Unfortunately these early M-113's provided no protection for exposed crew members, in particular the commander who manned the .50 cal machine gun. The loss of 14 ARVN gunners at the Battle of Ap Bac glaringly highlighted the need for some additional crew protection. Consequently the ARVN began furnishing their vehicles with makeshift gun shields.

AMPHIBIOUS CAPABILITY

The hull of the M-113 is fully watertight with all hatches having rubber seals which allows the vehicle to cross bodies of water and slow moving streams.

To become amphibious, the vehicle driver turns on two bilge pumps and lowers the trim vane.



The trim vane is extended forward and helps maintain the correct balance of the vehicle in the water. It also prevents water from flowing over the front of the vehicle and into the drivers position or the front-mounted engine.

In the water the vehicle is propelled by the forward motion of it's tracks and could reach a speed of 3.5mph. Due to the fact that most crews severely overloaded their vehicles with stowage both inside and out, the amphibious capabilities of the vehicles were generally severely degraded and rarely used.



M-113 ACAV

Following lessons learned, in particular the loss of 14 ARVN .50 cal gunners at the Battle of Ap Bac in January 1963, the standard M113 was upgraded both in armament and armour protection to the M-113 .

Two M60 GPMG's were mounted, one either side of the rear hatch, and fitted with protective gun shields. An FMC-designed armoured gun shield/turret combination was also added to the commanders cupola to afford him protection when manning the .50 cal machine gun. This vehicle was designated the M-113 Armored Cavalry vehicle (ACAV - see Picture Gallery).

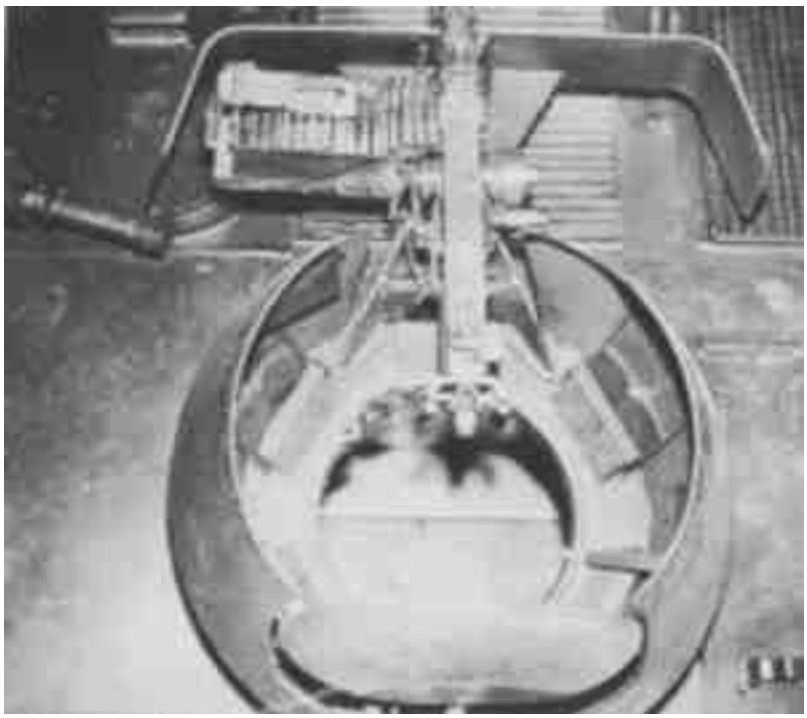
Although the M-113 was initially designed to carry a full 10 man rifle squad in addition to the two-man crew, the Cav doctrine was actually to fight directly from the vehicle on the move and it was intended not to dismount the infantry unless in extremis. As a consequence of this doctrine, the vehicle became a mobile fire platform and stowage of prodigious quantities of ammo and other equipment considerably reduced the internal troop carrying capacity.

Normal crew for the ACAV was a driver, commander (who manned the .50 cal), two M-60 gunners and two loaders, one of whom would also be armed with an M-79 40mm grenade launcher. Typical ammo loads consisted of 3,500 rounds of M2 .50 caliber, 8,500 rounds of 7.62mm m-60, 5,000 rounds of 5.56mm M-16 and 150 40mm M-79 40mm grenades.



FMC ACAV MODIFICATIONS

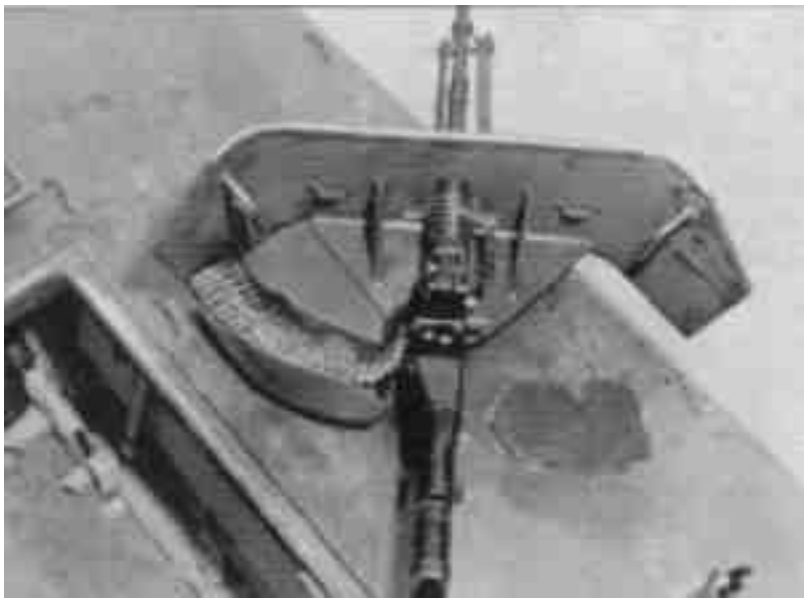
As a result of lessons learned, when the 11th ACR shipped to RVN their M-113's were fitted with the new FMC gun shields and had additional M-60's mounted either side of the rear top hatch. The 11th ACR coined the term ACAV which soon became the 'official' designation of this modified M-113.



The FMC gun-shield/turret combination was a design which built upon the earlier attempts of ARVN units to provide some frontal protection for their machine gun operators and whilst attempts to protect the commander proceeded, no attempt was made to afford similar protection to troops fighting from the rear passenger compartment of the vehicle.



The ACAV was set to remedy this by providing gun shields for the additional M-60's. Movable arms with sockets were bolted to the top plate adjacent to the rear personnel hatch. The gun shield had the standard machine gun mount to take the M-60 machine gun which could be easily installed.



Travel locks were provided so that the weapon could remain installed and ready for use during transit. The shields incorporated a feed tray for belted ammunition. Rotating arms provided for a full field of fire and a minimum depression angle for close-in fire.



A removable socket could also be installed on the under-side of the rear personnel hatch cover so that when it was thrown back in the open position an M-60 could be mounted for firing to the rear of the vehicle. Picture evidence tends to suggest that this particular option was rarely employed.

As additional protection, troops fighting from the rear compartment often built sandbag parapets around the side of the rear top hatch.

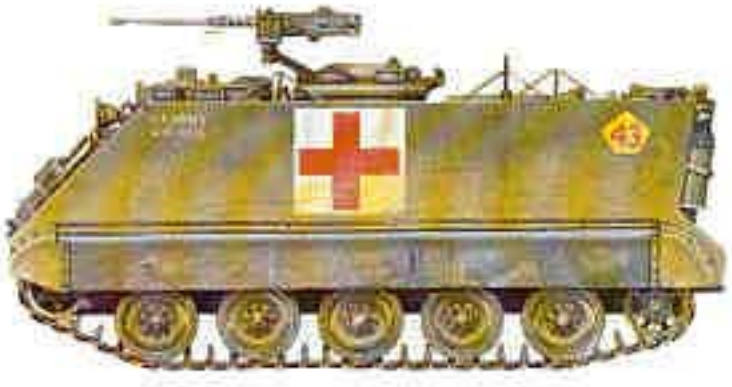


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SOURCES

Armor of the Vietnam War; (1) Allied Forces, Michael Green & Peter Sarson, Concord Publications Ltd

Armor in Vietnam; A Pictorial History, Jim Mesko, Squadron/Signal Publications Inc.



US Infantry Weapons



US Weapons of the Vietnam War

The vast majority of weapons used by US forces in Vietnam were of their own manufacture. With the exception of Australia and New Zealand, all the major Free World forces used American weapons and equipment.

PISTOLS

- M-1911A1 Colt .45in Automatic Pistol
- L9A1 9mm FN Browning High Power

SMGs

- M1A1 Thompson .45in
- M3A1 .45in (9mm) 'Grease Gun'
- Model 45 9mm 'Carl Gustav'

RIFLES and CARBINES

- M1 'Garand'
- M-14 7.62mm NATO
- M-16 5.56mm Assault Rifle
- CAR-15

GRENADES and RIFLE GRENADES

- Mk2 Anti-Personnel Defensive Hand/Rifle Grenade
- M26 Anti-Personnel Defensive Hand Grenade
- M61 Anti-Personnel Defensive Hand Grenade
- M-79 40mm Grenade Launcher
- M203 40mm Grenade Launcher

MACHINE GUNS

- M1919A4 Browning .30-Cal
- M2 .50-Cal Heavy Barrel
- M-60 7.62mm GPMG

ANTI-ARMOUR WEAPONS

- M20 3.5-inch Rocket Launcher
- M72 66mm HEAT Light Anti-Armour Weapon (LAW)
- M67 90mm Recoilless Rifle
- M40A1 106mm Recoilless Rifle
- M151E2 127mm TOW

MORTARS

- M1 81mm
- M29 81mm
    - USMC 81mm Mortar Section - an article submitted by USMC Veteran Michael Stewart that details the organisation and operation of this unit
    - USMC 81mm Mortar Section Forward Observer - recollections of an FO's radio operator, USMC Veteran Mike Pomakis, in Vietnam
- M19 60mm
- M2 60mm
- M30 4.2-in



Back to Weapons and Equipment

Sources:

Vietnam Weapons Handbook, David Rosser-Owen, Patrick Stephens Limited, 1986, ISBN 0-85059-838-9

Infantry Weapons of the World, Christopher F. Foss and T.J.Gander, Ian Allen Ltd., 1977, ISBN 07110-0734-9

'In Combat', Marshall Cavendish Magazine Collection

'The Vietnam Experience', Orbis Magazine Collection

Ground Surveillance Radar

The AN/PPS-4 and AN/PPS-5 radar sets were short range ground surveillance radars that made use of the doppler effect to detect a target. The sets detected the difference in frequency between the echoes reflected from stationary objects and the echoes reflected from moving objects, and presented this information as a target indication to the radar operator. To detect a moving target the radar set needed to receive echoes from a fixed object together with the echo from a moving target.

The echoes from fixed objects were called ground clutter. The radar sets presented audio indications of targets from only a relatively small segment of the radar beam at any given time. This segment of range is called a range gate. Target echoes were constantly being received by the radar receiver throughout the length of the beam however, only target echoes from the range gate segment of the radar beam were indicated audibly to an operator.

Range gates could be positioned either manually or automatically. Positioning them manually was the method generally used when tracking a target. Automatic positioning of the range gate is called strobing and was used by a radar operator to search large segments of the range.

The following was emailed to me by Doug Huffman, a Veteran of 1st Battalion (Mechanised), 5th Infantry who, after serving with a Mortar Platoon, later went on to serve as a radar operator;

> **The PPS-4 was a small self contained unit. It sits on a tripod, in total about four feet high, and could be carried by a single person. The dish and controls were all part of a single unit which we would set up on its tripod right on the ground. We plugged the earphone into it and panned the unit back and forth manually. Output was through the earphones and dials on the unit showing distance to the target.**



PPS-4

The other type of radar operated by our radar section was one PPS-5. This was a larger unit. A typical installation was to set up the dish on top of a tower at a fire support base. Cables ran down to a bunker on the ground where the control unit was located. This unit had a square screen similar to the round radar screens you've seen with blips and so forth. A line representing the radar beam would move across the screen from side to side. The dish was motorized. The PPS-5 was much less portable though at times we did take it into the field. It was run off a generator whereas the PPS-4 used batteries.



PPS-5

Our targets typically were within one to five hundred meters (I'm referring to the

PPS-4 which I operated most of the time) and usually seemed to be squad size groups. I only know of one confirmed target destroyed. Most of the time I think that if the target was real we accomplished our mission when the resultant fire scared the enemy away or interrupted their operations. We usually responded to targets with Bravo Company's 81mm mortars or small arms.

The confirmed target I mention was farther away than what I believed to be the realistic maximum range for the PPS-4. This was at about 1000 meters and I identified it as an ox cart. I directed artillery fire using the radar set. I could hear the sound of the rounds splashing. By Pointing the radar a little each way I could tell the difference in azimuth between the target and the artillery rounds. My mortar training and experience came in handy here as I was able to estimate the adjustments in meters by knowing the distance to the target and the angle between. After about three salvos the target was quiet. A sweep through the area at a later date discovered a three wheeled Lambretta destroyed along with it's cargo of AK-47 rifles.

Ground surveillance radars where frequently used in NDP's, Laagers and Fire Support Bases. In these positions they were employed to cover the most likely avenues of approach and could thus give the Commanding Officer some forewarning of an impending attack.

SOURCES

US Army Armor School, Fort Knox, Special Text 17-1-3, kindly supplied by Jerry Headley.

My thanks also to Doug Huffman, 1st Battalion/5th Infantry (Mechanised), 25th Infantry Division for his help and contributions. Doug has his own web site Vietnam Journey which is a photographic record of his tour in '69 - '70 and which I strongly recommend.

Armored Cavalry



Troop Laager



While the emphasis on the employment of armor was primarily on offensive operations, some of the largest kills of the war occurred when the enemy tried to overrun armored defensive positions. Armor units habitually assumed a defensive posture when not actively engaged in offensive operations.

LAAGER

A Laager position is a defensive position occupied by combat units whenever they are halted for extended periods of time, particularly at night. An armored cavalry unit may occupy such a position as a separate unit or with infantry and artillery units.

Selection of the Laager Position

The position of the laager could be selected by the squadron, troop or platoon leader. The selected terrain was often chosen to be relatively open with good fields of fire since such a position would make it more difficult for the enemy to approach the perimeter unobserved. Also, when set up in such an area, the open space within the perimeter allowed for better maneuvering of the defensive forces.

A laager was generally set up at least 1km from the nearest friendly positions in order not to restrict the firing of heavy weapons.

Previously used laager sites were generally avoided due to booby trapping by the enemy, but when this was not feasible, the position was well searched for antitank mines and booby traps prior to the laager being established.

Vehicle Positions

Vehicles were placed to provide 360-degree security for the perimeter and the location of vehicles was intended to

take the maximum amount of advantage from the terrain as well as covering the most likely avenues of enemy approach. Because of the lack of any enemy tactical air threat as well as limited artillery capability, the vehicles were often positioned more closely to each other than in previous wars. The commanders primary consideration was to provide mutual support of the vehicles in the event of massed attack by the enemy and generally there was not more than 50-meters between vehicles. Stan Homiski wrote,

> ".... usually, when we set up Troop Night Defensive Positions (NDP's), we would laager with three platoons set on the outer perimeter and one platoon, the HQ platoon, on the inner perimeter. The size of the outer perimeter was determined by the amount of clear area you had to deal with. When we worked in the rice paddies, the perimeter could be quite large, with the distance between vehicles set at ten to twenty meters apart and with good fields of fire. However, when we worked in the jungle our perimeter became very compact, sometimes with as little as five meters separating vehicles and the fields of fire were therefore very tight. It was only on very rare occasions that our perimeter ever got down to 5 meters between vehicles, usually due to the size of the jungle clearing. We would attempt to enlarge it using the M48A3s but sometimes that proved to be a futile effort.... "

Within the divisional armored cavalry troop or platoon, the tanks were spread evenly on the perimeter. However, in confined areas or positions which offered only restricted fire zones, the tanks were positioned so that they could cover the most likely avenues of the enemy approach.

The support squads were normally placed in battery in a troop laager and in the center of the platoon laager from where they could provide good illumination and limited indirect-fire support.

When possible, vehicles were generally moved into their final positions just before darkness so as to deny the enemy any knowledge regarding their exact location on the perimeter. Vehicles were often moved, if only a few meters, in order to prevent their being hit by weapons which had been sighted on them before dark.

LAAGER SECURITY

The first priority in the construction of a laager was the provision of excellent fields of fire. If the position did not present these then they were quite often ‘created’ by individual vehicles knocking over brush, jungle and wooded areas. In the dry season fields of fire were sometimes created by simply burning off the vegetation around the perimeter.

Consideration was also given to the stand-off distance from wooded or jungle areas. In most instances this would not be less than 50 meters although 200-meters was the ideal.

In general each vehicle would have a range card with listening posts and ambush patrols marked on it. All areas to the front of the laager were covered either by organic direct-fire weapons or by indirect-fire weapons such as M79’s, mortar and artillery fires. All fields of fire, wherever possible, would be overlapping with defensive concentrations of mortars and artillery registered.

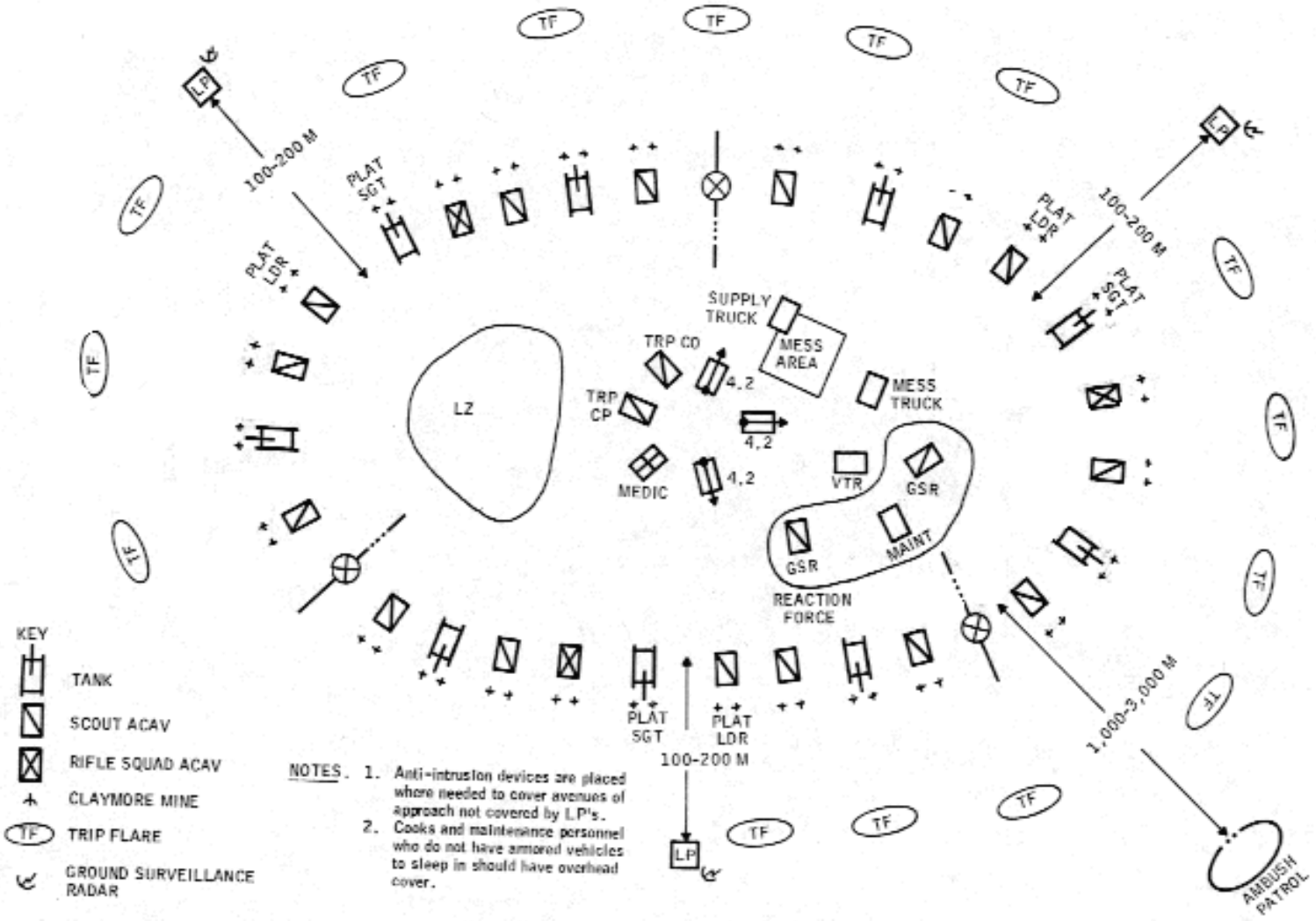


Figure 5-1. Laager position.

The Barrier

One of the most important stages in the establishment of a laager was the creation of the ‘barrier’. This critical step involved the emplacement of concertina wire, trip flares, Claymore mines, anti-intrusion devices, and demolitions to assist in preventing the enemy from penetrating the perimeter.

Concertina wire was placed at least 50 meters to the front of the vehicles (out of enemy hand-grenade range). This wire was often carried on the vehicles or was brought in by resupply helicopters.

Trip flares were placed in a random pattern forward of the concertina wire out to a distance of about 200-meters and quite often was interwoven with the wire.

Between the wire and the vehicles themselves would be placed the deadly Claymore mines. Generally these were laid out at dusk and picked up again at dawn. In order to deter the enemy sappers from turning the mines around to fire into the perimeter, the Claymores were themselves quite often booby trapped.

Added security came from the emplacement of anti-intrusion devices, demolitions and booby traps (including fougasse).

With the widespread use of antitank weapons by the enemy, steps were taken to afford both the vehicles and crews added protection. The ideal situation would be the construction of an earthen berm around each vehicle, or indeed the entire perimeter, but seldom were the resources or the time available for such. Invariably the vehicles would have sandbags emplaced as well as cyclone or chain link fencing to act as stand-off protection from RPG's. This was often carried rolled up on the vehicles. Stan Homiski,

> ".... most of the time the tracks and tanks were not dug in, however we did attempt to screen them with fencing and perforated steel planking (PSP) as a defense against RPG's. The troopers on the other hand were all dug in, using both foxholes and defensive fire positions between the tracks and tanks. The M60s would be removed from their mounts and used as standard light machineguns simply by folding down the front bipod. The vehicles on the inner perimeter acted as backup for the ones on the outer, if a track or tank took a hit from an RPG and was knocked out, then one from the inner perimeter would fill the void.... "

Personnel not actually in the vehicles constructed covered fighting positions to protect themselves from small arms fire and shell fragments. These were usually a trench with sandbags and a perforated steel planking roof (again, this was carried slung on the side of many vehicles) which was then further covered in sandbags.

It was important that plans were in place for the commander to be able to reinforce portions of the perimeter when under attack and a troop reserve was usually created from elements of the troop headquarters vehicles. All vehicle commanders were required to know the perimeter thoroughly so that in an emergency they could move rapidly to another position on the perimeter. Quite often specific vehicles were tasked with the responsibility of reinforcing specific points on the perimeter if the need should arise.

When selecting a laager position, careful consideration was given for the suitability of a helicopter LZ since nearly all supply and evacuation of casualties would by done by helicopter. Quite often an LZ suitable for resupply was constructed outside of the main perimeter whilst a smaller, medevac LZ was contained within the perimeter itself.

The security of the laager was dependent to a large extent on the employment of an aggressive programme of ambush patrols (AP's), observation posts (OP's), listening posts (LP's) and harassment and interdiction fires (H&I) quite often directed by emplaced ground surveillance radar. It also required a high proportion of the troops to be awake and alert.

H&I fires would be carried out at random throughout the night involving artillery, mortar and M79 fire. The use of tank main guns or automatic weapons fire from within the laager was avoided so as not to disclose the positions of the vehicles and infantry fighting positions. The positions of listening posts and ambush patrols were carefully plotted in order to avoid friendly fire casualties.

Ambush Patrol

The primary purpose of the AP was to kill the enemy and/or provide early warning of an enemy attack. Most platoon ambushes consisted of between 8 and 12 men.

Once the ambush site had been selected a reconnaissance of the ambush position was carried out either by helicopter, dismounted or mounted patrol. During the reconnaissance the exact ambush position would be selected as well as an alternate position, a route of withdrawal and an extraction point. The ambush site itself was selected to provide good routes of withdrawal but also good fields of fire, cover and concealment. Stan Homiski wrote,

"…. we would send out a minimum of three LPs and at least one AP. AP's were used quite extensively in Areas of Operations such as the Iron Triangle and War Zone C. The LPs would be anywhere from 100 meters to perhaps 1Km from the laager area, this was also dependent on the area of operation and on the terrain in which we were working at the time. Usually, to be out a Klick meant we were working in a wide open clear flat area. The AP's were always dismounted ground operations, consisting usually of a Squad Leader, normally an E-6, and a squad of infantry armed with standard M16, M60 and M79s along with 1 PRC 25. All APs and LPs were required to give a sitrep every 30 minutes. A situation report call would go something like this;

"Lima Papa 1 this is Saber Bravo 65, if sitrep is negative break squelch twice".

However if they heard anything they would report in the clear - the same with an AP. If the AP got into a firefight where more enemy were outside of the killing zone than were inside it usually they would call for backup from the night laager and a platoon of tracks and tanks would head out to bail them out of trouble…. "

Prior to the patrol's departure co-ordination with the FAO attached to the Troop in the selection of preplotted artillery targets as well as with the relief force commander was fully established. All equipment was thoroughly checked and noise and light discipline was rigorously enforced.

Common items taken in addition to normal kit included;

- AN/PRC-25 radio with spare batteries, earphone and antenna
- at least one M60 MG with a minimum of 1000-rounds
- M79 40-mm Grenade Launcher
- Two Claymore mines per man
- four hand grenades per man
- flares
- at least one starlight scope
- several compasses and maps
- red filtered flashlights

Movement of the patrol from the laager to the ambush site was usually done just before dark and movement into the actual site was carried out after dark. The AP tried to ensure that they had all-round security with Claymore mines covering both the kill zone and likely routes of enemy withdrawal with all men awake.

On particularly dark nights, when there was insufficient light for the employment of the starlight scope it was common to fire an illumination round approximately 5000-meters from the position in order to provide sufficient light.

When the enemy entered the kill zone the ambush would be initiated by the patrol leader either detonating a Claymore or firing his rifle. Once the ambush was initiated the patrol leader would then call for illumination, artillery and the reaction force as needed.

Listening Posts

The purpose of the LP is to provide the commander of the laager position with early warning of enemy approach, it is not to engage the enemy. Each platoon was normally required to send out one LP. The LP was usually sited at sufficient distance from the laager (100 - 200 meters) so as to be able to provide enough of an early warning for the laager to be prepared.

The LP generally consisted of three men with a radio in defilade positions so as not to be hit by friendly fire from the perimeter. Stan Homiski,

> ".... the only time I remember that we even came close to having our perimeter breeched was on Easter Sunday morning of '68. We were working in the jungle up in War Zone C, and after the firefight the closest enemy body we found was only about 10 meters in front of the perimeter. You can believe me it got real hairy in a laager that tight... "



Sources:

US Army Armor Reference Data, *Special Text 17-1-3*, US Army Armor School, Fort Knox, Kentucky was provided by Jerry Headley CO, Bravo Troop, 3/4 Cavalry, RVN, '68/69

My thanks to Stanley Homiski (Commo Sergeant, Bravo Troop, 3/4 Cavalry, RVN, '68/69) for his comments and contribution

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The M-113 Armoured Personnel Carrier and Variants Part 2

M-106 4.2-inch Mortar Carrier

Fitted with a 4.2-inch mortar (see Picture Gallery) on a rotating turntable mounted in the rear compartment, the M-106 provided quick and highly mobile firepower. The mortar could be dismounted and used externally from the vehicle and the base plate and tripod were often carried on the outside of the vehicle when not in use. Another variant, the M-125, was an 81-mm mortar carrier (see Picture Gallery).



The mortar is mounted on a turntable in the passenger compartment and is fired to the rear of the vehicle through the rear top hatch opening. A base plate and tripod was often mounted externally so that the mortar could be dismounted from the vehicle and used externally.

The floor of the basic M-113 had a reinforced beam added in order to compensate for some of the recoil from the weapon. Average ammo load was 88 rounds. A two-part circular hatch allowed for traversing the mortar within the vehicle.





M-125 81mm Mortar Carrier

The 81mm mortar could be traversed through 360 degrees and fired from within the vehicle. Using a base plate and tripod, the mortar could also be used from outside of the vehicle. The firing hatch comprised a three-piece assembly which provided adequate clearance for the firing of the weapon.



The vehicle carried 114 rounds of 81mm ammunition.

M-577A1 Field Aid Station

Based on an enlarged version of the standard M-113, the M-577 had a raised rear compartment to allow

personnel to stand upright in the vehicle. This variant was employed as a Command Post, Communications Vehicle, Artillery FDC, as well as a Field Aid Station pictured below (see Picture Gallery).



The M-577 was a standard M-113 but with a raised rear compartment allowing passengers to stand upright. In this configuration, one of the primary roles was as a Command & Control vehicle.



Operating as an Armored Command Post the M-577 carried a large tent extension which could be erected at the rear of the vehicle to provide more space for the operational staff. The vehicle could accommodate a four man operational team as well as the vehicle driver with standing room sufficient for staff to read large maps on map boards.



An externally mounted petrol engine, mounted on the front superstructure of the vehicle, provided power for the command compartment. Map boards and radio equipment allowed for fully independent operations in the field.

Used as a mobile Tactical Operations Center, they were usually set up directly behind the front lines of a combat operations area. Often grouped together as several vehicles the TOC could be quite high level.



One particular use of the vehicle was as an armored ambulance which accompanied the armored troops in the field. The M-577, with it's enlarged crew compartment could be fitted out as a fully functional field aid station or, using a field modification kit, allowed the mounting of litters for the transport of wounded from the combat zone.



M-163 Vulcan

Originally designed for an air defence role, the M-163 mounted a six-barrel 20mm vulcun gatling gun. Used in the ground assault role similar to the M-42 Duster, the M-163 could lay down some devastating fire-power. One problem however was the vast quantity of ammunition required to keep the vehicle fully operational (see Picture Gallery).



Only a small number of M-113's were converted to carry the Vulcan 20mm six-barreled machine gun.

Designated the M-163, the vehicle was originally intended as an air defense vehicle capable of firing up to 3000 rounds per minute.



Since there was little if no air threat for US Army units in RVN the vehicles were switched to convoy support duty. The M-163 could lay down a withering hail of fire and was ideal for sweeping areas of vegetation which were adjacent to the convoy route. However, due to the high rate of fire ammunition usage and supply was a problem. The M-163 carried about 2,300 rounds of 20mm ammo on-board - enough for barely 1 minute of fire.



The additional weight of the M61 Vulcan Air Defense System, mounted in a purpose designed turret, destabilized the vehicle when used in an amphibious role.

To counter this the vehicle was provided with additional flotation devices fitted on either side of the hull and on the vehicles trim vane.

M-132 Self Propelled Flame-Thrower

With the crew compartment converted for the carrying of napalm and a turret mounting a flame canon, the M-132, though particularly vulnerable itself was nonetheless a formidable assault vehicle and a very successful variant (see Picture Gallery).



The first M-132's arrived in RVN in August 1962 but saw little practical use. In December 1964, 1st Armored Cavalry took delivery of two vehicles in order to conduct field tests which proved highly successful. The recommendation from 1st AC was that each regiment should incorporate four M-132's along with two M-113 service vehicles.





Nicknamed the 'Zippo' after the popular american cigarette lighter, instead of the standard commander's cupola the M-132 had a small enclosed one-man turret. The turret had a dual mount consisting of a flame-gun and a machine-gun.

200 gallons of napalm fuel was carried on-board, stored in the converted crew compartment.







SOURCES

Armor of the Vietnam War; (1) Allied Forces, Michael Green & Peter Sarson, Concord Publications Ltd

Armor in Vietnam; A Pictorial History, Jim Mesko, Squadron/Signal Publications Inc.

United States Armour



M48A3 'Patton'

Developed from the M47 "General Patton" tank, the M48 was the mainstay of the US Army and Marines in Vietnam.

The Blackhorse arrived in Vietnam equipped with the new M48A3, powered by a diesel unit, having replaced the earlier M48A2 (which featured a gasoline engine and was very prone to fire) prior to their departure for RVN.

> It is worth noting that although the 11ACR arrived in country with M48A3 tanks, those vehicles were in short supply and by the period immediately following Tet '68 at least D Co 1-11 ACR was equipped with gasoline powered M48A2C tanks. I don't know if H Co and M Co were also equipped with the M48A2C or not, but I know D Co was because I lived on one for several months until we got to trade them in for the M48A3.



The vehicle was separated into three compartments: the driver's compartment, the fighting compartment (where the Gunner, Loader, and Tank Commander fought), and the engine compartment.

The entire purpose of the tank is to carry the main gun into battle. The armor is provided to ensure that

the crew is protected from shrapnel (the main cause of battlefield casualties) and small arms fire. The crew exists solely to serve the main gun. The driver gets the vehicle to firing position, the TC selects targets, the loader ensures the weapon is loaded with the correct ammunition for the target selected, and the gunner makes sure the round strikes the target in the area of maximum vulnerability.



The M48 had been designed for combat in Europe against Soviet tanks. The M48A3 had, for 1968, a state-of-the-art fire control system. In 1968 computers were mechanical. . Range to the target was provided by a stereoscopic range finder, which functioned similarly to a 35mm camera. An end-box on each side of the turret exterior held a prism-type mirror. Turning a hand-crank on the range finder would pivot these mirrors until the double-image in the range finder merged. As the distance between the mirrors is exactly known, a little trigonometry provided the range (in meters) to the target. This information was displayed on a range indicator, and also fed to the ballistic computer by a rotating shaft. The ballistic computer was a collection of gears and cams--nothing was solid-state--which had a handle so that the gunner could select the type of ammunition that was to be fired. Each round had a different muzzle velocity, and therefore the computer had a different cam for each type. The computer would take the range data, merge it with the velocity data, and via a set of rotating shafts, supply this information to the gun's super-elevation mechanism, resulting in the gun being elevated above the gunners line of sight sufficiently for the round to overcome the downward pull of gravity on its way to the target. The gunner's sight however remained locked onto the target.



A good crew in Europe was able to put the first round on target 90% of the time, but this required excellent teamwork and communication on the part of the entire crew. In peacetime qualification, it was possible to stop from a speed of 20 mph, acquire the target, and get off a first round kill at 2,000 yards in seven seconds. This precision fire control system was almost irrelevant in Vietnam where typical engagement ranges could be measured more reasonably in feet than in yards. So in D company it was common to take the gunner out of the turret and put him on the back deck with an M16 or M79 for close-in protection.

> So far as I know, having the gunner on the "back deck" was standard procedure in H Co and M Co as well - at least that's how they operated on the few occasions we were together. BUT throughout my entire tour I only saw one "back deck gunner" riding with an M16 and that was a worthless wimp who couldn't manage to hold an M60 machine gun even resting it on his lap. The standard armament for the back deck gunner was the M60 machine gun, usually with about 300 rounds linked as one continuous belt. A few of us had an M79 within reach (often laying on top of the turret to be shared with the TC) but we all carried the M60.
>
> We talk about taking the gunner out of the turret, that is accurate in terms of the crew positions but it may give the wrong impression about the TO&E. The "gunner" is normally the second senior man on the tank crew, behind the tank commander. On a Blackhorse M48, the loader was normally the second senior man (even if the driver had more time or rank) and the back deck gunner was almost always the junior man on the crew - in time, rank, and duty position.

This also afforded him some protection from mines, and indeed the TC and loader often rode on the turret roof or the hatch lips when mines were expected.

> The TC and loader usually rode very "high" compared to standard tank unit doctrine which usually called for riding at "Name Tag Defilade". It was common for the loader and TC to be sitting on their open hatch lid if no contact was expected and riding about waist level in the turret when the situation was a bit doubtful.
>
> Many loaders learned to ride sitting IN the hatch opening, with their knees against the front edge of the hatch and their but against the back edge of the hatch. This was a very comfortable

position if you happened to be the right size to fit the hatch and the terrain wasn't too rough.

The TC laid the main gun by eye, and fired using the commander's override control or a lanyard to the manual trigger on the main gun.

The lanyard was used by those few TCs who liked to fire the coax machine gun. Most TCs that I knew ignored the coax and relied on main gun, so they fired directly from the override.

Most M48's in Vietnam had the commander's .50 cal. mounted on top of the cupola on a simple pintle mount. This location gave a better field of fire, was faster to reload, and less prone to jamming than when the M2 was placed on its side inside the armored cupola. But the TC was terribly exposed to fire when firing the M2.

I never saw a single TC who was hit WHILE FIRING the M2. Most TCs who were hit, got hit before they had a chance to fire anything. The realities of life were that the VC/NVA almost always got the first shot - our job was to make sure they never got a second shot. It's hard to tell about grunts and other track grease, but so far as I know during the time I was with D Co, I don't believe any weapon capable of defeating a tank ever did get to fire two rounds as us.



Rocket Propelled Grenades were a constant threat, and D company tanks countered this threat by mounting Pierced Steel Plank, chain link fence, and spare track blocks on the fenders to prematurely detonate incoming RPG's.

Chain link fencing, attached to engineer stakes, was sometimes used in defensive positions and fire bases. Track blocks (usually below the infantry rail) and C-Ration Cases or Ammo Cases (usually above the infantry rail) were the most common "add on armor". A track block or even a case of C's would stop an RPG.

I never saw PSP used as add-on armor or as an RPG shield with a tank position. (Not saying it wasn't done, just saying I never saw it.) Occasionally it was used to replace a mangled fender or as part of extending the bustle rack. PSP was mostly used by grunts and fire base personnel to hold up the overhead cover on their bunkers -- and, of course, to create walkways to keep from sinking knee deep in mud during the rainy season.

The bustle rack was extended with welded steel, and the turret sides buttressed with extra .50 cal. ammo, C-ration cases, and the crew's duffel bags. The cases of C-rations strapped to the infantry rail on the turret, like the PSP and track blocks, acted as a stand-off shield. If an enemy anti-tank rocket struck the C-rations, it would explode prematurely. Since anti-tank rounds require a certain stand-off distance to function effectively, the C-rations dissipated the force of the explosion away from the armor. It was also the only place we could store the rations, since space in the vehicle was at a premium and occupied mostly by ammunition.

> Usually the regular bustle rack held duffle bags and any other soft or loose stuff; the extended part held all the crew's worldly possessions, usually in two "mini cans" per man - these were the metal ammo cans which held either 20mm ammo or 1500 rounds of 7.62mm ammo (two 750 round belts, nominally for aircraft miniguns - but we occasionally got our machine gun ammo that way). If the crew was lucky, the bustle rack also held a mermite can.

Canister and HE were the primary main gun ammunition types used.

> At least in D Co, we learned to store the HE ammo with the fuse already set to Delay instead of "SuperQuick" the way it came. This kept the round from exploding 10 feet in front of the muzzle when it armed if you were firing in brush and made the round penetrate enough to do some good if fired into a bunker.
>
> Given a choice, our primary round was M336 canister, the "black canister" which was loaded with heavy steel pellets like roller bearings about 3/8" diameter and 1/2" long. This was called "black canister" or "black can" because the projectile was black with white markings. The later model canister was the same size round but the filler was several thousand "flechettes" - little steel darts like small finishing nails with tiny fins. The flechettes were supposed to be "more effective" because they supposedly had more range and penetration. They did have more range in brush, but we always preferred the heavier "black can" because the flechettes would not blow apart the brush. The flechette canister projectile was green with white markings and was called "green canister" (or worse names).
>
> The typical load varied somewhere between 1/2 Can 1/2 HE to 2/3 Can 1/3 HE -- with typically 2 to 4 rounds of HEAT carried 'just in case'.

Beehive was effective, but usually in short supply.

> Beehive was USELESS in most situations!!!! The MINIMUM range of the 90mm Beehive round even when set at "muzzle action" was about 75 yards.

WP was useful, but dangerous to carry since it ignited if split open by a mine or RPG strike, so crews tended to expend it as soon as possible.

> I don't believe we had a single round of WP on board any tank in D Co during the year I was there.

HEAT briefly was popular after NVA tanks were engaged at Bien Het, but HE was usually preferred against bunkers. Above the main gun was a 1 million candle-power Xenon searchlight. This light had both a white light and an infrared mode. It was boresighted with the main gun and gunsights so that it could be used to illuminate a target at night.

> To the best of my knowledge no one in D Co ever bothered boresighting or zeroing any of the sights - and certainly not boresighting the searchlight which was constantly being knocked around by tree limbs and bamboo while busting jungle. As long as the searchlight pointed more or less to the front, it was close enough. In a year in country I saw tank searchlights used two or three times - always in white light - either as a psychological weapon to emphasize that we were TANKS or to attempt to draw fire, never to actually attempt to illuminate a target. A few firebases and base camps did have tank Xenon searchlights mounted on towers that they occasionally used to scan the area outside the perimeter with IR.

SPECIFICATIONS

Crew: 4 (driver, gunner, loader and TC)

Weight

- Hull = 20-tons
- Turret = 18-tons
- Engine/Transmission = 6-tons
- Engine cover = 2-tons
- Track = 2-tons each
- Basic load = 2-tons

Total = 52 tons

Performance

- Range = 258 miles / 463 km
- Top speed = 40 mph / 48 km/h
- Fuel consumption = 1 g/mi road, 2 g/mi offroad
- Fording = 1.2 m
- Vertical Obstacle = 0 .9 m
- Gap Crossing = 2.59 m

Powerplant

- Engine = Continental AVDS (1790 cu in 690 horsepower)
- Transmission = Alison CD-850

Armament

- Main gun = 90 mm rifled cannon 64 rds
- Tank Commander = .50 cal M2 HB machine gun 3000 rds
- Coax = 7.62mm M73 machine gun 10,000 rds

Ammunition

- HEAT (High Explosive Anti-Tank)
- HEP (High Explosive Plastic)
- Canister
- WP (White Phosphorus)
- Beehive

Armor (Homogeneous cast steel)

- Hull Front = 120 mm
- Hull Side, front = 76 mm
- Hull Side, rear = 51 mm
- Hull rear = 44 mm
- Hull floor = 25 mm
- Turret Front = 110 mm
- Turret Side = 76 mm
- Turret Rear = 50 mm



See Also:

- Recollections of a 1/4 Cav Veteran

Sources:

Original article reproduced from David Avery's 'D' Troop 1/11th ACR Web Site which is highly recommended.

Additional comments (inset from main text) from Tom Currie, D Coy, 1st Sqdn, 11th ACR, RVN '68 - '69

Jim Fitzpatrick, D Coy, 1st Sqdn, 11th ACR, RVN '64 - '67

Armor of the Vietnam War; (1) Allied Forces, Michael Green & Peter Sarson, Concord Publications Ltd

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United States Armour



M-551 Sheridan

Developed in 1959 as a replacement for the M41 light tank and the airborne M56 Scorpion self propelled antitank gun, the Sheridan was intended as an airborne reconnaissance and assault vehicle.

Standard Vehicle Data

Type: Light Tank
Crew: 4 (Commander, Driver, Gunner and Loader)
Range: 600 km
Max Speed: 70 km/h (5.8 km/h in water)
Armour:
Fording: Amphibious
Obstacle: Capable of traversing obstacles up to 0.8 meters high
Crossing: Capable of crossing gaps of up to 2.5 meters

Armament:

- 1 x 152mm Gun/Missile Launcher
- 1 x 7.62mm co-axial MG
- 1 x .50 cal on commander's cupola.
- 8 Smoke Dischargers



In 1968 plans were approved to equip two divisional cavalry squadrons, the 1st and 3rd Squadrons of the 4th Cavalry with the new tank Neither unit actually wanted the Sheridan because it was suspected of being too vulnerable to mines and RPG's.

In a last minute change of plan, the new M551's were sent to the 1st Squadron, 11th Armored Cavalry Regiment and the 3rd Squadron, 4th Cavalry with 'B' Troop 3/4 Cavalry receiving their first Sheridan's in late January 1969.

It was subsequently decided to replace the M48A3 Patton's in cavalry platoons of divisional cavalry squadrons with the M551. Some cavalry platoons of regimental cavalry squadrons were actually using M113 ACAV's as substitutes for the M48A3's in their cavalry platoons and it was intended that the M551 should replace these also. By 1970 almost every cavalry unit in RVN was equipped with the Sheridan.



The M551 suffered from many defects (see below). One particular problem concerned the vehicle's all electric fire-control system which malfunctioned continuously in the rainy season, and despite pre-deployment tests which highlighted these problems - in particular the combustible 152-mm ammunition - and the general unsuitability of the vehicle for the hot and humid Vietnamese environment, the Army sent the M551 anyway. According to Jerry Headley the picture above of 'Hard Core 7',

"... the track belongs to B Troop, 2d Platoon. It was taken in the Ho Bo Woods in Feb '69. I was the Troop Commander at the time. The photo was taken by Army photographers. They also took films. The purpose was to send them to Congress. They were investigating complaints about the Sheridan, i.e., too noisy, gave off a plume of white smoke when moving, etc. Notice the "RPG Screen" in front of the driver. The crew made this themselves as additional protection from RPGs."



The Sheridan was armed with a 152-mm main gun (vehicles dispatched to Vietnam had the guidance system for their ATGW missiles removed) which fired a selection of combustible-case antitank rounds and also the 'beehive' round. Other armament consisted of a co-axial 7.62-mm MG and cupola mounted .50-cal M2 HB for use by the tank commander. When the M551 first appeared in RVN they did not have any armor protection for the tank commander's .50-cal MG. Many crews utilised the armored gun shields from M113's to provide some protection to the tank commander. Eventually, a production armor kit was developed, known as the 'bird cage', to provide all-around protection for the commander.



Whilst the Sheridan had a steel turret it only had a thin aluminum hull which was vulnerable to RPG's. In particular the M551 had a thin underbelly which, unlike the heavy steel belly armor of the M48A3, was very susceptible to damage from mines. As a result, many crews refused to ride inside the vehicle (just as they did with the M113). The Army attempted to remedy this by retro-fitting steel belly armor. In

contrast to the M48A3 which could absorb a lot of hits and still continue to fight, in combat the Sheridan was prone to catastrophic explosions (due in part to the highly combustible 152-mm ammunition carried).

Jim Fitzpatrick (11th ACR, '64 - '67) wrote,

> "as for the M551 Sheridan tank, they were death traps and most of the troopers I know who rode them hated them. They had explosive shell casings that sometimes exploded when the 551 hit a mine and when RPG and 51 cal. ammo had pierced the thin armor plate of this track. The tanks (M48A3) of the Cav troops were replaced by ACAVs when we went to Nam, only the tank companies of the 11th Cav kept the M48A3s. I personally am glad I never had to ride the 551, although I TC'd an ACAV through an ambush at Suoi Cat on Dec 2 1966."

DESIGN DEFECTS

When asked to highlight some of the problems experienced with the M551, Stanley Homiski, Commo Sergeant with B Troop, 3/4 Cav replied,

"... I can tell you one thing about the Sheridan is that at first we had a lot of radio problems with them. That was because when that 152 MM main gun fired it would lift the tank up off the ground about two feet the second road wheel back and the action of the tank coming back into firing position would severely damage the radio mount. It wasn't shock mounted properly. This was in addition to all the other problems we had with it."

"... electrical problems with the Sheridan happened more during the wet season... we found that due to temperature changes between the daytime (100+ degrees F) and nighttime temperatures (around 70 degrees F) that severe condensation problems occurred. There would be small droplets of water dripping in the turret usually around the area that the radio was installed. At one point we resorted to covering the radio with a poncho to keep out the moisture but this in turn caused problems with the radio starting to overheat due to lack of ventilation."

"... I don't know if you are aware that one of the major problems with it in Vietnam was one of engine failure, the vents would become plugged with jungle vegetation and the damn engine would fail, one of the other things was the main gun ammo - it didn't have a brass shell casing, the whole shell was consumable and you had to keep asbestos covers over the ammo up until you loaded it into the breech."



Sources:

Jerry Headley, Commanding Officer 'B' Troop 3/4 Cavalry, RVN 1968 - 1969.

Stanley 'Ski' Homiski, Commo Sergeant 'B' Troop 3/4 Cavalry, RVN 1968-1969

Jim Fitzpatrick, TC, D Coy, 1st Sqdn, 11th ACR, RVN '64 - '67

I owe a special thank you to these two men who have been extremely patient with my constant questions and also more than generous with their interesting and illuminating replies. Thank you.

Armor of the Vietnam War; (1) Allied Forces, Michael Green & Peter Sarson, Concord Publications Ltd

Armor in Vietnam; A Pictorial History, Jim Mesko, Squadron/Signal Publications Inc.

Armored Cavalry



Troop Modified Table of Organisation 17-107E

The Armored Cavalry Troop consisted of a Troop HQ (HQ Section, Ground Surveillance Section and Maintenance Section) as well as three Armored Cavalry Platoons.

I have also provided a summary of Personnel and Equipment as well as some Notes regarding the differences between the 'official' and 'unofficial' MTOE's.

If you have any comments or suggestions regarding the material presented here then please contact me. In particular if you served with an Armored Cavalry unit whose MTOE was different from this or different from that given under Composition of US Armored Cavalry Troop then I would like to hear from you so that alternative information can be provided.



1 - Utility Truck 1/4-ton 4x4
1 x Captain (Commander), Pistol
1 x E-3 (Driver), Pistol, M-79
1 x AN/VRC-47
1 x AN/GRA-39

2 - M113 ACAV

1 x E-6 (Vehicle Commander), Pistol
1 x E-4 (Driver), Rifle
1 x AN/VRC-12

3 - Cargo Truck 2 1/2-ton, 6x6

1 x E-6 (Supply Sergeant), Rifle
1 x E-4 (Unit Supply Clerk), Rifle
1 x 1 1/2-ton Cargo Trailer

4 - Utility Truck 1/4-ton 4x4

1 x E-5 (Liason Sergeant), Rifle
1 x E-4 (Liason Agent), Rifle
1 x AN/VRC-46

5 - M113

1 x E-8 (First Sergeant), Pistol
1 x E-5 (Communications Chief), Pistol
1 x E-5 (Troop Clerk), Rifle
2 x E-4 (Radio Operator), Rifle
1 x E-4 (Driver), Rifle
1 x AN/VRC-47
1 x AN/GRC-106

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1 - M113
1 x E-6 (Section Leader), Pistol
1 x E-5 (Senior Radar Operator), Pistol
1 x E-4 (Driver, Radar Operator), Pistol, M-79
1 x AN/PPS-4
1 x AN/GRC-125

2 - M113
1 x E-5 (Senior Radar Operator), Pistol
1 x E-4 (Driver, Radar Operator), Pistol, M-79
1 x AN/PPS-4
1 x AN/GRC-125

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1 - Utility Truck 1/4-ton 4x4
1 x Lieutenant (Executive Officer), Pistol
1 x E-4 (Driver, Field radio Mechanic), Rifle
1 x E-3 (General Vehicle Repairman Apprentice), Rifle
1 x 1/4-ton Cargo Trailer
1 x AN/VRC-47

2 - Cargo Truck 2 1/2-ton, 6x6
1 x E-6 (Motor Sergeant), Pistol
1 x E-5 (Senior Field Radio Mechanic), Pistol
2 x E-4 (General Vehicle Repairman), Rifle
1 x E-4 (Turret Artillery Mechanic), Pistol
1 x E-3 (Driver, General Vehicle Repairman Apprentice), Rifle

3 - M113

1 x E-5 (Senior Vehicle Repairman), Pistol
2 x E-4 (General Vehicle Repairman), Rifle
1 x E-4 (Driver, General Vehicle Repairman), Rifle
1 x E-4 (Armorer, Turret Artillery Mechanic), Pistol
1 x E-4 (Equipment Replacement Clerk), Rifle
1 x E-4 (Repair Parts), Rifle
1 x E-3 (General Vehicle Repairman Apprentice), Rifle
1 x AN/VRC-53

4 - M88 Recovery Vehicle

1 x E-5 (Senior Recovery Mechanic), Pistol, SMG
1 x E-5 (Senior Vehicle Repairman), Pistol
1 x E-4 (General Vehicle Repairman), Rifle
1 x E-4 (Driver, Recovery Mechanic), Pistol, M-79
1 x AN/VRC-46

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1 - M113 ACAV

1 x Lieutenant (Platoon Leader), Pistol
1 x E-4 (Driver), Rifle
1 x E-3 (Observer), Pistol, M-79
1 x E-3 (Observer), Rifle
1 x AN/VRC-12
1 x AN/GRA-39

2 - M113 ACAV

1 x E-6 (Squad Leader), Rifle
1 x E-4 (Driver), Rifle
1 x E-3 (Observer), Pistol, M-79
1 x E-3 (Observer), Rifle
1 x AN/VRC-46

3 - M113 ACAV

1 x E-5 (Assistant Squad Leader), Rifle
1 x E-4 (Driver), Rifle
1 x E-3 (Observer), Pistol, M-79
1 x E-3 (Observer), Rifle
1 x AN/GRC-125

4 - M113 ACAV

1 x E-6 (Section Leader), Rifle
1 x E-4 (Driver), Rifle
1 x E-3 (Observer), Pistol, M-79
1 x E-3 (Observer), Rifle
1 x AN/VRC-46

5 - M113 ACAV

1 x E-5 (Assistant squad Leader), Rifle
1 x E-4 (Driver), Rifle
1 x E-3 (Observer), Pistol, M-79
1 x E-3 (Observer), Rifle
1 x AN/GRC-125

6 - M113 ACAV

1 x E-6 (Squad Leader), Rifle
2 x E-5 (Team Leader), Rifle
2 x E-4 (Auto Rifleman), Auto-Rifle
2 x E-4 (Grenadier), Pistol, M-79
1 x E-4 (Driver), Rifle
3 x E-3 (Rifleman), Rifle
1 x 7.62-mm MG
1 x AN/VRC-53
1 x AN/PRC-25

7 - M48A3

1 E-7 (Platoon Sergeant, Tank Commander), Pistol
1 x E-5 (Gunner), Pistol
1 x E-5 (Driver), Pistol, SMG
1 x E-3 (Loader), Pistol, M-79
1 x AN/VRC-12

8 - M48A3

1 E-6 (Tank Commander), Pistol
1 x E-5 (Gunner), Pistol
1 x E-5 (Driver), Pistol, SMG
1 x E-3 (Loader), Pistol, M-79
1 x AN/VRC-53

9 - M48A3

1 E-6 (Tank Commander), Pistol
1 x E-5 (Gunner), Pistol
1 x E-5 (Driver), Pistol, SMG
1 x E-3 (Loader), Pistol, M-79
1 x AN/VRC-53

10 - M113
1 x E-5 (squad Leader), Rifle
1 x E-4 (Mortar Gunner), Pistol
1 x E-4 (Driver), Rifle
1 x E-3 (Assistant Mortar Gunner), Rifle
1 x E-3 (Ammo Bearer), Rifle
1 x AN/GRC-125

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SUMMARY OF PERSONNEL

TROOP (Total); 5 x Officers, 179 x Enlisted

TROOP HQ (Total); 2 x Officers, 38 x Enlisted
HQ SECTION; 2 x Officers, 13 x Enlisted
GROUND SURVEILLANCE SECTION; 5 x Enlisted
MAINTENANCE SECTION; 20 x Enlisted

PLATOON (x3)(Total); 1 x Officer, 47 x Enlisted
PLATOON HQ; 1 x Officer, 3 x Enlisted
SCOUT SECTION; 16 x Enlisted
RIFLE SQUAD; 11 x Enlisted
TANK SECTION; 12 x Enlisted
SUPPORT SQUAD; 5 x Enlisted

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SUMMARY OF EQUIPMENT

VEHICLES	
M113 ACAV	19
M113	7
M106	3
M48A3	9
M88	1
1/4-ton Cargo Trailer	1
1 1/2-ton Cargo Trailer	1

2 1/2-ton Cargo Truck, 6x6	2
1/4-ton Utility Truck	3
WEAPONS	
90-mm Tank Gun	9
M-79 40-mm Grenade Launcher	31
.50-cal MG HB	37
7.62-mm MG	50
4.2-inch Mortar	3
.45-cal Automatic Pistol	79
7.62-mm Semi-Automatic Rifle	93
7.62-mm Automatic Rifle with Bipod	6
.45-cal SMG	10

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NOTES

There are some very important differences between the official MTOE (presented above) as stated in Special Text 17-1-3 and the field organisation adopted in RVN. Principle among these are the use of ACAV's in all slots filled by an M113, except for that of the 4.2-inch Mortar Squad . The effect of this is to significantly increase the fire power of the Troop.

Also note that the MTOE refers to 7.62-mm rifles (both Automatic and Semi-Automatic). These were replaced with the 5.56mm M-16 and the 7.62-mm M-60 MG.

In the MTOE above, many of the positions are assigned a pistol as the only personal fire arm. In RVN all the members of the troop carried an M-16.

The 1/4-ton utility trucks were invariably base camp only vehicles. For instance, in the Troop Headquarters Section, the CO is officially assigned a 'jeep' but in reality only ever went to the field in an ACAV.

Please note that the MTOE above is significantly different from the organisation given under Composition of US Armored Cavalry Troop which is based on the organisation of 'B' Troop, 3/4 Cavalry 1968-1969 according to Jerry Headley and Stanley Homiski. In this sense, the organisation given by these Veterans is that of an actual Troop in the field where, in most instances, TO&E's were greatly modified in accordance with the requirements of active duty.



Sources:

US Army Armor Reference Data, Special Text 17-1-3, US Army Armor School, Fort Knox, Kentucky

Jerry Headley, Commanding Officer, Bravo Troop, 3/4 Cavalry (1968-1969)

Mr Stanley Homiski, Communications Sergeant, Bravo Troop, 3/4 Cavalry (1968-1969)

See also:

US Radio Communications and US Radio Equipment for an explanation of Troop radio communications.

Armored Cavalry

US Armored Cavalry

In preparing these pages I owe a debt of gratitude to two Veterans, Mr Jerry Headley, Commanding Officer, Bravo Troop, 3/4 Cavalry (1968-1969) and Mr Stanley Homiski, Communications Sergeant, Bravo Troop, 3/4 Cavalry (1968-1969), who, over a period of several weeks, corresponded with me regarding the organisational details of a Divisional Armored Cavalry Troop. I sent them literally dozens of emails to which I received prompt and detailed replies. Without their help and encouragement this section would have been neither as complete or as accurate as I believe it now is.

Bearing in mind that their recollections are based on service which took place 30 years ago at the time of writing, it is likely that there are some errors and omissions. I would ask that if you have details which you wish to add to this page or you believe it contains information which is incorrect, then please contact me



The main vehicles of the Armored Cavalry: the M551 Sheridan and the M113 ACAV

Much of the contents on the pages dealing with Armored Cavalry are based on the organisation of Bravo Troop, 3/4 Cavalry 1968-1969 and it has been constructed from the notes provided to me by Jerry and Ski.

I am enormously indebted to both men for their patience and generosity. Thank you gentlemen.

It should be noted that there are considerable differences between the organisation of Divisional Armored Cavalry and that of the 11th Armored Cavalry Regiment. These differences will be detailed in the following pages.



See also:

Recollections of a 1/4 Cav Veteran - John Sandri, Veteran of 1/4 Cav

Jerry Headley Maj. (Ret'd) is President of the 3/4 Cavalry Association

3/4 Cavalry was the reconnaissance squadron of the 25th Infantry Division

Armored Cavalry Platoon - the platoon for use in wargames using 15mm models

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159th ASHB

101st Airborne Division

Submitted by Charles Lee

159th ASHB - Battalion Headquarters, Phu Bai, South Vietnam.

The 159th Assault Support Helicopter Battalion was formed in country to be command and control for the medium and heavy lift helicopter units in General Support of the division. The army concept during this time was that the division has assigned aircraft as internal assets, i.e., lift capabilities for combat troops. In addition there was gunship units which were in support of the aviation assets, and could also support ground troops if needed.



Hueys were the main stay for moving troops, administratively and for combat missions. To assist in large administrative troop movements and to resupply the artillery, engineers and other units needing large heavy items moved, the 159th was established with 3 companies of Chinooks and a company (-) of CH-54 or Cranes. The CH-54 company was actually a platoon of 4 aircraft. the 478th Heavy lift company assigned to the 159th ASHB was based at Da Nang, RVN. It was commanded by a Major, had 4 aircraft and 8 - 10 commissioned and warrants assigned as pilots. It maintained a company headquarters and supply room as did all the other full size aviation companies. Their mission was general support of the entire division, as was the Chinooks assigned to the battalion. Because of the scarcity of aircraft, and the age of the pilots, these were the "Old Men" of aviation. Seldom seen, awe inspiring, even to other pilots. Due to the limitations of the Chinook during the late 1960's, C - engines limiting the Chinook to approximately 10,000 lbs of lift, the crane or CH-54 was the "Heavy" lift unit and used for Mini bulldozers, 155mm howitzer moves, recovery of Chinooks, etc. Later with the full "C" engines

mounted on the Chinooks, the Chinook could outlift the CH-54 and caused its demise. Today, the D Model Chinook will lift more than the CH-54 could with a reduced amount of fuel.

The Battalion headquarters was organized in 1967 - 1968 to command and control the medium and heavy lift units. The 478th was assigned from the 1st Cav. Division, A and B company of Chinooks were formed from units already in country. (B company may have formed stateside and joined as a completed unit, this writer has no specific information on the formation of A and B companies).

The Battalion Headquarters consisted of the Battalion Commander (LTC), XO (Major, usually waiting on rotation stateside or to command a company), Personnel S-1 (CPT), Security (S-2), Operations and Liason (S-3), and Supply / Logistics (S-4), Assigned to Supply was a Non Aviation Warrant as the property book officer. He was the ONLY non aviator assigned to the unit.

In addition to the primary staff, listed above, the Battalion level was assigned a Headquarters and Headquarters company. This was commanded by a captain, also an aviator. This unit housed all the personnel and records for the command element, clerks, drivers, staff officers, etc. This unit also provided vehicle support for all the staff sections, jeeps, maintenance, etc.

During this period, the battalion was also authorized two OH - 6 helicopters for command and control of aviation operations. These aircraft had a 2 man maintenance unit assigned to the Headquarters company. Minor maintenance was allowed at this level with all major support coming from one of the subordinate units or from the 5th Transportation Group assigned to the 101st Division. 5th Transportation Group did up to Divisional level maintenance. The Transition into the OH - 6, later the OH - 58 was accomplished at unit level by the unit training officer. One of the staff officers had the additional duty of Instructor Pilot for transitions into the OH-6.

All pilots were qualified in the Chinook, prior to being assigned to the battalion or one of its companies.

The Headquarters company was not authorized a mess facility for the unit and command. In our case, we were within walking distance to "C" company and used a combined mess facility to feed Headquarters and C company.

During this time, the S-2 at the 159th had the responsibility to coordinate with all units in the NW corner of the Support Base, 1 Chinook Company, two Huey Lift Companies, 1 signal Battalion, and run a roster for perimeter support and security. Members of all units were assigned to guard duty on the perimeter of the compound. Our section was approximately 3,000 meters. It surrounded all the units pulling guard duty, plus the ammunition supply point for the division. Inside the base, each unit would be responsible for having its own internal security patrols, as well as reactionary forces that could be gathered and sent to the base perimeter if needed as reinforcements.

Added duty for the troops assigned to each unit might very well mean a crew chief or flight engineer might go 2 - 3 days without sleep, fly all day, guard duty at night, fly the next day and pull maintenance on the aircraft as needed.

US ARMY RANK INSIGNIA

CLARIFICATION

If, like myself, you find the rank structure of the US Army a little bit confusing then hopefully what follows will clear up some, if not all, of that confusion. I am indebted to Delta Mike 2 for sending me this information.

Delta Mike 2 wrote;

In the US Army, the Rank Staff Sergeant is the same slot as that held by a British Corporal, and the Rank of Sergeant holds down the same slot as a British Lance Corporal. Corporals were mainly used in the Artillery branch as a junior NCO, or for a Sergeant of same grade reduced to pay grade E4 as a Corporal instead of SP4. A British Staff Sergeant is the same as a US Army Sergeant First Class, or maybe a Master Sergeant. Your Company Sergeant Major (a Warrant Officer) is the Same slot as a US Army First Sergeant. The British RSM (another warrant officer) is the same as a US Army Sergeant Major. All of the US Army ranks are NCOs. US Army Warrant Officers are a special rank of officer, that bridges the gap between NCOs and Commissioned Officers.

The US Marines use Commissioned Officers, Warrant Officers, and NCOs , too. The difference is that in the Marines, a Lance Corporal IS AN NCO! Not a senior private as in the Army. And Corporals and Sergeants are Junior NCOs. Staff Sergeants , Gunnery Sergeants, Master Sergeants, First Sergeants and Sergeant Majors are all "Staff NCOs".

The Way we use rank and pay grade is as follows;

E-1 Private of the lowest form
E-2 Private of a superior pay grade but still a private! Now called PFC.
E-3 Private First Class! Still just a private! It used to require a promotion board to achieve this rank. Now called a Lance Corporal
E-3.but still just a private except for title.
E-4 Specialist 4th Class (a pay grade) with the status of a senior private OR Corporal E-4 which is an actual junior NCO.
E-5 Specialist 5th Class (no private duties assigned) or Sergeant E-5, a true junior NCO.

E-6 Specialist 6th Class OR Staff Sergeant E-6 (basic squad leader or tank commander rank). This is the start of Army Staff NCOs . Senior NCOs for various support functions at company and battalion levels.

E-7 Specialist 7th Class OR Sergeant First Class (Platoon Sergeants). Also senior NCOs at

company and battalion levels.
E-8 Spec 8 OR Master SergeantE-8 (a Staff NCO position) OR First Sergeant E-8. the senior enlisted man in any company.
E-9 Spec 9 OR Sergeant Major E-9, the top NCO in any battalion sized or larger formation.

Except for SP4, all other SP grades are for technicians and not NCOs. To add to the strangeness, in the '60s the Army invented the pay grades E-8 and E-9, so there were dummies who held the ranks of SSG E-5, SFC E-6, MSG or ISG E-7, until these old soldiers were either promoted and retired or retired at their current pay grade.

ENLISTED RANKS



Private
E2



Private First Class
E3



Specialist
E4



Corporal
E4



Sergeant
E5



Staff Sergeant
E6



Sergeant First Class
E7



First Sergeant
E8



Master Sergeant
E8



Sergeant Major
E9



Command Sgt. Major
E9

WARRANT OFFICERS (COLLAR TABS)



Warrant Officer 1
W1



Chief Warrant Officer 2
W2



Chief Warrant Officer 3
W3



Chief Warrant Officer 4
W4



Master Warrant Officer 5
W5

COMMISSIONED RANKS (COLLAR TABS)



2nd Lieutenant
O1



1st Lieutenant
O2



Captain
O3



Major
O4



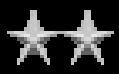
Lieutenant Colonel
O5



Colonal
O6



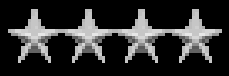
Brigadier General
O7



Major General
O8



Lieutenant General
O9



General
O10

US Helicopters



CH-37 Mojave Medium Cargo Helicopter

Initially procured in 1956, the Sikorsky (model S-56) CH-37A/CH-37B, with a crew of three, was a large medium lift transport helicopter. Clam shell doors in the nose provided access to a cargo compartment that could accommodate two jeeps or a 105mm howitzer. The Mojave could carry 26 troops or 24 litters in the MedEvac role. The CH-37 had a single five-bladed main rotor and a metal four-bladed tail rotor. The CH-37 was powered by two Pratt & Whitney R-2800-54 2100 hp piston engines and had a speed of 131 mph (114 knots). It was used for aircraft recovery in Vietnam.



CH-37 Mojave attempting to lift downed
CH-21Shawnee from paddy



Back to US Helicopters

US Helicopters



CH-54 Tarhe 'Skycrane' Heavy Lift Helicopter



CH-54 Tarhe 'Skycrane'

Length : 77' (23m)
Weight : 20,650lbs (9290kgs)
Payload : 20,000lbs (9000kgs)
Cruising Speed : 126mph (201kph)
Range : 230 miles (369km)

The Sikorsky (model S-64A) CH-54A/CH54B "Skycrane", with a crew of three, was designed for heavy internal or external lift of heavy bulk loads. It had a rear-facing pilot's seat to provide a clear view of the cargo. A hoist was provided to allow pickups and deliveries without landing. A lightweight van (universal pod) could be attached to the fuselage for use as a mobile command post, maintenance and repair shop, or as a Mobile Army Surgical Hospital (MASH). The field hospital was equipped with X-Ray, lab equipment, and blood bank. It was well lighted and air conditioned so surgery could be performed wherever it was needed. A "people pod" was designed to carry 45 combat-ready troops. The " Skycrane" served with the 1st Cavalry Division in Vietnam. The CH-54 was used in aircraft recovery operations when loads were too heavy for the CH-47 Chinook. It was also useful for offloading during ship-to-shore operations. The CH-54 could also be rigged to drop the large 10,000 lb. ‘daisy-cutter’cratering bomb used to create landing zones ("LZs") in dense jungle. The T-54A Tahre had a six-bladed main rotor, four-bladed metal tail rotor, was powered by two Pratt & Whitney T73 -P-1 4500 shp turbine engines, and had a speed of 128 mph (111 knots). The CH-54B was powered by two Pratt & Whitney T73-P-700 4800 sph turbine engines.



CH-54 "Skycrane" recovering Chinook

It was the proven value of the CH-47 and CH-54 in Vietnam that prompted the USA to order a much larger HLH (heavy-lift helicopter), the Boeing Vertol YCH-61A, with payload of 45,000 lb (20412 kg) in the initial version. As soon as the Vietnam involvement was over this seemingly important machine was cancelled.



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US Helicopters



OH-13 Sioux Light Observation Helicopter

The Bell (model 47) H-13 Sioux, with a crew of three, was one of the most popular light utility helicopters ever built. The Bell model 47 was produced continuously from 1946 to 1973. The U. S. Army Air Force procured it's first YR-13 (model 47B) in December 1946. The OH-13 had a cruising speed of 70 mph (60 knots).



OH-13H Sioux light observation helicopter

An important Bell innovation during the early development of the helicopter was the use of short weighted gyrostabilizer bar at 90° to, and beneath, the main rotor. The gyrostabilizer bar, with streamlined counterweights at both tips, was linked to the rotor in such a way that it determined the plane of the rotor, and maintained it generally in the horizontal, regardless of the angle of the mast. The stabilizer bar, connected to the cyclic pitch control, acted as a hinged flywheel utlizing gyroscopic inertia to keep the teetering rotor blades in-plane and independent of fuselage movement due to gusts of wind, providing stability during flight. Arthur Young, Bell's designer, ensured the system had high enough inertia so sufficient energy would be stored in the rotor to permit safe autorotation in event of engine failure, an important safety consideration.

The H-13 was used for observation, reconnaissance and in the MedEvac role as a litter carrier in Korea, following initial fielding in 1951. In the MedEvac role a cacoon-like stretcher pod could be mounted on each skid. A distinctive feature of the Bell (model 47D) H-13D/H-13E was the now familiar "Goldfish bowl" plexiglass canopy, featured in the TV-series MASH (Mobile Army Surgical Hospital). The H-13 earned the nickname "Angel of Mercy" for evacuating some 18,000 United Nation's casualties during the Korean war.

The OH-13 Sioux also saw service during the early days of the Vietnam war before the fielding of the OH-6A Cayuse in early 1968. The Sioux had a single, two-bladed main rotor and a metal two-bladed tail rotor. The H-13 had a speed of 106 mph (92 knots). The Sioux could be armed with twin M37C .30 Cal. machine guns on the XM1 armament subsystem or twin M60C 7.62mm machine guns on the M2 armament subsystem.

The XH-13F, powered by a Continental-Turbomeca XT51 Artouste I 220 hp turboshaft engine, was Bell Helicopter's first turbine powered aircraft.

Bell (model 47) powerplants were:

Model	Powerplant
Model 47, 47A, 47B, 47B-3, 47D	Franklin 178 hp
Model 47D-1, 47G, 47H	Franklin 200 hp
Model 47G-2, 47J, 47K	Lycoming 250 hp
Model 47G-3	Lycoming 225 hp turbo-supercharged
Model 47G-2A, 47G-3B, 47G-5	Lycoming TVO 435 265 shp turbo-supercharged
Model 47J-2	Lycoming 305 hp

An experimental armed Bell (model 207) Sioux Scout (1963), based on the a Bell (model 47G-3B 1) body and engine, with a newly developed gun ship front end, aided in the development of the AH- I G "Huey" Cobra attack helicopter.

The Army's enduring relationship with the Bell Model 47 light helicopter began in December 1946, when the USAAF procured a single example for operational evaluation by the Army ground forces. This essentially standard commercial Model 47A was designated YR-13, and was soon followed into service by seventeen identical aircraft. The YR-13 was powered by a single 175 hp Franklin 0-335-1 piston engine, offered accommodation for a pilot and one passenger, and featured wheeled landing gear and a fabric-covered tailboom. The R-13's performance was judged to be exceptional, and the type subsequently became the first helicopter produced on a large-scale to enter Army service following the 1947 Army-USAF split. Between 1946 and 1970 the Army procured a total of 2197 Sioux of the following variants:

YR-13A: Three standard YR-13 machines (serials 46-228 to -230) of the first evaluation batch modified for cold weather trials in Alaska in early 1947. The 'winterizing' process included the installation of improved cabin heaters, cabin insulation, some additional instrumentation, and minor modifications to the engine, transmission, and dynamic components. In 1948 all three aircraft were redesignated YH-1 3A in accordance with the services' joint adoption of the H-for-helicopter designation prefix.



One of the Army's two H-13K research machines hovers above its Fort Rucker pad in late 1961.

H-13B: Designation allocated to the sixty-five production aircraft (48796 to -860) procured by the Army in 1948. This version was derived from the commercial Model 47D and was powered by a 200 hp Franklin 0-335-3 engine, had the now-distinctive plastic 'bubble' canopy, and incorporated minor detail changes. All but two of these aircraft were delivered prior to the outbreak of the Korean War, and many examples of this and other variants ultimately participated in that conflict.

YH-13C: Designation given to a single H-13B withdrawn from normal service in 1950 for use as an engineering testbed. The machine was fitted with the now-familiar metal skid-type landing gear in place of the then-usual wheeled undercarriage, its rear fuselage covering was removed, and it was experimentally fitted with various types of external stretcher-carrying devices for evaluation in the casualty evacuation role.

H-13C: A total of sixteen H-13B aircraft modified in 1952 for service as air ambulances. These helicopters incorporated the skid landing gear and open-lattice tailboom of the YH-13C, and were capable of carrying two stretchers on external racks fitted to the tops of the skids.

H-13D: This variant was based on the commercial Model 47D-1, and was powered by the 220 hp Franklin 0-335-5 engine. The aircraft was outwardly similar to the H-13C, with the open-lattice tailboom, skid landing gear, and external stretcher attachment points, though not all of the eighty-seven examples procured (51-2446 through -2531, and 51-16642) were used in the air ambulance role. Those examples remaining in the Army inventory in 1962 were redesignated OH-13D.

H-13E: Designation given to 490 production aircraft (51-13742 to -14231) essentially identical to the H-

13D but with dual flight controls and a third seat. Redesignated OH-13E in 1962.

XH-13F: In 1955 a single H-13D was experimentally fitted with a 240 shp Continental (Turbomeca) XT51-T-3 shaft turbine engine. This modification was not adopted for operational use and the aircraft was eventually returned to H-13D standard.

H-13G: In 1953 Bell introduced the improved commercial Model 47G, which featured a small tailboom-mounted elevator for improved stability, greater internal fuel tankage, dual flight controls, and accommodation for a third person. The Army took delivery of the first of 265 examples in 1954. Those remaining in service in 1962 were redesignated OH-13G.

H-13H: This variant was based on the commercial Model 47G-2 and had an uprated 250 hp Lycoming VO-435 piston engine, all-metal rotor blades, dual flight controls, and external stretcher attachment points. The Army acquired at least 453 examples of this variant beginning in 1956. Redesignated OH-13H in 1962.

H-13K: Designation given to two production H-13H machines modified to commercial Model 47G-3 standard through the installation of 225 hp Franklin 6VS-0-335 engines, longer rotor blades, and other detail changes. These helicopters were optimized for high altitude operation and were evaluated at Fort Rucker, Alabama, in 1960 and 1961. Both were redesignated OH-13K in 1962.

Though modified for high altitude flight these aircraft retained the pod and open lattice boom layout, bubble canopy, streamlined fuel tanks, and simple skid landing gear that characterized the entire H-13 series. Both H-13Ks were redesignated OH-13K in 1962.

OH-13S: In 1963 the Army accepted the first of an eventual 265 examples of this variant, which was derived from the commercial Model 47G-3B. The OH-13S was some sixteen inches longer than the standard -H model Sioux and was powered by a turbo-supercharged 260 hp TVO-435-25 piston engine. The OH-13S could accommodate two persons in addition to the pilot, and had a gross weight of 2855 pounds.

TH-13T: Designation allocated to the last H-13 variant acquired by the Army, a dual-control instrument flight trainer. A total of 411 examples was delivered beginning in 1963. Generally similar to the commercial Model 47G-3B-2, the TH-13T was powered by a 270 hp Lycoming TVO-435-D1 B engine and accommodated one student in addition to the instructor pilot.



Back to US Helicopters

US Helicopters



OH-23 Raven Light Observation Helicopter

In 1948 the young aircraft designer Stanley Hiller developed the commercial Model 360 light helicopter as a test bed for his innovative 'Rotor-Matic' control system. This system, which used a hanging control column and small servo rotors mounted diagonally below the main rotor, provided excellent directional stability and for the first time allowed 'hands-off' helicopter flight. The Model 360 was refined into the Hiller commercial UH12A (a company, not military, designation), a three-place, open cockpit craft powered by a 200 hp Franklin engine. In the fall of 1950 the Army purchased a single UH-12A for evaluation and allocated the machine the designation YH-23A. This aircraft (serial 50-1254) differed from the standard commercial UH-12A in having only two seats, and was powered by a 178 hp Franklin engine.

The 4-place Hiller H-23 was based on the U. S. Navy UH-12, which was first flown in 1948. The H-23 Raven performed as a utility, observation, and MedEvac helicopter during the Korean war. Model numbers ranged A through D, F and G. The H-23A had a sloping front windshield. The H-23B was used as a primary helicopter trainer. Beginning with the UH-23C, all later models featured the "Goldfish bowl" canopy similar to the Bell model 47, and also featured the Bell-designed short weighted gyrostabilizer bar. The OH-23 had a speed of 97 mph (84 knots). The Raven had a two-bladed main rotor, a metal two-bladed tail rotor. Both the OH-23B and the OH-23C were powered by one 0-335-5D engine.



OH-23 Raven

The OH-23D was a purely military version with a 0-435-23C engine and a more reliable transmission. Most OH-23Ds were replaced by the OH-23G, the most common version of the Raven, with a more powerful Lycoming 0-540-9A six-cylinder, horizontally opposed, air-cooled 305 hp engine. The OH-23G could seat four. The MedEvac version carried two external skid-mounted litters or pods. The Raven saw service as a scout during the early part of the Vietnam war before being replaced by the OH-6A Cayuse in early 1968. The Raven could be armed with twin M37C .30 Cal. machine guns on the XM1 armament subsystem or twin M60C 7.62mm machine guns on the M2 armament subsystem. The XM76 sighting system was used for sighting the guns.

The type's successful performance during the evaluation led the Army to order one hundred production examples in October 1950, the largest single helicopter order placed by the Army up to that time. The nearly 1800 Ravens ultimately procured by the Arm were of the following variants:

H-23A: First production model, one hundred of which were delivered beginning in early 1951. The H-23A was essentially identical to the YH-23A, with the same powerplant, seating for two, and skid-type landing gear. Most H-23As were delivered to the Army in air ambulance configuration with one totally enclosed exterior stretcher pannier mounted on either side of the cabin. This variant saw extensive service during the Korean War in both the casualty evacuation and general utility roles.

H-23B: Generally similar to the H-23A, the -B model Raven differed from its predecessor in having a 200 hp Franklin (or, in some later model machines, a 250 hp Lycoming) engine, a combination skid and wheel landing gear, and various detail changes. The H-23B could also be fitted with stretcher panniers, though the majority of the 273 machines procured by the Army between 1952 and 1956 were not so equipped. More than half of all -B model aircraft were used as basic helicopter flight trainers at Fort Wolters, Texas. All surviving examples were redesignated OH-23B in 1962.

H-23C: Military version of the commercial Model UH-12C. This variant differed from the H-23B in

having seating for three under a one-piece plexiglass canopy, as well as in having metal, rather than wooden, rotor blades. The Army purchased 145 examples beginning in 1956, and those remaining in service in 1962 were redesignated OH-23C.

H-23D: This Raven variant differed from earlier versions in having a completely new rotor and transmission system, as well as numerous design changes intended to increase by some sixty percent the number of hours that could be flown between airframe overhauls. In addition, the H-23D was powered by a 250 hp Lycoming engine rather than the 200 hp Franklin powerplants used in the H-23B and early model H-23Cs. The Army procured a total of 438 -D model Ravens, delivery of which began in 1956. The H-23D, which was redesignated OH-23D in 1962, was the Army's primary basic helicopter trainer until supplanted in that role by the Hughes TH-55 (q.v.) in the mid1960s.

H-23F: A military version of the commercial Model 12E-4, the H-23F was a four-place aircraft ordered by the Army in early 1962 specifically for use in Central and South America with the Army element of the Inter-American Geodetic Survey. All twenty-two machines acquired by the Army were powered by the 305 hp Lycoming VO-540-AlB engine, had extended cabin sections, and sported inverted-vee tailplanes on the boom just forward of the tail rotor. Though ordered with the H-23F designation most of these aircraft were delivered as OH-23Fs.



OH-23G dual control trainer - 793 of which were acquired beginning in early 1962

H-23G: Essentially a three-place, dual control version of the H-23F, the G model was powered by the same 305 hp Lycoming engine. The Army procured 793 examples of this variant beginning in early 1962, and most were delivered with the Tri-Service designation OH-23G.

The H-23 Raven served the Army well in a variety of roles, and saw extensive combat duty in both Korea and Vietnam. The last H-23 in the regular Army, a -D model trainer (serial 57-3007) that had logged more than 100,000 accident-free miles at Fort Wolters, was retired from active duty and transferred to the Army Reserve in 1971.

US Helicopters

CH-34 Choctaw Cargo and Light Tactical Transport Helicopter

The Sikorsky (model S-58) CH-34A/CH-34C, essentially a lengthened and more powerful version of the Sikorsky (model S-55) H-19 Chickasaw cargo helicopter, could carry 12 to 16 troops. It could carry eight litters in the MedEvac role. The U. S. Marine Corps version, UH-34, was the primary Marine utility/assault helicopter used in Vietnam. The Sikorsky (model S-58) was licensed and built in Great Britain as the "Wessex". The Choctaw had a single four-bladed main rotor and a four-bladed metal tail rotor. The CH-34C was powered by a single Curtis-Wright R-1820-84C 1425 hp piston engine and had a speed of 123 mph (107 knots).



USMC UH-34D utility helicopter

Back to US Helicopters

US Helicopters



OH-58A Kiowa Light Observation Helicopter



OH-58A Kiowa with M27 armament subsystem

Length : 41' (12m)
Weight : 1,700lbs (765kg)
Payload : 1,300lbs (585kg)
Cruise Speed : 140mph (224kph)
Range : 388 miles (622km)

The Bell (model 206A) OH-58A Kiowa was procured by the U. S. Army when the Light Observation Helicopter (LOH) program was reopened for an additional buy in March 1968. The OH-58A was first deployed to Vietnam in early Autumn 1969. The Kiowa operated with air cavalry, attack helicopter, and field artillery units. The OH-58A could also be configured as a troop transport, MedEvac, or for external lift missions using an external hook. Kiowas were commonly paired with the AH-1G "Huey" Cobra. The Kiowa would fly low to draw enemy fire, "trolling" for fire, mark the target, and call in the Cobra to attack. The OH-58A Kiowa could be armed with the M27 armament subsystem, the port (left) side mounting M134 six-barrel 7.62mm "Minigun". However the vibration from the "minigun" was too great for the frame until it was rebuilt for the OH-58D Kiowa Warrior. The Kiowa could also be armed with the 40mm grenade launcher on the XM8 armament subsystem. The Kiowa had a two-bladed semi-rigid seesaw all metal main rotor and a two-bladed rigid delta hinge all metal tail rotor. The OH-58A was powered by a single Allison 250-C18 317 shp turbine engine and has a speed of 132 mph (115 knots).



The successor to the Hughes OH-6 "Cayuse" as the standard LOH (light observation helicopter), the Kiowa was built at so high a rate that no fewer than 2,200 were delivered to the US Army between May 1969 and the end of the American involvement in Vietnam. Kiowas were in action in Vietnam by September 1969, swiftly becoming the preferred type for executive, liaison and light transport missions as well as undertaking all forms of reconnaissance and target acquisition.



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Weapons & Equipment



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- NVA and VC Mortars
- NVA and VC Recoilless Rifles
- NVA and VC Rockets



Back to 'The War'

US Helicopters



Helicopter Weapons

M2 .50 cal. Machine Gun. The Browning M2 machine gun was one of the most commonly used weapons of World War II and Korea. It was used both as an infantry weapon and fixed or flexible aircraft gun on bombers and fighters. The XM296 machine gun, used on the OH-58D Kiowa Warrior, is the same as an M2, except it be fired remotely using an electrical solenoid. The M2 machine gun was also used on the XM32 and XM33 on the ACH-47A "Guns-A-Go-Go". The M2 is classified Standard A.

M2 .50 cal. Aircraft Gun. The Browning M2 aircraft gun was a. 50 cal. M2 machine gun that was modified for use as an aircraft gun that could be fired remotely by the pilot or gunner of a helicopter or light fixed-wing aircraft. The M2 machine gun had a rate of fire of 750-850 rpm. The M2 aircraft gun was classified Standard A.

M3.50 cal. Aircraft Gun. The Browning M3 aircraft gun was a.50 cal. M2 machine gun that was modified for use as an aircraft gun that could be fired remotely by the pilot or gunner of a helicopter or light fixed-wing aircraft. The M3 .50 cal. aircraft gun was used in the XM14 gun pod. The M3 machine gun had rate of fire of 1150-1250 rpm. The M3 aircraft gun was classified Standard A.

M24A1 20mm cannon. The M24A1 was a single-barrel fixed-mounted cannon used on the XM31 armament subsystem on the UH- 1B "Huey" and on the XM34 armament subsystem used on the ACH-47A armed/armored Chinook. The M24A1 had a firing rate of 650 rpm.

M37C Flexible .30 Cal. Machine Gun. The M37C was a light air-cooled .30 Cal. machine gun adapted for use on the XM1 /XM1E1 armament subsystem on the OH-13 Sioux and the OH-23 Raven.

M39A1/M39A2/M39A3 20mm Automatic Gun (1951-1975). The M39 series gun was developed by Springfield Armory from the German Mauser MG213 following World War II. The M39A3 was a revolver type aircraft 20mm gun developed for the U. S. Air Force. A five-chamber drum revolved about an axis parallel to the single gun bore. The gun fired from the six-o'clock position at a rate of 1,500 rpm. Four M39 cannon could be mounted in the nose of the North American F-86 Saber Jet in place of six .50 cal. machine guns. The M39 series guns were type classified both Standard A and Standard B (over 35,500 units were built).

M60C 7.62mm Flexible Machine Gun. The M60C was an aircraft version of the NATO Standard M60 machine gun. It was electrically controlled, hydraulic power charged, air-cooled, gas-operated, link-belt fed, with a firing rate of 500-650 rpm. It was used on the M2 armament subsystem on the OH-13 Sioux and the OH-23 Raven, and the M6 and M16 on the UH- 1B "Huey". The M60C was classified Standard A (over 563 units were built).



Twin M60C 7.62mm machine guns on M16 armament subsystem
(below the M60's and out of shot, is an XM157 7-tube rocket launcher)

M60D 7.62mm Flexible Machine Gun. The M60D machine gun is a standard NATO M60 machine gun that has been modified for use as a door gun with helicopter armament subsystems. The M60D is a flexible, gas-operated, air-cooled machine gun having a firing rate of 550 rpm. The M60D has spade grips, an aircraft ring-type sight and an improved ammunition feed system. A canvas ejection control bag attaches to the machine gun to catch ejected links and cartridge cases, preventing them from being ejected into the path of the rotor blades or turbine engine intake. The M60D was used on the M23, XM29, M59, and the Sagami mount on UH-1 series "Huey", the M24 and M41 on the CH-47 series Chinook, the XM32 and XM33 on the ACH-47A "Guns-A-Go-Go", and the M144 on the UH-60 series Black Hawk. The M60D was classffied Standard A.

M61/M61A1 Vulcan 20mm Aircraft Gun (1946-1975). The M61 20mm Vulcan is a U.S. Air Force externally powered, six-barrel, rotary-fire Gatling gun having a rate of fire of up to 7,200 rpm. The firing rate is selectable at 4,000 rpm or 6,000 rpm. The gun fires standard electrically primed 20mm ammunition. The M61 was classified Standard B (3,289 units were built). The M61A1 is hydraulically or ram-air driven, electrically controlled, and uses a linkless ammunition feed system. The M61A1 was type classified Standard A (over 4,118 units were built). The M61A1 was modified for use as a light three-barrel helicopter gun type classified as the M197 20mm automatic gun.

M75 40mm Grenade Launcher (1958-1975). The M75 was a cam-operated, electric motor driven, air-cooled, grenade launcher that had a rate of fire of 215-230 rpm. The M75 was used with the chin-mounting M5 armament subsystem used on the UH-1 series "Huey", the M28 used on the AH-1G "Huey" Cobra, and the ACH-47A "Guns-A-Go-Go" . The M75 was classified Standard A. The M75 was

replaced by the M129 grenade launcher (over 494 units were built).

M129 40mm Grenade Launcher (1963-1975). The M129 was a redesign of the M75 grenade launcher that featured a concentric cam that reduced recoil and improved mounting. The M129 had an improved rate of fire of up to 400 rpm. The M129 was used with the chin-mounting M28 series armament subsystem used on the AH-1G, MOD AH-1S, and Production AH-1S Cobras. The M129 was also used on the AH-56A Cheyenne on the XM51, and the UH-1H "Huey" on the XM94. The M129 was also used on the OH-6A Cayuse and OH-58 Kiowa light observation helicopters on the XM8. The M129 was classified Standard A (over 1,667 units were built).

M134 7.62mm Machine Gun (1962-1975). The M134 "minigun" (Air Force GAU-2B/A) is a high rate of fire machine gun that uses the Gatling principle. The firing rate is selectable at 2,000 rpm or 4,000 rpm. The M134 was used on the M21, M27 XM50, XM93, and Emerson MINITAT on the UH-1 "Huey", OH-6A Cayuse, and OH-58A Kiowa. It was also used on the M18, M28 series, and XM64 on the AH-1G, MOD AH-1S, and Production AH-1S "Huey" Cobra, and XM53 on the AH-56A Cheyenne. The M134 is also used on a wide variety of special operations aircraft. The M134 was classified Standard A (over 9,500 units were built).



M134 on M21 armament subsystem alongside
M158 seven-tube rocket launcher

XM140/XM140E3/XM140E5 30mm Automatic Gun (1965-1973). The XM140 was a Research and Development project for a 30mm motor driven gun for area/point targets, with a rate of fire of 405 rpm. The XM140 used a muzzle brake to reduce recoil. The XM140 was used on the XM30 on the UH-1B "Huey", the XM52 on the AH-56A Cheyenne, and the XM120 on the AH-1G "Huey" Cobra.

XM157A/XM157B Rocket Launcher (AMCOM). The XM157 was a seven-tube 2.75 inch rocket launcher. The XM119 rocket control system was used with the XM157 rocket launcher. The XM157 was an AMCOM modification of the Air Force LAU-32A/A. The XM157 saw limited production.

M158/M158A1 Rocket Launcher (AMCOM). The M158 was a seven-tube 2.75 inch rocket launcher. The M158 was an AMCOM design that was interchangeable with the XM157 on the M16 and M21

armament subsystems used on the UH-1 series "Huey" and the M156 mount of the AH-1G "Huey" Cobra. The M158 was used with the MK40 rocket motor. The MK40 was replaced by the newer MK66 rocket motor. The M158A1 launcher is not compatible with the MK66 rocket motor. The XM119 rocket control system was used with the M158 rocket launcher. The M158/M158A1 launchers were type classified Standard A.

XM159B/XM159C Rocket Launcher (AMCOM). The XM159 was a 19-tube 2.75 inch rocket launcher. The XM159 was an AMCOM modification of the Air Force LAU-3B/A. The XM159 rocket launcher was used on the ACH-47A Armed/Armored Chinook. The XM119 rocket control system was used with the XM159 rocket launcher. The XM159 saw limited production.

XM175 40mm Grenade Launcher. The XM175 was a Research and Development project for a 40mm grenade launcher for use on the M59 armament subsystem on the UH-1B/UH-1C "Huey".

M195 20mm Automatic Gun (1968-1972). The M195 was a short-barreled version of the sixbarrel M61A1 Vulcan 20mm aircraft gun for use on the M35 armament subsystem used on the AH-1G "Huey" Cobra. The M195 had a firing rate of 750-800 rpm. The M195 was type classified Standard B (over 377 units were built).

XM196 7.62mm Automatic Gun. The XM196 was a Research and Development project that consisted of an M134 7.62mm "minigun" with a housing modified by addition of an ejection sprocket adapted for use in the XM53 armament subsystem on AH-56A Cheyenne.

M197 20mm Automatic Gun. Development of the M197 began in 1968 by removing three barrels from a six-barreled M61A1 Vulcan 20mm aircraft gun. The M197 is a lightweight short-barreled three-barrel automatic gun used with the M97 series armament subsystems on the AH-1P/AH-1E/AH-1F Cobras. The M197 has a firing rate of 2000-3000 rpm. The M197 is type classified Standard A.

M200/M200A1 Rocket Launcher (AMCOM). The M200 was a 19-tube 2.75 inch rocket launcher used on the UH-1C "Huey", AH-1G "Huey" Cobra, and the AH-56A Cheyenne. The M200 was used with the MK40 rocket motor. The MK40 was replaced by the newer MK66 rocket motor. The M200 launcher is not compatible with the MK66 rocket motor. The XM119 rocket control system was used with the M200 rocket launcher. The M200 was reusable and repairable. The M200/M200A1 were both type classified Standard A.



M156 armament subsystem with M200 'Pabst Beer' 19-tube rocket launcher

M213 .50 Cal. Machine Gun (1968-1974). The M213 was a.50 Cal. machine gun for use with the M59 door pintle mount on the UH-ID/UH-1M "Huey". The M213 was a modified AN-M2 .50 Cal. machine gun. The M213 had a rate of fire of 750-800 rpm. The M213 was type classified Standard B (360 units were built).

XM214 5.56mm Machine Gun (1970-1971). The XM214 was a Research and Development project for a six-barrel 5.56mm (.223 Cal.) Gatling type "mini-minigun". The XM214 was similar to the M134 "minigun". It was electrically driven and could be installed on a pintle or in a turret mount. The XM214 had a rate of fire of 2000-3000 rpm.



Back to Weapons and Equipment

Sources

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United States Aircraft

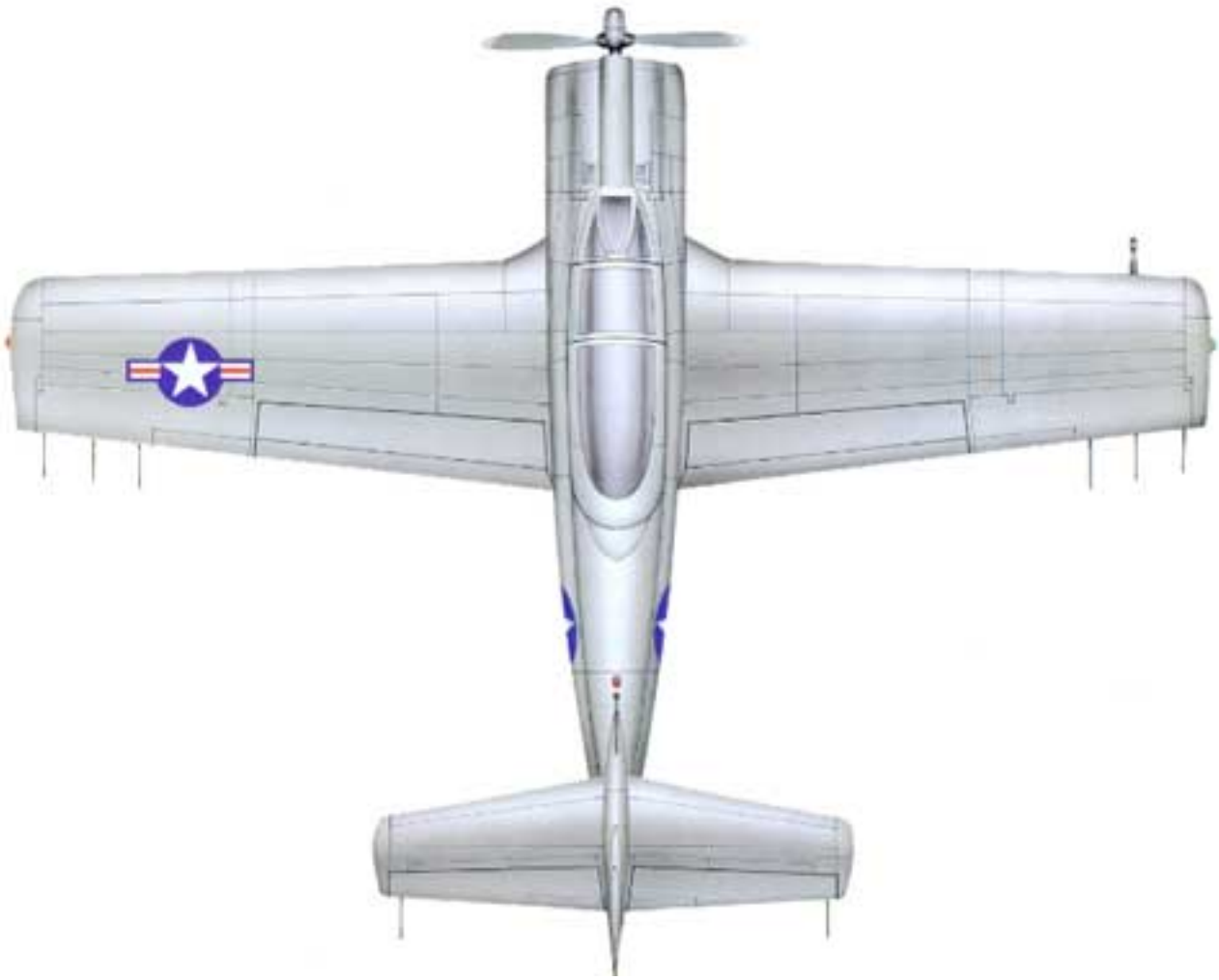


North American T-28D Trojan

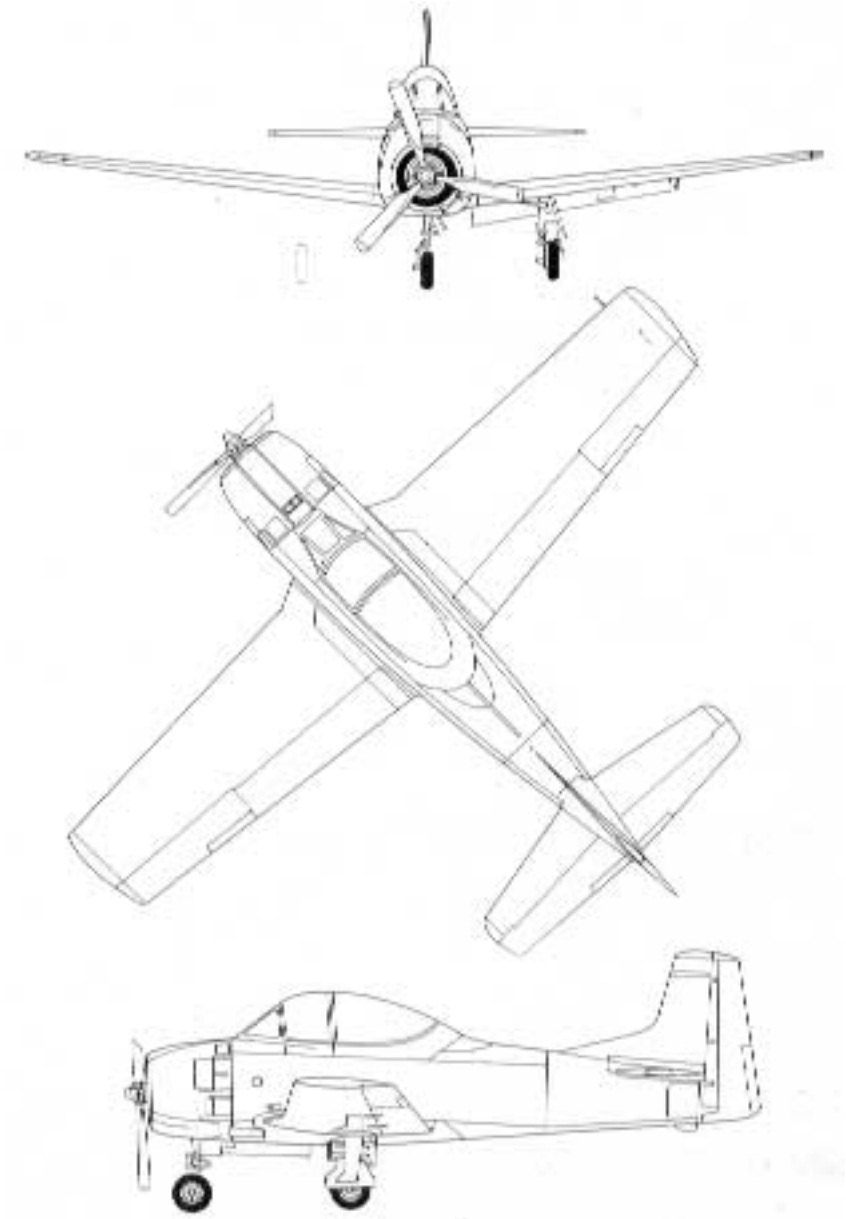
The North American T-28 was the last propeller trainer made in the United States. Known as the Trojan, it was designed in 1948 to replace the by-now ancient T-6 Texan. The first prototype flew on September 26, 1949, and deliveries of the T-28A version (destined for the USAF) began the following year. Up to 1956 in all, 1,194 machines were used in front line units, and up to 1959 in reserve units. In 1952 the US Navy also ordered the T-28 in the B version (more powerful engine, 489 planes) and the C version (299 planes). These aircraft went into service in 1953 and continued until the late 1960s. The T-28, however, was not only used for training: it was transformed in 1962 into a ground attack and anti-guerilla plane, the T-28D version. Many of these aircraft were used in Vietnam, but most of them were taken over by the French Armée de l'Air which, by 1950, had bought 245 of them - when withdrawn from the USAF - putting them into service under the name of Fennec.

The first eight T-28 Trojans reached Vietnam in March 1958, being handed over by the USA to the small South Vietnamese Air Force, which had been formed officially on July 1, 1955 as successor to the collaborationist air force set up by the French during the last phase of their stay in Southeast Asia. The planes were used for training pilots, as were the other 30 delivered to the VNAF at the same time as the first USAF unit to arrive in Vietnam, namely the 4400th CCTS (Combat Crew Training Squadron), which from October 20, 1961 was given the job of teaching the new South Vietnamese recruits. The 4400th Squadron was equipped with eight T-28s, four SC-47s and four RB-26s. But in 1962 Viet Cong pressure within the country began to make itself felt strongly, with ambushes on government columns and surprise attacks on villages and garrisons, so much so that it was considered indispensable to have aerial support ready to give assistance to the ground forces. At that point the T-28, because of the absence of true COIN (Counter Insurgency) aircraft, was transformed into the T-28D, with wing attachments for offensive purposes, in the form of bombs and rockets. In March 1962 the VNAF received another 30 of these; all were employed in action, sometimes even with a crew consisting of a South Vietnamese trainer pilot and an American instructor. Nevertheless the old and trusty Trojans proved well up to the new task and constituted the backbone of the strike forces of the VNAF up to 1964, when they were replaced by the Douglas A-1H Skyraider.









Technical Specifications

Aircraft: North American T-28D
Year: 1962
Type: trainer-attack
Manufacturer: North American Aviation
Engine: Wright R-1820-86 9 cyl. radial, air cooled
Power: 1445hp
Wingspan: 40ft 7in (12.37m)
Length: 32ft 9in (9.98m)
Height: 12ft 7in (3.84m)
Wing area: 268sq ft (24.90ml)
Max take-off weight: 8,250 lb (3,742 kg)
Empty weight: 6,420 lb (2,912 kg)
Max speed: 352mph at 18,000ft (566km/h at 5,490m)
Service ceiling: 37,000ft (11,280m)
Range: 1,200mi (1,93lkm)
Crew: 2
Load-armament: pods with GE minigun, 500 lb (bombs, rockets on six under-wing pylons)



Return to United States Aircraft

United States Aircraft



Douglas A-1 Skyraider

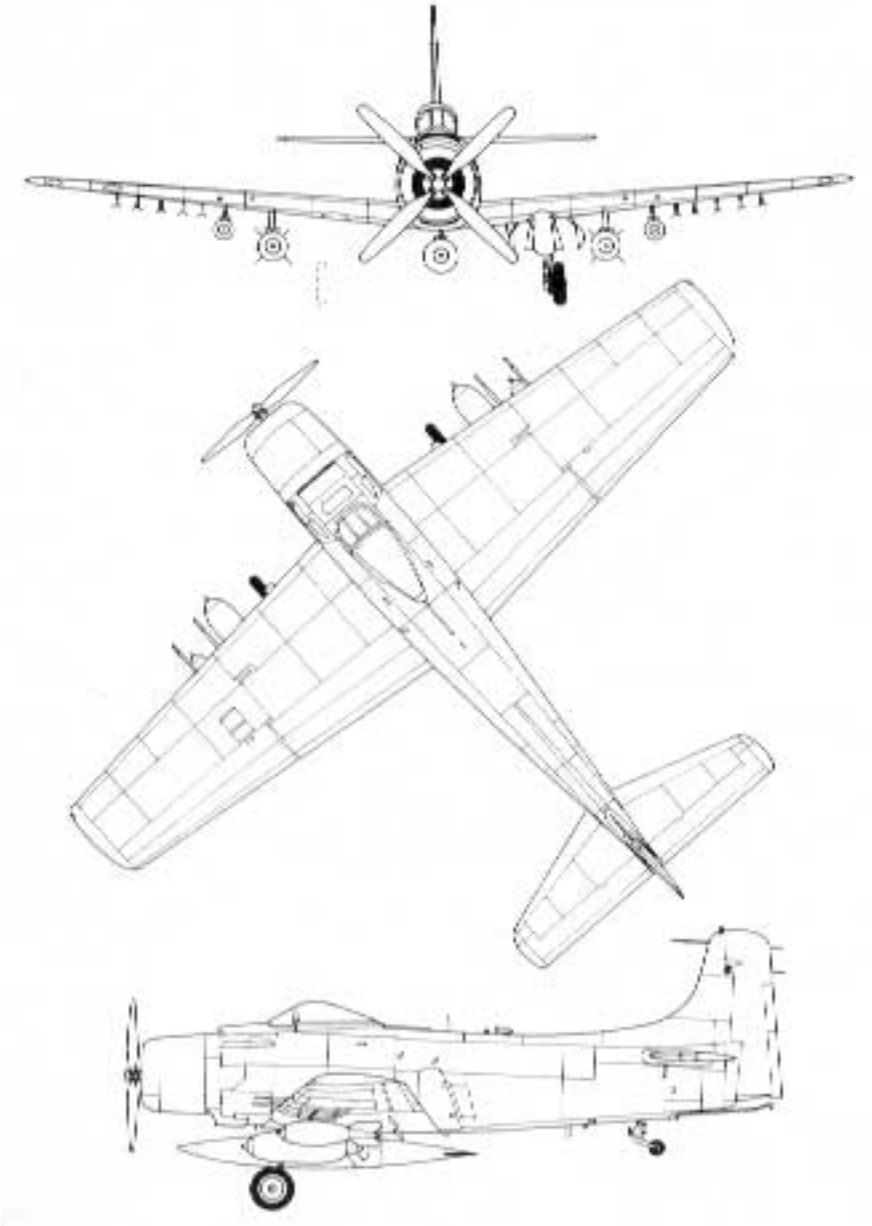
The Skyraider was the last great single-seater combat plane with a piston engine. Designed during the last years of World War Two as a dive-bomber, and torpedo-carrier, it proved itself more versatile and efficient than even its makers had imagined. The Douglas AD (as it was designated) proved its worth during the jet era, first in Korea, where it covered itself with glory, and then in Vietnam, so much so that in 1966 (nine years after the closure of the production lines which, from 1947 to 1957, had turned out 3,180 aircraft in seven basic versions) serious consideration was given to resuming production. The first prototype flew on March 18, 1945 and operational service began in December 1946, with the AD-1 (277 machines). There then followed 178 AD-2s, 193 AD-3s and 1,051 AD-4s. All these versions had four main roles: daytime and all-weather attack, radar patrol, and electronic countermeasures. In 1951 the variant two-seater AD-5 appeared, with a bigger cabin, and a year later production resumed of the single-seater AD-6 (713 machines). The last series was the AD-7 (72 planes) in 1955.

The Skyraider played a key role in the Vietnamese conflict, especially in the early years. Powerfully armed, slower than a jet aircraft, it came the closest to having the same characteristics as the anti-guerilla COIN, which at that time was desperately in demand. The A-1Hs were originally designated the single-seat AD-6s, and the A-1Es the two-seat AD-5s, last generation of the Skyraiders. At the time of the Gulf of Tonkin crisis, in August 1964, all aircraft carriers of the 77th Task Force had attack squadrons of Douglas A-1Hs, which were among the first sent into action against targets in North Vietnam. Two of them even achieved the incredible feat of shooting down two jet-engined MiG-17s. The US Navy Skyraiders remained at the front until April 1968, earning the nickname of 'Workhorse of the Fleet' and losing 48 machines, mainly from anti-aircraft fire. A number of aircraft of this type (25) surplus to Navy requirements, were also assigned to the VNAF, the first six in September 1960, the other ones in March 1961, as replacements for the obsolete North American T-28. But even the USAF sent a few twin-seater A-1Es to the front in summer 1963, when the 1st Air Command Squadron was formed. Useful for low-level attacks, and ideal as escorts for rescue missions, during the early years of the war they did everything and flew everywhere, being given the familiar name of 'Spad' from the famous World War One fighter. Skyraider, the last piston-engined fighter aircraft of the US Navy, carried out some 100,000 missions in the skies of Vietnam prior to its final disappearance .




504 NH





Technical Specification

Aircraft: Douglas A-1H
Year:1952
Type: attack
Manufacturer: Douglas Aircraft Co.
Engine: Wright R-3350-26WA, radial, 18 cyl., air cooled
Power: 2738hp
Wingspan: 50ft (15.24m)
Length: 39ft 2in (11.83m)
Height: 15ft 8in (4.77m)
Wing area: 400.33sq ft (37.19m²)
Max take-off weight: 25,000 lb (11,340 kg)
Empty weight: 11,968 lb (5,429 kg)
Max speed: 322mph at 18,000ft (518km/h at 5,846m)
Service ceiling: 28,510ft (8,690m)
Range: 1,142mi (1,840km)
Crew: 1
Load-armament: 4x20mm cannon; 7,960 lb (3,630 kg)



Return to United States Aircraft

United States Aircraft



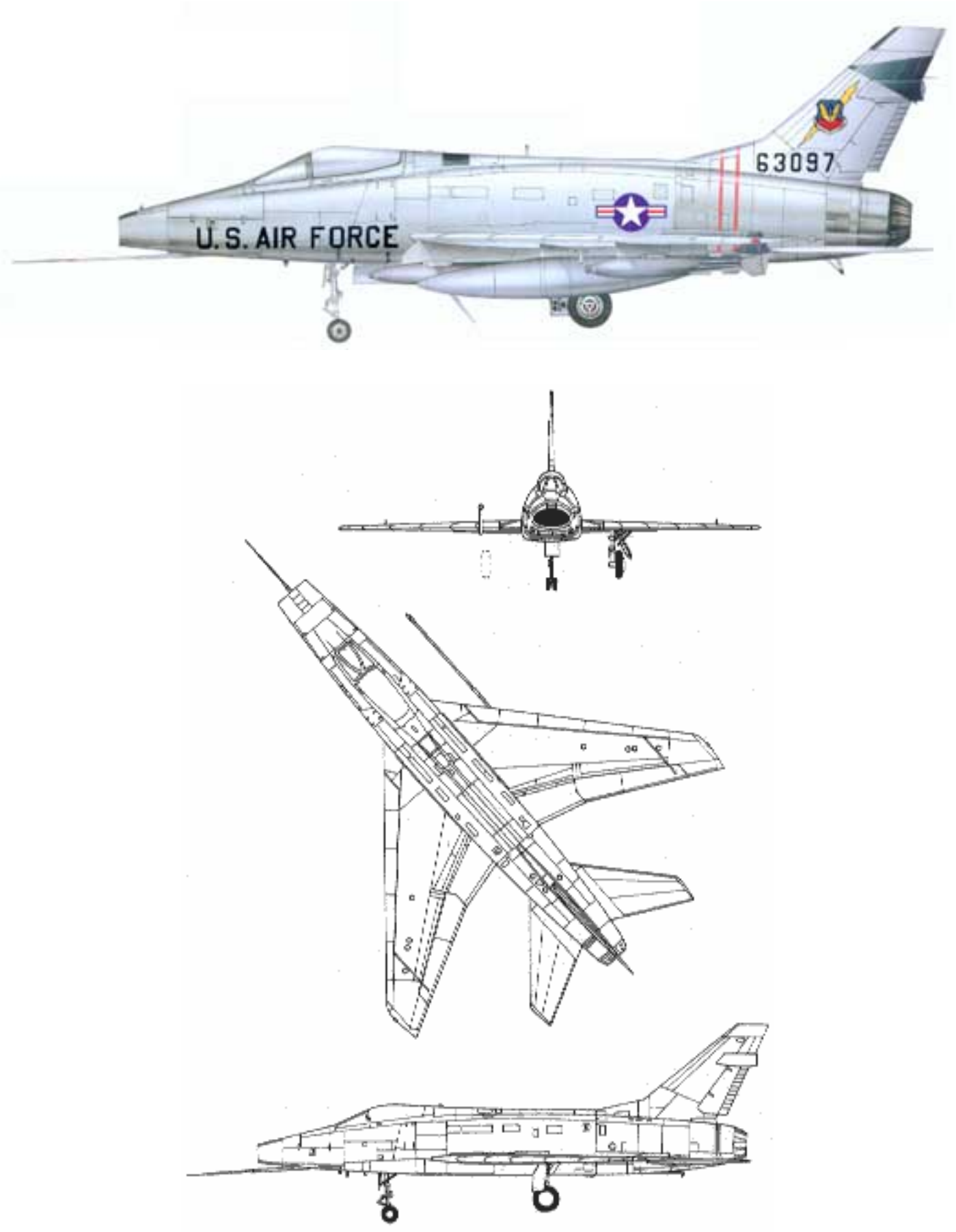
North American F-100 Super Sabre

First supersonic fighter in the West, the F-100 originated in the early 1950s as direct successor to the famous F-86 Sabre. The USAF ordered two prototypes on November 1, 1951, and the first of these took off on May 25, 1953. Mass-production began immediately with the initial A variant (203 machines). In the second C version the role of interceptor was transformed into that of fighter-bomber: ordered in February 1954, 476 machines were built. Then followed the F-100D version (first flight January 24, 1956), produced in largest numbers, with 1,274 machines. The last was the F-100F, a two-seater training plane (first flight March 7, 1957), of which 339 were built. The Super Sabre, in service from 1954, first saw action ten years later in Vietnam, where it remained in service until 1971. These planes were used principally for tactical support work.

The F-100Ds, last single-seater version of the first American supersonic fighter, provided with an autopilot and also armed with bombs attached to the underside of the wings, played an important role in the Vietnam war, with over 300,000 missions from August 1964 to July 1971, when the 35th Tactical Fighter Wing finally left Phan Rang to return to the United States. The 615th TFS was the first unit furnished with F-100Ds to reach Da Nang on August 5, 1964, followed on August 17 by the 401st TFW, stationed at Tan Son Nhut. The Super Sabres, familiarly known as 'Huns', a shortened version of 'Hundred', were immediately used for low-level night bombing missions, and during the first years of the war pounded objectives in South Vietnam where suspected concentrations of Viet Cong had been sighted. For this type of mission the F- 100Ds were armed with two CBU-24 bombs which, on opening, released a large number of anti-personnel devices, and two 750lb (340kg) napalm bombs. Once they had dropped their load, the Super Sabres proceeded to spray the zone under attack with their four 20mm cannons to complete the 'cleaning up' work. Because of their adaptability and, even more, the lack of a real alternative, numerous F-100 Wings were used in Vietnam, some of them consisting of squadrons of the Air National Guard, called up for front line service. The 3rd TFW alone carried out more than 100,000 missions in 1969! From the end of 1965 a number of two-seater F-100Fs, the Wild Weasel 1, carrying anti-SAM electronic equipment, were in action, operating from the Korat base in Thailand.



North American F-100 Super Sabre Top View



Technical Specifications

Aircraft: North American F-100D
Year: 1956
Type: fighter-bomber
Manufacturer: North American Aviation
Engine: Pratt & Whitney J57-P-21 A
Power: 16,950 lb (7,688 kg)
Wingspan: 38ft 9in (11.81m)
Length: 50ft (15.24m)
Height: 16ft 23/4in (4.95m)
Wing area: 400sq ft (37.16m²)
Max take-off weight: 34,832 lb (15,800 kg)
Empty weight: 21,000 lb (9,526 kg)
Max speed: 864 mph at 36,000ft (1,390km/h at 10,973m)
Service ceiling: 36,100ft (11,003m)
Range: 534mi (859km)
Crew: 1
Load-armament: 4x20mm cannon; 2 missiles; 7,500 lb (3,400 kg)



Return to United States Aircraft

United States Aircraft

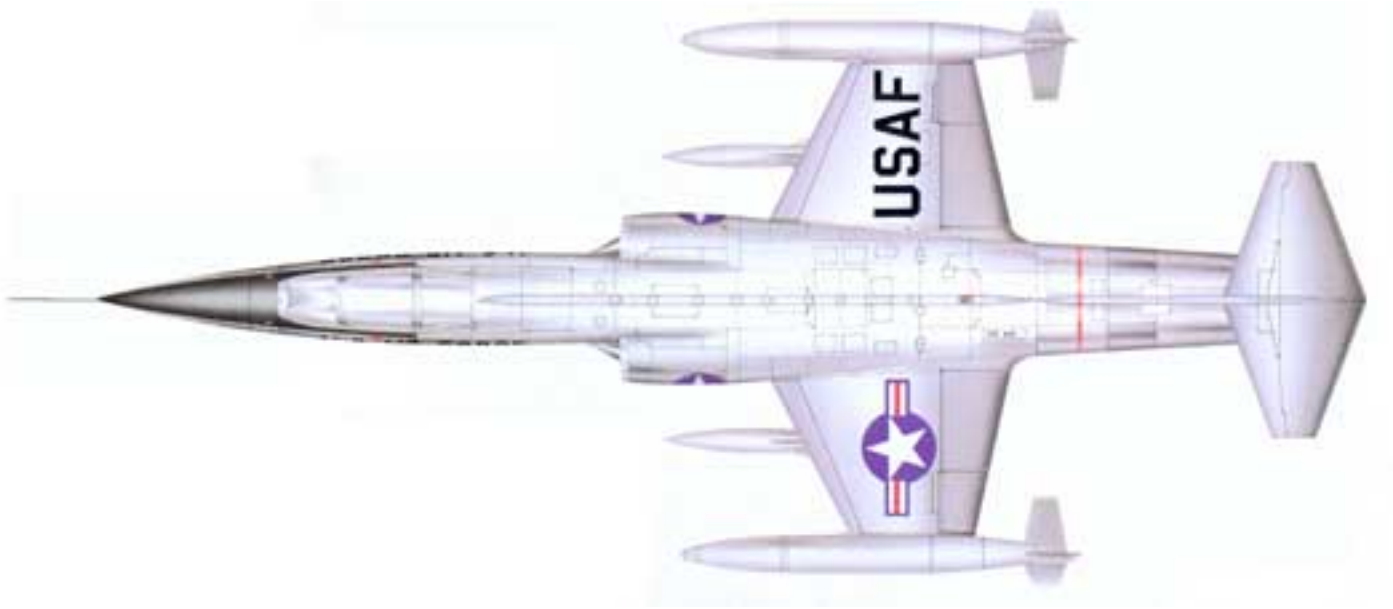


Lockheed F-104 Starfighter

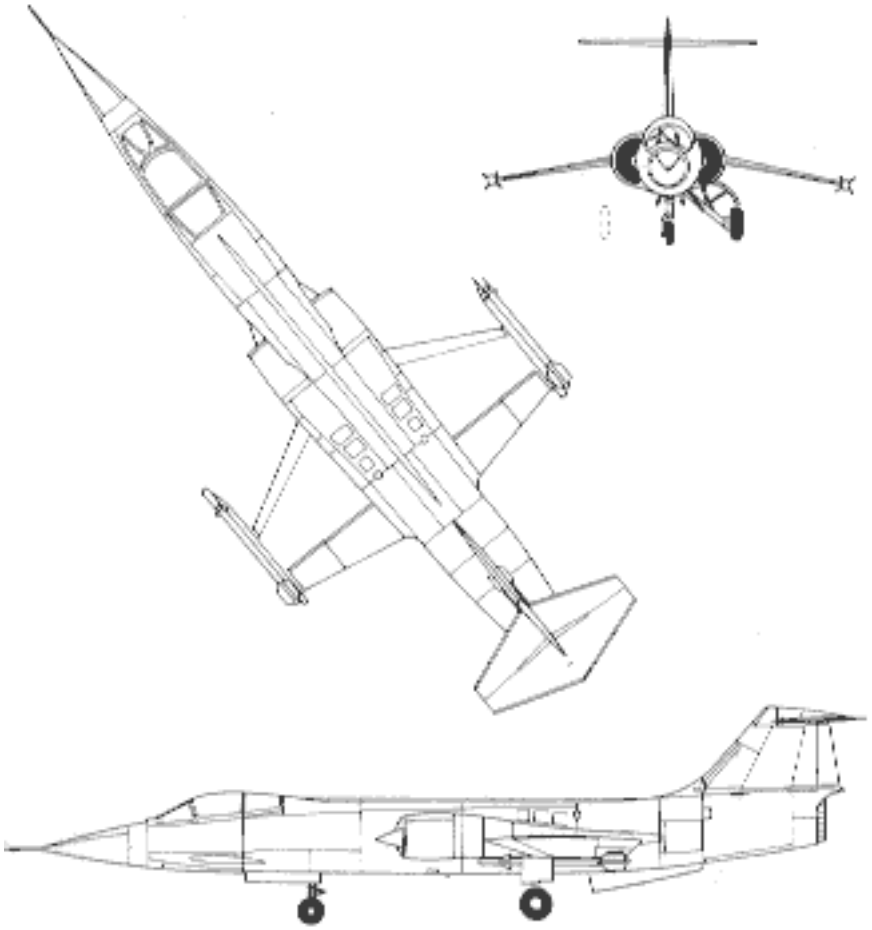
First USAF fighter to fly above Mach 2, the F-104 Starfighter made its appearance in the 1950s when it was decided to replace the still airworthy F-100 Super Sabre with a fighter which could be used mainly as an interceptor. Planning started in 1952 and the first of two prototypes took to the air on March 4, 1954. Seven months later came the initial order for 153 machines of the F- 104A series, followed by 26 two-seater F-104B trainers. Despite its exceptional qualities, however, the USAF considered it unsuitable for interception alone, and with the C version (77 machines, first delivery October 16, 1958), the F-104 was transformed into a fighter-bomber. This aircraft had a brief operational life in Vietnam. However, the Starfighter's fortunes were lifted by production of the next G version for the NATO allies. From 1960 to 1973 some 1,127 of this variant were produced under license in Canada, Japan, Belgium, Italy, West Germany and Holland. Italy, too, built 245 of the final F-104S version.

Almost all the F-104s in the fighter-bomber version, assigned the letter C, were used in Vietnam, for 21 months, during which time they performed important, far-ranging work. The first fifteen Starfighters arrived in April 1965, with the 476th Tactical Fighter Squadron and the 479th Tactical Fighter Wing: from April 20 to November 20 of the same year they carried out 2,927 missions of machine-gunning, bombing and escorting strike aircraft, sometimes in North Vietnamese air space, before returning to the United States. The 476th was back, however, in June 1966, operating from the Udorn base in Thailand. The F-104Cs were now camouflaged in accordance with operational needs and in July were handed over to the 436th TFS and in October to the 435th, still belonging to the 479th TFW. From June 1966 to July 1967 the F-104Cs carried out escorting and bombing missions on North Vietnam, with over 5,290 sorties. The last Starfighter left Thailand before the end of 1967, its duties being taken over by the Phantom F-4D. Although not much has been written and said about the F-104C, it seems to have given a good account of itself, but the shortage of machines obviously limited its use.




USAF


U.S. AIR FORCE
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Technical Specifications

Aircraft: Lockheed F-104C
Year: 1958
Type: fighter-bomber
Manufacturer: Lockheed Aircraft Co.
Engine: General Electric J79-GE-7
Power: 15,800 lb (7,167 kg)
Wingspan: 21ft 9in (6.62m)
Length: 54ft 8in (16.66m)
Height: 13ft 6in (4.11m)
Wing area: 196.1sq ft (18.21m²)
Max take-off weight: 27,853 lb (12,634 kg)
Empty weight: 12,760 lb (5,788 kg)
Max speed: 1,150mph at 50,000ft (1,85lkm/h at 15,240m)
Service ceiling: 58,000ft (17,678m)
Range: 850mi (1,368km)
Crew: 1
Load-armament: 1x20 mm cannon; 2,000 lb (907 kg)

United States Aircraft



Grumman A-6 Intruder

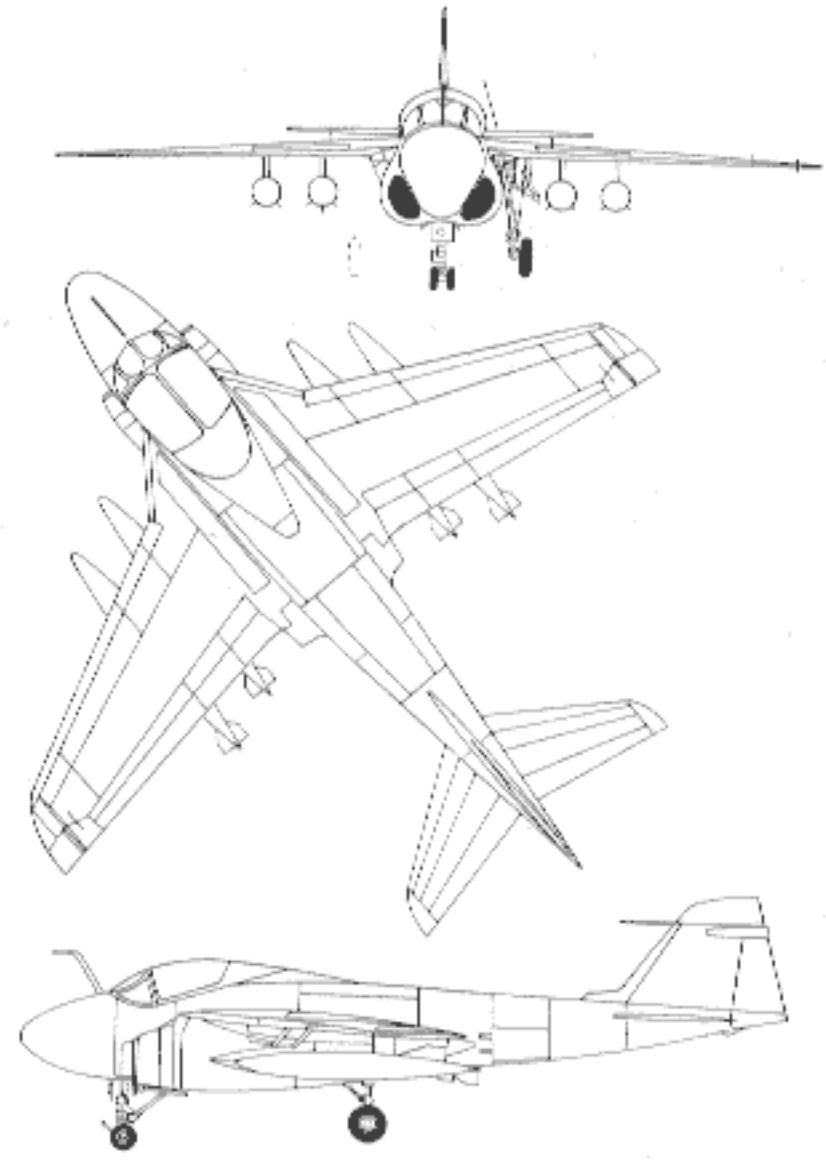
One of the finest all-weather attack planes of the US Navy, the Grumman A-6 Intruder is still in front line service, in increasingly up-to-date versions, particularly as regards electronics and armament. In 1957 the Grumman emerged as the winner in competition with eleven other rival designs entered by eight companies. The first prototype flew on April 19, 1960, and the first A-6A of the series went into service on February 1, 1963; 488 of them were built by the end of 1969. The second basic version was designed exclusively for electronic warfare. Named EA-6B (and stemming from an initial sub-series of 27 models), the prototype appeared on May 25, 1968; the fuselage and cabin were modified to accommodate four crew members as well as a highly sophisticated electronics system, so that it was soon recognized as the best carrier-based aircraft for this type of warfare. The final variant of the Intruder was the A-6E, dating from February 1970, even further improved and more powerful.

When it first went into action in Southeast Asia, the Grumman A-6A Intruder was the most modern and sophisticated warplane then operating from the US fleet's aircraft carriers. Thanks to its advanced electronic equipment, it was a plane capable of spotting and attacking an objective, even one as small as a truck or a tank, if necessary in poor light or even at night. As the war spread, Intruders were used in ever greater numbers, often as escorts to A-4 Skyhawks, homing in on the target with greater effectiveness. Other variants of the Grumman A-6 went into production, notably the one specialized in electronic warfare. This type of plane suffered relatively heavy losses, 51 machines being shot down by enemy fighters or anti-aircraft, and eleven as a result of operational accidents. The intruder is still one of the best all-weather attack aircraft in the US Navy.









Technical Specifications

Aircraft: Grumman A-6A

Year: 1960
Type: attack
Manufacturer: Grumman Aircraft Engineering Corp.
Engine: 2 x Pratt & Whitney J52P-8A
Power: 9,300 lb (4,218 kg)
Wingspan: 53ft (16.15m)
Length: 54ft 7in (16.64m)
Height: 15ft 7in (4.75m)
Wing area: 529sq ft (49.15m²)
Max take-off weight: 60,626 lb (27,500 kg)
Empty weight: 25,684 lb (11,650 kg)
Max speed at sea level: 685mph (1, 102km/h)
Service ceiling: 41,660ft (12,700m)
Range: 1,920mi (3,090km)
Crew: 2
Load-armament: 15,000 lb (6,804 kg)



Return to United States Aircraft

United States Aircraft



Vought F-8E/J Crusader

The Vought F-8E was central to the Tonkin Gulf incident, which led to America's direct intervention in the Southeast Asian crisis, when on August 2, 1964, aircraft defended US Navy units from attack by North Vietnamese motor torpedo boats. Four Crusaders of the VF-53 Squadron from the aircraft carrier USS Ticonderoga, sunk an enemy vessel with missiles and gunfire, thus initiating a war that did not end until 1973.

From 1964 to 1969, during which time the Crusaders were gradually replaced on US Navy aircraft carriers by F-4B Phantoms, the F-8s, designed as daytime supersonic fighters, were also largely employed in strike missions mostly over North Vietnam, carrying up to 5,000 lbs (2,268 kg) of bombs under the wings. The first encounter between F-8Es and MiG-17s took place on July 12, 1967, and after that date the Crusaders frequently took on the North Vietnamese fighters, emerging from battle with a tally of fifteen MiG-17s and three MiG-21s shot down in dogfights, for the loss of only three planes. However, another 53 F-8Es and F-8Js fell victim to North Vietnamese anti-aircraft batteries, and a further 58 were destroyed while in action as a result of various causes.

An important support role was also played by the RF-8 reconnaissance planes, 38 of them being lost through anti-aircraft fire, SAM missiles or accidents. All US Navy aircraft carriers engaged in the war were equipped with Crusader squadrons, the most successful of these being the VF-121 which chalked up six victories in fights with MiGs. Although there was no cause for regret in their replacement by the McDonnell F-4B Phantoms, the Crusaders ranked third as 'MiG killers' in Vietnam, after the Phantoms themselves and the Republic F-105s.

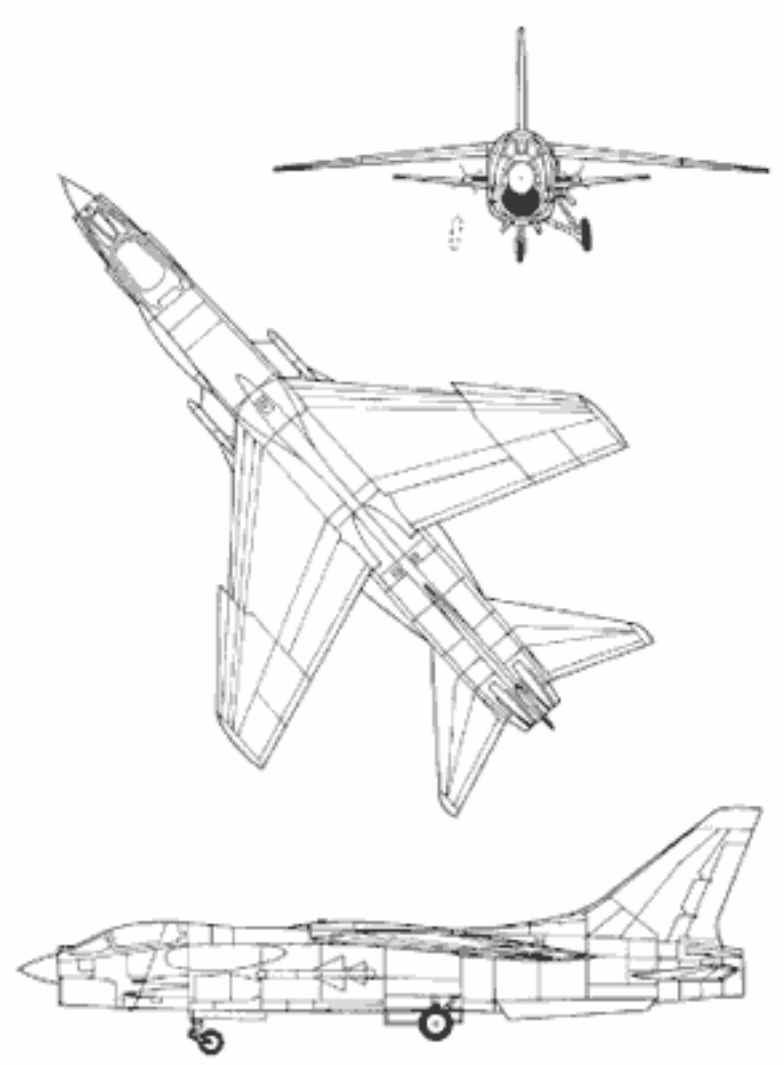
The first daytime supersonic carrier based interceptor, the Crusader was conceived in 1952, built to the order of the US Navy. The prototype flew on March 25, 1955, successfully testing the original solution of a wing of variable incidence, designed to reduce the velocity and improve landing capability. Production started soon afterward and, up to 1965, 1,259 machines of various series were built, increasingly powerful and up-to-date. The principal types were the F-8A interceptor (first flight September 30, 1955, with 318 machines), which went into service in March 1957; the F-8C air-superiority (187 machines, first flight August 20, 1958); and the F-8D all-weather fighter (152 planes, first flight February 16, 1960). The final version was the F-8E (first flight June 26, 1964), also designed

as an all-weather fighter, of which 286 were built. The Crusader remained in front line service until the late 1970s, thanks to a massive modernization program starting in 1966, involving 375 planes from all series: 136 F-8Es, in particular, were transformed into F-8Js, the modifications applying mainly to certain structural components, the wings and the electronics.









Technical Specifications

Aircraft: Vought F-8E
Year: 1964
Type: fighter
Manufacturer: Chance Vought Inc.

Engine: Pratt & Whitney J57-P-20A
Power: 18,000 lb (8,165 kg)
Wingspan: 35ft 8in (10.87m)
Length: 54ft 3in (16.53m)
Height: 15ft 9in (4.80m)
Wing area: 375sq ft (34.83m²)
Max take-off weight: 34,000 lb (15,422kg)
Max speed: 1,120mph at 40,000ft (1,802km/h at 12,192m)
Service ceiling: 58,000ft (17,678m)
Crew: 1
Load-armament: 4x20mm cannon; 5,000 lb (2,267kg)



Return to United States Aircraft

United States Aircraft



Vought A-7 Corsair II

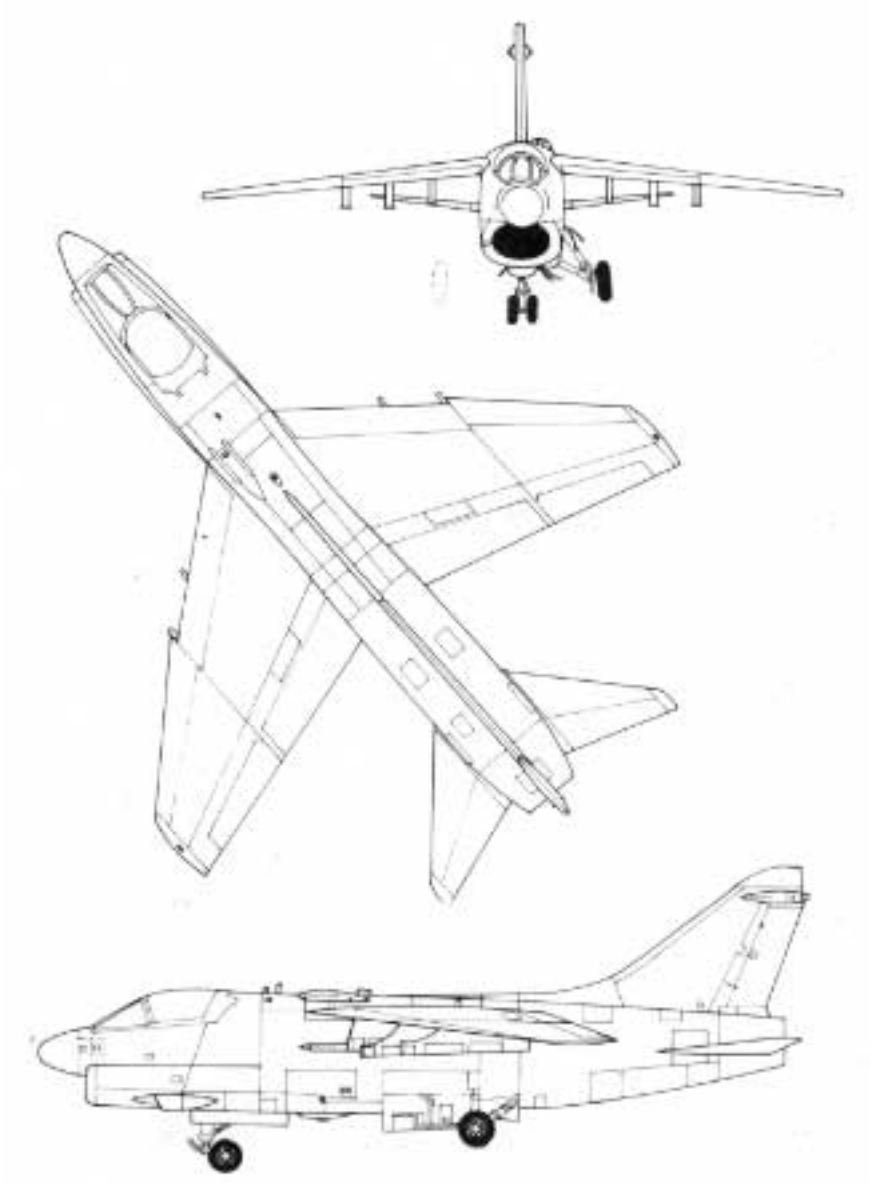
Planned in 1963 as the successor to the Douglas A-4 Skyhawk for the US Navy and Marines, the A-7 Corsair II proved so effective that it was also chosen by the USAF to replace the F-100 Super Sabre and F-105 Thunderchief. The prototype flew for the first time on September 27, 1965, and production commenced on 199 of the A-7A version. This was followed by the more powerful A-7B (196 machines, first flight February 6, 1968). The variant designed for the USAF was the A-7D, which took off on April 5 furnished with a different kind of engine and modified both with regard to armament and electronics. Deliveries of the 459 models of the A-7D which had been ordered took place from September 1970 to December 1976. In 1969 a new version was produced for the US Navy, the A-7E, which became the principal type built (after the first 67 machines, known as A-7C), with 529 planes up to March 1981. Among minor variants were the TA-7C and the A-7K, two-seater trainers for possible operational use by the US Navy and the US Air National Guard; and the A-7H and A-7P for Greece and Portugal. It was much used in Vietnam; the first A-7As received their baptism of fire on December 4, 1967.

On August 15, 1973, the day when hostilities ended between the United States and North Vietnam, an A-7D Corsair of the USAF carried out the last attack on territory north of the 20th parallel. Although this was coincidental, there can be no doubt that this type of aircraft was, during the second half of the war, the most effective instrument of American tactical bombing of North Vietnam. Designed by Vought at the behest of the US Navy, both for its own requirements and those of the Marine Corps, who used it in the A, B and E versions, it was also chosen to replace the Thunderchief by the USAF, who deployed it in Vietnam in the D version, with the 354th TFW, based at Korat in Thailand, from the end of 1971. The first Marine A-7As went into action in December 1967, being assigned to the VA-147 Squadron on the aircraft carrier USS Ranger, and soon proved themselves worthy of the name Corsair, given them in memory of the famous World War Two fighter. Furthermore, the A-7s could be used more intensively than other carrier-based planes because, for the first time, they were equipped with a round-the-clock landing system. Even before the A-7Ds of the USAF became operative, the US Navy A-7Es, improved versions, had reached Vietnam. From the beginning of August 1973, Marine Corsairs carried out more than 90,000 missions, losing only 54 machines as a result of enemy action. The USAF, whose first A-7Ds only went into action on March 29, 1972, had no time to exploit their exceptional qualities.






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Technical Specifications

Aircraft: Vought A-7D
Year: 1968
Type: attack
Manufacturer: LTV Aerospace Corp.
Engine: Allison TF41-A-1
Power: 14,250 lb (6,465 kg)
Wingspan: 38ft 9in (11.80m)
Length: 46ft 1 1/2in (14.06m)
Height: 16ft (4.88m)
Wing area: 375sq ft (34.83m²)
Max take-off weight: 42,000 lb (19,051 kg)
Empty weight: 19,781 lb (8,972 kg)
Max speed at sea level: 698mph (1, 123km/h)
Range: 951mi (1,762km)
Crew: 1
Load-armament: 1x20mm cannon; 15,000 lb (6,804 kg)



Return to United States Aircraft

United States Aircraft



Republic F-105 Thunderchief

Designed in 1954 as an all-weather supersonic attack aircraft, capable of carrying nuclear or conventional armaments, the F-105 was the culmination of the series of warplanes built by Republic since the early days of World War II. The prototype had its first flight on October 22, 1955, and production began with 71 F-105B, which started to be delivered in May 1958. On June 9, 1959 the prototype appeared of the second, more powerful version, the F-105D, with a more powerful engine and improved electronic equipment. This went into service in 1961, with 610 machines built. The last variant was the two-seater, advanced trainer F-105F, delivered from 1963 (143 planes). During its busy operational career, 350 F-105Ds were continuously strengthened and modernized, particularly in the electronic field.

The F-105 Thunderchief, familiarly called 'Thud' by its pilots, received its baptism of fire in Vietnam and is indissolubly associated with that war, even though it was never used for the tactical atomic bombing for which it had been designed. In action in Vietnam from 1964 to 1970 was the single-seat F-105D, modified so as to carry bombs of the traditional type both in the hold and in under-wing pylons, and also the two-seat F-105G, Wild Weasel, widely used for locating the radar emissions of SAM batteries, which they would either neutralize with their own electronic equipment, making enemy tracking impossible, or by means of direct bombing. All USAF squadrons furnished with the F-105 served in rotation in Southeast Asia, carrying out more than 20,000 offensive missions, and losing 330 planes, over a third of the total Thunderchief production. Employed without respite in strikes, mainly against North Vietnamese territory, the Thunderchiefs paid a heavy toll at the hands of anti-aircraft batteries, SAM missiles and enemy fighters, for they were easy prey unescorted and with a full bomb-load. It was rare for an F-105 pilot to complete his rota of 100 missions without being shot down at least once. On October 5, 1965, for example, in the attack on the Lang Met bridge, out of 24 F-105Ds of the 562nd Squadron of the 23rd TFW, only eight found their way back to their departure base in Thailand. Yet with their bombs they destroyed the objective. Free of their bombs, on the other hand, the F-105s were no sitting ducks for enemy fighters; from 1966 to 1967 they shot down 26 MiG-17s and one MiG-21 in air duels, a tally second only to that of the Phantom F-4s. The first F-105Ds arrived at Korat, in Thailand, in August 1964 with the 36th Squadron of the 7441st TFW, followed by those of the 18th, 355th and 388th TFW. To assess the importance of the Thunderchiefs as a strike force during the early part of the war, it is enough to point out that during 1965 three-quarters of all attack missions against North Vietnam were carried out by this fighter-bomber, sometimes guided to its target by the Douglas EB-66 and subsequently escorted

by Phantoms when the latter were thrown into action.







Technical Specifications

Aircraft: Republic F-105D Year:1959
Type: fighter-bomber

Manufacturer: Republic Aviation Corp.
Engine: Pratt & Whitney J75-P- 1 9W
Power: 26,500 lb (12,020 kg)
Wingspan: 34ft 11in (10.64m)
Length: 64ft 3in (19.58m)
Height: 19ft 8in (5.99m)
Wing area: 385sq ft (35.76m²)
Max take-off weight: 52,546 lb (23,835 kg)
Empty weight: 27,500 lb (12,474 kg)
Max speed: 1,372mph at 36,000ft (2,208km/h at 10,973m)
Service ceiling: 32,100ft (9,784m)
Range: 900mi (1,448km)
Crew: 1
Load-armament: 1x20mm cannon; 14,000 lb (6,350 kg)



Return to United States Aircraft

United States Aircraft



McDonnell F-4B Phantom

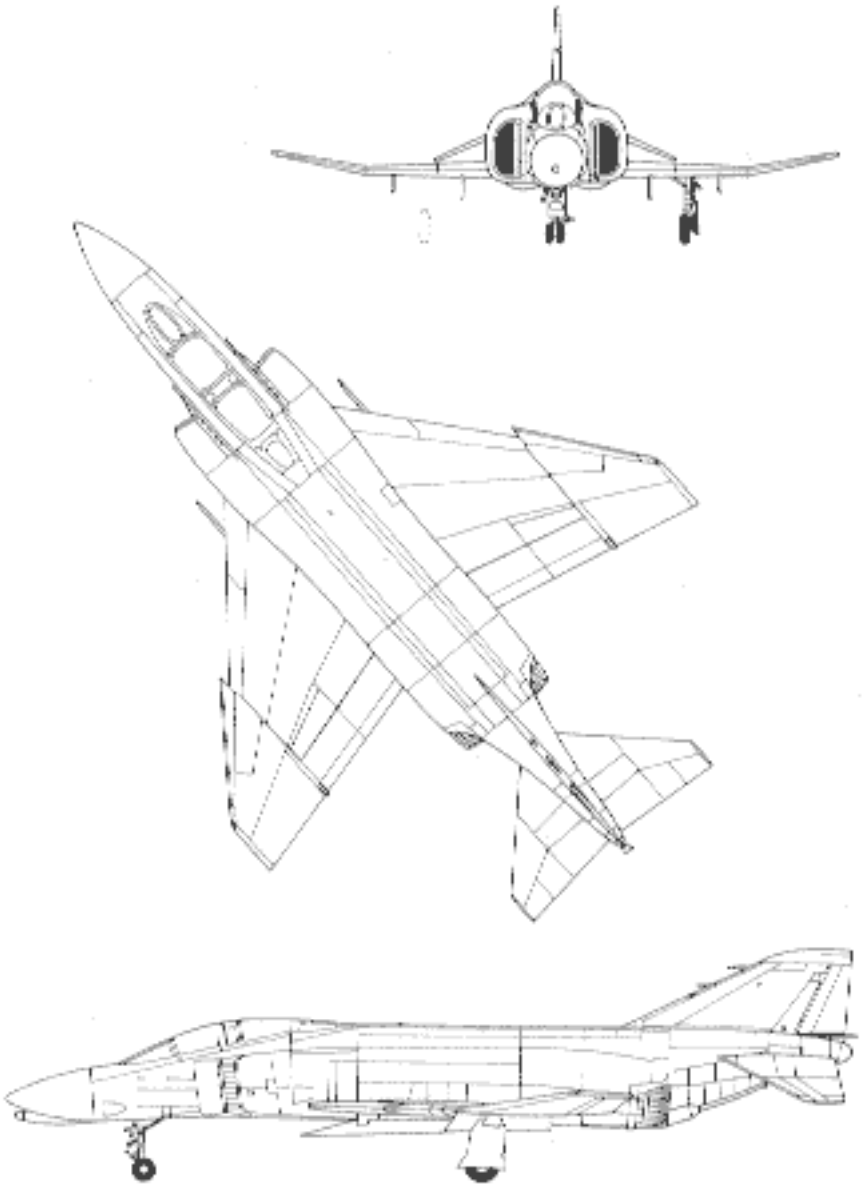
Unanimously recognized as the best fighter-bomber ever built, the F-4 Phantom II was designed in 1953 with a view to providing the US Navy with an all-weather supersonic twin-jet capable of combining speed, maneuverability, bomb-load capacity, weight and power. No easy task, but the McDonnell designers succeeded brilliantly; when on May 27, 1958, the first prototype (F4H-1) took to the air, its qualities were so obvious that the US Navy chose it in preference to its direct rival, the LTV F8U-3 Crusader III, ordering its mass-production. The first basic version, designed for shipboard use by the US Navy and the Marines, was the F-4B (first flight March 25, 1961), and 649 of these planes were delivered up to 1967. In addition to the many variants adopted by the USAF, the US Navy took 522 of a second version, the F-4J Phantom II (first flight May 1966). In Vietnam the F-4s were first sent into action from the aircraft carrier USS Constellation on August 5, 1964.

Unquestionably the leading role in the air war in Vietnam was played by the McDonnell F-4 Phantom, which was used by the US Navy and the US Marine Corps in the B and J versions, and by the USAF in different versions. The earliest arrivals in the Southeast Asia theater of operations were the F-4Bs of the VMFA-531, on April 11, 1965. They were followed by those of many other Marine squadrons, based on land, and by squadrons of the US Navy operating from aircraft carriers. It would be unfair to single out the exploits of any particular unit because such a list would fill the pages of a sizeable book and because all distinguished themselves both in the attack/bombing role and in their demonstration of aerial supremacy. During direct encounters with the enemy, F-4Bs and F-4Js shot down 55 MiGs, of which eighteen were MiG-21s, two MiG-19s and the rest MiG-17s. Even so, it is fitting to mention the name of the US Navy Commander Randall H. 'Duke' Cunningham, and of his radarman, Lieutenant William P. 'Willie' Driscoll, with one MiG-21 and four MiG-17s to their credit, and to point out that the squadron boasting the biggest number of enemy planes downed was the VF-96, with eight certain victims and two probables. From the moment they went into action until the last day of the war, the Navy and Marine Phantoms never let up, gaining a reputation that they were later to emulate in other parts of the world.









Technical Specifications

Aircraft: McDonnell F-4B

Year: 1961
Type: fighter-bomber
Manufacturer: McDonnell Aircraft Corp.
Engine: 2 x General Electric J79GE-8A
Power: 17,000 lb (7,711 kg)
Wingspan: 38ft 5in (11.70m)
Length: 58ft 3 3/4in (17.78m)
Height: 16ft 3in (4.95m)
Wing area: 530sq ft (49.23m²)
Max take-off weight: 44,600 lb (20,231 kg)
Empty weight: 28,000 lb (12,70l kg)
Max speed: 1,485mph at 48,000ft (2,390km/h at 14,630m)
Service ceiling: 62,000ft (18,898m)
Range: 400mi (644km)
Crew: 2
Load-armament: 6-8 missiles; 16,000 lb (7,275 kg)



Return to United States Aircraft

United States Aircraft



McDonnell F-4C Phantom

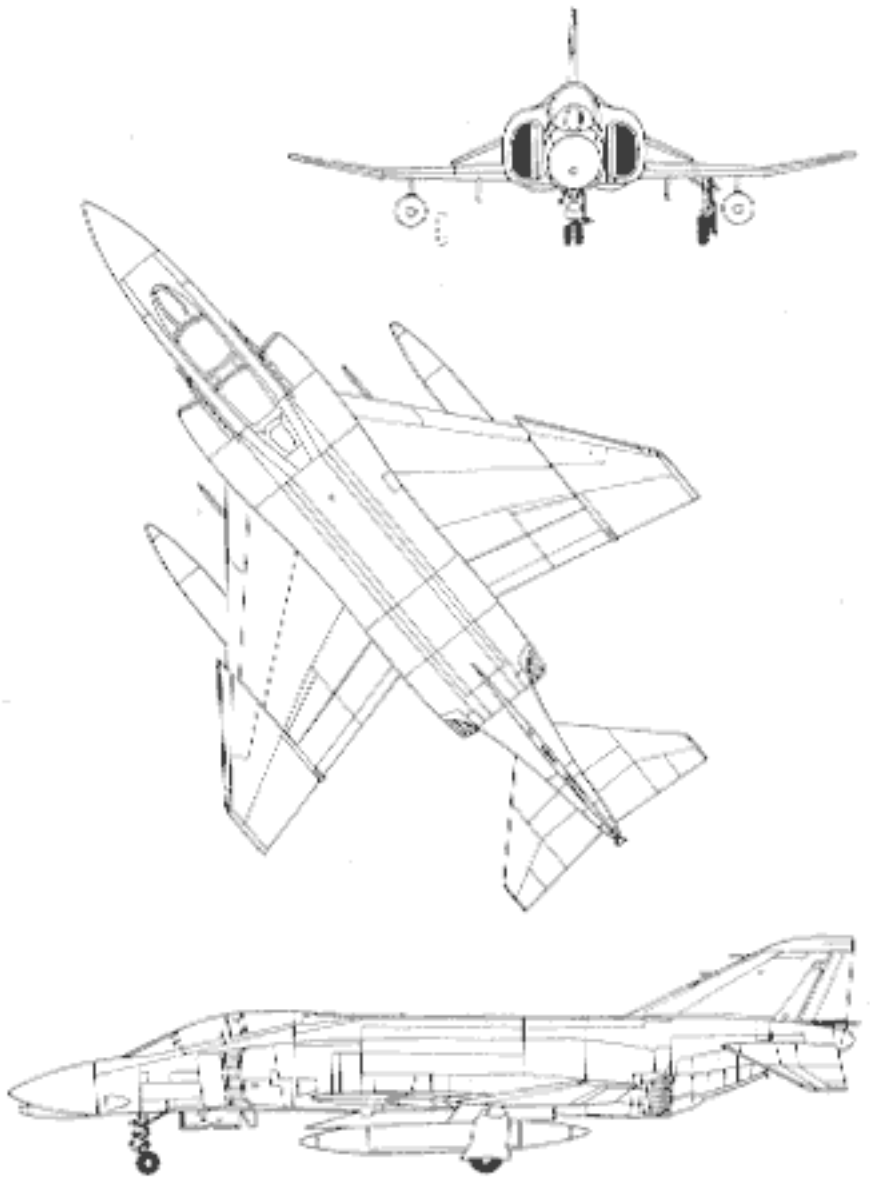
The Phantom II, among its other achievements, was the first fighter designed specifically for shipboard use to be adopted by the USAF as well . Its successful 'ground' career began on March 30, 1962 (after a single F-4B had proved itself far superior to a Convair F-106A) when the USAF placed an order for an air-superiority and tactical support version. The prototype of this, the F-4C, took to the air on May 27, 1963, and 583 were eventually built. Then followed 503 RF-4C photoreconnaissance planes (delivery commencing June 1964), 825 F-4Ds (first flight December 7, 1965), and about 1,500 F-4Es (first flight June 30, 1967), of which almost one-third were exported. Overall production ended in October 1979, by which time over 5,100 Phantom IIs had been built in the USA and 140 under license in Japan. The F-4 flew under the USAF insignia for practically the entire period of the Vietnam War. From 1975 the Phantom IIs were gradually replaced by F-14s, and although mainly consigned to reserve units, they are still used for front line duty in many countries.

The first F-4C Phantoms of the USAF arrived in Vietnam at the same time as those of the Marines, in April 1965, with the 45th Tactical Fighter Squadron, followed by those of the 12th TFW, in November, and of the 8th TFW, which was stationed at the Ubon base in Thailand in December of the same year. The Phantoms were detailed to play a defensive fighter role, escorting the F-105s weighted down with their bomb-loads, but when the ranks of the latter began to thin out, the Phantoms also took on attacking roles, achieving excellent results with their precision bombing. Although many units covered themselves with glory in eight years of war, it was the 8th TFW, among the first to reach Vietnam, which was most highly distinguished in battle. On January 2, 1967, F-4Cs of this Wing played a key role in the biggest aerial encounter of the war, shooting down seven MiG-21s without loss; and the 555th TFS (which with the 432nd and 433rd formed the 8th TFW) achieved more victories than any other USAF squadron, with a tally of 39 MiGs. In such dogfights the radar-controlled Sparrow air-to-air missiles and heat-sensitive Sidewinders proved invaluable, but the lack of a traditional cannon, notably for strike missions, soon became evident. It was for this reason that the F-4E version, sent into action toward the end of the war, was equipped with a rotary 20mm cannon, soon proving its worth not only in hitting the enemy on the ground but also in shooting down six enemy jets. By the end of the war the F-4s of the USAF boasted a record of 82 victories in air duels with MiGs, the success ratio in favor of the Phantom pilots being more than two to one.






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Technical Specifications

Aircraft: McDonnell F-4C
Year: 1963
Type: fighter-bomber
Manufacturer: McDonnell Aircraft Corp.
Engine: 2 x General Electric J79GE-15
Power: 17,000 lb (7,711 kg)
Wingspan: 38ft 5in (11.70m)
Length: 58ft 3 3/4in (17.78m)
Height: 16ft 3in (4.95m)
Wing area: 530sq ft (49.23m²)

Max take-off weight: 51,441 lb (23,334 kg)
Empty weight: 28,496 lb (12,926 kg)
Max speed: 1,433mph at 40,000ft (2,306km/h at 12,192m)
Service ceiling: 56,100ft (17,099m)
Range: 538mi (866km)
Crew: 2
Load-armament: 4 missiles; 16,000 lb (7,275 kg)



Return to United States Aircraft

United States Aircraft



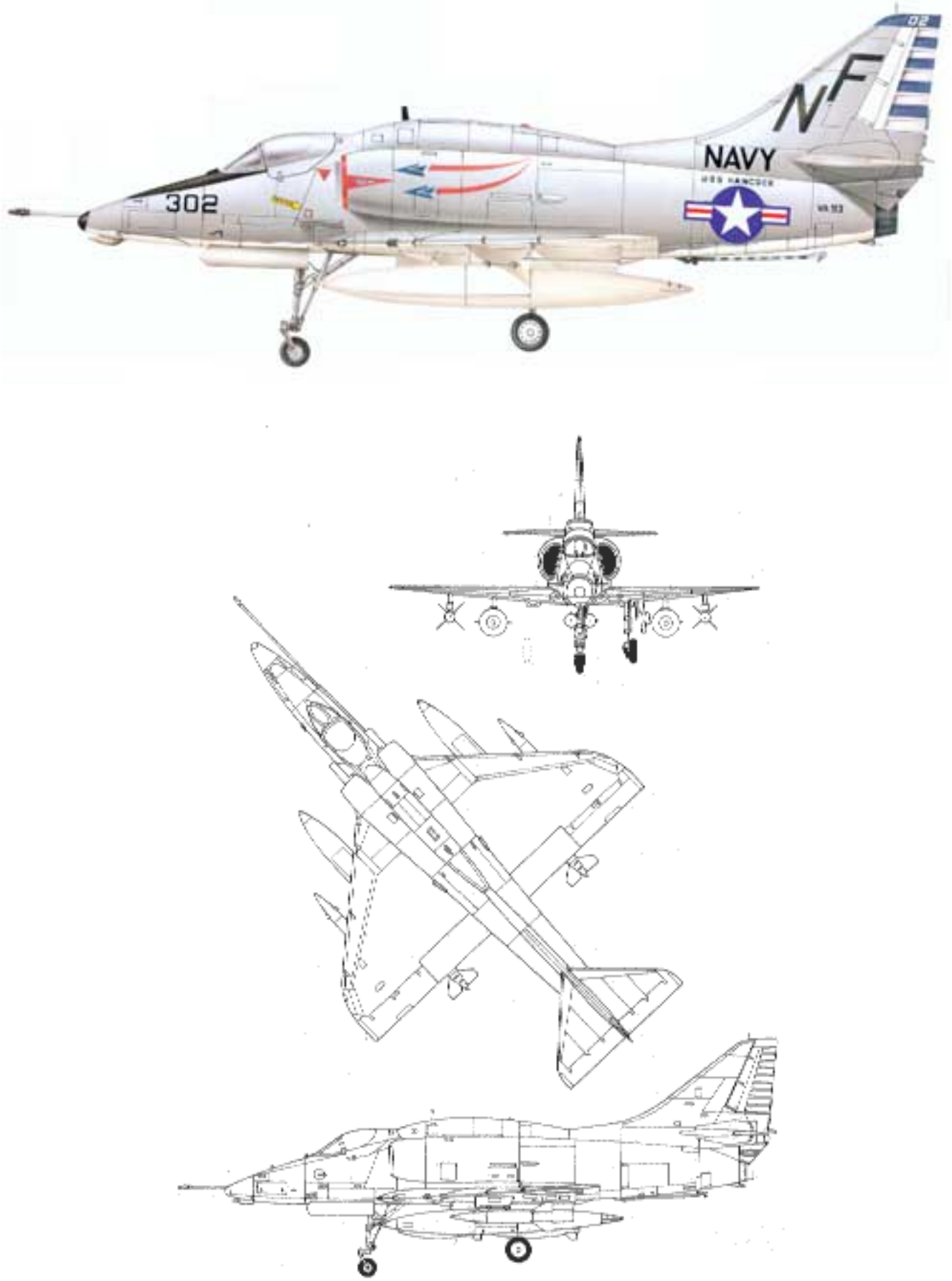
Douglas A-4 Skyhawk

Almost 3,000 of these aircraft were built in 25 years between 1954 and 1979. This figure alone gives some idea of the enormous success (both at home and abroad) of the Douglas A-4 Skyhawk, one of the most effective carrier-based attack planes, operational from 1956 and used in all the major engagements of the 1960s and 1970s. The program was launched when the US Navy decided it wanted a modern replacement of the Douglas A-1 Skyraider. The requirements were most exacting, but Ed Heinemann, chief designer at Douglas, managed to satisfy them all, proposing a plane whose maximum weight at take-off was practically half of the Navy specification weight, giving it increased payload capacity. The first prototype flew on June 22, 1954 and the first production model of the A4D-1 (designated A-4A after 1962) on August 14. There were many subsequent variants and subseries derived from this model. The prototype of the A-4F version appeared on August 31, 1966, and deliveries of the 146 planes ordered by the US Navy took place between June 1967 and June 1968.

Ideal successor to the marvelous Skyraider, the Douglas A-4, a daytime fighter-bomber, was the favorite plane of land-based Marine units and was also widely used by US Navy squadrons, particularly after 1968. Some idea of the Skyhawk's capabilities can be judged by the fact that a single Marine squadron, the VMA-311, carried out a record number of 47,663 sorties between June 1965 and May 1971. The US Navy was so convinced of the aircraft's adaptability to this type of warfare that in 1966, after the initial experiences on the battlefield, it gave the order for production to be resumed so as to take delivery of a further 146 examples of the A-4F. Of all the planes used by the US Navy and US Marine Corps to carry out strike missions in Vietnam, the Skyhawks alone were responsible for over 50 percent; and they suffered the highest battle casualties, losing 196 machines, mainly because they were most often exposed to anti-aircraft fire and enemy fighters.




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Technical Specifications

Aircraft: Douglas A-4F
Year: 1966
Type: attack
Manufacturer: Douglas Aircraft Co.
Engine: Pratt & Whitney J52-P-8A
Power: 9,300 lb (4,218 kg)
Wingspan: 27ft 6in (8.38m)
Length: 40ft 3 1/4in (12.27m)
Height: 15ft (4.57m)
Wing area: 260sq ft (24.16m²)
Max take-off weight: 24,500 lb (11,113 kg)
Empty weight: 10,000 lb (4,535 kg)
Max speed at sea level: 675mph (1,086km/h)
Service ceiling: 49,000ft (14,935m)
Range: 2,000mi (3,200km)
Crew: 1
Load-armament: 2x20mm cannon; 10,000 lb (4,500 kg)



Return to United States Aircraft

United States Aircraft



General Dynamics F-111

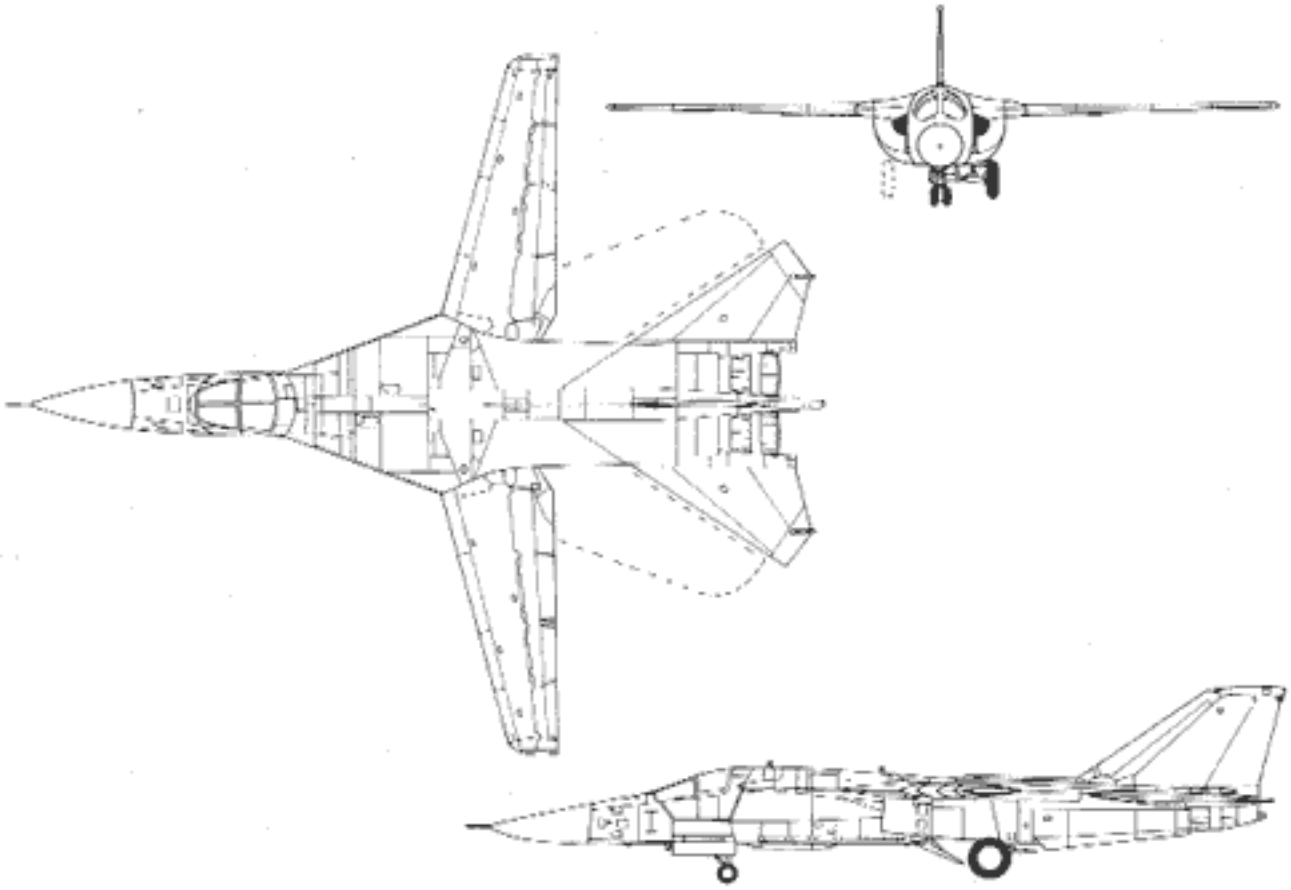
The first warplane with variable geometric wings to be mass produced, the F-111 was built by General Dynamics at the beginning of the 1960s against an initial contract for delivery of eighteen planes to the USAF and five to the US Navy. Although the prototype had already flown on December 21, 1964, subsequent phases of development were fraught with difficulties, leading to the abandonment of the program by the US Navy. Production, therefore, was reserved for the USAF, which took delivery of the first machines in 1968. The first variant was the F-111A, and after seventeen pre-production models, 141 of these planes were built. Then followed 76 FB-111As, with more powerful engines, larger wings and more sophisticated electronics, which went into service in 1969. Successive variants were the E (94 planes in service from September 1970); the D for tactical support (96 machines, operational from October 1971); and the F, the final version which appeared as prototype in May 1973 and of which 106 were made, the last in November 1976. Total production of General Dynamics F-111 was 562 aircraft, including 24 F-111Cs which were exported to Australia.

The first F-111As, hot off the assembly lines, were sent to Vietnam in March 1968 for the Combat Lancer operation. Six tactical bombers of the 428th TFS had the chance to prove their worth in the battle zone, but the experiment was disastrous: three of the six were destroyed during unescorted missions at various times. Initially it was assumed they had been shot down by the enemy, but it later became clear that they had crashed because of structural faults. The detachment, having carried out 55 missions, was recalled to the US, where criticism of this already controversial aircraft reached a new peak. Yet the F-111A did eventually prove itself, again in Vietnam. On September 27, 1972, 48 F-111As of the 429th and 430th TFS of the 474th TFW arrived in Southeast Asia; they immediately went into action to help check the accelerating advance of the North Vietnamese. In five months, that is up to the end of the hostilities, they carried out over 4,000 sorties dropping about 74,000 tons of bombs with high results, and the loss of only six machines. It is worth noting that 3,980 of these 4,000 missions were effected by means of TFR (Terrain Following Radar), a radar system capable of guiding the plane at a height of only a few meters, encompassing the slightest unevenness of terrain, without intervention by the pilot, and flying beneath the net of the SAM missile radar systems. Such feats in Southeast Asia were crucial in establishing and later restoring the reputation for quality which this variable-sweep wing fighter-bomber from General Dynamics was intended to possess from the start. In action once more in April 1986, attacking targets in Tripoli and Benghazi, Libya, the F-111s confirmed their right to be considered the spearhead of the USAF tactical bombing operations.









Technical Specifications

Aircraft: General Dynamics F-111A
Year: 1964
Type: fighter-bomber
Manufacturer: General Dynamics
Engine: 2 x Pratt & Whitney TF30-P-1
Power: 18,000 lb (8,165 kg)
Wingspan: 63ft (19.20m)

Length: 73ft 5 1/2in (22.40m)
Height: 17ft 1/2in (5.18m)
Wing area: 525sq ft (48.77m²)
Max take-off weight: 98,850 lb (44,838 kg)
Empty weight: 46,172 lb (20,944 kg)
Max speed: 1,435mph at 53,450ft (2,338km/h at 16,292m)
Service ceiling: 56,650ft (17,267m)
Range: 1,330mi (2,140km)
Crew: 2
Load-armament: 1x20mm cannon; 30,000 lb (13,608 kg)



Return to United States Aircraft

United States Aircraft



Northrop F-5A/E Freedom Fighter

In August 1964 the USAF took its first delivery of F-5As and immediately decided to send a few machines to the combat zone in order to test their capabilities. The so-called 'Skoshi Tiger' program was organized in October 1965, coinciding with the arrival of 12 F-5As, partially modified for war purposes and furnished with 'proboscis' equipment for refueling in flight. The fighter-bombers operated at first with the 4503rd TFW, and in the course of 2,500 hours of tactical support and reconnaissance missions gained experience that proved extremely valuable for launching the next, more powerful F-5E version, which took the name Tiger II in recognition of the aircraft's contribution to the Skoshi Tiger operation. The 12 F-5As of the 4503rd TFW, together with six new machines, were handed over to the 10th Fighter Command Squadron, attached to the 3rd TFW at Bien Hoa, and in 1967 the USAF delivered them to the VNAF. The F-5s were the first and only jet aircraft belonging to the newly formed South Vietnamese Air Force, which later received a number of F-5Es, used in action until the final collapse. Many of these F-5Es were captured by the North Vietnamese in perfect working order.

Planned at the start of 1955, the Northrop F-5 has become one of the most popular tactical fighters of the 1980s. Designed primarily for export, the aircraft's success is mainly due to its simplicity, lightness of weight and low cost, which, united with excellent performance and good armament, make it a worthy rival of bigger, stronger and more sophisticated planes. The F-5 prototype flew on July 31, 1959, and production was soon in full swing. About 1,300 of the early A and B variants (single - and two-seaters respectively, first flights July 31, 1963 and February 24, 1964) were built and sold to some twenty countries. Toward the end of the 1960s Northrop brought out the improved and more powerful F-5E Tiger (first flight August 1 1, 1972), which sold as successfully as its predecessors. The F-5As went into service with the USAF in August 1964, and in October 1965 a few machines were sent experimentally to Vietnam.

US Army Northrop N-156F

The Northrop N-156F light strike fighter prototype was one of three jet-powered, fixed-wing attack aircraft selected by the Army in 1961 for competitive evaluation in the forward air control (FAC), tactical reconnaissance, and ground attack roles. The N-156F was chosen for testing primarily because of its relatively simple design, impressive load-carrying capacity, and ability to operate from unimproved

forward airfields.

Northrop had begun development of the N-156 family of low cost, lightweight supersonic aircraft in 1956, with the first design being that of the N-156F single-seat fighter version. Much to Northrop's chagrin the Air Force showed no real interest in the N-156F, though in June 1956 the service's Air Training Command did adopt a two-seat trainer variant as the T-38 Talon. In the spring of 1958 the Department of Defense renewed Northrop's hopes for the fighter version by directing the USAF to procure three N-156F prototypes for engineering and operational evaluation. The first of these aircraft (serial 59-4987) made its initial flight in July 1959, less than four months after the maiden flight of the first T-38. The Air Force's attitude towards the N-156F did not change appreciably despite the aircraft's excellent showing in the evaluations, however, and work on the number three prototype was halted prior to completion because the USAF did not feel that the remaining tests required a third aircraft. At the end of the test period the Air Force announced that it would not procure the N-156F, and Northrop was forced to temporarily suspend work on the fighter version. The company thus viewed the Army's 1961 decision to evaluate the N-156F as a possible reprieve and gladly supplied the first prototype machine and a complete ground support staff for the tests.



Northrop N-156F

The N-156F was of fairly conventional layout with thin, slightly-swept, low-set wings, a fuselage characterized by a narrow area-rule section amidships, a one-piece 'all-moving' tail plane, a rather large vertical fin, and tricycle landing gear. The aircraft was built primarily of aluminium, and Northrop made considerable use of adhesive-bonded honeycomb as a stiffener in critical areas. The N-156F was powered by two afterburning General Electric J85 turbojets mounted side-by-side in the aft fuselage, and could be fitted with up to four 1,000 pound JATO (Jet-Assisted Take Off) bottles for operation from extremely short fields. More than a quarter of the aircraft's total fuselage area consisted of easily-removable access panels to simplify field maintenance, and both engines were attached to built-in overhead tracks for easy removal.

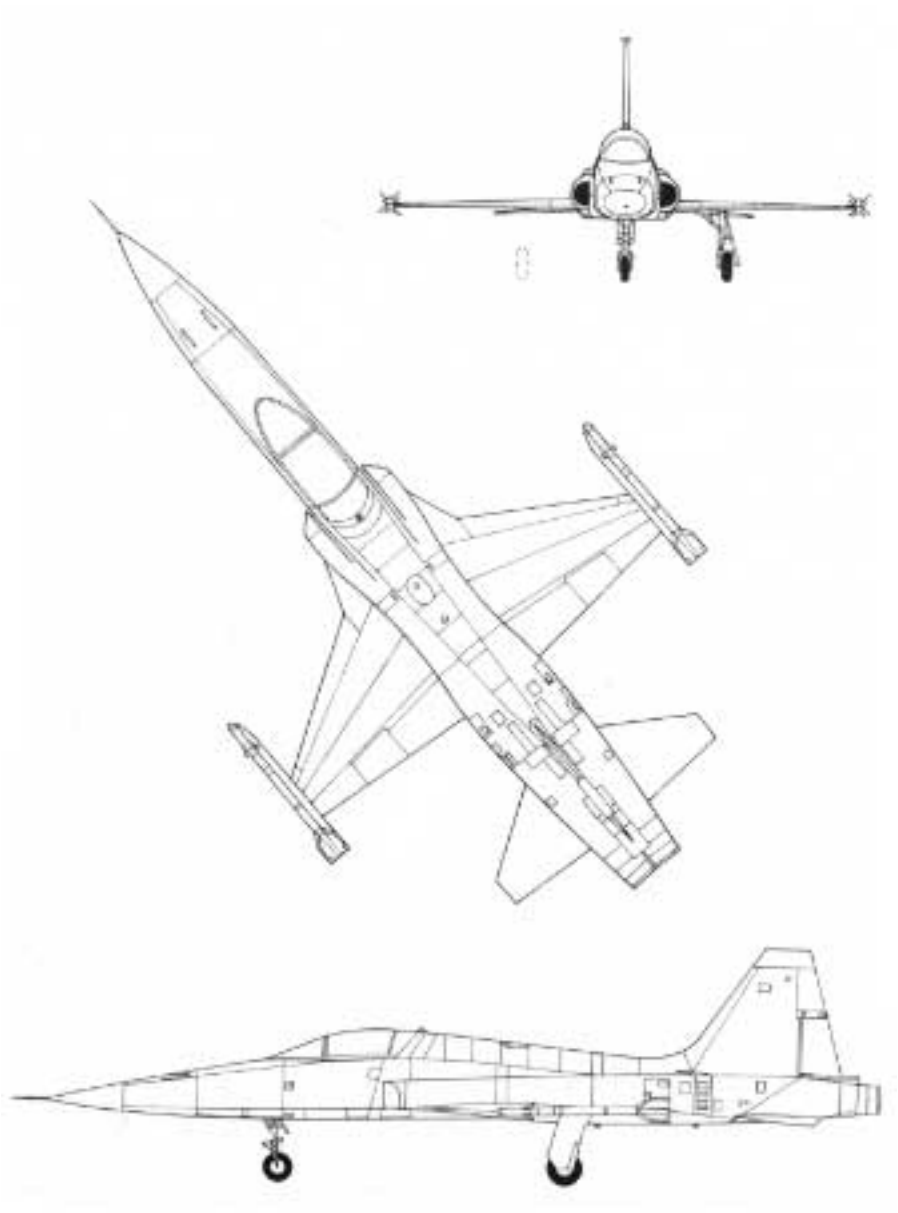
The Army's evaluation of the N-156F found it to be a well-built and capable aircraft, easy to maintain under field conditions and capable of carrying a significant offensive load while operating from the most

rudimentary forward airstrips. These abilities were ultimately rendered meaningless, however, by the Army's decision to accede to Air Force pressure and abandon the quest for fixed-wing jet aircraft. The sole N-156F tested by the Army was susbsequently returned to Northrop, and was eventually converted into the prototype YF-5A Freedom Fighter.









Technical Specifications

Aircraft: Northrop F-5A
Year: 1963
Type: fighter

Manufacturer: Northrop Corp.
Engine: 2 x General Electric J85-GE-13
Power: 4,080 lb (1,85l kg)
Wingspan: 25ft 10in (7.87m)
Length: 47ft 2in (14.37m)
Height: 13ft 2in (4.0lm)
Wing area: 170sq ft (15.79m²)
Max take-off weight: 20,677 lb (9,379kg)
Empty weight: 8,085 lb (3,667kg)
Max speed: 925mph at 36,089ft (1,489km/h at 11,000m)
Service ceiling: 50,500ft (15,392m)
Range: 558mi (898km)
Crew: 1
Load-armament: 2x20mm cannon; 6,200 lb (2,812kg)



Return to United States Aircraft

United States Aircraft



Cessna A-37B Dragonfly

In the first part of the 1950s Cessna went in for military production, designing the first jet trainer for the USAF, the T-37. From this machine (of which 1,268 models of three basic versions were built between 1955 and 1977), an efficient attack plane was derived in 1963, the A-37, which was also successfully exported. The prototype flew on October 22 and the first 39 A-37As were produced by direct conversion of other T-37Bs. The definitive version was the A-37B, which first appeared in September 1967 and of which 577 were built with the majority of these going to the USAF.

One of the few aircraft designed from the start for tactical support, the A-37 arrived in Vietnam toward the end of the 1960s and was mainly used in support of helicopter operations. Capable of mounting a wide range of weapons, it proved highly adaptable to diverse operational needs. Particularly effective were its low-level napalm bomb attacks. A fairly limited number of machines, under the colors of both the USAF and the VNAF (the illustration shows the VNAF insignia), were used in action.

US Army

During the late 1950s the Army Aviation Test Board and the Aviation Combat Developments Agency (ACDA) began to jointly explore the feasibility of using Army-operated fixed-wing jet aircraft in the artillery adjustment, tactical reconnaissance, and ground attack roles. Operational necessity dictated that any such aircraft be easy to maintain under field conditions and capable of operating from unimproved forward air strips, and these prerequisites indicated that any jet procured for Army use would have to be simple and relatively small, yet at the same time be of robust construction and able to offer a performance significantly better than that of the various piston-engined machines then in Army service. Cessna's diminutive T-37 twin-engined primary trainer admirably fulfilled all these requirements, and in early 1958 three examples borrowed from the Air Force were sent to Fort Rucker to begin a one year Army evaluation programme dubbed Project LONG ARM.

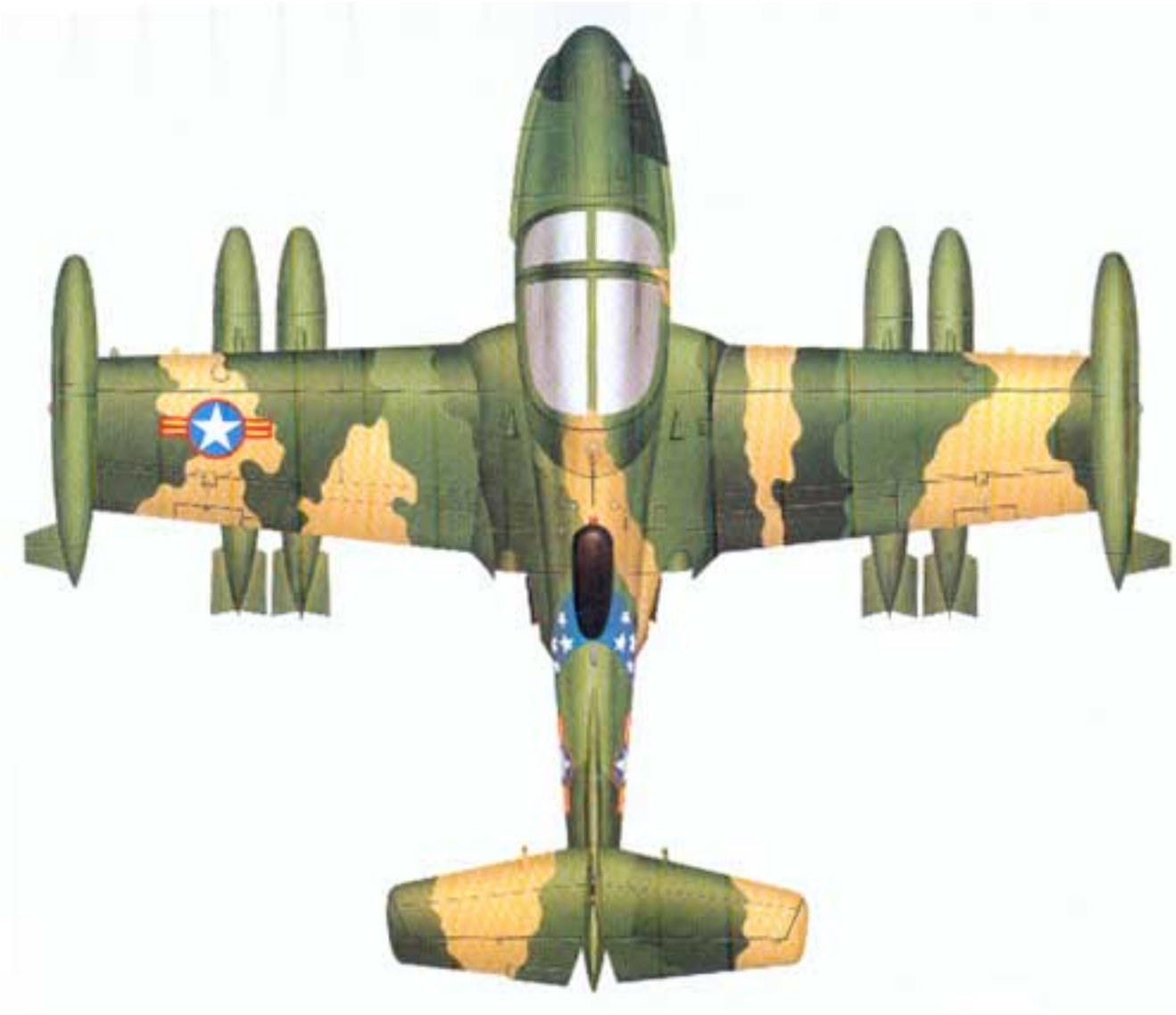


US Army T-37

The Cessna Model 318 had been adopted by the Air Force as the T-37 after winning a 1953 USAF-sponsored design competition for a new primary jet trainer. The first of two prototype XT-37s had made its maiden flight in early 1954, and the first eleven production T-37As had entered USAF service in 1955. The three aircraft evaluated by the Army were all -A model machines of the fourth production batch, and carried the serial numbers 56-3464 to -3466. The T-37, widely if unofficially known as the 'Tweetybird', was characterized by low-set, non-swept wings, side-by-side crew seats, and a broad forward fuselage. The type was equipped with ejection seats for both crewmen, and its cockpit instruments and controls were identical to those found in frontline USAF aircraft. The T-37A was powered by two Continental J69 turbojets, one buried in each wing root, and was quite manoeuvrable and relatively easy to fly.

The Army's evaluation of the T-37 found the aircraft to be ideally suited for Army use and both the Aviation Board and the ACDA recommended quantity procurement of the type. However, mounting Air Force opposition to Army ownership and operation of fixed-wing jet aircraft eventually forced the Army to abandon the planned T-37 acquisition and all three machines used in the Project LONG ARM tests were returned to the Air Force in early 1959.






22488



Technical Specifications

Aircraft: Cessna A-37B
Year: 1967
Type: attack
Manufacturer: Cessna Aircraft Co.
Engine: 2 x General Electric J85-CE-17A
Power: 2,850 lb (1,293kg)
Wingspan: 35ft 10½ in (10.93m)
Length: 29ft 3in (8.92m)
Height: 8ft 10½ in (2.70m)
Wing area: 183.9sq ft (17.09m²)
Max take-off weight: 15,000 lb (6,804kg)
Empty weight: 5,873 lb (2,670kg)

Max speed: 478mph at 15,000ft (769km/h at 4,572m)
Service ceiling: 32,100ft (9,785m)
Range: 450mi (724km)
Crew: 2
Load-armament: 1x7.62mm minigun; 5,4001b (2,450kg)



Return to United States Aircraft

The Battle of Ap Bac 1



Armor of the South Vietnamese Army

The battle of Ap Bac, sixty-five kilometers southwest of Saigon in the Mekong Delta in January 1963, illustrates the early problems faced by the developing armored forces of the ARVN . The month before, Vietnamese Army intelligence had reported a reinforced Viet Cong company in Ap Tan Thoi, 1,500 meters northwest of Ap Bac. (Map) The Vietnamese 7th Division planned an operation to trap the Viet Cong by landing the 11th Infantry Regiment to the north by helicopter while a provisional regiment of two battalion-size task forces of Civil Guards (later named Regional Forces) moved in from the south. The 4th Mechanized Rifle Squadron, 2d Armored Cavalry, commanded by Captain Ba, was attached to the provisional regiment and was to attack from the southwest. Three Vietnamese Ranger and infantry companies were in reserve, with artillery and air support on call.

In contrast to the intelligence estimate, the enemy force actually consisted of three main force companies, reinforced with machine guns, 60-mm. mortars, and several local guerrilla units. The Viet Cong after action report subsequently captured revealed that the enemy knew a battle was imminent and had carefully prepared defensive positions along the Cong Luong Canal from Ap Tan Thoi to Ap Bac. The canal, bordered with vegetation, offered concealment and unobstructed fields of fire across the open rice paddies.

On the morning of 2 January 1963 the Civil Guard task forces started north, while in three uneventful trips helicopters lifted the Vietnamese 11th Infantry Regiment into position. About 0730 Task Force A encountered the southern flank of the Viet Cong positions along the Cong Luong Canal. During the first moments of battle, the task force commander was wounded and a company commander killed. Major Lam Quang Tho, commander of the 2d Armored Cavalry Regiment and also province chief, refused to allow the provincial forces to advance, and changed their mission to one of occupying blocking positions. Colonel Bui Dinh Dam, 7th Division commander, decided to commit a reserve force to the west side of the canal that runs through Ap Bac. At 1020 as the helicopters came in for their fourth lift, the Viet Cong antiaircraft crews hidden along the canal opened fire. Of the 15 helicopters bringing in the reserve, 14 were hit, and by noon 5 had been shot down.

Lieutenant Colonel John P. Vann, division adviser, radioed Captain James B. Scanlon, senior adviser to the 2nd Armored Cavalry Regiment, that the helicopters were down about 1,500 meters to the southeast

of the regiment. After considerable argument with Captain Scanlon, Captain Ba finally agreed to move across the Cong Ba Ky Canal and secure the helicopters. Three hours later, as the first of the APC's approached the helicopters, enemy fire suddenly raked the two leading vehicles and their dismounted infantrymen. The APC's began backing up, abandoning the wounded. A few minutes later they advanced again, firing their .50-caliber machine guns, and again they were hit by enemy fire. Exposed from the waist up, the machine gunners were particularly vulnerable; fourteen of them died before the day was over.

Captain Scanlon ran to the aid of the wounded helicopter crews, and with the help of Sergeant Bowers, another adviser, carried them to the APC'S. By now more APC's had crossed the canal and they too tried to maneuver forward, but without success. Because there was no unified effort, the Viet Cong was able to concentrate fire on each vehicle in turn as it ventured forward.

By mid-afternoon, when it was apparent that the enemy could not be overrun, the South Vietnamese Army commanders and the advisers decided to request reinforcement by an airborne battalion. Despite the vehement objections of both Colonel Vann and Colonel Daniel B. Porter, who was the IV Corps Tactical Zone adviser, the corps commander decided to drop the South Vietnamese airborne battalion to the west, behind the mechanized squadron, rather than east of the canal, where it would have completed the encirclement. At dusk the 8th Airborne Battalion parachuted into the rice paddies. The night was quiet save for artillery fire and the popping of flares over the enemy positions. Taking advantage of the open eastern side, the Viet Cong withdrew during the night and were gone by daylight. Early in the morning dismounted troops from the APC squadron crossed the canal, passed the empty enemy positions, and swept through most of Ap Bac before being ordered to hold. The airborne battalion was still organizing and collecting parachutes and was not ready to attack. Finally, at noon the force staged an attack that was really nothing more than a walk-through.

Because of the large number of South Vietnamese troops involved, and especially because of the number of U.S. helicopters downed early on the first day, the battle of Ap Bac drew much attention. Although estimates of the results of Ap Bac varied, Colonel Vann considered the operation a failure. Several days later he stated:

> "There were three main criticisms.... First, the failure of South Force to move. Second, failure of the APC's to move. Third, the parachute force. They were dropped on the wrong side of the river. It was a decision that I opposed. They wanted to reinforce defeat rather than ensure victory."

The fighting at Ap Bac and more specifically the employment of the mechanized rifle squadron, illustrates many of the problems faced by advisers. Poor coordination and planning were apparent at all levels in the South Vietnamese command; the airborne forces were not correctly employed and there was no unity of command on the ground. Politics also played a part. The South Vietnamese cavalry commander was the political leader of the province, and because his political and military future depended on his keeping casualties in the Civil Guard and armored cavalry to a minimum, he was

reluctant to have these forces attack. Finally, strained relations between the advisers and the South Vietnamese unit commanders materially contributed to the lack of cohesion. Politically, the battle was reported as a victory, but for the armored forces it was much less. Only when the crews had had further training and experience and when improvements had been made on the equipment would the APC's be employed to better advantage.



Back to ARVN Armoured Forces

Source:

Armored Combat in Vietnam, General Donn A. Starry, Blandford Books Ltd., 1981, ISBN 0-7137-1166-3

US Infantry Weapons



Colt 1911A1 Semi-Automatic



During the early years of the Twentieth Century, the US Army was equipped with a Colt .38 in 1900 Military Model pistol that fired a 0.38in ACP cartridge. When US forces became engaged in counter-insurgency operations in the Philippines, however, the soldiers began to express dissatisfaction with the 0.38in cartridge. Against a determined enemy, it did not possess the stopping power necessary for close-range actions.

Colt had purchased four designs from Browning in 1896 and, when service trials for a new weapon were called for in 1907, Colt began work on a 0.45in calibre automatic gun. The result was the Military Model 1911, a watershed in the development of semi-automatic pistols. Modifications to the Colt 1900 Military Model incorporated some of the features of Browning's 1905 design, and thus that pistol became the joint ancestor of both the Colt M1911 (which was the outcome of the modifications) and the Browning High Power 9 mm pistol. The US Army was so impressed with its performance that the M1911 was adopted for service use during World War I.

Combat experience during the Great War led to a number of modifications and developments at the Springfield Armory, begun in April 1923, resulted in several improvements to the M1911 including redesign of the grip, an improved manual safety catch and a new mainspring housing. The M1911A1 emerged from these adaptations as one of the most powerful and mechanically reliable handguns ever produced and this improved weapon was adopted by the US Army in 1926 as the M1911Al and has remained almost unchanged ever since (see Technical Specifications).

Whereas most contemporary pistols employed a receiver stop to arrest the backward motion of the receiver slide, the M1911A1 incorporated a more effective locking system base on interlocking lugs on the barrel and the slide. This enabled the spent case to be ejected and the loading cycle to continue with the minimum of error. By 1941, the Ml911A1 was still a standard weapon in the US armed services. The Colt was not without its faults, however, and it had a love-hate relationship with some of the troops. Although the Colt gave l00 per cent stopping power in combat, it had a fierce twisting recoil that often unnerved those unused to handling such a powerful weapon. For many of the wartime troops, the hefty recoil of the Colt made accuracy difficult beyond ranges of 20yds.

The M1911A1 saw widespread service in World War 2 and was used extensively during the Korean War. It remained the firm favourite of officers and Special Forces during the Vietnam war where its performance was held in particular regard by the Tunnel Rats, men who understood the value of heavy firepower in small, confined spaces underground. In Vietnam it was also used by the South Vietnamese, Filipinos and South Koreans.



The weapon weighed just over 1 kg *(2.2 lb)* and was 218 mm (8.6 in) in length. It was recoil operated and loaded from a 7-round box magazine, having an effective range of about 50 m (54.7yd). There were two safety devices; a safety catch, mounted just forward of the spur on the frame, and a grip safety at the upper rear part of the pistol grip which fitted into the web of the palm between the thumb and index finger. The pressure exerted by the palm when firing released the grip device and unlocked the safety.

The usual cartridges for the Colt pistol were the 0.45in ball M1911 (which has considerable stopping power), the blank M9 and the tracer M26. To these was added the High Density Shot M261, a round that was loaded with steel-shot projectiles and packed a heavy punch.

Although the last M1911A1 came off the production line as far back as 1942, soldiers continued to prefer the Colt over 9mm Parabellum cartridge pistols such as the Browning High Power GP 35. A recent

survey revealed that, of the 418,000 M1911A1's still in the US armoury, every last one has been either overhauled extensively or rebuilt at least three times.

In the light of weapons trials held after the Vietnam war, a number of proposals were mooted for an improved pistol. Among these was a design that modified the M1911A1 to take a 9mm cartridge. This new service pistol, a version of the Beretta 92 9-mm pistol, was designated M9. However, the M9 was so dogged by problems that the M1911A1 was back in use during Operation Desert Storm. In the meantime, companies still produce spares and components for the M1911 series, knowing that the robust Colt semiautomatic will remain in faithful service for some time to come.

The Browning design is of classic simplicity, so classic and so simple that it is still appearing on new pistol designs to this day. The pistol consists of three major components, the frame, the barrel and the slide. The slide moves back and forth on rails in the frame, and the rear half of the slide is the breech block, carrying the firing pin and extractor.

The frame consists of the butt, holding the magazine, the trigger, the hammer, and a grip safety device which prevents the hammer going forward unless the butt is properly held and the grip compressed. The barrel is attached to the frame by a short link pinned underneath the barrel at its upper end and anchored to the frame by a cross-pin at its lower end; this acts as a sort of hinge around which the rear of the barrel can swing. The top of the barrel has two ribs machined on it, and these match two grooves in the inner surface of the slide top.

To fire the pistol you insert a magazine into the butt, pull back the slide against a spring which lies beneath the barrel, and release it. The slide runs forward and the edge of the breech block collects a cartridge and pushes it into the chamber of the barrel forward, and the 'swinging link' underneath it causes it to pivot forward and up. As it does so, the lugs on top move into place in the grooves inside the slide top and the barrel and slide are locked together.



Pull the trigger and the hammer drops, hits the firing pin, and fires the cartridge. The bullet goes down the barrel and the barrel recoils. In doing so it makes the slide recoil as well, since the two are locked

together, so the breech stays firmly closed until the bullet has left the muzzle and the powder pressure inside the barrel has dropped to a level where it is safe to begin opening the breech.

As the barrel moves back it pivots around the link until the lugs are pulled free from the slide recesses. At this point the barrel stops moving, but the slide has been given sufficient momentum, by the recoil, to continue back, extracting the empty case and ejecting it and cocking the hammer by simply rolling over it. Recoil stops, the spring forces the slide back, the pistol reloads and the barrel and slide lock together again.



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M3 'Grease Gun'

The M3 SMG was nicknamed the 'grease gun' because of its shape, which looked remarkably like the tool used for injecting axle grease into the nipples of vehicles. It entered service with the US forces in 1942 and was produced in response to the need for a cheap, easily-mass-produced sub-machine-gun as the Thompson was quite an expensive weapon even in its M1A1 variant and quite complicated to make.



The M3 'Grease Gun' with wire stock extended and
30-round column-box magazine removed

The example of the British Sten and German MP40 was taken as the starting point of what became the M3 submachine gun, a simple all-metal weapon designed for easy and cheap production. The M3 used die-stamping where possible and construction was all-metal, with most parts being simple steel stampings spot-welded into place. Only the barrel, the breech block and part of the trigger mechanism required any machining (see Technical Specifications).

Rushed into production early in 1942, it became clear that in spite of its simplicity the M3 had some design faults. The faults could be put down to the fact that manufacture was being undertaken by factories more used to making car and truck components. The cocking handles broke off, the wire stocks bent too easily and some important parts of the trigger mechanism broke because the metal they were made from was too soft. However, these could be lived with, and in service the weapon showed itself to be reasonably effective.

The biggest fault with the M3 was a result of its single-column magazine. As with the German MP40,

this was prone to stoppages. A plastic cover managed to keep some of the dirt out of the magazine, but it was never totally satisfactory. Nevertheless, it worked well enough, and its cheapness and simplicity meant that it was the M3 rather than the Thompson which became the standard post-war US Army sub-machine gun.



South Vietnamese CIDG forces receiving instruction in the use of the M3

Part of the design specification was for a gun that could be easily converted to take 9 mm ammunition, and this could be done by changing the barrel, bolt, magazine housing and magazine. The normal variant was for firing.45 in ACP ammunition. The M3 had an unusual, but fairly foolproof safety device. The ejection port cover was fitted with a projecting lug which, when the cover was closed, locked the bolt in either the cocked or battery position. To fire the weapon, the cover was opened.

Simple as the gun was to produce, it was decided in 1944 to make production even simpler. The M3A1 followed the same general pattern as the M3 but with one quite substantial change introduced as a result of combat experience: the ejection port was enlarged and exposed the full travel of the breech block. The complicated cocking mechanism of the M3 was simplified, replacing the cocking handle by a finger-hole in the breech block, into which the firer's finger was placed to draw the bolt to the rear, thereby cocking the weapon. A flash hider was added, together with a number of minor changes. The weapon could be easily disassembled by the ingenious use of some parts as tools to strip other parts.

The M3 is an extremely simple blowback weapon. There is no safety, fitted and the weapon only fires fully automatic. However, since the cyclic rate of fire is relatively low at 450-rounds per minute, this allowed the firer to control the movement of the gun when firing bursts and even to squeeze off single shots.. It fires the standard .45 ACP pistol cartridge (as used in the M1911A1) from a straight 30-round, single-column box magazine. There was provision in the original design for conversion to 9-mm Parabellum. This involved changing the barrel, breech block and magazine, all of which could be done without tools. A small number of weapons so converted appeared in Europe, but the vast majority of the

700,000 US-made M3s were in 45 calibre.



Captured Viet Cong carrying an M3A1
- note the flash suppressor

The receiver is of tubular pressed steel, with the single-column box magazine projecting downwards. The somewhat flimsy cocking handle is awkwardly located just forward of the trigger on the right-hand side. The bolt travels on guided rods within the receiver, doing away with the need for finishing the interior to any great extent. The cartridge ejection port has a hinged cover. The barrel screws directly into the receiver, and sights are rudimentary. There are no luxuries such as sling swivels, and the telescoping butt is simply a bent piece of wire.

It was a lighter weapon than the Thompson, weighing around 4.5 kg (9.9 lb) (depending on the variant) when fitted with full magazine, oil bottle and sling. It featured a retractable wire butt stock, similar to the MAT49, and measured 757 mm (29.8 in) with the stock extended and 579 mm (22.8 in) when it was retracted. The weapon was also made in the PRC as the Type 36 (.45) which incorporated many of its features.



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M-14 Rifle

From 1957 onwards, until its replacement by the M16, the M14 was the standard rifle of the US forces and saw extensive service in Vietnam . The M14 was adopted in 1957 as the successor to the World War 2 M1 Garand, and was basically an evolution of that rifle.

The US Army had fought World War II and the Korean War with the Ml Garand as its standard rifle. It was a sound and reliable weapon, but it had several defects. In the first place, it was heavy; and it felt heavy to anyone accustomed to a simple bolt-action rifle. The fore-end was fat and almost impossible to grasp unless one had large hands and attempting to use it with a bayonet demanded considerable effort. The South Vietnamese troops, with their considerably smaller stature found the M-14 almost impossible to use and retained the M-1 until such time as the M-16 became available.



Mixed Weapons - there was a period of cross-over as the M-14 was phased out. The soldier in the foreground carries an M-14 and to his left and right are M-16s

The M1 Garand fired from an eight-round clip; the clip was loaded into the magazine, and from then on there was no way you could top up the magazine without ejecting the clip and the remaining rounds and putting a fresh clip in. And when the last shot was fired the clip was automatically ejected; if it landed on a rock or frozen ground, the ‘ping' told your opponent that you were holding an empty rifle, and he

popped up and shot you while you were still fumbling with the next clip. When the US troops had used the M2 carbine, with its selection of semi- or full-automatic fire, they wanted to know why the Garand couldn't be adapted for full-automatic fire as well.

In September 1944 Springfield Arsenal began working on an improved Garand which would fire from a 20-shot box magazine and have full-automatic capability. There was no particular rush since it was obvious that such a development would not be completed in time to affect the current war.



US Marines on patrol with M-14s

After WWII the US Infantry laid down some specifications for its next rifle. The new rifle would fire the same .30 cartridge, have full-automatic fire, a 20- or even 30-shot magazine, a bipod (for use when firing automatic), a grenade launcher, a folding butt, and improved sights and had to weigh no more than nine pounds. What they were asking for was the Garand, with additions for automatic fire, bipod, grenade launcher and a bigger magazine, which was to weigh half a pound less than the original Garand. It was to take 12 years before the Army found a solution.

When the 7.62mm x 51 NATO round was selected in 1953 a new rifle based on the Garand was adopted.

What eventually appeared, and was standardised as the M14 rifle in June 1957 (see Technical Specifications), was little more than a 'product improved' M1. The gas actuation system was slightly changed; the magazine was a removable 20-round box which could be topped up from chargers. The ability to fire full-automatic was designed into the weapon, but was then neutralised by removing the selector lever and fitting a 'selector lock'. As and when higher authority decided that a particular regiment or company was to be allowed the luxury of full-automatic fire, the locks were removed and selectors fitted; eventually the rule became that two men in each rifle squad would have selective fire M14s to act

as the squad light machine-gun section.



M-14A1

This was perhaps just as well, for the M14 fell between several stools. It had been intended as a lightweight full-auto rifle, but in fact it weighed half a pound more than the M1. Unfortunately, the US Ordnance Department had refused to be persuaded by the British that an intermediate cartridge was a vital part of a lightweight rifle design, and the American T65 cartridge, later to be standardised as the 7.62x51-mm NATO round, was adopted. This, although slightly shorter than the old .30 M1 cartridge, was still just about as powerful, and firing that from a 10-lb rifle at 700 rounds a minute produced an entirely uncontrollable weapon.

The main and more obvious improvements on the Ml Garand were the gas system and magazines. On the Ml the magazine was fixed and had to be loaded using a charger. On the M14, detachable 20-round box magazines were used. The normal M14 fired semi-automatic only. A slide-on bipod could be provided, and the rifle fitted the M76 grenade launcher which was slipped on to the flash suppressor and secured to the bayonet lug. The M14 weighed 5.1 kg (1 1/2 lb), with a full magazine and cleaning kit carried, and measured 1,120 mm (44 in) in length. It had a maximum effective range on automatic with the M2 bipod fitted, and on semi-automatic without the bipod, of 460m (503 yd). When the bipod was added, the semi-automatic range increased to 700m (766 yd). A special suppressor was fitted to the muzzle of the sniper rifle which did not affect the performance of the bullet, but reduced the velocity of the emerging gases to below that of sound. This made location very difficult as the target heard only the 'crack' of the passing bullet and no 'thump' from the rifle.



US Marines in action on 'Charlie Ridge', 1970. M-60 in the foreground and a late-war M-14 with bipod being fired by the kneeling Marine

The M14 National Match (Accurised) was the sniper rifle variant, which has been renamed the M21 in recent years. Production of the M14 ceased in l964 and in 1968 the M14Al went into production with better facilities for full automatic fire, including a bipod.. The M14A1 came close to being a light machine-gun, leading one authority to call it a 'machine rifle'. It had a pistol grip, a folding fore-hand grip about half-way down the forestock, a folding bipod, a shoulder strap, and a sleeve was fitted over the muzzle to act as a compensator when firing fully automatic which helped to keep the barrel down and prevent 'climb'.

The M14 and M14A1 had a relatively short frontline service life despite the fact that about 1,500,000 were produced.

Gas Operation

The gas system of the M14 was radically altered from that of the Garand which tapped gas close to the muzzle in a simple system that gave the operating rod a sharp and heavy blow, which the firer felt.

The M14, on the other hand, tapped gas further back down the barrel, but used a cut-off and expansion system to drive the piston. Gas entered the cylinder and moved a valve sleeve which cut off the entry of any more gas once a measured amount had been admitted. This gas was then allowed to expand, and thus drive the piston back in a more gentle and progressive manner. The rifle was therefore steadier and successive shots could be fired more quickly and accurately. The positioning of the gas port also improved the barrel's vibration period and added to the overall accuracy of the weapon.

The only variant of the M14 that ever saw any serious service was the M21 Sniper Rifle. This was originally developed as a competition rifle and was known as the M14 National Match (Accurised), and

the differences between the M14 and the M21 are matters of detail. The barrel is carefully gauged and selected and is not chromed; the trigger mechanism is hand-finished to ensure a crisp and consistent pull; the gas cylinder and piston are hand-fitted and polished, and so forth. The result is a rifle that will consistently put 10 shots inside a 15-cm circle at 300 metres. A range-finding telescope is fitted, and a sound suppressor can also be fitted to the muzzle if required which did not affect the performance of the bullet, but reduced the velocity of the emerging gases to below that of sound. This made location very difficult as the target heard only the crack of the bullet and no shot from the rifle.



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M-16 Assault Rifle

During the 1950's, Eugene Stoner of Armalite Inc produced a design for a 5.56 mm rifle, designated the AR-10, a revolutionary weapon built with extensive use of plastics and alloys, as a replacement for the M1 carbine then in service with the US armed forces.

Following initial trials by the US Army Infantry Board at Fort Benning the designers modified the AR-10 at the Army's request, and the result was the AR-15. Firing a new, smaller, 5.56-mm x 45 cartridge cartridge, it was a far cry from the US Army's existing weapons being a much smaller and lighter weapon than its predecessors. But in 1959 the Army lost interest and turned instead to a new development programme, the 6-mm SPIW (Special Purpose Individual Weapon).

That might have been the end of the story but for the US Air Force, who were looking for a small and handy short-range weapon with which to arm airfield guards. They looked at the AR-15, liked it, and ordered 8,000 in 1962. Shortly after this it was issued to guards in Vietnam. The ARVN (Army of the Republic of Vietnam) saw them, thought that they would be ideal for their small-statured men, and asked for some to be supplied by the USA. One thousand were sent out in 1962, and it became highly popular.

In the late 1950s, following the failure of the 6-mm SPIW programme, the US military increasingly adopted the Soviet tactic of sacrificing accuracy in favour of lighter weapons with a faster rate of fire. US Army interest returned to the AR-15 and the Army took a number of the rifles for evaluation in Vietnam. Before the Army could standardise the weapon, they insisted on some small modifications; of these, the most important of these were a burst-fire selection and a plunger-type 'bolt assist' (a bolt closing device) on the right-hand side of the receiver for forcing the bolt home if the return spring fails to do this for any reason. Occasionally a dirty cartridge or a dirty chamber caused the breech to stick before being fully closed, and a positive closing plunger was added on the right hand side of the receiver. With this, the rifle now became the M16A1 and received official blessing and followed this up in 1963 with a large order for 85,000 rifles to replace the heavy and awkward M14. A further 19,000 were also ordered for the Air Force. Increasing numbers were required over the years - 100,000 in 1965 and a further 100,000 in 1966. By 1969, the US Army had accepted the M16 as the standard rifle. The Colt Firearms Corporation took over the manufacturing in 1962, and although some were produced by other firms under an agreement with the US government (Harrington and Richardson, and the Hydramatic Division of General Motors)

most Ml6s have been made by Colt. It was also produced in a shorter-barreled carbine version.

The M16 family were gas-operated, selective-fire (full automatic or semiautomatic), self-loading rifles feeding from detachable 20- or 30-round box magazines. A bipod can be fitted, as can a bayonet. A typical rifle weighed just over 3kg (6.61b) and measured 990 mm (36.6 in) in length. The flip aperture rear sight of the rifles was contained between flanges (for protection) on the fixed carrying device located on the receiver above the pistol-grip trigger mechanism. This carrying handle gave the M16 some of its characteristic outline. The design of the weapon incorporated the 'in-line recoil' feature that had been known about for some years before. This meant that the recoil from firing drove the weapon in a straight line along the line of sight, so that the tendency for the rifle to move off the point of aim was considerably reduced. It also tended to limit the climbing effect when firing on automatic or bursts. The flash suppressor, which is fixed, can be used to fire standard rifle grenades. The compact nature of the M16 made it an easy weapon to carry into combat (see Technical Specifications)

The M16 possessed a rapid rate of fire, and a high muzzle velocity. This meant that in a close-range firefight the bullets would hit their target at supersonic speed and turn internal organs into a bloody mush.



An extra attachment is the M203 40mm Grenade Launcher which fits below the barrel (replacing the earlier M79 Grenade Launcher in the rifle squad). The M203 fires one shot at a time and has a maximum range of 350m, although its effective range is 150-200m. A wide variety of ammunition is available for the M203 including HE, fragmentation, armour piercing and illuminating.

The handiness of the M16 meant that it became the standard weapon of all arms and services of the US forces in Vietnam, and was widely adopted by the Americans' allies too.

PROBLEMS

There were major teething problems with the M16 and in Vietnam the rifle initially received a semi-official cursing, acquiring a terrible reputation for stoppages and jams in action; *firstly, the spring in the*

magazine was weak and filling it with the capacity 30 rounds could lead to a jam. Troops soon learnt by experience that loading only 27 or 28 bullets into the magazine rather than filling it helped solve that. The big problem, however, lay with the gun's firing mechanism. To keep the gun light, the Ml 6 was designed with neither a piston nor a bolt handle. Instead, the hammer was operated by gas pressure.

This meant that the gun, especially the chamber and gas tubes, had to be kept very clean. The mud and dust of Vietnam's battlefields made this task difficult enough. To make matters worse, US ammunition factories changed the propellant powder without troubling to tell anyone. The new propellant caused much more fouling since *the slow burning ball powder ammunition was notorious for leaving calcium carbonate deposits in the gas tube. When this happened, the gun jammed instantly, often in the middle of a firefight. Since the early Ml6's did not possess a bolt handle, it was almost impossible to clear the barrel in combat especially as many soldiers were not issued with proper cleaning kits. The only way the gun could be cleared was by ramming with a cleaning rod.*



This unreliability assumed almost legendary proportions, caused a congressional enquiry and cost many lives before the problem was finally solved by redesigning the gun with an easy-to-clean chrome chamber and issuing troops with appropriate cleaning kits.

The reason the powder caused problems was tied in with the peculiar method of operation of the M16. Most gas-operated weapons tap gas from the barrel into a cylinder, where it drives a piston backwards to operate the bolt. But the M16 simplified things by simply piping the gas back and allowing it to hit the bolt carrier and, literally, blast it back.

The carrier moved backwards and a curved slot, holding a lug on the bolt, caused the bolt to revolve and unlock from the chamber, after which the carrier pulled the bolt back and ejected the spent case. Two springs then propelled the bolt forward again to collect a new round from the magazine and re-load.

During the backward stroke a hammer had been cocked, and a fresh pull on the trigger now fired the next round. Automatic fire was achieved by the bolt carrier tripping the sear as the bolt finally closed, and so squirting the bolt carrier full of fouling-laden gas was bound to cause problems. Some education of the

troops, prolific issue of cleaning kit, and modification to the propellant cleared up that problem, and since then the M16 has been trouble-free.

With the problems ironed out, the Ml6 proved itself to be a reliable and hard hitting weapon.

COLT COMMANDO

The Colt Commando was a shorter, handier weapon based on the Ml6 but specifically intended for the close quarter battle. The barrel had been reduced to 254 mm (10 in) and, to compensate for the greater muzzle f lash produced as a result of the shorter barrel, a large f lash suppressor was fitted. The butt was a telescopic tube whose length was controlled by a large catch underneath at the shoulder end.

The Colt Commando was 787 mm (30.9 in) long with the butt extended and 71 1 mm (28 in) when telescoped.



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M-79 Grenade Launcher



Making its debut in the Vietnam war, the US Army's M79 grenade launcher or 'Bloop gun' was a completely new infantry weapon without an equivalent in any other armed force.

In the 1950s, the US Army had been researching new ideas for infantry weapons, one of which was SPIW the Special Purpose Individual Weapon. This was to be a high-tech rifle with sundry attachments making it capable of numerous functions.

One idea that developed was of making an attachment which would allow special grenades to be launched. To do this it was necessary to have a suitable grenade, and so the design departments developed a 40-mm high-explosive grenade fitted into a cartridge case. By the time this had been developed, the SPIW programme had been scrapped and so a weapon capable of firing the newly developed grenade now became necessary: this led to the M79 launcher (see Technical Specifications). The first of the new weapons were delivered to the Army in 1961.

Resembling a a large bore, single barrel, sawn-off shotgun, the grenade launcher was designed as a close-support weapon for the infantry. It plugged the gap in firepower between the maximum throwing distance of the hand grenade and the lowest range of supporting mortars, an area between 50 and 300-metres. The US Army added two M79s to the TO&E of the line infantry rifle squad and thus gave the squad an integral indirect fire weapon.

The M79 was a simple single-shot, single-barrel, shoulder-fired weapon which broke open for loading the 40mm grenade into the breech just like a shotgun. Once loaded and closed, the firer put it to his

shoulder, took aim through a simple open sight, and pulled the trigger. It fired a spherical grenade which, although just 40mm in diameter, nevertheless had a kill radius of five metres. Firing a large grenade from such a lightweight weapon presented some problems, but the ammunition design was such that the whole thing became very controllable and consistent. A rubber pad was fitted to the shoulder piece of the butt stock to absorb some of the shock.



The designers revived a principle originated by the Germans during World War II, called the 'High-Low Pressure System'. In this, the propelling charge is confined inside a small chamber in the base of the cartridge case, this chamber being provided with carefully calculated holes. When the cap is fired, the charge explodes inside this chamber and develops a very high pressure - in the region of 2500 kg/cm² . This, without some form of control, would blow the grenade out of the weapon at colossal speed and place extremely high pressure on the weapon breech. But the high pressure is confined to the special chamber in the cartridge case and via the specially designed holes 'bleeds' into the empty space of the rest of the cartridge case.

Here it expands and the pressure drops to about 200 kg/cm², enough to send the grenade out at about 76m/sec velocity and to a range of 350 to 400-metres, yet without placing excessive pressure on the body of the weapon. This enables the barrel to be thin in section and thus light in weight, without presenting a safety hazard for the user.



The grenades were stabilised in flight by fins and by spin imparted by grooves in the rifled barrel. The shell travelled with a muzzle velocity of only 75-metres per second (compared to around 800-metres per second for a machine gun) and a trained man could direct a grenade through a house window from 150-

metres.

As the grenade spiralled through the air, the rotation caused weights in the fuze mechanism to arm the grenade when it had flown 30-metres, after which the grenade would detonate on impact. Thus, the warhead could not be accidentally detonated through a fall or bump or being struck by a bullet. The minimum range also prevented the launcher from placing himself in the grenade's fragmentation radius.

There were a great variety of 40mm grenade cartridges which could be fired from the M79 grenade launcher. All of these cartridges were fixed munitions, consisting of a cartridge case and projectile. Among the options were a number of high-explosive grenades, including an airburst projectile, smoke, parachute smoke, flares and riot control CS gas-grenades.

The M-406 40mm HE grenades fired from the M79 contained enough explosive within a steel casing that upon impact with the target would produce over 300 fragments at 1,524 meters per second within a lethal radius of up to 5 meters.



For close range use the Army developed two shells for the M79. The first was a flechette round which housed approx 45 small darts in a plastic casing, these rounds were issued on an experimental basis. Later this round was replaced by the M-576 buckshot round. This round contained twenty-seven 00 buckshot which on firing was carried down the barrel in a 40mm plastic sabot which slowed down in flight so that the pellets could travel in their forward direction un-aided.

Generally operated with two M79 grenadiers joining with eight M16 riflemen to form a squad, the

launcher could be used without ranging up to 150-metres (164 yards) and at this range a trained man could shoot grenades into a nominated windows of a house. At longer distances it was necessary to know how for away the target was because of the round's unusually high trajectory. A large flip up sight was situated about half way down the barrel with a rudimentary leaf foresight fixed at the end of the barrel. The rear sight was calibrated up to 375-metres (410 yards) in 25-metre (27.3 yard) intervals.

The tactical use of the weapon required the gunner to be dedicated to the M79, and in order to use the weapon effectively the gunner needed to be encumbered by as little extra weight as possible. He therefore generally carried only a pistol as additional personal armament.

The overall length of the weapon was 737 mm (29 in) and its loaded weight was nearly 3 kg (6.6 lb). This small size and low weight made the M79 an ideal weapon in the close terrain of Vietnam. It had an approximate maximum range of 400 m (437 yd).

In the final years of the war, the M79 was superseded by the M203 40mm grenade launcher. This weapon was designed to be fitted to the M16 rifle so the gunner could take a normal part in the firefight using the rifle until he was needed to fire his grenades.



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M-60 GPMG



The Americans finished World War II with a collection of machine-guns from the drawing board of John Browning. They were all of World War I origin, and American exposure to the weapons of their enemies and Allies had shown that there were other ways to make machine-guns; and some of them were more practical than the Browning for various applications.

One wartime innovation that attracted the Americans (and others) was the German concept of a general purpose machine-gun, a weapon that could be a squad automatic on a bipod, light enough to be carried by one man but robust enough to operate in sustained-fire weapon when fitted on a tripod.

The concept of the General Purpose Machine Gun in the United States was accelerated during World War 2 by confrontation with the German MG34 and MG42. The German MG42, it was felt, was the way to go.

In 1944 a captured MG42 was dissected and American designers set about adapting it to their concept of a machine-gun. When the result appeared it proved to be a failure due to a draughtsman's misreading of a vital dimension; by that time the war was over so the project was scrapped.

The Allies had been impressed with the flexibility provided by the German GPMGs, and the first US prototype GPMG was designed along the lines of the MG42 in a series of guns in the series T44, T52. When the early series proved disappointing, however, incorporating a modified belt feed mechanism

based on that of the German MG42, with the gas operating mechanism of the German FG42 paratroopers' assault rifle provided significant improvements and the T161 series emerged and was pronounced ready to enter service as the M60 GPMG (see Technical Specifications).

The resulting machine-gun went into service in 1957 as the M60, chambered for the 7.62-mm NATO cartridge and acting as partner to the new 7.62-mm M14 rifle.

The prime producer of the M60 has been the Maremount Manufacturing Co of Saco in Maine, and large numbers have been produced to equip all arms of the US forces. Despite the protracted development of the M60 it still has some debatable features - the barrel heats quickly and is not easy to change rapidly, and the carrying handle is fragile and awkward. Also the M60 is rather on the heavy side for use as a squad weapon. Mounted on the M122 tripod, the M60 has limitations on sustained fire. Vehicle mounting is the M4 pedestal mount. Basically, the M60 is gas operated and can fire automatic only from a disintegrating metallic-link belt.. As the first round travels down the barrel, it pushes gas into the gas cylinder through a hole in the bore. The pressure generated in the cylinder then forces a piston down the chamber, moving the bolt back and bringing the next round into place. Once the firing pin hits the bullet and sends it speeding out of the barrel, the cycle is repeated for as long as the trigger is depressed.

With no gas regulator on the gun. however, there were drawbacks to this mechanism. Accumulated dirt or dust would slow the piston down and result in the M60 either jamming or 'running away'. The latter term refers to the weapon continuing to fire even when the finger is removed from the trigger. An extremely unnerving problem to deal with during the heat of battle, the assistant M60 gunner would have to hold on to the ammunition belt in order to stop it feeding.

A bipod is fitted as standard and is also used for barrel changing. As well as being the standard American GPMG, the M60 was also used by Australians.



USMC M-60 Gunner firing from the hip
- note the use of the shoulder sling

The Australians introduced into the tactical use of the M60 two practices, based on experience in jungle, the first reaction firefight takes place with only a few rounds being fired off while the soldiers take cover. Australian gunners used to fit a short belt of only about 15 or 20 rounds on the gun, which was enough for the first firing. A full belt was fitted after going to ground. They also designed and manufactured a 'ready reaction magazine' of 28-40 rounds, enough for the initial exchange of fire, which fitted on to the belt carrier attachment of the M60 and fed into the ammunition feed tray. After taking cover, a full belt was loaded. The ready reaction magazine stuck out of the side of the gun 'a bit like on the old Sten Gun' as it was described by an Australian veteran of the Vietnam War.

The gun used in Vietnam had an odd arrangement of barrel, bipod and gas cylinder, which made barrel changing unnecessarily difficult and gave the gun's Number 2 crewmember an equally unnecessary weight to carry. The bipod and gas cylinder were permanently attached to the barrel, and the carrying handle fitted to the receiver. When firing on sustained fire, the exterior temperature of the barrel could reach 500ºF (literally glowing in the dark). To change the barrel, the whole assembly had to be removed, and this operation needed both crew members. Number 1 had to hold the gun secure by the butt and carrying handle, and Number 2 (wearing heat-resistant asbestos gloves) had to pull the barrel-bipod-gas cylinder assembly free after releasing the barrel locking lever. While Number 1 held the gun, Number 2 fitted the new barrel. Number 1 then had to readjust the zeroing setting to cater for the new barrel before resuming fire.

Experience gained led to the introduction of the M60El. The rather flimsy carrying handle of the M60 was replaced with a more robust one, and the gas cylinder and bipod mounted on the gun itself. The M60 had a straight-line recoil shape which made control easy when firing. It had the interesting features of a plastic heat guard on top of and underneath the body, forward of the trigger mechanism, and the bipod had heat shields attached so that when folded up the hands of the firer need not touch any hot metal. This was a great help when firing from the hip on the move or standing. A canvas belt carrier for a 1 00-round belt could be fitted to the left side of the gun, which kept the ammunition free of undergrowth. The gun weighed over 10kg (221b) and was 1,105mm (43.5in) long. it had a fixed blade foresight and a U-notch leaf rearsight. The M60's effective range was 1,000 m (1,094yd) on the bipod and 1,800m (1,969yd) on the M122 tripod.

The Australians introduced into the tactical use of the M60 two practices, based on experience in jungle, the first reaction firefight takes place with only a few rounds being fired off while the soldiers take cover. Australian gunners used to fit a short belt of only about 15 or20 rounds on the gun, which was enough for the first firing. A full belt was fitted after going to ground. They also designed and manufactured a 'ready reaction magazine' of 28 rounds, enough for the initial exchange of fire, which fitted on to the belt carrier attachment of the M60 and fed into the ammunition feed tray. After taking cover, a full belt was loaded. The ready reaction magazine stuck out of the side of the gun 'a bit like on the old Sten Gun' as it was described by an Australian veteran of the Vietnam War.



M-60 Gun Team Letting Loose

Some other changes also came along. The M60C was a modification that removed the stock and fitted a remote firing control, so that the gun could be slung on helicopters and fired by the pilot. The M60D had a spade grip fitted at the rear, for firing from helicopter doors. And the M60E2 was designed for use as a fixed tank coaxial gun, with a long exhaust tube and barrel extension to carry the propellant fumes out of the tank.

Firing mechanism

The gun is cocked by pulling back the cocking handle until the bolt is held to the rear. The top cover is then opened and the end of the cartridge belt laid in. The cover is closed, and the trigger pressed. The piston is released, to run forward driven by a spring, and the piston post pushes the bolt, which is restrained from rotating by longitudinal grooves in the gun body.

The topmost lug on the bolt pushes the cartridge from the belt in the feedway and into the chamber. As it enters, the bolt comes to the end of the longitudinal grooves, and the piston post, pushing in the helical groove, now rotates the bolt so that its lugs lock into the rear of the barrel.

Once the bolt has rotated to the locked position, the piston post lines up with a straight section of the groove in the bolt and can run forward, driving the firing pin onto the cap and firing the cartridge.

The forward movement of the bolt has also driven a feed arm in the gun's cover to one side, latching onto the next cartridge in the belt. As the bullet passes up the barrel, a portion of the propelling gas passes through a port and into the gas cylinder. Here it builds up pressure and pushes a piston-head backwards for a short distance, giving an impulsive blow to the front end of the piston rod.

The piston rod moves back, and the piston post rotates the bolt to unlock, then pulls the bolt open, ejecting the spent case. As the bolt goes back it moves the feed arm again, bringing the fresh cartridge into line, so that when the bolt comes forward it will reload the gun.

The M60 fires at about 550 rounds per minute, slow enough for a trained gunner to be able to loose off single shots or short bursts without the need for a special selector lever. It was also the first US machine-gun to have a quick-change barrel, but experience in combat showed that the designer hadn't quite got it right.



173rd Airborne Brigade M-60 Gunner
on Hill 875 in November 1967

The barrel carried the front end of the gas cylinder and the bipod, so that when the gunner shouted "Change!" and released the locking lever, his assistant had to grasp the bipod and heave the barrel out of the gun while the gunner held it up in the air - or dropped it in the mud. The gunner had to keep holding it up while the assistant put the hot barrel to one side and inserted the new one, complete with its bipod; not the easiest of tasks on a dark night with a hot barrel, which is why a heavy asbestos glove was part of the assistant's kit.

After some combat experience with this, the M60E1 appeared. This redesigned the barrel and gas cylinder assembly so that the gas cylinder was now part of the gun and carried the bipod, while the barrel was a single assembly and fitted with a handle.

As a sustained-fire gun on a tripod the M60 was fine; as a squad automatic, on a bipod, it was still somewhat heavy for its job, and eventually the Maremont Company developed what it called the 'Lightweight M60', which has now gone into service as the M60Al.



Back to US Weapons

Sources:

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US Marine Corps



81mm MORTAR SECTION

Submitted by Michael D. Stewart, RVN Aug '66 - Nov '67

Dear Mike,

Hope this letter finds you with the wind to your back, sun in your face, in good health and of fine spirit. Michael Pomakis forwarded your letter to me re: 81mm's.

My name is Michael D. Stewart and if you reviewed Mike's page you have seen some of my pictures posted there thanks to Mike Pomakis. I knew Mike in Viet Nam and though we were assigned to different Companies and duties we are friends and share some common stories, friends and ground. We served, and participated, in many of the same field "OPERATIONS"

I served with the 3rd Battalion, 7th Marine Regiment, 1st Marine Division in Viet Nam from Aug/Sept. '66 to late Nov. '67 and was attached primarily to "Mike" Company as an 81mm mortarman. Hence the nic I use on webtv; mike for the company and 0341 for the military occupational skill code number for mortars.

Well, enough on this. Mike Pomakis tells me you need some help as to the inner workings of a mortar platoon etc. I began as an ammo carrier, worked up through to assistant-gunner/gunner, then I was briefly a forward observer, and then on to Ammo Corporal/Section Leader and worked for both Company and Battalion guns at one time or another.

Marine Corps boot camp was the place where new "MARINES" were assigned their MOS based on test scores received at the time. In my opinion, perhaps not accurate, the USMC was looking for the more educated men and placed them into MOS’s accordingly. Remember, most of us were volunteers, had high school educations or less, and the largest number were going to basic grunt (0311) outfits.

After boot we went to ITR (infantry training recruit). There was a second culling there so to speak. The men that couldn't catch on to their assigned MOS were demoted to basic 0311 grunts. Any man that excelled was promoted to a higher 03 position. I will pause a moment here and explain 03.

ALL Marines are basic 03's. We know the business end of all weapons used in the field; 0311=infantry, 0331=60 machine gun, 0341=81/60MM Mortars, 0351=106 Recoilless rifle/L.A.W.S (light assault weapons systems, like a bazooka, but slightly different). Other 03 designations were given to recon teams/snipers depending on the weapon used i.e. modified M-14's or Bolt action 30.06's.

ORGANISATION

Two (02) tubes to a mortar section. One (01) sections to a Company. Four (04) Companies to a Battalion + H&S Company (Hospital-Hotel & Support)

Structure: 81MM mortar platoon

- Two (2) tubes
- 1 x Section Leader (Cpl E-4 or Sgt E-5). Official weapon 45-cal. pistol, M-25 plotting board, 81MM sight
- 1 x Ammo Cpl (Cpl. E-4). Official weapon 45-cal Pistol, M-25 plotting board, 81MM sight
- 1 x Forward Observer (L/Cpl. E-3, Cpl.E-4 or Sgt.E-5). Official weapon M-14 rifle, map co-ordinates, ammo
- 2 x Gunner (Lance Cpl E-3 or Cpl E-4). Official weapon 45-cal pistol, sight in mortar, Bi-Pods
- 2 x Assistant Gunner (L/Cpl E-3 or Cpl. E-4). Official weapon 45-cal pistol, mortar tube
- 10 x Mortarman (Pvt.E-1, PFC E-2, L/Cpl E-3). Official weapon M-14 rifle. (#'s1..outer base plate ring, #'s2..inner base plate, #'3,4 & 5...barber pole red and white striped aiming stakes and the red and green and white flashlights that attached to them for night firing, ammo - We ALL carried ammo on field ops).
- 1 x Radio operator attached to the mortar platoon. Official weapon, 45-cal. Pistol, PRC-25 & PRC-10 radios, batteries and accessories, sometimes ammo
- 1 x Wireman (sometimes) attached to the mortar platoon. Official weapon ?? Communications wire spools and com line phones...ammo

Mike this is/was the ideal, perfect situational structure. Seldom in Nam did I ever have more than 06 mortarmen.10 is, as I said, what the book says.

DEPLOYMENT and ROTATION

Deployment was two fold:

Battalion was the hub and the sections were the spokes. We rotated (with the Company) as a platoon to and from Battalion HQ to the field positions. (This is why MIKE and INDIA swapped places and how I came to know Mike Pomakis and his Mortar team). We covered the incoming teams positions sort of like this: MIKE in, INDIA out, LIMA in, MIKE out, KILO in, LIMA out etc. This way each company mortar platoon rotated from into Battalion HQ out to every other companys position at one time or another.



USMC 81mm Mortar

We were involved in a total movement as a unit on an operation. We moved both guns with the Company in large operations and we moved one gun with a smaller part of the Company in smaller operations ('sparrow hawks').

'Sparrow Hawks' were operations larger than daily routine patrols but were smaller than OPERATIONS involving the whole enchalada picking up and moving. They were short in duration (a few days at most) and were often hammer and anvil in nature, i.e.3 companies form a blocking force, set up position and wait. The fourth company, with much air and ground fire arty support, then sweeps through an area and pushes the VC toward the waiting group. I have also heard them called "swifts".

I have supported fire missions for more than one company at a time and also for the USMC. and the U.S. Army at the same time. This is common and one of the reasons for overlapping tactical areas of responsibility (taor's). We can cover our buddies and they, in turn, can cover us.

Battalion had two (2) sections or platoons, consisting of two (2) gun teams each. That's four (4) mortars/tubes. While there were always this amount of guns and men, mike, ya couldn't consider it static because when Battalion guns were relieved by Company guns the "out" rotating platoons took their 81mm with them into the field and the "in" rotating platoons brought their guns in to replace the outgoing ones.

We always stayed with our own company, i.e. MIKE CO. It is just that we rotated in from field positions and then rotated out to field positions. These could vary but we didn't switch companies. Let's say INDIA rotated from hill 10 to Battalion HQ. MIKE would rotate out to LIMA's position at say hill 35 and LIMA would rotate to INDIA's old position on hill 10. KILO would stay put. Next time around INDIA might rotate to KILO and KILO to Battalion HQ. MIKE AND LIMA would stay put, or might simply swap positions. I think the purpose of these rotations were two fold. Relief to a hard hit company and to keep

us sharp by sending us "refreshed" units out to a "NEW" position where unknown danger lurked (LOL, as if it weren't all dangerous). I also think this confused the hell out of the enemy and demoralized them as they had no "fresh & new" replacements and to him/her, it seemed like a never ending stream of us were available to fight them in the field.

The 60MM's were assigned to the smaller outposts, i.e. MIKE held hill 52 but one squad operated out of hill 25 in-between MIKE and Battalion HQ. MIKE rotated these squads and I am not sure how the 60MM personel were rotated.

The Battalion HQ NEVER let more than one gun from each team be deployed before replacing it with an incoming teams gun that was in position to fire. This meant the incoming gun was seated - i.e. a shallow pit was lined with sandbags and the mortar fired several times to seat the base plate. They always had 4 guns at the ready. 1/2 the Company platoon rotated in with one gun, then the out going team was dispatched to the field, seated their gun, and then the incoming other 1/2 from a Company field position moved to Battalion HQ. and repeated what the first gun had done, then the other 1/2 of the outgoing platoon went out to the Company area and fixed the second gun into position. The primary mortar used in the daily patrols was the 60MM. It was lighter and easier to carry and run with.

Field companies had one (1) section/platoon consisting of two (2) gun teams and two (2) mortars/tubes

Squad is a term I have heard used State side for the two (2) gun teams that make up a mortar platoon but the more common term is gun team one (1) or gun team two (2).

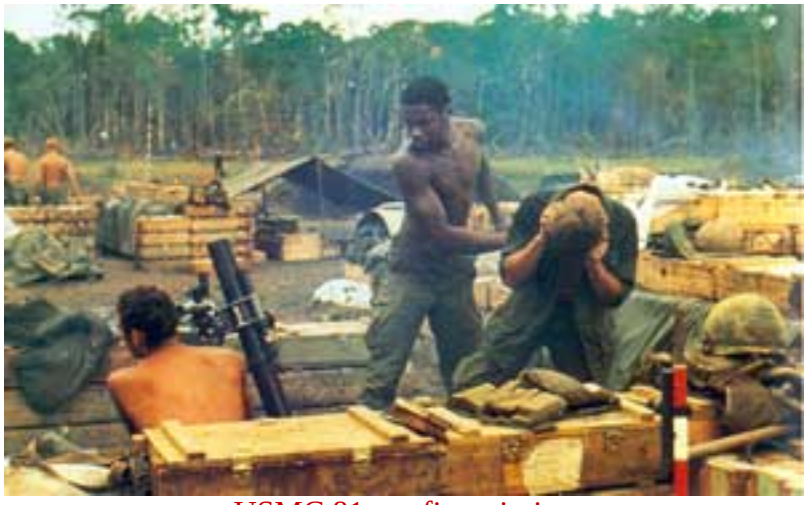
AMMUNITION

Rounds carried - as many as possible! Usually 5-6 per man depending on type. Yes, the grunts sometimes also helped out.

HE Medium = larger round, farther distance, bigger bursting radius (approx. 35 meters). A 12-gauge shotgun type primer in the tail assembly ignited "powder" increments wrapped around the tail assembly above the fins. The amount of increments determined distance of travel. I cannot remember the exact distance but think 4200 meters for some reason was max? Exploded upon impact.

HE Light = smaller, less accurate round employing a cheese type plastic explosive charge that clipped on to the tail assembly. Less distance and smaller bursting radius (25/30 meters). Exploded on impact. 2800-meters approximate range? WE HATED these rounds. Lot of hang fires, duds and short rounds due to bad increments and it being "old" ammo. The VC would later find these rounds and make booby traps from them.

AIR BURST HE Mediums. Same as above HE Medium but these could be hand or tool set to explode above the deck before impact. Same dist & bursting radius as HE Medium.



USMC 81mm fire mission

Illumination = same set up and charges arrangement as HE Medium and I think the distance was approx same distance. Hand/Tool set to explode in the air. I wish I could be more specific on the distances but my mind cannot seem to wrap around this question. It vexes me as I used to set 1000's of these rounds and also had to know the correct elevation and deflection ratio to increment charges to pass on to the men in the gun pits. This was essential to put the rounds out where the FO wanted them. An error of the slightest could be fatal to the guys in the field. I will explain this later.

PLOTTING BOARDS M-25 and M-10

The M-10 was primarily used by the 60MM. However 81MM did use these boards in field op "on the run" movements simply as they were convenient and less bulky. M-10 is about the size of a paper back book and an M-25 is about the size of an atlas. Both being slightly larger.

This is a toughie but I'll try to describe these boards in appearance. The boards were in the shape of a D with a + permanently marked on it and tic marks permanently marked on the top. The plus squared the board to zero and the tic marks represented deflection marks for the gun info needed to accurately fire the mortar. Now, picture a circular plastic disc, with grid squares permanently marked on it, snapped into the center of the D shaped board. Imagine it like a basic clock dial. The two gun positions were marked on the board as 1 & 2 and pointed true north. Here is where it may get tricky for you to understand. Using 12 on the clock-face = the zero point of the board. Perhaps 2 would be the actual "true north" position of the guns. The gun-sight was 'zeroed' and the mortar set to true north by using a compass. Then two aiming stakes were aligned on the front and on the back azimuth of the compass through the gun-sight; this set the gun to true north. The barber pole aiming stakes then acted as a reference to line up the gun on. We used a green/white (North) and a red/white (South) flashlight attached to these two front and rear poles to be able to align the guns at night. It was imperative to have a correctly aligned board and guns.

Also marked to "true north" on the board was the map coordinates. When a FO called in a fire mission, the gun positions on the board were brought to the 12 o'clock position, the coordinates being called in were plotted and this gave the elevation needed to calculate the powder charges needed to put the mortar round out where it was needed. Then the board was re centered to give the deflection (position the gun

needed to be moved to the right or left). The sight was then set with this deflection and the gun moved until the sight lined up on the aiming stakes.

MORTAR COMPONENTS

- Inner ring base plate with 'U'-shaped collar in the center into which the tube was inserted and then rotated into a locked position.
- Outer base plate ring and clamps. Fitted over the inner ring and was locked into place.
- Bi-pod and yolk assembly group. Tube inserted through yolk and then into base plate. Rotated into locked position in base plate then tightened and locked into position in yolk. Left leg of bipod had a tubular adjusting nut for gun cant and was used to level the deflection bubble. Also a right to left centering arm to make minor adjustments right/left. A center adjusting nut for elevation leveled the sights elevation bubble.



US M29 81mm Mortar



Close up of sight mechanism

- Tube. Fixed center fire type firing pin inside the tube for drop fire. Ball-joint type butt end inserted and then rotated into the inner base plate 'U'-collar and locked into place. (Note, the 60MM could be both drop fired or lever fired. The 81MM could not.)
- Sight. One swivel type eye sight with elevation and cant bubbles to adjust elevation and right or left gun cant and deflection.

FIRE DIRECTION CENTRE

Perhaps this will be less confusing. On patrol, the Patrol Leader (usually an officer - but not always), radioman and mortar FO (sometimes also there were naval gun fire and artillery FO's along) were together in the column. When the shit hit, the FO would relay the map coordinates to the RTO to call in to the mortar position back at the Company position. The RTO used a PRC-25 to relay and it was received by a PRC-25 in the Mortar Fire Direction Control bunker at Company. The alarm was sounded: "FIRE MISSION GET ON THE GUNS".

Now, so you will understand the FDC, o1 = Gun 1, o2 = Gun 2, O=FDC;

o1------O------o2

Land lines ran to each gun pit from the FDC bunker. The gun dope was plotted inside this bunker and relayed to each gun and also to the Command Center. The position to be fired upon had to be cleared through channels. Company to Battalion, Battalion to Regiment, Regiment to Da Nang. Screwed up huh! Well, that's the way it went. BUT, once ya got permission, it was katie bar the door.

The VC would often go into Intelligence and declare their undying love for the US and hatred for the VC. A good guy pin was then inserted into their village map position back in Da Nang. If we got hit from that village and requested permission to fire it was denied. Didn't take anyone too long to figure out that calling a mission in on rice paddy would give the go ahead and then the FO would shift fire to the true target. Grunts can always figure a way around the brass's red tape.

A PRC-25 was the normal radio used. Look at Mike P's page and you'll see one with the antenna on his back. It is about the size of a pack. A PRC-10 is a hand held walkie-talkie sized radio used on 2-3 man 'snoop and poops' and out of the perimeter 3-man listening posts scattered around a position to listen for the VC sneaking up on ya.

I held the position officially as the Ammo Corporal, but in actuality was the Section Leader as we seldom had a Sergeant for this position. The breakdown inside the FDC is supposed to go like I am about to explain - but in reality I was the one in there doing all this. Fact not brag here, Mike.

Land line, headset (ear pieces like ear muffs) and a chest mic with talk/listen button. M-25 & M-10 Plotting boards, compass, gas lantern, flashlights, (white, red and green) colored marking pencils. These kept ya from plotting the wrong gun coordinates in the event of several different missions going on at one time, i.e. gun 1 is firing for 2-3 patrols getting hit and gun 2 is firing for one patrol getting hit from different angles. Gun 1 plots would read 1a1, 1b1, 1c1. If the gun had to readjust for any of these 3 it would then use the # designation for the change as 1a2, 1a3 etc. 1b2, 1c2, 1c3 this shows that a had 3 changes, b 2 changes and c 3 changes in coordinates. Similarly gun 2 would read 2a2, 2b2, 2b3 etc. showing one change for a coordinates and two for b coordinates.

The coordinates came in via the field FO to the field RTO that was right next to him. The Section Leader plotted the coordinates and used the board to get the guns what direction and elevation were needed. He

passed this info orally to the Ammo Corporal. The Ammo Corporal relayed these positions and the powder charges the book gave for the necessary distance, to which ever gun(s) were to fire, via land line headset. The 1st Ammo Carrier got these via headset and relayed them to the A-gunner and gunner. The rest of the ammo carriers broke out the ammo and removed the safety pins. When the order to fire was given the gunner removed the sight, bent over and held onto the bi-pods and the A-gunner dropped the rounds passed to him by the ammo carriers. When the rounds requested were expended the gunner replaced and reset the sight to the aiming stakes - the percussion usually knocked the gun slightly off the coordinates. He then waited for new gun dope.

MORTAR POSITION

To answer your question about mortar positions, size of gun pits, etc. let me remind you of Mike Pomakis' site. There are some good pics there of mine and of several other Marines' that may help you out visually.

In general, a field position was laid out like a wheel. FDC was the hub, the guns at 3 and 9 o'clock, gun 1 and gun 2 sleeping bunkers at 2 and 11 o'clock. Each gun held a storage of ammo. Approximately 40 HE Medium, 10 HE Light, and 10 Illumination. The main ammo storage pit was usually located just beyond one of the gun bunker sleeping bunkers. Approximately 400 rounds of HE MEDIUM, 200 rounds HE LIGHT and 100 rounds of ILLUMINATION were stored there. Often however, it was less. Now Mike, ya got to understand this was NOT always the arrangement as the terrain and defencability dictated the positioning of EVERYTHING, not just the mortar positions.

We had 3 perimeter wires. The outer most, or first line of defence, was usually a 10 ft. deep grid pattern of barbed wire lain down flush with the ground ending in a 3 strand fence row of barbed wire standing vertically and was joined at a 45* angle on the bottom of the parallel to the ground barbed wire to the vertical barbed wire. Kind of like a backward figure 4. (Hope this makes sense.) We called it the "cow fence". Approximately 10/15 feet was open and mined with claymores. The second row, or perimeter of defence, was essentially the same except that it had a row of spiraling concertina on the inside and backside of it. This was also mined with claymores and was in grenade range. About 6/10 feet beyond was the last line of defence. It was concertina and razor wire. 10 feet beyond was the trench line.

The side doors to the first row of grunt bunkers usually opened directly into the trenches. Machine gun positions were usually at the opposite ends of the position to maintain crossing fire and could be moved as necessary. The second row of grunt bunkers were approx. 20 ft. behind these, and then the mortar positions, then the Command Center. After that, we were dead meat!

SECURITY

Mortars provided their own security and were assigned to grunt trench or machine gun posts as help and were used on almost any working party necessary to the Company from filling sandbags, toting H2O, unloading choppers to pulling grunts rifle posts.

On a movement involving mortars they were usually in-between the first and second squad of the field platoon. Not always. We set up immediately if we were engaged, and used the direct fire method (which means the gunner looked at the target and guessed) and nightly if we weren't engaged, we set up hasty positions, when in the field. we could do this pdq. We carried a standard 4 magazines of M-14 ammo, 4 magazines of 45-cal ammo, depending on the assigned weapon. However, most all of us that carried 45's and had an M-14 stashed. We carried as much extra ammo beyond the standard as each man felt personally comfortable with and many of us sent home for, and carried, personal side arms. I have seen everything from Derringers (why I don't know) to 22-32-38-357 caliber revolvers. It was pretty stupid looking back on it, but scared men do stupid things I reckon. We did this also because, after we ran out of mortar ammo, we were after all just basic 03's with a job to do.

M-60's were carried by machine gun teams attached to the line outfits. They were a weapons section just like mortars were. M-79's, LAW's and 106's were the same.

A few things you may find of interest and that may also clear up some things about mortars and mortarmen.

In 66/67, when I was in Viet Nam, the Marines were, in general, overlapping units in what is the I Corp or northern area of South Viet Nam. The Army also occupied some of this area Mike. Their positions are something I am not all that familiar with except to say that they were on a much more permanent nature and basis. We were much more mobile, and often the entire Regiment, Battalion, and all Companies moved from place to place. In late '66 we had come from the northern area of Quang Tri on the DMZ to a more permanent area. It was about this time that the U.S. Armed Forces began to view the war in a different light, in my humble opinion. What we had been doing was simply NOT working. Like anything else, we had worked out the kinks so to speak and it was time to review and regroup the thinking of this always moving shit. In speaking with my Army friends they were utterly stupefied to learn of all of the men & supply problems the USMC had faced up until this time of "settling down" happened. Here is where you may have been having a problem in understanding what I am relating to you as "MY" experience Mike.



USMC 81mm mortar section in action

We were ill-supplied most of the time. Replacements, food, ammo, clothing and medical supplies were at a premium to us. So was everything else. We were a pretty ragged & rag tag bunch. Most of us had sewn our utilities (jungle fatigues) with comm wire and were without boots at times. Our flack jackets were given to the grunts. (No we were'nt just being generous, we didn't have to lug the dang things that way.)

Early in '67 the forces divided and the Marines took control of things north of Da Nang and the army south of Da Nang in general Mike. There were still overlapping posts and the southern area of Chu Lai was still occupied by the Marines simply because the Navy ran river boats up the river to the army's out posts that they had taken over from us in this transition.

It was at this time, about April '67, that we received the first M-16 rifles Mike. We also began to "beef" up the line companies to speed and then the attached weapons sections to almost a full compliment and strength. Prior to that the pickings were slim and to bare minimums to operate. I seldom had enough men - nor did the rifle platoons. :(

Some of the mortar equipment that I have forgotten to mention to you are:

- Mortar tube bore swabs - one for each gun, a spare or two when available.
- Cleaning rags.
- Incendiery grenades to destroy the baseplate inner ring, tube, bi-pod, and sight in case of over-run.
- Light oil for cleaning the guns and the weapons.
- 1 K-Bar (Marine fighting knife and weapon of choice by Marines in close quarter fighting) per 45 cal. small arms carrier. (Mike, these knives were so coveted that the Corps issued an order to confiscate them if a person's job duties did not include carrying one.)
- Everyone carried a side knife from home. Randall's being VERY popular.

Responsibilities I had to perform:

- Morning, Noon and Night muster reports
- Work and patrol detail assignments
- ammo requisitions
- supply requisitions
- chow distribution - (12 different boxes of C-Rats to a case, 3 meals a day when able - means ya ate the same meal for breakie, lunch and supper for a month during a tour Just a quirky piece of useless info that I like to point out to people Mike..LOL)
- Medical reports
- R&R reports and tracking
- Everyone's birthday
- clothing requisition
- Mail call
- H&I plots to the Company
- patrol coordination with grunt section leaders (so we didn't dump H&I's on them when they were on patrol - H&I's are randomly dropped rounds dropped onto known enemy trails just for grins and giggles and in hopes we might catch them by surprise.)
- Ammo inventory
- Damage reports
- PM (preventative maintenance) daily, weekly and monthly
- fire mission drills
- equipment tests
- training classes
- promotion evaluations.
- sanitation and health issues
- Etc.Etc.



See Mike Pomakis' Account

My sincere thanks to Michael for all the help he provided in corresponding with me about this subject, it was both a pleasure and an honour.

Were you a mortar crew member or otherwise involved in the operation of mortars in Vietnam, either Army or USMC? If so I would like to hear from you in order to expand on this section and on mortars generally. Please contact me with your comments, all information is treated with the strictest confidence. Mike R.

US Marine Corps



81mm Mortar Section Forward Observer
Submitted by Michael Pomakis, RVN '66 - '67

Mike,

Would like to help you out with your research but since I was a radio operator attached to mortars as the forward observers comm man, I knew little about the organization and deployment of the mortar squads. I know that they were attached to the companies in a like manner.



81mm mortar gun pit

Your best bet would be to contact a mortar man on this subject. One that may be able to help you out is Mike Stewart.

Good luck with your research. I hope these answers help you out. I'll do my best with them.

In your capacity as the comms man to the mortar FO you still may be able to help me. Was the FO team integral to the mortars and were they attached to the company HQ?

As far as I know the FO team was attached to the company with the mortar squads. We

had three guns on Hill 52 and the FO and I were an integral part of the mortar attachment. We were used for all size patrols from squad to company.

Also, when the mortar FO was working, who was he in contact with? Did you communicate with the Company/Battalion CO as well as the mortars he was directing?

The mortar FO was in direct contact with the mortar FDC at all times. Communications with the company and battalion elements was done through their channels.

Could the mortar FO also call in air/artillery and/or act as observer for same?

Yes. I can remember calling in close air support, artillery, naval guns, naval rockets and even tank fire.

How many of you were there in the FO team, was it just you and the FO or were the teams larger than that?

The FO team consisted of two people, the Forward Observer and his radio operator. I don't think that there were any larger mortar FO teams.

I hope this helps you out. I can only give you info on what I lived and experienced. It may not be accurate for all scenarios.

Was there only a single FO team per company?

One 81's FO, one 60's FO and one arty FO. Not all went out on every patrol. It was up to the company elements to decide whether or not they wanted an FO team with them and which one they wanted. This is why we also called in arty and other stuff when we were out because we were the only FO team with the patrol.



USMC 60mm mortar

You also mention that you were in constant contact with the FDC - did you pass your corrections for artillery, Tacair and NGS to them or were you in contact with those supporting units directly?

> As far as I can remember we spoke directly to the units we were using. I remember one time when I was in actual contact with the pilot of an F-4 Phantom that was giving us close air support.

Similarly, if your Company CO wanted to request support fire (whether it be mortars, artillery, Tacair or NGS) did he pass this request to you for communication to the FDC or did you communicate with higher command centres?

> The command element (could be a squad leader - depended on the size of the patrol or operation) would pass their request for a fire mission to the FO team who would then take the ball.

Did you only carry the PRC-25 for your communications?

> Only the PRC-25. They sent us a smaller unit to test but it wasn't worth a damn. It was light but had no range. Photo of some of the testing of this unit is on my site in the India Company section.

I understand that in order to observe the fall of shot it was quite often necessary to be close to the enemy positions, or at least have a line of sight, and hence be subject to enemy fire? Who provided you with security? Did you have a security element to look out for you?

We had to observe the rounds when they landed and call in any corrections that may be required. We were usually located with the command element while on patrol and went directly to the area needed when the call for "mortars up" came down the line. If we had to leave the security of the patrol we would be given a security element of at least a fire team.

Mike, are you able to tell me anything about the procedure for calling and correcting fire?

When the call came for "mortars up" the FO team would hustle to the area where they were needed and where they could see the target. This quite often put us in very precarious positions subject to heavy enemy fire. Once we could see the target we would determine the target's coordinates and our own coordinates. Then FDC would be contacted with the request for a fire mission. Both sets of coordinates would be radioed to the FDC. They required our location so that they could plot our position so that they would know where we were looking from when we sent in correction. Our "go left 50 meters" could be "go up 50 meters" from where the gun was. If they didn't know where we were looking from it could get very hairy.



81mm mortar 'round on the way'

Usually one round of Willy Peter (White Phosphorous or WP) would be called for as a spotter round. WP was used because of its high visibility (Very large cloud of white smoke). Once the round was on target a "fire for effect" order would be sent with the number and type on rounds required. Basically we used WP and HE (High Explosive) rounds. Once the "fire for effect" order was sent we would head for cover if the need arose, and usually did.

Whiskey was the call sign for mortars with the 7th Marine Regiment. So, Whiskey India was the 81's with India Company. The FO was "Whiskey India Forward" usually shortened to "India Forward" to speed up communications.

A fire mission may sound something like this:

- FO: Whiskey India, Whiskey India, India Forward, India Forward. Fire Mission. Over
- FDC: India Forward, Whiskey India. Go ahead, India Forward. Over
- FO: Whiskey India, India Forward. Fire Mission. Target Coordinates 895642, I say again Target Coordinates 895642. Forward coordinates 894647. I say again Forward coordinates 894647. Request one round Willy Peter. Will adjust. Over
- FDC: Roger India Forward. Target Coordinates 895642, I say again Target Coordinates 895642. Forward coordinates 894647. I say again Forward coordinates 894647. One round Willy Peter. Over
- FO: Whiskey India, India Forward. That affirmative. Over
- FDC: Roger, India Forward. Wait one.
- (Elevation, declination and charge would be calculated and sent to the gun pit. Gun crew would set up the gun and get the round off as quickly and accurately as possible)
- FDC: Round on the way, India Forward. Over
- FO: Roger. Wait one.
- (Due to the high trajectory of the mortar, it would take a few seconds for it to reach the target. Once the round is spotted, any corrections would be sent in. This may happen a few times before the round is actually on target.)
- FO: Whiskey India, India Forward. Correction. Left 50 meters. I say again, left five zero meters. 10 rounds Hotel Echo. Fire for effect. Over
- FDC: Roger, India Forward. Left 50 meters. I say again, left five zero meters. 10 rounds Hotel Echo. Fire for effect. Over
- FO: Whiskey India, India Forward. That's affirmative. Over.
- FDC: Roger, India Forward. Wait one.
- FDC: Rounds on the way. Over

You can hear what goes on in the gun pit during one of these missions on my site. Attached to a photo of the 81 is a sound file of a fire mission that took place in that pit with that gun and crew.

Semper Fi,

Mike Pomakis
Whiskey Forward



My sincere thanks to Mike for his help in answering my questions. You can visit Mike's web site, Visions of Vietnam and check it out for yourself.

Were you a mortar crew member or otherwise involved in the operation of mortars in Vietnam, either Army or USMC? If so I would like to hear from you in order to expand on this section and on mortars generally. Please contact me with your comments, all information is treated with the strictest confidence.
Mike R.

Armored Cavalry



Offensive Operations

Types of Offensive Operations

1. Reconnaissance in Force (RIF)

"A limited objective operation conducted by a sizeable force to discover and test the enemy's dispositions and strengths, or to develop other intelligence"

All armor units participated in RIF operations, usually as part of a larger combined arms force, and Armored Cavalry units often conducted independent RIF operations.

2. Raid

"An operation, usually small scale, involving a swift penetration of hostile territory to secure information, confuse the enemy, or destroy his installations. It ends with a planned withdrawal upon completion of the assigned mission."

Many of the airmobile operations were raids. Armor usually participated in raids as the linkup force which assisted in the withdrawal of the raiding force.

3. Cordon & Search

"An operation in which a small population group is surrounded, the area seized and then some specific mission, usually a detailed search, is carried out in conjunction with other activities."

Armor units usually participated as a part of the encircling force that surrounded the area to be seized. Frequently this encirclement was accomplished during the hours of darkness.

4. Ambush

"A surprise attack from a concealed position upon a moving or halted target."

Armor units habitually conducted small, dismounted, night ambush patrols. Many also conducted mounted ambush patrols.

Typical Missions for Armor Units

1. Reaction Force Missions

These missions invariably took many forms but usually involved the following as a minimum; the reaction force was located in a semi-secure area, such as a permanent base camp, fire support base or forward operating base such as a Troop Laager, and was prepared to rapidly reinforce other friendly units operating in the area. The reaction force was on a relatively short alert status.

Missions frequently assigned to units in the reaction force included;

- Reinforcement of units on the perimeter of the base camp or operating base where the reaction force was headquartered.

- Reinforcement of other permanent or semi-permanent installations, such as government headquarters, US base camps, Regional/Popular forces outposts etc.

- Reinforcement of friendly units in contact; due to the nature of the enemy's tactics many missions of this type had to be carried out during the hours of darkness or periods of poor visibility

2. Base Security

This involved essentially static perimeter defense and may have entailed the security of a permanent base camp, major friendly headquarters, fire support base or forward combat base. Although the mobility and shock effect of armor was not utilised to the maximum, the use of armor in this case could be considered an 'economy of force mission'.

In particular, during the wet season, the use of armor in this role freed other forces, such as infantry, for operations in terrain unsuited for armor operations.

3. Lines of Communication (LOC) Security

This was a traditional mission for armored units, particularly cavalry units. The limited assets that were available for aerial re-supply should ground LOC's be closed made this a

vital mission. LOC security missions ensured that major road nets were available for use by the populace and the military. LOC security missions may have included any or all of the following sub-missions;

- Route Opening
- Route Security (may be mobile or semi-fixed)
- Convoy escort

4. Reconnaissance in Force (RIF)

This was really a type of operation and not a specific mission.

The following was submitted by Jerry Headley.

"The primary duty of the 3/4 was road security, convoy escort and RIF. In the dry season of '68/69 the 3/4 Cav was given it's own AO ('Spur & Saddle') within the Divisional AO and we performed RIF's more often then.

Mechanised Infantry also pulled road security for the re-supply convoys. In the Cav, one troop may escort the convoy through the Divisional AO, other Troops and Mechanised Infantry units had swept a portion of the highway and out-posted the road so that in case of an ambush they could react. We had already out-posted the road at night and established platoon strong-points to try to prevent mining (didn't always work, of course) After the convoy had reached it's destination the units would then conduct other missions, i.e., RIFs or maybe a cordon and search. Long days and not much sleep... "

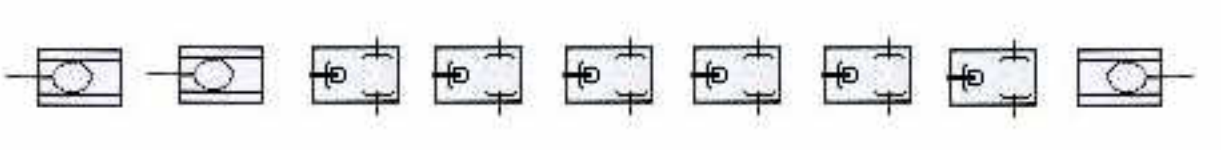
" ...I can only speak for the 3/4. The Squadron was the controlling HQ. However, the Troops mostly operated independently, i.e., each Troop would sweep it's own area. You were normally near a Fire Base for support. If you ran into something you had quick response from 'D' Troop, the Air Cavalry Troop of the Squadron or USAF FAC's for fighter/bomber support. If 'D' Troop was with you on a mission; convoy support, sweeps, etc. they would have a radio on the Troop Commander's Push. The individual Platoons remained under the Troop Commander's control, although they could be spread out over the terrain and visually out of contact of the Troop Commander who would, nonetheless, maintain radio contact... I controlled movement of the Troop through my Platoon Leaders via radio. The Platoon Leader had the flexibility to move his Platoon as he wished within his "zone". I don't recall any problems"

"... we really didn't fight according to the Field Manuals per se. You are taught in Basic , Advanced, etc combat training to do certain "things", like in sports. You run "plays" to succeed. Once the game begins all plans are out the window. You still try to follow the "rules" as much as possible but you improvise to succeed. You did a lot of improvising. As

you gained more experience you got more confident. Fights, as a rule, were not long drawn out affairs. The biggest ones were at night when you were in a defensive pos... "

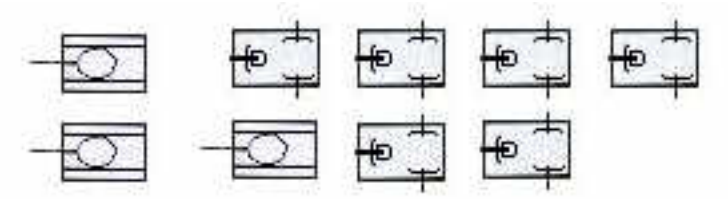
FORMATIONS

Platoon Column



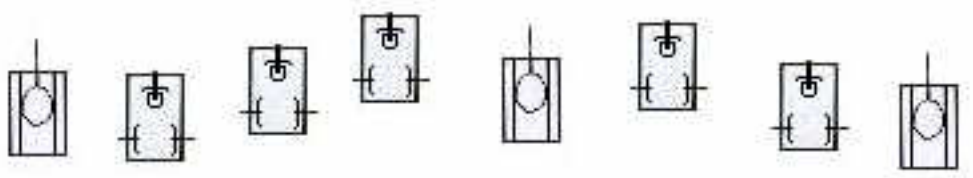
In this formation, the maximum distance between vehicles would not normally exceed 50 meters, and would generally be kept to about 15 meters. The Platoon Leaders track follows the lead tanks with the four tracks of the Scout Section next in line. The Rifle Squad track is the penultimate vehicle at the rear of the column. The trailing tank travels with it's main gun facing opposite the direction of travel. The Support squad track (Mortar) has been detached.

Platoon Double Column



The Tank Section is split in order to lead both columns. The formation is harder to control than the Platoon Column and often required guidance from the air usually by an OH-6A (Loach). The Platoon Leader's track runs alongside the Tank in the second pair of vehicles. Scout Section forms the main body of 4 vehicles and again the Rifle Squad brings up the rear. Again, the Mortar Squad is detached.

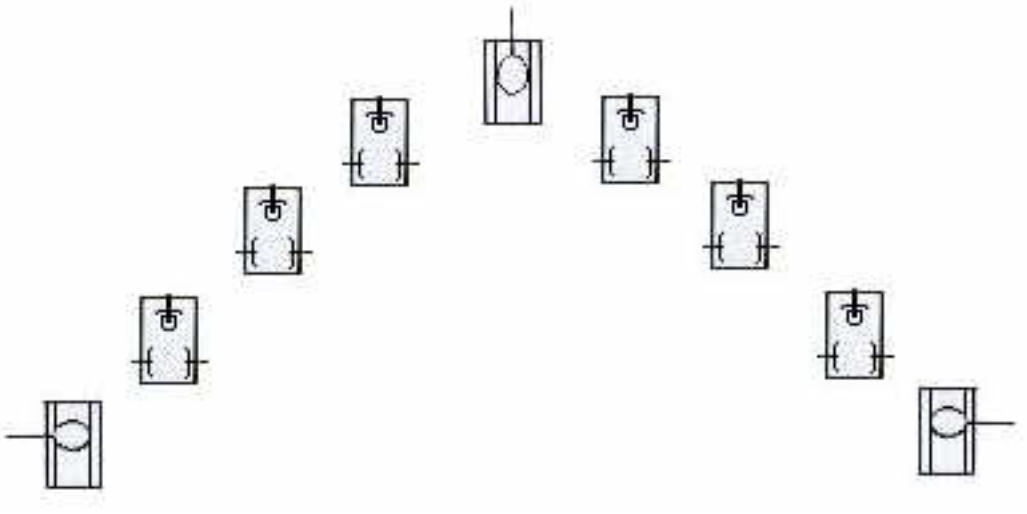
Platoon Line



This formation was used in what was considered to be open terrain. Open terrain was defined as an area in which vehicle movement can be observed at distances in excess of 50 meters such as dry rice paddies, low grass or in rubber plantations which possess little secondary growth.

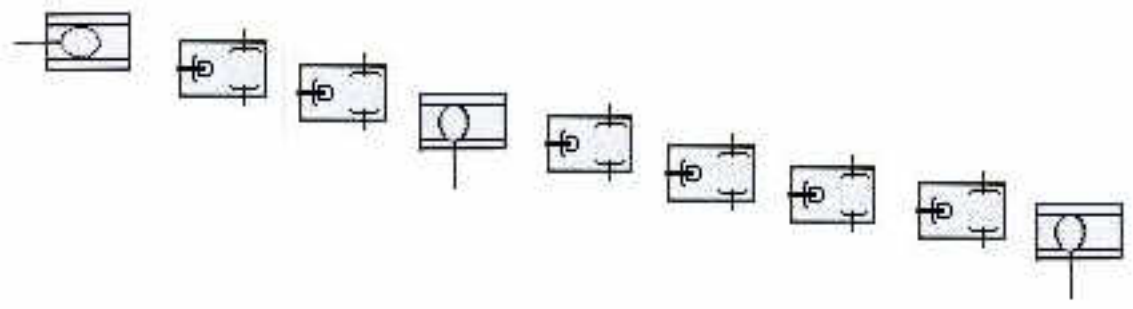
The formation provides maximum firepower to the front and was used while conducting sweeps or attacks against fixed enemy positions. The Platoon Leader's track is the 6th vehicle from the left. The Mortar Squad is detached.

Platoon Wedge



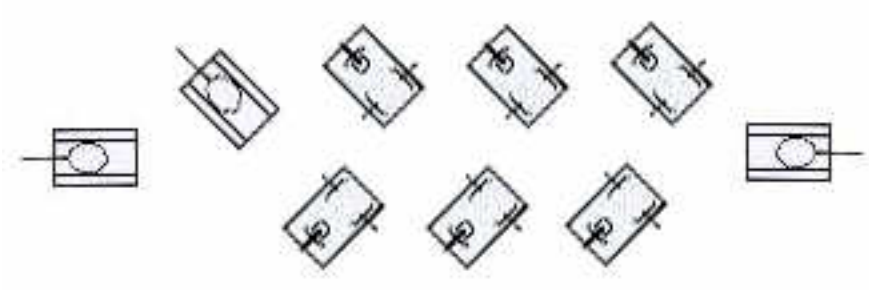
The wedge provides firepower to the front as well as security to the flanks.

Platoon Echelon



The Echelon formation provides additional security for the platoon to one flank.

Herringbone



NOTES

Mortar Track

Although the source document depicts the Mortar Track (Support squad) as being detached in all the formations illustrated, Jerry Headley stated that he kept all the Mortars with the Troop at all times.

Platoon Double Column, Wedge & Echelon

Jerry Headley stated that these particular formations were rarely, if ever used. The individual Platoons of the Troop were able to adopt them if so ordered.



Sources:

US Army Armor Reference Data, Special Text 17-1-3, US Army Armor School, Fort Knox, Kentucky

Armored Combat in Vietnam, Donn A. Starry, Arno Press 1980, ISBN 0-7137-1166-3

United States Armour



The Battle of Ben Het

Reproduced from 'Tank vs Tank' by Captain Gerald R. Cossey
(Armor Magazine, Sept-Oct 1970)

There have been many occasions during the Vietnam Conflict when armor and cavalry units have been called upon to demonstrate the effectiveness of the tank as a fighting vehicle capable of performing practically any mission. Certainly the tank and, even more, the tanker have been given tasks of many varieties, including those for which armor was originally developed and some previously unforeseen. But only once so far has this man-vehicle team functioned in its best role - the destruction of enemy armor.

The date: early evening of 3 March 1969. The place: a far-flung special forces camp near Ben Het, South Vietnam perched in the rugged mountains of the Central Highlands, overlooking entrances from the Ho Chi Minh Trail in the Laos-Cambodia-Vietnam border area, On this night, North Vietnamese tanks and other forces attacked the joint US and Vietnamese defenses dug into the barren hills of the camp. This engagement, although brief, marked the first time since the Korean Conflict, 16 years before, that an American armor unit had decisively engaged enemy tanks.

The North Vietnamese attack, by armor elements of the B-3 Front, came on the heels of a week-long preparation featuring daily Communist shelling of Allied positions in the Dak To-Ben Het, area. This was supported indirectly by other enemy attacks throughout South Vietnam which were part of the spring offensive which began in latter February. When this offensive started, American units were ordered into the tri-border area as reinforcements for the local defenders. Included was Company B, 1st Battalion, 69th Armor under the command of Captain John Stovall. Company B, headquartered near the Dak To airstrip and under the direct control of the 2d Brigade, 4th Infantry Division, was given the mission of reinforcing the Ben Het outpost and of securing Highway 512, the only land link between the camp and the main Allied positions at Dak To.

In addition to elements of company B, Allied forces at the Special Forces camp included three Civilian Irregular Defense Group companies with their Green Beret advisor team, an American 175mm artillery battery and two 40mm "Dusters." Normally the tankers were deployed as a platoon along the camp's West Hill in partially dug in positions. The remainder of the company occupied strong points and bridge security positions along the 10 kilometer road link or were held as a ready reaction force at Dak To.

The company had arrived in this area of operations on 25 February and had endured the nearly continuous barrages of artillery fire laid down by Communist gunners from positions both in Vietnam and across the nearby Cambodian border. Rarely had the crew members dared to move more than a few feet from their tanks as they were busily occupied either dodging artillery fragments or answering sniper fires and small spoiling attacks with their main gun and machinegun fires.

Until the first of March, the camp had received intensive fires from heavy artillery pieces located in reinforced, dug in positions well inside Cambodia. At times as much as one round every 45 seconds had been rained on the Allied camp for protracted periods. However, the enemy guns were so located that their muzzle glow could be observed from the friendly post thus allowing the Allies to predict the incoming artillery in sufficient time to preclude heavy casualties. In an effort to penetrate the barriers protecting these enemy artillery pieces, the tanks were employed in an indirect fire role, using concrete piercing fuzes. The collocated artillery battery's fire direction center and spotter aircraft assisted with fire adjustment. This met with only limited success since the 90mm ammunition was unable to penetrate the Red defensive positions.

Around 1 March, the enemy artillery fires slackened to the point that incoming rounds were being received at Ben Het only about the time of the daily resupply convoy. Up until then, Company B had sustained about 10 casualties, most of which were minor and were treated on the spot. Several tankers were wounded repeatedly but they continued to return to their stations. By 1 March, only one man had been evacuated through medical channels.

At this time, the first platoon of the tank company held positions on West Hill with four tanks, three of which were emplaced near the crest and were generally facing west overlooking the valley through which Highway 512 wound, as it approached from the Cambodian border. Captain Stovall had come forward and established a temporary command in a nearby bunker since his platoon leader had evacuated to Dak To after suffering multiple fragmentation wounds.

The first and second of March proved to be disconcertingly quiet. The abnormal silence was disturbed only by the mortaring of the resupply convoy and a few interspersed rounds of harassing recoilless rifle and mortar fire.

Around 2200 hours on 2 March, Platoon Sergeant Hugh Havermale reported to Captain Stovall, that his men could hear vehicular movement to the west of the camp. Together, the two went forward and scanned the area with a night vision device but were unable to observe anything out of the ordinary, nor were they able to establish even a general location of the reported sounds. However they could hear the unidentified vehicles running their engines for about 20 minutes then shutting down. It seemed that possibly they were warming their engines and performing crew checks of some nature.



On the third of March, enemy activity remained at a low ebb, with only an occasional round of harassing fire being received at the Allied positions. During the day, three CIDG reconnaissance patrols were dispatched from the outpost to positions about four kilometers to the north, northeast and south. east. The daily intelligence briefing by the camp commander indicated that an attack by the enemy was imminent and that the Communist forces had an armor capability. Indications were to be transformed into fact a few short hours later.

At 2100 hours that evening, the camp's central hill began receiving recoilless rifle fire from two locations. Between 2130 and 2200 the entire camp came under increasingly heavy mortar and artillery fire The tankers again began to hear the sounds of engines coupled this time with the distinctive rumbling of tracked vehicles. The men were again unsuccessfully scanning the area with both night vision scope and infrared searchlights when an enemy vehicle was suddenly illuminated as it detonated some personnel mines located approximately 800 meters from the perimeter. These caused some portion the vehicle to catch fire. In the light of this fire, three tanks and an open, tracked cargo/personnel carrier were observed. Immediately, the platoon crews began taking the enemy vehicles under fire with HEAT and high explosive ammunition. And they began firing final protective fires with other organic weapons. Other tank company people immediately went into action assisting the camp's indigenous forces in manning mortar and recoilless rifle pits or in transporting ammunition and treating wounded defenders.

Shortly thereafter, Captain Stovall received reports of a fourth enemy tank approaching the left flank of the Allied positions near the camp airstrip and a report from one of the CIDG patrols that it was observing an eight to 15 vehicle column moving east toward the camp from the border area. He then called for illumination rounds from the camp mortar squad. The tankers continued their fires, making direct maingun hits on at least two enemy tanks and the carrier, causing them to burst into flame.

In the meantime, Captain Stovall had mounted one of the M48s. As he stepped behind the turret onto the back deck, a large fireball followed immediately by the concussion from an enemy tank round exploding on the glacis flung him clear of the back deck. This also blew the tank commander out of the cupola and 10 feet to the rear of the tank, The enemy round inflicted heavy shrapnel wounds on both Captain Stovall and the tank commander. It also killed the loader and the driver who had been manning an externally mounted machinegun. It became apparent that the tank had received a direct hit from one of the Red

vehicles after its position was compromised by a descending flare. Nevertheless, the M48 again joined in the battle as other crews were scrambled to fill its fighting positions.

The exchange of fires continued for a short while. Gradually, the enemy fire began to diminish as it became clear that the attacking enemy vehicles were withdrawing and that a final assault was not going to take place. The tankers scored several more HE hits on one of the enemy hulls which reduced it to a pile of rubble. Reinforcements in the form of the tank company's second platoon arrived. Platoon leader Lieutenant Ed Nickels took charge of the company. An AC47 "Spooky" gunship arrived on station and began to harass the enemy's withdrawal. The rest of the evening remained quiet with only an occasional round fired by some rifleman, and the normal artillery fires.



The next morning, an investigation of the battlefield revealed two PT76 hulls and a burned-out carrier which had been left behind by the attacking forces. Further combat patrolling in the area closer to the border turned up an abandoned enemy vehicle assembly area but gave no further information on the enemy unit. Total casualties within Company B were two killed and two wounded. The M48 tank which had received the direct hit, had no damage other than a broken machinegun charging handle.

There has yet to be put forth a logical explanation of why the NVA mounted this particular attack on the Ben Het camp. The attack was brief and lacked assault infantry. Indeed, there was not even an attempt to stop the reinforcing units coming from Dak To. There was no enemy gain other than a possible diversion for some other enemy activity., It is quite possible that the enemy was unaware of the presence of the US tanks at the camp since these had been there a comparatively short time and were fairly well concealed in their dug in positions. It seems doubtful that the enemy would have committed his scarce armor resources had he known of the obviously superior armor capability of the defenders.

Nevertheless, the battle of 3 and 4 March 1969 placed a new page in the history of the US forces in the Vietnam Conflict and in the annals of armored warfare. Company B, previously a winner of the

Presidential Unit Citation in Vietnam, added a new and bigger tally to its excellent war record and continued its role as one of the select group of Armor fighters in the II Corps area of Vietnam.

Certainly the previous episode is in no way reminiscent of the armor battles of past conflicts. But it pointedly illustrated again that the tank and its crewmen provide the best antitank defense.



Sources:

TANK vs TANK by Captain Gerald R. Cossey Armor Magazine, Sept-Oct 1970

Armor of the Vietnam War; (1) Allied Forces, Michael Green & Peter Sarson, Concord Publications Ltd

CAPTAIN GERALD R. Cossey, Armor, was commissioned in June 1965 from Western Kentucky University. Prior to attending the Armor Officer Basic and the Airborne Courses, he served as a tank platoon leader with the 4th Battalion, 37th Armor and transportation section leader with the 5th Battalion, 33d Armor at Fort Knox. In December 1965, he was assigned to the 3d Battalion, 68th Armor, 8th Infantry Division in Mannheim, Germany where he served as a tank platoon leader, battalion S4, and company commander. In 1968, he was reassigned to Vietnam, attending the Ranger Course enroute, and served with the 4th Infantry Division staff as an assistant G4, Chief of Supply. In early 1969, he was reassigned to the 1st Battalion, 69th Armor where he served as adjutant, company commander and S3. In July 1969, he returned to CONUS to attend Armor Officer Advanced Course 2-70.

1/4 'Quarter' Cav



Recollections of a 1/4 Cav Veteran

Submitted by John Sandri

These pages are dedicated to the memory of SSG Roosevelt Williams, KIA, An Loc, RVN, Oct 1968

Use this info however you wish, with or without my name, although it might be helpful for others to know where the info comes from. Someone should be recording the practical, not the supposed, experience.

For example, how do you suppose that in a well coordinated M48 crew (mine) the TC could be firing the 50 cal, main gun and also 'training the gun' nearly simultaneously while the loader fired the coaxial 7.62, the m60 on top (in front of his hatch) and load the main gun? Can you figure it all out?

Here's the answer:

The TC override was always taped so that the TC could target left or right and elevate/depress the gun with his right foot. A lanyard was run from the manual fire lever of the main gun to the handle for turning the cupola, the TC could then fire the 50 which was mounted on top (an M2, we didn't use the cupola M85 at all), maneuver the main gun and fire it almost all at the same time.

The loader would fire the co-ax by kicking the back plate while standing on the loaders seat and out the top of the hatch, fire his M60 or M16 at the same time (it took some practice but it worked).

I suspect that you already know this but we didn't really do much target selection. By nature we were large, noisy targets, subject to ambush and surprise attack from the enemy. Therefore, survival in the first minutes of a fight was all important and we laid down a massive wall of constant suppressive fire in all directions. Within 5 minutes each vehicle would expend 100-200 rounds of 50 cal, equal amounts of 7.62, and the 'Bigboys' 5-10 rounds of canister.

M48 and SHERIDAN

I served with 1/4 Cav of the First Infantry Div from 68-70 in third platoon of Alpha Troop, first as an M48 driver and then as TC.

The platoon was composed of 3 x M48A3s and 7 x M113 ACAVs and never gave up the '48s for Sheridan's.



M48A3

Although higher ups may have thought of the platoons as having a "scout" section, we never spilt up the platoon that way. If given two missions (this was not usual) a Bigboy (M48) always went with several ACAVs. The platoon was kept as a 10 vehicle fighting unit over 95% of my two years in the field.

How did quarter Cav retain the M48 and not get Sheridans? As always many factors. What was most deciding, who knows?

a) All the BRO ('Big Red One', 1st Infantry Division) Commanding Generals, starting with Seaman and DePuy, fought for the tank's deployment and use. This was passed on to successive commanders. DePuy, as I understand it, was forever trying out missions for the tanks long before it became accepted knowledge that they actually did well in most of the Third Corps.

b) TET proved their usefulness beyond all doubts, at all command levels, and cemented their place with BRO commanders and squadron commanders. After TET (the time I got there) the Bigboys were going everywhere on every mission.

c) The experiences of 11th ACR, the 'Sheridan Scare' if you will, spread like a wildfire - couldn't bust jungle, couldn't take an RPG hit, was weapons and mechanically unreliable, and COULDN'T TAKE A DECENT ANTI TANK MINE.

d) Point "c" led to near revolt in 1/4 Cav at a time when the entire US Force was getting in a mutinous attitude. The 'tankers' (me included) were asking to transfer to the 34th Armor or just to get on ACAVs.

e) Part of 3/4 Cav's problems/adjustments came with lack of stand down for training by the 48 crews and

that was going to be repeated with us. There was no time to pull crews for training what with their consistent field deployment.

f) The 11th ACR was replacing ACAVs with Sheridans but retaining their M48 tank companies, we would have lost all the 48's and none of the COs accepted that tradeoff.

g) Lastly, the BRO was going stateside in early 70 and the change was not worth the effort for such a short time. If my mind is correct we got the final word around Nov '69 that the 3/4 and 11th were sufficient 'experiments' of the Sheridan and that we were now exempt.

1/4 CAV LINE PLATOON

The third platoon of alpha troop - dragoon alpha november

- zero(30) ACAV
- one (31) ACAV
- deuce(32) ACAV
- three(33) ACAV (medic)
- four(34) M48
- five(35)M48 (plt sergeant)
- six(36) ACAV (plt leader)
- seven(37) M48
- eight(38) ACAV
- niner(39) ACAV

Mortar and Infantry Track: we had no mortar track, though I do recall seeing a mortar track when I first got to 3rd platoon. I don't think it was one of our vehicles, I never saw it again, ditto the infantry track - we barely had 4-man crews to cover driver, commander and two side gunners, and getting off on to the ground was very rare (only to search a base camp after blowing it to pieces and running over everything, to count bodies etc.) we just pulled one man from each crew of 4 or more.

ARMAMENTS (besides the standard stuff)

1. By Feb '68 the ACAVs were acquiring (don't ask how) a second M60 so that they had a 50cal. and two m60

2. All vehicles acquired thump guns (M79 grenade launchers) including the M48s

3. By Nov '68 the tanks also had a m60 in front of the loaders hatch for the loader to fire between feeding main gun rounds. We initially had gun-shields for them but the brass spotted them and all the 'extra' weapons were confiscated. Thereafter, by Dec '68, the extra weapons were more concealed

4. By that time, Dec '68 - Jan '69, 38 and 39er replaced a M60 with a 50 cal (38 on the right side and 39er on the left). They then had 2 x 50 cal and 1 x M60, and were always right flank (38) or left flank (39er) in any formations

Ammo Loads

M48 main gun: initially we had 4 HEAT, 6 HE and the rest (approximately 50 rounds?) were cannister. After about June/July '68 we dropped the HEAT. The early cannister had little metal cylinders (about 700 per round) whilst the later ones had flechettes (like little nails with fins, about 1200 per round). The early rounds with the cylinders were great jungle busters. In thick jungle, especially bamboo thickets, the lead tanks would prepare the way by clearing with cannister. More cannister by far was used for this than in firefights. A lead tank would consume 8-14 rounds a day this way.

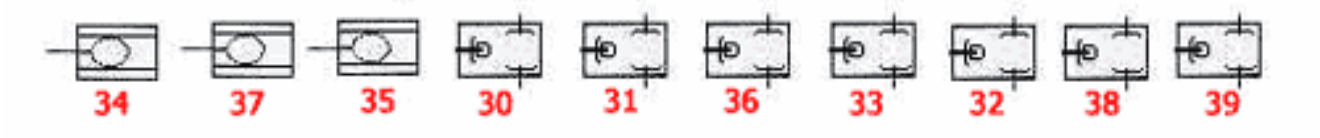
As for 50-cal and 7.62mm etc., who counted? There were 8 boxes of 50-cal on each side of the front fenders in front of the sponson for a total of 1600 rounds (a box = 100 rounds). 6 boxes of 7.62mm each side rear fenders (=1200rds), a full load in the coax bin (= about 2000, check this if you can I really don't know how much that box held, I'm guessing). The bussel rack was full of 50-cal and 7.62mm (about 75% of this was 50-cal and 25% was 7.62mm). The turret compartment ammo boxes that come with the tank were stripped out and the turret floor covered by 50-cal and 7.62mm ammo boxes..... my best guess here is about 5000 rounds of 50-cal and 5000 of 7.62mm. We each had 20 magazines of M16 (5.56mm) in bandoliers and a box or two (= about 2000+ rounds). Had about 10-20 hand grenades and a case of M79 HE rounds. Add some trip flares, hand flares and smoke grenades and that's about it

ACAVs? Got me on this one. The bench seats were stacked two deep with 50-cal and 7.62mm, as well as under the seats and covering the floor... best guess is 15,000+ rounds. Aside from that they had 4-6 LAWs each, M79 etc.

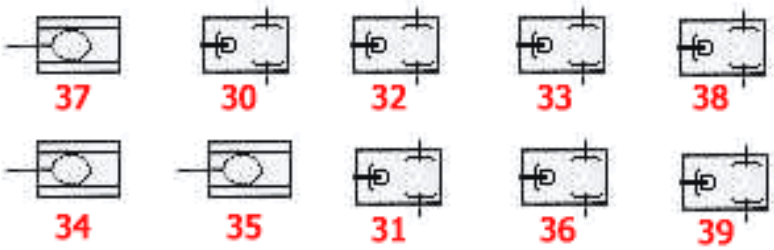
FORMATIONS

These formations assume full strength units which was not all that common and so in real life vehicle positions were often missing although the general configuration was maintained. Remember that 34, 35 and 37 are the M48's, 33 had the 'Doc' and 36 the platoon leader.

1 . March and/or Jungle Busting



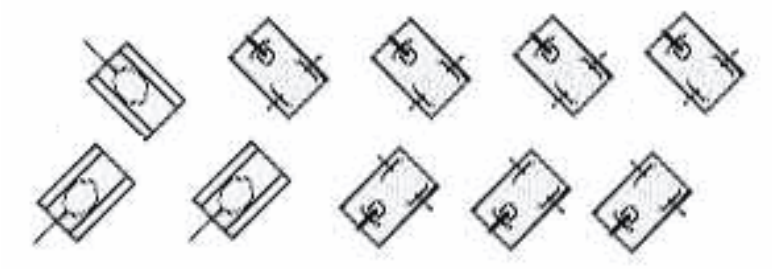
Platoon Single Column



Platoon Double Column

In any single column formation weapons were "herring bone" that is facing opposite side of vehicle in front of you.

In an ambush the column would close with each vehicle turning off in its gun direction firing all the time.

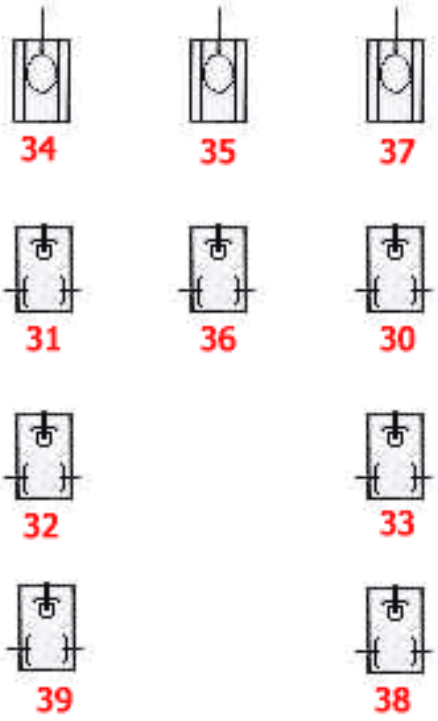


Herringbone Defence

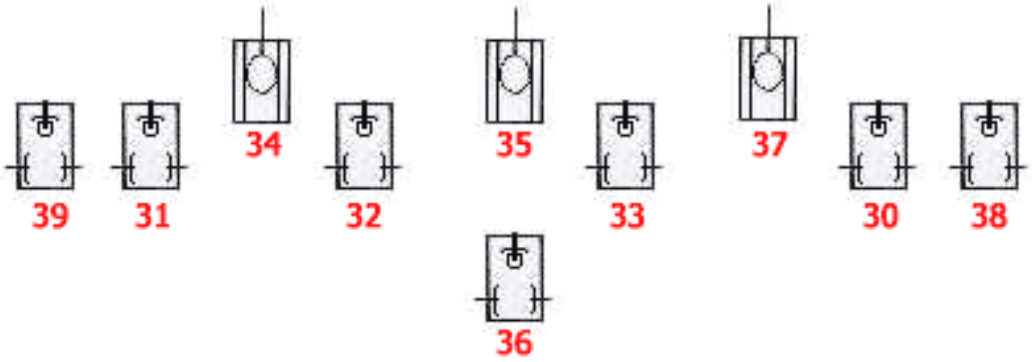
At no time would an M 48 driver allow the gun tube to be over his head (in case of hitting a mine and being ejected or just needing to get out quick) so the lead M 48 set the herring bone pattern.

2. Battle Formations

You have heard of ' wedges' and ' echelons' (right and left), but we rarely used or did that stuff except sometimes in open terrain and more for show or practice. Mainly we were in a 'box' or a 'line'.



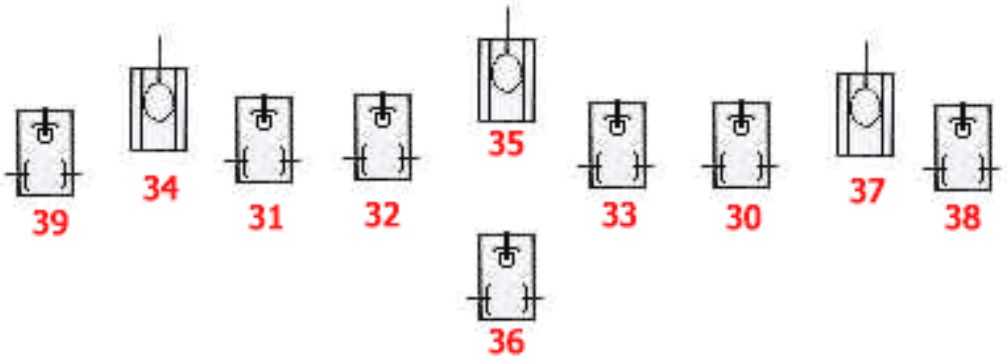
Box Battle Formation



Line Battle Formation 1

ACAV's lined up with their front sprocket aligned with the rear sprocket of the M48 in order to avoid side blast from the main gun. So I'm showing them slightly behind the 48's.

An alternative line formation for use in open terrain had the M-48's arranged slightly differently, as below.



Line Battle Formation 2

3. Convoy Escort

First, I did lots of convoy escort in two years and never got ambushed, just a few sniper rounds. The platoon did respond as reaction force to several ambushes, though this was all HWY 13 or "Thunder Road".



Unit in Convoy Formation

Anyway, there was a "Plan" (Convoy SOP) but, like one of the other troopers on your web page mentioned, once the shooting started anything went.

SOP: I like to think of it as peeling a banana, the lead tanks would come about on either side of the road, and/or regain the road, for faster return to the site of ambush. Those parts of the convoy ahead of the ambush site continued on with their MP escorts (2 jeeps with M60s). Trailing convoy elements turned around or backed down the road. Truckers at the site were "on their own" as our other vehicles peeled off and traveled to the ambush site on both sides of the road. This provided some 'cacooning' of the retreating convoy elements and would cover both sides of the road. Even as a reaction force it was never perfectly clear whether there was a one sided, two sided or L-shape ambush etc. I can remember one time when we were a reaction force and told the ambush was from the West side when it turned out it was from both sides of the road in July '69.

The division convoys were very consistent in format - not the best idea to me - with the JP4 fuel tankers always in the lead and a prime target. I don't know how they had the guts to get in those cabs everyday.

The truckers were frustrated by our speed too. We traveled much slower than they could and speed meant safety to them. By the way, one of the data sheets said M48 top speed was 40mph whereas 32mph was the max. I did get one up to 42mph down the long hill from Quan Loi to An Loc once but it became impossible to handle, every little bump and rut sent it bouncing all over the road.

The convoy route from Saigon to An Loc (HWY 1A and 13) was progressively paved with asphalt and as our escorting progressively moved northward so the road got paved... i.e. we escorted on the unpaved sections.

Convoy escort was the best job. Risks were low and after you got your section of road done and another platoon or unit picked up the next section, you had 2-3 hours waiting for the return convoy of empty trucks. These stop areas were like mini parties with the Vietnamese locals selling everything you can image, or getting it for you within a couple of days.

The down side was that the vehicles required lots of maintenance and you'd spend half the night on oiling, greasing, repairing, replacing etc.

FORMATION SPACING

I've wondered why no gamers have asked about vehicle spacing of the formations? Anyway here it is in the ideal.

1. Rubber trees:

Line - one to two rows of trees between vehicles, one row between vehicles gives a line front of about 100 meters and was the most common.

Double column - columns were separated by 5-6 rows of trees (25-30meters) since visibility was good and an open formation allowed for easy maneuver to line or wheeling about. Vehicles in the column were spaced 5-10 meters behind the one in front.

2. Jungle:

Double column - depending on jungle density, columns were separated by about 10-15 meters.

Box - M48s were separated by 10 meters, the line of ACAVs following the M48s were 10 meters behind the 48s (because the lead 48s needed room to maneuver around obstacles and back up but the ACAVs had a well cut path to follow). Other ACAVs followed about 5 meter behind the vehicle in front.

3. Open terrain:

Line formation - vehicles separated by 20-25 meters which gives a 200-250 meter front.

4. Road march:

Single column - this was determined by the season since in the dry season a 48 going full out on a dusty road can trail 100+ meters of dust cloud. Minimum was 50 meters between vehicles (used mostly on night

'Thunder Runs'), 75 meters was standard and in the dry season 100-150 meters.

CREWS

M48 crew = 4: Tango Charlie (commander), Delta (driver), Lima (loader) and Golf (gunner) who rode the bussal rack and faced rear. Nobody sat inside or rode inside. I was 35 lima, 35 delta, 37 tango charlie and 34 tango charlie for my time I was in-country. Formal communication in squadron was: "this is dragoon alpha november 34 tango charlie, over", and at troop/platoon it was "this is november 4, over" or "this is 4, over"

ACAV crew = 4/5: TC, Driver, 2 Gunners, fifth would act as rear gunner/ammo distributor. Tracks 33 and 36 would have 5-6 to account for the medic and platoon leader. In reality the medic was usually a gunner too.

Platoon was rarely at full strength. We had a platoon leader less than 40% of my 2yrs and us teenagers and a lifer E6 or E7 ran the platoon. I arrived post TET, Feb '68, and the platoon had lost 34, 30 and 38. Track 32 was at squadron maintenance. Both 35 and 37 were left at Phu Loi with 2 TC's and one driver, the loaders and gunners were sent to fill out the ACAV crews. a new 34 arrived the first week in March. By mid Oct '68 I was the longest in country member of the third platoon!!!

Other stuff on my mind...don't know why this has come to me. Like the WWII planes we had on and off names, designs etc painted on the vehicles. Early on it was tradition to have an "A" type name for the vehicle e.g. ABORTION (on turret sides), ATOMIC BOMB (gun tube), ALIMINATOR (gun tube), ANNIE FANNY (ACAV sides in front with a good painting of her too), SNOOPY (this was Alpha 6s ACAV with a painting on either side of mid-rear of Snoopy's dog house on tracks and Snoopy sitting on top in the WWI flying helmet). Later we got more personal so that 37 was "the Philly Dog" painted on searchlight cover and turret sides... this was SSg R. Williams choice because he proposed to his wife while at some dance club and either the dance was that name or the club was). 34 was "Run Away Child" printed on the front slope following an incident in which the throttle linkage broke one day and she took off for awhile until the manual fuel shutoff stopped her. There was the occasional "sharks mouth" painted on upper and lower front slope with huge eyes on either side of the turret. A15 was commanded by an Hawaiian for a long time and had huge Polynesian type eyes on either side of the turret (of course he was always called ‘Kahuna’ or ‘The Big Kahuna’).

It was vogue for awhile to take enemy skulls after the ants had cleaned them and for tanks without searchlights to put them on the searchlight mounts. The ACAVers put them on the engine exhaust pipe. The skulls eyes and/or teeth (mouth) or whole thing would be painted red. That of course got us into trouble the minute we reached more civilized parts.

Lighter stuff to end.... cooking: since weight wasn't a problem we'd carry 5-10 cases of C-rations and had a merck can (cooler) strapped to the bussel rack for cold sodas and beer.... ice, sodas and beer were a major resupply request everyday. Any way, end connectors made for great mini stoves and we'd put a little C4 plastic explosive in the center of the end connector, place a C ration can on top and light the C4, stirring so as not to burn things at the bottom of the can. Works even in a torrential down pour. Some of us would get jiffy-pop popcorn in care packages from home and cook it this way. "Pizza" could be made by combining the bread, spaghetti, and cheese spread in layers in an emptied can from another meal.



NEXT PAGE

US MARINES



ORGANISING A MARINE COMPANY

COMPOSITION OF COMPANY

- 1 x Company HQ
- 3 x Rifle Platoon (each 1 x Platoon HQ, 3 x Rifle Squads)
- 1 x Weapon Platoon (1 x Weapons Platoon HQ, 1 x Mortar Squad, 1 x Anti-Tank Squad, and 1 x Machine Gun Squad)

Marine Company HQ

- 1 x Captain
- 1 x Gunnery Sergeant
- 2 x Corpsman
- 2 x Radio (one of which is for the Arty FO)
- 2 x Rifleman (Runner)
- 1 x 1st Lieutenant (Artillery Forward Observer)
  - 1 x Radio

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Marine Rifle Platoon HQ

- 1 x 2nd Lieutenant
- 1 x Platoon Sergeant
- 1 x Right Guide
- 2 x Corpsman
- 1 x Radio

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Marine Rifle Squad

- 1 x Sergeant (Squad Leader)
- 3 x Corporals (Fireteam Leaders)
- 1 x M-79 40mm Grenade Launcher ('Blooper')
- 3 x Rifleman with M-14 Modified
- 6 x Rifleman with M-14

PAGE TOP

Marine Weapons Platoon HQ

- 1 x 2nd Lieutenant
- 1 x Platoon Sergeant
- 1 x Corpsman
- 1 x Radio
- 1 x Mortar FO
    - 1 x Radio

PAGE TOP

Marine Weapons Section (Mortar)

- 1 x Sergeant
- 3 x Corporal
- 9 x Rifleman
- 3 x M19 60mm Mortar

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Marine Weapons Section (Anti-Tank)

- 1 x Sergeant
- 3 x Corporal
- 18 x Rifleman
- 6 x 3.5" Rocket Launcher

PAGE TOP

Marine Weapons Section (Machine Gun)

- 1 x Sergeant
- 3 x Corporal
- 18 x Rifleman
- 6 x M-60 GPMG

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NOTES



It was common practice to distribute the Machine Gun and Antitank elements of the Weapons Platoon amongst the Rifle Platoons within the Company so that each Platoon would have the supplementary firepower of 2 x M-60 GPMG and 2 x 3.5" Rocket Launchers.

RIFLE SQUAD

Each squad was broken down into three fireteams of 4 men. Each fireteam has an NCO as leader, an automatic rifleman (M-14 modified) and 2 riflemen (assistant automatic rifleman and scout) armed with the standard M-14.

Each Rifle Squad has an M-14 Modified, equipped with a bipod, for use as an automatic weapon. Unless otherwise noted all personnel are equipped with the M-14 prior to 1968. From 1968 on the USMC were issued with the M-16 though it was not uncommon for units to retain the Modified M-14's for their firepower.

The M-79 grenadier was usually directed by the squad leader.

WEAPONS PLATOON

All troops were armed with the standard M-14.

M-60 GPMG SECTION

The section is commanded by a Sergeant and consists of three M-60 GPMG teams with 2 x M-60 per team. Each team was commanded by a Corporal and consisted of 2 x Gunner, 2 x Assistant Gunner, and 2 x Ammo Bearer. The marines were trained to fire the M-60 using a tripod.

ANTITANK SECTION

Often referred to as the Assault Section and commanded by a Sergeant. Three squads, each comprising 2 weapons teams armed with an M-20 3.5" bazooka. Each squad is commanded by a Corporal and each team consists of 1 x Gunner, 1 x Loader, 1 x Ammo Bearer.

By 1969 most M20's had been replaced by the lighter M-72 LAW.

MORTAR SECTION

Each tube has a crew of three (tube, baseplate and ammo) plus a Corporal acting as the squad commander. The section is commanded by a Sergeant.

See also:

USMC 81mm Mortar Section - an article submitted by USMC Veteran Michael Stewart that details the organisation and operation of this unit

USMC 81mm Mortar Section Forward Observer - recollections of an FO's radio operator, USMC Veteran Mike Pomakis, in Vietnam

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ATTACHED UNITS

At the Platoon level there could be from 2-5 M-48 tanks, 2-4 amphibious tractors (AMTRAK LVPT-5), 81mm Forward Observer from Battalion 81mm Mortar Platoon and/or Artillery Forward Observer from supporting Artillery battery.

At Company level there could be an attached tank platoon, an Amtrak section of 10 Tracks, an ONTOS section (2 vehicles armed with 6 x 103mm Recoilless Rifles), Engineers and Forward Air Controllers.

HIGHER FORMATIONS

BATTALION

Four Rifle Companies (letterd A-D in 1st Battalion, E-H in 2nd Battalion, and I-M in the 3rd Battalion - the letter J was not used), Headquarters Company, 81mm Mortar Platoon (6 tubes), Scout Platoon and 106mm Recoilless Rifle Platoon (six tubes individually mounted on mechanical mules).

BATTALION LANDING TEAM (BLT)

Attached artillery battery (6 x 105mm Howitzer), tank platoon (5 x M-48), AMTRAK Platoon (10 x LVPT-5, capable of mounting a Rifle Company), an Anti-armour Platoon (6 x ONTOS).

REGIMENT

Three Rifle Battalions and a Headquarters Company.

REGIMENTAL LANDING TEAM (RLT)

Regiments could be formed into Regimental Landing Teams (RLT) consisting of 3 x Battalion Landing Teams with attached Combat Support elements.

For a complete listing of rank and insignia, see
USMC Insignia

See also Rapid Fire for details of organisation for use with Rapid Fire wargaming rules

See also Scenarios for USMC wargaming battles

USMC M41 and M61 Kit Patterns

USMC M-60 Gunner and Equipment

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If you have any further information, or you know where I can find more information then please Contact me

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SOURCES

US Riverine Operations



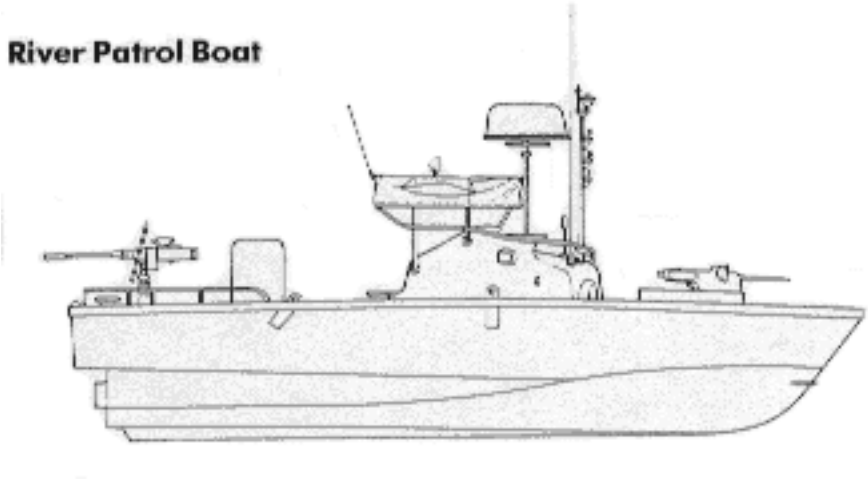
INTRODUCTION

The Mekong Delta, covering fully one third of South Vietnam, is an extensive area of low-lying marsh and swamp land, crisscrossed by myriad rivers, tributaries and canals. Due to constant flooding there was practically no road infrastructure so the primary mode of transport and communication between the isolated hamlets and the larger population centers was by water. The Delta formed the IV Corps Tactical Zone.

The Viet Cong used the waterways of the Delta extensively for the movement of troops and materials and as a primary communications route. They were, as a result of the population density of the Delta, also politically very active. It became clear quite early in the conflict (as it had done for the French in their war with the Viet Minh) that control of the waterways of the Delta was of major importance strategically.

In September of 1966 the US Navy established it's River Patrol Force, codenamed 'Game Warden', and designated it Task Force 116 which became operational on 11th February 1966.

Task Force 116's mission was to police the waterways by conducting river patrols and inshore surveillance in order to enforce the curfew, interdict and disrupt Viet Cong infiltration and to maintain Government control over the region..



The original organisation of TF 116 consisted of 120 boats which were organised into 4 Divisions, each of 3 Sections. Each Section consisted of 10 boats. The boat used was the PBR Mk I (Patrol Boat River).

Patrols generally consisted of 2 boats operating within radar range of each other and working a patrol zone some 50km in length. The boats would move in loose column and at varying speeds. Their routes and timing were randomly determined. The patrol would interdict traffic in an effort to stop Vietcong activity on the waterways. Patrols had a duration of approximately 12-14 hours.

Daylight patrols consisted of only 2 boats. At night the patrolling effort was intensified with 6 boats on patrol from each section of each division to combat the increased Viet Cong activity which took place at night.

ESCALATION

The success of the river patrols could be measured in several ways. Initially the local water users were irritated by the US presence, but as the patrols began to cut down on the activity of the local Viet Cong the local populace became increasingly positive towards the TF and it's operations. Also, as mentioned, Viet Cong infiltration was considerably disrupted and their political control challenged. To counter this the VC began to increase their own activities in order to re-establish their control and dominance in the Delta.



The US responded by adding a further 80 boats to operation Game Warden. These were PBR Mark II's, an improved version of the early boats. Displacing nearly 1 metric ton more than the PBR Mark I and with some modifications to the placement of armaments - the twin .50 Cal was relocated further forward towards the bow.

These 80 boats were deployed as sections of 10 boats with 6 new sections being added to the existing Divisions within the TF and a new Division created containing just 2 sections. Despite this increase in capacity Game Warden was coming under increasing pressure as the VC began to re-exert themselves.

When US combat troops first began to deploy to Vietnam in 1965, it is estimated that the VC had approximately 70,000 troops in the Delta - these were organised on the basis of 1 squad/hamlet, 1 platoon/village, 1 company/district and 1 battalion/province. There was no way that Game Warden was capable of combating this large deployment since it did not have the combat power to do so.

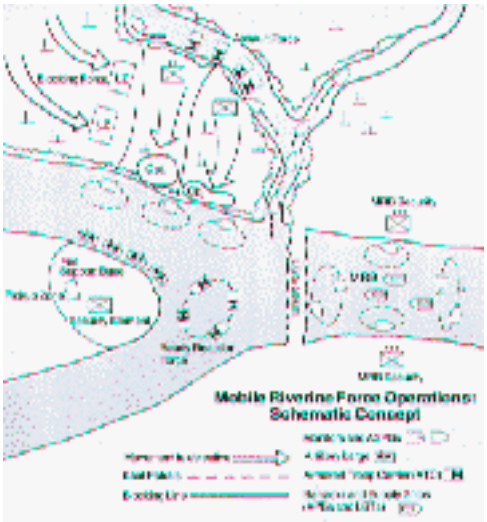
MEKONG DELTA MOBILE AFLOAT FORCE

In 1965, aware of this large concentration of enemy forces, MACV started advocating the deployment of combat forces into the Delta itself and by 1966 it was more a question where and how to base such troops.

On 15th March 1966 COMUSMACV put forward a proposal for the formation of the MEKONG DELTA MOBILE AFLOAT FORCE (MDMAF) to be designated Task Force 117. It was envisaged that this would comprise a full US Army Division with 2 of it's 3 brigades based ashore at Vung Tau and Mytho and the 3rd brigade based afloat on a river based and hence mobile base. Tactical mobility was to be provided by the River Assault Squadrons, each of which was capable of transporting a battalion strength combat element. The base would consist of:

- 5 x Barrack Ships (APB)
- 2 x LST's
- 2 x Harbor Tugs (YTB)
- 2 x Landing Craft Repair Ships (ARC)

OPERATIONAL CONCEPT



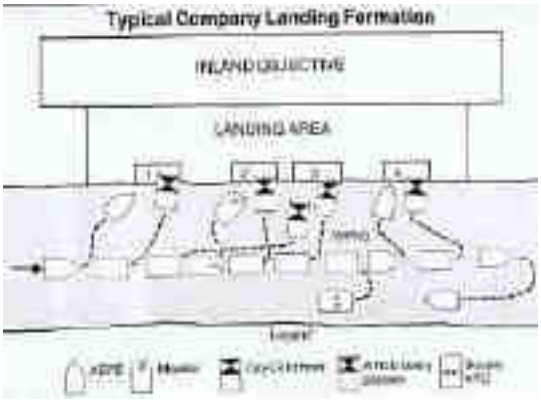
The Operational Concept of the Task Force involved basing an Army element of Brigade strength on barrack ships for a period of 6 months and rotating the brigades of the Division. In fact, although the original proposal envisaged the deployment of a full Brigade afloat, it was only possible to accommodate a reduced brigade of 2 battalions.

The Base itself was to be located in a hostile zone and to remain there for 4-6 weeks while the Infantry Battalion patrolled the region and engaged the enemy which were found, before moving to a new Area of Operations.

Tactical operations were conducted at up to 50km from the base itself, although quite often the MRB was located much closer to the AO, and such operations would last for about 5 days. It was estimated that a single battalion could systematically search an area of 40 square kilometers during a tactical op.

Movement to the location of a tactical operation was made by land, water and air and all coordinated with local forces. It was intended that maximum use be made of air and artillery supporting fires.

MOVEMENT & LANDING OF FORCES



During movement on the waterways ASPB's would cover the flanks and rear of the formation and join monitor's in providing close-in fire support. Monitor's would lay down preparatory fire on intended landing sites on the shore assisted by arty and air. Once a landing was made, ingress and egress to the AO would be sealed off by the armed boats.

Tactical operations were of the classical 'Search & Destroy' type. Once the enemy had been located they would be fixed in place by supporting fires and assault troops while other units were deployed as a blocking force. Massive fire power was brought to bear in order to comprehensively destroy the enemy forces.

MODEL AVAILABILITY & RULES

One particular problem which you may encounter if you choose to wargame this area of the conflict is the availability of suitable models to represent the boats. Check out the Suppliers page for a listing of manufacturers and suppliers.

As for rules then I suggest both 'Buckle for Your Dust' (which contains the section 'Mouth of the Dragon') and Free Fire Zone. Different approaches are adopted by both sets of rules but they play equally well and cater for different player tastes.



See Also:

Patrol Boat River - a review of the 20mm resin kit available from Britannia Miniatures

Snoopy's Point - Fighting along the Rach Ba Rai, Sept 15th, 1967

Glossary - a list of some of the terms used

Sources:

Mouth of the Dragon, Rules for Riverine Operations by Paddy Griffith
Free Fire Zone, Wargames Rules for the Vietnam War by Barrie Lovell
Brown Water Navy - article in Dustoff#9 SOTCW Vietnam War Study Group
The Brown Water Navy, Col. Victor Croizat USMC (Retd.), Blandford Press, ISBN 0-7137-1272-4

Military Police



Doctrine Statement Summaries

Tables of Organization and Equipment

MP Company, Infantry, Armored, Infantry (Mech) Division — TOE 19-27G

Military Police Battalion, Army or Corps — TOE 19-35F

- Headquarters & Headquarters Detachment, TOE 19-36F
- Military Police Company, TOE 19-37F

Military Police Escort Guard Company — TOE 19-47F

Military Police Battalion — TOE 19-55F

- Headquarters & Headquarters Detachment, TOE 19-56F
- Military Police Company, TOE 19-57F

Military Police Company, Airborne Division **TOE 19-67F**

Military Police Company, Airmobile Division **TOE 19-87T**

SOURCE: United States Army Military Police School Reference Text

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United States Armour



General Introduction

In the early stages of the war it was generally felt that Vietnam was an unsuitable theatre for the employment of armored units. Service in RVN involved considerable revision of doctrine, tactics and equipment. Standard tables of Organisation and Equipment were revised and once in RVN, armored units fell back upon heavily Modified TO&E's to reflect the changing role of armor in this particular theatre.

Their subsequent deployment dispelled this idea. The mobility of armored units made them extremely versatile and in many cases their mobility became a critical factor despite the otherwise overwhelming use of helicopters.

The first US armored unit (3rd Platoon, Company B, 3rd Marine Tank Battalion) arrived in March 1965 but there was little inclination to deploy it due to what was considered unsuitable terrain and the requirement for a large logistical support base. During initial considerations regarding the deployment of the 1st Infantry Division it had been planned to 'leave behind' the divisions two tank battalions and to convert it's mechanized infantry to regular grunts. It was eventually decided that only the divisional cavalry (1st Squadron, 4th Cavalry) would deploy with it's assigned tanks. The M114's of the 1st squadron were replaced prior to deployment with M113's due to the relatively poor performance of the former which had been used for some time by the ARVN armored forces. Vietnam saw the emergence of the M-113 and variants as the dominant armored vehicle in spite of it's original design conception as a simple armored infantry vehicle.

Unfortunately, despite the lessons learned from WWII and Korea, armored units were still split and parceled out so that 1st squadron was split into troops with one assigned to each brigade thus giving the brigades of the division some mechanized recon capability. General Westmoreland still believed at this stage that Vietnam was no place for the operation of tanks and as a result the M48A3's were withdrawn from the Cav troops and held in reserve at Phu Loi. In effect, this left only the squadron's Air Cav Troop under the operational control of the squadron headquarters.

AP BAU BANG

The first major engagement involving US Armor was by Troop A, 1st Squadron, 4th Cavalry in the battle

of Ap Bau Bang. On 11th November 1965, Troop A 1/4th Cav, Company A 2/2nd Infantry and Battery C 2/33rd Artillery, were attacked in their NDP. The attack took place at dawn and, unfortunately for the VC, the whole NDP had been put on an early 'stand to' in anticipation of a possible attack. The VC launched three assaults against the perimeter but were met by a hail of fire from the armour (including M106 mortars) and artillery resulting in 198 confirmed VC KIA's, whilst US losses were two M113's and three M106's.

By late 1965, General Westmoreland was beginning to see the value of armour (ground cavalry) as a hard-hitting and highly mobile force and subsequently requested the deployment of the famous 11th Armored Cavalry Regiment (deployed September 1966) as well as the 25th Infantry Division, the latter to be deployed with it's integral armored and mechanized units left intact.

Whilst initial concerns regarding the unsuitability of armour in the combat environment of RVN proved to be unfounded, nonetheless, cavalry unit tactics had to be substantially modified. This was particularly true in the area of countering ambushes.

11th ARMORED CAVALRY REGIMENT

11th ACR was initially tasked with securing the roads and provinces around Saigon but were soon mounting operations off-road. Up until this time, the enemy had been decimating convoys almost with impunity. 11th ACR soon began to turn the tide in this area and using their heavy firepower and high mobility they would fight clear of an ambush while protecting the vehicles they were escorting. Within the center of their formation the unarmored vehicles could take refuge.



One tactic developed was the 'herringbone' in which the armored vehicles turned alternatively to the side of their direction of march placing their heaviest armour and armament towards their flanks where it could be employed with devastating effectiveness. The armour generally attempted to break out of the kill zone by the use of maneuver and firepower and then turn around to engage the enemy flank while calling in tactical air and artillery support onto enemy concentrations to their front.

Despite initial reservations about the role of armour in Vietnam, by early 1967 the US Army had

deployed the following:

- 1 x Armoured Cavalry Regiment
- 6 x Mechanised Infantry Battalions
- 4 x Armoured Cavalry Squadrons
- 2 x Tank Battalions

PILE ON & THUNDER ROAD

It was not long before US Armor commanders began to better understand the nature of the war they were fighting and the most suitable and destructive means of deploying their armor assets. From Patton's concept of 'Pile on' where a small US force would be used as a bait which, if the enemy took, would soon be massively reinforced by awaiting reserves, to the use of armor as the 'hammer' in rapid hammer-and-anvil maneuvers wherein airmobile infantry were rapidly deployed to the rear of an enemy force and the armor would be used to herd the enemy into the kill zone from which few escaped. Similarly, mechanized infantry were soon mounting highly mobile search and destroy missions even during the wet season.

Using armor in this fashion enabled the US to attack into the heartland of NVA and VC sanctuaries whether they be in the dense jungles bordering Cambodia and Laos, the flooded paddies of the Mekong Delta or the relatively wide open spaces of the Iron Triangle.

Also, whereas the night had always 'belonged to Charlie', the latitude given to the VC and NVA prior to the arrival of armor was increasingly restricted. The famous night-time 'Thunder Run' where an armored column would, quite literally, thunder along down a road firing all available weaponry into the adjacent terrain with a view to either spoiling NVA/VC activities or to pre-empt ambushes and mine laying became a common occurrence.

ON THE OFFENSIVE

The build-up of armored forces in RVN was such that, by 1967, the US was afforded the opportunity to take far more aggressive actions against the enemy in RVN than was previously thought reasonable. Areas which had long been considered as safe sanctuaries for the the enemy could now be entered, attacked and cleared. Operation Cedar Falls (in the Iron Triangle, mentioned above) was one such operation as was Junction City where armored units were utilized to provide road security, convoy escort, search and clear operations as well as rapid reaction force duties. More traditional cavalry operations were also seen such as the rapid relief of Firebase Gold which, in timely fashion, arrived just in time to prevent it being totally over-run.

TET

Mobility and flexibility were the keys to armored success during the Tet offensive. From positions on the

borders of Cambodia and Laos, where armor interdicted the early movement of NVA and VC forces infiltrating into RVN, to the swift relief of Saigon, Pleiku and Kontum, armored units were able to sweep down on unsuspecting enemy formations and wreck havoc.

Key installations at Tan Son Nhut and Long Binh-Bien Hoa, which were primary targets for the offensive, were rapidly reinforced by armored columns such as 3rd Squadron, 4th Cavalry who, upon arrival at Tan Son Nhut were able to drive a wedge between the attacking forces and helped pin over 600 VC between themselves and the artillery defending the base. Between the armor, artillery and gunships, over 300 enemy were KIA. 2nd Battalion, 47th Infantry carried out similar reinforcing operations at the major logistical base of Long Binh - Bien Hoa where they cleared a force of enemy sappers from the huge US ammo depot.

Following Tet, with the VC practically eliminated as a cohesive fighting force, US Armor swiftly regained the initiative. NVA and VC units were badly mauled in III Corps by 1st Brigade, 25th Infantry Division as well as in I Corps where 1st Squadron, 1st Cavalry, 23rd Infantry Division blocked NVA units advancing on Tam Ky City. NVA units involved in this particular operation were wholly inexperienced in combating US armor and as a consequence they suffered grieviously at the hands of the mechanized 1st Brigade, 5th Infantry Division.

BEN HET

US Armor strength peaked in 1968 and in early 1969 the only engagement between US armor and communist armor took place at the special forces camp of Ben Het. This particular camp was strategically placed overlooking the Ho Chi Minh trail and thus presented a prime target for the NVA and VC. Tanks from 1st Battalion, 69th Armor had been stationed at the camp since early in the year. In February they were used in a counter-battery role against the enemy who shelled the camp heavily. On March 3rd 1969, the enemy attacked with PT-76 tanks and APC's. US M48A3's engaged the enemy armored forces using HEAT ammunition and destroyed two PT-76's and an APC. As far as US armor was concerned, this was the first, and last, engagement with NVA/VC armor.

Remaining operations in 1969 were mostly concerned with disrupting enemy logistical bases within RVN in operations such as Montana Raider. These operations helped to clear the bulk of the enemy from within the country and having completed that task, the armored units were switched to border security.

VIETNAMIZATION

Over the course of '69 and '70 the pace towards Vietnamization increased and the activities of US units were wound down to an increasingly advisory role. As US units began to withdraw from Vietnam, armored units found themselves remaining in RVN in some cases even after their parent Division had redeployed back to the USA. The reason for this was that with their mobility and firepower, armored units could still project considerable combat power despite their relatively low numbers of troops.

CAMBODIA

In May of 1970 operations were launched into Cambodia and many of the remaining US armored units took part; 2nd Battalion, 34th Armor; 2nd Battalion, 47th Infantry (Mechanized); 11th Armored Cavalry Regiment and 3rd Squadron, 4th Cavalry. These units were able to secure vital objectives, block enemy routes of retreat and seize prodigious quantities of enemy supplies. However, the long lines of logistical supply, based on the coast of RVN, had put a great strain on those armored units taking part and a great many vehicles had to be towed back into RVN at the end of the operation. By 30th June 1970, all US armored units were back in RVN.

LAM SON 719

By the time of Operation Lam Son 719, the ARVN incursion into Laos, US units had been banned by Congress from taking part in any further cross-border operations. Despite this limit on their operational use, US Armored units nonetheless played an active part in the operation by securing ARVN logistical routes and the ingress/egress of ARVN forces to and from the borders of Laos.

US ARMOR DEPARTS RVN

As US withdrawal from RVN continued, Armored forces found themselves accounting for more than 50% of US combat strength in RVN. The last US ground Cavalry unit to conduct operations was Troop F, 17th Cavalry. which departed RVN in April 1971. Some air cavalry units remained until 1973, many of which took an active part in the operations against the 1972 Communist Easter Offensive.



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ARVN Armored Forces



Armor of the South Vietnamese Army, Part I

In 1950 the French created a small Vietnamese armored force. That year also saw the simultaneous establishment of an armor training section in the Vietnamese Military Academy at Dalat and a reconnaissance company equipped with M-8 armored cars, which were manned by French officers and Vietnamese enlisted men. In 1952, an armor school was set up at Thu Duc, northeast of Saigon, to train the future officers of the Vietnamese armored force. The basic training was taught using 178 vintage pre-World War One French Panhard armored cars. Upgraded training was offered at the Saumur Armor School in France. The 3rd Armored Regiment (3° Régiment Blindé Vietnamien) became operational in 1953. The regiment had a headquarters company and three reconnaissance companies that were equipped with M-8 reconnaissance armored cars, M-3 halftracks, M-3 scout cars, and M-8 howitzer transports. Four separate reconnaissance armored squadrons were also established, which were equipped with M-8 armored cars and M-3 scout cars. The Vietnamese armored units were used mainly for road security tasks and in support of anti-guerrilla operations.



M-8 armored car and M-3 half-track



M-8 Howitzer Motor Carriage

A South Vietnamese Armor Command, which also served as the office of the Chief of Armor, was established on 1 April 1955, and with the creation of the Republic of Vietnam in October it became a part of the Army of the Republic of Vietnam (ARVN). By late 1955, after the partition of Vietnam under the Geneva Accords, the armored force of the Army of the Republic of Vietnam (ARVN) in the south was expanded and an armored regiment was deployed in each of the four military regions. The equipment, all

of it was of Second World War vintage, was inherited from the French and much of it was in poor condition. The principal AFVs were M24 Chaffee light tanks, M8 Greyhound armored cars, M3 half-tracks, M3 scout cars and M8 howitzer motor carriages. Unfortunately the combination of delapidated equipment, tactics that stressed defence, and the piecemeal commitment of AFVs limited the capabilities of the force to convoy escort and static defence of installations. In the latter role AFVs were reduced to the level of 'mobile' pillboxes.

With the arrival of American advisors in early 1956, the existing ARVN armored units were reorganized according to US precepts as Armored Cavalry Regiments (ACRs), each comprising two reconnaissance squadrons equipped with M-8 armored cars, M-3 half-tracks and M-3 scout cars, and one squadron of M24 Chaffees. The ARVN unit nomenclatures were retained from the French, whose designations were equated with fighting power rather than on the basis of personnel strength, the method used by the US Army. This meant that an ARVN "regiment" was equivalent in size to an American battalion or squadron.

From 1957 to 1962, the ARVN armored units played only a minor role in the conduct of the anti-guerrilla operations. Its squadrons were dispersed to assure security missions along the main roads, while the M-24 tank squadrons were trained to repulse an all-out conventional invasion from North Vietnam. During this period the Viet Minh, who had remained in South Vietnam since the Geneva Agreements, carried out terrorist attacks, established bases and created a widespread intelligence network and political infrastructure. In December 1960 the National Front for the Liberation of South Vietnam (NLF) was formed; ostensibly a coalition of disaffected parties against the autocratic rule of President Ngo Dinh Diem it was, in reality, under Communist control from Hanoi. Its military arm was to become known as the Viet Cong.

By late 1961, the military situation in South Vietnam was deteriorating quickly and the United States reacted by furnishing considerable military aid. The Viet Cong were moving at will throughout the country, and even threatened the approaches to Saigon.

Among the equipment delivered to the ARVN was a batch of M-113 Armored Personnel Carriers (APCs). The decision was made to introduce two company-sized units manned by rifle companies trained in mechanized infantry operations. Some 32 M-113s were delivered in April 1962 and were assigned to the 7th and 21st Infantry Divisions. Rather than being manned by well-trained troops, the new units were completed with men selected at random, and only armor personnel filled the key roles. The two units were designated 'mechanised rifle companies' and were formed with 15 APCs apiece. They were subsequently redesignated the 7th and 21st Mechanised Rifle Companies. Each company was organized as follows:

- three rifle platoons with three M113s in each platoon;
- a support platoon with four M-113s, which carried between them three 60mm mortars, and three 3.5-inch rocket launchers;
- company headquarters section with two M-113s, one for the company commander and one for

maintenance personnel.

All APCs were equipped with a .50 calibre machine gun, and eighteen .30 calibre Browning automatic rifles were distributed throughout the company.

Since only the driver and commander of each M113 were drawn from armor personnel and the riflemen lacked combat experience, their initial training period was extended from six weeks to nine. The two units were put into the field for the first time on 11th June 1962. The High Command decided to deploy them in the Mekong Delta to protect Route 4, the vital 'Rice Route' into Saigon.

As with almost any new organization, the units' first engagements reflected their lack of experience - the Battle of Ap Bac 1 illustrated this. These early operations provoked a great deal of unfavourable comment about the alleged inadequacies of the M-113. Early operations were conducted in conjunction with troops of the Civil Guard - provincial soldiers of mediocre quality - and directed by a higher command with no knowledge of armored tactics. Many commanders tended to employ the APC merely as a substitute for a truck, failing to exploit its mobility, shock action and firepower. In consequence, initial results were disappointing. Gradually, however, the two mechanised rifle companies gained experience through daily operations against the enemy.

The situation continued to improve as the units acquired experience and between 11 June and 30 September 1962, the two companies killed 502 Viet Cong and took 184 prisoners at a cost to themselves of four dead and nine wounded. This success was further enhanced by the results obtained when the company attached to the 7th Infantry Division was sent to operate in the Plain of Reeds, and elsewhere in the Delta, demonstrated the effectiveness of the APC as a fighting vehicle-as opposed to its use merely for transporting infantry to the objective. The M113 had been designed as a 'battlefield taxi' following American doctrine that mechanised troops dismount and assault an objective on foot but operational experience revealed that dismounting infantry prior to closing on a VC position resulted in the loss of momentum, drastically reducing the mobility of ARVN forces and sacrificing armor protection, observation and shock-action effect. Henceforth, ARVN mechanised troops habitually fought from their carriers, only dismounting when an enemy position had been overrun and then only to ensure that a thorough and complete search of the area was made. Contrary to the prescribed rules, which indicated that the soldiers riding in the APCs had to dismount to fight, the ARVN commanders fought with their men firing from the hatches of the vehicles. This tactic transformed the M-113 into a real battle tank against the lightly armed guerrillas. The Americans later adopted this technique.

By the end of October, the two companies had killed 517 Viet Cong and captured 203**,** at a cost to themselves of only four dead and 13 wounded. Such impressive statistics did much to assuage the Vietnamese political establishment, which put a high premium on holding down casualties in men and equipment. Any commander incurring heavy losses was liable to immediate dismissal, a fact that hardly engendered an aggressive spirit. Much of the psychological shock effect generated by the use of M113s in areas previously denied to government forces was therefore negated by the temerity of commanders who feared losing vehicles and equipment in sustained actions against the VC. Operations rarely lasted

longer than two or three days.

The success of these first two ARVN mechanized companies (now called Mechanised Rifle Squadrons) in demonstrating the value of highly maneuvrable, lightly armored vehicles in Vietnam, led to the formation of six additional M113 squadrons and four reconnaissance squadrons equipped with the M114 Command and Reconnaissance Vehicle. The ARVN Armor Command insisted that armor personnel, however, evaluate the M-113s and the APCs were sent to the Armored School at Thu Duc. Finally, it was decided to place all the APC units under the Armor Command. The first two M113 companies were re-designated the 4th and 5th Mechanized Rifle Squadrons of the 2nd ACR and assigned to the IV Corps Tactical Zone, based at My Tho in the Mekong Delta.



M-114 Command and Reconnaissance Vehicle

The armored cavalry regiments supporting each of the four tactical zones were reorganized in late 1962 with the addition of one armored reconnaissance squadron and two mechanized rifle squadrons. M-113s for the new squadrons arrived in late 1962 and the squadrons became operational as they completed training at the ARVN Armor School. By May 1963, each of the four regiments had one squadron each of M-24 tanks, M-8 armored cars, M-114s, and two mechanized rifle squadrons with M-113s. The only exception was the 2nd ACR, which had no tank squadron but an additional M-113 squadron.

Mechanized rifle squadrons were organised like their predecessors, the mechanised rifle companies, except for the supporting weapons. During 1962 the 3.5-inch rocket launcher and the 60mm mortar were judged as being unsatisfactory because of their limited range. Each newly organised squadron was equipped therefore with three 81mm mortars and a single 57mm recoilless rifle, all transported in armored personnel carriers.

The reconnaissance squadron comprised a headquarters of two M114s; three reconnaissance troops, each equipped with six M114s in two three-carrier sections; and an additional element of 1/4-ton trucks. A total of 80 M114s were acquired to equip the four reconnaissance squadrons that served in 1st to 4th Armored Cavalry Regiments. The M114 quickly proved to be an unsound vehicle. Underpowered, mechanically unreliable and with marginal amphibious capability, it proved unable to negotiate the same terrain as the M113, and its resistance to mine damage was very weak. Even a moderate sized mine

would literally blow the vehicle in half. The failure of the M114 led to its replacement by the M113 by November 1964.

The M113 meanwhile was found to be an outstanding vehicle, capable of cross-country movement previously unrealised in many areas of the Republic. In the Delta the principal obstacles to APC movement were the numerous irrigation canals and rivers. Various techniques were devised for canal crossing and vehicle recovery, among them the use of push-bars, demolition, brush-fill, block and tackle, multiple tows and expedients for self-recovery such as the capstan and anchor.

The surviving M3 half-tracks were progressively withdrawn from service. Some of them served as support vehicles, modified locally with cranes, or as wreck and barrier removal vehicles. Others ended their career in security platoons for convoy escort missions. For this last task, the ARVN ordnance depots had also modified various vehicles with varying degrees of success. For example, several trucks were armored and equipped with .30 and .50 calibre machine guns. Some Canadian 15-cwt GM C15TA trucks of World War Two vintage were also armored and turned into locally built armored reconnaissance cars. With the surviving M3 scout cars, they served mainly with the service support units and regional and provincial forces. The ARVN also bought a small number of Canadian Ford Lynx Scout Car MKIIs from Malaysia. They had served with the Commonwealth forces during the Emergency of 1948-60 and were also put into service for convoy escort duty.



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North Vietnamese Army and Viet Cong

NORTH VIETNAMESE ARMORED FORCES



The People's Army of Vietnam (PAVN) was founded in August 1945, with most of its equipment being obtained from the locally defeated Japanese forces. However, no armored vehicles were put into use by the PAVN, which was soon forced to fight a guerrilla war against the French. In 1952, a small number of PAVN officers were sent to study armored warfare operations at Wu Ming in China. However, these troops were not used to set up armored units. Instead, they were sent back to Vietnam to serve as specialists to develop antitank tactics and to create special anti-armor units. At Dien Bien Phu the PAVN captured at least two M-24 tanks that were still functioning and used them for propaganda purposes.

The PAVN was reorganized and expanded during the period between 1955 and 1960, and new anti-armor artillery and armored units were created. Fearing an invasion from South Vietnam, the PAVN at first reinforced its anti-armor assets and created several battalions equipped with Soviet 57mm guns and German PAK 40 75mm guns. In 1956, an armored company was also set up, equipped with M-8 armored cars and M-3 half-tracks. The origin of these vehicles is unknown; they could have been captured from the French or delivered by China. These armored vehicles participated in a military parade at Hanoi in 1956 and were later assigned to security platoons deployed around VPAF air bases.

The PAVN set up its first tank unit, the 202nd Armored Regiment, on 5 October 1959. The numerical designation of the regiment was derived from the 202 cadre members who had been trained in China and the Soviet Union. The unit was initially equipped with some 35 T-34-85s and 16 SU-76s. In 1964, the 202nd Armored Regiment was expanded to include three battalions, which were equipped respectively with T-54, T-34-85, and PT-76 tanks and SU-76 self-propelled guns. An Armored Forces Directorate was created in the summer of 1965 to coordinate the use of the armored units and to define and employ doctrine.



T34-85

Having only about one hundred tanks in service, the PAVN did not advocate their use in mass. Its doctrine stated that armor would be employed during an attack, when feasible, to reduce infantry casualties. However, only the minimum number of tanks required to accomplish the mission would be used. Battle drill dictated that lead tanks were to advance firing and be supported by fire from other tanks and from artillery. Close coordination between tanks and supporting infantry was stressed as a key to success in the attack. Because the North Vietnamese lacked air power, they placed strong emphasis on camouflage training in armor units. Facts later proved that armored battalions were able to move great distances without being detected.

As early as 1962 cadres from the 202nd Armored Regiment had joined the staff of the Central Office for South Vietnam (COSVN) as armor advisors. They asked for a reinforcement of infantry anti-tank weapons, and in 1966 the number of RPG-2s (B-40s) was increased in each PAVN infantry company from three to nine. Each infantry regiment also received an allocation of eighteen RPG-7s (B-41s). The Viet Cong troops also replaced their bazookas and 57mm SR guns with RPG2s and 75mm SR guns. Most of the losses inflicted on US and ARVN armor during the conflict was due to these infantry rocket launchers and mines.

It was only in 1967 that the 202nd Armored Regiment sent two independent companies of PT-76 amphibious tanks to be posted near the Laotian border. They were intended to support an attack against one of the US and ARVN special forces observation outposts that overlooked the Ho Chi Minh Trail. In December 1967, one of the PT-76 companies was sent to the Plain of Jarres in Laos, while the remaining company was put under the control of the 198th Armored Battalion with a BTR-50PK armored personnel carrier (APC) company. The unit was then attached to the Khe Sanh- Road 9 Front.



On 26 January 1968, the PT-76s from the 3rd Company of the 198th Armored Battalion attacked the Ta May outpost in support of the 24th Infantry Regiment. The little ARVN garrison was quickly overwhelmed in this first combat against the PAVN armored forces. Encouraged by this success, the PAVN redirected the battalion against the Lang Vei Special Forces Camp near the besieged garrison of Khe Sanh.

On the night of 6 February 1968, 16 PT-76s attacked the Lang Vei position, which was held by over 500 troops. It was the first time that US soldiers faced Communist armor in Vietnam. Despite stubborn resistance, the PAVN advanced methodically, destroying bunkers at point-blank range. Throughout the night and far into the next day the resolute defenders held on, as their own artillery fire and air strikes deliberately pounded the position. The few survivors eventually broke out and fled to Khe Sanh. The North Vietnamese lost six PT-76s at Lang Vei. The PAVN Armor Command reported that the action was a great success. Despite enemy air strikes, the attack adhered strictly to the doctrine regarding the use of armor and contributed in reducing infantry casualties with a one-for-six ratio in favor of the PAVN.

US forces encountered North Vietnamese tanks a few other times in South Vietnam. A PT-76 was knocked out by a 90mm SR gun during an attack on a Special Forces camp at Bu Dop in 1968. Another was located by a helicopter on 10 February 1968 and destroyed by a tactical air strike during Operation "Pegasus", the relief of Khe Sanh Combat Base.

After the Khe Sanh battle, the 198th Armored Battalion was re-deployed near the DMZ, along the Ben Hai River. It was there that one of the PT-76s was surprised while crossing the river. It was destroyed at extreme range by an M-48 of the 3rd US Marine Tank Battalion. On the night of 3 March 1969, the 4th Armored Battalion from the 202nd Armored Regiment attacked the Special Forces camp at Ben Het. The attack was carried out by a dozen PT-76 tanks and an equal number of BTR-50PK APCs in order to destroy the camp's battery of M-107 SP guns. One of the leading PT-76s struck a mine and was immobilized, but it continued to fire with its 76mm gun. The other armored vehicles were then engaged by a platoon of M-48s from the 1st Battalion, 69th Armor and two M-42s. The unexpected presence of Patton tanks went unnoticed by the North Vietnamese, who decided to retreat after losing two PT-76s and one BTR-50PK. These were the only occasions that American tanks clashed with PAVN armor. At that time, US intelligence sources estimated that the PAVN fielded about 60 T-54s, 50 T-34-85s and 300 PT-76s. A small number of SU-76s was also retained for training purposes. The APCs in use included the wheeled BTR-40 and BTR-152 and the tracked BTR-50.

The PAVN then decided to engage its armor in Laos. In June 1968, a force of ten PT-76s supported an infantry assault that led to the fall of Muong Suoi. In March 1969, the 195th Independent Tank Company was attached to Front 959, which controlled operations in the Plain of Jarres. The company operated 25 PT-76s and had an attached platoon of BTR-40 armored cars. In August 1969, the Laotian Government forces launched Operation "Kou Kiet" and recaptured most of the Plain of Jarres. The offensive was preceded by an intense interdiction campaign by the USAF, which cut the unit off from its supply sources. Suffering from a lack of fuel, the crews were ordered to abandon their tanks and to sabotage them before departing. This was the worse defeat suffered by the PAVN Armor Command up to this point.

In October 1969, the 195th Independent Tank Company was re-equipped and led a counter-offensive, which retook all lost ground. On 17 February 1970, the PAVN continued its advance and attacked Lima Site 22, a Hmong outpost, but the four PT-76s engaged in the assault were lost to mines. A week later, another armored thrust smashed through the outpost.

In 1971, in the Boloven Plateaux in southern Laos, the PAVN deployed the 3rd Independent Tank Company, which was also equipped with PT-76s. The unit supported the operations around the city of Attopeu. The armored units in Laos were recalled into the area of Tchepone to counter Operation "Lam Son 719", the ARVN offensive to severe the Ho Chi Minh Trail. The 202nd Armored Regiment also reinforced the PAVN 70B Army Corps with two additional tank battalions equipped with T-54 tanks. On 19 February 1971, the North Vietnamese armored assault against the LZ 31 was repulsed with heavy losses. The ARVN M-41s proved to be superior in tank-versus-tank fighting. A week later, after several assaults, three T-54s finally gained the summit of the position, forcing the defenders to withdraw.

The PAVN tanks now attacked the remaining ARVN positions around Aloui and engaged in several other battles with the South Vietnamese 1st Armored Brigade. PAVN T-54s and PT-76s took two South Vietnamese Marine positions despite the fact they were atop hills of 550 meters (610 yards) and 543 meters (593 yards) in height, respectively. In fact, during this campaign the North Vietnamese armor succeeded in operating in rugged and mountainous terrain, while the ARVN tanks, which were forced to retreat along the narrow Route 9, were routed. At the completion of the operation, the ARVN claimed 30 PAVN tanks destroyed and the loss of only 6 M-113s. Air strikes claimed another 60 tanks.

In 1971, the PAVN reorganized and expanded its armored forces. A new regiment was set up in November - the 201st Armored Regiment. It was followed by the 203rd Armored Regiment with the 171st, 198th and 297th Armored Battalions. The old 202nd Armored Regiment was also reorganized along with the 4th, 177th and 397th Armored Battalions.

Each armored regiment was organized with three battalions, usually two tank battalions and an APC battalion. The armored regiment rarely used standardized equipment. It was not unusual to have in the same regiment one battalion equipped with T-54 tanks, another with PT-76s and a third with BTR-50 APCS. Each tank battalion had a strength of 38 vehicles; each APC battalion consisted of between 30 to 35 vehicles.

Until 1975 the armored battalion usually operated independently. Each tank battalion had three companies, usually equipped with the same equipment. However, there were exceptions. For example, the 195th Tank Battalion had two companies equipped with Type 59 tanks and one company with T-34-85s. Another example was the 2nd Armored Battalion, which had one company of Type 59 tanks and two companies of K-63 APCS. In fact, the PAVN armored formations exhibited great flexibility in terms of organization and equipment. The strength of a specific unit was then tailored to a specific task or tactical situation, and even to the availability of vehicles. This situation, nevertheless, caused more logistical problems.



K-63

The Soviets and Chinese delivered additional equipment to the PAVN in 1970 and 1971, including new T-54B, PT-76, Type 59 and Type 63 tanks. China furnished most of the APCs in service in the form of rugged and reliable K-63. By January 1972, the PAVN began to deploy its armored units in preparation of the Nguyen Hue Offensive. The 171st Tank Battalion from the 203rd Armored Regiment was sent down the Ho Chi Minh Trail to a location east of Tay Ninh, near the Cambodian border. The 38 heavily camouflaged T-54Bs of the unit drove themselves over 900 kilometers (560 miles) in two months. It was thus far the longest deployment of PAVN armor. En route, the battalion witnessed thirty air strikes, but none of its tanks were hit.

The main thrust of the PAVN armor occurred across the DMZ on 30 March 1972, when the 201st and 202nd Armored Regiments supported the attack of five infantry divisions against the ARVN Military Region 1 in what was to become known as the Nguyen Hue Campaign or, Easter Offensive. The two regiments were equipped with Type 59, Type 63 and T-54 tanks and K-63 APCS. The two units were temporarily halted by the ARVN I Armored Brigade at Dong Ha, but they finally pressed on and reached the South Vietnamese defensive lines north of Hue. In September, an ARVN counterattack pushed the PAVN back to Dong Ha. Thanks to effective air strikes and the ARVN tankers, who were better trained in long-range shooting, the two PAVN regiments suffered heavy losses.



Type 63

In the Central Highlands, the ARVN forces deployed around Dak To and Tan Canh were routed by the 203rd Armored Regiment, which was equipped with T-54, T-34-85 and PT-76 tanks. Another assault

against Ben Het on 9 May failed when three PT-76s were destroyed by TOW missiles launched from a US Army trial gunship helicopter unit. On 13 May, without artillery preparation, two PAVN regimental task forces, supported by tanks, attacked Kontum from Route 14. Two other armored assaults took place in the northeastern and southern part of the town. The ARVN infantry fought tenaciously, destroying a dozen tanks with M-72 LAW rocket launchers. Two other armored assaults, which took place on 26 and 27 May, succeeded in taking the northern part of town. Continuously attacked by TOW-armed helicopters and fighter bombers, the PAVN were pushed back on 31 May. By mid-June, when the siege of Kontum was relieved, the PAVN had lost around 80 tanks and suffered 4,000 casualties.

The offensive against An Loc, near Saigon, was supported by the already deployed 171st Tank Battalion and the 20th and 21st Independent Tank Battalions, which were equipped with T-54s. The town was encircled and Route 13, which led to Saigon, was severed by the 20th Independent Tank Battalion, which had crossed the Saigon River undetected on a pontoon bridge. On 13 April, the 20th and 21st Independent Tank Battalions attacked An Loc in support of the 9th Infantry Division, but the coordination between artillery, tanks and infantry was poor. The ARVN soldiers held their ground with LAW anti-tank rockets. An entire column of six T-54Bs that had reached the main avenue of the town was completely wiped out. Another attack force, which was caught in a pre-planned B-52 strike area, lost an entire platoon of tanks.



T-54B

On 15 April, the 171st Tank Battalion joined the second offensive against An Loc. After losing a further dozen T-54s, the PAVN pulled back and besieged the city. An independent armored company was then set up with captured ARVN M-41 tanks and M-113 APCS. The remaining battered armored formations were regrouped within the 26th Armored Regiment, with two depleted tank battalions and one APC company. This provisional armored regiment was disbanded in 1973.

On 9 May 1972, the PAVN tried one more time to take An Loc, launching an assault that was supported by 40 tanks. B52 strikes, fighter bombers and Cobra helicopters hit the attackers. On 12 May, the T-54s reached the northern and eastern parts of the city and commenced direct tank fire from entrenched positions. On 12 June, the last PAVN units were driven from An Loc after losing nearly all the 40 tanks committed.

The year 1972 ended with new fighting in Laos. The 195th Independent Tank Company, which was brought up to battalion status, received additional Type 59, T-34-85s and K-63s. The unit supported the attack against Sam Thong and the Hmong Headquarters at Long Tien base. The 3rd Independent Tank Company in the Boloven Plateaux was expanded, becoming the 6th Independent Tank Battalion. The unit, which was

equipped with PT-76s and T-34-85s, operated around Pakse until the ceasefire in 1973.

Most of the PAVN armor losses of 1972 were attributed to air strikes. The North Vietnamese had tried to protect their units by deploying a considerable number of 37mm and 57mm AA guns and SA-7 (A-12) missiles. Since 1969, some AA artillery units were also equipped with BTR-40As armed with twin 14.5mm machine guns. These armored vehicles operated within independent mobile AA artillery companies. In 1972 they were also used in scouting missions for the benefit of tank units. They were supported by a few ZSU-57-2 air defence vehicles and some locally modified T-34 tanks armed with twin 37mm AA guns mounted on an open turret. The PAVN also modified some BTR-50PK APCs by installing a platform on the rear deck mounting a 14.5mm machine gun. In December 1972, the 237th AA Artillery Regiment was re-equipped with the sophisticated ZSU-23-4 Shilka. During the 1975 campaign, only a battery of four Shilkas was effectively engaged in combat. The remaining vehicles of the regiment arrived too late, after the fall of Saigon.



ZSU-57-2



ZSU-23-4

During the 1972 offensive, the PAVN lost around 400 tanks and APCS. The North Vietnamese then decided to reconstitute and expand their armored forces. The most obvious shortages were assessed, and the infantry divisions were trained to operate more closely in coordination with the artillery, air defense units, and armored forces. The PAVN identified two specific Blitzkrieg-style tactics for the use of armored forces: the "sudden assault" and the "deep advance". The notion of sudden assault implied crushing enemy resistance by a quick attack using the shock effect of tanks to throw the enemy off balance. A successful sudden assault would open the way for an effective deep advance, or pursuit.

In 1973, the Soviets delivered additional T-55, T-54, T-34-85 and PT-76 tanks and a small number of BTR-60PB APCS. US sources indicated that a small number of ISU-122 self-propelled assault guns was also delivered. If that proved correct, it was the heaviest armored vehicle that entered service with the PAVN. Little is known about the operational record and combat use of the SU-100 tank destroyer that was also received at the same time in order to supplement the surviving SU-76s. China also delivered more Type 59 and Type 63 tanks and, more importantly, additional K-63 APCS. In fact, the K-63 became the main PAVN APC used in the 1975 offensive.



BTR-60PB

In 1974, the PAVN could deploy nine armored regiments: the 201st, 203rd, 204th, 206th, 207th, 215th, 273rd, 408th and 574th Armored Regiments. These units regrouped some 29 armored battalions. US intelligence estimated that the North Vietnamese were then using some 600 tanks and 400 APCS.

Learning the costly lessons of the Nguyen Hue Offensive, the PAVN believed that future combat would be fought at the combined army corps formation level. Each of these corps would have between three and four infantry divisions, one AA artillery division, one artillery brigade and one armored brigade. The 202nd Armored Regiment was the first unit to be brought to brigade strength, with five armored battalions, and was attached to the 1st Army Corps in October 1973. The 2nd Army Corps was set up on 15 May 1974, with the attached 203rd Armored Brigade. The remaining armored units were put directly under the command of the PAVN Armored Forces Directorate. In December 1974, two other unidentified armored brigades were created and placed under the control of the Strategic General Reserve.

The 1975 offensive began with an assault against Ban Me Thout in the Central Highlands. Leading the attack was the 273rd Armored Regiment with a battalion of T-54s, a battalion of T-34-85s and another of K-63s. The quick collapse of ARVN Military Region 2 took Hanoi by surprise. The South Vietnamese decision to abandon Hue further to the north created a panic that was fully exploited. The units of the Tri Thien Front and the two divisions deployed near the Laotian border went on the offensive, quickly followed by the 2nd Army Corps. The attached 203rd Armored Brigade received orders to move toward Hue, but the unit learned that the ancient capital was already taken when its vehicles were still crossing the DMZ. In fact, the brigade played only a minor role in the fall of ARVN Military Region 1. On 23 March 1975, the 574th Armored Regiment, attached to the Tri Thien Front, drove into Da Nang and crushed the last ARVN resistance in the area.

After the fall of Da Nang, it was decided to take Saigon before the first rains of the wet season. The 2nd Army Corps moved south, along the coastal highway, with the T-54s and Type 63s from the 574th Armored Regiment in the lead. In the Central Highlands, the units which had taken Ban Me Thout and Pleiku were now grouped within the newly created 3rd Army Corps. They rolled down to the coastal plains and joined forces with the 2nd Army Corps. The PAVN units also pressed into service captured or abandoned ARVN armored vehicles. The tanks were used only on a small scale, notably the M-41s, while the M-113 APCs were used extensively to reinforce the small amount of K-63s, BTR-50PKs, BTR-152s and BTR-60PBs.

By advancing in tight, combined arms groups, with infantry in APCS, trucks and captured vehicles, the tank units maintained constant pressure on the withdrawing enemy. When resistance was encountered, the leading units deployed for a sudden assault while following units bypassed the enemy location to continue the pursuit. By these means, the PAVN armored units were able to cover an average of 50 kilometers (31 miles) a day. Within two months of the beginning of the Ho Chi Minh Campaign, North Vietnamese tanks were in striking distance of Saigon.

By mid-April 1975, the 1st Army Corps, with the attached 202nd Armored Brigade, was also deployed around Saigon. It was followed by the newly created 4th Army Corps, which had three armored battalions attached. Finally, from west and southwest of Saigon was created the 232nd Tactical Force, which grouped three infantry divisions, three battalions and one company of armored vehicles.

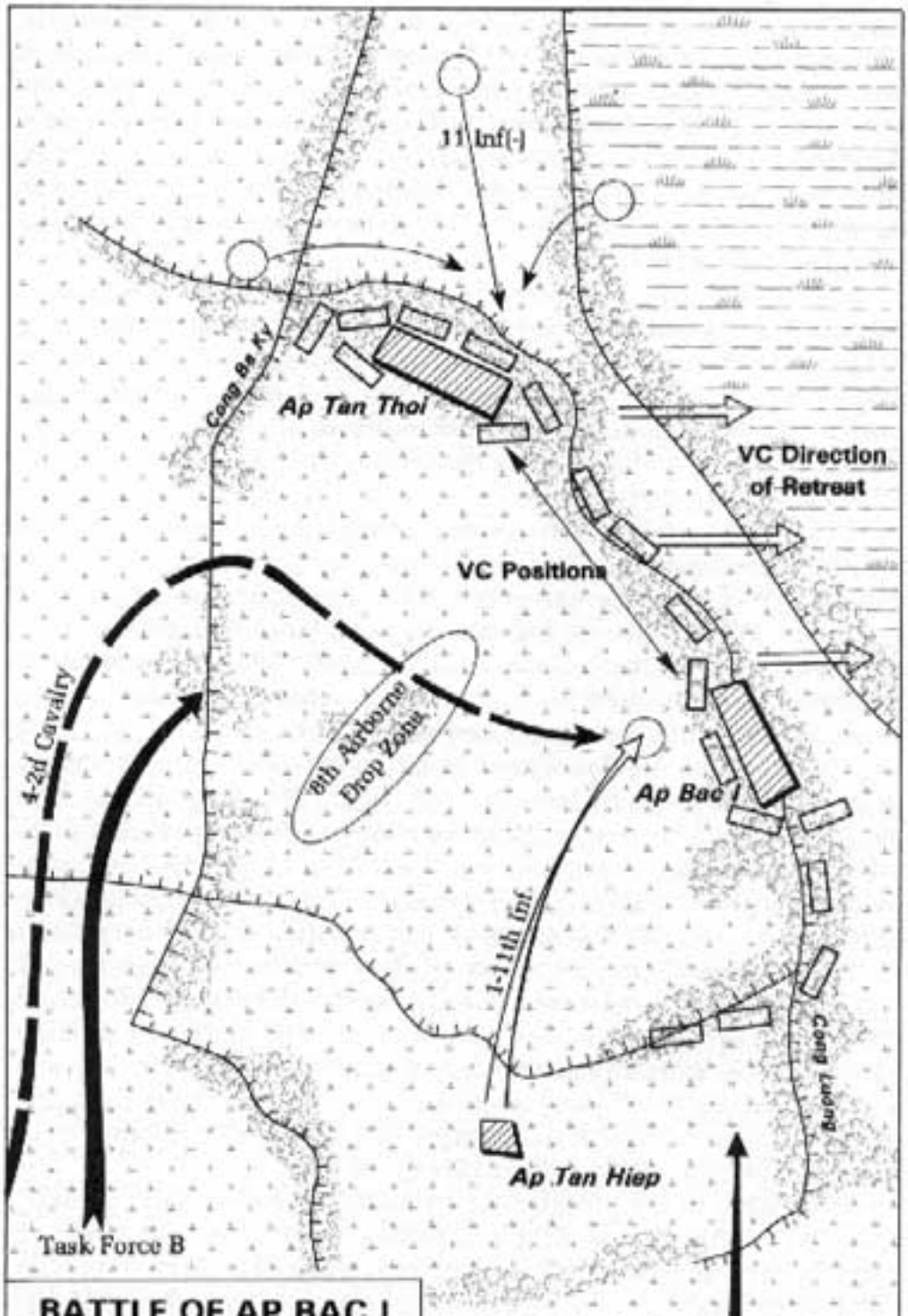
During the final assault against Saigon, most of the PAVN armored units were still on the roads, speeding toward the South Vietnamese capital and crushing on the way the last pockets of ARVN resistance. Some regiments saw their organic battalions dispersed on different fronts. For example, the 206th Armored Regiment had relinquished its 1B Battalion, which was equipped with a company of Type 59 tanks and two companies of K-63s, to the 202nd Armored Brigade. The remaining 195th and 575th Armored Battalions, equipped with a mix of T-54, Type 59, T-34-85, Type 63 and K-63, were engaged independently to support clearing operations around Xuan Loc and Bien Hoa. The day that Saigon was taken, the PAVN engaged 400 tanks and APCs against the last defensive positions of the city. On 30 April, T-54 number '843' from the 203rd Armored Brigade crashed through the gates of the South Vietnamese presidential palace. South Vietnam had fallen.

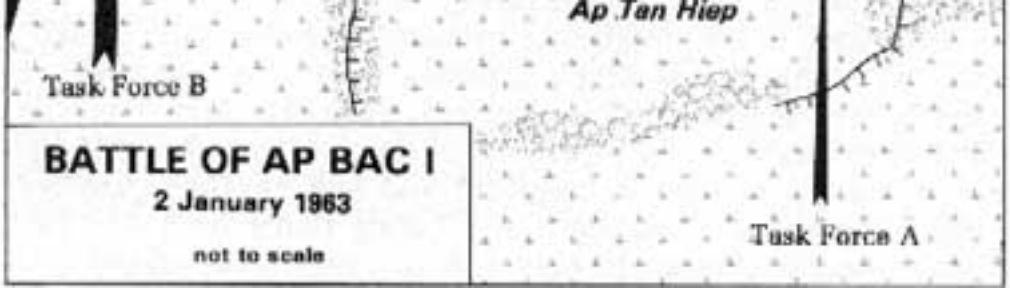


The Battle of Ap Bac 1



Armor of the South Vietnamese Army







BACK to Battle of Ap Bac 1

Source:

Armored Combat in Vietnam, General Donn A. Starry, Blandford Books Ltd., 1981, ISBN 0-7137-1166-3

US Infantry Weapons



Colt 1911A1 Semi-Automatic
Technical Specifications

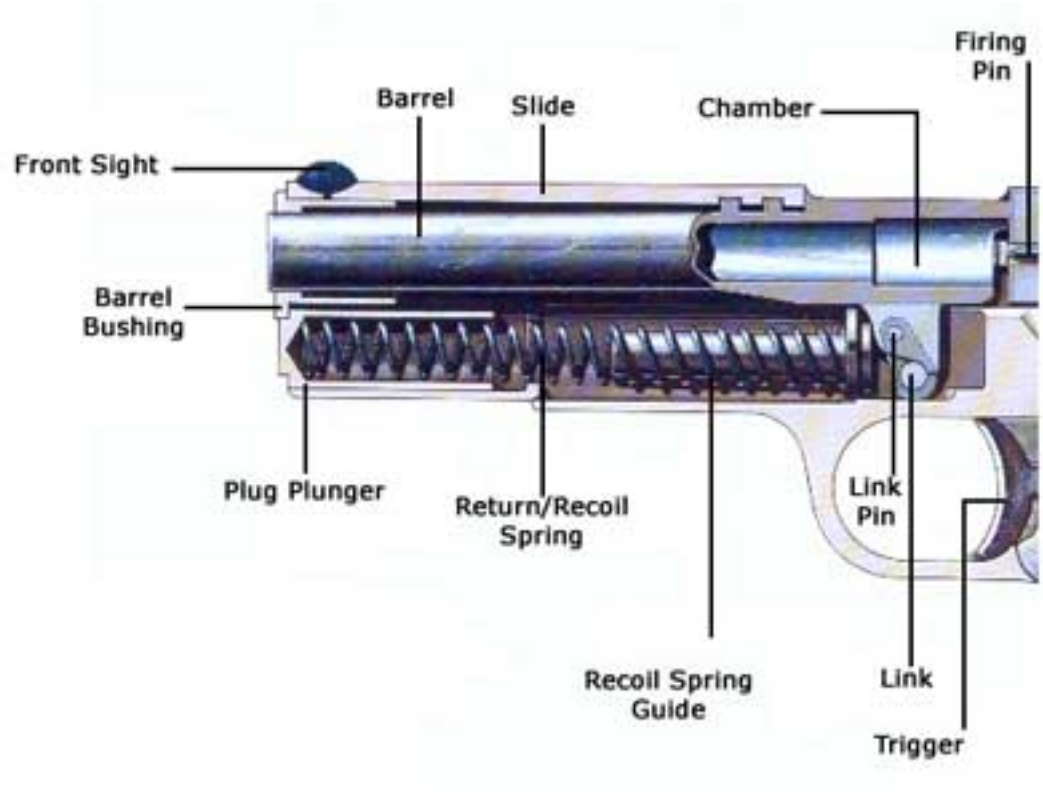


Front Sight - this is too small for effective combat use.

Barrel - it locks into the slide. It is primarily designed to shoot GI ball ammo, not lead target loads.

Slide - to cock the weapon, pinch in with the fingers and thumb of the left hand against the serrations on the slide and rack it firmly to the rear and release.

Chamber - stoppages are rare with the GI issue full metal jacket ammo, but if using expanding ammunition types such as semi-jacketed soft point or hollow point it is a good idea to check that the weapon will feed them easily.



Barrel Bushing - this supports the barrel and holds the plunger in place.

Plug Plunger - depress the front end of the plunger, 'the plug', in order to rotate the barrel bushing anti-clockwise at the start of the field strip.

Return/Recoil Spring - this provides the motive force to return the slide to the closed position and chamber a round from the magazine.

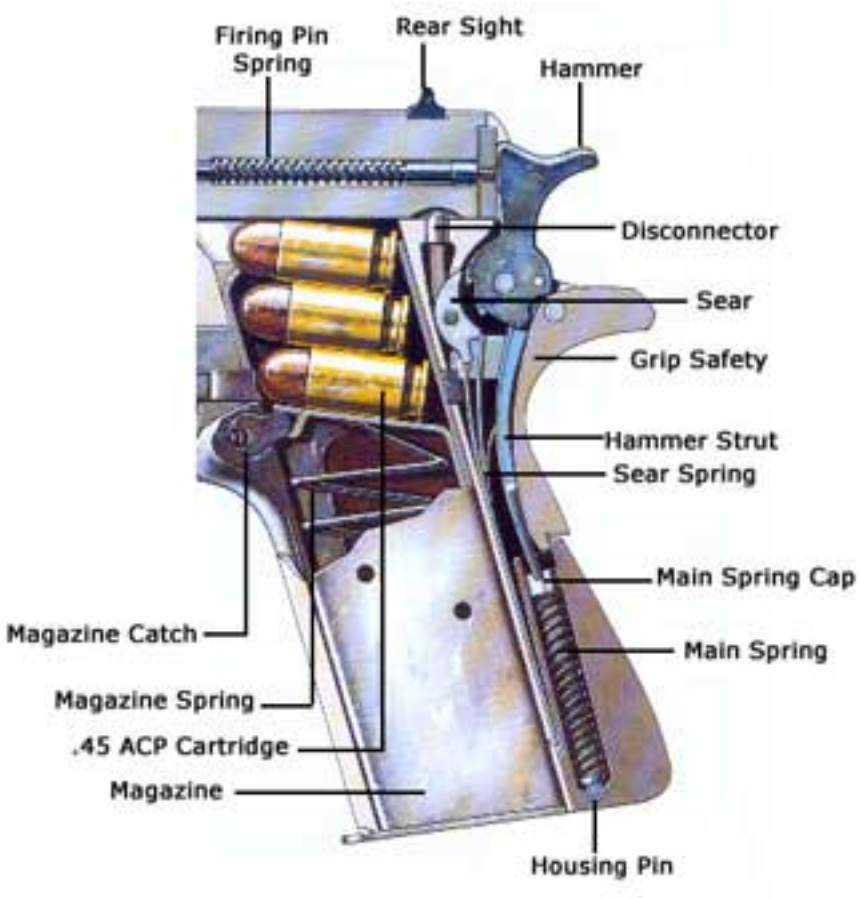
Recoil Spring Guide - prevents deformation of the recoil spring during recoil.

Link - this enables the barrel to drop down out of the slot in the slide to unlock the action during recoil.

Firing Pin Spring - this returns the firing pin to position after firing.

Rear Sight - again, too small for combat use.

Hammer - this has two positions; half-cock and full cock. On half-cock it can go off. The wepaon should be carried either cocked and loaded or with nothing in the chamber.



Disconnector - this prevents the hammer falling when the safety catch is applied or when the breech is not completely closed.

Grip Safety - the firers grip must be firm enough to keep this depressed or the weapon will not fire.

Magazine - this holds seven rounds. The Colt is one of the few pistols that will drop the magazine out of the pistol unassisted, on pressing the magazine catch.

Magazine Catch - this engages a cut-out in the magazine.

Technical Data

Calibre: .45in (11.43mm)
Length: 21.91cm
Length of Barrel: 12.78cm
Weight Loaded: 1.36kg
Weight Empty: 1.13kg
Muzzle Velocity: 252m/s
Maximum Effective Range: 20m
Magazine Capacity: 7 rounds

US Infantry Weapons

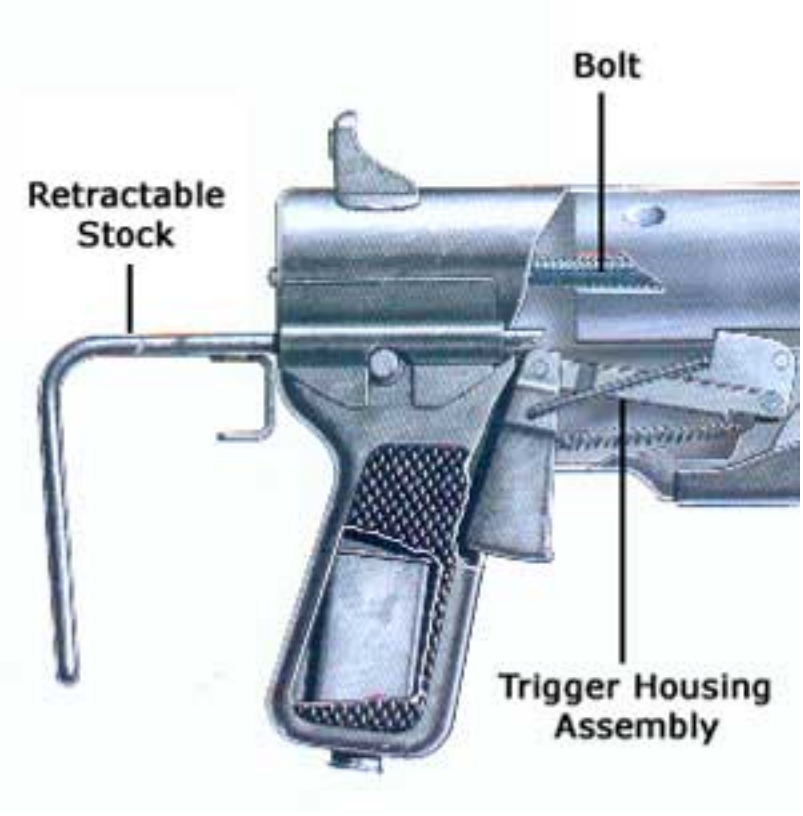


M3 'Grease Gun'
Technical Specifications

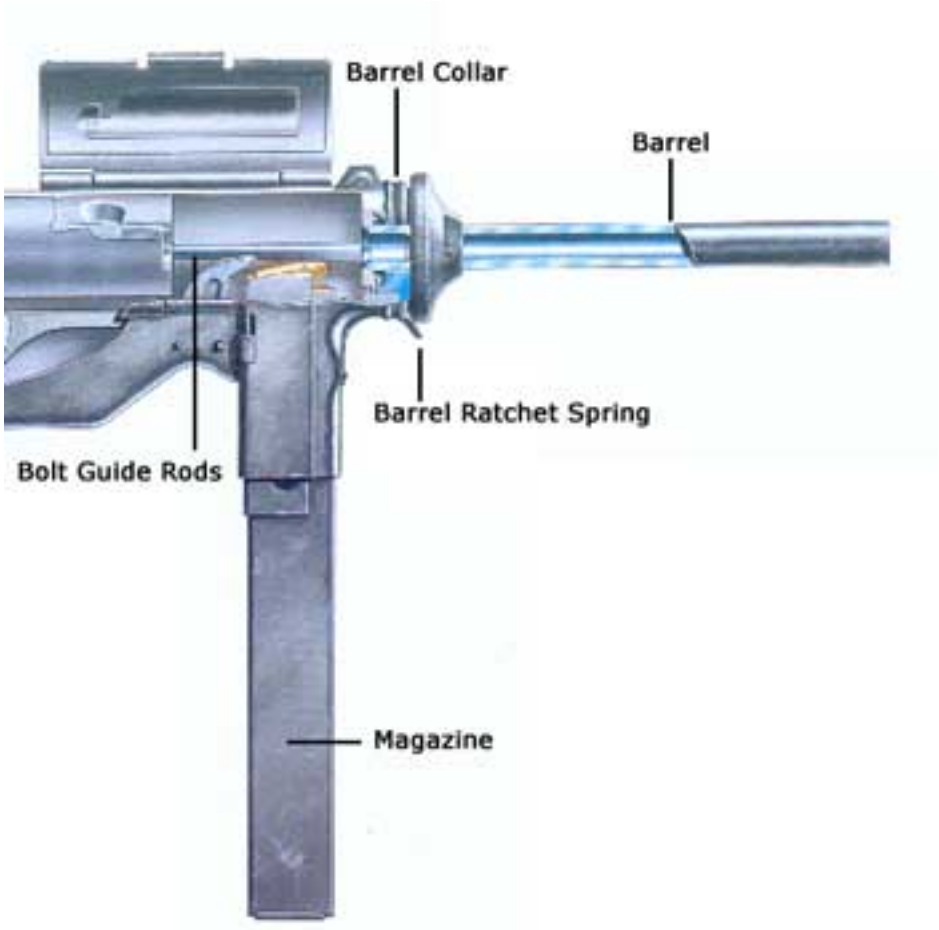


Retractable Stock - this simply pulls out to the extended position and is relatively sturdy in comparison to other wire stocks. Retracting it is slower since the lock button is fiddly. The wire stock also doubles as a tool for stripping the weapon.

Bolt - the massive bolt slams forward to chamber and fire each cartridge with such force that aim is greatly impeded. However, with practice, a man-sized target could still be hit at 100 meters.



Bolt Guide Rods - the bolt rides on the guide rods rather than running along the side of the receiver (as on the Sten Gun or MP40) and is thus less liable to stoppages caused by dirt.



Technical Data

Calibre: .45in(l1.43mm) and 9mm
Length-Stock Extended: 75.7cm
Length-Stock Retracted: 57.9cm
Length of Barrel: 20.3cm
Weight Loaded and Complete (M3Al): 4.52kg
Magazine Capacity: 30 rounds
MuzzleVelocity: 280m/s
Maximum Effective Range: 200m
Rate of Fire: 450rpm(cyclic), 120rpm(automatic)



Return to M3 'Grease Gun'

US Infantry Weapons



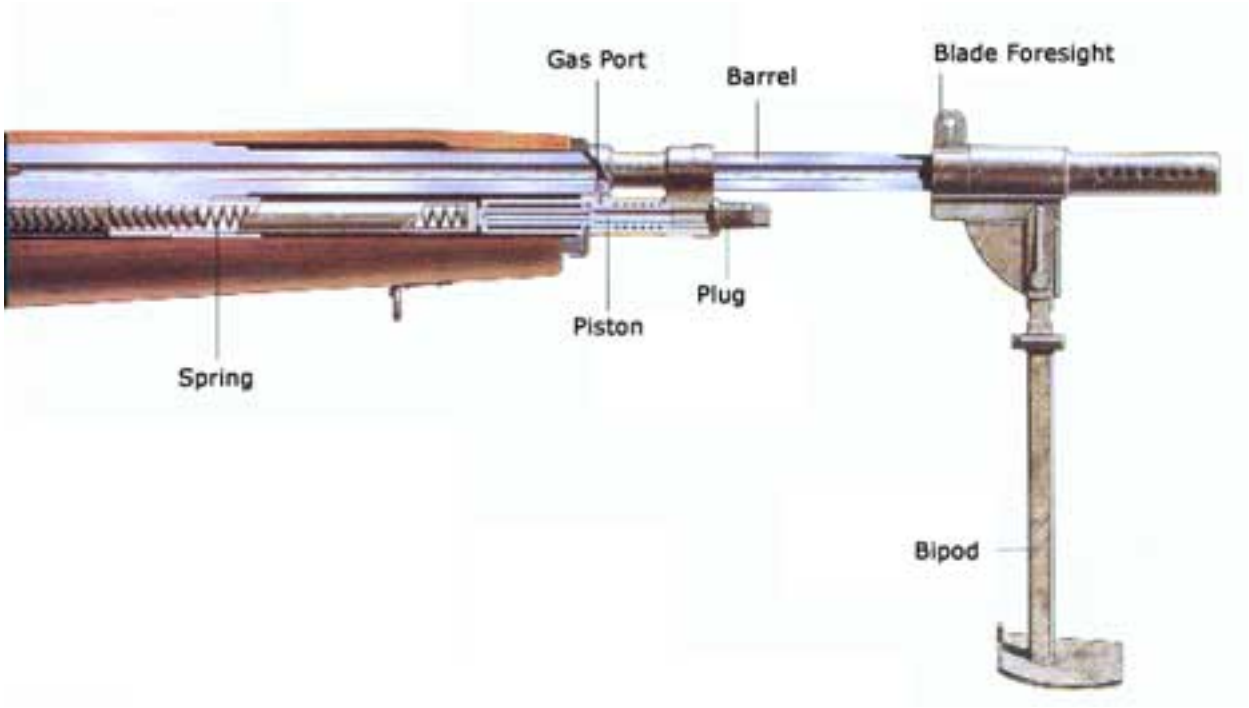
M-14 Rifle



Bipod - the short-lived M15 had a bipod fitted for sniping accuracy, while the M14A1 had one fitted to enable the weapon to be used as a squad light automatic weapon

Barrel - automatic fire on the standard M-14 was virtually impossible to control at 750-rounds per minute. The heavy barrel made all the difference to firing bursts and long-range accuracy.

Piston - the hollow piston head fills with propellant gas and is pushed back. Once it has moved 4mm, the gas ports are no longer aligned and so no further gas can get in. This system requires no gas regulator.

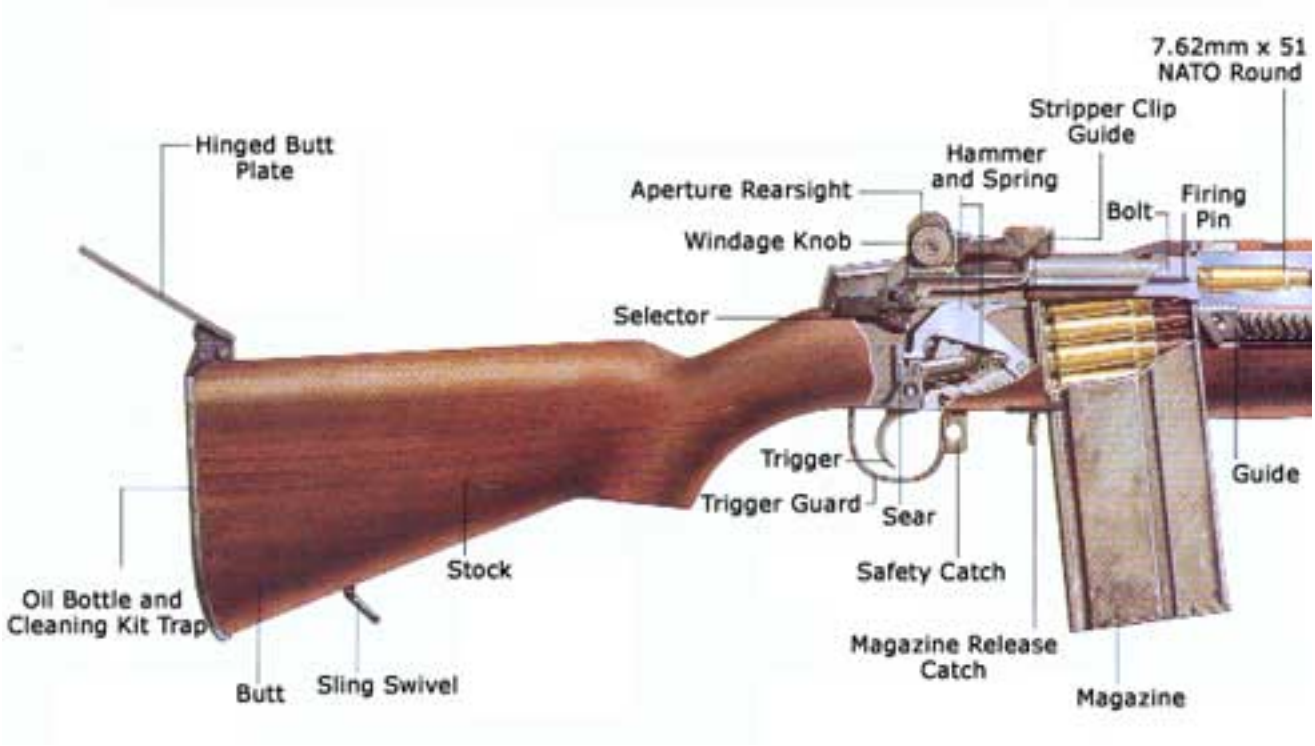


Front Assembly

Magazine - these came in 5, 10 and 20-round sizes and were loaded in the same way as the SLR mag, i.e. put the front part of the magazine in first and then pull back until it locks. Holding up to 20-rounds and able to be topped up by a charger, this was the main improvement over the M1 Garand.

Trigger Operation - unlike other assault rifles, the M14 was sensitive to such things as dry firing which damaged the trigger mechanism. Also, pulling the trigger when the bolt was locked to the rear resulted in similar damage.

Ammunition - the M14 was designed to fire military 7.62mm NATO ball ammunition.



Rear Assembly

Sight Adjustment - all adjustments were carried out on the rearsight as the foresight is a simple fixed blade. On the rear sight are both windage and elevation knobs.

Aperture Rearsight - graduated from 200 to 1000 meters.

Selector - the standard M14 had no selector, being semi-automatic only. Those M14s capable of full auto-fire were set for automatic fire when the face of the selector labelled 'A' was to the rear.

Stripper Clip Guide - the magazine could be topped up while in place on the weapon by pulling back the cocking handle and engaging the bolt hold-open device. Five-round clips could then be thumbed down into the magazine.

Technical Data

Calibre: 7.62mm
Length Overall: 112cm
length of Barrel: 55.9cm
Weight Loaded: 6.6kg
Magazine Capacity: 20-rounds
Muzzle Velocity: 853m/s
Maximum Effective Range: 700m (with bipod), 460m (without bipod)
Rate of Fire: 700-750rpm (cyclic), 60rpm (automatic), 40rpm (single shot)

US Infantry Weapons

M-16 Assault Rifle
Technical Specifications



Figure 1: Forward Assembly

Handguard - this is the most obvious difference between the M16A1 and the M16A2: the handguard on the latter has pronounced vertical ribs for improved grip.

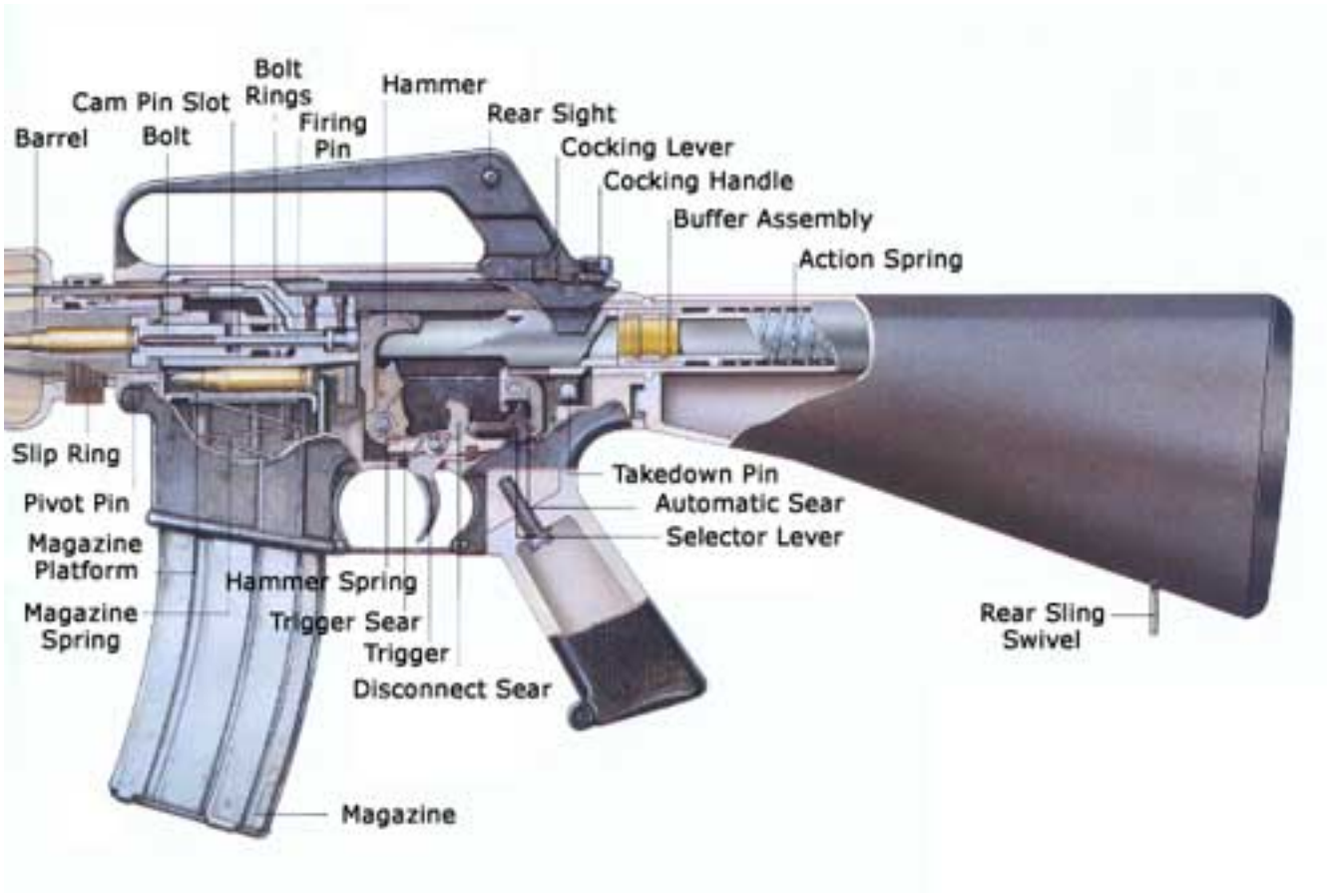


Figure 2: Main Assembly

Disconnect Sear - rotated forward by its spring when the weapon is set for semi-automatic, this stops the hammer operating while the trigger is still held back.

Selector Lever - this sets the weapon on safe, semi-automatic or fully automatic.

Hammer - this strikes the firing pin, which in turn strikes the base of the cartridge and fires the gun.

Cam Pin Slot - this rotates the cam pin on the bolt as it comes forward, rotating the bolt anti-clockwise and locking it.

Technical Data

Calibre: 5.56mm
Length with Flash Suppressor: 99cm
Length of Barrel: 50.8cm
Weight Empty(M16Al): 3.18kg
Weight Loaded(M16A l with 30 rounds):3.82kg
Magazine Capacity: 20 or 30 rounds
Muzzle Velocity: 990m /S

Maximum Effective Range: 400m
Rate of Fire: 700-950rpm(cyclic), 150-200rpm(automatic) and 45-65rpm (semi~automatic)



Return to M-16 Assault Rifle

Sources:

Infantry Weapons of the World, Christopher F. Foss & T. J. Gander, Ian Allan Ltd, 1977

In Combat, Marshall Cavendish

US Infantry Weapons



M-79 Grenade Launcher
Technical Specifications

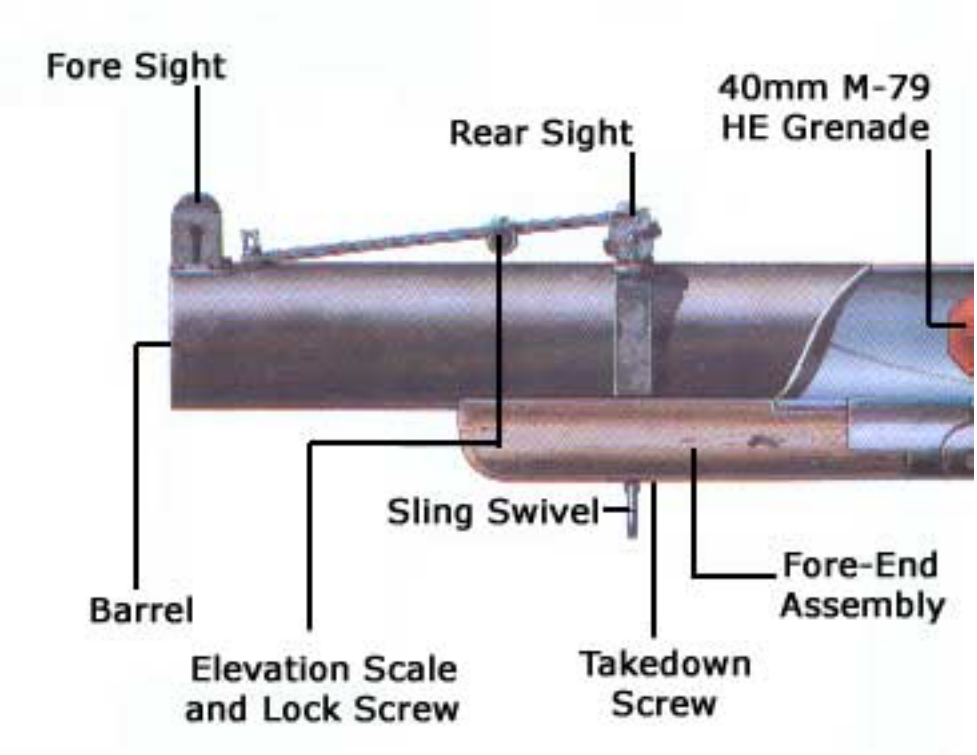


Barrel - the 'high/low' pressure system in the cartridges avoids unacceptably high pressures , enabling the barrel and breech to be of relatively light construction. The whole weapon weighed only 1.63Kg loaded. The barrel was rifled to spin stabilise the grenades and the rotating motion acted on the grenade fuse to arm the grenade at a safe distance from the firer.

Fore Sight - consisted of a tapered blade with protective 'ears' . With the rear sight flipped down the front sight was still good for up to 100-meters.

Rear Sight - the rear sight has a spring-loaded lock that will hold it in either position. There is a windage screw on the right-hand side. One click moves the the impact of the grenade 28cms to the left of the target point at 200-meters; turn it clockwise to adjust the impact to the right of the target point.

40mm M79 HE Grenade - the grenade had a casualty radius of 5-meters. This means that 50% of unprotected personnel in a circle of radius 5-meters from the point of detonation will become casualties. The casualty radius may be limited but the accuracy with which the grenade can be placed more than compensates for this.

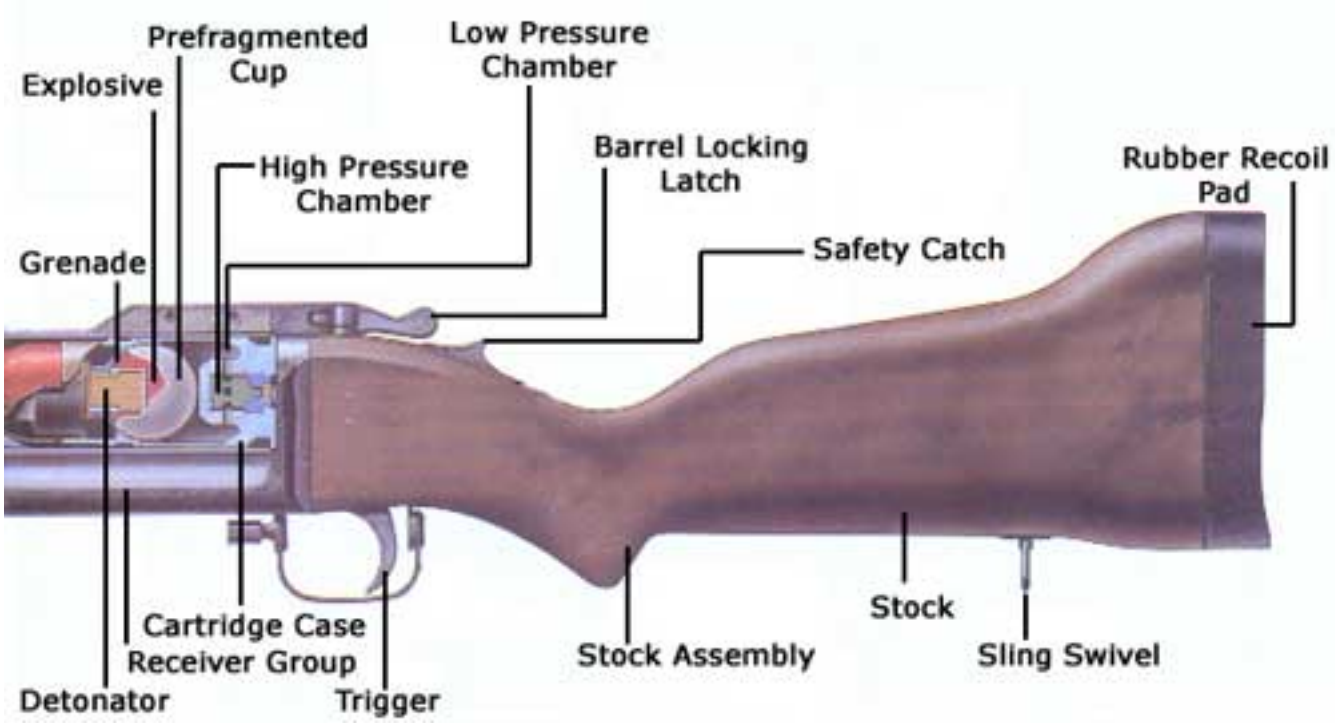


Elevation Scale and Lock Screw - elevation is graduated from 75- to 375-meters in 25-meter increments. As the rear sight is moved up the scale it is cammed slightly to the left to compensate for the slightly rearward drift of the grenade at longer ranges.

Takedown Screw - in order to strip the weapon, the takedown screw in the rear of the mounting hole of the sling swivel is removed. This allows the fore-end assembly to be removed by pulling it down until it clears the lug on the sight base and then pulling it forwards to remove it completely.

High Pressure Chamber - this is made up of a brass cup containing the propellant inside an aluminium retainer inside the aluminium case.

Low Pressure Chamber - once ignited by the percussion can, the propellant charge fires in the confines of the high pressure chamber and the rapidly expanding gases are bled off into the low pressure chamber surrounding it through small holes. This system means that the overall pressure in the weapon chamber is kept at an acceptable level when punching out a heavy projectile at 74.7-meters per second.



Barrel Locking Latch - to load the weapon move the latch fully to the right, which will automatically engage the safety catch and allow you to break the weapon open to load a round. When stripping first remove the fore-end assembly and then break the weapon pulling the barrel assembly to the rear to disengage it from the receiver in the same way as a conventional shotgun.

Safety Catch - moving the locking latch to the right engages the safety catch, as on many modern shotguns. After inserting a round and closing the breech, the weapon is fired by pushing the safety catch forward to reveal the letter 'F' and then pressing the trigger.

Stock Assembly - to remove the stock to clean the working parts in the receiver, remove the screw and washers at the base of the half pistol grip and you can then pull the stock off backwards.

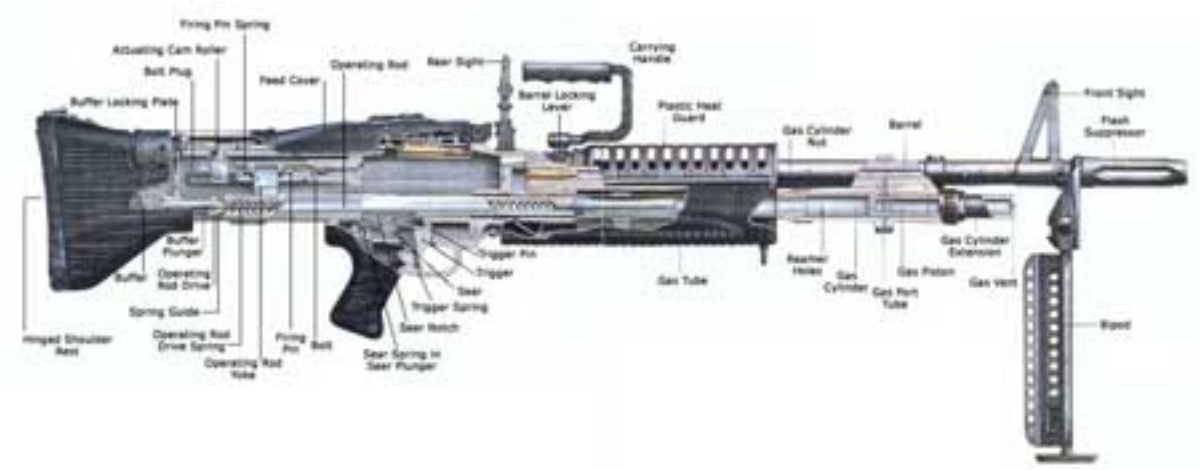
Technical Data

Calibre: 40mm
Weight of Grenade: 0.227kg
Length: 73.7cm
Length of Barrel: 35.6cm
Weight Empty: 2.72kg
Weight Loaded: 2.95kg
MuzzleVelocity: 76m/s
Maximum Range: 400m(approx)
Maximum Effective Range: 150m (point targets)

US Infantry Weapons



M-60 GPMG



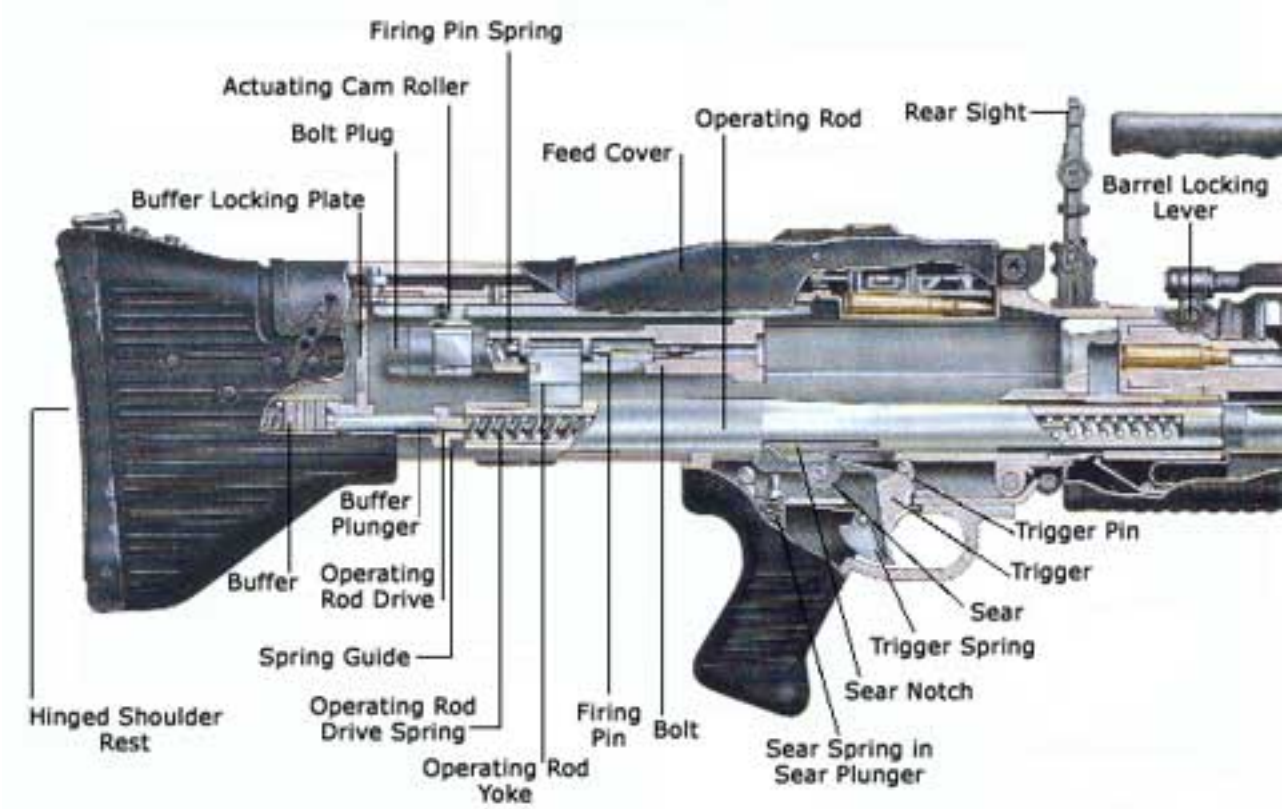


Figure 1: Main Assembly

Firing Pin - when the bolt is locked into place the piston post can run forward and drive the firing pin on to the cap and fire the cartridge.

Bolt - after firing, the piston post rotates the block, unlocking it, and pulls it open. As the bolt travels back, it moves the feed arm, bringing a fresh cartridge into line.

Operating Rod - this has a post that rides in the hollow interior of the bolt.

Back Sight - the M60 has a fixed front sight so it was necessary to zero on the back sight. This meant that it was necessary to for the gunner to remember what the correct zero setting was for whatever barrel was in the gun, an all but impossible task. As a consequence, the same zero setting was used for all barrels with a consequent loss of accuracy.

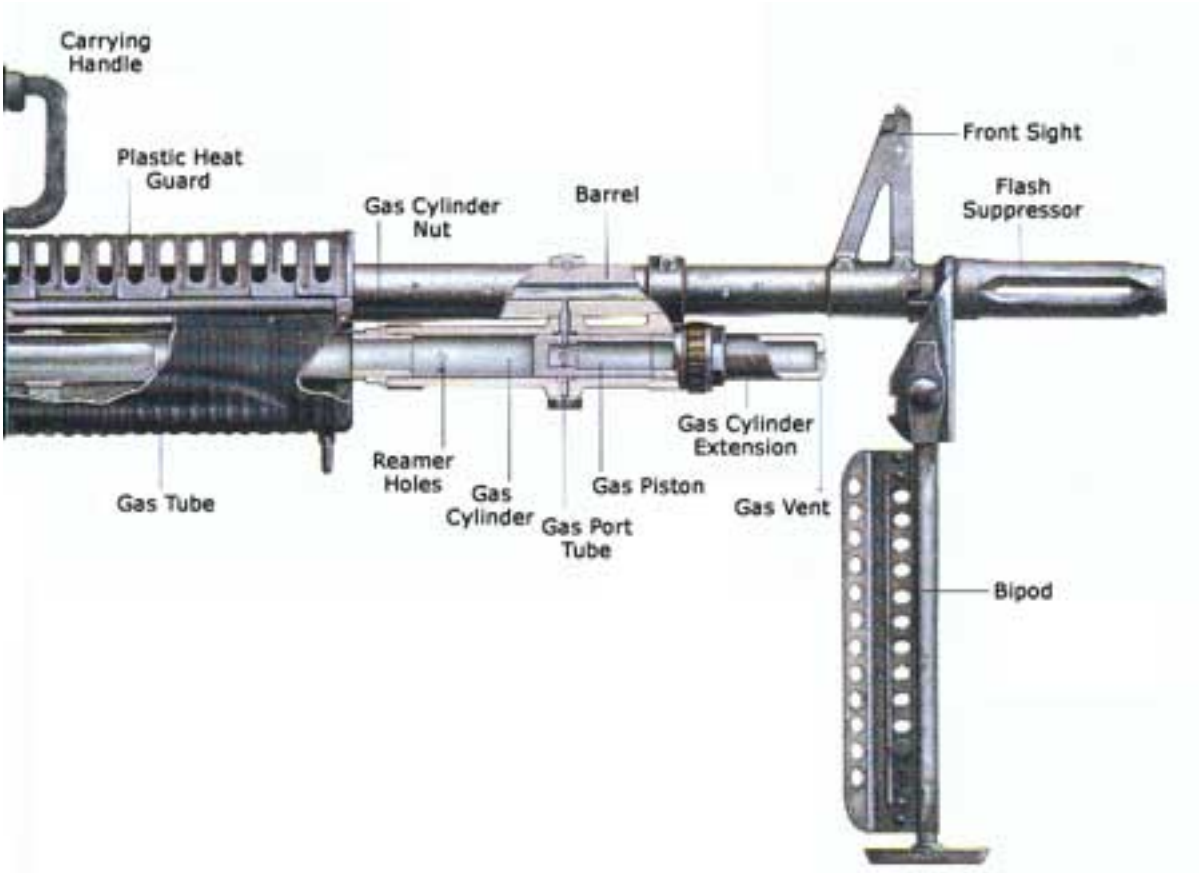


Figure 2: Forward Assembly

Bipod - in the early model M-60's, the bipod and the gas cylinder were permanently attached to the barrel so whoever carried the spare barrel had to carry a lot of extra weight.

Gas Piston - forced back when sufficient pressure has built up, it cuts off the gas supply once it begins to move.

Technical Data

Calibre: 7.62mm
Length: 1100cm
Length of Barrel: 56cm
Weight: 10.48kg (with bipod)
Type of Feed: link belt
Muzzle Velocity: 860m/s
Maximum Effective Range (Bipod): 800m
Maximum Effective Range (Tripod): 1800m
Rate of Fire: 550rpm (cyclic), 200 rpm (automatic)
Ammunition: ball, tracer, incendiary and armor piercing



Back to M-60 GPMG

Sources:

Infantry Weapons of the World, Christopher F. Foss & T. J. Gander, Ian Allan Ltd, 1977

In Combat, Marshall Cavendish

1/4 'Quarter' Cav



Recollections of a 1/4 Cav Veteran

Submitted by John Sandri

These pages are dedicated to the memory of SSG Roosevelt Williams, KIA, An Loc, RVN, Oct 1968

OPERATIONS

Operating with dismounted infantry didn't happen much, but the few times I remember we'd be on line and they would follow on line mostly, staying in our tracks. We'd supply covering suppressive 50-cal and M60 fire for their advance over open terrain. We lead into a "hot" village once but were pulled out because of our lack of fire control (we were just blowing each hootch away as we came to it) and we were getting too close to friendlies sweeping in from the other sides.

Personally I didn't like working with infantry since we really had no training for it and I always disliked the lack of maneuver around them. It was worrying, would you back over one, hit one with cannister, blow out their ear drums etc.? The rear comm phone was never working and they'd try and climb on to give you a message while you were moving etc

Mostly we cordoned off village for infantry sweeps. We'd be 50-100 meters from the village berm. Because we had learned from ex-TET vets just to blow everything away and run over it, we were not sent into villages. 1/4 Cav got a bad rep as I understand it from the Saigon and suburb villages they went through during TET.

Enemy fortified bunker complexes: you can't say we weren't consistent, massive suppressive 50, 7.62 and cannister, point blank 50, 7.62 and canister. A 50 will eventually "dig through" the earth and log bunkers we encountered. We were never far enough away to use HEAT/HE rounds anyway. An NVA who survived this might be good to talk to, if you could find one. The worst for us was the one man "spider hole" or two of them connected by a short tunnel. Impossible to penetrate and hard to get to a man in the tunnel. Often it took dropping hand grenades from the tracks into them to ensure they were neutralized.

Though we did not use HE and HEAT against the enemy, we did have the gun sighted, well, sort of. We'd select a target - tree, abandoned hootch, hillside etc. - about 500-1000 meters away. Put a cross

hairs at the end of the main gun flash suppressor (blackened boot laces, c ration wire) and using binoculars looking down the tube, put the cross hairs low on target. We'd then fire the coax and see where the tracers hit. Adjust the coax mounting so that it ending up firing on the target where the main-gun was sighted, then fired off an HE main-gun round. It would take 3-4 adjustments and HE but eventually you would have the coax 7.62 and main gun targeted together within 10 meters or so. Now you could keep the main gun safety on while targeting with the coax and from the TC override take safety off and let go a HE round, no need for a gunner.

We did this every so often (or as soon as possible when you got a new tank) and used it for H&I (harassment and interdiction) on occasion, but mostly for "fun"... big boys with big toys syndrome.

By the way, the M79s were mostly used for H&I during night ambush patrols (mounted) and especially in the rubber plantations.

How did we approach certain tactical situations such as bunkers, ambushes, and RPG fire? The answer is the same for all three actually. As soon as any vehicle took fire or anyone saw a bunker, that person or vehicle opened up with everything he (they) could. In less than a second everyone else did so too. If in single column, a herring bone was formed, if in double column, vehicles faced out of center except leads. There then followed lots of frantic commo to sort out what was the cause and where was the enemy, but within 2-3 mins max either the platoon leader (when we had one) or platoon sargeant, would decide formation, direction etc.

The first response is called a "mad minute" and in itself created confusion since its hard to single out targets while everyone everywhere was firing in all directions, but if you spoke to an NVA I am sure you'd find out that, except for that initial shot(s) it was hard to fire back (figure, you'd have 3 x 90mm cannons, 12 x 50 cal, at least 12 x M60s and about 7 x M16s firing). Of course, our danger time followed the mad minute as we maneuvered positions and slackened fire searching for real targets. Any follow up hits or problems would lead to a continuous outpouring of fire from everyone, that is, if any commo was passed that another vehicle was taking more fire, the mad minute mentality took over (why bother taking the risk of looking for or being target selective, just blow everything away). It was one of the most difficult things for a leader to get a response to a "check fire" command.

I cannot remember an ambush that started with RPGs being fired first. My experience. Though I know the convoy ambushes we responded to were started that way. So it seems that, except for the convoys, the RPGs were conserved for a second strike.

How tough were the 48s?

Life span was about 2000 miles, baring mines etc. The 35 tank I got on in March supposedly came over on the boat with the Division and had already done 2200 miles. It also had two RPG holes in the right

front turret, one in the left side air filter box, and a grazing gouge on the front slope. You could stand in front of the gun tube and raise it about 10 degrees with one hand. The tube was so sloppy it would bounce up and down with every bump in the road. The turret electronics were shot so that if a jerky turn was made the turret swung (the magnetic brake didn't work) and we'd sometimes have to manually crank the turret because the motor connection failed.

35 was replaced about May '68 due to maintenance headaches - just couldn't be kept together for more than a day at a time.

37 took two RPGs in '68, one at the TC cupola (killing the TC) and one in right front turret that was dissipated by track blocks, no penetration, and survived until a mine took her out. Eventually 34 took one again, right side, in May '68 that chopped off the TCs legs. He survived and the tank was re-manned and remained in action.

Then again Bravo 25 took only one hit and exploded and burned in May '68.



Damaged M48A3

Mines: I personally hit 5 anti tank mines in two years and only had one tank as an immediate combat loss (CBL) although two others were eventually scraped due to hull warping. I was 37 in Nov '68 for the mine that eventually got her (the same 37 that took the two RPGs mentioned above). Even though you could see the upward bulge in the belly, they didn't replace her for a month and a half. We ran her hard on convoy duty that time too.

NDP/Laager

I would use laager to describe the platoon formation when we worked by ourselves and moved, night to night, or every couple of nights. NDP for me is when we worked a week or more and with other units - infantry, rome plows, mech infantry or other platoons of the troop- and was a more sophisticated setup.

As Bravo 3/4 described the idea, the laager was to spread the firepower evenly around a circular

formation. The setup was based on a "clock". If the platoon was at full strength, then the M48s would be at 12, 4, and 8 o'clock; 38 or 39 at 6 o'clock. 'Assignments' were made just as we approached a laager site by 'November' 6 or 'November' 5 (platoon sergeant). We ran a tight formation (5 meters between rear ends) or loose (15+ meters) depending on terrain, with the emphasis on protecting against inter-vehicle infiltration as opposed to mortar and RPG burst radius. Only someone who has sat on top of a 48 or ACAV on a rainy, moonless night for 2 hours can probably appreciate the trade off.

Initially we put out trip flares, concertina wire and RPG screens (chain-link fencing) but all of these were gradually dropped until by Feb ' 69 none were used. This was mostly a consequence of needed night mobility that grew through 1968-1969. We were more constantly acting as a reaction force to infantry night ambushes, local forces in villages etc and the wire and fencing etc. just hampered us.

Around Jan '70 the platoon was employed on roving mounted ambush patrols at night. A main laager was established of 35, 36, 30, 32, 33 and 38, while 34, 37, 39 and 31 went out and set up an "ambush" site. Except for 36, 35, 34 and 37, the vehicle assignments for either main laager or ambush varied (i.e. 35 and 36 were always in the main laager, while 34 and 37 always on the moving site). The moving site laager was always a cross (+) type formation with vehicles backed up to be almost touching rear fenders (you could walk the circle without getting down on to the ground). Every two to three hours the ambush group would move 200 meters to a new spot. Nobody got much sleep as the moving group was always on 50% alert in the laager. We'd still have to RIF with the platoon the next morning and the 34 and 37 crews soon became exhausted. After the first week or so the moving units were given 1/2 days rest while the main laager group did the days RIFing. Even this was not sufficient since the moving group had to maintain an alert for that 1/2 day so that every three days the 34 and 37 crews got an entire day of " stand-down" - easy duty, like securing a section of road or staying at the main laager site while the rest did clover leaf RIFing around you.

Xa Cat Rubber Plantation Ambush

This is to go with the accompanying Map and Tape Transcript of the Xa Cat rubber plantation ambush that took place October 6, 1968 based on my best memory.

The mission of 'Alpha' troop 1/4 Cav was to road march from Quan Loi base camp to a village west-southwest of An Loc, seal the village and secure an LZ for an infantry company that was going to sweep the village.

Order of march:

- 2nd platoon ('Mike')
- HQ platoon (4 ACAVs)
- 1st platoon ('Lima')

- 3rd platoon ('November')

The ambush occurred at 0830 (approx) and was sprung on ' Lima' platoon. Since the troop was strung out on the secondary road - much like an accordion - and making a right turn off the main road, most of 'November' platoon was still on the main road. All the vehicles that were in the rubber herringboned and did the "mad minute" thing for about 2-3 minutes with all weapons firing until it was decided that this was a one- sided ambush (west-side).

'Lima' maneuvered on line, HQ and two 'Mike' ACAVs moved to secure a dustoff LZ and 'November' formed a double column as it moved in to the rubber preparatory to forming line. This was done to create room for the rest of 'November' to access the rubber from the secondary road that was raised above the marsh.

The 'November' columns outdistanced the 'Lima' line (very bad) and 'November' 7 took an RPG hit right at the cupola that killed the TC. 'November' then stalled at the first bunker line until 'Lima' got abreast of 'November' 7. 'November' then got on line and penetrated the first set of bunkers when 'Lima' 15 took an RPG hit. The line pulled back almost to the road and 105mm artillery pounded the area for 10 minutes.

The line then swept forward to the marsh.. The action was over by about 10am and no vehicles were lost:

- USA 1 KIA, 6 WIA
- NVA 23 KIA (bodies recovered)

The Troop regained the road and then 'Mike' platoon was ambushed another 300 meters north by an RPG team+. 'Mike' and 'Lima' dealt with it - no USA losses, 8NVA.

Alpha troop finally reached the village around noon. Nothing was subsequently found in the infantry sweep and Alpha returned to Quan Loi around 5-6 pm.

Enemy force size? We only know what we counted in bodies but I suppose it was larger since some got away to the west where the rubber ends and a 200 meter wide tall reed/grass marsh exists (a part of the map I didn't copy).

Enemy weapons? Ditto, all we got were AK-47, RPGs and less than the 23 bodies. If memory is correct there were only 10 weapons recovered.

The enemy did break for the open during the artillery barrage, so the sweep through the second and third bunker lines was quite easy. The third line was unmanned - at least there were no bodies in them.

Bunkers were very small, log and dirt trapezoid shapes about 6 feet at front, 4 in back, 3 feet deep and 1 1/2 feet above ground level. Firing ports were at the corners, in front.

USMC RANK INSIGNIA



Private 1st Class (E-2)



Lance Corporal (E-3)



Corporal (E-4)



Sergeant (E-5)



Staff Sergeant (E-6)



Gunnery Sergeant (E-7)



Master Sergeant (E-8)



First Sergeant (E-8)



Master Gunnery Sergeant (E-9)



Warrent Officer (W-1)



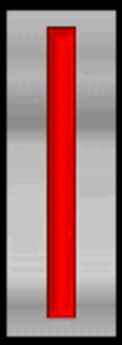
Chief Warrent Officer 2 (W-2)



Chief Warrent Officer 3 (W-3)



Chief Warrent Officer 4 (W-4)



Chief Warrent Officer 5 (W-5)



2nd Lieutenant (O-1)



1st Lieutenant (O-2)



Captain (O-3)



Major (O-4)



Lieutenant Colonel (O-5)



Colonel (O-6)



Brigadier General (O-7)



Major General (O-8)



Lieutenant General (O-9)



General (O-10)

SOURCE: US Department of Defense

USMC

M61 and M41 Kit Patterns

THIS PAGE IS CURRENTLY UNDER CONSTRUCTION



M-61 Cartridge Belt and M-41 Belt Suspender Straps carrying 4 x M-61 Cartridge Pouches, 2 x M-44/45 Canteen and Cover, First Aid Kit



M-67 Hand Grenade



M-26 Hand Grenade



M-94 Incendiary Grenade



M-18 Smoke Grenade



M-6 Bayonet



Entrenching Tool



Grenade carrier for M-26



M-44 and M-45 Canteen and Cup



Ka-Bar Knives



M-1 Holster



Pistol magazine and Pouch





M1911A1 .45 Cal Automatic Pistol

USMC Organisation

USMC M-60 Gunner and Equipment

USMC

M-60 Machine Gunner

THIS PAGE IS CURRENTLY UNDER CONSTRUCTION



The M-60 was operated by a team of two, gunner and assistant gunner, while other members of the section were assigned as ammo-carriers. The gunner had to 'hump' the 24-lb weapon while the assistant-gunner carried about 33-lbs of accessories, including a spare barrel. Each man also had to carry his own personal load as well.

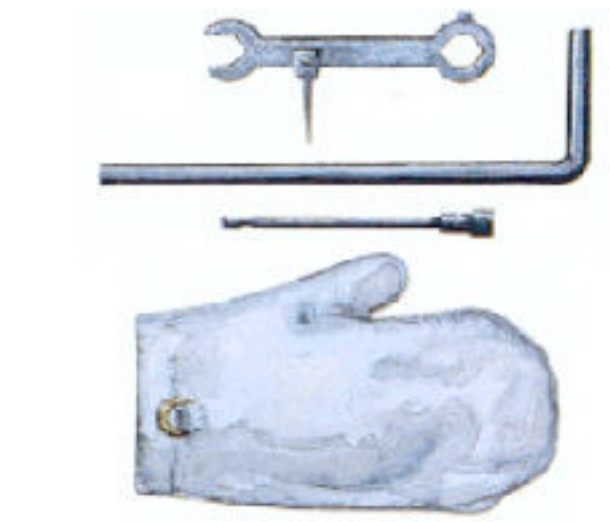
This machine gunner is equipped for a mobile operation. Quite often the gunner would have a 50-round 'teaser' belt loaded into the feed-tray and an additional 200-rounds of belted ammunition slung across his chest.

He is wearing an M1 helmet with an older pattern (WWII / Korea) camouflage cover; leaf-pattern utilities with an OD under shirt; M55 flak-jacket; M41 pack and M61 belt with attached gear including a leather holster for his M1911A1 personal side-arm. A K-Bar knife is fitted behind the holster and was issued to machine gunners in lieu of a bayonet. Slung over his right shoulder is an assault pack containing 100-rounds.

The assault pack was issued in a cardboard box and carried in a cloth bandolier or in an ammo can (2 assault packs per can). Ammunition was usually loaded with one round of tracer to every four rounds of ball.

Stuck in the helmet camouflage band is a toothbrush and LSA (lubricant, small arms) container, both were essential items of maintenance equipment used in keeping the weapon clean.

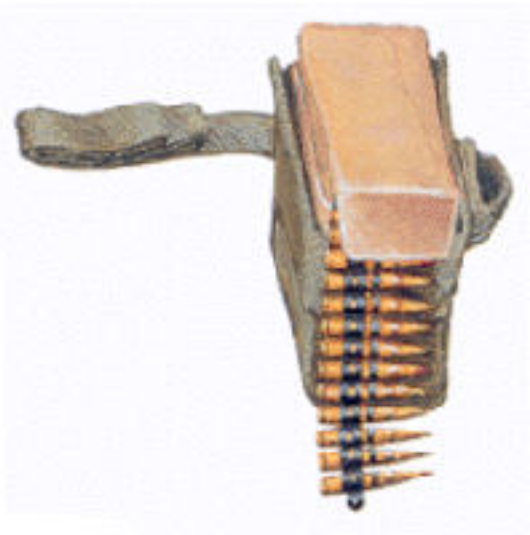
M-60 Accessories



(a) M-60 Tools;
Combination Wrench, Handle, Ruptured Cartridge Extractor, Asbestos Glove



(b) M-60 Tools;
Receiver Brush, Chamber Brush, Bore Brush, Cleaning Rod



(c) M-60 assault pack;
100 rounds of 7.62mm belted ammunition



(d) M-60 spare barrel and accessories case



M-60 Cutaway

USMC M41 and M61 Kit Patterns

USMC Organisation

US Riverine Operations



River Assault Squadrons

Introduction and Organisation



The River Assault Squadron formed the tactical element of the Marine River Force and was maneuvered against the enemy units in the Delta. Each MRF had control of several RAS's. In effect an RAS was a water-borne mobile battalion.

Each RAS was divided into two 'echelons' called A and B respectively. The 'A' Echelon was the combat element and consisted of a battalion of infantry and fire support vessels. The 'B' Echelon was the support and logistics element.

‘A’ ECHELON

- 13 x TANGO BOATS
  - Armored troop carriers based on the LCM 6
  - Capacity = 1 Platoon
  - Armament = 2x .30 Cal MG’s in the waist, 1x .50 cal MG on each side and 1x 20mm cannon in tub at stern

- 1 x CHARLIE BOAT
  - LCM 6 converted to a C&C center for the Battalion
  - Armament = 1x 20mm cannon in tub at stern, 1x .50 Cal tub on each side and a bow turret with 1x 40mm cannon and 1x .50 Cal MG

- 1 x ROMEO BOAT
  - Medical aid vessel based on LCM 6

    - Has a helipad forward over the tank deck
    - Armament = 1x .50 Cal tub on each side and 1x 20mm tub at stern

- 2 x MIKE BOATS
    - Converted LCM 6 monitor
    - Armament = same as Charlie Boat but with an 81mm direct fire mortar in the waist and 1x .30 Cal mounting on either side

- 4 x ASPB
    - Assault Support Patrol Boat – faster than LCM 6 and acting as a light monitor
    - Armament = 2x 20mm turrets and 1x .30 cal on each side

Optional:

- PBR's (Patrol Boats River)
    - Fast launches
    - Armament = twin .50 Cal mounted in the bow, 1x M60 on a pintle amidships and a 20mm or .50 Cal in the stern

'B' ECHELON

This would be moored 'down river' and consist of the following;

- 1 x Romeo Boat (aid station)
- 4 x ASPBs for local security
- 1 x Tango Boat (refueller)
- 3 x Artillery Barges carrying a battery of 105mm Howitzers
- 1 x Helicopter Barge (fuel and landing pad for 3 Huey's
- 7 x LCM 8 (5 for towing and resupply of the artillery battery and 2 for the helicopter barge)

INFANTRY BATTALION

Part of the 'A' Echelon transported in the 13 Tango Boats of that echelon and consisting of;

- 1 x Recce Platoon (light weapons + dog team)
- 3 x Rifle Company each of;
    - 1 x HQ + weapons Platoon
    - 3 x Rifle Platoon each of 1 x HQ, 1 x Weapons Squad and 3 x Rifle Squad

ORGANIC HELICOPTERS

- 1 x Dustoff (Medevac Huey)

- 1 x Huey for aerial Command & Control

ATTACHED HELICOPTER SUPPORT

These may be present and allocated on a mission specific basis from higher HQ's;

- Blue Team (Aero Rifle Platoon with integral lift of Huey slicks)
- Red Team (2 x Gunship)



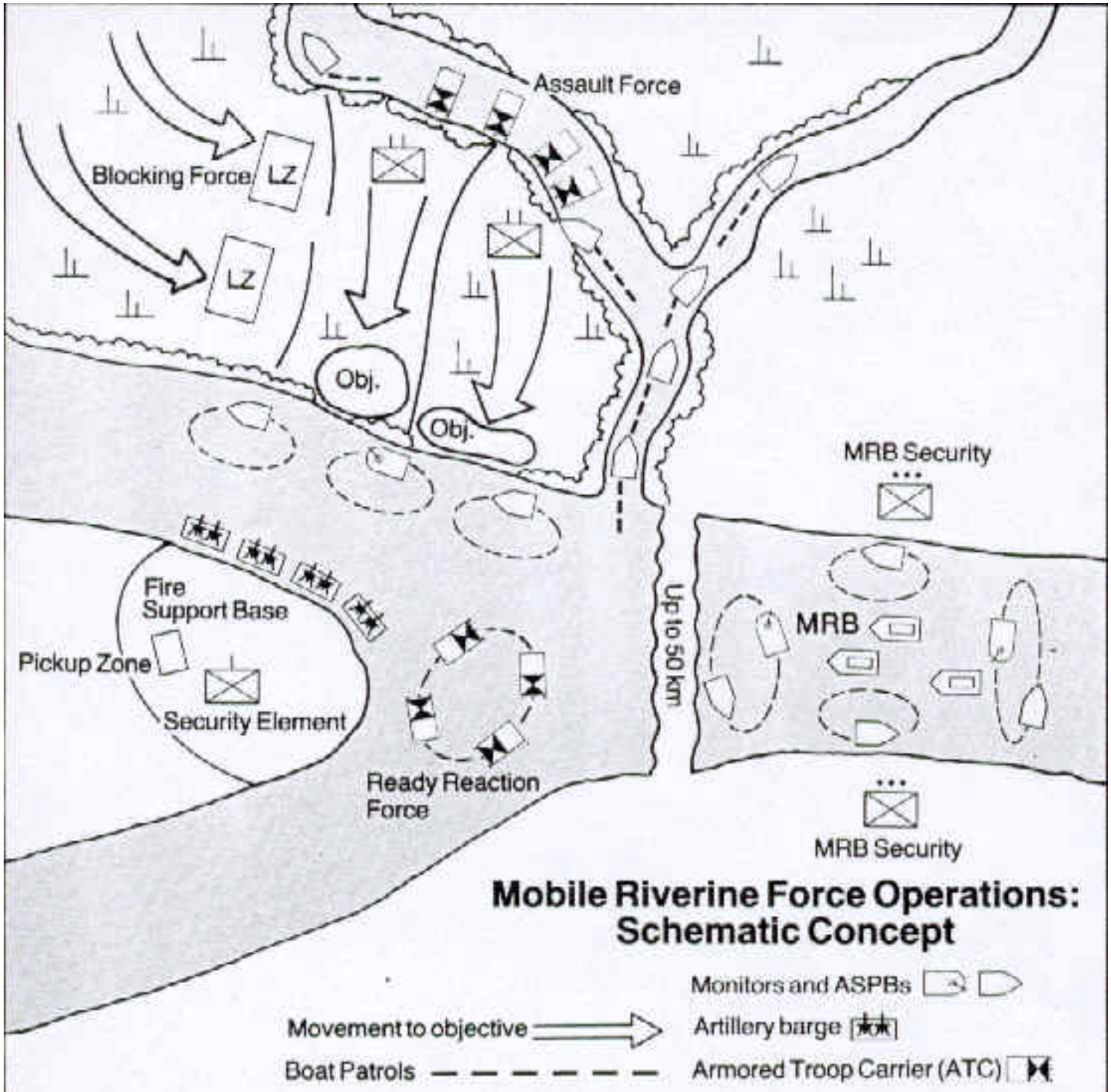
Sources:

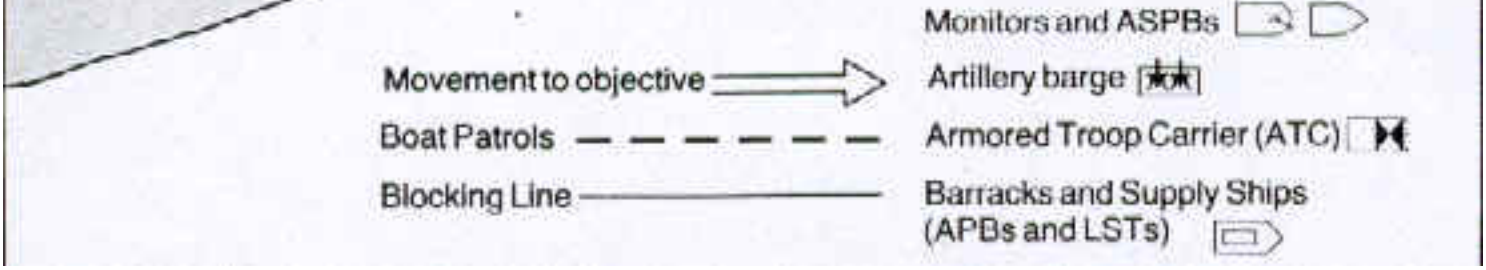
Mouth of the Dragon, Rules for Riverine Operations by Paddy Griffith
Free Fire Zone, Wargames Rules for the Vietnam War by Barrie Lovell
Brown Water Navy - article in Dustoff#9 SOTCW Vietnam War Study Group
The Brown Water Navy, Col. Victor Croizat USMC (Retd.), Blandford Press, ISBN 0-7137-1272-4

US Riverine Operations



Concept of Operations





Concept:

- MRB up to 50km from AO and protected by Monitors and Assault Support Patrol Boats on the river flanks of the base. Infantry detachments of Platoon strength are deployed on the opposing banks to cover the land flanks of the base.
- Operations were planned to encircle the enemy and destroy him in depth which required the movement of infantry units by watercraft and helicopters.
- Reserve units are held afloat or positioned near helicopter LZ's ashore.
- Ground units are deployed into blocking positions.
- Monitors and ASPB's cover the flanks of the landing sites so as block enemy movement on the water.
- Fire support is provided by assault force boats, artillery emplaced on barges or ashore, by helicopter gunships and by fixed-wing tactical aircraft.



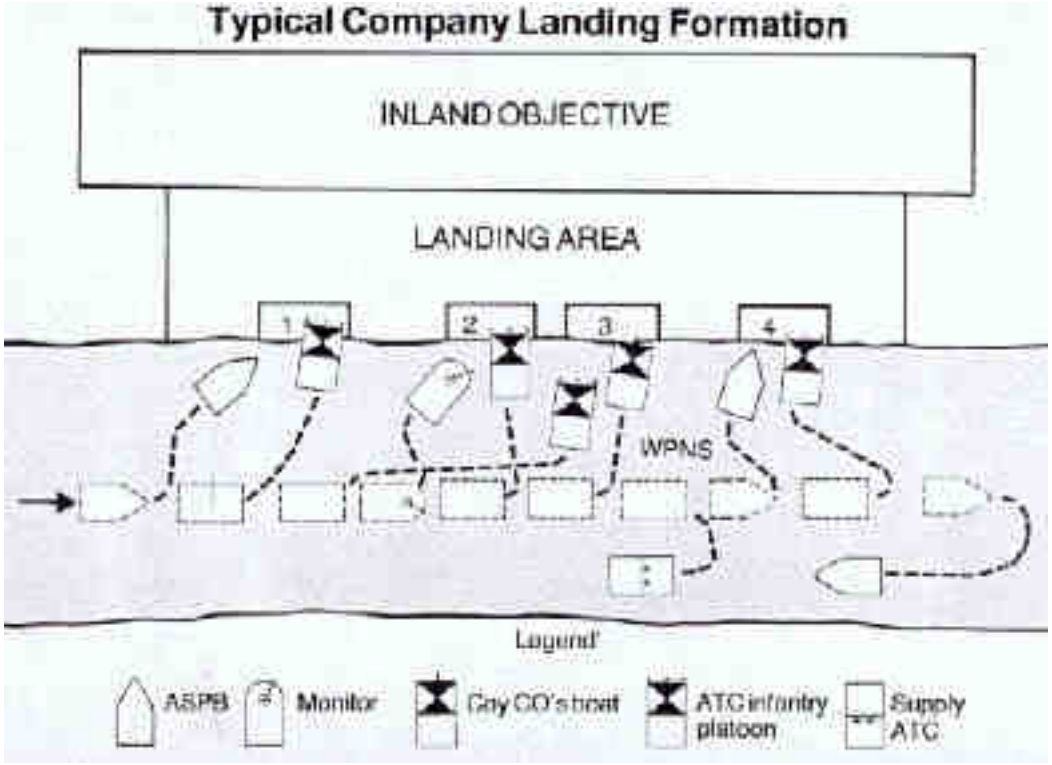
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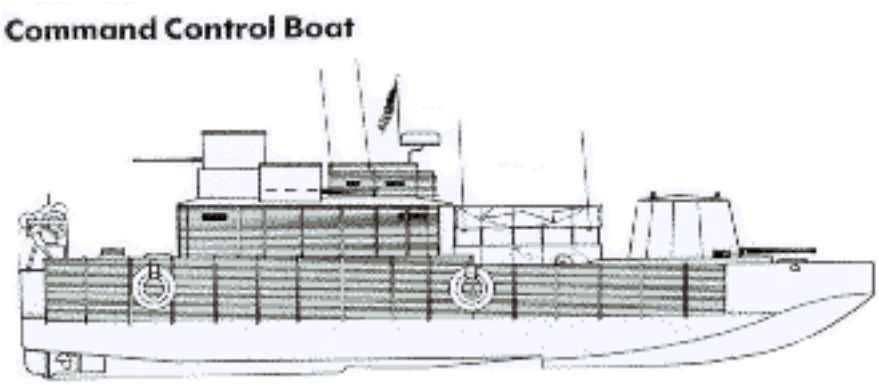
US Riverine Operations



Company Landing Schematic



A full Company would be deployed in 4 sections, each of 3 ATC's and 1 Monitor - each section carrying one platoon. The Company would move to the objective in column, with 150-300 meters between sections.



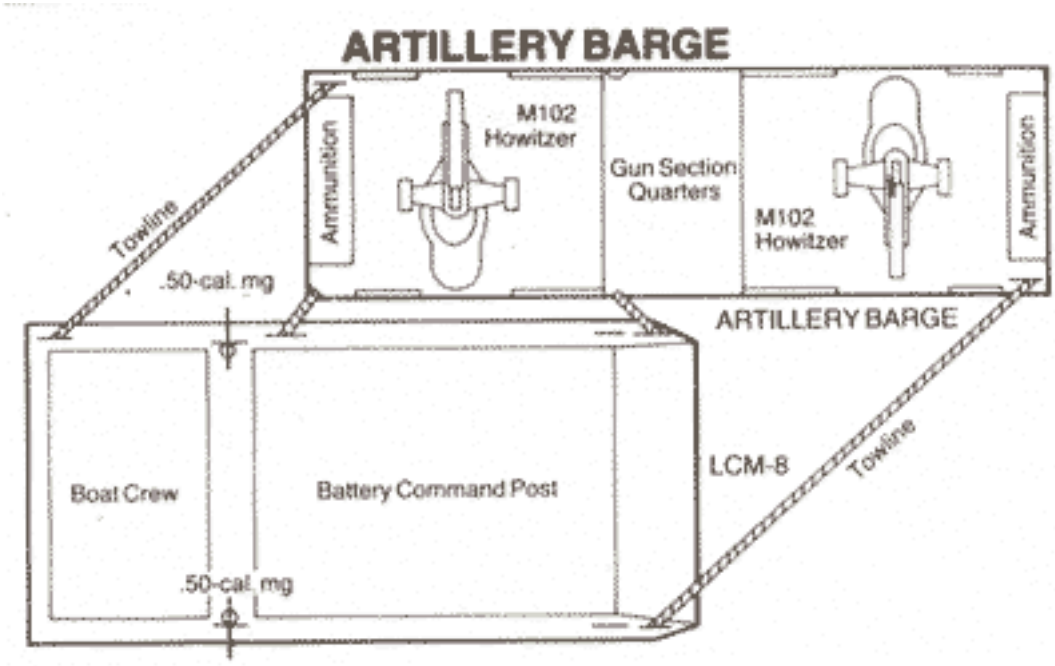
Preceding the column were ASPB minesweepers, followed by the Force C&C boat carrying the force naval commander. The landing force commander was either embarked on the C&C boat or overhead in a C&C helicopter.

When the force approached to within 500 meters of the landing area artillery and air strikes were lifted and the ASPB's and Monitors assumed responsibility for continuing the preparatory fire support.

The ASPB's would take up station on the flanks of the landing force while the ATC's would turn to shore and land the assault platoons.

Supply ATC's would remain offshore until the landing area was secured.

Once the assault troops made contact then blocking forces would be inserted by boat and helicopter to the rear and flanks of the enemy positions and the force would press the attack in order to finish the enemy.



One particular problem which faced the US was how to deploy their artillery. US forces operating in the Delta expected fire support as part of their tactical operating procedure. However, the high water table of the Delta generally inhibited the deployment of artillery since the terrain was usually too marshy and given the mobile nature of the River Assault Squadrons it was impractical to build Fire Support Bases since most operations relied on rapid deployment onto an unsuspecting enemy and lasted for only a couple of days. The answer was to deploy the artillery either on a mobile barge with an associated Fire Control Center and ammunition supply or to utilise metal platforms which were lifted into position on a temporary basis.



Sources:

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US Riverine Operations



Snoopy's Point

Fighting along the Rach Ba Rai, September 15th, 1967

The Inhospitable Delta of South Vietnam

Inter-service rivalry has always in existed in the armed services of the United States, and indeed in military forces all over the world. On occasion it has become quite intense. In most cases, however, in times of war the branches of the military quit fighting each other and fight the enemy. The Riverine force was a unique concept. It was a united effort of the United States Army and the United States Navy to deal with a very different situation in South Vietnam.

The Delta region, in the southern fourth of South Vietnam has been likened to a man's hand with twisted fingers. The fingers are the four main rivers that flow into the South China Sea. The Ca Mau Peninsula, jutting out into the sea, looks like a large swollen thumb.

It is a waterlogged environment, laced like a spiderweb with thousands of streams, canals, and marshes. It is covered with mangrove or nipa palm trees. The inhabitants live on the water. From the air, the area always appears to be a flood disaster zones. Most houses are built on stilts. Even the rice grown there thrives due to extended roots.

The land is ever changing. Shoals and sandbars are always shifting. They appear and disappear. The smells are a strange harmony of sweetness and rot. The abundant hibiscus flowers emit a strong perfume. About the only thing that is consistent is the heat - oh, and the presence of the Viet Cong.

Once a series of improvements and drainage programs carried out in the last years of the French dominion, the Mekong Delta had become the heartland and rice barrel of South Vietnam. In 1965 more than nine million people lived in the region. It was perhaps the most productive area food-wise for the entire country. Of course, the rebel communist forces immediately recognized its value and began a well-organized program to control the entire area. Its inaccessibility would make any incursions against them most difficult. There were ways, however, to overcome these difficulties.

Fighting on the Delta

During the time of the French, the enemy known as the Viet Minh, had infested the area and controlled some 80 per cent of the population. To combat them, the French forces acquired much of the discarded amphibious World War II equipment from the United States. From the LVTs, LCVPs, LCAs, DUKWs and Weasels, they organized "dinassauts" (naval assault divisions).

In more ample spaces, the French used bigger vessels, such as transport ships and minesweepers. They fought well against the tenacious Viet Minh. This maritime-amphibious force would be the inspiration of the "Brown Water Navy" of the United States during its involvement in Vietnam.

The Brown Water Navy

When the United States committed ground forces to the escalating violence in Vietnam, it quickly became apparent that this was a new type of war and demanded innovative changes. In central Vietnam and the highlands, it would be the airmobile force with the Huey helicopter that would write one chapter of a new type of warfare.

In the south, the problem of a waterlogged land presented a different sort of problem. To resolve it, the Army and the Navy would have to work together against a common enemy, the Viet Cong. The US Navy followed in the wake of the French and then improved on their techniques. At first they operated an offshore blockade and supplied advisors to the Vietnamese military forces attempting to control the enemy and eliminate a most elusive enemy. The Navy found itself being drawn inland and eventually into mobile amphibious operations on the French pattern. The Navy, however, was able to use the waterways in ways the French had never been able to do.

Even before the major commitment of US forces, the Navy's presence and training of the ARVN forces proved most effective. There were heroes even then. One was Lieutenant Harold Dale Meyerkord. In a series of engagements between November 1964 and January 1965, Lt. Meyerkord demonstrated unusual bravery in a number of hostile situations. On January 13th, 1965, he was serving as advisor to RAG #23 (River Assault Group), that was tied up in a big firefight two miles north of the Mekong River.

When the ARVN commander was killed, Meyerkord took over the leadership of the operation. In only minutes, he too was wounded. Being in the lead boat, he found himself cut off and a number of his crew out of action. He continued to fire at the enemy until fatally wounded. His action allowed the other boats to get into position and rout the enemy. For his valor he was awarded the Navy Cross posthumously.

Task Force 116

To recapture once and for all the waterways of the Delta, Task Force 116 (codenamed Game Warden) was formed on December 18th, 1965. Initially, the Navy had nothing in its inventory to fight this kind of

war. It was a war not quite on water and not quite on land, and yet it was both. In a lightning campaign, a series of large and small naval craft were modified for the task. If not available, they were produced. The classic example of excellence was the tiny PBR (Patrol Boat Riverine, or as its crew renamed it, "Proud, Reliable, and Brave").

But the fighting would have to be taken inland. When the patrol boats cleaned up the rivers, the enemy simply melted away into the thick foliage, out of range of the guns. To root them out, army troops would have to be used. The Republic of South Vietnam committed the 7th and 21st Divisions, plus various naval and marine units. From the United States came units of the 9th Division. A second task force was formed; this one called Task Force 117. Its craft included armored personnel carriers called ATCs (Armored Troop Carriers). To support them, heavily armed and armored craft, called "monitors" (recalling the unique ship of the Civil War) were designed. They carried every type of weapon including twin 40mm guns, grenade launchers, mortars and flamethrowers.

These forces were active in the IV Corps and the Rung Sat Special Zone (RSSZ) at the mouth of the Saigon River. TF 117 was organized into four 400-men river assault squadrons. Each squadron had troop carriers and five monitors. The task force also kept in operations at Dong Tam a barracks ship and numerous barges, the larger of which carried 105mm howitzers for quick artillery support. It was a well-equipped highly motivated force that provided a serious challenge to the 263rd and 516th Main Force VC battalions that were attempting to control the area. From June 1967 through July 1968 this mobile Riverine force conducted one attack after another against their enemy in Operation Coronado.

Ambush on the Rach Ba Rai

One of the biggest actions of TF 117 took place on August 15-16 1967 along the Rach Ba Rai River. Colonel Bert A. David's Mobile Riverine Brigade had just come back from one encounter with the 263rd VC Main Force battalion and was going back for more. The Colonel's plan was to trap the enemy in their positions along the river, about 8 miles north of its confluence with the Mekong River.

They were supposedly entrenched along a twist in the river called "Snoopy's Point" (because its shape resembled the nose of the famous "Peanuts" dog). He planned on pushing the 3rd Battalion, 60th Infantry past the point to Beach White One. Another battalion, the 3rd of the 47th would come overland from the south. The empty river craft would form a block at the river.

Finally the 5th Battalion, 60th Infantry would enter from the east in M-113 troop carriers with tank support. This latter force would serve as the hammer that would slam down on the anvil of the previously mentioned units. This would leave the VC with no way out and allow them to be cut to pieces with artillery and air support.

That was the plan. But, as so often happens in war, the enemy does not cooperate. Instead of holding their fire as the ships moved passed, headed to Beach White One, the enemy chose to open fire from

carefully concealed points along the river bank, some positions so close to the waterline that the guns on the ships could not depress enough to return fire. RPG rounds buzzed like angry hornets and pummeled the armor of the ATCs and the monitors. T-91-1, an ATC, received five RPG hits in less than a minute and was ordered to the rear. Instead its captain chose to stay and fight.

Navy Sea Wolf helicopters darted in and out, firing miniguns and rockets into suspected enemy emplacements. The fighting raged for hours, with some of the ATCs managing to get their human and armored cargo on land.

Once on shore, however, the situation did not improve. Hardly had the men landed when fire from Viet Cong riflemen began to knock down GIs. Automatic weapons fire increased the carnage. Screams of pain and calls for medical attention could be heard above the din of small arms fire and bursting mortar shells. Grenadiers took position and returned fire with canister rounds from the M-79s.

Air support was called in and an immediate dispatch was sent, ordering the 2nd Battalion, 60th Regiment in from the east by helicopter. By day's end the fighting had virtually ended. The descent of night brought fear to the GIs on shore but it proved to be groundless. The enemy had done his famous disappearing act. Charlie had taken a beating and was headed for the safety of the bush. He took comfort, however, in the fact that for a moment, he was giving as good as he got. The fighting along the Delta would go on, deadly and unabated.



Source:

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Glossary of Terms

AHCO	**Aviation Helicopter Company**
APB	**Self Propelled Barracks Ship**
AR	**Repair Ship**
ASPB	**Assault Patrol Boat**
ATC	**Armored Troop Carrier**
ATSB	**Advanced Support Patrol Base**
ATC(H)	**Armored Troop Carrier (Helicopter)**
CCB	**Command Communication Boat**
LCA	**Landing Craft Assault**
LCM	**Landing Craft Medium**
LCPL	**Landing Craft Personnel (Large)**
LCS	**Landing Craft Support**
LCVP	**Landing Craft, Vehicles and Personnel**
LSM	**Landing Ship Medium**
LSIL	**Infantry Landing Ship Large**
LSSC	**Light Seal Support Craft**
LSSL	**Support Landing Ship Large**
LST	**Landing Ship Tank**
MACV	**Military Assistance CommandVietnam**
MDMAF	**Mekong Delta Mobile Afloat Base**
MRF	**Mobile Riverine Force**
MSB	**Minesweeper Boat (Non) Magnetic)**
MSC	**Minesweeper Coastal (Non Magnetic)**
MSM	**Minesweeper Medium**
MONITOR	**Converted LCM-6**
PG	**Patrol Gunboat**
PACV	**Patrol Air Cushion Vehicle**
PBR	**River Patrol Boat**
PCF	**Patrol craft (Swiftboat)**
RSS	**River Support Squadron**

RAD	**River Assault Division**
RAG	**River Assault Group**
RAS	**River Assault Squadron**
RPC	**River Patrol Craft**
SWIFT BOAT	**Inshore (PCF)**
TF-115	**Market Time**
TF-116	**Game Warden**
TF-117	**Mobile Riverine Force**

ARMOURED TROOP CARRIER



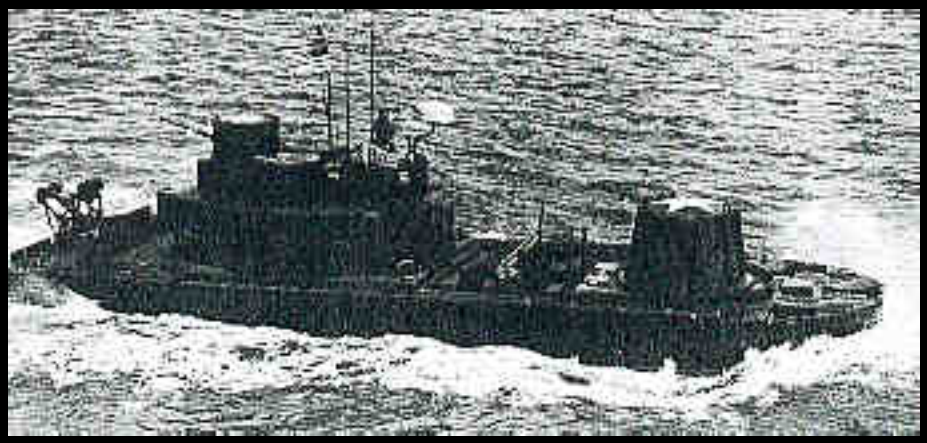
ARMOURED TROOP CARRIER HELICOPTER



COMMAND and CONTROL BOAT



LCM MONITOR



PATROL BOAT RIVER



United States Armour



Tanks and Recovery Vehicles

As stated in the General Introduction, despite initial reservations regarding the deployment of tanks to RVN they did, nonetheless, see considerable and widespread action throughout the country.

US tanks faced no real threat from their NVA counterparts, with the only significant encounter being at the battle of Ben Het, however, the nature of the terrain and the constant threat of anti-vehicular mines necessitated each armored unit to have full maintenance and recovery services available.

M-48A3 PATTON

The M48A3 medium tank was the most numerous tank employed by the US during the Vietnam War. Serving with both Army and USMC armored units the M48 saw extensive use and produced numerous variants.

M48A3 Patton

M-41A3 WALKER BULLDOG

The M41A3 was supplied to the ARVN beginning in 1965. Considered unsuitable for use in RVN by the US Army due to it's very thin armor and cramped interior, the simplicity and mechanical reliability was felt to be more suitable to the smaller sized ARVN cavalry troopers.



M-551 SHERIDAN

The M551 was originally designed as a lightweight, airborne droppable assault vehicle. Rushed into production, it was plagued by numerous technical problems throughout it's time in service. Forced into a role it was never designed for, the M551 had a very checkered career during the Vietnam War.



M-88 ARMORED RECOVERY VEHICLE

Based on the suspension and running gear of the M48A2 tank, the M88 could be used for both medium and heavy recovery operations using an 'A' frame type hoisting boom.

The superstructure and crew compartment were composed of a single large armor casting and provided protection against most types of machine guns and artillery fragments.



First accepted into the US Army's inventory in 1959, over 1000 M88's were produced by Bowen-McLaughin-York of Pennsylvania and powered by a Continental AVSI-1790-6A engine with an Allison XT-1400-2 transmission. The vehicle was rated at 980 horsepower. Modeled as it was on the M48A2, the M88 was fitted with a gasoline powered engine which made it a vulnerable target to NVA and VC antitank weapons such as the RPG and mines.



The crew comprised of the vehicle commander, driver, mechanic and rigger. Both the driver and mechanic were located at the front of the crew compartment with the driver on the left side. The commander was in the center under the cupola with the rigger directly behind him. Each crew member had a hatch in the roof of the cab, the commander had his cupola and there was also a door in each side of the superstructure.

Normally armed with a single .50-caliber machine gun externally mounted on the vehicle commanders

cupola.



The M88 was fitted with a front mounted blade which was hydraulically powered and controlled. This was used primarily to anchor the vehicle and support it when lifting loads with the boom.

However, it was also quite often used like a bulldozer for clearing vegetation and digging defensive positions – a task which it was not designed for and which was discouraged.

The US Army and USMC developed a bulldozer blade which could be retrofitted to an M48A3 tank (then designated M8A3). In this configuration the M48A3 Patton was used for busting trail through dense vegetation as well as digging out or even burying enemy defensive positions.

M-51 HEAVY RECOVERY VEHICLE

The heaviest armored vehicle used during the Vietnam War. Used almost exclusively by USMC with each Marine tank battalion having four of these vehicles, one per company. This massive vehicle, weighing some 60-tons, used the same suspension and track components as the M103 heavy tank.



The M51 first entered service with both the US Army and USMC in 1954 although the US Army used

the M51 for only a short period before replacing it with the M88.



The USMC did not use the M88, instead they made almost exclusive use of the enormous M51 as their prime recovery vehicle. Weighing a massive 60-tons and based on the chassis of the M103 heavy battle tank, the M51 was a gasoline powered vehicle that could produce 1000 horsepower.

Equipped with a 30-ton capacity crane, a 45-ton capacity winch and a 5-ton capacity auxiliary winch, the M51 was well suited to almost any recovery task. The hull was divided into three compartments and was made from welded rolled armor plate. The crew cab was housed on the front of the vehicle and accommodated the vehicle commander, driver, crane operator and rigger.

Bill Erwin wrote;

> Was very suprized to see a picture of the old M-51 Heavy Recovery Vehicle. Just thought you might be interested in this little piece of USMC history. I was part of the first operational M-51 crew in the middle (July?) of 1957 when HQMC decided to test them with the M-53 and M-55 self propelled guns. I was in fact assigned to 1st 155 Guns (SP), at the time stationed at the then MCTC 29 Palms. If my memory isn't deceiving me I seem to remember that we received them even before the Tank Battalions or Combat Service Groups (FSR) did.
>
> We picked the retriever up from the rail head at Amboy Ca. and moved it cross country to the base at 29 Palms. 29 Palms at that time was the Marine Corps Test Center (MCTC 29 Palms) I was a 1841 attached to H&S Battery, 1st 155 Guns (SP) FMF (the SP stood for self propelled).
>
> Up until that time we had the M-4 converted tank recovery vehicle which, believe it or not, had a V-12 Liberty Aircraft Engine for power. There were no hydraulics, all muscle power. Now to the M-51, when we got it, it was still painted Army Brown, had US Army markings and ID numbers and was sealed for long term storage.
>
> Needless to say the first thing we did was remove all the sealing material and repaint it to

MC Green. The first field recovery we did was with an M-53 155 Gun (SP) and there we found out just how bad an idea it was sending the M-51 to a gun outfit. To start, because of the long gun barrel overhang to the front of the M-53 & M-55 (8" Howitzer (SP)) you had to tow from the rear of the gun.

Now you have to remember too that being an Artillery weapon there was a large recoil spade in the rear of the gun. This had to be literally removed before you could hook up to it. But all in all it was a vast improvement over the M-4 recovery vehicle. We did encounter another problem with the M-51, when running at speed on the dry lake beds it had a bad habit of loosing road wheels. Seems as how the Army had the wrong direction threads on the road wheel nuts! You can imagine seeing your road wheels passing you as you were traveling as the nuts would unseat themselves and spin off.

After we had had the M-51 for about 6 months it was decided that we needed to go to school on it and went to Det. 1st FSR for class and, as it always is, they had no idea of the capabilities or use of it as they hadn't even seen one except for the one we had.

I remember that the class was given by a CWO Nahass, who later became maintenance officer for 1st Tanks. I lost contact with the M-51 from '58 to 1963 when I was attached to O&M Co. 1st FSR. It was decided that during a Div field exercise that we would pull the turret on an M-48A3 using the M-51 as the crane. This proved to be a near disaster as the turret weight is approximately14-tons and in order to get the height needed to lift the turret the M-51 has to be at least on the level with the top of the engine deck on the 48. As you can imagine with a total combined weight of approximately 80-tons, finding a place where you could (1) get the M-48 close enough to the back of the M-51 for the hook to get to the lifting eyes and (2) would hold the combined weight without caving in, which is exactly what happened. End of experiment. That was the last of my experiences with the M-51 as I was discharged shortly after that fiasco. As to your request about using any of this in your web site, feel free. As a former tread-head I'm always glad to share my experiences. My MOSs were 1841/1861/2151 I hope this was of some help.

Semper Fi

Bill Erwin

M-728 COMBAT ENGINEER VEHICLE (CEV)

The M728 was based on the hull and turret of the M60A1 tank. Equipped with a bulldozer blade and a large 'A' frame boom, the M728 CEV allowed combat engineers to perform a variety of jobs on the battlefield under armor protection. The 165mm demolition gun was designed to break-up concrete obstacles and was highly effective for fire support.



Based on the hull and turret of the M60A1 tank, the M728 CEV was equipped with an 'A' frame boom, winch and bulldozer blade. Carrying a four man crew the CEV was armed with a short-barreled 165mm howitzer and two machine guns and weighed 57-tons.



Tom Currie (D Coy, 1st Sqdn, 11th ACR, RVN '68 - '69) wrote;

> The 11th Cav itself did not have any Combat Engineer Vehicles (CEV), but our Engineer unit, the 919th Engineer Company, was supposed to have one per platoon.
>
> The 919th was assigned (actually attached I believe) to the Regiment and normally operated in separate platoons with one platoon attached to each Blackhorse Squadron.
>
> I can't say what happened in the other squadrons, but the platoon of the 919th that was attached to 1st Squadron had an M48A2C or M48A3 tank with the dozer blade kit most of the time instead of a CEV.



CEV of 919th Engineer battalion, 11th ACR

They were usually together with the tank company and preferred the M48 over the CEV because it was easier to get parts and ammo for the tank than for the CEV and it was safer to look like the rest of the vehicles around you instead of looking like something special. As I understand it, each time a CEV became a "combat loss" they had to bring another one clear from CONUS -- which always took quite a while -- so the engineer platoon would be issued a tank until their CEV arrived. I only recall one CEV arriving while I was in country and I think it "hit a mine" within a day or two after arrival in the field - it was a "combat loss" soon enough that they tank they had turned in hadn't even left yet and they got their old tank back instead of having to get a new one.

M-578 LIGHT RECOVERY VEHICLE

The M578 LRV was based on the chassis of the M107 and M110 self-propelled artillery carriers. The boom had a 360-degree traverse and was capable of lifting 30,000-lbs whilst the towing winch could tow up to 60,000-lbs. Designed for the recovery of M113's, the M578 could recover an M551 Sheridan.



The vehicle had a crew of three, consisting of a driver, crane operator and a rigger. The hull front and driver's compartment were both lightly armored whereas the cab of the vehicle, where the crane operator and rigger were seated, was protected by 1/2-inch steel plate.

A single .50-caliber machine gun was mounted on the roof of the cab and offered some protection for the crew.



Sources:

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United States Armour



11th Armored Cavalry Regiment

Submitted by Thomas Currie (D Coy, 1/11, '68 - '69)

I served with D Company, 1/11 Armored Cavalry Regiment (the Blackhorse Regiment) July 1968 to July 1969.

I don't know much about what other units had, beyond what we saw when passing another unit (all too often passing through another unit on our way into contact!)

When I arrived in country we had M48A2C tanks - these were gasoline powered and were notorious for having the white paint inside the hull stained pink from the fuel leaks that all of them had. Later these were replaced with the diesel powered M48A3 tanks.

I can tell you a little about how we operated while I was there (and by inference and folk lore a little about how they had operated before I arrived). One absolutely critical point I have to make at the outset is that we were the only REGIMENTAL Cavalry unit in country.



M48A3 of 11th ACR 'Operation Junction City', April '67

Regimental Cav is very different from Divisional Cav. Each Infantry and Armor Division has one Cavalry Squadron in addition to the (usually) three brigades that make up the division's combat force. The DIVISIONAL Cav squadron is intended primarily to be the "Eyes and Ears" of the Division. They are expected to perform reconnaissance missions. Their secondary function is "Economy of Force" type missions, such as screening a flank that the division commander does NOT EXPECT to be attacked. These are both traditional cavalry missions largely unchanged in several centuries - both missions assume a force that moves more quickly than the main forces on either side but has little staying power. Divisional Cavalry Squadrons may or may not have one helicopter troop. The ground troops in a Divisional Cav squadron are all the same and include a mix of tanks and scout vehicles in each platoon (the common mix in the late 60's and early 70's involved three tanks and five M113-series vehicles). The Army dabbled with other structures, such as mixing M113's and M901 ITVs but the concept was always three or four identical ground troops where each platoon had a mix of "scouts" and something intended to provide heavier firepower. Each platoon also nominally had one 4.2" mortar mounted in a modified M113, but the mortars were almost always consolidated at the troop level because a single mortar was nearly useless. Divisional Cavalry squadrons did not have their own artillery (unless you counted the mortars).

Regimental Cavalry was a different animal. Each Regiment consisted of three squadrons (plus some assorted stuff at the Regimental level like engineers, military intelligence, usually a helicopter troop, etc). Each Regimental Cavalry Squadron consisted of three ground Cav Troops, a Tank Company, an Artillery Battery, and the Squadron Headquarters Troop. The ground Cav troops were normally pure scouts (again each platoon had the mortar that was usually consolidated at the troop) with no heavy vehicles in the Cav troop. The tank company was a standard tank company, nominally identical to that found in any tank battalion (we knew WE were different, but that difference was not in the Table of Organization). The Artillery Battery consisted of six 155mm self-propelled howitzers (M109-series). In more conventional

theaters, the cavalry Regiment served the Corps commander in much the same way that the Divisional cavalry squadron served the division commander, but you were talking about greater distances to cover and more emphasis on both offensive and defensive Economy of Force missions. The Regimental Cavalry Squadron was a complete combined arms unit without the need for cross-attachments and the like.

Divisional Cav is structured to operate in troops and even platoons -- Regimental Cav is structured around the assumption that a complete Squadron will be employed.

In RVN, the Blackhorse Regiment had about half the manpower of any Brigade -- and significantly more firepower. From a combat standpoint, we were 100% mobile and 100% armored.

I suppose someone could assemble the equivalent firepower with the right combination of infantry, armor, and artillery units; but we weren't some gaggle thrown together for a mission - we were a unit. More than that, we were CAV. We had the greatest CONCENTRATION of available firepower in country, and we had the traditions and attitude to use it.

Tradition has it that the Regimental Commander who brought the Blackhorse to RVN demanded the best from his troopers. I didn't have the pleasure of serving under him, but I did have the distinct pleasure of serving under Colonel George S. Patton III. His father had used Armor in WWII, but the son understood Cav. He made it clear that he commanded a Regiment that consisted of three squadrons - and nothing smaller. The squadrons were often far apart, but within each squadron the entire squadron was within supporting distance -- and that is one hell of a lot of firepower when you need it.

Regimental Standing Order Number One was "Find the bastards and pile on." That essentially sums up how we operated. The three Cav troops in each squadron were the finders. When they found something, we piled on.

Consider a typical infantry action. An infantry unit (foot or mech) wanders around the jungle until they get ambushed. They break contact, call for artillery, wait for it, adjust it onto where the target WAS, then move back through the area to look for a body count.

Now consider that same action conducted by the Blackhorse. A Cav platoon wanders around the jungle until they get ambushed. The Cav platoon is mounted in M113 Armored Cavalry Assault Vehicles (ACAVs) so they don't have the need to break contact - instead they lay down the small arms firepower that only a Cav unit could deliver. (Remember the ACAV has a crew of only 4 people, but it mounts one .50 cal M2 and two 7.62mm M60 machine guns, providing at least two machine guns firing in any direction.) While the enemy is pinned down by the overwhelming machine gun fire, the Cav platoon calls in artillery JUST BEHIND the enemy position. They are calling for fire from THEIR Squadron artillery battery; that fire is immediate and it is immediately on target. Meanwhile the rest of the Cav troop arrives to extend the line on both flanks, and the tank company moves through the center of the Cav troop with typically fourteen to the full seventeen tanks on line less than 10 meters between tanks. The first salvo of

90mm canister (preferably the old M336 round) fires as soon as the tanks clear the line of ACAVs. Battle over. Scratch one enemy unit.



The devastating effects of firing Canister!

OK, it didn't always work quite that perfectly -- but it worked damn well. It worked well enough that most NVA units in our AO set a policy of NOT attacking Blackhorse units. We were patrolling the Michelin rubber plantation with Cav PLATOONS during the same timeframe that 1/16 and 1/26 Mech Inf were unable to operate that same area in company strength without getting knocked on their asses.

Our firepower was part of the reason - our attitude was a bigger part of it. Do you remember the rather irreverent modified scripture that went "Yea, though I shall walk through the valley of the shadow of death, I shall fear no evil, for I am the meanest son of a bitch in the valley" -- well that was how we felt. It was part of being a Blackhorse trooper (we tankers always made it a point that our tank units were companies not troops, but we were still Blackhorse Troopers).

The attitude came from a lot of little things - and a few big things.

We spent most of our time in Free Fire Zones - in large part because the brass had found out that anywhere we were was likely to BE a Free Fire Zone. (Remember the Life magazine photo "War Torn Saigon" published shortly after Tet 68? That photo was a street in Cholon district on the outskirts of Saigon. The only unit that had gone down that street was 1/11 Cav.)

Yes, we had been known to take a tank to some other unit's EM club, and yes at least some of the stories about running over MP jeeps are true. Yes, one of our tank commanders, providing security for a White Mice checkpoint at Saigon city limits did once get on the radio and call in requesting permission to HAVE FIRED main gun.

We also had NO MIAs or POWs (at least as of when I left in July 1969). If you were in country with the

THE USE OF ARMOUR

By Pete Jones

It was more by accident than design that armour was used in Vietnam. Apart from the ARVN the other combatants used armour reluctantly. In fact, the first armour deployed to the Nam was by mistake. Marines were sent to Da Nang airbase to help secure it after mortar attacks by the VC. Apparently MACV (Military Assistance Command Vietnam) had not reviewed the organisation of the Marine battalion and when it arrived with its armour there was some concern. The Marines couldn't understand what all the fuss was about.

The next deployment of armour by US forces was in late 1965 by the 1st Infantry Division. previous units had swapped their armour for APC's, usually M113 ACAV's. After a while the US Army Chief of Staff said that the Divisional Cavalry Squadron should keep its medium tanks so that a feasibility study could be made of the armours role in the war. The land was not totally hostile for armoured warfare, it was found that 46°/o of the country could be traversed all year round by armour. The French had used armour in the 1960s and most of the little information that came forward was from their battle reports. The French Army had been supplied with World War II tanks (mainly M24 Chaffee's), half tracks and scout cars mostly of American origin. In 1954 the French had 452 tanks; 1,985 scout cars, half tracks and amphibious vehicles.

General Westmoreland the commander of MACV said "except for a few coastal areas, most notably the I Corps area, Vietnam is no place for either tank or mechanised infantry units" it took six months for the lst Infantry Division to get their tanks at Phu Loi to be released for general use. It was not until the 95th Infantry Division arrived that the US really started to use both tanks and APC's in combined arms roles.

After the Tet offensive in 1968 Westmoreland changed his mind on the use of armour after he had seen what good use it had been put to. He actually requested that all future reinforcements from 1969 onwards should be armoured rather than infantry. The Australians too still judged the infantry to be "The Queen of the Battlefield" and when they deployed their first Centurions to Vietnam even the press questioned whether this was a good move. Their Army was not so prejudice fortunately, they realised the good fire support tanks gave to infantry.

Of the Free World Forces only the ARVN could be considered to willingly use armour but they were dependent on US advisors and the US supply of equipment, it was not until after Tet in '68 that the ARVN received their first M48A3's. The ARVN were so paranoid of coups that all tank units were kept a days march from Saigon. Even the South Vietnamese air force (RVNAF) pressed some old M24's into service so as not to be out done by the Army.

The Communists realised that the Allies were increasing the use of armour so had to rethink their strategy. It has since been calculated that it took seven RPG hits on a M113 to obtain one penetration. Hits themselves were only reached once in every eight to ten rounds fired! For each penetration only 0.8 casualties on average occurred. so the myth of the RPG is not founded. Because of the Allies increasing commitment to armour the Communists turned to the Soviet Union for help and it led to 3,000 Vietnamese soldiers being sent to Russian armour training schools.

At first the Communist use of armour was poor but slowly their confidence grew so by 1975 when they over threw the South they used armour to good effect totally overwhelming their enemy.

The armour was used tactically by the Americans. they used it to create or force the enemy to fight by invading the communist safe areas with armour. The infantry could then reinforce or circle the enemy when located. The only real success for armour though was the use of the M113 ACAV. It was the ARVN who pioneered the use of mounted tactics with APC's so as to protect their infantry from casualties up until then infantry were always dismounted from the APC's before assaulting the enemy.

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Courtesy of Pete Jones  **the SOTCW Vietnam War Study Group**

North Vietnamese Army and Viet Cong

THE 1972 'NGUYEN HUE' CAMPAIGN (Easter Offensive)



1972 Easter Offensive

Ominous warnings began to filter into South Vietnam's II Corps intelligence organizations in the fall of 1971. The NVA were preparing another "Winter-Spring" campaign for the approaching dry season. NVA B-3 Front Headquarters in the Triborder Zone began moving advance detachments forward as allied generals worried about another enemy threat to cut South Vietnam in two.

The intelligence reports identified what was to become a familiar pattern of communist offensives in II Corps. A main communist force would drive through north-western Kontum, annihilating allied border camps, as it struck for the cities of Pleiku and Kontum. In the ARVN rear the NVA division in Binh Dinh would attack toward the enemy main force. The intelligence reports claimed that the NVA offensive would begin in late January or early February of 1972, and would unfold in several phases.

Attacking from the border area the NVA B-3 Front would send forward the 320th and 2nd NVA Divisions along with the 203rd NVA Armored Regiment. Attacking from "behind" the ARVN front would be the 3rd NVA Division (also known as NT-3 and "Gold Star Division") moving westward out of Binh Dinh Province.

Captured documents and agent reports secured all over South Vietnam began to form a pointed mosaic during the last six months of 1971. The NVA were planning a major offensive throughout all of South Vietnam which they called the Nguyen Hue Campaign.

The Nguyen Hue Campaign's Strategic Design

The Nguyen Hue Campaign was to be the last major NVA offensive led by the communist warlord General Vo Nguyen Giap. He meant to take all of South Vietnam in a multi-pronged offensive calculated to draw ARVN forces in all directions, dissipate American air cover and defeat the South Vietnamese Army in detail.

By the beginning of 1972, most of the allied forces who had been fighting the NVA during the seven previous years were gone. Only two US brigades and one Korean division remained in South Vietnam. General Giap knew that the allied units would either leave South Vietnam or remain motionless in their fortified bases when the NVA struck. Only American air power worried Giap.

Giap planned to launch a four-pronged offensive which would secure more real estate and population for North Vietnam while spreading ARVN forces into dissipated fragments. Without massed troops, the South Vietnamese could hardly stand up to the hard-fighting North Vietnamese.

General Giap conceived of his Easter Offensive as being composed of a series of phases. Each sequential phase was interdependent with the others in the scheme.

Giap's Nguyen Hue Offensive Phases

- Phase I: Border battles at Loc Ninh, Dak To and the DMZ, Giap's favorite areas, would draw ARVN forces into meatgrinder battles near the NVA supply bases and sanctuaries.
- Phase II: Infiltrated forward detachment regiments would move into threatening deployments near Saigon, Hue and on the Binh Dinh coast of II Corps.
- Phase III: I Corps falls to the NVA and troops are rushed into II Corps which also falls. Saigon is struck by six to nine close-in advanced regiments.
- Phase IV: I and II Corps are consolidated and the full force of the NVA is turned against Saigon.

Huge levies of North Vietnamese teenagers were drafted into the inflated NVA ground force. Hundreds of Soviet ships disgorged mountains of military equipment. Hundreds of tanks and artillery pieces were moved with tens of thousands of troops along the Ho Chi Minh Trail southward. Yet the allies, bereft of loyal, rational and competent intelligence resources, were still nonetheless surprised.

Whilst the NVA committed their entire army outside of their home country, the allies struck at neither their ground supply lines, nor invaded North Vietnam. Only Linebacker II, a short but effective demonstration of the power of American aerial bombardment, accomplished much.

Sure the ARVN fought back and the traitors in I and II Corps were cashiered, but the South Vietnamese never adopted a total war footing. There was too much corruption and weakness in the higher echelons of the South Vietnamese hierarchy.

T'he NVA had continuously increased the size of their army. From 149 combat battalions at the end of 1969, the NVA had doubled the number of its troop units.

General Giap planned to commit the entire North Vietnamese Army to what the allies called the Easter Offensive: fourteen infantry divisions, twenty-six separate infantry regiments and three armored regiments. Only two units were not committed, the 316th Division fighting in Laos, and a small corps-

size reserve retained in North Vietnam. In spite of the losses incurred during the Easter Offensive, the NVA expanded to 285 battalions by the end of 1972.

Most NVA troops were retrained in the conventional offensive methods to be used in the Easter Offensive. Many North Vietnamese tank crews had graduated from the Soviet Armor School in Odessa in late 1971. They would be fighting in units made up of T-54 and T-55 tanks fitted with 100mm guns. Those 100mm guns had more penetrating power than the most powerful American model in Vietnam, the M48, with its 90mm gun. Reinforced artillery and flak units were also upgraded by Soviet advisers within North Vietnam.

The first prong of the communist assault would be a four division invasion across the DMZ into I Corps. It would be complemented by a flanking attack by two additional divisions out of the A Shau Valley War Zone, from whence came two divisions during the Tet offensives.

In the II Corps zone, an NVA corps would strike eastward out of the Triborder zone to seize Kontum and drive on to the South China Sea coast. It would be reinforced by another NVA division striking out of coastal Binh Dinh War Zone.

Giap's prong number three was to be a reinforced three division attack on III Corps' An Loc. From there the assault would continue on to Saigon.

In the IV Corps area, communist troops planned to do more maneuvering than fighting. They would tie down ARVN forces in the area while seizing as much real estate as possible.

The Easter Offensive in I Corps

T'he NVA stacked its forces in several echelons for the conquest of I Corps. The NVA B-5 Front would control the battle.

The first communist asset in the battle consisted of ARVN traitors in command positions at the South Vietnamese I Corps, 3rd ARVN Infantry Division and regimental levels. Those traitors could be counted upon to sabotage the South Vietnamese effort by both overt and covert action, in the short and long term.

For the first strike in March 1972 the NVA would invade I Corps with three divisions and eleven independent regiments. Striking across the DMZ would be a powerful communist assault corps practicing forward detachment tactics. It was composed of:

- 304th NVA Infantry Division with the 9th, 24th and 66th Infantry Regiments and the 68th Artillery Regiment.
- 308th NVA Division with the 36th, 88th and 102nd (aka 162th) Infantry Regiments.
- B-5 Front Independent Forces: 126th Sapper Regiment (aka 126th Infantry Regiment), 3 Ist, 270th (aka 27th) and 246th Infantry Regiments; 203rd, 204th and 205th Armored Regiments, 84th

(Rocket) and 38th Artillery Regiments.

A flanking corps would debouch from the A Shau Valley, striking the ARVN deep left flank. It was composed of:

- 324B NVA Division with the 29th, 803rd and 812th Infantry Regiments.
- Independent Forces: 5th and 6th NVA Infantry Regiments.

The 304th NVA Infantry Division, along with B-5 Front independent regiments, would drive due south in the main attack. Attacking from the NVA right flank would be the 308th NVA Division enveloping Quang Tri City, about ten kilometers south of the Cua Viet River.

The 324B NVA Division and two independent regiments were attacking Hue further south. Their deep flank assault threatened to cut off the 3rd ARVN Infantry Division.

Available in April through May 1972 would be the 320th NVA Division with its 48B and 64B Infantry Regiments fighting in Quang Tri Province. In late April, elements of the 325th NVA Division would join the offensive and by July, 1972, all three of 320th's regiments (18th, 95th and 10lst Infantry Regiments) would be committed against Quang Tri City.

The ARVN in I Corps: 1972

Most of this sizeable force would initially fall upon the corps-sized 3rd ARVN Infantry Division. The 3rd was a huge division commanded by the mediocre General Vu Van Giai, who may have been a deep cover communist agent. The 3rd Infantry Division was initially composed of the 2nd, 56th and 57th Infantry Regiments, an armored cavalry battalion and an artillery regiment.

The 2nd Infantry Regiment, taken from the 1st ARVN Infantry Division, was a good veteran regiment. Two other infantry battalions and the armored cavalry squadron were also composed of veterans, as was the division staff.

The 3rd Infantry Division, dubiously called 'the Ring of Steel' Division, was deployed in a ruinous pattern of eighteen fire support bases and five larger "combat bases" in I Corps northern Quang Tri Province - a defensive configuration that seriously dissipated the division's power.

In his book "The Easter Offensive" USMC Colonel G.H. Turley commented on what could only be considered a traitorous act by the commander of the ARVN 3rd Infantry Division, General Giai:

> "On 30 March, the 56th and 2nd Regiments began the scheduled rotation of their respective Tactical Areas of Responsibility. Late in March information was obtained by the South Vietnamese JGS that 29 March was to be D-Day of an NVA general offensive. General Giai did not comply with the JGS alert or alter his planned rotation. His two regiments began their

> exchange of tactical areas. Tactical command posts (CPs) were vacated, unit radios shut down, antennas dismantled and placed aboard jeeps and six-by-six trucks. The 3d ARVN Division literally went non-tactical for the duration of the rotation and was temporarily unable to perform as a viable fighting force. It is incomprehensible that a military leader, in daily contact with an enemy growing stronger daily and who has been alerted of an impending attack, would attempt to execute an intra-division relief of lines... and then fly to Saigon for the holiday weekend."

The NVA struck while the South Vietnamese were in the midst of their rotation and immediately routed the ARVN Regiments. Two of the 3rd Division's infantry regiments were in the process of exchanging positions and moving towards FSB Carroll and Charlie 2, when thousands of artillery rounds struck the exposed troops causing instant death and chaos.

As Marine Colonel G. H. Turley explained it:

> "This would not be the first situation where South Vietnamese combat units were subjected to a military disadvantage because of the possibility of covert sympathy for the North Vietnamese enemy at the highest levels of government or their own military leadership."

In front of their advance detachments the NVA had infiltrated artillery forward observer (FO) teams. By the morning of the 31st, the NVA artillery forward observer teams had infiltrated between the ARVN fire bases into positions on the north side of the Cam Lo-Cua Viet River. From these hidden locations, they began to direct accurate artillery fire on to vehicle traffic moving east and west along Route 9.

Periodic barrages of fire from 122mm and 130mm artillery began to impact in the ARVN rear areas. In the meantime, General Giai had panicked, suddenly evacuating his command post at Ai Tu and running south toward Quang Tri City.

> "Radios were left on and simply abandoned; maps and classified materials lay where last used and were unguarded . . . complete bedlam."

Files and office equipment were abandoned as ARVN officers scrambled for safety. The 3rd Division's American Advisory Team 155 also panicked and began to "haul ass," abandoning some twenty-two machine guns, three 8lmm mortars, eleven AN/PRC-77 radios, a telephone switchboard and numerous other items. Later, American B-52s bombed the abandoned ARVN firebases.

NVA artillery had a devastating effect upon the ARVN defenders. The NVA followed the Soviet practice of emplacing artillery just outside the range of US 105mm and 155mm howitzers. With careful planning, the attackers had located their guns just outside the 10,500 meter maximum range of the 105mm howitzers and the 14,800 meter range of the 155mm howitzers. Then by exploiting the 27,500 meter range of the Soviet 130mm guns, the North Vietnamese were able to attack the fire bases with little threat from ARVN counterbattery fire. Only the US made 175mm gun had sufficient range to counter the NVA's massive artillery attacks. However, the four 175mm guns at Camp Carroll and the four located at Dong Ha, failed to respond effectively. Each time the 175mm batteries would fire, the NVA would counter with a heavier barrage. ARVN cannoneers, frightened by the incoming rounds, abandoned their

guns to seek safety, permitting the NVA to win the artillery duel.

On April 2, 1972 another act of officer treachery rocked the 3rd ARVN Division. Lieutenant Colonel Pham Van Dinh, commander of the ARVN 56th Infantry Regiment and a deep cover communist agent, surrendered his command without a fight. According to an American adviser on the scene:

> "Colonel Dinh told us he was going to surrender Camp Carroll and offered me the choice of surrendering. He said that we could hide among his troops when they went out the gate to surrender to the North Vietnamese and once we were outside the perimeter, we could fall down in the grass and crawl away."

Lieutenant Colonel Dinh then surrendered over 2,000 ARVN troops of the 56th Infantry Regiment, five batteries of artillery (including important 175mm guns) and several huge supply dumps to the NVA. The following day, April 3, 1972 Dinh identified himself as a communist agent as he broadcast propaganda on communist Radio Hanoi:

> "I have returned to the National Liberation Front. ARVN troops return to the NLF. The American-Thieu gang is going to lose the war. Refuse combat orders . . . you must not fight the NLF . . . save your life."

When the 308th NVA Division and three leading regiments struck the 3rd Infantry Division's spread out defenders the ARVN defensive array folded like a house of cards. By April 2, 1972 the NVA had reached the Cua Viet-Cam Lo River line having seized thirteen fire bases, a combat base, and fifteen artillery pieces.

Suddenly the NVA had compressed the 3rd ARVN Division into a breast-shaped salient with its nipple end twenty-five miles from the coast. The breast itself was fifteen miles deep from Dong Ha to Fire Base Nancy, located ten miles south of Quang Tri City.

Bearing down on the strategic Dong Ha bridge was the mass of NVA troops, preceded by an armored regiment. Defending the bridge was a single ARVN armored battalion which soon panicked and fled, leaving behind a brave ARVN marine battalion to defend the bridge (see Barrie Lovell's "Incoming!" Scenario - The Fight for National Route 1). That battalion held long enough for an American adviser to blow the bridge in the face of NVA T-54, T-55 and PT-76 tank companies. In the meantime, the 57th ARVN Regiment broke and streamed south in panic.

General Lam, commander of all ARVN troops in I Corps, was both incompetent and a suspected NVA deep agent. Lam's sabotage of the ARVN effort began to become strongly apparent during the Lam Son 719 Campaign of 1971. His "errors" were just subtle enough to be viewed as either mistakes or misguided thinking - a frequent refuge of traitors.

General Lam was a prototypical American-style general. He was heavy on administration and the good life, and very light on military arts. When given an order by Saigon, he simply passed it on, verbatim, to

his subordinates. If his troops "got in a jam," he depended upon the Americans, and the expending of greater resources, to solve the problem. Lam preferred defending bases with his artillery fragmented into two-gun batteries and scattered in numerous locations. He also tended to reinforce failure the same way American generals did. Lam didn't hesitate to commit his troops piecemeal to reinforce defense lines either.

Even as the evidence of General Giai's incompetence began to mushroom, General Lam reinforced the 3rd ARVN Division. By April 2, 1972 the 3rd had the 147th Marine Brigade and the 1st Armored Brigade attached. By April 10, 1972 the 258th Marine Brigade and four multi-battalion ranger groups had also been added to General Giai's command. His span of control became unmanageable, with ten major regimental formations and an M48 tank battalion under his command.

On April 9, after the ARVN line had been driven in another fifteen kilometers, General Lam was quite optimistic. He decided to counterattack, naming his counteroffensive Operation 'Quang Trung 729'. ARVN commanders at regimental and brigade level began arguing among themselves and the counterattack fell apart. Then another ARVN officer's operational sabotage occurred:

> "On his own initiative, the 1st Armor Brigade commander directed his 20th Tank Squadron (M-48 tanks) on the Cua Viet line to pull back south. As soon as they saw the tanks move south, ARVN troops were gripped with panic, broke ranks and streamed along. The Cua Viet defense, along an unfordable river, had been abandoned. It was virtually handed to the enemy on a platter."

By April 23, 3rd ARVN Division was defending a pocket around Quang Tri City.

Attacks by the 324B NVA Division out of the A Shua Valley cut Route 1 and isolated the 3rd ARVN Infantry Division in Quang Tri Province. General Giai sent an armored cavalry battalion south which failed to break through.

On April 28, the 1st ARVN Armor Brigade broke and streamed south.

Now as the NVA closed in around the pocket of ARVN troops south of Quang Tri City, the corps commander, General Lam, added to the confusion. He issued a string of hyperactive, contradictory orders which served to immobilize the remaining ARVN troops. On April 29, an inventory of South Vietnamese army troops available for the defense of Quang Tri was logged as follows:

- 20th Tanks: Eighteen M48A3 tanks operational. . .
- 57th Regiment: Approximately 1400 men...
- 4th Rangers: Approximately eighty men...
- 5th Rangers: Approximately 600 men...
- 13th and 17th Cavalry Squadrons: Two thirds of combat vehicles still operational...

On April 30, the ARVN 147th Marine Brigade fled south out of the Quang Tri City area as the ARVN

defense lines collapsed. American helicopters rescued the 3rd Division commander who was fleeing south in an armored personnel carrier.

By the evening of April 30, 1972 the NVA controlled all of Quang Tri Province and sent several spearheads into neighboring Thua Thien Province. They were seeking a linkup with NVA forces which had already cut Route 1. Hue City was the next target as two NVA corps groupings converged upon it.

ARVN Defense of II Corps

In 1971 General Ngo Dzu, ARVN II Corps commander, began reconnoitering the area east of NVA Sanctuary Base 609 and the Triborder War Zone. Infiltration corridors leading from the Triborder and the Plei Trap Valley, fifty-five kilometers west of Kontum City, were scouted by area reconnaissance troops. Signs of an enemy offensive buildup were soon detected. Enemy tank units, along with 122mm and 130mm artillery, were discovered in the border area. The 320th NVA Infantry Division was also found there.

General Dzu, who was not a traitor to his country, ordered Colonel Le Duc Dat to reinforce his 22nd ARVN Infantry Division in the Tan Cahn-Dak To area. The 47th ARVN Regiment and the 19th ARVN Armored Cavalry Battalion moved in, joining the 42nd ARVN Regiment already dug in near the junction of Routes 1 and 512. As B-52 bombers bombed suspected enemy buildup areas, the 2nd ARVN Airborne Brigade occupied a string of fire support bases on Rocket Ridge.

By February 8, 1972 the preparations for the NVA offensive were completed.

T'he ARVN high command expected the NVA to make their main effort in the Central Highlands, perhaps limiting their offensive to the II Corps area.

Across the border in Cambodia, the NVA B-3 Front lined up its forces for an enveloping attack north and south of Dak To. On the northern flank the 320th NVA Infantry Division, with the 64th and 48th Infantry Regiments and the 203rd Tank Regiment, deployed. To the south of the 320th Division, the B-3 Front deployed the following units:

- 2nd NVA Infantry Division with the 1st, 52nd and 141st Infantry Regiments.
- B-3 Front Independent Regiments including the 28th, 66th and 95B Infantry Regiments, and the 40th Artillery Regiment.

In mid-March, 1972 the B-3 Front struck the South Vietnamese along Rocket Ridge and near Ben Het where most of the available ARVN armored units were dug in as mobile pillboxes.

From the 10th to 19th of April, the 2nd ARVN Airborne Brigade fought desperately to hold Rocket

Ridge. By April 23, Tan Canh and Dak To were surrounded by North Vietnamese forces with Soviet Sagger antitank missiles added to their infantry antitank weaponry. Those Saggers destroyed most of the ARVN M41 tanks dug in around Tan Canh.

On April 24, a column of NVA T-54 tanks bypassed Dak To and hit Tan Canh as part of a combined arms assault. The ARVN troops panicked and fled. Then Dak To, five kilometers to the west, was hit by an NVA combined arms assault spearheaded by tanks. By that evening, the 22nd ARVN Infantry Division was routed. Its scattered fragments fled through the jungle, leaving Dak To and Tan Canh to the NVA victors. The NVA then spent a few days inventorying their captured loot which included twenty three 105mm howitzers, seven 155mm howitzers, a number of M41 tanks and about 15,000 rounds of artillery ammunition.

On April 25, ARVN forces abandoned Rocket Ridge and retreated toward Kontum City, now defended by the 23rd ARVN Division commanded by the capable Colonel Ly Tong Ba. Colonel Ba set about training his troops in antitank warfare since the South Vietnamese now knew that the 203rd NVA Tank Regiment was spearheading the NVA offensive. The US 1st Combat Aerial TOW Team (antitank) arrived by mid-May to help fight the enemy armor.

On May 14, the NVA hit Kontum with four infantry regiments and part of their armored regiment. The first NVA assault was repulsed with the aid of American airpower.

On the 26th of May, the 320th NVA Division attacked along Route 14 due south toward the west side of Kontum. Its forces included the 48th and 64th Regiments and the 28th Regiment from the B-3 Front, as well as armored units. The ARVN 44th and 45th Infantry Regiments defended against the 320th NVA Division.

The 2nd NVA Division outflanked Kontum, striking it from due north with the 1st Regiment, and from due south with the 141st Regiment which had crossed the Dak Bla River. 2nd NVA Division troops seized two bridgeheads in Kontum. In the north they drove the 53rd ARVN Regiment back. In the south, they defeated a scratch ARVN regiment defending Kontum's southern outskirts.

At that point American airpower, including B-52s, intervened on a massive scale. The ARVN 8th Armored Cavalry Squadron reinforced Kontum's defenders, forcing the NVA to begin to withdraw on May 31, 1972. However, violent skirmishing continued with NVA advance detachments who had cut the roads around Kontum. That stranglehold wasn't broken until June 19. Then fresh ARVN armored cavalry units began to drive the enemy westward.

T'he 3rd NVA Division in Binh Dinh remained dormant during the offensive. With its 2nd, 12th and 31st Infantry Regiments, it moved northward to a location contiguous to the border with I Corps, near coastal Route 1.

ARVN Defense of III Corps

ARVN III Corps' intelligence assets detected NVA troop movements in February and March, 1972. The 9th NVA Infantry Division moved into the Fishhook (Base Area 708) in March with its 272nd Regiment. Then the 9th Division's 95C Regiment disappeared.

Rumors circulated that the 7th and 9th NVA Divisions, currently training their troops in urban warfare, might cooperate in a future offensive action. Captured communist recon troops revealed an NVA plan to attack through Tay Ninh City toward Binh Long. To protect that area, ARVN III Corps Headquarters activated Task Force 52 composed of two infantry battalions of the 52d Regiment, 18 Division and two artillery sections (105mm and 155mm) and deployed it at a fire support base on Interprovincial Route LTL-17, two kilometers west of QL-13 and 15 kilometers north of An Loc.

Transfixed with the assault on I Corps, ARVN headquarters in Saigon was surprised when a new NVA offensive was opened in III Corps. NVA troops began driving south-eastward on April 2, 1972. The 24th NVA Regiment (Separate), reinforced with tanks, hit the Lac Long FSB thirty-five kilometers north-west of Tay Ninh City. Lac Long was defended by one ARVN battalion. The NVA overran the base by mid-day. Following closely behind the 24th NVA was the 271st NVA Infantry Regiment. Suddenly two NVA regiments were poised along Route 22.

As the South Vietnamese looked worriedly to the west, an NVA corps continued to maneuver into assault positions in the north. In Cambodian Sanctuary Base 712, a few miles north of Loc Ninh, an NVA north assault force assembled. It was composed of.:

- 5th NVA Division with its 174th, 205th and 275th Infantry Regiments.
- Supporting the 5th Division was the 203rd Tank Regiment (it had the same number as another tank regiment in II Corps), the 208th Rocket Regiment, the 42nd Artillery Regiment and the 271st Antiaircraft Regiment.

The 5th NVA Division's mission was to drive down Route 13 to seize Loc Ninh. Then, after flanking attacks were launched by the 7th and 9th NVA divisions, to move off Route 13 to the east enveloping An Loc. On the west flank of Route 13, due west of An Loc, lay Sanctuary Border Base 708, where another NVA assault force was assembling. It was deployed as follows:

- 9th NVA Division with its 95C, 101st and 272nd Infantry Regiments supported by the 202nd NVA Tank Regiment.
- 7th NVA Division with its 141st, 165th and 209th Infantry Regiments.

The mission of the 9th NVA Division was to move west, hitting An Loc from the west and north, while the 5th Division struck it from the east. Simultaneously the 7th NVA Division was to cut Route 13 south of An Loc, at Binh Long.

Now the South Vietnamese were threatened from two directions. Two northern NVA offensive prongs were made more dangerous by two NVA regiments which threatened the ARVN right flank along Route 22. South of Saigon, the NVA deployed a divisional size force with no apparent mission. The 33rd and 274th NVA Infantry Regiments, along with the 74th NVA Artillery Regiment, were probably poised to attack Saigon from the south once the NVA divisions attacking north of An Loc reached the outskirts of Saigon. Also available to the southwest of Saigon, were the 86th NVA and the DTI Viet Cong Regiments.

On April 4th and 5th, the 5th NVA Division penetrated Loc Ninh, spearheaded by a tank battalion. As Loc Ninh was overrun, retreating ARVN defenders were ambushed south of the town. On April 7th, 5th NVA Division troops took Quan Loi airfield north of An Loc as red spearheads neared the outskirts of An Loc. Both the 5th and 9th NVA Divisions then stalled outside of An Loc. They were experiencing severe logistics problems, having consumed all of their area supply caches, and they were reeling from B-52 aerial bombardment.

The NVA's week-long pause outside of An Loc enabled the South Vietnamese to bring in the 21st Infantry Division, which began to attack northward toward An Loc. In the meantime, the 7th NVA Division and elements of the 9th NVA Division were battling ARVN troops along Route 13 south of An Loc.

In late April, the 21st ARVN Division engaged the 10lst Regiment of the 9th NVA Division and the 165th and 209th Regiments of the 7th NVA Division. Five kilometers north of Tau O the ARVN 32d Regiment was stalled in front of a huge NVA blocking position, as explained by Ngo Q. Truong in 'The Easter Offensive of 1972':

> "the reinforced 209th Regiment of the 7th NVA Division whose fortified blocking positions, arranged in depth, held the ARVN 32d Regiment effectively in check . . . A blocking position called "Chot," generally an A-shaped underground shelter arranged in a horseshoe configuration with multiple outlets was assigned to each company. Every three days, the platoon which manned the position was rotated so that the enemy continually enjoyed a supply of fresh troops. These positions were organized into large triangular patterns called "Kieng" (tripods) which provided mutual protection and support. The entire network was laid along the railroad which paralleled Route QL-13, and centered on the deep swamps of the Tau O stream. The network was connected to a rubber plantation to the west by a communication trench."

Armed mostly with B-40 and B-41 rocket launchers, enemy troops from their seemingly indestructible positions stopped the 21st Division's advance for 38 consecutive days. Despite extensive use of B-52s, tactical air, and artillery, the 32d was unable to dislodge the enemy from this area. This stalemate continued until the enemy pulled out the 209th Regiment for his second attempt to capture An Loc.

The ARVN 21st Division set up a FSB for artillery support at Tan Khai, ten kilometers south of An Loc on Route 13. The 141st Regiment of the 7th NVA Division began attacking that base on May 20 and was continually repulsed throughout June.

Finally, massive B-52 strikes all over the NVA units and their rear areas began to tell. By May 14, 1972 the siege of An Loc was broken and the communist enemy reeled back toward Cambodia in defeat.

ARVN Defense of IV Corps

In early March 1972, the 1st NVA Infantry Division with its E44 Sapper Regiment and 52nd and 101D Infantry Regiments, were deployed in Kampot Province, Cambodia. It was poised to invade South Vietnam's IV Corps. To its right flank was the 211th NVA Armored Regiment and the Z15 NVA Infantry Regiment, north of Kien Tuong Province. Inside IV Corps, communist troops were deployed as follows:

- 18B and 95A NVA Infantry Regiments in the U Minh area.
- D l and D2 Viet Cong Regiments southwest of Chuong Thien Province.
- D3 Viet Cong Regiment scattered between Vinh Long and Vinh Binh Provinces.
- Dong Thap 1 Viet Cong Regiment located south of Route 14 in Dinh Tuong Province.

In mid-march communist units began moving throughout IV Corps. By April 1, 1972 they were deployed as follows:

- 95A NVA Regiment: An Xuyen Province, moving eastward.
- 18B NVA, DI Viet Cong and D2 Viet Cong Regiments: Chuong Thien Province, moving eastward.
- D3 Viet Cong Regiment: Vinh Binh Province.
- Dong Thap 1 Viet Cong Regiment: Dinh Tuong Province.
- 1st NVA Division moving toward the South Vietnamese border.

The two remaining ARVN divisions in IV Corps, the 7th and 9th Infantry Divisions, were panicked by the NVA maneuvers. Massive air strikes began to hit the 1st NVA Division as any hope of a major NVA offensive in IV Corps bombed into stagnation.

The Situation as of December 1972

American airpower saved South Vietnam from total defeat, yet NVA conventional units were not driven back into Laos and Cambodia. They now garrisoned huge tracts of land in every one of South Vietnam's corps areas. The South Vietnamese military did try to strike back at the communists in their newly secured South Vietnamese real estate. Two South Vietnamese marine brigades assaulted the coast of Quang Tri Province in December, 1972. They were opposed by elements of the NVA 325th Division, principally the 101st Regiment and the 48th Regiment of the 320th Division, both regiments supported by the 164th Artillery Regiment of the B-5 Front. The 164th was equipped with Soviet 130mm field

guns.

Between the 101st Regiment operating along the coast, and Quang Tri City, the NVA employed the 27th and 31st Regiments of the B-5 Front, as well as the 18th Regiment, 325th Division. The practice of assigning the same
numerical designation to more than one unit was not unusual in the NVA. The 101st Regiment, 325th Division,
was distinct from the 101st Regiment that operated in Tay Ninh and Hau Nghia Provinces under the control of
the Central Office for South Vietnam (COSVN).

NVA Control in I Corps, 12/72

Units	Provincial Location	ARVN Defenders
304,312,320,325 NVA Divisions 27, 31 NVA Regts	Quang Tri	Marine & Airborne Divs
324 NVA Division 5, 6 NVA Regts	Thua Thien	1st Infantry Div
711 NVA Division (3, 38, 270 NVA Regts)	Quang Tin	2nd Infantry Rgt.
2 NVA Division	Quang Ngai	2nd Infantry Div

NVA Control in II Corps, 12/72

Units	Provincial Location	ARVN Defenders
10 NVA Division (28, 66, 95B NVA Rgts)	Kontum	44 Infantry Rgt.
320 NVA Division	Pleiku	23 Infantry Div
3 NVA Division	Binh Dinh	22 Infantry Div

NVA Control In III Corps, 12/72

Units	Provincial Location	ARVN Defenders
272 NVA Regiment	Phuoc Long	9 Infantry Rgt.
95 and 272 NVA Regiments	Binh Long	
7th NVA Division 205 and 101 NVA Regiments	Binh Duong	5 Infantry Div.

271 NVA Regiment	Hau Nghia	25 Infantry Div.
274 NVA Regiment	Bien Hoa	
33 NVA Regiment	Long Khan	18 Infantry Div.

NVA Control in IV Corps, 12/72

Units	Provincial Location	ARVN Defenders
1st NVA Division	Kien Giang	44 STZ
18B and 95A NVA Regts. D2 Viet Cong Regiment	Chuong Thien	21 Infantry Div.
Dl Viet Cong Regiment	Phong Dinh	
D3 Viet Cong Regiment	Vinh Long	9 Infantry Div.
6 NVA Division (DT1 Viet Cong and 86 NVA Rgts)	Dinh Tuong	7 Infantry Div.
5 NVA Division (ZT1 Infantry and 74 Artillery Rgts)	Kien Tuong	

What Really Defeated the NVA During the Easter Offensive

It could be argued that the American Air Force broke the communist's will to drive on to victory during the Easter Offensive. At the tactical level many communist troops were killed by aerial bombardment, but the bombing alone could not have saved South Vietnam. Linebacker II, a strategic aerial bombardment of North Vietnam is what probably caused the NVA to cease their aggression.

According to military expert Sir Robert Thompson, if the Americans had not ceased bombing they would have won the war:

> "In my view, on December 30, 1972, after eleven days of those B-52 attacks on the Hanoi area, you had won the war. It was all over! They had fired 1,242 SAMS; they had none left, and what would come in overland from China would be a mere trickle. They and their whole rear base at that point were at your mercy. They would have taken any terms. And that is why, of course, you actually got a peace agreement in January, which you had not been able to get in October. Then the peace was lost at the negotiating table again. Decadent establishment elites caved in before the blandishments of a beaten, yet bravely arrogant foe. If the North Vietnamese had negotiated with tough, intelligent adversaries loyal to the best interests of America and South Vietnam, the NVA would have been outmaneuvered."

Are these statements merely exaggerations? Were the NVA really hurt by the bombing? Enough to cave in? Is that possible? The following is taken from U.S.G. Sharp, 'Strategy for Defeat':

"The Hanoi/Haiphong area was the obvious focus of the bombing effort. In the fields of logistics, communications, electric power and air bases, most of the lucrative targets were centered within ten or fifteen miles of those two cities. Transportation related targets and military supplies had high priority. A brief assessment showed the following results:

- the entire railroad complex of North Vietnam was severely crippled-to include damage to 383 rail cars, fourteen steam locomotives, 191 storage warehouse buildings, and two railroad bridges.
- the important railroad yard in downtown Hanoi was struck and badly damaged by laser-guided bombs. (This yard had been used by the North Vietnamese for years as a sanctuary, since they were able to bring railroad cars into the "off limits" middle of Hanoi. USAF had only been allowed to attack it once or twice during the whole war, and then it was quickly repaired.) The railroad shops and the warehouse area were also hit with laser-guided bombs, all of which went directly into the target area.
- the railroad yard at Gia Lam, two miles across the river from Hanoi and jammed at the time with loaded rail cars, was hit hard and extensively damaged.
- the Haiphong railroad siding was fairly well broken up and interdicted almost completely.
- the Kinh No complex, where the railroad from Thai Nguyen, and the northwest railroad come together to serve as the largest logistics grouping in North Vietnam, was well cleaned out. It was being used to assemble and redistribute cargo and contained many large warehouses packed with military supplies.
- the Yen Vien military complex and the Kep railroad yard were also hit heavily, and the Hanoi railroad highway bridge over the Rapides Canal interdicted.

"In addition, nine major supply storage areas - seven in the Hanoi area and two near Haiphong - were struck with excellent results. Vehicle repair facilities (the North Vietnamese used trucks by the thousands) received considerable damage, as did the nine port and waterway targets on the strike list. Furthermore, the electric power grid of North Vietnam was sharply compromised by the combined effect of the Hanoi power plant being hit by smart bombs . . . the Hanoi transformer station being rendered inoperative, and the Viet Tri thermal power plant and two other big power plants (one at Uong Bi and one just northwest of Hanoi) all being successfully struck. The main control buildings of the Hanoi radio communications center (where the transmitters were located) were also damaged. Finally, ten airfields, mostly around the Hanoi area, were struck in order to ensure that aircraft operations from these fields would be interdicted, and a number of surface to air missile sites were put out of commission. Most importantly, all of this damage was done in eleven days of concentrated attacks. There was no respite for the North Vietnamese the shock effect was tremendous. Aerial bombardment had worked."

Historians are still arguing as to whether America ground forces could have beaten North Vietnam in 1967 and 1968 if the US Generals had known how to fight a maneuver war. By 1972 however, the NVA had such powerful ground forces of it's own that the remaining US forces and the South Vietnamese combined would have had a hard time beating them on the ground. The only hope for victory was a weapon that had never properly been used before, strategic airpower. If American air attacks had been continued, hitting every dam, port, road and enemy military installation, the NVA would have streamed home, starving. Then their divisions could have been obliterated on the roadways.

Book Reviews



Reviews by Mike R

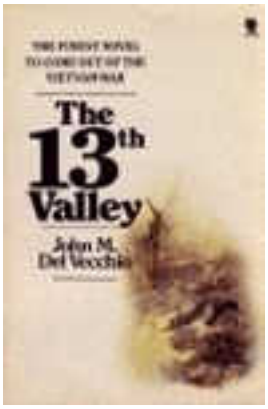
- We Were Soldiers Once and Young
- Dispatches
- The Rise and Fall of an American Army
- Summons of the Trumpet

Submitted Reviews

- The 13th Valley
- The Magnificent Bastards
- Chickenhawk
- PAVN
- Operation Buffalo
- The Rifleman: Unit History of 3RAR in Vietnam 1971
- The Battle of Long Tan
- War Story
- In Pharaoh's Army
- Mobile Guerrilla Force
- The Long Range War
- Dak To
- Once a Warrior King
- All Guts and No Glory
- Tell Tale Hearts
- A Lonely Kind of War: Forward Air Controller Vietnam
- Company Commander, Vietnam
- The Mad Galahs
- Blackjack-34
- Green Berets in the Vanguard
- MIA Rescue: LRRPs in Cambodia
- War Stories of the Green Berets

The 13th Valley

John Del Vecchio, Published by Sphere Books, ISBN 0-7221-8837-4



This book has been heaped with praise and I must admit with some justification, Charting the events of a company, though more through the eyes of a cherry, it deals with the events leading to a climatic battle. The author, a vet himself, very vividly portrays what life is like in the hot jungle, His action scenes of ambushes, artillery actions and overrunning night positions are very good, However I must admit what a lot of rubbish he has the men talking about, okay some of his soldiers do talk about home, beer and sex, but heavy debates on politics and philosophy in the middle of a rotting jungle? I thought it to be really out of character.

This book though is a wargamers dream. It is also still in print, though I found a copy in a car boot sale... ignore the conversations and read it for the action and operational descriptions.

My rating = 4/5

Simon Haines

PAGE TOP

Operation Buffalo - USMC Fight for the DMZ

Keith Nolan, Published by Dell, ISBN 0-440-21310-X

This author, though a teenager at the time, has to be rated one of, if not the best, authors on the Vietnam war. After talking to Vets who had been in the action, this book tells it from there point of view, His books are not dry history, you get into the hearts and minds of the men. You suffer there pain and enjoy their laughter. This book deals with a battle which is more like World War Two, artillery, tanks, flamethrowers, air and sea support, Marines on a sweep are overrun and slowly picked off. The relief column, like the cavalry, is hit hard, Single men or squads are surrounded and fight off NVA regulars. The only downside is that during the book I feel more maps could have been used. Keith Nolans books are very highly recommended and, on a more personal note, it is also the book which recounts my cousins role in the battle and subsequent death.

In memory of Corporal Robert L. Haines 1/9th Marines

A tribute to my cousin from someone who knew him just prior to his death has been posted at

http://www.geocities.com/Pentagon/2311/illfind.html

Simon Haines

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The Magnificent Bastards

Keith Nolan, Published by Dell, ISBN 0-440-22162-5

This book covers an action near the DMZ with the NVA and initially Marines of the 4th Division and then men of the Americal Division. Once again Nolan has interviewed the men on the ground in that action of 1968. The NVA had been planning on trying to overrun the Dong Ha supply base, when, during a night action, they literally crossed the path of the 2nd battalion 4th Marines. This set into motion an amazing and bloody battle.

This book is, as I have said about another book by Nolan, a wargamers dream if he studies it... well entrenched NVA fight off whatever the Marines throw at them so throw your morale rules out. This is close quarter action with lots of fire raining down on both sides.

It's through Nolan that you understand how these men felt, lived and unfortunately died. I also have great respect most of the time for the NVA, what they suffered and threw back is amazing. The characters are real, this is no story.

Since the first book of Nolan's that I read, I have been captivated by his writing and the willingness of men to have their good and bad bits put into print. His book Operation Buffalo treated my cousins death with, I suppose, respect in what appears to have been a massacre. Nolan never over glorifies or glamorises the action as he allows the men to tell their tales

The Americal Division has had some pretty unsavory things written about it. These are, as most myths, without foundation, Their actions at Nhi Ha in this book show how well they fought against the palace guard, as with most battles through history there is utter confusion. Unfortunately the maps in the book do not help as they give no real scale or terrain. The Navy and Air force get a look in, and I feel that a special mention should be made of the corpsmen and the doctors who worked in terrible conditions and with overwhelming casualties. I am also surprised that in '68 the M16 was still as bad as it had been initially. At one stage a company of the Gimlets (Americal Division) had nearly all their M16's jammed (not something I would be too happy about). I wonder if the M14 couldn't have been upgraded, or if the old SLR could have been used. At most stages the grunts are trying to get their hands on an AK47. It is Nolan's use of the survivors words that help these books, nothing is either added or removed.

Sometimes the truth will hurt, but this is better than it being hidden. His books also give us a painful truth about the lead figures we push around; we should respect the memory of the fallen and not treat what we are doing too lightly Remember, the man next to you may be a Vet.

Simon Haines

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DAK TO... 173rd Airborne in the Central Highlands

Edward Murphey, Published by Pocket Books, ISBN 0-671-52268-X

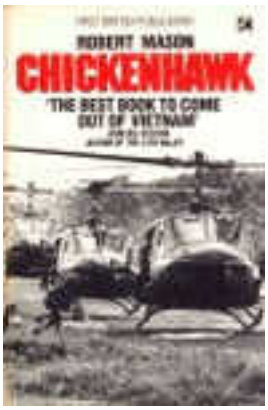
Written in the style of Keith Nolan, this book charts the actions around the mountain hamlet of Dak To in the Central Highlands. The action forced 3 NVA regiments to miss the Tet offensive of '68. Operating without food and water and surrounded, US platoons fought literally hand to hand with the NVA.Tthe book manages very well to convey the fighting and the events that led up to it, With almost fictionalized quality, the book does suffer from lack of maps, and sometimes I felt lost trying to remember who was where. It also gives a where are they now section and a brief background to the sky soldiers. All in all a book to get, although I fear it is now out of print, Maybe Bol or Amazon may be able to help.

Simon Haines

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Chickenhawk

Robert Mason [New York : Viking, 1983 / London : Corgi Books, 1984], ISBN 0-552-12419-2



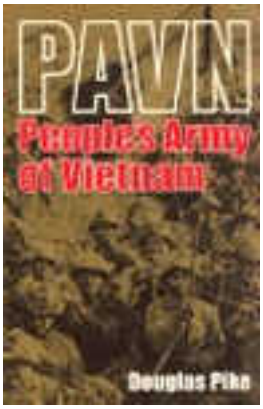
Like so many other books, this one is dubbed "the best book to come out of the Vietnam war" by none other than John Del Vecchio (I suppose that the author of the "finest novel to come out of the Vietnam war" quote which appears on The 13th Valley's cover is Bob Mason ;-). Hype notwithstanding, it is in fact a very good account of a slick pilot's tour in the 1st Air Cavalry Division's 229th Assault Helicopter Battalion between August 1965 and July 1966. The names of the men described have been changed, as seems to be the name of the second unit the author served with (49th Aviation Company "Prospectors" in Phan Rang) which is not a unit I was aware of, but both the chronology and geography appear to have been respected.

Nowfel Leulliot

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PAVN : People's Army of Vietnam

Douglas Pike (Novato : Presidio Press, 1986 ; reprinted New York : Da Capo Press, 1991)
ISBN 0-306-80432-8



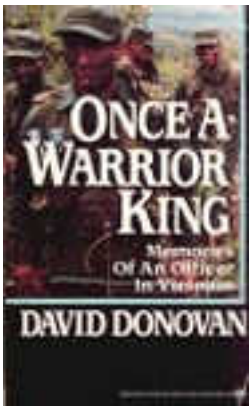
This is an excellent synthesis of the doctrine, strategy, leadership and internal workings of the PAVN during and after the Vietnam War. The core of the book is the lengthy analysis of the political and military dau tranh strategy which made the PAVN's way of waging war so different to what the US Army had planned and trained for. Relying on extensive North Vietnamese primary sources, Pike goes a long way towards clearing up several misconceptions about the PAVN. Although you won't find anything about squad level tactics and weaponry in this book, I highly recommend it to anyone with an interest in the Vietnam war. As a matter of fact, I'd say that this is one of few books in the "must read" category.

Nowfel Leulliot

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Once a Warrior King : Memories of an Officer in Vietnam

David Donovan (pseudonym) [New York: Ballantine Books, 1986], ISBN0-345-33316-0

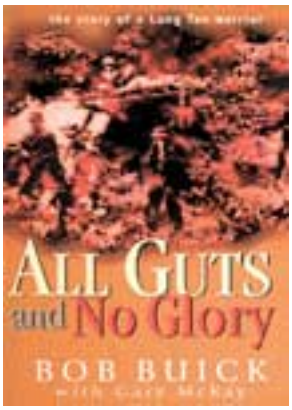


Written by a lieutenant assigned to a Mobile Advisory Team in Dong Tieng district (MACV Team 84, Kien Phong province) in April 1969 and later District Senior Advisor, this is a rather good account of the war in the villages, far from the large US units, air and artillery support. Despite its rather awful cover (I was expecting the worst when I picked that one off the shop bookshelf), it is in fact quite readable and offers some very good insights about the other war, the one fought by ARVN local forces. This book makes a welcome change from the more "typical" American accounts of hot LZs and major search and destroy operations. It would also make a good source of unusual scenarios or an interesting mini-campaign.

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All Guts and No Glory: the Story of a Long Tan Warrior

Buick B & McKay G. (Allen & Unwin, Sydney. 251p), ISBN 1-86508-274-0, $A27.50



I was pleasantly surprised to find this book at my local bookstore. The principal author, Bob Buick, was a key player in Australia's bloodiest battle of the Viet Nam War, the Battle of Long Tan, 18 August 1966. Whilst this battle has been covered in detail before, Bob Buick uses his presence at the battle to dispel myths and present a very personal point of view.

For the uninitiated, Long Tan saw a company patrol bump into a far larger Vietnamese force, around two thousand strong. The VC attempted to overrun the company, but were prevented by the discipline and artillery support of the Australians. The final casualty ratio has been estimated at 40:1. The battle ranks as one of the world's great military stands, and earned the company the US Presidential Citation.

The book does not solely concern Long Tan, but covers Buick's role in the 6th Royal Australian Regiment's 1966-7 tour, with a little bit before and after. Buick was the Platoon Sergeant of 11 Platoon, Delta Company 6RAR. This platoon bore the brunt of the action at Long Tan, and ended up suffering heavy casualties. The Platoon Commander was killed, and Sgt Buick had to take over, earning the Military Medal in the process.

The Long Tan battle was only a few months into 6RAR's tour, so the book feels as if the climax comes earlier than it should. Nevertheless, the description is vivid: tracer like fireflies, incessant noise and a monsoonal thunderstorm. 11 Platoon is down to nine effectives from a starting strength of thirty-three, with a broken radio and less than five rounds each. They prepare for a last stand by having their machetes and shovels to hand. As the VC pull back, 11 Platoon makes a dash for safety, with only seven making it back to the Company.

The Long Tan battle is the highlight of the book. Bob Buick was not only a combatant there, but a key player. His account is unpolished. He speaks his mind in best enlisted Digger fashion. He has little thrift for the protesters he still considers 'traitors'. He tells how he punched out an officer who was disrespectful to the dead the morning after Long Tan. He describes a few friendly fire incidents, and the recollections he has of shooting severely wounded VC. Buick makes a strong campaign for better recognition of South Vietnamese awards and decorations.

Buick presents a background to the conflict, and also his thoughts on the different methods employed by the American and Anzac forces. This is well presented and is good reading for those interested in overall tactics and strategy.

A good aspect of this book is the references to forms of post traumatic stress disorder (PTSD). In

particular, Buick himself found that at reunions he had trouble recognizing many of his former soldiers because he had not wanted to get emotionally close to them and then see them killed. This comes out in the text: there are few references to his men and it is here, in my opinion, that the book is weak.

Buick constantly uses the phrase, 'survival in war is 95% training and 5% luck'. The other phrase which caught my attention was that 'being in the artillery is like making love with the lights off: you never get to see how much joy you give the other person'.

Other features include the inclusion of many photos I had not seen before, an index and a glossary of terms and acronyms.

I recommend this book to anyone who has an interest in the action at Long Tan, or the Australian involvement in the war. I would not recommend this as the first book to read on the conflict, preferring Gary McKay's '*In Good Company*', and Lex MaCauley's '*The Battle of Long Tan*'. However, this makes excellent accompanying reading.

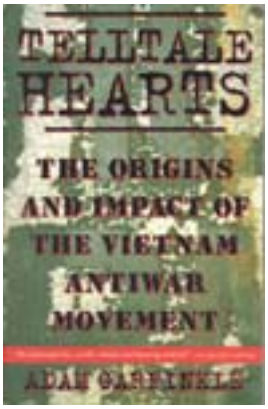
Rating: 8/10

John Barker

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Telltale Hearts - The Origins and Impact of the Vietnam Anti-War Movement

Adam Garfinkle, Published by Macmillan 1995, ISBN 0-333-69843-6



The primary thesis of this book is that the results of the radical anti-war movement were not that which is commonly held by both 'hawks' and 'doves'. Instead of it helping to turn the American public against the war, it served to prolong US involvement by marginalizing the anti-war perspective. Many who would have spoken against the continuation of US intervention in Vietnam at an earlier stage in the war did not do so because it would have meant being associated with the radical fringe whose 'drugs, radical left politics and free love' image was distasteful to a large section of the American public.

Garfinkle argues that the public opinion was led predominantly by the administration itself. When support began to degrade in 1968, it was not the Tet itself which triggered the slide. A month later in February a Gallup poll, which asked whether people considered themselves hawks or doves, resulted in 61% rating themselves as hawks and only 23% as doves. It was a dominant view that as a considerable cost in lives and dollars had already been incurred, the only way was forward. However after LBJs speech in March 1968 when he announced that they would attempt negotiations to end the war and halt the bombing, public support plummeted. The government had shown that it did not believe itself that the war could be won, and that the best outcome that could be hoped for was that the US could disentangle

itself with as little further pain as possible. In spite of this in 1970 the majority of the public still opposed a unilateral withdrawal from Vietnam, a stance more hawkish than the government.

He further believes that the war was winnable, and not through giving the military a free hand, as is now commonly argued. Much of US strategy ignored the principal objective - that of a non-Communist, democratic government in South Vietnam. The very scale of the US involvement undermined and corrupted the Saigon government and destroyed any nationalist credentials which it was entitled to claim. Furthermore military objectives are of little value if the ultimate victory which is sought is primarily a political one. If every military asset of the VC had been destroyed, but in the process the populace had been alienated and made hostile to the US and pro-American Vietnamese politicians, then the US would have failed. Success should have been counted in terms of friendly populace, not dead Communists.

Although this book has few military facts that would be useful to wargamers, its unusual approach to the politics underpinning the US administration's strategic decisions makes fascinating reading. It could also provide useful themes and political information for a Matrix style game or a map based campaign where the players control the whole of US involvement in RVN and juggle military and political objectives.

Aidan Boustred

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The Riflemen: Unit History of 3RAR in Vietnam 1971

Michael C. English, Australian Military History Publications (1999). ISBN 1-876439-54-8.

Firstly, I've never reviewed anything before, but have decided to give this a shot, given the excellent web site that Mike Ruffle has here and what appears to be interest in the Australian involvement during Vietnam, outside of Australia itself. So if you're reading this, good on you and here it goes...

The author Mike English served in 3 battalion on the units' second and final tour in 1971, as an infantry section commander. But don't get the idea this is one of those 'about my personal war in...' type semi-autobiographical histories. It's as simple as ' this is what the blokes in the unit did - and this is how they did it'. Don't expect a ton of blood pouring off the pages, with heroic exploits of western soldiers holding off the screaming hordes of Uncle Ho and the 'glorious revolutionary' sons of the Viet Minh either.

This book is pure fact and pure military history, written by a participant in that history who has

researched his topic from all sources, including plenty from the official military history. The Riflemen tells the unit history of the battalion, from the soldiers' level - low to the ground and tactical based. No-nonsense facts about the battalions soldiers and their role on operations. The book is written in such a manner that the reader might require a little foreknowledge of basic tactical principles, given that this is a wargames site, I don't imagine that would be a problem.

Mike takes you through from a bit of the strategic situation, a bit of political background and pre-Vietnam involvement in the theatre, to an operational deployment overview at the start, with a geography/terrain brief. This is followed by a description of the enemy and the battalions preparation prior to deployment - you get the feeling you've gone from the Staff room, down through the battalion int section for a sitrep and finally, your section commander is giving you an orders group. I like the way that's done, because from then on you're working with the sections and platoons out scrub...

The Riflemen contains a roll of honour, a nominal roll, complete bibliography and appendices including after action reports, plus more. There are plenty of diagrams, maps and photographs (all black and white), within the 182 pages of this hard-backed documentary. At the time of writing this review, Mike is working on a book about the Battle of Balmoral - another study of 3RAR, this time on the first tour in 1968.

I'll leave it up to someone more qualified to give a rating, but put it this way - this is the type of book any infantryman in any army should have read prior to going on operations. I don't know where you would buy it off the shelf, but the site address from where I got my copy is: www.warbooks.com.au or e-mail warbookshop@bigpond.com. Price at this time is AUS $33.00, including Australian post and that lovely new GST...which shouldn't bother anyone from overseas given the current value of the Aussie dollar.

Regards, Craig Burnett 08/11/2000

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Company Commander: Vietnam

By Col. James Estep. ISBN 0-89141-410-X

"Candid and vivid……An impressive book." Publishers Weekly

Having read this book several times I would have to agree with the above statement, Company Commander: Vietnam (CCV) is an excellent book and deserves a place in any Viet-philes library.

CCV chronicles the four tours in Vietnam taken by it's author James Estep. It commences with his third tour in late 1967 with the Fifth Cav. He takes over a 'hard luck' company operating in and around 'Happy Valley'. The narrative and interactions between the author and his platoon commanders and especially his company NCOs gives a flavour of the optimism still felt among the majority of the troops and the frustration felt by career soldiers (some WW2 and Korea vets) at the nature of the conflict.

The middle section of the book covers his two previous tours in '63 and '65 with Special Forces Command in the 'advisory' phase of the War. This section deals with the use of Montagnard forces in the attempted control of the Ho Chi Minh trail and the difficulty in operating in such dense terrain with next to no support.

The third section covers his fourth and final tour with the ' the Cav ' starting in January 1968, just in time for Tet! This section covers the operations through the Tet period up to his medevac in March 68. This section has a lot more combat and shows the slow decrease in troop morale although it has to be said that the whole book is written in a relatively upbeat style.

The concluding part of CCV deals with his hospitalisation and final return to 'Nam as part of the Army Advisory Group in '72.

CCV is excellent in its descriptions of the engagements between combatants and conversations between officers and NCO's within the company. Even when it becomes slightly anecdotal in the middle section, it holds the readers interest throughout. As mentioned, the book is predominantly written in an upbeat and positive style and, while not what has become expected of a Vietnam memoir, offers an interesting counterpoint to the bleaker and pessimistic books that have gone before. Quite simply, a must read book.

Matt Spooner

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The Battle of Long Tan

By Lex McAuley. ISBN: 0-09-952530-5

"The heroism, fanaticism and fear come alive" – Queensland Times

Long Tan is the most famous of the battles involving ANZAC troops in Vietnam. A single company of Australians was engaged by a force of VC approximately 25 times as strong but supported by judicious artillery, the Australians fought them off for three hours until the VC were beaten and retreated.

Lex McAuley's book chronicles this battle and provides a comprehensive overview of the build-up to the battle and the aftermath of the engagement.

The book begins with an introduction to the conflict as a whole and the Australian commitment. It also provides background to the particular area of operations in which the battle took place.

McAuley's descriptions of the battle itself are excellent due to the fact that they remain largely objective but are lent a human touch by his use of the recollections of actual combatants involved in the battle. Their own testimony of the emotions and events of the battle give a superb insight into the chaos and bravery that occurred during those hectic 3 hours.

The narrative of the book is clear and reasonably concise and this coupled with a chronological layout makes for a very exciting read. A section at the end of the book where some of the 'myths and memories' of the battle are debunked through research or testimony of the survivors makes particularly good reading and additional information is laid out in the appendices including a full list of ANZAC personnel involved in the action.

The Battle of Long Tan is an excellent book and is of particular interest to anyone interested in the Australian involvement in Vietnam.

Matt Spooner

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ARVN Armored Forces



Armor of the South Vietnamese Army, Part II

New organizations, tactics and techniques, as well as new items of equipment were tested in combat throughout the country during 1963. Among the modifications made to the M113s at this time was the fitting of a gun shield to the .50 calibre machine gun. The deaths of at least 14 .50 cal. gunners at the battle of Ap Bac in January 1963 impelled the provision of greater protection. The first gun shields were fabricated locally from whatever materials were at hand. The 2nd ACR made some of soft steel plating from the hull of a sunken ship, but later replaced them with plates from surplus armored vehicles, mainly M3 half-tracks and scout cars. One crew of 4th Armored Cavalry Regiment at Da Nang even fashioned a gun shield from the bumper of a worn-out forklift truck. The 80th Ordnance Depot in Saigon quickly developed the idea and produced drawings and specifications for a standard gun shield. From 1964 these were fitted to all APCs before being issued to ARVN forces.

ARVN units also mounted M1919 .30 calibre machine guns, some with shields but most without, on the sides of APCs to increase firepower. Many M113s were fitted with machine gun turrets mounting twin .30 calibre guns in place of the .50 calibres. These cupolas were popular with ARVN troops, but the .30 calibre was inferior to the .50 calibre for penetrating earth and log emplacements, and the latter remained the standard weapons for APCs throughout the war. Other local modifications were also made with less success, like the mounting of an M8 armored car turret with its 37mm gun on the M113, or the installation of a 57mm recoilless rifle in place of the .50 calibre machine gun.



M-113 fitted with a 106mm RR



M-113 fitted with a 57mm RR

Unit reorganization and new equipment alone were not enough to bring about a change in the war. New tactics, better leadership, and improved training were needed to complement the increased firepower. When training lagged, overconfidence and poor leadership combined to teach some costly lessons.

The ARVN armored units were not only engaged against the Communist guerrillas, but also in the changes of government in Saigon. On 1 November 1963, the 1st ACR and the vehicles from the Armor School at Thu Duc supported a coup that overthrew the Diem regime. The regular implication of the ARVN armored units in politics led their detractors to name them "coup troops". In the same vein, tanks were called "voting machines". In fact, the rapid expansion of ARVN armored units caused some consternation among the political establishment in Saigon, who knew from bitter experience that they only remained in power at the sufferance of the Armor Command. This situation persisted until the late 1960s when the ARVN armored corps officers became less political and the tank squadrons were used more effectively rather than being deployed in static defense at regional political centres.

In December 1963 two regimental sized armored units were activated. The 5th Armor Group, later re-designated the 5th Armored Cavalry Regiment, and the 6th Mechanized Battle Group, later redesignated the 6th Armored Cavalry Regiment, were both assigned to the ARVN high command as a general reserve. Later, in March 1964, two more mechanized rifle squadrons were formed at the Armor School. They completed their training in October. These additions made a total of fourteen operational mechanized rifle squadrons.

Most American armor advisors were impressed by the technical proficiency of the ARVN units. The singular most consistently praised characteristic of ARVN armored troops was their ability to perform individual and unit maintenance on vehicles and weapons; advisors commended them for keeping equipment operational with very limited support. Without recovery vehicles, armoured units became extremely inventive. Since the supply system of the South Vietnamese Army was universally poor, the armored troopers became adept at scrounging replacement parts. Squadron and regimental mechanics performed such tasks as internal repair of starters, generators, radiators, and carburettors, maintenance normally accomplished by ordnance units with the US Army. Deprived of aluminium welding, troops repaired holes and cracks in the hull of APCs with wooden pegs and cement. Banana stalks and ponchos were used to mend radiators in water-cooled vehicles. Despite an inadequate supply system, the lack of turret or support unit mechanics, and with the only replacement vehicles being in Saigon, units still consistently managed to field over 90 percent of their equipment. Combat maintenance units remained at a high level throughout the conflict.

Even with additional forces and equipment, however, the combat record of the ARVN armored units in 1964 was still uneven. One battle on the Plain of Reeds on 3 and 4 March 1964 ended in a resounding victory for the South Vietnamese and the capture of over 300 Viet Cong. In contrast, on 28 December 1964 the 9th Viet Cong Division seized the town of Binh Gia, sixty-five kilometres east of Saigon. During a battle that lasted several days, the ARVN Ranger and Marine battalions were severely beaten. The armored relief forces were ambushed and they too suffered heavy casualties. This battle was significant for both sides since it marked the general offensive launched by the Communist forces.

Almost at the same time that the Viet Cong began to appear in division-sized units, American forces began deploying in Vietnam. For the next seven years, US forces and their armored units would play the main role in the fighting, relegating the ARVN into so-called pacification missions.

By 1964 the superannuated M24 Chaffee, inherited from the French, had become more of a liability than an effective fighting machine. Spare parts were difficult to obtain and mechanical problems were legion, compounded by the necessity of sending engines to Japan for rebuilding. In January 1965, the old M-24 Chaffees were replaced with the M-41A3. Five squadrons were equipped and trained by the end of 1965. Although the first plan was to turn in the old M-24s, the relics became pillboxes at installations throughout South Vietnam, except for a dozen tanks under control of the South Vietnamese Air Force (VNAF) at Tan Son Nhut. In reality, this VNAF armored squadron was put under the direct command of Vice Air Marshall and Prime Minister Nguyen Cao Ky as a countercoup force. The M-41A3 proved an excellent choice and was popular with the ARVN. Its combination of rugged simplicity, mechanical reliability and responsive handling made it a very battle-worthy machine. The principal criticism of the tank in US service - cramped crew conditions - did not trouble the smaller Vietnamese. The M41A3 proved to be a potent fighting vehicle in Vietnam and gave admirable service in the hands of ARVN cavalry troopers. US sources indicated that more than 506 M-41A3s were delivered to South Vietnam throughout the war.



M-24 Chaffee

At the outset the Viet Cong were ill prepared to counter the M113, as this passage from a captured document reveals:

> 'The enemy APCs appeared while we were weak and our anti-tank weapons were still rare and rudimentary. We had no experience in attacking the APC. Therefore, the enemy's APCs were effective and caused us many difficulties at first.'

Initially the VC fled when confronted with M113s, which they dubbed 'Green Dragons' from their appearance as they moved rapidly over waterlogged paddy fields belching fire and smoke from guns and

engines. As time went by, the VC adapted their tactics to meet the menace. Holes were dug in Delta roads. Improvised explosive devices were placed at defiles and obstacle crossing points. Early in 1963 the Viet Cong were issued with HEAT ammunition for the Chinese Type 36 57mm recoilless rifle (copied from the US M18A1 of Korean War vintage), which soon became their principal heavy infantry weapon. During the year other anti-tank weapons were encountered, including the Polish PGN-2 anti-tank grenade fired from the AK-47 assault rifle and the powerful Chicom Type 52 75mm recoilless rifle (copied from the US M20).

As increased use was made of the M113**,** so VC anti-tank weapons proliferated, and by 1965 they were issued as low as company level in regular and provincial units. Most formidable of the VC armor defeating weapons was the Soviet RPG-2 and its Chinese derivative, the Type 56. The RPG-2 was superseded by the RPG-7, an improved rocket-propelled grenade of increased lethality and range.



Interior damage to an M-113 from a mine



Results of an RPG-2 hit on an M-113

The hollow-charge warhead was capable of penetrating a considerable thickness of armor as long as it struck at or near normal incidence and detonated at the proper standoff distance. M113s sustained approximately one penetration for every seven RPG hits. Hits in themselves averaged about one in eight to ten rounds fired due to the inherent inaccuracy of the weapon. M41A3 penetrations were proportionally less because of its superior ballistic configuration as compared to the slab-sided M113. Statistical analysis reveals that only one vehicle was destroyed for every seven penetrations and casualties were 0.8 per penetration. Nevertheless, this simple, cheap and effective weapon was a constant and serious threat to allied armor throughout the war.

The ARVN armored units continued to expand and were sometimes engaged in important operations. From 19 to 27 October 1965, the 3rd ACR, along with some Rangers, battled through to the relief of the Plei Me Special Forces camp southwest of Pleiku. Although ambushed en route by a PAVN (People's Army of Vietnam) regiment, the task force reached the camp, established a perimeter and stood off a heavy attack. It then counterattacked and drove away the North Vietnamese forces. Nevertheless, the armored troops demonstrated little aggressiveness, content instead to stand and fight as if they were in

pillboxes. Coordinated action between tanks, APCs and Rangers was almost non-existent. Leadership and control was still a long way from acceptable standards. Maintenance continued to be a bright spot, though, with all fifteen tanks returning from the fight.

Beginning in 1966, an extensive training program took place to improve the fighting standards of the ARVN armored units. The main obstacle that the US advisors had to overcome was the misuse of the armor. The ARVN senior officers either ignored or did not understand the capabilities of an armored force. The general situation and the effectiveness of the armored forces were only corrected in early 1968.

Plans for the ARVN for the period 1965-1966 called for the formation of one V-100 armored car squadron and ten separate armored car troops and the replacement of units equipped with M-8s and older obsolete vehicles. Three of these troops completed training in May 1965, but structural flaws found in the V100 delayed their use for six months. Four new Armored Cavalry Regiments were created in 1966: the 7th ACR at Dong Ha, the 8th ACR at Ban Me Thout, the 9th ACR at Soc Trang and the 10th ACR at Cu Chi.



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Sources:

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North Vietnamese Army and Viet Cong



NVA ARMORED FORCES: PT-76

The ubiquitous PT-76 reconnaissance vehicle was introduced in 1952 and whilst it resembles a tank in all conventional aspects: that is, it has a fully enclosed turret-mounted gun and is fully tracked, its role is not that of a battle tank, but is strictly for scouting. In the Soviet Army it was used solely in reconnaissance companies and battalions and not in the Ground Forces tank battalions.



PT-76 Amphibious Tank

A unique feature of the PT-76 (Amphibious Tank-76mm Gun) is that it is one of the very few fully amphibious tanks now in service in the world. The PT-76 was unusually large for a light tank of this period, due mainly to the buoyancy requirements for its swimming capability. The hydrojet system allowed the PT-76 to cross rivers whose stream speeds were no greater than about 8km/h. It had a water speed of about 10km/h. The engine was simply a T-54 engine sliced in half, with six cylinders instead of twelve. It is propelled through the water by drawing in water through ports at the rear of the hull sides, and ejecting it at the rear. Its large boxy hull provides a reasonable degree of buoyancy for use in rivers and lakes, but, unlike the US LVTP-7 series of troop carriers, it is not really intended for use in heavy surf.

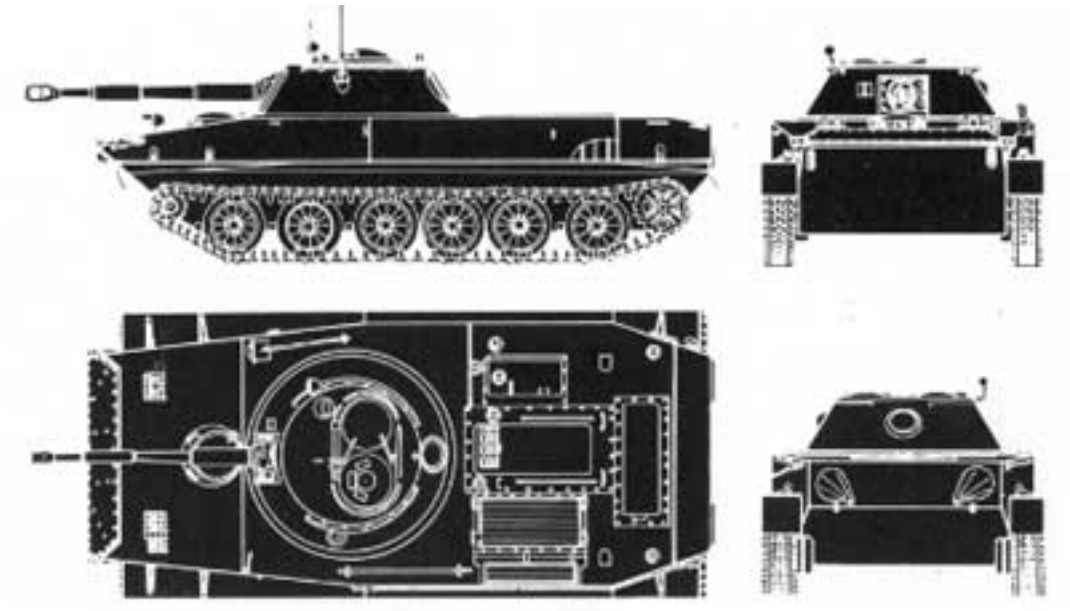
The main turret armament is either the D-56T with a multi-baffle muzzle brake on early production models, or the D-56TM with a more conventional double-baffle brake on later types. Not surprisingly, the PT-76 is very lightly armoured, at no point exceeding 1/2in (14mm), and its side armour can be

penetrated by shell fragments and even .50 calibre AP machine-gun rounds. PT-76s used in Vietnam were very vulnerable to air strikes. Nevertheless, it provided for a great deal of tactical mobility due to its excellent water crossing capabilities.

The basic chassis of the PT-76 has been used as the basis for a wide variety of other armoured vehicles, particularly armoured troop carriers such as the BTR-50 and indirectly it also spawned a later generation of light vehicles including the ZSU-23-4 Shilka air defence gun vehicle. The People's Republic of China produced a modified version of the PT-76 known as the T-60, which was fitted with a new turret, resembling a small scale T-54 turret, and armed with an 85mm gun. The hull was also redesigned to accommodate the greater weight of the new gun, but is similar in appearance.

Production of the PT-76 continued until 1967 by which time it was considered obsolete. It was a very large and conspicuous target and it was not well armed. A total of about 7,000 PT-76's were built, of which about 2,000 were eventually exported. The P'I'-76 was a popular export item in the 1960s and 1970s, being cheap and easy to maintain.

TECHNICAL SPECIFICATIONS



Crew	3
Weight (tonnes)	14
Length (m)	7.6
Width (m)	3
Height (m)	2.5

Ground Clearance (cm)	36
Ground Pressure (kg/cubic cm)	0.5
Gun	D-56T
Gun Calibre (mm)	76.2
Initial Muzzle Velocity (m/s) HE round	680
Depression/Elevation (degree)	-4.5 / 31
Ammunition Stowage	40
Max Vehicle Armor (mm)	14
Engine Type	V-6 diesel
Horsepower	240
Fuel Stowage (litres)	250
Fuel Consumption	1 litre/km
Max Road Range (km)	155
Max land Speed (Km/h)	44
Max water Speed (Km/h)	10



Return to PAVN Armour

US Special Forces



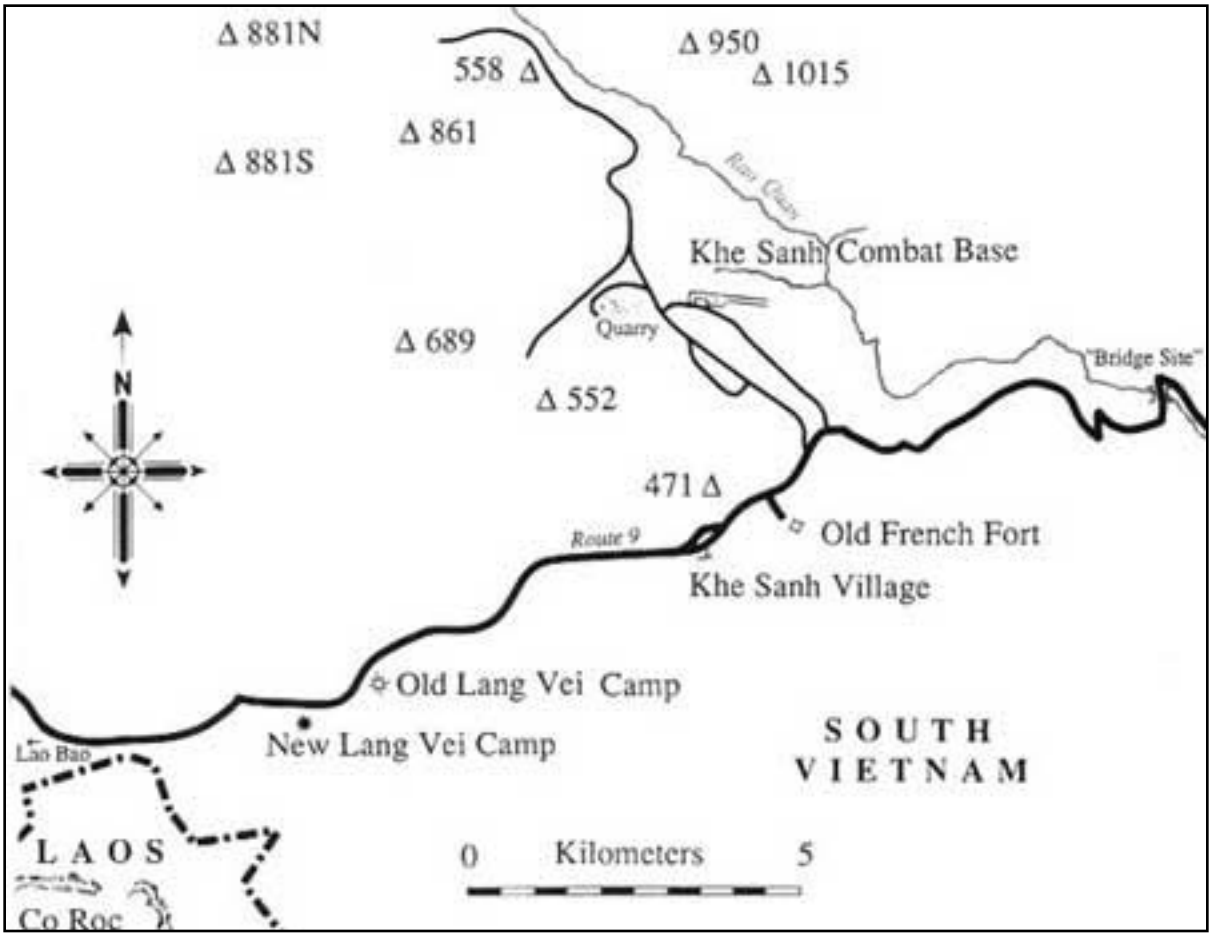
Lang Vei: Tanks in the Wire

Submitted by Rob Krott ©2000

During the Tet Offensive of 1968 SFOD-A 101's aggressive defense of the CIDG camp at Lang Vei, Republic of South Vietnam interdicted, disrupted, and attritted the 304th Regiment of General Vo Nguyen Giap's North Vietnamese Army. The assault on Lang Vei was the first use of armor against American ground forces in Vietnam...

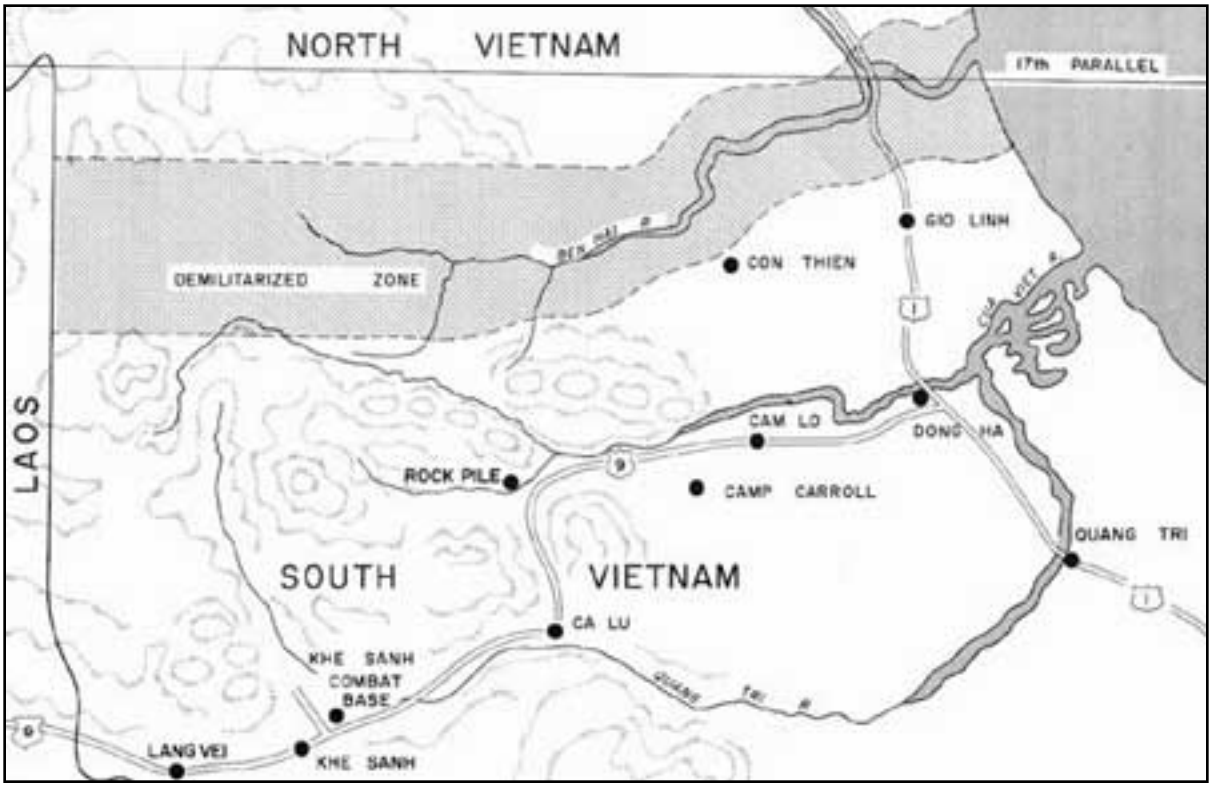
In early 1968, during the Tet Offensive, the North Vietnamese Army was losing the Battle for Hue and Giap thought a successful attack of the isolated Marine combat base at Khe Sanh would draw US forces away from Hue. Seizing Khe Sanh would also allow increased infiltration of NVA forces and equipment into South Vietnam from the Ho Chi Minh trail across the Laotian border. Overrunning the Marines at Khe Sanh would be a major defeat for US forces. It could be another Dien Bien Phu.

In Vietnam in 1968, Lang Vei was just one of the ten "A" camps of C Company, 5th Special Forces Group. Relatively unknown to most soldiers in Vietnam, it would soon make the front pages of Time and Newsweek. The A-team camps were normally manned by CIDG (Civilian Irregular Defense Groups) strikers, a South Vietnamese Special Forces Team (VNSF/LLDB), and a Special Forces Operational Detachment "A" Team (SFOD-A). The original Special Forces camp in that area of operations was established in Khe Sanh Village in July of 1962 (see Map 1). However, in December of 1967, SFOD-A 101 was moved west to Lang Vei from Khe Sanh so that the Marines could occupy Khe Sanh. The first camp named Lang Vei was abandoned on 4 May 1967 after NVA regulars, aided by CIDG infiltrators, penetrated the camp's defenses. The new Lang Vei was moved approximately 1,000 meters west and built to withstand another siege.



MAP 1: Showing Old and New Lang Vei in relation to the Khe Sanh Combat Base

SFOD-A 101 moved into the camp in September of 1967 and began operations. Lang Vei was situated only 1.5 kilometers from Laos and 35 kilometers from the DMZ. (see Map 2) It straddled Highway 9, just eight kilometers from about 9,000 Marines at Khe Sanh. Lang Vei's mission was surveillance of the Laotian border and the DMZ, as well as interdiction of enemy infiltration routes. To accomplish this task the camp commander, CPT Frank C. Willoughby, had four under strength rifle companies of Bru Montagnards and local Vietnamese, three combat reconnaissance platoons, a VNSF team, and his own thirteen-man SFOD-A 101. Altogether the troops defending Lang Vei totaled about 480 men.



MAP 2: Lang Vei in relation to the DMZ and laos

The camp was heavily equipped with crew served automatic and indirect fire weapons and had two 106mm recoilless rifles as well as one 57mm recoilless rifle for each of the four companies. One of the 106s was emplaced in the 2d Combat Reconnaissance Platoon's sector to cover the southern avenue of approach into Lang Vei from Lang Troai Village (see Diagram 1 below or click here for larger image 24Kb). The other recoilless rifle was positioned in the 3d Recon Platoon's sector providing flanking fires on any vehicle targets moving along Highway 9. Each 106mm recoilless rifle had over 20 HE rounds. Artillery support for the camp included sixteen 175mm guns, sixteen 55mm guns, and eighteen 105mm howitzers. Fire support was well planned - Willoughby registered a variety of concentrations, emphasizing likely avenues of approach and suspected enemy staging areas.

The buildup at Khe Sanh continued as part of GEN Westmoreland's plan to stop the infiltration of NVA units down the Ho Chi Minh trail and draw large concentrations of GEN Vo Nguyen Giap's NVA Divisions into a conventional set piece battle. Although many compared the deployment of forces at Khe Sanh with the French defeat at Dien Bien Phu, Westmoreland was confident that superior American technology and firepower would defeat the NVA. The Special Forces camp at Lang Vei continued its intelligence collection mission with the intent of providing early warning of the widely hoped for NVA attack.

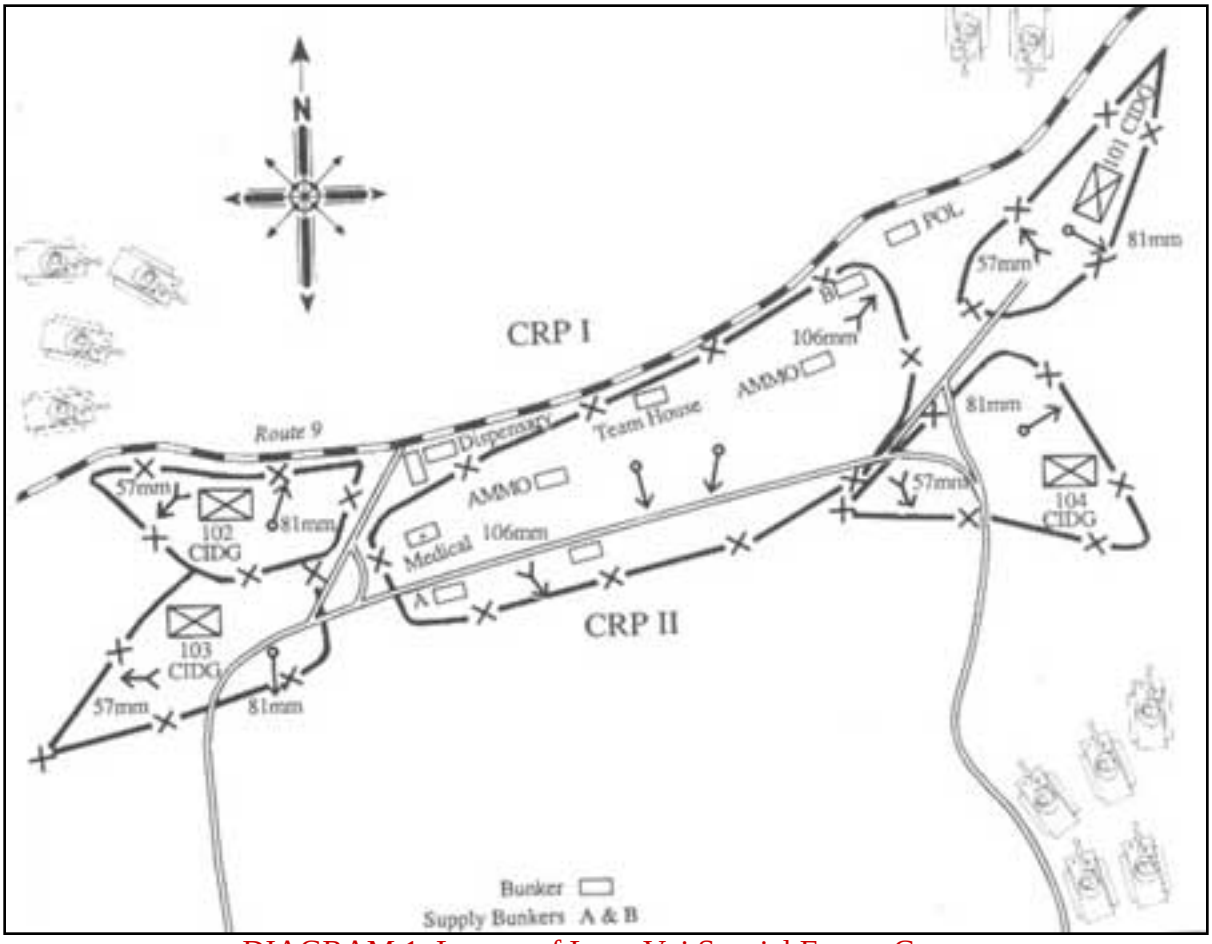


DIAGRAM 1: Layout of Lang Vei Special Forces Camp

Giap was also building up his forces in preparation for the Tet Offensive and by January of 1968 several NVA divisions encircled the Marines at Khe Sanh, putting the nearby, and more westerly, camp at Lang Vei at risk. During this NVA buildup Lang Vei's CIDG patrols encountered such heavy contact with elements of the NVA 324B Division that by December the indigenous troopers refused to patrol outside the camp's perimeter.

Willoughby needed help. Schungel’s headquarters sent help in the form of the Mobile Strike Force or "Mike Force" from the C Detachment in Ban Me Thuot. The Mike Force "strikers" were well-armed indigenous troops (in this case 196 Hre Montagnards from Ban Me Thuot) led by experienced Special Forces troopers. The Mike Force was trained to operate in the midst of enemy held territory. Many were qualified paratroopers. The Mike Force, while successful in their previous missions, had suffered heavy casualties and the remaining combat-hardened veterans of the Mike Force (under the command of 1LT Paul Longgrear) were airlifted into Lang Vei on 22 December. They immediately began running patrols into Laos. The Mike Force recon patrols soon produced results.

In January, they found an empty tank park just a few kilometers across the river, which contained fresh impressions of tracked vehicles. According to one of the Special Forces NCOs leading the Mike Force the reports sent to Khe Sanh and Saigon were dismissed by the brass as exaggerated or false...."You guys are just trying to make yourself look good. The NVA haven't got tanks!" On 24 January an Air Force FAC spotted five tanks along HWY 9 and called in an air strike destroying one vehicle.

That same day, Laotian troops of the 33rd Royal Laotian Battalion (sometimes referred to as the 33rd Laotian Volunteer Battalion) and their families appeared at Lang Vei. Their base at Ban Pho, just 12 kilometers from Lang Vei, was overrun two days earlier by elements of the 304th and 325th NVA Divisions. According to the Laotian commander the attack was led by tanks. Willoughby believed the Laotians fled at the very first sight of the enemy since their weapons were unfired and their column contained no wounded. With the arrival of the terrified Laotians the Special Forces troopers began to take the possibility of a tank attack very seriously and 100 LAWs (66mm Light Anti-tank Weapons)2 were immediately airlifted into the camp.

An NVA POW soon provided further confirmation of both the impending attack on Lang Vei and the presence of NVA armor in the vicinity. On 30 January 1968 NVA Private Luong Dinh Du wandered into Lang Vei. He walked right past the dozing Montagnard gate guards and into the team house, causing its somewhat disconcerted occupants to dive for cover. Private Luong was a rifleman from the 8/66 Regiment, 304th NVA Division. His unit had suffered heavy casualties in attacks against Marine positions around Khe Sanh, so he had deserted his regiment to " Chieu Hoi," surrender. Luong cooperatively answered the Special Forces interrogator's questions. Yes, he said, his unit was preparing to assault Lang Vei. As part of a sapper team he participated in a reconnaissance of the camp two nights previous to his surrender. Luong said he hadn't seen any tanks supporting his unit. He was turned over to Marine interrogators at Khe Sanh and after further questioning admitted he had heard the clanking of armored vehicle "tracks" which he thought were probably tanks.

Training on the newly arrived LAWs was limited to Willoughby's team and ten of the CIDG troops. After a live fire practice there were only seventy-five LAWs left. Unfortunately the Special Forces soldiers discounted the actual possibility of an armor assault on Lang Vei. They expected the tanks, when and if they came, to function in a fire support role by firing their guns from the cover of the jungle.

The camp defenses weren't designed to repel a tank assault. Lang Vei, situated on a small hill, had a dog-bone shaped perimeter. The camp, built under the 'fighting camp' concept, was surrounded by a chain link fence (to prematurely detonate RPG rounds) and a triple strand of concertina wire fifty meters wide laced with Claymore mines. Bunkers with overhead cover were constructed of sandbags and eight-by-eight timbers (a rarity in Vietnam.) All positions had good fields of fire and were mutually supporting. Each interior platoon or company position was ringed with additional wire and Claymores. Special Forces camps were designed to prevent their capture, like that at A Shau in 1966, by human wave assaults of VC or NVA coupled with an interior attack by CIDG infiltrators. The technique of prior infiltration of VC into the CIDG ranks was used in nearly every attack on a CIDG camp and was difficult to prevent where ethnic Vietnamese made up the strike force. Because of this there were no noncombatants allowed inside the camp's perimeter and the Laotians were initially disarmed by the Mike Force.

The Mike Force patrols began to make enemy contact daily. The Mike Force and Lang Vei companies were Montagnards of different tribes with the possibility of friction between the two groups so Willoughby stationed the 161 man Mike Force outside the camp to act as an observation post about a half-

mile to the west along Highway 9. The Mike Force was offered as reinforcements to the Marines fortifying Khe Sanh Village after a failed NVA attack on 22 January, because Willoughby wanted to maintain the only physical link between Lang Vei and the Marine combat base.

The Marines' commander, COL David E. Lownds, refused and the Marines withdrew to their combat base outside of Khe Sanh. The two Marine rifle companies assigned the contingency mission of relieving a besieged Lang Vei would have to move through a village now occupied by an NVA regiment. The Marine commanders at Khe Sanh remembered the Special Forces camp at A Shau, which had asked for Marine help as it was being overrun in 1965. Help never arrived and the survivors of A Shau were forced to escape and evade capture in the jungle for several weeks. The Marines promised that wouldn't happen at Lang Vei.

On 31 January a patrol from Lang Vei made contact with an estimated battalion of NVA near Khe Sanh village. This prompted Willoughby to strengthen his defenses by pulling two thirds of the Mike Force into the camp. The remaining Mike Force troopers remained in their observation post. A six-man Special Forces augmentation team flown in from Da Nang assisted the approximately 500 Laotians troops to refortify Old Lang Vei. The six Special Forces advisors provided food, ammunition, medical assistance, and barrier material to the Laotians.

Enemy activity around Lang Vei increased during the first week of February. The Mike Force patrols made contact daily. Willoughby knew attack was imminent when his camp received fifty rounds of 152mm artillery fire on the night of the fifth. On 6 February 1968 at 0042 hours the NVA assaulted Lang Vei. Sergeant John Early, a Mike Force platoon leader, heard NVA sappers outside the wire at 2230 that night and sent two Montagnards with bayonets to capture them for interrogation. As Early recounts the incident: "...a grenade exploded near the edge of ....(my) hole and a trip flare bathed the perimeter in whitish light. In the glow, (I) saw large numbers of the enemy rising from the ground, so many in the initial rush that they seemed to be standing shoulder-to-shoulder." The fight for Lang Vei had begun. The Lang Vei defenders could plainly see two tanks out in the open in the light of a trip flare.

At least nine, possibly as many as thirteen, Russian-made, PT-76 light reconnaissance tanks drove up to the Lang Vei perimeter. The armor came right up to the camp's wire. The NVA drivers casually climbed out and smoked cigarettes on the turrets before buttoning up and driving over the defensive perimeter. Standing in their cupolas the commanders gave orders to sappers cutting a hole in the wire-mesh fence. Both sides opened up at once. Lang Vei's assistant medical specialist, SGT Nickolas Fragos, was probably the first to see the tanks. Perched in an observation tower Fragos could see two North Vietnamese soldiers kneeling calmly in front of the lead tank, trying to cut through the barbed wire barrier in front of Company 104. He radioed Willoughby, telling him, "We have tanks in our wire!" Willoughby called Early for confirmation. Early confirmed Fragos sighting by yelling, "Jesus Christ, I've got five tanks and a couple of hundred gooks on top of me. They're all over the place, Get me some illumination," into his handset.

Willoughby was in the command bunker with LTC Daniel F. Schungel, the commander of Special

Forces in I Corps. Schungel was in camp as an act of diplomacy. The Laotian Lieutenant-Colonel refused to take "advice" from Willoughby, a company grade officer, so Schungel maintained a rotation of field grade Special Forces officers in Lang Vei. Tonight was his turn. The camp radio operator desperately yelled for help over the Marine artillery fire direction center frequency. He had problems convincing the Marines at Khe Sanh that Lang Vei actually had tanks attacking its perimeter. Meanwhile Schungel started organizing anti-tank teams and arming them with LAWs. Willoughby concentrated on calling in his preplanned artillery fires and an AC-47 "Spooky" flare ship for illumination.

The Hre Montagnards of the Mike Force had never seen tanks before. They attempted to hold their perimeter, but were overrun and forced to fall back. The defense of their perimeter bought Willoughby a valuable 30 minutes to further organize the defense of Lang Vei. By 0100 what was left of the Mike Force defending the east side of the camp consolidated their positions by the 81mm Mortar pit on the TOC's east side. Artillery from Khe Sanh began to fall around the camp's perimeter and a FAC directed F-4 Phantom and A1-E Skyraider air strikes.

Inside the perimeter the fight continued. SFC James Holt quickly killed two tanks with a 106mm recoilless rifle from the 2d CRP area on the camp's south side. He continued firing, destroying a third tank before running out of ammunition. Despite the artillery and air support and Holt's success with the 106, the NVA continued to advance. Special Forces NCOs fired 4.2-inch mortars at charge zero and maximum elevation into enemy held sections of the camp, but the NVA continued to overrun the perimeter of Lang Vei.

The outer perimeter fell into NVA control and by 0130 they controlled the eastside of the camp. Two tanks rolled in from the north and overran the 104 company perimeter. The survivors fell back to the 2d and 3d company rally points, exposing the 101 company flank. Two more tanks followed form the north to assault the 101st company perimeter. Unable to stop the NVA armor the CIDG broke and ran. NVA overwhelmed the north end of the camp as three more tanks and two platoons of infantry hit the 102d and 103d. The three tanks soon rolled over the 102d and 103d company areas. Surrounded CIDG survivors attempted a desperate breakout along HWY 9 to Khe Sanh, but were cut down.

Schungel's two- man hunter-killer teams used LAWs against the PT-76s in a running man-versus-tank battle throughout the camp's perimeter with varying effect. Some of the LAWs failed to fire. Other LAWs bounced off the glacis of the light-skinned tanks without detonating. Schungel and others, exasperated by the faulty rocket launchers, assaulted the remaining tanks with white phosphorous grenades. According to SGT Early, "in the confusion, most defenders tried to meet the tanks head-on instead of from the less protected and more vulnerable rear. Vietnamese, Montagnards and Americans fired rifle grenades, machine guns, LAWs and finally in desperation, climbed onto tank hulls, trying to pry open hatches ..."

Around 0300 NVA tanks rolled on top of the TOC. The NVA controlled the entire camp except for the TOC bunker manned by eight surviving Special Forces troopers and roughly forty indigenous soldiers. The NVA called upon the defenders to surrender. Some of the LLDB and CIDG surrendered to the NVA

and were summarily executed. Other SF and CIDG personnel hid in the camp and later escaped, evading capture. The survivors in the bunker requested the relief force from Khe Sanh. Marine commanders refused to comply with the contingency plan.



Lang Vei in 1967

SFC Eugene Ashley, one of the Special Forces NCOs with the Laotians at Old Lang Vei, led four separate counterattacks on Lang Vei with a force of CIDG stragglers and Laotian troops. Ashley was wounded on the fourth attempt to relieve the TOC bunker. He received a second and fatal wound later that day and was posthumously awarded the Medal of Honor.

Because there were no helicopters available, Special Forces volunteers could not mount a rescue attempt to save the remaining defenders. Fortunately the survivors made an escape at 1600 under the cover of air strikes. By 1800 the battle was over and the few survivors evacuated to Khe Sanh. Most of the 484 Bru, Hre, Vietnamese and American troops Lang Vei were either dead or captured.

War correspondent Michael Herr, in his book Dispatches, wrote, "The Marines at Khe Sanh saw the Lang Vei survivors come in. They saw them and heard about them up in their Special Forces compound, holding off all visitors at rifle point, saw their faces and their unfocused stares, and they talked quietly among themselves about it. Jesus, they had tanks. Tanks!....."

Why did Giap commit 13 tanks and a regiment to take Lang Vei? Lang Vei was key terrain. It was strategically located along Highway 9, a major egress of the Ho Chi Minh trail and on the line of communication to Khe Sanh. Giap had to destroy Lang Vei for two reasons:

1. It was an observation post along the Laotian border preventing unhindered infiltration of NVA units from Laos
2. Lang Vei's garrison provided flank security for Khe Sanh and could maneuver against an NVA attack on the Marine base.

But the defenders of Lang Vei destroyed over half of the NVA armor force. NVA troop losses were

much larger than expected, preventing them from concentrating an attack against the U.S. Marine combat base at Khe Sanh. The attrition of NVA units at Lang Vei caused a strategic shift in NVA troop deployments. Heavily attritted NVA units, which were engaged in combat at Lang Vei and around Khe Sanh, were later committed to Hue with little effect.



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North Vietnamese Army and Viet Cong



NVA ARMORED FORCES: ZSU-57-2

First appearing in 1952, the ZSU-57-2 was a direct result of earlier developments based around the Soviet S-60 57mm anti-aircraft gun. Mounting a twin-barrelled version of the S-60, designated the S-68, it was a design that had been heavily influenced by WWII German research.



Rear view of the ZSU-57-2 clearly showing the spent shell casing basket at the rear of the turret



Side view of the ZSU-57-2 showing the large, 'boxy' turret

Upon entering service with the Soviet Armed Forces in 1957, the ZSU-57-2 was issued to the newly created air defence regiments of the tank and motorized rifle divisions.

Based on a lightened version of the T-54 tank chassis, it's components and armor were lighter than the tank version and so it was possible to modify the suspension and reduce the number of main road wheels to four. Hull armor was reduced to a level sufficient to defeat heavy machine-guns.

The S-68 gun mount was fitted into a very large and 'boxy' open-topped turret with little armor protection. Each gun had a maximum rate of fire of 240 rounds per minute and a practical rate of fire of 140 rounds per

minute with 316 rounds being stowed in the vehicle (264 of these rounds in 'ready' clips).

The original versions were fitted with conventional optical sights without a range-finder, but the later models were fitted with a more sophisticated sight (identifiable by the two small 'ports' in the forward upper portion of the turret front). The ZSU-57-2 had an effective range of 4,000 meters (4,375 yards) and could be used to engage ground targets.

The ZSU-57-2 has a crew of six; a driver, two loaders, two gunners and a gun commander. A large screened basket for catching spent shell casings is fitted aft of the turret.



ZSU-57-2 six man crew in the open top turret



Loading the ZSU-57-2 with 'ready' clips of 57mm ammo

Since 1960 the ZSU-57-2 had been standard equipment throughout the Warsaw Pact countries and was exported to North Vietnam where it saw service in 1972 and again in 1973. Whilst the North Vietnamese used the vehicle for mobile convoy defence against roving American fighter-bombers, and occasionally used it against ground targets, it's primary role was the defence of PAVN armored units. Several batteries of ZSU-57-2's were attached to the 201st and 202nd Armored Regiments where, following Soviet practice, they served in air defence batteries in an armored regiment.





A battery of ZSU-57-2's moves into position just north of the DMZ prior to the 1972 offensive

A pair of ZSU-57-2's cover the advance of a column of T-54's

The main tactical limitation of the ZSU-57-2 was it's lack of onboard surveillance or fire-control radar. Range-finding depended on the use of of a mechanical computing sight with an optical reflex sight. Since it was dependent on visual target identification, this limited it's operations to clear days with good visibility. In Vietnam this was not too much of a problem as practically anything that was flying was likely to be American or VNAF and hence a target.



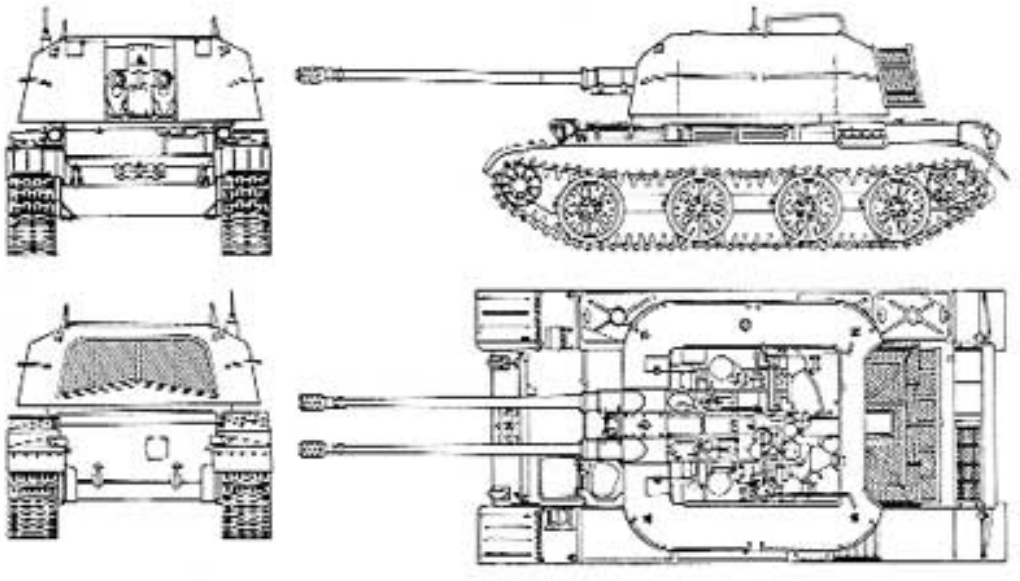
ZSU-57-2 battery in action during the 1972 Easter Offensive



Knocked-out ZSU-57-2 at An Loc in 1972

However, even supposing that the crew could identify a target at the outer effective tactical range of the gun system, a hostile aircraft travelling at 725km/h (450mph) was within the lethal envelope of the ZSU-57-2 for only 40 seconds (a long time for the pilot, no doubt) of which 5 seconds would be required for projectile flight time. This is a very short time in which to acquire, identify, track, range, engage, and fire on a target. A US Army study of the vulnerability of attack helicopters to the ZSU-57-2 concluded that it was only effective at relatively short ranges. The study indicated that the ZSU-57-2 firing a single burst had a probability of kill (Pk) of 48% at 1km, 14% at 1.8km and only 2% at 3km.

TECHNICAL SPECIFICATIONS



Crew	6
Weight (tonnes)	28.1
Length (m)	8.48
Width (m)	3.27
Height (m)	2.75
Ground Clearance (cm)	43
Ground Pressure (kg/cubic cm)	0.63
Gun	S-68
Number of Guns	2
Gun Calibre (mm)	57
Max Effective Range (optical sights, km)	4
System Reaction Time (secs)	5
Burst (rounds per sec)	4
Initial Muzzle Velocity (m/s)	1000
Max Turret Slew (degrees per second, elevation/traverse)	20/30
Tracking Rate (degrees per second, elevation/traverse)	20/30
Depression/Elevation (degree)	-3+85
Ammunition Stowage	316
Max rate of Fire (rpm)	480
Turret Traverse (degrees)	30
Max Vehicle Armor (mm)	14
Engine Type	V-54

Horsepower	520
Fuel Stowage (litres)	640
Max Road Range (km)	400
Max Speed (Km/h)	50
CBR Protection	No
Radio	R-113



Return to PAVN Armour

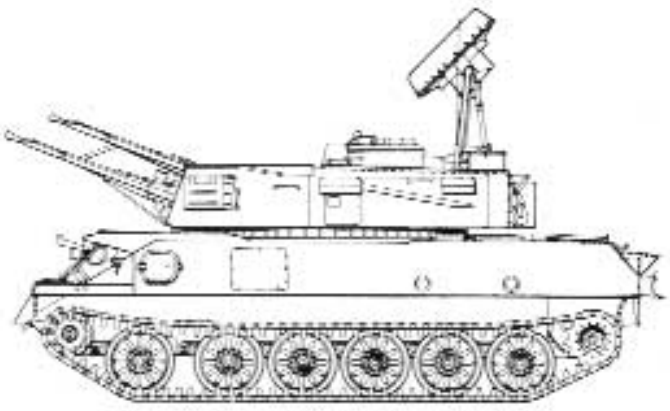
North Vietnamese Army and Viet Cong



NVA ARMORED FORCES: ZSU-23-4 'Shilka'

It was only in the final stages of the 1975 offensive that the PAVN first deployed the sophisticated ZSU-23-4 'Shilka' self-propelled anti-aircraft gun. Only one battery of the 237th Anti-Aircraft Artillery Regiment arrived in time to participate in the final offensive against Saigon.

The clear limitations of the ZSU-57-2 were addressed with the development of the ZSU-23-4 ‘Shilka’ using a PT-76 chassis and which, in place of the S-68 gun, used the newer water-cooled AZP-23 quadruple 23mm gun.



The Shilka was powered by a modified PT-76 engine, the V-6R, but due to the power needs of the turret and all of the electronic equipment, a subsidiary DG4M-1 gas turbine power generator was also fitted. As in most tanks, the driver and commander were both provided with gyroscopically linked navigation equipment to help plot the course and location. The Shilka was also fitted with an NBC filtration system, cabin overpressure and radiation and chemical sensors to prevent air contaminants from causing crew casualties. A pair of FG-125 infra-red lights were located on either side of the driver. The commander was provided with a TKN-1T night periscopic infra-red scanner with an effective viewing range of 220-275yds (200-250m), and the driver had a TVN-2 infra-red periscope which, with the FG-125 illuminated, provided about a 45yd (40m) viewing range at night.

The main advantage of the AZP-23 was that it had a rate of fire fourteen times higher than that of the S-68, giving it a greater practical hit probability; and it had much less recoil than the S-68 which would have been a problem on the light PT-76 chassis. The main disadvantage of the AZP-23 was that it had a shorter effective range than the S-68 (2.5km v. 4km). This, however, was accepted as a reasonable trade off, since the probability of a hit at ranges above 3km were quite low in any event due to fire control shortcomings on the ZSU-57-2.



Early ZSU-23-4 with gun system at nearly full elevation



ZSU-23-4V1 showing the heavily redesigned turret and ammo stowage panniers

The AZP-23 quadruple 23mm autocannon had a maximum rate of fire of 3,400 rounds per minute, or about 14 rounds per second from any one barrel. In practice, the guns were usually fired in short bursts, which could be set at either 3-5 rounds per barrel or 5-10 rounds. Against very fast-flying jets, it could be fired in bursts of 50 rounds per barrel. There were two types of ammunition available: an HE-fragmentation round with a 6 2/3 ounce (.189 kg) projectile for use against aircraft or helicopters, and a special armour-piercing/incendiary round for use against ground targets. Both rounds travelled at about 1,062 yds/sec (970 m/s). The API round could penetrate 1-inch (25mm) of armour at 545yds (500m). A standard three-and-a-half second burst unleashed about 84lbs (38kg) of steel and explosives against the target. Both ammunition types had a tracer base, so Shilka gave off quite a fireworks and smoke display when it let loose. Two thousand rounds of ammunition were stored in four compartments at the front of the turret on link belts, and it was common practice to mix the rounds, with one round of API for every three rounds of HE-Frag.

The maximum range of the AZP-23 was 7,500yds (7,000m) horizontally and 5,500yds (5,100m) vertically, though the effective range was closer to 2,750yds (2,500m) with optical sights and 3,250yds (3,000m) with the radar.

The ZSU-23-4 Shilka also eliminated the primary technical flaw of the ZSU-57-2 by mounting an onboard all-weather radar at the rear of its gun turret. The fire controls of the Shilka were considerably more elaborate than those of the ZSU-57-2. At the heart of the system was a Gun Dish acquisition and tracking j-band (14.6-15.6 GHz) radar linked to an analog linear prediction computer. The radar had a maximum surveillance range of 20km, a maximum tracking range of 18km, and was backed up by conventional optical speedring periscopic sights The optical sight used a conventional set of gun aspect rings to determine lead angle, but these were only used for airborne targets when one of the major gun control systems has suffered a failure.

The Gun Dish radar operated in the 14.6 to 15.6 GHz range. A large parabolic reflector antenna was mounted on the rear of the turret, covered with a radio wave-passing screen and fitted with a horn-type exciter. The radar searched for and identified the target, automatically tracked it and provided both target

range and angular position. Should the target move from the scanning area, servo drives automatically adjusted the antenna to reacquire the target.

The gun was crewed by a radar search operator, a range operator and a commander, who were all located in the turret, and the fourth crew member, the driver, sat in the hull on the left. The gun itself was located behind bulkheads to prevent the leakage of propellant gases into the crew compartment. It could be fired manually or under automatic radar direction. Generally, it was manually operated when firing against ground targets, or when a systems failure in the radar, computer or gun stabilizer forced its use. The gun control system consisted of four basic components: the Gun Dish radar, the optical sights, the analogue computer and a two-plane stabilization system.

The stabilization system was linked to an azimuth gyro that kept the radar antenna and gun sights on target in spite of the pitch and roll of the vehicle over rough terrain. Automatically, through servo systems, it altered the antenna and gun sight angle accordingly. A kinematic roll circuit was built into the whole stabilizing network to alter the antenna direction in the horizontal plane when the turret was traversed.

The engagement sequence in the Shilka operated as follows: the two radar operators would have the vehicle radar switched to surveillance or sector scan mode to acquire the target. When a target was spotted, the radar was switched to automatic tracking mode, and it was interrogated with an IFF (identification-friend-foe). If the aircraft was friendly, the sequence would come to a halt. If there was no response to interrogation, the sequence continued. The range and height data were fed into the computer and a gun lead was provided.

As soon as the computer had the lead, the AZP-23 was automatically brought to bear on the target and was fed a continuous stream of corrections. When these corrections had been completed, the radar operator or commander signalled the crew by saying "we have data", and the guns could then be fired, usually in a 1-second, 60-round burst which unleashed 11.4kg (251b) of projectiles and high-explosive against the target. A US Army study indicated that the ZSU-23-4 had a much higher probability of a kill against aircraft than the ZSU-57-2, whether used in a radar-controlled mode or with optical controls. The firing cycle took about six seconds from initial target acquisition to radar track lockon, but US tests of captured ZSU-23-4 Shilkas supplied by Israel found that the time from acquisition to actual firing took 20-30 seconds for an average crew. A typical jet fighter-bomber, travelling at 725km/h (450mph) would traverse the 5km lethal zone of the Shilka in only 25 seconds, and even a slow target such as a helicopter at 290km/h (180mph) could traverse the lethal zone of the Shilka in about a minute. To be effective, a Shilka crew had to be well drilled, and acquire and identify targets very promptly in order to have sufficient time to track and fire.



ZSU-23-4 battery in action during the 1975 offensive against Saigon



Early version ZSU-23-4 showing the small rectangular stowage panniers on the front of the turret.

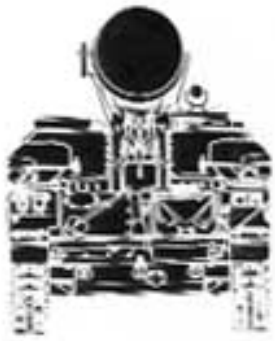
The ZSU-23-4 undertook operational trials in about 1964 and entered service in about 1966. The early ZSU-23-4 Shilkas were plagued with fire-control problems, mainly connected with the onboard electronics. A major source of the difficulties was the density of vacuum tubes and other relatively dated electronic components that gave off considerable heat. Various attempts were made to improve heat dissipation, but problems continued to plague the ZSU-23-4 Shilka throughout the next decade. The troubles were made manifest in the many small modifications carried out to the turret venting systems. A tactical offshoot of the electronics problems was that the Shilka crews had to restrict the amount of time using the radar in the surveillance mode. The Shilka turret was substantially redesigned in an endeavour to solve some of these problems. This version emerged in about 1972 as the ZSU-23-4VI.

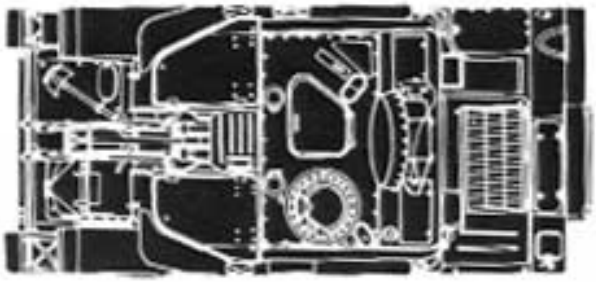
In the Soviet Army, the ZSU-23-4 was deployed in air defence batteries in the tank and motor rifle regiments. These batteries had a platoon of four Shilkas. Normally the ZSU-23-4 operated in pairs, about 200 metres apart. The platoon was usually deployed about 400 metres behind the two lead battalions of the regiment with the four vehicles spaced 150-250m apart.

The effectiveness of the ZSU-23-4 declined in the 1970s because countermeasures had been developed. Aircraft especially vulnerable to gun systems like this, notably attack helicopters, were fitted with radar warning receivers which picked up the emissions of the Gun Dish radar. If alerted in time, a helicopter crew could avoid the lethal envelope of the Shilka. There were tactical countermeasures as well, Shilkas could be engaged by attack helicopters firing long-range anti-tank missiles like TOW from ranges outside the effective range of the Shilka's gun.

TECHNICAL SPECIFICATIONS









Crew	4
Weight (tonnes)	20.5
Length (m)	6.49
Width (m)	3.08
Height (m)	2.63
Ground Clearance (cm)	35
Ground Pressure (kg/cubic cm)	0.52
Gun	AZP-23
Number of Guns	4
Gun Calibre (mm)	23
Max Effective Range (optical sights/radar, km)	2/3
System Reaction Time (secs)	7
Burst (rounds per sec)	60
Initial Muzzle Velocity (m/s)	930
Max Turret Slew (degrees per second, elevation/traverse)	45/80
Tracking Rate (degrees per second, elevation/traverse)	20/30
Depression/Elevation (degree)	-4+85
Ammunition Stowage	1000
Max rate of Fire (rpm)	4000

Turret Traverse (degrees)	45
Guidance Radar	Gun Dish
Radar Frequency	J Band
Radar range (km)	20
Max Vehicle Armor (mm)	9.4
Engine Type	V-6R
Horsepower	280
Fuel Stowage (litres)	250
Max Road Range (km)	260
Max Speed (Km/h)	44
CBR Protection	PAZ+PBZ
Radio	R-123



Return to PAVN Armour

1/4 'Quarter' Cav



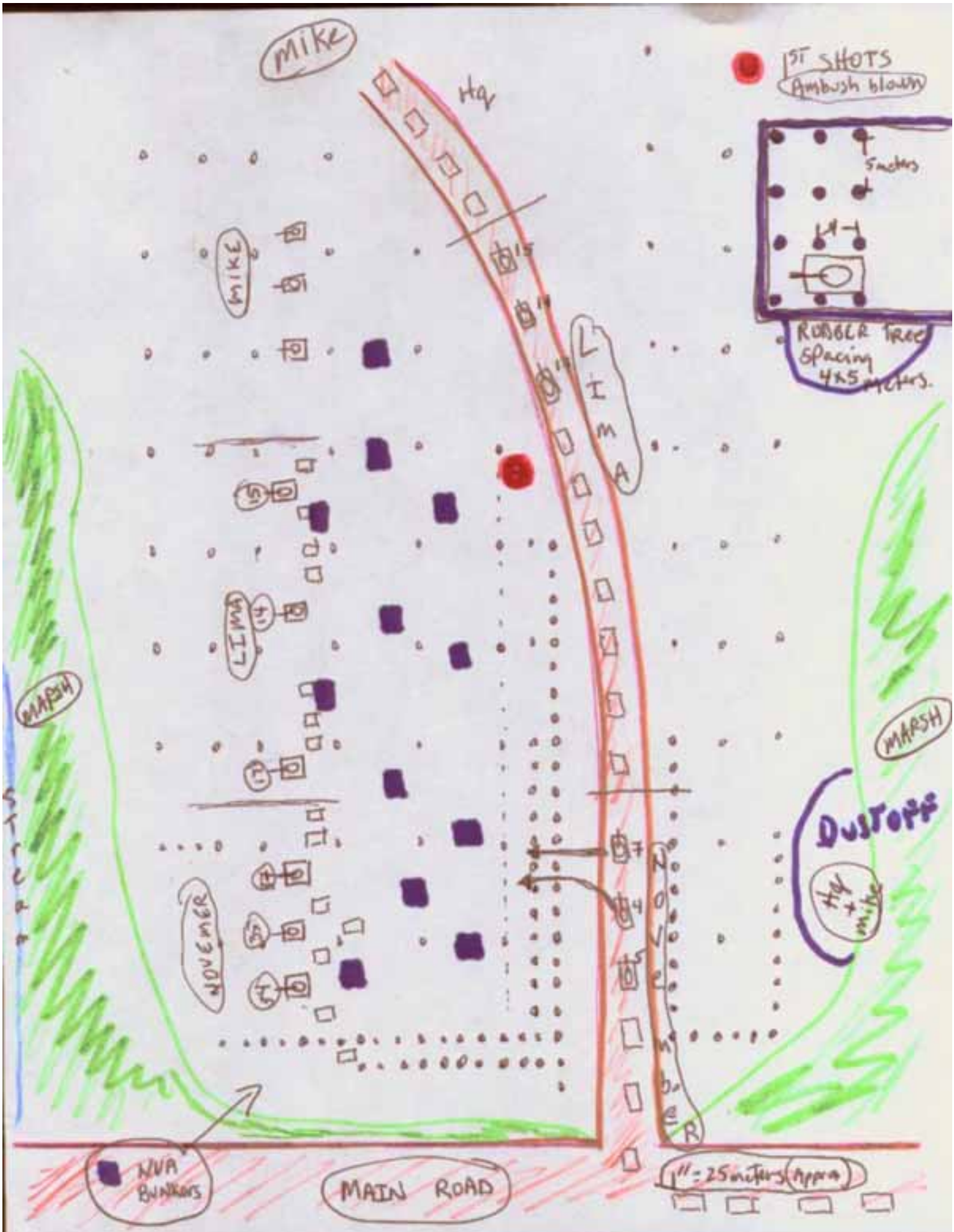
Recollections of a 1/4 Cav Veteran

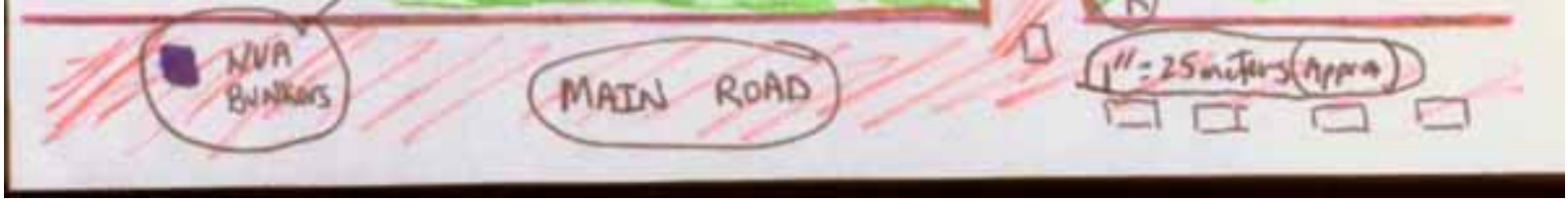
Submitted by John Sandri

These pages are dedicated to the memory of SSG Roosevelt Williams, KIA, An Loc, RVN, Oct 1968

John Sandri's Sketch of the Xa Cat Ambush

For your information, I did the tree spacing because the rubber tree columns were narrower than the rows, and for the tanks it was difficult to maneuver from one to the other without knocking down trees and risk throwing a track too. Going up the narrow columns often involved "fish tailing" by the tank drivers. I don't know if the NVA used this in their planning.


MIKE
Hq
1ST SHOTS
Ambush blown
5 meters
RUBBER TREE
Spacing
4x5 meters.
MIKE
LIMA
LIMA
MARSH
MARSH
STREAM
NOVEMBER
DUSTOFF
Hq + mike
NVA
BUNKERS
MAIN ROAD
1" = 25 meters (appro





[Back to Ambush at Xa Cat]

1/4 'Quarter' Cav



Recollections of a 1/4 Cav Veteran

Submitted by John Sandri

These pages are dedicated to the memory of SSG Roosevelt Williams, KIA, An Loc, RVN, Oct 1968

The following transcript consists of vehicle communications of the third Platoon, Alpha Troop, 1/4 Cav during a firefight in the Xa Cat rubber plantation, SW of An Loc, RVN on Oct 6th 1968. The tape transcript is the property of Ron Halicki who was the driver of the 39er vehicle in the transcript - it is not for reproduction or resale. My thanks to Ron Halicki for granting his permission to reproduce the transcript and my particular thanks to John Sandri for not only drawing it to my attention, but also for the many hours of work that he put in to preparing it for inclusion on Grunt!

The following identifications are necessary:

- 36 is the Platoon leader, a Lieutenant
- 35 is the Platoon Sergeant
- 35 Tango is the commander of the Platoon Sergeant's vehicle
- Deltas are drivers, Limas are tank loaders and 32 Mike is the Platoon medic.
- The Platoon consists of three M48A3 tanks (34, 35, 37) and seven ACAVs (30, 31, 32, 33, 36, 38 and 39).

Vehicle commanders call, or respond, as their vehicle number, i.e. 3zero(30) is the vehicle commander on that numbered vehicle.

Note, that for most of the transcript 35 Tango (John Sandri) is on vehicle 37 as commander, but continues to use his old call sign of 35 Tango (this results in some confusion, but see John's explanation following the transcript - MikeR)

Most calls start with who you want to contact, followed by who you are, so a call of '35…36', means the Platoon leader (36) is trying to reach 35, the Platoon sergeant.

A response call starts with who you are as in '36… are you receiving fire' - this is 36 calling to a unit he

has already made contact with.

The tape covers about 55mins of the fight as the third Platoon penetrates two of three NVA bunker lines in the rubber plantation. It begins at a point in which the Platoon has entered the rubber from a road while in column formation and the lead tank, 37, has taken an RPG at the commander's cupola that kills him. It ends after the second bunker line is neutralized and artillery is called in prior to a final assault.

I have placed brackets '[ ]' to indicate who I believe is speaking in order to avoid ambiguity.

Real time is noted by T +0, T +5 etc. in approximately 5-minute intervals.

1. "35…36" (Platoon leader, 36, calling 35, the Platoon Sergeant*)* **T +0**
2. "35…36"
3. "I think Williams has been hit" [37 Delta] (Williams was the tank commander on 37)
4. "ah, affirmative ….(garbled)" [35]
5. "35…36"
6. "get a hold of that Tango, can you hear me" [36]
7. "this is 35 Tango…(garbled)" (note that 35 Tango is now on vehicle 37 acting as the vehicle commander)
8. "35…36"

(lots of firing .50-cal M60, canister etc.)

9. "all right check fire, check fire" [36]

(firing continues)

10. "35…36"
11. "35 Delta…36"
12. "35 Delta…36" (Note that 36 is 6 vehicles back in the column and is desperately trying to contact the busily engaged lead vehicles)
13. "37 Delta….36"
14. "37 Delta…36"
15. "check fire…check fire" [36]
16. "39er…35"
17. "your Delta is firing right in my goddamn face" [35 Tango] "…screw yourself…" (unknown break in) "…. someone is firing at 16" (a 1st Platoon vehicle on our right flank)
18. "check fire check fire…35…36" [36]
19. "check fire, check fire 39er"
20. "ah 36…35 over"
21. "36…are you receiving any fire"
22. "ah this is 35, a little small arms"

23. "roger, what's the sit rep on 37, do I need a dustoff?" [36] ('sit rep' = situation report)
24. "this is 35, affirmative, ah, didn't you get the word 37 was hit"
25. "roger that, how bad was he hit" [36] **T +5**
26. "35…36, get a hold of 32 Mike and see how bad he is and if we need a dustoff in here"
27. "ah, this is 35, 37 Mike is up there now (note that 35 is mistakenly calling 32 Mike as 37 Mike)
28. "roger, let me know if you need a dustoff" [36]
29. "this is 35, roger, he ain't going to need a dustoff, I already told you that" (note that 35 is now talking about his Tango that took over 37, whereas 36 is asking about the original commander, Williams)
30. "35..36"
31. "35…36"
32. "35" [answering]
33. "36, get 37 on a stretcher, move him back down this row of vehicles, have him, ah, get down to 39er. 39 I want you to get turned around back towards the road, they have a dustoff, ah, set up in that area"
34. "ah, 35 I want you to, ah, get 37, ah, Delta to back on back and I want you to pull on in front of him to cover him" [36] **T +6**
35. "do you roger…35" [36]
36. "this is 35 roger"
37. "go on and pull up thru that rubber there" [36]
38. "35…36, did you see what happened"
39. "35…36"
40. "ah, this is 35 over"
41. "roger, did you see what happened, did he take an RPG?" [36]
42. "ah, this is 35, what side of us is k?? coming up on"
43. "on your right flank, ah, correction, should be coming up on our right flank" [36]
44. "break, ah" [36]
45. "go ahead, move up on that road and get in front of 37 because 37 doesn't have a Tango up there, you got to cover him"[36]
46. "move on up thru the trees" [36]
47. "3zero move on up so you can cover 35 while he's moving up, ah" [36]
48. "36 go"
49. ….tape blank where 39er is talking to 36…this is where the recorder is, almost anything 39er says is not recorded….
50. "right on that road there, you'll see them" [36 to 39 about the dustoff site]
51. "36…3zero what did you say?"
52. "this is 36, I said lets lay down a base of fire for 35 so he can pull on up and get in front of 37, have 37 back back down this way"

.50-cal, M-60,and tank main gun canister fire has continued all this time...

53. "35…36, go ahead and move around to get 37 back off that line"
54. "ah, 3…ah 36…35, we're trying to get him off there now" [35]

55. "ah, roger, you're going to have to move around in front of him to back down this row" [36 to 35]
56. "we're trying to move the tank out of there now" [35]
57. "roger that, back him up" [36] (note that at this time 37 cannot back up; there is a tree wedged in the sprocket, 35 is still right behind him and 16 (kilo) tank is on his right rear.)
58. ″this is 36 go" [36 responding to 39er]
59. "39er this is 36, get a hold of that element, get him on your ACAV and get him to the dustoff pad" (39er picks up another casualty)
60. "35 I want you to move up on the front side of 37, now you got to back that bigboy back, just,break, and move forward as best you can and 34 (garbled section) so that you can back 37 out of there" [36]
61. "ah, this is 35, roger, we're backing 37 up now, we're trying to get him off the line"
62. "roger, we're going to need your bigboy up in front of him now because he can't be up there in front" [36]
63. "ah this is 35, he's….." 36 breaks in
64. "go ahead and move on up there now before he's taking more fire" [36 to 35] **T +10**
65. "ah, 37 this is 35 over"
66. "this is 35 Tango, go"
67. "ah this is 35, are you operational now?"
68. "all except for a 50 caliber, we got everything I guess. I need a loader" [35 Tango on 37]
69. "ah, this is 35, roger"
70. "alright, we'll get you a man up there. You got 4 men on your vehicle right 35? Send him a loader, break, ah, back him down off the line. Send your vehicle up in front of him" [36 to 35 and 35 Tango on 37]
71. "my Tango has taken over that vehicle" (35 to 36 explaining why he has no extra men to send as a loader to 37)
72. "36 go"
73. "ah, roger, I don't care as long as we get him out of here quickly" [36 response to 39 and dustoffs]
74. "35 are they moving that vehicle back?" [36]
75. "ah, this is 35, we get one man up there, we should be able to keep operating that vehicle, ah, my Tango is on it right now"
76. "ah, roger, what happened to their Delta and their lima?" [36]
77. "35, 36 their lima is back here on 32" [32]
78. "32 send a gunner up there right away for a loader, I want to get him……" [36]
79. "ah, 37…35 over"
80. "ah, this is 37 Delta"
81. "ah, this is 37, ah, correction 35, how many people you got on that vehicle now?"
82. "ah, myself and the Tango on 35, ah, Sandri, that I know of" [37 Delta]
83. "break, break, you don't need anybody to back it off, I want that vehicle backed off the line 37. 32 I want you to pull up in front of him now"
84. "36…32"
85. "36 come on up there" [36 to 32]
86. "this is 32, if I pull on up there I don't have but one man on the gun, now it's just me"
87. "go to your left, get around him…." [36]

88. "come on, we got a vehicle moving up on our right flank, let's check fire, let's keep it down" [36]
89. "OK 35, move thru that rubber, you're going to have to push a tree down to get around him so you can back him straight back" [36]
90. "35…36 do you hear me move thru that rubber"
91. " …moving, do you want me to go on that road or not" [35 to 36]
92. "roger, push right on up to your left so you can get on in front of him and cover him while we back him out of there" [36 to 35]
93. "this is 35, roger"
94. "ah, 37 did you monitor" [35]
95. "35, just start moving thru the rubber" [36]
96. "…get this 16 tank to pull up" (35 Tango on 37)
97. "32, your man went to the wrong damn vehicle" [36]
98. "32, pull up, check, I mean 3zero pull up thru the rubber so you can…..37" [36]
99. "36…37"
100. "36 go"
101. "ah, roger, hold him there" [36]
102. "37, back your vehicle straight on back now" [36]
103. "OK, now hold it up now, you're going to hit…….16 tank" [36 to 37]

Intense .50-cal firing.....

104. "35, this is 35 Tango, say think you can get me a loader up here?"
105. "35 Tango this is 36, your loader jumped on the wrong damn tank, he jumped on 16's element instead of your vehicle" **T +17**
106. "check fire, check fire" [36]
107. "35 Tango this is 36, your loader jumped on the 16 element vehicle to your right. Get his attention to get him back over there"
108. "35 Tango wilco"
109. "36 go"
110. "roger that"
111. "ah, check fire, check fire unless you're fired upon, check fire" [36]
112. "36…34"
113. "36 go"
114. "this is 34…..fire hotel……."
115. "…go ahead, make sure there's nobody off to your left front there, just go" [36 permitting 34 to fire main gun HE]
116. "35…36, you taking any fire up there at all, 35…36, are you taking any fire there?"
117. "ah, 35, negative, not at this time, just a little small arms came in about zero 5 ago"
118. "roger, don't pump anymore canister out there then" [36] **T +20**
119. "37…30, we have a machine gun for you"
120. "36….32 Mike"
121. "36 go"
122. "do you know if anyone in this tank over here is…." [32 Mike]

123. "26 element" [unknown caller]
124. "that's 16, negative knowledge on that" [36]
125. "OK, let's get these hot 50s elevated so we don't get any cookoffs and nobody gets hurt, break, 39er….36" [36]
126. "36 give me a sit rep over there, you got some bunkers with people over there" [36]
127. unintelligible response by 39er
128. "roger that" [36]
129. "37…36"
130. "roger, did you take an RPG" [36 to 37]
131. "did you take an RPG, just raise your hand" [36]
132. "did he take an RPG?" [36]
133. "36…37 Delta"
134. "36 go"
135. "any knowledge yet on the TC, how bad he's hurt or anything?" [37 Delta]
136. "no, I haven't heard anything on your Tango Charlie" [36]
137. "roger that" [37 Delta]
138. "OK, now I want you to take your gunner and send him back over to 32 and we'll move Shorey over there to serve as your loader, break, 39er send Shorey back over to 37 as a loader" [36]
139. "OK, let's keep these people looking to the front, especially the left flank over there where those bunkers were, every once in a while you can recon 'em with fire" [36]
140. "ah, 36 ….35 over" **T +25**
141. "36 go"
142. "ah, this is 35, any word on, ah, the extent of injury to 37"
143. "36 negative, as soon as I find out I'll let you know" [36]
144. "ah, this is 35, appreciate it"
145. "37…36 Tango"
146. "37" (35 Tango is now responding as 37)
147. "36 Tango…you need any 7-point-62?" [36 Tango]
148. "ah, this is 37, negative, ah, 36 if you can get someone over here might be able to get that coax working. It hasn't been working"
149. " roger that" [36]
150. "36 go"
151. "roger" [36]
152. "36….34"
153. "36….34"
154. "36…34"
155. "36 go"
156. "we see more movement to my front. Looks like they may have gotten up out of their holes about I'd say approximately 100 meters to the front of us. They stood on the hill just a little bit when they got up" [34]
157. "roger that do you see those bodies still moving" [36]
158. "ah, this is 34 negative, its…downhill and there's just a little bit of grass covering down there, it's just about a foot high. I don't ah, see any bodies right now, but I did see about three of them

fall….put some fire down there"

159. "roger" [36]
160. "break 36 …32 Mike…I don't think Shorey is going to be able to function because he lost his glasses and he hurt his back. All he is going to be able to see is a blur"
161. "ah, roger would he be able to load the main gun, 37 ask…if he can load the maingun?" [36]
162. "36…37, Shorey says he can work that"
163. "Shorey says he can load the maingun" [39er]
164. "36..38"
165. "36 go"
166. "did they blow that E8 personally, er, purposely?" [38] (note that E8 is 40mm teargas)
167. "ah, this is 36, ah, I don't know, I'll find out"
168. "36…34"

Intense weapons firing again.....

169. "6 romeo this is 36, I have a M60 I can loan you if you can send somebody over here to get it. See my hand, I'm off to your left"
170. "36…5zero on your push, pop smoke on your left flank quickly" (note that push = radio frequency, 5 zero is a Colonel in overhead chopper)
171. "pop smoke on the left flank" [36]
172. "pop smoke on the left" [36]
173. "37, 37 and 32, I want you to move over one row to your right" [36] **T +31**
174. "I want you to pull up one row to your left 39er" [36]
175. "36…this is 35 Tango, say again" (remember that 35 Tango and 37 are the same person, John Sandri)
176. "roger, I want you to pull up and move over one row to your right" [36]
177. "all right, I got fire, keep your right flank down, 32 we got something now move it up, move around 37" [36]

Super intense weapons firing.....

178. "32, 32" [36]
179. "37…got some…." [36]
180. "look to your right flank 37, move over to your right flank 37" [36]
181. "37 you got anybody hurt over there" [36]
182. "37 negative" [37]
183. "now watch those bunkers when you move up" [36]
184. "hold it up 37, I just spotted ah, there's a bunker on your right, I don't know if this guy is dead or not" [32]
185. "well can you blow, can you drive right over it" [36]
186. "36…. 5 zero your push can you come up on ours"
187. "…long burst you'll burn the barrel out" [36]
188. "37 did you get him" [36]

189. "this is 37 say again"
190. "did you get him" [36] **T +35**
191. "this is 37, negative knowledge, he should be dead"
192. "roger, was …he.. still in the bunker or was he laying outside the bunker?" [36]
193. "he was still in the bunker" [37]
194. "36, 36 this is 37, tell the elements on our right to keep their fucking heads down, I'm going to blow a can on it"
195. "roger, wait one" [36]
196. "hey 37 you're too close to blow canister" [35]
197. "37…36 you can't fire that can because you got those vehicles out to your front, Bravo's out to your front" [36]
198. "37 roger"
199. "32 can you drop a thumper on him?" [36] (thumper = M79 grenade launcher)
200. "OK back it back some 37. Let him drop a thumper on him" [36]
201. "come straight back" [37 to his Delta on open Platoon frq.]
202. "hold it up 32, they're dragging a man out of a bunker" [36]
203. "hey, I got a better idea, we got some ARVNs here" [36]
204. "32…36, hold your fire 3__ send some ARVNS up there to check the bunkers" [36]
205. "36 elements don't start putting oil all over these hot barrels, if you do they're going to warp, you'll be without a 50, just a couple of drops on the bolt" [36]
206. "34…39er"

More .50-cal firing.....

207. "OK 37 I want you to move over one more row to your right, now" [36]
208. "37 monitor" [37]
209. "37 OK you can move one row to your right" [36] **T +40**
210. "ah, this is 7 one moment"
211. "38 slide a little bit to your right, 35 you'll slide a little bit to your right" [36]
212. "36 this is 34"
213. "36"
214. "ah, this is 34, I got to flank this rubber all the way thru this darn stuff, it ain't wide enough for an ACAV to get thru (34 gets to a patch of bamboo thickets)
215. "ah, roger, just take it slow and easy" [36]
216. "OK lets go, move forward, move forward on line" [36]
217. "ah, 36 I…."
218. "let's go 38, move it forward" [36]
219. "35 move it on up" [36]
220. "move to your right 38" [36]
221. "37 move it up on line, lets go, move it forward" [36]
222. "let's go, move it forward" [36]
223. "keep them up goddamn it" [37] (line is not moving evenly, 37 is worried about being out in front again)

224. "37, move that thing out"[36]
225. "34, I don't want to be alone out there" [37 to 34] **T +45**
226. "34, I want you to move to the right so you don't lose contact with 35" [36]
227. "37, watch more to your left" [36]
228. "lets go, let's move it forward on the left flank" [36]
229. "OK, anybody get hurt over there" [36]
230. "OH!!!!" [36]
231. "36…..(probably 5 zero) …wants you to pull up"
232. "hold it up, hold it up, hold it up on line, hold it up on line, hold it up, hold it up, hold it up on line" [36]
233. (garbled) "….up on your push" [probably 5 zero]
234. "back it up, back it up, back it up" [36]
235. "back it up on line, lets go, back it up" [36]
236. "goddamn, back it up" [36]
237. "back it up 37" [36]
238. "OK 37 back her up easy, back her up" [36]
239. "back it up slow, back it up" [36]
240. "OK 39er, 3zero you know anything about that 50?" [3zero] (3zero sees the .50-cal shot off 37 at the start of the fight by the RPG that killed Williams, lying on the ground)
241. "36 this is 5 zero on your push that arty is…. Your position"
242. "roger" [36] **T +52**

Tape ends as a 105mm artillery barrage begins in front of third platoon.

Commentary by John Sandri:

It is somewhat embarrassing to hear how f--ked up we handled this one. For the previous 8 days we were in and out of ambushes and night probes on our laagers without such screw-ups. Major difference was that 35, the Platoon Sergeant, had not been with us for two weeks and this was his first day back in the field after some in-country training program. He was also a notorious drunk.

I wish I had the computer power to send this to you to hear but that might not be helpful. I spent 9 hours with headphones on to 'hear' what is on the transcript, due to squelch, weapons, and everyone breaking in on each other, it is difficult to follow in many sections.

There are only three men mentioned by name;

1. SSG Williams, the Tango Charlie on 37 that was killed (line 3 of the transcript)

2. Sandri, the Tango of 35 tank who went and replaced 37 Williams even before the tape begins (mentioned in line 82)

3. Shorey, the loader on 37 who helped take Williams body to 39er, had lost his glasses and hurt his back when the first RPG hit and killed Williams (mentioned in lines 138,160-163)

The 35 Tango/37 confusion;

On the Platoon Sergeant's tank and Platoon leaders ACAV, the senior man on the vehicle was designated as the Tango. He was responsible for the running of that crew and vehicle so the Platoon Sergeant and leader did not have to deal with routines like who pulls guard, fixes things, what resupply is needed for that vehicle etc. He was also both 'appointments secretary', taking messages for the leadership, and in the absence of the Platoon Sergeant or leader, took over some of their Platoon level functions. On the 36 ACAV, 36 Tango sat in the commander's position behind the .50 cal (lines 145 and 147 of the transcript)

On 35 tank the Tango picked his job. He may have been the Delta or Lima as well as the Tango. I was 35 Tango on Oct 6th (line 82).

When the RPG slammed into Williams' tank (37), I ran to it from 35 and took over. This happened before the tape starts. I continued to use my call sign of 35 Tango thru most of the tape even though I am on 37 all the time. At lines 146 and 162 I start using the 37 call sign and revert to 35 Tango at line 175 then back to 37 at line 182 on to the end of the tape.

Most of the tape deals with two things; getting Williams to dustoff and most by far trying to get 35, the Platoon Sergeant, to move his tank forward. To this day I regret not having eliminated him in those first 20 mins of the fight (my threats to him were not audible on the tape, thank god). He was 'removed' from the Platoon about 5 days later and shipped to a headquarters desk job.

Contrary to my 'recollections', this was not a purely Alpha Troop operation, Bravo was there too (line 196). It was not unusual to have a Colonel or Major overhead during a 'difficult' or multi-unit operation calling major moves. A C&C chopper (command and control) was often dispatched as soon as possible once contact was made.

This tape is an excellent example of what happens when everything goes wrong and is not typical of all our other ambushes and firefights.

Dedication

Major point really and why I dedicated my pages to SSG Williams; by being killed right off, the Platoon was really leaderless without Williams. I know the Platoon leaders and Platoon Sergeants in 'Nam will take strong exception to this but here is reality...

Williams was the 'real' leader of 3rd Platoon while he was alive. There was always, for us, some lower ranking (usually tank) Sergeant in real practical command. This was a man who had most time in

country, had survived or experienced practically every type of mission or encounter. His tank would always be the lead vehicle (like being pointman in the infantry), or responsible for any split-off elements if the Platoon did two separate jobs - like taking out the RIFing group the second day of Rome Plowing. This person was never the lifer Platoon Sergeant 35.

I think the movie *PLATOON* kind of addresses this (I only saw that movie once years ago...so I may be wrong).

This was my position after Williams died, so from Oct ‘68 thru March ‘69, I was the nominal, practical leader. I again picked up the responsibility from Sept ‘69 thru April ‘70.

Part of this comes from the short term the Lieutenants spent in the field. Even the 6-month rotation didn't happen. If they stayed 3 months with us, that was unusual. The other part comes from a nasty habit in the third Platoon of 'getting rid' of Platoon Sergeants that developed around April ’68 This was not by fragging. We were just extremely non-cooperative with them if we thought they were 'lemons'. Most didn't last a month under these circumstances. Those that did, usually became the 'Platoon leader' and rode on 36 because we didn't have a Lieutenant.

So the loss of Williams kind of left the Platoon as a headless body - all his leadership devolved on 36 and 35 who were not good at it or used to it, obviously.

This is my perception, which has some bitterness/bias, after all I was 35 Tango out on 37, in front, and alone with only a driver, no .50-cal, a malfuctioning coax, a second RPG had hit the turret just as I was climbing aboard 37 at the right rear sprocket, a rubber tree was wedged in the sprocket that prevented a lot of backup maneuvering - we had to actually pull forward to back up and this didn't happen until 20 mins after the start of the tape.

Anyway, I was 35 Tango and usually the Delta, but since 35 hadn't been with us for two weeks (he just returned the night before), I was breaking in a new man as driver. 35 was drunk most of the time. I was desperate to get off that vehicle and he wouldn't let me go. Breaking in the new driver was my way off. So I chose that day to ride the bussel rack and let the new guy drive.

A number of points to be made;

1. The Platoon Sergeant is probably drunk
2. His driver is inexperienced

The failure of 35 to move is the major contributing factor to the mess we were in.

3. The Platoon leader spends far too much time trying to;
    - find out details of what has happened to his lead elements
    - getting the dustoff

- getting 35 to move forward
- getting 37 to back up

His failure to move the remainder of the Platoon left most of it useless.

4. 35 Tango, with only a maingun and M16, is firing left, right and forward with cannister, and a sporadically functioning coax. I literally loaded, traversed and fired the maingun as rapidly as possible at first. My massive outpouring in practically all directions only adds to the confusion. Note the exchange at line 16 where I (35 Tango) and 39er are yelling at each other about putting fire in each others faces. I have to say here on a personal note that my move to 37 and lack of fire control were automatic type reflex actions, no real thought process went on. I gave 39er Delta (Halicki) a kind of sunburn on the face with maingun side blast.

5. 35 Tango is using a shotup CVC helmet, can't hear some stuff, cuts off others, or just deadens the Platoon push

6. Third Platoon rarely worked with the Troop. We, and especially 36, were not used to getting directions from Alpha 6, or anyone else for that matter. You might call this a lack of cohesive unit experience. I know that a lot of 36's stuff was actually coming from Alpha 6 (the Troop CO) wanting to know what was going on, ordering him to do things etc. Both 36 and Alpha 6 were issuing orders, requesting info etc when out of touch with the point of contact and wanting too much, too fast, from the contact area.

Anyway, things kind of settled. Notice how smoothly the second bunker line was taken when I'm ordered to move one row to the right (line 176), and 34's handling of the left flank bunkers. By now the Platoon is on line and 35 has nothing much to do with the operation - 36 cuts him out of the loop.

Right now my mind is thinking out the leadership sequence for 3rd Platoon, at least for some brief periods, to give an idea of how it was really led. I'm thinking that our Platoon wasn't an exception in not having a Platoon leader or Platoon Sergeant much of the time, neither at times, and having the more experienced man as the actual leader regardless of rank.



Back to Ambush at Xa Cat

1/4 'Quarter' Cav



Recollections of a 1/4 Cav Veteran

Submitted by John Sandri

These pages are dedicated to the memory of SSG Roosevelt Williams, KIA, An Loc, RVN, Oct 1968

Operating with Rome Plows

The nice thing about Rome Plow work was having a real good NDP. The Rome Plows would make a berm to hide behind and often dig out vehicle positions too. As a more stable site we got regular re-supply, had latrines and everything. FSB Normandy I (started about June '68) became a full blown FSB along HY16 between Claymore Corners and Tan Uyen. Normandy started as just a NDP and remained so until sometime after June-July '68 when we were there with the plows. My next passing of that way wasn't until Dec '68 by which time it had artillery etc and a sign that it was FSB Normandy II.

The down side is that the NVA didn't like getting their jungle taken away and there was often some trouble during a long Rome Plow operation, the least you could expect was mining and sniper attacks.

The Rome Plows cleared the sides of the major roads (although I never did this with them) or "sections" of jungle about a square kilometer. The jungle clearing I'm familiar with.

The Rome Plows, in echelon formation, would outline the area and then concentrically Rome Plow in towards the center. They could take out anything, with sharpened blades even 40 to 50-foot high trees eventually came down.

We initially followed in column formation the inner and outer Rome Plows of their echelon as they went around, but changed this pattern in June of '68 for several reasons:

- The Rome Plow guys did not like a 90mm cannon at their backs
- We were less mobile then their caterpillars and slowed things down (we'd belly-out or throw a track too often etc.)
- While we were all securing the Rome Plows the rest of the cut was unsecured.
- The track blocks, fenders, sprockets etc were getting chewed up and drivers

exhausted by constant maneuvering

So in June '68 we did the following and kept it as SOP:

During the initial outlining of the area we would stay with the Rome Plows but drop off vehicles at the corners as we went around, usually two at each corner (one faced in toward the cut, the other out) or if the site had irregular outlines a vehicle would outpost singly to keep line of sight with the corner vehicles. We always kept a 48 moving around with the Rome Plows but not right behind them, usually within 10-20 meters or so.

As the Rome Plows concentrically closed in on the center of the cut so did our security. The 48's would switch off moving around with the Rome Plows because this was tough on the drivers and the vehicles i.e. when the moving 48 came to a corner with an out-posted 48 they would trade off.

Every once in a while a Rome Plow would be left to make piles of the cut jungle in certain areas - I never asked why and didn't see any pattern to it myself as most of the cut was just left flattened where it was.

After the first days cut, the platoon would split up for the next mornings start. Two 48's and 4 ACAVs would head out to the cut and RIF the perimeter while the rest of the platoon came out as security with the slower moving Rome Plows. The group doing the RIF set out the corner security outposts as they went around the cut.



M-48's moving in Rome Plowed terrain

One of the biggest hassles in cutting occurred for us when the Rome Plows reversed direction from clockwise to counter-clockwise in their concentric cutting. Then the moving 48 driver had the previously cut material facing him like bunches of spears. This stuff was more likely to get trapped between the track and fenders (I've had fenders ripped off to the sponson boxes) or get trapped around the sprocket and throw the track.

Thunder Run

On rare occasions we conducted a mission called a THUNDER RUN. The term I was told came from movie by Robert Mitchum by that name in which moonshiners (illegal whiskey makers in the southern Appalachians) ran the road patrolled by police stationed to catch them. We used the term for two rapid moves over unswept roads.

The first was the true THUNDER RUN, occurring mostly at night and twice thru free-fire zones in day time. The platoon would line up in single column on the road and travel a section of 10 or so kilometers reconning by fire all the way (tanks firing cannister as well as 50 cal.). This was supposed to "trigger" any ambushes being set up by the NVA along the road, prevent mining, discourage or prevent any infiltration movement through the area. Most of our "runs" were along HY13 (Thunder Road) and conducted at a speed of 5-10 mph. After going in one direction we'd turn around and repeat the move back to the starting point. Whole thing 2-3 hours.

Second type... we used the same term to describe the need to move rapidly over a road that could not be cleared of mines due to time constraints or lack of engineer mine clearing teams (we did have our own mine-sweep metal detectors and when time was not a factor often cleared our own way). In this instance it was important to move at the fastest speed possible based on the thought that if you hit a mine you might get past it before it exploded.... a really false notion but one that gave a feeling of some "safety" especially if it was a command detonated mine.

The first type of move became quite rare in mid '69 as free-fire zones decreased, HY13 got paved and US forces set out so many night ambush patrols along the road.

The second type was in continual use and more often than not we traveled (Thunder Ran) roads rather than waited for them to be swept. So the 'Bigboys' always cleared the road by not running in the track path of the proceeding vehicle, hopefully ensuring that they and not the more vulnerable ACAVs would hit any mines.

Jungle Busting & Maintenance

I'd take exception to Bravo 3/4's comment that double columns were hard to manage without overhead directional support...we used them a lot in jungle busting without such support and never got lost or off mission.

Jungle busting was hard on vehicles and 48 crews. Speeds were much less than a mile an hour in the thick stuff and that's also why we cleared with canister fire as we went. Equipment, fenders, headlights, searchlights and on occasion men would get stripped off. We had two machetes (one for the Track Commander and one for the loader) to hack away at the stuff. Often the driver was in a cacoon of accumulated junk that ran over the gun tube, fenders etc and the TC did the driving commands.



Jungle Busting

In May '68 they took away the drivers vehicle maintenance logs and secured them at base camp. Maintenance thereafter was passed down from previous drivers to the next and became very erratic (who could remember when to grease the road wheels or when it was last done?). In its place there was supposed to be "quarterly" stand-downs of three days at Squadron maintenance.



John Sandri's M-48 ('Big Boy' 34) at 'Q Stand-Down'

The picture shows 34 at "Q" stand-down and will give people a better idea of how ragged the vehicles got. She looks a mess but this is more like the true picture of a 'used' 48. 34 had hit two mines and and busted nearly 1000 miles of jungle by this time (and really doesn't look too bad for all that). Most of the pictures I see on the net are far too "pretty" of the 48s. Notice the tracks and tread. Track was hard to get and we'd get down to the metal skeleton with hardly any rubber left on them. Of course there'd be little

traction and the engines worked hard to move the vehicles. Also by then the track was so stretched out that it would pop off the sprocket a lot - there'd be a lot of grinding and popping on turns as the track end connects popped on and off the sprocket which meant you'd throw a track often and be dead in the water.



US Divisional Armored Cavalry

Army of the Republic of Vietnam (ARVN)



Organisation and Equipment

INTRODUCTION

Since I have been unable to uncover much information regarding the organisation and equipment of the Army of the Republic of Vietnam, most of what appears here is purely conjectural on my part. It has therefore been necessary for me to assume the same organisation and equipment as the US Army based on the fact that the ARVN were supplied and trained by the US. This is not a satisfactory arrangement and I am working to research this better. A number of different organisations or squad variants have been submitted and if you have any further information, or you know where I can find more information then please contact me

Up until 1967, ARVN troops were armed with a wide variety of older American weapons including; M1 Garands, Thompson SMGs, and M3 'grease-guns'. In 1967 the M16 began to be issued, beginning with Airborne, Marine, Ranger, LLDB and PRU units, As far as I am able to ascertain, at the start of 1968, only the following ARVN units were equipped with the M-16: ARVN Airborne Division, Marine Brigade, 51st Inf. Regt., 21st, 30th, 33rd, 37th and 39th Ranger Battalions. By the end of 1968, most ARVN regular units were armed with contemporary US weapons; M16, M79, M60 and LAWs.

ORGANISATION OF AN ARVN LINE INFANTRY COMPANY

- 1 x Company HQ
- 3 x Rifle Platoon (each 1 x Rifle Platoon HQ, 3 x Rifle Squads, 1 x Weapons Squad)
- 1 x Weapon Platoon (1 x Weapons Platoon HQ, 3 x Mortar Squads)

Infantry Company HQ

- 1 x Captain
- 1 x 1st Lieutenant (Artillery Forward Observer)

- 1 x 1st Sergeant
- 1 x Medic
- 3 x Radio
- 1 x Rifleman (Runner)

Infantry Rifle Platoon HQ

- 1 x 2nd Lieutenant
- 1 x Platoon Sergeant
- 2 x Medic
- 2 x Radio

Infantry Rifle Squad

- 1 x Sergeant
- 1 x Corporal
- 2 x M-79 40mm Grenade Launcher ('Blooper')
- 6 x Rifleman

Infantry Weapons Squad

- 1 x Sergeant
- 2 x Corporal
- 2 x M-60 GPMG
- 1 x 90mm Recoilless Rifle
- 3 x Rifleman

Infantry Weapons Platoon HQ

- 1 x 2nd Lieutenant
- 1 x Sergeant
- 1 x Sergeant (Forward Observer)
- 1 x Corporal
- 3 x Radio
- 1 x Rifleman

Infantry Mortar Squad

- 1 x Sergeant
- 1 x Corporal
- 1 x M-79 40mm Grenade Launcher ('Blooper')
- 3 x Rifleman

- 1 x 81mm Mortar

NOTES

It was common practice for the 90mm Recoilless Rifle in the Weapons Squad of the Rifle Platoon to be left at Base camp and replaced by a third M-60 GPMG.

SQUAD VARIATIONS (Submitted by Leondus)

There were many organisational variations of the ARVN squad, due primarily to equipment availability but also to considerations of terrain and the nature of the combat which the unit was predominantly involved in.

> **1965-1975** Infantry Squad: 9 men (1 x BAR or M14E2, 7 x M1 or M14, 1 x M3A1)
> The BAR or M14E2 was the main SAW for a Squad. M60's were somewhat like gold dust and were only given to good/elite units. ARVN Marine formations right up to 1973 were still using the BAR over the M60!! The Squad above is just a generic formation/guide line.
>
> **1968-1970** Infantry Squad: 10 men (1 x M60, 1 x M79, 8 x M16)
> The formation above is a guide line for the 1st ARVN Division around Da Nang (I CORPS). As you can see the firepower is upgraded with an M60 and M79 due to the heavy fighting.
>
> **1968-1975** Infantry Squad: 9 men (1 x M79, 1 x M60, 7 x M16)
> Same as above but minus one grunt. This guideline is for ARVN units in IV CORPS.

From what I can tell from all the reading over the years, ARVN infantry formations were very, very odd! Not one infantry division appears to be equipped and organised in the same way. On the whole they appear to be pretty much 'ad hoc' organisations, using whatever supplies were available for setting up new units. Even units that used the M16 by 1969 were using the M1 again by 1972!!

Other Squad Formations:

> **1965-1966** Infantry Squad: 8 men (1 x BAR, 7 x M1)
>
> **1966-1969** Infantry Squad: 8 men (1 x M79, 1 x M14E2, 6 x M1)
>
> **1970-1975** Infantry Squad: 8 men (1 x M79, 1 x M60, 6 x M16)
>
> **1967-1975** Mech. Inf. Squad: 8 men (1 x M60, 1 x M79, 6 x M16) or 9 men (1 x M14E2, 1 x M79, 7 x M16)

1967-1975 Ranger Squad: 9 men (2 x M79, 1 x M60 or M14E2, 6 x M16)

1970-1975 Para Squad: 8 men (1 x M79, 1 x M60, 6 x M16)

HIGHER FORMATIONS

BATTALION

1 x Battalion HQ, 1 x Battalion HQ Company, 4 x Rifle Company (Companies A - D), 1 x Combat Support Company (Company E).

Combat Support Company : 1 x 4.2" (107mm) Mortar Platoon (four squads consisting of 6 men + 1 Mortar, plus a Platoon HQ consisting of 1 officer and 7 men) and 1 x Assault Platoon (12 x portable flame throwers, one officer and 48 men), 1 x Scout Platoon (the Combat element of the Headquarters Company) consisting of 1 officer and 48 men divided into 8 x 6 man squads.

Note : the Combat Support Company was often employed as a fifth rifle company.

BRIGADE

Battalions were organised into Brigades of 2 - 5 Battalions



See Also:

ARVN Uniforms for information regarding the dress of both ARVN combat and police/security forces.

ARVN Armored Forces - the development of the armored forces of the Army of the Republic of Vietnam: from the establishment of a Vietnamese armored force in 1950 to the fall of Saigon

ARVN Order of Battle - detailed Order of Battle for the various ARVN Forces

The Fight for National Route One



NVA Easter Invasion, May 1972

Submitted by Barrie Lovell©

Introduction

This is a hypothetical "what if" scenario based on events near the city of Quang Tri during the North Vietnamese Easter Offensive of 1972. The game is designed to use a large number of models, including NVA tanks. This is definitely NOT a small skirmish game!

The rules used for the game was the "Incoming!" supplement for Crossfire, which allow large numbers of models to be used without getting bogged down in trivia.

In order to make a change from the usual two sided game several extra twists were added to the game. In one case some of the NVA players are prevented from discussing the game unless they take "time out" during the game (and risk losing the initiative) to do so – this represents the poor NVA communications and forces them to consider their plan carefully before committing themselves to battle.

The other major addition to the scenario was the use of random events. This has been covered before on this web site but in this case I selected a number of "real life" events which were typical of the period and designed a system whereby they could be called into play. Not all of the events are detrimental to the players – some may even benefit them, although obviously the players have no control over which events occur. Full details of the random events are included in the umpire's notes in the scenario.

A note for those contemplating playing the scenario – an umpire is essential. I umpired this game myself and had a great time watching the players slugging it out. Due to the random events system the umpire can actually take an active role in the game and is not simply relegated to watching from the sidelines.

All of the models used were 15mm figures from my own collection although, due to a lack of T-55s (see Barrie's Review of the Peter Pig T-55) we had to resort to using model T-34/85 tanks instead!

The model aircraft are 1/144th scale plastic kits.

General

This scenario pits a reinforced Vietnamese Marine Corps Company against advancing NVA infantry and armour during the fierce fighting in Quang Tri Province in April and May 1972.

The VNMC unit is part of the 9th Marine Battalion which has been ordered to hold the line while the VNMC 369th Brigade and the demoralised ARVN 3rd Division re-establish a defensive position along the My Chanh river, south of Quang Tri city. In particular National Route 1, the road to the Dap Dai bridge, must be held to allow free movement of ARVN troops and refugees and to deny the use of the road to the advancing NVA armour.

The Marines are supported by some ARVN stragglers but their position is complicated by the presence of numbers of casualties in a nearby aid post.

Terrain

The terrain is undulating with small ridges and dense bush along the roadsides. The main feature is a small town (surrounded by cultivated land, tree lines and hedgerows) and the adjacent militia barracks (see Map of AO).

The militia barracks is protected by bunkers and barbed wire. An abandoned fire support base is nearby. The FSB is treated as Rough Ground and will give cover but not block line of sight.



The ARVN barracks, as seen from the direction of the NVA attack.

The terrain is generally unsuited for armour except along the main road (National Route 1).

Weather

The weather is fine. TAC Air may be used as per the rules.

Timings

The game will start at 0600 hours on 2nd May 1972. At the end of each ARVN turn throw 1D6. On a score of 5 or 6 half an hour will be deemed to have passed.

First Light is 0530 hours, last light is 2100 hours.

ARVN Player Instructions & Notes

Mission:

You are to hold the road (National Route 1) and deny the passage of enemy troops and armour for 24 hours in order to allow friendly units to consolidate their positions along the My Chanh River in the area of the Dai Dap Bridge. Under no circumstances must the enemy open the route.

In addition, the local militia barracks (which are currently held by elements of ARVN 3rd Infantry Division) has a number of civilian and military casualties who need to be secured and evacuated. Trucks will be provided for casualty evacuation if necessary.

At the end of the 24-hour delaying period you are to fall back along Route 1 and rejoin the rest of the battalion near the Dai Dap Bridge. Any ARVN troops or stragglers are to be withdrawn with you at this point.

Your company is almost at full strength, having recently completed a period of training and refurbishment. The men are aggressive and determined, and fiercely anti-Communist (the battalion nickname "Grains of Pepper" refers to the point that when thrown in the face of the enemy the marines will make the enemy cry!). It is obvious however that the local ARVN troops are not likely to be as reliable.

The NVA have been pressing hard along Route 1 and have made extensive use of armour. You have a number of troops armed with the 66mm LAW plus a couple of 106mm RCLs.

Friendly Forces:

- Company B, 9th Marine Battalion (Grains of Pepper)
- FO from the Battery K, 3rd Marine Artillery battalion (155mm)
- USMC Advisor (acting as an FAC)
- 8 x LAW teams
- A reduced Troop of M113s from the ARVN 3rd Infantry Division Cavalry Squadron
- Elements of 3rd Div ARVN troops holding the militia barracks and the aid post.

Co-ordinating Instructions:

Due to the current situation ammunition supplies for the artillery are limited. As a consequence the FO is limited to 12 Fire Missions until further notice (At 1800 hours throw 1D6. On a score of 4 or 5 another 12 FMs will be available, on a score of 6 25 FMs).

NVA AAA in the area is heavy and has taken a heavy toll on friendly air support. Helicopter resources are under considerable strain and the demand is greater than the available resources. Until further notice all casevacs will be via truck and are requested in the normal way but with a +1 delay.

The US Advisor may act as an FAC, however due to demands on aircraft and enemy AAA a modifier of +1 is applied to each request.

Civilians may be evacuated with casualties.

Morale and Training:

- All VNMC units are Veteran Morale and move as ARVN.
- ARVN Armoured units are Regular and move as ARVN.
- Other ARVN units are Green and move as ARVN.

Deployment:

VNMC and ARVN units may be deployed up to 2/3 of the depth of the table (but no further north than the barracks).

Objectives:

The point at which Route 1 exits the ARVN player’s table edge, and the militia barracks, are both Victory Objectives. Loss of both of these to the NVA inside the 24 hour period will automatically lose the game (Crossfire rules P32 – if NVA hold both of these objectives for 5 initiatives then they will win).

NVA Player Instructions & Notes

Mission:

You are commanding elements of an infantry battalion (1st Bn, 64th Infantry Regiment of the 308th NVA Division) operating in support of tanks from the 202nd Tank Brigade.

The armour has been ordered to strike down National Route 1 and seize a crossing over the My Chanh River at the Dai Dap bridge. Your infantry is to support the armour in this mission. The road must be opened as soon as possible in order to maintain the advance and keep the enemy off balance.

To date the advance has been going well, the tanks have provided considerable firepower which has made up for the fact that some of your heavy weapons (in the combat support platoons) have fallen behind. The enemy 3rd Infantry Division has all but collapsed and all that is holding up the advance are US air attacks and the difficulty of moving the armour away from the main road. Intelligence reports however suggest that elements of the South Vietnamese Marine Corps are now deployed in front of you – this is not good news. Although your troops are steady and well trained the Marines have a fearsome reputation and are known to be staunchly anti-Communist. However, it is expected that the tanks will prove decisive in any clash, as the ARVN armour has been conspicuous by its absence so far.



A general view of the town. The edge of the barracks can be seen in the top right hand corner.

Shortly after dawn your leading troops report enemy resistance in the small town to the front. The enemy resistance must be crushed quickly and the advance continued. However, reports indicate the presence of a barracks that may provide some much needed food and munitions for your troops.

Friendly Forces:

- Battalion HQ
- 2 companies of NVA regulars (including the combat support platoons)
- 1 x combat support platoon from the support company.
- FO from Divisional artillery battalion (130mm guns)
- Elements of 202nd Independent Tank Brigade (T-55)

Co-ordinating Instructions:

Armour - Due to the relatively inexperienced tank crews the NVA Armour must operate as a complete unit. Each vehicle must retain LoS to the Platoon Commander's vehicle at all times.

Armour-Infantry Communications - To represent the non-existent infantry/tank communications the armour and infantry should be played by separate players. The players may discuss tactics etc prior to starting the game (but without looking at the playing area) but may not do so during the game unless the relevant command stands are in base to base contact, in which case each discussion is treated as an action. If the players decide to have such a discussion they must throw 1D6 at the end of the discussion. They will lose the initiative on a score of 4 or more, representing the loss of momentum while the commanders confer.

NVA Artillery FO - Has 25 fire missions for the 130mm guns (off-table). The ammunition will be replenished overnight and will recommence at 25 FMs from 0600 on the following morning.

Morale and Training:

- All NVA infantry are Regular morale and move as NVA.
- NVA armour uses the NVA armour rules in the Incoming Supplement (page 2). Morale is Green.

Deployment:

All NVA units deploy within 6" of the NVA table edge (or in any terrain item which crosses the 6" line). Units may be kept off table if desired. Moving on to the table is treated as one activity.

Victory Conditions:

The NVA will win the game when the South Vietnamese can no longer prevent NVA troops moving south through the town and exiting the playing area on National Route 1. Anything else will be considered a defeat.

Umpires Instructions & Notes

(Umpire's Eyes Only – Not for Players!)

LAW shock - The NVA armoured units, although well trained and drilled, were not used to combat and the effects of the shoulder fired 66mm LAW frequently unnerved the tank crews. The first time a LAW knocks out an NVA tank, dice (1D6) for each other tank in LoS of the destroyed vehicle. On a score of 5 the tank is pinned and must pass a morale test in order to move again, but on a score of 6 the crew panic at the effect of the LAW and abandon the vehicle! The vehicles may not be re-used unless a crew from another tank takes over. ARVN troops may not use the abandoned tanks but may set fire to them if desired. Any stand which spends one action in base to base contact with the tank may set fire to it.

ARVN Aid Post - One part of the barracks must be nominated as an Aid Post and will contain 1D6+5 casualty markers. These represent casualties wounded earlier in the fighting and must be saved from falling into Communist hands.

ARVN Ammunition Bunker - One of the bunkers/buildings within the barracks area must be nominated as an ammunition store (see miscellaneous events #1 below and map showing the bunker used in the game).

Miscellaneous Events:

The following miscellaneous events may occur at any time during the battle and are designed to add a little spice and interest to the game without being too silly. Each initiative the umpire will draw a card from a pack. If the ace of spades is drawn one random event is picked from the list. Each time the ace of spades is drawn the pack is reshuffled. In addition, each side may call for a miscellaneous event twice during the game. They may do so at any point even if they do not have the initiative. The events may affect friendly as well as enemy troops and should be used with caution! Once an event has occurred it is removed from the list.

- *Ammunition store explosion at Militia Barracks*: An ammunition bunker at the militia barracks explodes. Any stands within 2 base widths of the bunker are immediately suppressed and must dice, being killed on a score of 5 or 6.

- *Downed Aircrew need rescuing*: Hold a piece of paper approx 3' above the table and release it. Place a downed pilot stand at the point where it lands.

- *Downed helicopter*: As above but replace the marker with a crashed helicopter and crew stand.

- *Incorrect orders to Fall Back*: One randomly chosen enemy unit (platoon sized)

misunderstands an order or misjudges the situation and falls back 18" away from the most dangerous enemy threat and, as far as possible, towards its own baseline. If the unit leaves the table then it may not return until the side next has the intiative.

- *Short Round (either side)*: One randomly chosen unit comes under fire from a short round. Treat as an artillery attack and dice to see which stand is affected.

- *Lost Comms*: The communications fall into confusion at a critical moment – the side with the initiative lose it and play passes to the opposition.

- *Broken Arrow artillery mission (Either side)*: All friendly off table artillery (and air if ARVN) is being diverted to assist another friendly unit (which is in trouble if ARVN or is advancing heroically if NVA). No further off table support is permitted until the player throws a score 5 or 6 at the start on any subsequent initiative.

- *Breakdown (NVA only)*: A randomly chosen NVA tank breaks down and remains immobile for the remainder of the game.

- *Dust Off (ARVN only)*: Helicopter resources are available for casualty evacuation for a period of two hours.

- *Lull in the fighting*: Everything slows down for half an hour as the troops pause and get themselves sorted out. All Pinned and Suppressed units recover. Pinned or Suppressed units currently in the open may withdraw to the nearest safe cover. Add half an hour to the game clock and dice to see which side starts with the next initiative.



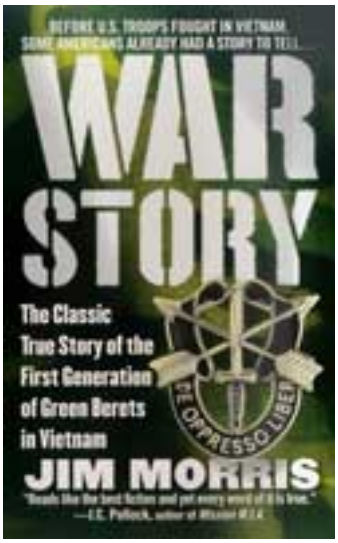
After Action Report

All figures and photographs are from the personal collection of Barrie Lovell© 2000

War Story



Jim Morris, St. Martin's Paperbacks, ISBN 0-312-97592-9



For several years I have read and re-read a well-thumbed and dog-eared paperback of *War Story* by Jim Morris and have occasionally acquired a few battered copies at used bookstores as gifts for friends. First published in 1979 and out of print since 1991, *War Story* was reissued in hardcover in 1994 by its original publisher, Paladin Press. It has since undergone fourteen subsequent editions, including six in paperback as well as a Military Book Club edition. A must-read for any veteran or student of military history, it is now available again in paperback from St. Martin's Paperbacks.

Published only four years after the fall of Saigon, *War Story*, was the first of what has become a plethora of non-fiction Vietnam War memoirs. But because of the political climate at the time of its initial publication this potential blockbuster bestseller was all but ignored by the New York publishing houses. *War Story* (named after the book's epigraph "The difference between a fairy tale and a war story....") was conceived during the author's convalescent leave in 1965 after his second tour of Vietnam. From 1965 until its publication in 1978 he rewrote it a total of six times (eventually including his third tour of duty from 1967 to 1968) and "each time collected enough letters of rejection to paper a wall." While Robin Moore's *The Green Berets* was such a sensation in 1965 that it inspired a John Wayne movie, and the same photo of Army Special Forces Staff Sergeant Barry Sadler would grace both the book's paperback cover and Sadler's top hit record, by the early 1970's when Morris wrote *War Story* the attitude towards the Vietnam War and America's elite warriors was colored by the anti-war movement, My Lai, the bombing of Cambodia, and the media's slanted reporting on Tet. Vietnam wasn't a popular literary topic. America had yet to undergo the "healing" process and as a nation it was happy just to put the Vietnam War in the past. Like our veterans and the MIA-POWs the Vietnam War was out of sight and out of mind.

Morris begins his memoir with the emotionally charged details of his re-occurring nightmare, a vivid and detailed replay of the firefight in which he had his left testicle shot off and was almost killed. In the nightmare though he is eventually killed..."the dream was becoming more stylized ... like a war movie with me as hero ... I would get weird close-up shots of jungle boots charging up the hill ... of the rifle jamming, then stills from my own eyes ... but it always ended the same way. Me dead." The nightmare

causes him to wake sweating in fear as many as twenty times a night. He ends the book with an emotionally charged memory also. In a heart-tugging coda, Morris recounts the scene. While standing in an Army hospital, his crippled right arm hanging at his side, his useless fingers attached to a mechanical brace he watches as the sun sets and the color guard lowers the flag; and tells us that as the flag is lowered "a feeling of almost overwhelming sadness, almost grief, came over me." As Morris attempts to salute the colors with his damaged right hand he stands "crying like a baby because I couldn't do it right."

A professional soldier who began military school as an eleven-year-old, Morris joined the Army and Special Forces where he rose to the rank of major. He volunteered for three tours in Vietnam and received four Purple Hearts and four Bronze Stars among numerous other decorations before a medical discharge for wounds cut his career short. After Vietnam and graduate school Morris traveled to Cambodia, ostensibly to cover the war for *Rolling Stone*, but in actuality he was searching for old Montagnard friends. He became the basis for "Marty Satterfield" in Haney Howell's *Road Runners*, a novel about war correspondents during the Cambodian War. Besides four novels Morris has also written *The Devil's Secret Name* and *Fighting Men*. *Operation Dumbo Drop*, a Disney movie starring Ray Liotta and Danny Glover, is based on a story Morris published in *Soldier of Fortune* magazine in 1980.

Jim Morris is a gifted story-teller and his book should be read for his Ludwig Faistenhammer and Larry Dring war stories alone. But at its heart *War Story* is the tale of Jim Morris, not an examination of the Vietnam War or even the role of Special Forces. *War Story* is Jim Morris' story and the real subject of the book is Captain Jim Morris, US Army Special Forces. Through him we experience just one of the Vietnam War's innumerable "war stories." It is, admittedly, a participant's interpretation of events. He offers up a good account of what it was like to be on the ground during the Montagnard revolt, to fight for survival during the Tet Offensive in Nha Trang, and to serve in the US Army's Special Forces during its hey-day in Vietnam. Regarding the Tet Offensive, Morris is shocked to find that while on the battlefield he is obviously one of the victors, at home his countrymen believed differently. Summing up his Vietnam experience Morris quotes Michael Herr's *Dispatches*, "Vietnam was what we had instead of happy childhoods."

This is a book by a soldier who is proud of his service, an experienced and consummate warrior who without a second thought or any moral retrospection whatsoever begs God to please send him some VC to kill for his birthday. He is happy to have fought and reveled in his duty with troops in the field. For this reason Morris took a dim view of his impending promotion to field grade rank-- "If I wasn't careful I would be promoted to Major soon, and there is no job in the Army that I was aware of past the rank of Captain, that is any fun for a guy who likes to run in the woods." Morris wanted to stay "in the woods" at all costs and fought his reassignment as a Public Affairs Officer and editor of *The Green Beret*, the 5th Special Forces Group's news organ, declaring, "I don't want an outstanding efficiency report-- I want to command an A-team!" And on being the commander of a Special Forces A-team Morris says, "I would rather command an A-Detachment than be president of the United States or win the Nobel prize for literature...."

Yes, it is without remorse or excuse that Morris realizes how much he liked commanding troops and conducting the business of war; he enjoyed combat duty in Vietnam. A thinking man's warrior who opens his book sections with quotes from the works of Carlos Castaneda, as a Special Forces professional Morris had strong opinions about the introduction of conventional units to Vietnam: "In 1964 the war had a nice 'Terry and the Pirates' ambience to it. Now it was full of psychotic commanders who thought they were re-fighting World War II with helicopters." He philosophizes about other men like himself: "I think perhaps Special Forces guys and other people like them have depressed metabolisms and they have to be exposed to some sort of danger to feel normal ... before going to Nam I didn't know that everyone wasn't paralyzed by boredom all the time."

Paralyzed with boredom is the last thing you'll be while reading *War Story*, a real standout amongst the burgeoning pile of popular literature on the Vietnam war. Compared to *War Story* most other first person accounts of combat duty in Vietnam appear as somewhat feeble attempts at war memoirs. Then again I doubt that many have been through six major rewrites over the course of eight years or have enjoyed publication in sixteen editions. Morris' prose is oftentimes humorous, always entertaining, and never boring, self-serving, or pedantic. A good example of his dry wit is how he describes his arrival at Ta Ko to take command of the Special Forces camp where "...the Strike Force had been for two years without going home or seeing a woman. Half of them had long hair and half of them had short hair and they were all real friendly with each other. But not with Americans. Every so often somebody threw a grenade into the team house." Obviously *War Story* is replete with a soldier's black humor regarding death and killing. One of the best lines in the book is: "I won't describe the operation because it was one of the most frustrating experiences of my military career, a compendium of tactical errors and blown chances grotesque enough to break the heart of anybody who likes to kill people."

But Vietnam wasn't all fun and games for Jim Morris. The loss he suffered, besides his physical and emotional wounds, includes the deaths of comrades and close Army friends in the close and brutal combat which marked Special Forces operations in Vietnam. Special Forces was a close community and the death of a "green beret" meant a personal loss. He agonizes over the fate of, Phillipe Drouin, one of his Montagnard comrades and a leader of FULRO, the Montagnard independence movement, who was a kindred spirit and Morris' close friend. Despite the disparity of the two cultures Morris formed a deep and long lasting attachment to the Montagnards during his three tours in Vietnam and was well connected to FULRO. While on an operation with the "Yards" at the end of his third tour, though suffering a life-threatening wound, he refused medical evacuation and proceeded to supervise the evacuation of his wounded Montagnards. His dedication to the Montagnard cause provided him with his paradigm for perfect happiness. "Get involved in something that is more important to you than your own life." In this regard Morris dedicates *War Story* "to anybody who ever died for something he believed in, whether he was right or not."

Special Forces' most ardent White House supporter, President John F. Kennedy, said, "Ask not what your country can do for you, ask what you can do for your country." Professional SF soldiers like Morris answered that call to duty and *War Story* gives us a glimpse of what our country asked of some of its young men and what they gave. For some it was too much. Others, like Morris, are still measuring the cost.

Review submitted by Rob Krott
Chief Foreign Correspondent, Soldier of Fortune magazine
(former 11B infantryman 1980-1983, 11A Infantry officer 1983-1997)



War Story

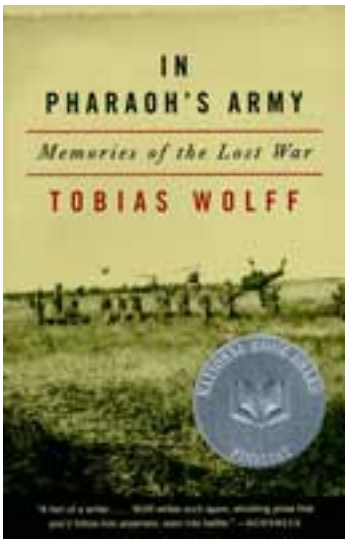


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In Pharaoh's Army



Memories of the Lost War, Tobias Wolff, 1994



Tobias Wolff's *This Boy's Life* won the Los Angeles Times Book Award and was made into a movie starring Robert DeNiro and Leonardo Decaprio, while his novel, *The Barracks Thief*, won the PEN - Faulkner award. *Pharaoh's Army*, his Vietnam War memoir, is personal and revealing, almost confessional. Published almost thirty years after his tour in Vietnam as a very young SF lieutenant, *In Pharaoh's Army* was probably a catharsis. It's as much as hinted at in his quote from Ford Madox Ford's *The Good Soldier*.

There's little here for fans of the hairy-chested heroics school of Vietnam memoirs. This book is good literature in the truest sense, akin to literary fiction like *Meditations In Green*, *The 13th Valley*, and *Tiger the Lurp Dog* and memoirs such as Michael Herr's *Dispatches* or Jim Morris' *War Story*. Wolff's memoir is the tale of a youth enroute to maturity along a troubled path, interrupted by Vietnam. He dreamily and unbelievingly punches his tickets to warrior status, but soon wakes up realizing he's just going through the motions and is wholly unsuited for the challenges ahead.

Wolff enlisted in the army, volunteered for Airborne, Special Forces, and OCS. After OCS Wolff attends the Defense Language Institute in Washington for a year to learn Vietnamese and he is sitting on his mother's couch when he reads of his friend's death in Vietnam. Throughout his yearlong reprieve from the war he has been acutely aware of the bill yet due, but when Wolff arrives in Vietnam he is unsure of the war and his own participation in it. He is dedicated, not to victory, but to ensuring his own personal survival. The personnel officer expects Wolff's assignment as an advisor to a Vietnamese artillery battalion near My Tho in the Delta to be a disappointment to the young SF officer, but Wolff is grateful for being assigned away from Special Forces. Having lost his best friend and other men he trained with in desperate battles at various A-camps Wolff also realizes that, "... I was scared stiff. The feeling was hardly unique over there, but I did have good reason for it: I was completely incompetent to lead a Special Forces team...I wanted out, but I lacked the courage to confess my incompetence as the price of getting out. I was ready to be killed, even, perhaps, get others killed, to avoid that humiliation. So this personnel officer gave me a way out..." In the years past he has reckoned with the personal cost of the decision he made to adopt an agenda based solely on staying alive in Vietnam.

Teamed up with a Korean War veteran, a black NCO by the name of Benet, Wolff settled into his year of "advising" the ARVNs. Wolff describes the small measures men take in combat to give themselves the illusion of having an edge over death, but makes the observation that, "... you couldn't help but notice that the good troops were getting killed right along with the slackers and the shitbirds." He survives Tet, "...which I think of now as a kind of birthday; the first day in the rest of my life..."

During Wolff's tour he seemed to understand Vietnamese culture and empathized with the people of My Tho. A glimmer of an indictment of the US Army's prevalent Ugly Americanism can be detected between the lines. His illustrations of certain events demonstrate one of the US Army's major failings in Vietnam: a lack of cultural sensitivity. Discharged after his return he finds himself disconcerted and aimless, not missing the Army, but realizing all he's ever done is soldier. His readjustment, like that of many, is a kind of perplexing limbo.

Wolff's prose leaves an impact. *In Pharaoh's Army* is one of those books that people either love or hate. Vietnam veterans will probably find either a wealth of failings or strong points and much to admire or criticize in Wolff's Vietnam era personae. Those who appreciate good literature will enjoy Tobias Wolff's latest example of success at a difficult craft.

In Pharaoh's Army: Memories of the Lost War, Tobias Wolff, Alfred A. Knopf, 1994; hardback, 221 pages.

Review submitted by Rob Krott
Chief Foreign Correspondent, Soldier of Fortune magazine
(former 11B infantryman 1980-1983, 11A Infantry officer 1983-1997)

Buy it now! amazon.com.
In Pharaoh's Army

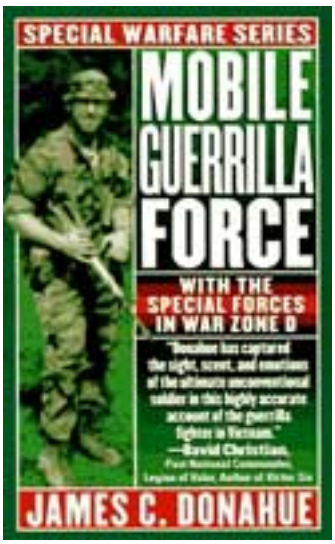


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Mobile Guerrilla Force



With the Special Forces in War Zone D, James C. Donahue, 1996



Mobile Guerrilla Force: With the Special Forces in War Zone D by James C. Donahue is the story of how a few U.S. Army Special Forces advisors and a battalion of Cambodians took the war to the VC/NVA in their own sanctuaries. Colonel Francis "Black Jack" Kelly, writes in the foreword that Donahue "has captured the essence of the Special Forces soldier in combat ... Donahue was there -- you feel it, you know it. This is the way it was."

Prior to enlisting in the U.S. Army Donahue (currently the US Department of Labor's Assistant Director for Veteran's Employment and Training in Buffalo, NY) had enlisted in the Marine Corps and served in Guatanamo Bay, Cuba, during the missile crisis in 1962. After his enlistment in the U.S. Army he volunteered for Special Forces and saw action with Detachment A-343 at Duc Phong and Mobile Guerrilla Force Detachments A-303, A-304, A-361, and B-36 at Bien Hoa, Ho Ngoc Tao, and Trang Sup. He earned the Silver Star, three Bronze Stars, the Purple Heart, two Air Medals, and the Vietnamese Cross of Gallantry.

Mobile Guerrilla Force is not Donahue's first book. *No Greater Love: A Day with the Mobile Guerrilla Force (*also published as *Blackjack-34)* in Vietnam was published in 1989, earning the George Washington Honor Medal. I read it in one sitting and remember being stunned at the ferocity of the combat that Donahue described. On that mission, Blackjack 34, he was a medic and deputy patrol commander with a MGF that found itself surrounded and besieged by regiment sized units of VC and NVA.

While Special Forces was primarily involved in training the ARVN from 1957 to 1961 their mission was significantly broadened in 1961 when Special Forces was given the mission to train and advise South Vietnam's minority groups: Montagnards, Cambodians, Nungs, and ethnic Vietnamese of the Cao-Dai and Hao Hao sects. This marked the beginnings of the Civilian Irregular Defense Group (CIDG) program. By 1965 SF "A-teams" had established 48 CIDG camps. In 1967 Colonel Kelly, the commanding officer of 5th Special Forces Group, directed the formation of Mobile Guerrilla Force Detachment A-303 in order to introduce American led "guerrillas" to VC and NVA controlled sanctuaries, specifically War Zone D, a Viet Cong "secret zone." Kelly ordered Captain James "Bo"

Gritz, the XO of the Nha Trang Recondo School to organize the company-sized force.

Mobile Guerrilla Force is riveting and at times, emotional; amidst the flurry of combat action Donahue describes the camaraderie between Green Berets and their Cambodian troops. Donahue's rapport with the free Cambodian guerrillas of his MGF is readily apparent. Indeed, unlike many other memoirs of duty in Vietnam, they are central to the story and you get to know many of the Cambodians as well as you do their American Green Beret commanders. Donahue includes many of his Cambodian comrades in the epilogue. While many did not survive their decade long struggle for freedom a few found happy endings here in the United States.

Mobile Guerrilla Force, by James C. Donahue. Naval Institute Press, 207 pages, 1996. Available in paperback.

Review submitted by Rob Krott
Chief Foreign Correspondent, Soldier of Fortune magazine
(former 11B infantryman 1980-1983, 11A Infantry officer 1983-1997)

Buy it now! amazon.com.
Mobile Guerrilla Force



Back to Book Reviews

The Long Range War



The Long Range War: Sniping in Vietnam by Peter R. Senich

Adherents of sniping and those collecting sniping rifles, equipment, and memorabilia will like *The Long Range War*. It is a well-researched technical and historical work. Senich is also the author of seven other books on sniping and weapons including: *The German Sniper 1914-1945*, *US Marine Corps Scout-Sniper: World War II and Korea*, and two other books on US military sniping (available from Paladin).

Senich documents the wide use of sniping tactics and new technologies, including the fielding of a wide range of experimental equipment, that was, until then, unprecedented in the US Army and USMC. The paddies and jungles of Vietnam became a laboratory for such erstwhile innovators as James M. Leatherwood, Gordon Ingram, and Mitchell WerBell III.

Senich begins his history of sniping in Vietnam with the lack of adequate equipment in the early days and the fielding of supplemental and expedient sniping systems. Advisory teams and other special units often adopted a "whatever it takes" attitude towards the use of civilian equipment. He painstakingly covers the history and circumstances of the XM21 sniping rifle and the Adjustable Ranging Telescope (ART) development, as well as the sound suppressors and their subsequent combat application in Vietnam. The book progresses to the rapid development undertaken after the 1965-1966 period when most sniping was done by troops with field expedient systems operating on their own agendas to the end of the war.

The Long Range War is the most definitive work yet published on the subject. Photos are numerous, averaging about two per page, and the book includes seven full-page illustrations by military artist Max Crace. Chapters address such topics as the development of the XM-21; auto-ranging telescopes and the Leatherwood Principle; noise suppression; night vision; and sniper instruction. There are plenty of blueprints, developmental drawings, tables of technical data, equipment photos, and copies of correspondence and official documents. Anyone who has an avid interest in sniping has probably already added this outstanding book to their military book collection.

The Long Range War: Sniping in Vietnam by Peter R. Senich, Paladin Press (1-800-466-6868) 1994; hardcover, 268 pages, 8 1/2 x 11, illustrated, photos (B&W)

Review submitted by Rob Krott
Chief Foreign Correspondent, Soldier of Fortune magazine
(former 11B infantryman 1980-1983, 11A Infantry officer 1983-1997)



The Long Range War

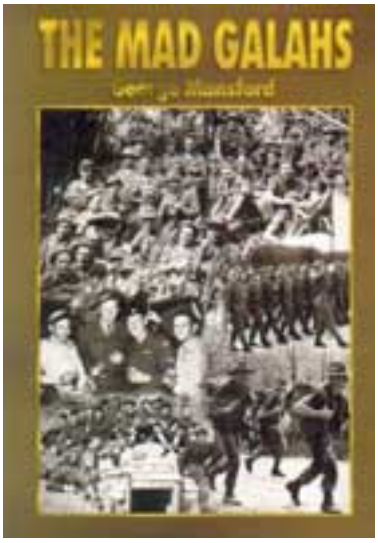


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The Mad Galahs



Brigadier (Retired) George Mansford, Published by George Mansford, QLD, 1999
ISBN 0646 3800 44



Galah (noun)*:* 1. A cockatoo of the species *Cacatua roseicapilla*, a popular Australian pet. Noted for its antics and loud call. 2. A person who lacks common sense. Someone foolish. *(Colloquial)* 3. An infantryman of the Royal Australian Regiment (RAR). *(Colloquial. Archaic?)* - Hopefully not.

Don't let the title of this book throw you. Written by one of, if not the, leading Australian infantrymen this novel examines the psyche of an Australian soldier in a way very few authors can. The novel is not solely about Viet Nam. It follows a group of young infantryman through their careers, from 1952 until after Viet Nam (briefly). On the way the book examines in detail what it's like to face a Chicom wave attack or to probe into a minefield in Korea. A detailed account is given of platoon-level operations against Communist Terrorists (CT) in Malaya, including a detailed look at how scouts tracked a wounded CT and his companions. And then the book moves on to Viet Nam, looking at pre-embarkation training at Canungra, ambushes and cordon and search operations through the eyes of the soldiers and officers of the RAR.

Throughout the book the reader will either find himself chuckling (as when "Antonio" is relieved to see the MP's for once) or tensely reading through the details of a firefight or casevac. And, to tell the truth, there's a time or two when the throat gets a bit tight and the eyes a bit gritty. The book reeks of realism - it's obviously the work of someone who has "Been There, Done That". The story is not political and not intended to carry a message. It's a simple, clear story of Australian infantrymen and what makes them tick.

But there's also a second story in these pages. A story that traces the evolution of a young Viet Minh into a Viet Cong. The evolution is dramatic and the character is much more than "the bad guy" that appears in other books when they bother to look at "Nigel" (the Aussie name for "Charlie"- "Nigel van Nog") at all.

Brigadier Mansford has captured the mindset and manner of the Australian soldier perfectly. It's not hard to understand. "Warry George", as he is still known, is something of a legend to the soldiers -

infantrymen in particular - of the period mid-'70s and through into the early '90s (the "Forgotten Army"), and probably before then, for all I know - the RAR was only two years old when he joined it. He joined the army in 1951 as a recruit and served in all three of the "war" battalions of the RAR that existed before the Viet Nam expansions. He reached the rank of SGT (E-7 equivalent for our US friends), serving in Korea, the Malay Emergency, on the Thai-Malay border and in Singapore in that time. He was commissioned in 1964 and became a platoon commander in 2 RAR. Later he served with the AATTV as a Captain in Viet Nam.

As a Lieutenant-Colonel he designed, raised and commanded the Land Command Battle School at Tully in 1980 to 1983. Brigadier Mansford retired in 1993, having raised 11 Brigade from 11 Field Force Group. From a recent message, I gather he's proud of never serving in too-political Canberra

Today he serves still as the Honorary Colonel, Far North Queensland Regiment and as an invited guest speaker at RMC, the Staff College, the Infantry Centre (ACTDC or whatever it's called this week) and various battalions of the regiment.

Like I said, he's "Been There, Done That". If you have any interest in infantry actions you'll do well in getting this book. It's not as polished as some novels written about this conflict, but the natural, gritty way it's written makes it read like a diary, not a novel. I got the last one that the Brigadier had from the first impression, but a second printing will be available in March, I believe. Serving members of the Australian Army may still turn a copy up in DPRI or regimental shops. For the rest of you, email Brigadier Mansford at madgalahs@bigpond.com to reserve a copy and be quick - the USMC already has dibs in and if you wait too long.....

Reviewed by Dallas Gavan
February 2001

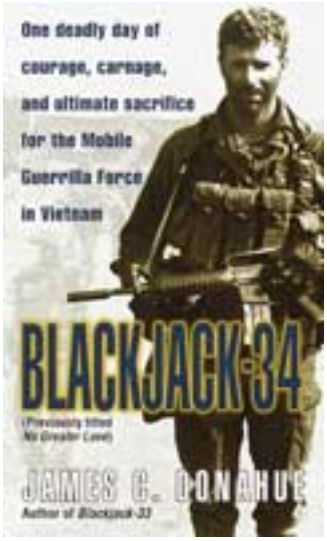


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Blackjack-34



James C. Donahue, Ballantine Books, 1998



The Mobile Guerrilla Force was an elite unit of indigenous troops led by U.S. Army Special Forces "advisors." The MGF operated in the enemy's rear for weeks at a time, ambushing Viet Cong and NVA units, destroying base camps, and gathering vital intelligence.

Blackjack-34 (previously published as *No Greater Love*) is the story of an operation conducted by the Mobile Guerrilla Force in July 1967 to locate enemy units for the 1st Infantry Division. The Special Forces led Cambodian mercenaries become the prey when a main force VC battalion surrounds them and attempts to destroy them.

Donahue's mastery of dialogue makes *Blackjack-34* read like a novel, but it's all real stuff. Check your clothes for powder burns when you're done reading this one. Winner of the Freedoms Foundation's George Washington Honor Medal

An elite unit armed to the teeth, the Mobile Guerrilla Force was America's only real guerrilla force in Vietnam. These men operated for weeks at a time--springing ambushes, destroying base camps, and gathering vital intelligence--in steamy, triple-canopied jungles ruled by the VC and NVA.

On July 18, 1967, Special Forces medic James Donahue and his platoon were on a mission, code-named Blackjack-34, to locate enemy units for the 1st Infantry to destroy. But instead a crack enemy battalion found them.

Now Donahue bears witness to the bloody events of that day and the exceptional grit and determination of his teammates. *BLACKJACK-34* is a magnificent tribute to the warriors of Mobile Guerrilla Force--their courage, heroism, and willingness to make the ultimate sacrifice.

James C. Donahue joined the Marine Corps when he was seventeen years old and served with the Corps through the 1962 Cuban Missile Crisis. After being discharged, he enlisted in the army and volunteered for Special Forces. As a Green Beret, he served with the 6th and 7th Special Forces Groups (Airborne) in

Fort Bragg, NC, and with the 5th Special Forces Group (Airborne) in Vietnam. His many military awards and decorations include the Silver Star, three Bronze Stars, the Purple Heart, two Air Medals, the Combat Medical Badge, and the Vietnamese Cross of Gallantry.

After earning a bachelor's degree in anthropology and a master's in social sciences Donahue went to work for the U.S. Department of Labor's Veterans Employment and Training Service. He has written two previous books; *Mobile Guerrilla Force* and *Blackjack-33*.

Review submitted by Rob Krott
Chief Foreign Correspondent, Soldier of Fortune magazine
(former 11B infantryman 1980-1983, 11A Infantry officer 1983-1997)

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Blackjack-34

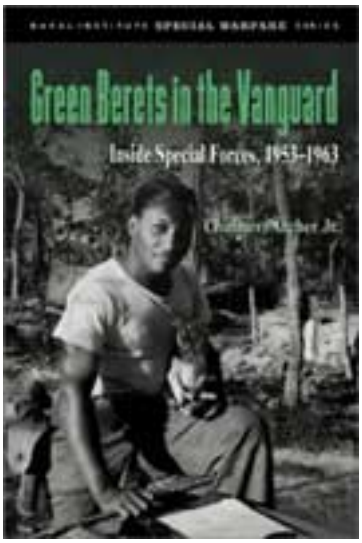


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Green Berets in the Vanguard



Inside Special Forces, 1953-1963
Chalmers Archer, Jr., Naval Institute Press



The author of the award winning *Growing Up Black in Mississippi* has written *Green Berets in the Vanguard: Inside Special Forces, 1953-1963*. Archer was one of the first operational SF NCOs in U.S. Army Special Forces and details the early missions of U.S. Army Special Forces in South East Asia. His narrative includes details on the planning and operations of the earliest missions into Laos, Thailand, and South Vietnam, which until recently were shrouded in secrecy. His perspective is unique, not only one of the first to wear a green beret but also as one of the first African-Americans to serve in the elite unit. Chalmers Archer witnessed the first actual American combat death in Vietnam and as a medic and trainer with the Vietnamese Special Forces at Nha Trang, treated the first wounded in the war. This is a fascinating book about the early days of SF and chronicles the complete history of the 14th Special Forces Operational Detachment that set the standard for foreign training missions. *Green Berets in the Vanguard* also details the changes in Special Forces doctrine from unconventional warfare to counterinsurgency warfare.

Review submitted by Rob Krott
Chief Foreign Correspondent, Soldier of Fortune magazine
(former 11B infantryman 1980-1983, 11A Infantry officer 1983-1997)

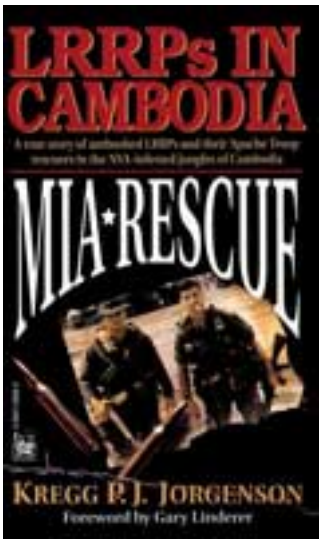


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MIA Rescue



LRRPs in Cambodia, Kregg P.J. Jorgenson



Previously published in hardback by Paladin Press (1-800-466-6868) as *MIA Rescue: LRRP Manhunt in the Jungl*e, Jorgenson's book is based on the events surrounding an ill-fated five-man Ranger unit that went missing in action during the 1970 Cambodia incursion and the subsequent rescue mission mounted to find the survivors. Jorgenson has pieced together the "real story" from a number of eyewitnesses and from official documents. On 17 June 1970 at 1650 hours, Team 5-2 of the 1st Cavalry Division's Long Range Reconnaissance Patrol (LRRP) met with disaster while skirting a large NVA unit. Fired upon by the NVA the LRRP team leader, SSG Deverton Cochrane, sacrificed himself, laying down a base of automatic fire directly into the enemy positions so his team could break contact. Team 5-2 attempted to report "contact," but a grenade wounded the radioman; the team's PRC-25 radio was shattered by a bullet. Another machinegun bullet passed through the radioman's collarbone before lodging itself deep inside his chest and the team medic was struck in the legs by machinegun fire. Both Cochrane and his assistant team leader received fatal wounds in the firefight. The three remaining Rangers were unable to find the assistant team leader's URC-10 emergency backup radio. SSG Dwight Hancock, the team's rear scout withdrew, dragging the two wounded Rangers into the jungle.

With Hancock carrying the medic and the radioman struggling to keep up the survivors searched for a suitable spot to hide from the NVA. Hancock cached his two wounded teammates in a clump of elephant grass and set off alone through the jungle for Fire Support Base David. Armed only with a knife Hancock would have to exfiltrate a division of angry NVA to get help and he had to do it before morning. Even if the wounded Rangers escaped detection in the night the NVA would find them in the morning.

Jorgenson says *MIA Rescue* should not be construed as the "official" version of what happened. But in the words of a helicopter pilot who took part in the rescue, "The trouble with the official accounts is that they're always too cut-and-dried, too black-and-white to really understand what had happened." He told Jorgenson, "When you tell the story do us all a favor and make it breathe." The style and pace of Jorgenson's narrative showcases the engrossing actions of the main participants. In *MIA Rescue* he presents a panoply of characters so rich it would make for a good Hollywood portrayal of elite units during the Vietnam War. Jorgenson himself is a character in the book and one of the well-known

"legends" of the 1st Cav. His doppelganger is "The Wise Guy," a young (19) "shake-and-bake" buck sergeant and former LRRP with Hotel Company 75th Rangers. Although he's too modest to talk about it, a television news crew immortalized Kregg Jorgenson in 1st Cav history and on film as "The Sergeant Who Likes To Walk Point." As he walked point for his unit, Jorgenson spotted an NVA ambush and was able to engage the enemy as AK-47 bullets tore up both of his legs. Besides counting a Silver Star for gallantry and a Purple Heart amongst his numerous combat decorations he is also the author of the best-selling *Acceptable Loss: An Infantry Soldier's Perspective*, *The Ghosts of the Highlands: 1st Cav LRRPs in Vietnam*, 1966-67, and a collection of stories, *Beacoup Dinky Dau,* now in paperback as *Very Crazy, G.I.: Strange but True Stories of the Vietnam War*.

Jorgenson's *MIA Rescue* has the feeling and the emotion that the anonymous chopper pilot wanted to see in this book. He delivers on the pilot's desire to "tell the story ... and make it breathe."

MIA Rescue : LRRPs in Cambodia, by Kregg P.J. Jorgenson. Ivy Books, paperback.

Review submitted by Rob Krott
Chief Foreign Correspondent, Soldier of Fortune magazine
(former 11B infantryman 1980-1983, 11A Infantry officer 1983-1997)



MIA Rescue


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War Stories of the Green Berets



War Stories of the Green Berets: The Vietnam Experience, Hans Halberstadt

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War Stories of the Green Berets is a compendium of war stories-- some hilarious, some heroic, and others sad, as told to Halberstadt by 26 men who served in Vietnam with US Army Special Forces. Hans Halberstadt served in Vietnam as a doorgunner and got to know some of the men in this book during their post-war service in the 12th Special Forces Group (Reserve). The men doing the storytelling in this book are the real thing and represent the whole range of the Special Forces experience in Vietnam.

It's all here-- from the A-camps, to the Mike Forces, to MACV-SOG and the Phoenix Program. Some of the names on the contributor's list sound like a who's who of Special Forces including Jon Caviani, Clyde Sincere, Otis Hedges Ashley, "Ben" Baker, Jim Morris, Walt Schumate, and Clayton Scott. There are three POWs, one Medal of Honor recipient, enlisted men, officers, and even a civilian "adopted" by Special Forces.

Morris, the author of *War Story*, *The Devil's Secret Name*, and *Fighting Men*, has probably used up all his own war stories, but he contributes an anonymous story, "Hood, Riding, Red, Little," which will elicit several giggles from any veteran familiar with the peculiarities of military nomenclature. One of the best and also funniest combat stories is "Aw, Bummer- Wrong Army," as told by Otis Hedges Ashley III who was probably the only 16-year old Ranger-tabbed, HALO-qualified Special Forces PFC in US Army history. Ashley grippingly recounts his hand-to-hand combat with several NVA that earned him a recommendation for the Medal of Honor. "Ben" Baker recounts some requests for supplies that were intended to be funny and still are over twenty years later. Many of the enlisted men in this book retired as field grade officers and hearing some of their true reasons for attending OCS are interesting. The pervasive humor in this book makes it an entertaining as well as informative read. The lighthearted storytelling of these "Green Beret" veterans will produce an occasional chuckle and most times a real belly laugh.

But it wasn't all fun and games; there are several stories full of pathos, heroic acts, and sometimes, personal sacrifices to be found in *War Stories of the Green Berets*. Clyde Sincere tells some great war stories including "Oops, Wrong Uniform!" in which he jumps out onto an LZ full of NVA and is so badly wounded that they strip him of his boots and uniform and leave him for dead. Dan Pitzer recalls an almost religiously redeeming story as a POW as does both Stephen Leopold ("Life in the Hanoi Hilton")

and Jon Caviani (who recounts the action which earned him the Medal of Honor and led to his capture in "Medal of Honor at Hickory"). I know John Padgett, but he never told me, "My Wife, the Assistant Machine Gunner."

There's a lot of history here. Different voices tell stories of the Phoenix Program, the Mike Forces, CORDS, and the Montagnards. This book leaves the reader with a good appreciation for the undying love and deep admiration that Special Forces soldiers felt for the Montagnards. The SF veterans in Halberstadt's book discuss operations, programs, and weapons with an insight gained only through hard earned experience. Halberstadt's contributors also tell stories about some of the great characters of Special Forces including Martha "Maggie" Ray and Walt Schumate. The Walt Schumate story "This Was Done By Ho Chi Minh," had me cracking up with laughter. Again, the humor alone in this book is worth the cover price.

Anyone whoever wore a Green Beret and certainly anyone who served with Special Forces in Vietnam will want to read this book. Even if you didn't, but like good combat storytelling and a good laugh, read *War Stories of the Green Berets*.

War Stories of the Green Berets: The Vietnam Experience, Hans Halberstadt, Motorbooks International, 1994; hardcover, 222 pages, B&W photos.

Review submitted by Rob Krott
Chief Foreign Correspondent, Soldier of Fortune magazine
(former 11B infantryman 1980-1983, 11A Infantry officer 1983-1997)

Buy it now! amazon.com.
War Stories of the Green Berets



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ARVN Armored Forces



Armor of the South Vietnamese Army, Part III

In the summer of 1967, it was decided to increase the number of M-113s in ARVN units from three to five, and the total number per squadron from 15 to 22 without increasing the number of soldiers. Among other approved proposals was one to disband armoured car squadrons and to issue M-125A1 81mm mortar carriers. Regimental headquarters retained their armored car platoons with the V-100s. An M-113 hydraulically operated vehicle-launched bridge and an M-113 dozer blade kit was also added to the ARVN armor's table of organization.



V-100 Commando Armored Car

The newly reorganized units fought several conclusive battles. During Operation "Cuu Long 15" in March 1966, the 6th ACR encircled a Viet Cong battalion at Moc Hoa and killed 200 of the guerrillas. On 16 September 1967, the 4th ACR repulsed an important night assault against the city of Quang Ngai. But it was during the infamous Tet Offensive, launched on 29 January 1968, that ARVN armor played a decisive role. Along with American armored units, ARVN armored cavalry regiments counterattacked to recapture the lost cities in bitter house-to-house fighting. The 3rd ACR broke up an attack against Quang Ngai in a two-day battle. The same unit later moved to Pleiku to withstand Viet Cong assaults for five days. At Ban Me Thout, the 8th ACR fought a three-day street battle. Encountering ambushes on the way, the 1st ACR travelled 100 kilometres (62 miles) in eleven hours to relieve the city of Phan Thiet.

At Saigon, the 10th, 5th and 1st ACRs fought various battles around Long Binh, Bien Hoa, Ho Nai and Due Hoa. At Thu Duc, a cavalry task force of students and faculty from the ARVN Armor School defeated the enemy in bitter street fighting. Inside the capital itself, ARVN M-41A3 tanks and M-113 APCs fought tenaciously with the help of Rangers to clear out the Communist occupied sections of town.



M-41A3 engaged in street fighting during the Tet Offensive

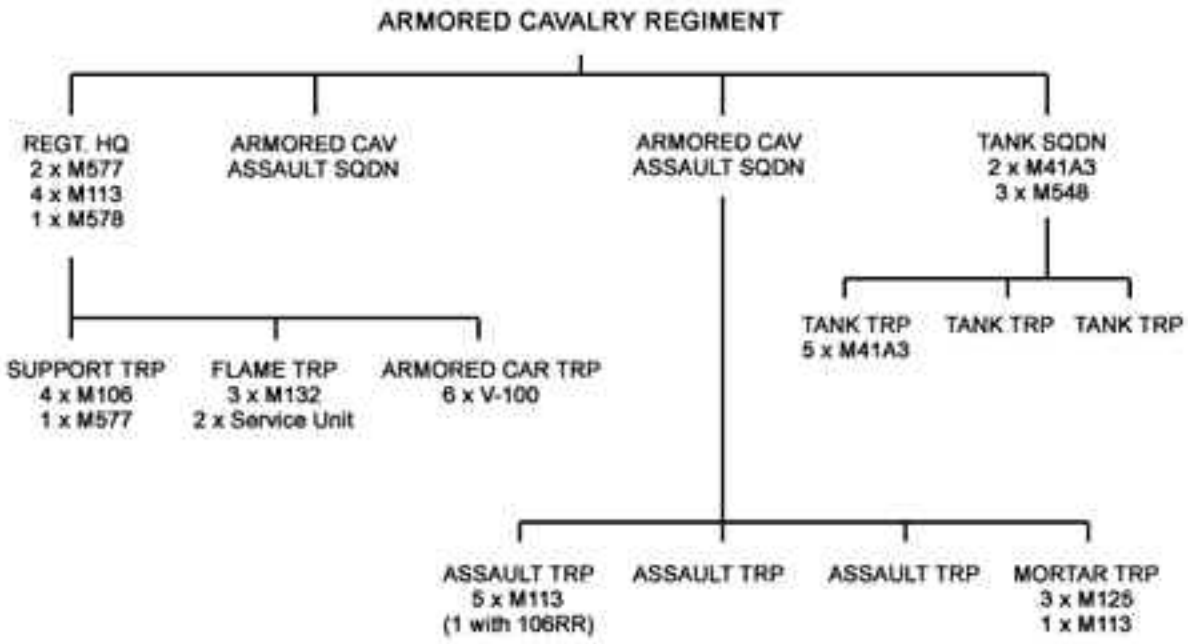


M-113 of 10th ACR during Tet Offensive

In the Mekong Delta, the provincial capital of My Tho was reoccupied after a three-day battle. The 6th ACR, along with ARVN and US Army infantry, killed 800 enemy troops. The 2nd ACR fought its way fifteen kilometres (nine miles) from their base camp to the city of Phu Vinh. Using massive firepower and without the aid of infantry, the cavalrymen destroyed the enemy resistance in the city in less than twenty-four hours. Later the regiment was redirected to retake Vinh Long after five long days of urban fighting.

Along the Demilitarised Zone (DMZ) that separated the two Vietnams, at Dong Ha and Chu Lai, the 4th and 7th ACRs fought with US Marine Corps armor battalions to clear out many ambushes set up by the PAVN along the main roads leading to Da Nang and Hue. At Hue, the old Imperial Capital, ARVN and US Marines fought the longest battle of Tet, which lasted twenty-six days. The 17th ACR, reinforced by elements from the 4th and 7th ACRS, supported the infantry assaults in a thickly populated area. Tank crews were so shaken by multiple hits from rocket-propelled grenades (RPG) - as many as fifteen on some tanks - that crews were changed at least once a day. Armored units were in constant demand and often expended their vehicle ammunition loads in a few hours.

The Tet Offensive improved the confidence of the ARVN troops in the very fighting that was designed to persuade them to desert to the enemy. The ARVN Armor Command proved its value in combat and was further expanded. Seven more armored cavalry regiments were set up during the 1968-1969 period. The first one was the 11th ACR at Dong Ha, followed by the 12th ACR at Can Tho, the 17th ACR at Hoi An, the 14th ACR at Kontum, the 15th and 18th ACR at Bien Hoa, and the 16th ACR at Long Xuyen.



Armored Cavalry Regiment TO&E

Only the fighting elements are indicated. The Regiments in the Delta (2nd, 6th, 9th, 10th and 16th) had three Armored Cavalry Assault Squadrons and no Tank Squadron.

In 1969, the various armored cavalry regiments deployed within a Military Region (the new name of the Corps Tactical Zone) were regrouped within an armor brigade. This brigade would be placed under the control of the Military Region commander as a mobile reserve. The 4th Armor Brigade was the first then created at Can Tho and was attached to Military Region 4. It was followed by the 1st Armor Brigade at Da Nang in Military Region 1. The year 1970 saw the creation of the 3rd Armor Brigade at Bien Hoa in Military Region 3. Finally, the 2nd Armor Brigade was set up at Pleiku in 1971 in Military Region 2.

During 1969, the ARVN armored regiments continued to support pacification operations, often operating with the regional and popular forces. In February 1970, the 1st Armored Brigade conducted mobile independent operations along the sea in the northern part of Military Region 1. Controlling up to two armored cavalry regiments, Rangers, and territorial forces, the brigade roamed over the area for two months and succeeded in destroying three enemy battalions. Almost 900 Viet Cong and PAVN were killed or captured, while the brigade lost sixty-eight men. For success in its first large-scale operation, the ARVN 1st Armored Brigade was awarded a US Presidential Unit Citation.

With the gradual withdrawal of US forces, under the policy of "Vietnamization", the ARVN armored units were destined to play the main role in future combat. On 14 April 1970, the ARVN 3rd Armored Brigade launched Operation "Toan Thang 41", a three-day operation into the so-called Angel's Wings, an area in Cambodia long used by the PAVN. This led to the capture of several logistical bases and the killing of 378 enemy troops.

On 20 April 1970, it was 4th Armored Brigade's turn, along with three armored cavalry regiments and three Ranger battalions, to attack into the Crow's Nest. Large quantities of equipment and weapons were

seized. On 28 April, the 2nd and 6th ACRs attacked again into the Crow's Nest and diverted enemy attention from the larger attacks in Military Region 3.

The major attack into Cambodia was a series of operations jointly planned and conducted by South Vietnamese and American units. When it began, Operation "Toan Thang 42", the ARVN portion, was probably the best planned South Vietnamese operation to date. The operation was planned so that US and ARVN forces were separated by well-defined boundaries, although they attacked simultaneously with the ARVN forces forming most of the eastern pincer.

Operation "Toan Thang 42" began on 29 April when the three task forces entered the Cambodian Svay Rieng province. All the units from the 3rd Armored Brigade were committed, and they reopened Route 1. On 2 May 1970, the 4th Armored Brigade also attacked into the Parrot's Beak to support an encirclement of the area by the 3rd Armored Brigade. The object was to trap the enemy with elements of nine armored cavalry regiments. The advance of the 4th Armored Brigade encountered heavy resistance during the afternoon. The vehicles from the 2nd, 6th, 9th, 12th and 16th ACRS, some 250 M-113s, lined up abreast at 25-meter (27-yard) intervals and, with infantry support, attacked on a 6-kilometer (3.7-mile) front on flat terrain. The breadth of the attack overwhelmed all resistance. The two ARVN forces linked up early in the afternoon of 4 May. Over 400 of the enemy were killed, and tons of ammunition and weapons were captured.

The ARVN task forces then sped north and secured Kompong Trach. On 17 May, ARVN M-41A3s and M-113s reached Route 15, halfway to the besieged town of Kompong Cham. In the meantime, the 11th ACR attacked the rubber plantation of Memot and captured 21 American-made 2 1/2-ton trucks of World War II vintage. The 11th ACR continued to advance in the Fishhook area in late May.

On 23 May 1970, the two ARVN armored brigades attacked toward Kompong Cham to relieve the siege laid by the 9th PAVN Division. The 5th, 15th and 18th ACRs inflicted a severe beating on the 9th PAVN Division in the rubber plantations of Chup. In mid-June, the PAVN 271st Regiment re-entered the Chup plantation and cut Route 15. For three days, repeated attacks were launched by the 15th and 18th ACRS, which finally cleared the road.

The ARVN forces of Military Region 3 periodically returned to Cambodia during the next eighteen months. Most of their operations were hit and run and had limited objectives. One operation, "Thoan Thang 01 -71 ", which started on 4 February 1971, ended in failure. Superior enemy forces on Route 13 quickly surrounded the ARVN task force. The 3rd Armored Brigade was ordered north to link up with the isolated task force, which attacked south hoping to pass trough the enemy positions. This ordinary withdrawal quickly turned into a rout, with the ARVN losing a dozen M41A3s and M-113s. The collapse of command under stress was to plague the ARVN forces up to the end of the war.



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North Vietnamese Army and Viet Cong



NVA ARMORED FORCES: T54

The T-54 was the result of adding the D-10 100mm gun to the T-44 hull to produce a new medium tank capable of holding it’s own on the battlefield. In order to accommodate the D-10T 100mm gun, it was necessary to design a new turret and carry out extensive modifications to the hull of the T-44. By adding armoured fillets at the mid-section of the T-44 hull, it was possible to expand the turret ring diameter sufficiently to accommodate the larger weapon. When the new turret and gun assembly were fitted to a modified T-44M hull, the resulting vehicle was designated T-54. The T-54 entered active service in 1949 and at the time was the most advanced tank of its class in the world.



Right-front view of T-54



Left-front view of T-54

The first model T-54 shared the same wide mantlet as the preceding T-44, and the numerous overhangs and shot-traps resulted in the turret shape being far from ideal. Consequently, an improved type soon followed the initial production model. This second model featured a new 'pig snout' mantlet, but it still had a turret overhang at the rear. It was not until the third model was introduced in the mid-1950s that the now familiar, standard T-54 emerged. The third model retained the 'pig snout' mantlet, but dispensed with the turret overhang. This new turret resembled a horseshoe crab shell and consisted of three major pieces: the turret casting proper, and two flat roof panels out of which sprouted the loader's and tank commander's hatches.



Close up of T-54 turret showing the DShK 12.7mm anti-aircraft gun and 100mm D-10T main armament



T-54A's of 201st Armored Regiment advance against ARVN 3rd Division positions

The T-54 is a straightforward, conventional design, noteworthy for its small size in comparison to comparable Western European or American designs. It has a four-man crew, consisting of a driver, gunner, gun loader and commander. It has good speed and manoeuvrability, though its loose 'dead' track is more apt to shed during violent turns than the track types used on Western tanks. Its 100mm gun is comparable to the 90mm gun used on the American M-48 Patton.

The hull is of a conventional welded construction with a simple box-like cross-section and boat-hull flanged edges where the suspension arms meet the hull. The transmission and engine are located at the rear of the hull and, unlike conventional designs, the engine is mounted transversely against the axis of travel. Engine fuel is stored internally in two cells; one beside the driver around the ammunition under the right side of the glacis plate, and another just before the engine. This internal fuel capacity of 115 gallons (522 litres) is supplemented by three external fuel panniers of 21 gallons (95 litres) each. Depending upon the production batch, T-54s can also be fitted with either one or two additional 44-gallon drums (200 litres) at the rear of the hull, bringing the total to approximately 264 gallons (1,200 litres). Beneath the large fuel drums, or to the side, the older models could carry two BDSH smoke dispensers, but retrofitted models carry a thermal smoke discharge system.



Profile view of T-54



Bogged down T-54 of 201st Armored Regiment

The driver steers the vehicle using a conventional clutch and brake system. Foreign engineers who have test driven the T-54 have commented on the strength required to drive it. This is due to the absence of pneumatic or hydraulic boosting on the controls although newer Polish- and Czechoslovak-produced machines did have this feature. To the right of the driver is a fuel cell and one of the main ammunition racks for the gun. A semi-fixed SGMT 7.62mm machine-gun is fitted in the centre of the glacis plate and is controlled by the driver. Many tanks have had this gun removed and the firing point blanked over due to the dubious utility of such a weapon. The driver is provided with two periscopes for viewing when the tank is buttoned up, and the seat is easily adjustable to raise the driver's head outside the hatch when not in combat zones. A hood and windscreen are carried for use by the driver in bad weather.

The turret arrangement of the T-54 is unconventional in several respects. As on the T-34-85 and T-44, the gunner and commander occupy the left half of the turret, and the loader occupies the right, the reverse to Western practice. The turret is not fitted with a basket, but the crew is suspended above the hull floor on seats. The turret is so cramped that the gunner nearly sits in the commander's lap. The bulky D-10T gun takes up a large portion of the turret's internal space and further congestion is caused by a ready-rack for ammunition stowage along the rear wall.



T-54s of 202nd Armored regiment prior to deployment in Laos during Operation 'Lang Son 719'



T-54A's of the 202nd Armored Regiment spearhead the PAVN opening attacks in the Easter Offensive

The fire controls for the armament are considerably simpler than those used on comparable foreign types. While the United States favoured an optical coincidence or stereoscopic rangefinder, the Soviet Army stuck to a simple stadiametric system. To engage a target, the tank commander locates a target using his TPK-1 designator sight and swings the turret roughly in line. Using the ranging graticule on his sight, the commander estimates range, informs the gunner of the type of ammunition to be used and the range of the target. The gunner takes over, fine aims the D-10T with his TSh-22 articulated telescope and fires. Should another shot be needed, the gun must be fully elevated to give the loader room to extract the spent casing and reload, and the gun must be resighted. The main drawback to this layout, apart from the time-consuming reloading procedure, is the relative inaccuracy of a stadiametric system compared to other methods, particularly at longer ranges. At close ranges, the system does allow for quick reaction time.

As production continued, the D-10T was refined. In 1955, a new version of the basic T-54 appeared

which, in the West, is usually designated T-54A. It was fitted with the newer D-10TG gun, which was gyro-stabilized along the vertical axis and had power elevation. It can be easily distinguished from preceding models by the small counterweight fitted at the fore end of the main gun to compensate for the stabilizer. Later, a bore evacuator was fitted. Internally, the vehicle had new air filters, an electric oil pump, a bilge pump for wading and snorkelling, an automatic fire extinguisher layout, and it was eventually fitted with additional external fuel cells.



Front-view of T-54



Side-view of T-54

About two years later, additional refinements led to the very similar T-54B. Once again, the major changes were internal. A new model of the 100mm main armament was fitted, the D-10T2S, which had stabilization in both planes, derived from similar units on US Lend-Lease equipment. For the first time, infrared night vision equipment was provided for the tank commander and gunner as a standard production feature. Other features included improved snorkel gear. The final major production type was given the US Army designation T-54X to signify its transitional role between the T-54 and T-55 family. The T-54X was essentially the same as the T-54B, but dispensed with the turret 12.7mm Degtaryev anti-aircraft machine-gun and cupola and featured a simple flush loader's hatch instead.

The T-54X was followed shortly afterwards by the T-55, which was first shown publicly at a parade in Moscow on 7 November 1961. This tank did not differ from the preceding T-54 series in any major respect, but basically represented a culmination in the technical improvements begun in the early 1950s. The major refinements in the T-55 were the uprated V-55 engine, an improved transmission and a rotating turret floor. The only external difference between a T-54X and a T-55 is the T-55's lack of the large circular roof vent forward of the loader's hatch. This vent is the key feature in distinguishing T-54s from T-55s.

With the introduction of the T-55, many of the earlier T-54s were re-manufactured or refitted with the new modifications, particularly the L-2G infrared searchlight and complementary vision devices. Some were also fitted with two-plane stabilization. Most notable among these retrofits were the T-54(M) and T-54A(M).

At the 1963 May Day Parade, the final major mutation of the T-55 family, the T-55A, was first seen. The

T-55A differed from the preceding model in having raised covers and anti-radiation lining over the two turret hatches and over the driver's position. The T-55A dispensed with the hull machine-gun, though many later production T-55s also had this modification and many other earlier types had it removed during repair. The space taken up by the machine-gun and its ammunition allowed the T-55A to carry six more rounds of 100mm ammunition. Although the standard production models of both the T-55 and T-55A were not fitted with the Degtaryev 12.7mm anti-aircraft machine-gun, many have subsequently been retrofitted with this feature, and are designated T-55(M) and T-55A(M), respectively. This was done largely in reaction to increased Western interest in tactical strike aircraft and assault helicopters.



Camouflaged T-54A's of the 202nd Armored Regiment move into position prior to the start of the Easter Offensive



T-54B of 202nd Armored Brigade crashes through the gates of the RVN Presidential Palace, 30th April, 1975

The People's Republic of China produces an unlicensed copy of the T-54, designated T-59, which is essentially similar to the basic T-54 but with some simplifications. China also produces two AFVs in the light tank category that strongly resemble the T-54. The first of these, the T-62 light tank (not to be confused with the Soviet T-62 medium tank), is essentially a T-54 with thinner armour, fitted with a 85mm gun and narrower tracks. The T-63 is a peculiar 4/5 scale mimic of the T-54, using the turret from the T-60 light amphibious tank with an 85mm gun, and the running gear of the K-63 armoured troop carrier.

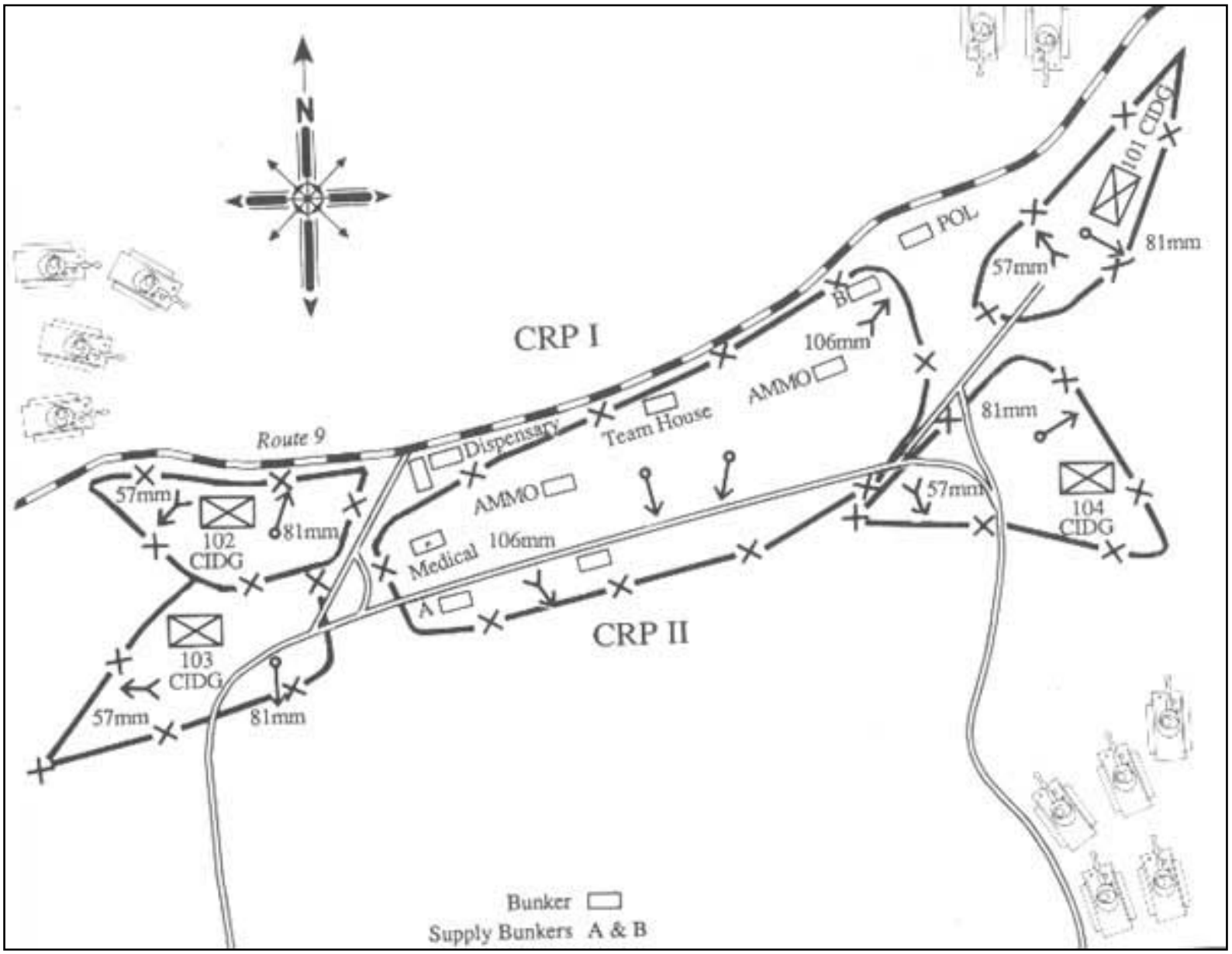
The T-54/55 family has been used as the basis for a number of self-propelled guns, tractors, bridging vehicles and armoured recovery vehicles. It has been built in larger quantities than any other post-war tank and has probably even exceeded the prodigious output of its predecessor, the T-34, which totalled at least 60,000 vehicles, not counting self-propelled gun and special purpose variants. As such, it is the most widely produced tank in history. In comparison, the total output of the post-war American tank family of the M-26, M-46, M-47, M-48 and M-60 amounted to only about 28,000 vehicles. Some estimates of the T-54/55's sixteen-year production run places the final total at well over 100,000 vehicles.

US Special Forces



Lang Vei: Tanks in the Wire

Submitted by Rob Krott ©2000



Plan of the Lang Vei Special Forces Camp, February 1968

US Special Forces



Lang Vei: Tanks in the Wire
Lessons Learned
Submitted by Rob Krott ©2000

COMBAT POWER AT LANG VEI

The defenders of Lang Vei were successful in interdicting and attritting the attacking NVA ground forces because of the camp's combat power, i.e. maneuver, firepower, protection, and leadership.

Maneuver

Maneuver plays a limited role in a defending force's combat power. However, the mutually supporting positions at Lang Vei forced the enemy to split his forces and to maneuver at a disadvantage.

Firepower

484 men defended Lang Vei. They were heavily equipped with crew served automatic and indirect fire weapons including two 106mm and four 57mm recoilless rifles, two .50 caliber heavy machineguns, and 4.2 inch, 81mm and 60mm mortars. The artillery and close air support for the camp was well planned and emphasized likely avenues of approach and suspected enemy staging areas. Willoughby called in the fire support while his NCOs manned the crew served weapons. This firepower, specifically Holt's 106mm recoilless, substantially attritted the attacking force. Absent during the attack was LT Bailey, the designated operator of the other 106mm recoilless. A replacement wasn't assigned during his absence. This reduced the camp's anti-tank firepower. LAW malfunctions degraded the effectiveness of the anti-tank teams.



Destroyed PT-76 after the battle

Protection

The camp's defenses, built around the 'fighting camp' concept, contributed to enemy losses. The chain link fence and triple strand of concertina with Claymores slowed the NVA infantry. Mutually supporting bunkers with overhead cover and good fields of fire contributed to survivability, complementing the camp's firepower. The protection afforded by the TOC bunker allowed survivors to hold out for nearly twelve hours until they could escape and evade capture.

Leadership

Lang Vei was fortunate in having LTC Schungel present to organize the anti-tank teams. Special Forces NCOs rallied indigenous troops and led them in the defense and counterattack of Lang Vei. CPT Willoughby ably coordinated the camp's defense.

THREE OF THE PRINCIPLES OF WAR

Surprise, Security, and Unity of Command in regard to Combat Power at Lang Vei. [reference US Army Field Manual 100-5]

Surprise

The NVA surprise attack significantly reduced the combat power of the CIDG camp. "Surprise can decisively shift the balance of combat power." Although the defenders weren't completely unaware of the tank threat to Lang Vei, the intelligence assessment came too late for more than hasty anti-tank

preparations.

Security

"Security is essential to the preservation of combat power." The technique of prior infiltration by VC/NVA was common to almost every attack on CIDG camps. Good security measures (especially after the NVA POW walked into the camp) and the vigilance of the Mike Force prevented the possibility of an interior attack by infiltrators. The Mike Force aggressively patrolled the camp's perimeter and gathered field intelligence. Because of the Mike Force's daily enemy contact and their discovery of the tank park Willoughby requested an airlift of LAWs and prepared for an assault.



Aerial view of knocked out PT-76's

Unity of Command

"The decisive application of full combat power requires unity of command." Unity of command did not exist between Lang Vei and Khe Sanh. The Marines did not execute the contingency plan for the relief of Lang Vei. This was a contributing factor for replacement of Marines at Khe Sanh with US Army personnel.

US Weapons and Ammunition at Lang Vei

Weapon	Quantity	Rounds Available
4.2 Mort	2	800 HE and Illumination
81mm Mort	4	2000 assorted
60mm Mort	16	3000 HE
106mm RR	2	20+ HE

57mm RR	4	3000(total) 2,800 AP
M72 LAW	75	NA
.50cal HMG	2	17,000
.30cal MG	unknown	275,000
BAR	39	200,000
M60 MG	2	5,000
Grenades	1000	(Fragmentation)
M18 AP mine	390	(Claymore)
M1/M2 Carbine	1 (per CIDG)	

*Information compiled from Cash, John A., John Albright, and Allan W. Sandstrum. *Seven Firefights in Vietnam* Bantam Books, New York 1985. p. 133, et al.

Casualties at Lang Vei*

UNIT	KIA/MIA	WIA	POW/ MIA
USSF	4	16	9
LLDB	5	3	-
CIDG	165	29	-
MIKE FORCE	34	32	-
NVA	250-500 (estimated)	-	-

*7 PT-76s confirmed destroyed and 2 possible

MIA/POWs

All of the KIAs were initially carried as MIA. Two of those listed as MIA, SFC Eugene Ashley , Jr. and SFC Earle F. Burke, were listed as MIA. SFC Ashley and Burke, were later confirmed as KIA when their remains were recovered. Burke was last seen manning the only remaining 106mm recoilless rifle still in action as SFC Holt went for more ammunition. SFC Kenneth Hanna and SFC Charles W. Lindewald, Jr. -- Hanna was wounded in the head, shoulder, and left arm. He was last seen at the mobile strike force outpost (as it was being overrun) treating Lindewald who was severely wounded by automatic weapons fire in the chest and abdomen. Lindewald reportedly died as the NVA swarmed over the hill. Hanna was probably KIA after an NVA tank fired directly into the bunker in which he and Lindewald sought cover. SP4 James L. Moreland, lying in the command bunker with a head wound, was listed as MIA but presumed KIA. SFC Harvey G. Brande, SSG Dennis L. Thompson, and SP4 William G. McMurry were captured and later repatriated in 1972. SP5 Daniel R. Phillips (last seen attempting to escape and evade through the wire while under direct fire from a tank) and SFC James W. Holt were the only two considered "MIA - possibly captured" after the final accounting.

*Compiled from: Stanton, Shelby *Green Berets at War* Dell Publishing Co.,Inc. New York 1987.pp. 365-372, 193, and Stockwell, David B. *Tanks in the Wire!* Jove Books, New York 1990.

ENDNOTES

1.Camp Lang Vei strength on 6 Feb 1968 totaled 24 Special Forces, 14 LLDB, 161 Mobile Strike Force, 282 CIDG (mixed Bru and Vietnamese), 6 interpreters and 520 Laotian tribal soldiers, not including civilians.

2. The SFOD-A 102 Camp at A Shau was overrun by human wave assaults by the 95th Regiment on 9/10 Mar 66. The 141st CIDG company defected en masse to the NVA. Aircraft crewmen and Special Forces soldiers opened fire on able-bodied CIDG to prevent the medevac helicopters from being overloaded. Later when helicopters attempted to rescue other survivors from an escape column trudging through the jungle, the SF and Nungs were forced to club CIDG with rifle butts to restore order. "On 12 March 1966 a final lift-out was summoned, and another panicked CIDG rush on the descending Marine helicopters ensued. This time the CIDG started shooting each other... " (Stanton 142)

3. "Following the battle of Lang Vei, eighteen M72 LAWs were test-fired by Detachment A-109 at Thuong Duc. Six failed to fire: Three of these six failures were due to malfunctions within the firing mechanism. A second check of all firing pins and safeties was conducted, after which a second attempt was made to fire the weapon. They again failed to fire. The tube was collapsed and extended back to the firing position, and a third attempt was made to fire the weapon with negative results. The remaining three M72 LAWs ignited, but the rocket failed to leave the launcher tube. Of the twelve rockets that did fire properly, one failed to detonate upon impact." (Stanton 192)

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PT-76 rests on the site of the Lang Vei battle as a monument



Peter Pig



North Vietnamese Army T-55 Review

Submitted by Barrie Lovell

Over the past couple of years or so I have built up some ARVN forces in 15mm, to allow me to game some of the actions of the late war period, such as the Easter Invasion of 1972. Many of the battles that took place during the last few years of the Vietnam War involved the use of North Vietnamese armoured vehicles. However, although it is fairly easy to find US built armour for use with ARVN troops, I had not really found what I felt to be a decent model of the T55 tank, which was used extensively by the NVA. Most of the available models seemed to be too small for 15mm scale or else were later models and unsuitable for the Vietnam period.



North Vietnamese T-55

However, having seen the quality of the armoured vehicles produced by Peter Pig over the past few years, I recently treated myself to several of the T-55 tanks from their extensive AK47 range, which covers the wars in modern Africa. As a bonus Peter Pig also produces a resin cast wreck of the same vehicle.

The T-55 tank model costs £5.00, but you get a lot of metal for your money. The model comprises a number of parts:

- 2 sets of track and running gear
- Hull

- Turret
- Main Gun Barrel
- 2 turret hatches
- 2 Fuel Drums

As with most Peter Pig models the detail was excellent – in particular I was impressed with the tracks and running gear, the engine decks and the commanders and loaders cupolas.

Assembly of the parts was fairly straightforward and all the parts fit well. Cleaning up and preparation prior to assembly was minimal – one of the things I like about the Peter Pig ranges is the crisp, clean casting. There were a few obvious mould lines which needed tidying up, particularly around the curved sides of the turret, but cleaning these up took only a few minutes with a scalpel and file.

The models were glued together using an ordinary super glue and Bostick. I did discover however that the main gun barrel needed to be supported while the glue set otherwise there was a tendency for it to droop. I also braced the track/running gear sections with strips of balsa wood on the inside for added support (the balsa strips would be hidden underneath when the tank was viewed the correct way up and mounted on a textured base. The hatches were a bit fiddly to glue in place but I found that the best way was to apply the super glue to the open cupola edges and to place the hatch in position using a pair of fine tweezers.

Once assembled I was able to have a good look at the whole vehicle. I was impressed. As with the Peter Pig M-48, the bulk of the tank really came across, giving an impression of size and weight. The model certainly looks the part, in particular the characteristic "half egg" shaped turret, with its prominent cupola bolts, and the gap between the first and second road wheels look just right.



T-55 Turret Detail

The tracks sag realistically and lie along the tops of the roadwheels, looking as if they are being held in

place by the weight of the metal. I am not sure how accurate the model is with regard to its scale dimensions but, to be honest, I don't really care, – it looks the part and fits in beautifully with the range of 15mm Vietnam figures. If you are really bothered about whether it is a couple of millimetres too long or short then you need to get out a bit more often!



T-55 Running Gear and Turret

Unlike US and ARVN vehicles which were often cluttered which extra equipment, the NVA vehicles seemed almost spartan by comparison. I chose to leave the spare fuel drums off the models as they are rarely seen in most contemporary photographs (they will not be wasted though – I will probably make add them to some clutter scenery or vehicle loads).

I also had a spare Peter Pig WW2 Russian Tank Commander figure which I thought I would use in one of the vehicles to indicate the platoon commander's vehicle. It was a simple matter to glue the commander into the open cupola and, once the glue had set, to attach the open hatch (gluing the hatch to the commanders back for extra strength).


Tank Commander

Bases were constructed from mounting board and textured with sand and PVA glue.

All the painting was down with acrylic paints and inks (a mixture of Humbrol and artist's acrylics) over a black undercoat.

The vehicles were initially painted a mid-olive green (a mix of black, yellow ochre and green). When this was dry they were given a wash of Daler Rowney Artists acrylic ink No 251 Sepia (a dark brown colour). Once the wash was dry the models were drybrushed mid green, lightening the colour slightly with yellow ochre and white between coats, until the desired shade was reached.

The tracks and canvas mantlet cover were painted Humbrol acrylic Earth, given a wash of Sepia, and drybrushed with lighter shades of Humbrol earth.

At this point I painted on the insignia and turret markings – these were all taken from photographs shown in the sources listed below and added a touch of colour to the models.

The bases were painted next, drybrushed with various shades of yellow ochre, lightening each coat with white.

The next stage was to apply the dirt! The models were drybrushed, working from the tracks upwards, with yellow ochre, lightening the coats with white. The flat upper surfaces were also drybrushed with ochre to represent the layers of dust and mud which accumulate on these surfaces. This also helped to blend the model in with the colour of the base.

Finally the searchlights were painted silver, and the tank commander was painted – green overalls, black tank helmet and a dark flesh for the hands and face.



Business end of the T-55s Main Armament

The last job was to decorate the painted bases with some static grass and finish off the completed model with a coat of Games Workshop spray varnish – incidentally the spray varnish will also help to fix the static grass in place. I must say at this point that I wouldn't normally endorse Games Workshop products, as I do not personally agree with their marketing strategy or prices, however their spray can varnish is the ONLY type I have found which gives consistent results. The spray valve does not clog up before the can is completely empty, unlike those produced by other manufacturers which become useless by the time the can is half empty – I used to have a lot of trouble with Humbrol spray cans, throwing them away half empty, and eventually I stopped using them.



NVA T-55 Platoon

Having finished the T-55's I have to say that I couldn't resist also buying one of the wrecked T-55 models – I thought it would make an excellent item of scatter scenery.

The wrecked T-55 model is a single piece resin casting, obviously based on the metal T-55 model. It is depicted with the left side buried in a dirt bank, with the track and a couple of the road wheels lying adjacent to the vehicle, as though they had been blown off by a mine. There are a several crew casualties lying on and around the tank, and the vehicle itself has had extra stowage items added, to reinforce potential weak spots in the resin casting and to prevent breakage when removing them from the mould I suspect.



Wrecked T-55

Like the metal tanks the wreck is a lovely model – the only criticism I could find, and I am being really nit-picky here, is that the gun would not be able to lie across the glacis plate at the angle depicted in the model. This is simply because, due to the design of the turret and the size of the breech and gun cradle in T-55 series, the gun was physically incapable of being depressed to that angle. However, I suspect this was also done with ease of casting in mind rather than for any other reason and it should not detract from what is a good little model.

The wrecked T-55 was undercoated black and painted to match the other models.

All of the models are available from Peter Pig at http://www.peterpig.demon.co.uk/

The T-55 tanks are £5.00 each, not cheap but good value for money considering the size and detail of the model, while the T-55 wreck costs £3.00. Overall, an excellent pair of models, well detailed, easy to assemble, and they look good on the tabletop.

Barrie Lovell June 2001

All figures from the collection of Barrie Lovell
Figures painted and photographed by Barrie Lovell Copyright © 2001



Back to Figure and Model Reviews

See Also:

The Fight for National Route 1

References:

The following books were used as references for assembling and painting the models:

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Armour In Vietnam: A pictorial History (Jim Mesko, Squadron/Signal Publications, ISBN 0 89747 126 1)

FC 731

The Fight for National Route One



NVA Easter Invasion, May 1972

Submitted by Barrie Lovell©

The Game

I played the game with several of my friends from the Shrewsbury Wargames Society. Unfortunately one of the intended players dropped out at short notice and another failed to turn up due to an unexpected work commitment. This left one poor South Vietnamese player to cope with three NVA players. However, in the event it all worked out well and all the players seemed to enjoy themselves .

The initiative system was organised as normal but with the NVA players taking it in turn to lead when they had the initiative.

The game started fairly slowly, commencing at 0600 hours. The initial NVA advance was quickly halted by some accurate fire from a South Vietnamese Marine heavy machine gun position which decimated the leading NVA platoon. The NVA armour was moved up to maintain the advance but the lead vehicle was ambushed by VNMC LAW teams and a 106mm RCL and knocked out, effectively blocking the road.



The leading NVA T-55 is destroyed by a VNMC anti-tank RCL.

While the NVA manoeuvred their armour around the blocked road the NVA infantry made full use of supporting artillery and mortar fire to move closer, their initial objective being the ARVN barracks. Heavy ARVN fire again halted the NVA advance but swift retaliation from the NVA artillery, which knocked out the 106mm RCL, threw the South Vietnamese troops into confusion.



Shells from NVA artillery and mortars crash down of the defenders of the barracks.

A counter attack by some ARVN M113's slowed the NVA assault on the barracks but an NVA RCL knocked out one of the APCs. The NVA gun was a major threat to ARVN movement along the road and was subsequently destroyed by an accurate air strike called in by the South Vietnamese Marine's US advisor.



Disaster for the ARVN as two counter-attacking M113s are destroyed as they approach the barracks

At about 0800 hours there was a lull in the fighting and both sides reorganised, the NVA consolidating

their positions close to the barracks area.



A USAF F-4 makes a bombing run on the NVA recoilless rifle that had knocked out one of the ARVN M113's

The fighting flared up again at 0830 and the NVA were still struggling to fight their way into the barracks when a stray round hit the ammunition bunker in the barracks. The resulting explosion killed a number of the ARVN defenders and in the confusion the NVA managed to cross the wire perimeter and occupy a part of the barracks.



A stray NVA 130mm round blows up the ammunition bunker in the ARVN barracks, killing three stands outright and suppressing several others

While the fighting flared around the barracks the NVA armour had manoeuvred onto a low ridge overlooking the eastern side of the town and were firing energetically (if not too accurately) in support of more NVA infantry who were attempting to outflank the barracks on the eastern side.



NVA reserves move forward behind the tanks

The Vietnamese Marine Corps defended themselves stoutly, using LAW teams to threaten the NVA tanks. However the massed fire from the T-55 tanks steadily began to tell on the defenders and one by one the Marine positions fell silent, including the VNMC machine gun position which had held up the original advance.

To counter the NVA armour two more air strikes were requested by the South Vietnamese and, although one T-55 was knocked out, the AA fire was sufficiently heavy to force the majority of the attacking aircraft to abort their attacks.



Another air strike – this one destroyed an NVA T-55 tank
Subsequent attacks were not so successful

By this time however, about 0930 hours, the NVA were gaining the upper hand. An attempt by the South Vietnamese M113's to restore the situation in the barracks was defeated when the two remaining M113's were destroyed within seconds of each other just outside the barracks by well aimed RPG-7's fired by NVA infantry who had approached close to the town.



NVA and South Vietnamese Marines battle for control of the town

The destruction of the ARVN APCs appeared to be the turning point. Despite suffering heavy casualties the NVA had managed to fight their way into the town and, by 1000 hours, had pretty much managed to cut the National Route 1 leading south to the Dai Dap bridge. At the same time the South Vietnamese defence was reduced to isolated pockets of resistance and was unable to restore the situation, despite some outstanding displays of gallantry by the remains of the South Vietnamese Marines (and some lucky dice rolling by the player). By 1030 hours it was all over.

Conclusion

The NVA suffered very heavy casualties throughout the battle, but they made the maximum use of their supporting firepower to suppress the ARVN defenders and also retained sufficient reserves to punch through any gaps that opened in the South Vietnamese defences.



NVA tanks move up in support of their infantry
(who can be seen on the outskirts of the town)

The South Vietnamese troops, in contrast, were deployed with most of their troops well forward. While this meant that initially they could put down a lot of fire that held up the NVA, it also meant that there were few reserves available to plug the gaps once the casualties started piling up. The M113s were used as a mobile reserve until they were destroyed, after which the South Vietnamese were unable to prevent the NVA breaking through.



The victorious NVA commanders, Greg, Ralph and Chris – well done guys
(and commiseration's to the South Vietnamese player Andy who put up an excellent fight).

The troops on both sides fought hard and the ferocity of the fighting was apparent from the fact that neither side made any attempt to remove their casualties from the battlefield (in marked contrast to most Vietnam games) – both sides seemed determined to do or die.

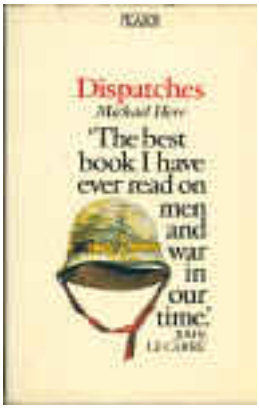


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Dispatches



Michael Herr, Published by Pan Books 1978
ISBN 0-330-25573-8



Released to tremendous and universal critical acclaim, Michael Herr's' Dispatches has become almost a literary icon for the war in Vietnam. The book is a kaleidoscopic account of Herr's time in Vietnam as an independent reporter of the war. Michael Herr writes with a style which is almost helter-skelter in it's use of rapid, quick firing images. The effect which helicopters (a central image in the book) have had on his deep sub-conscious surfaces in the 'whoop-whoop-whoop' pace of the writing.

The book is thrilling to read, full of anecdotal material about the group which Herr hung out with (including Tim Page and Sean Flynn) as well as containing lots of detail about the Grunts with whom Herr spent a lot of time in the field. In many ways the events of the narrative are presented from a drug induced perspective so that in some ways it is abstracted from reality whilst retaining almost crystal clear and insightful views of that reality which would not normally be discernable by other means.

Throughout the narrative, Herr captures in words what his friend, Tim Page, managed to capture on film, namely that war is an extremely personal experience for those who fight it and those who observe it up close and in the end it numbs our sensitivities. At the same time it can be an exotic experience to those involved and quite often represents the ultimate in intimacy - soldiers who face death together every minute of their day develop relationships of tremendous depth. Invariably though, these relationships are only transient and time-place dependent since no combat soldier can afford the emotional luxury of such feelings amidst such horror.

There exists a constant juxtaposition between the reality of the war in the field and the unreality of the war in the rear, in particular in Saigon. The ebb and flow of the book hinges on this contradiction. Just a few klicks from the decadence of the 'jewel of the Orient' Herr's fellow countrymen where dying on a daily basis. This infinite gap between the appearance and the reality of war also applies to that gap which, despite repeated attempts to cross, exists between Herr himself and the soldiers of whom he writes. Herr constantly tries to impress upon the reader how much he identifies with the Grunts but ultimately, as the Grunts themselves point out, the war for Herr is an indulgence not a necessity.

In many ways the style of the narrative matures as it progresses which in effect parallels the maturing view of the war in Michael Herr himself over the period of time he was there. What starts out as an amazing and almost glamorous adventure, narrated in a punchy, fresh and exhilarating style, slowly undergoes a transition towards a somber and often dour refection upon war itself. This for me is what enables the book to transcend the limitations of a simple narrative about war. Herr's gradual realisation that a report of the war, no matter how insightful the recollection, can never portray the truth of the experience as perceived by the Grunts who were fighting it. Despite his longing to be one of them, Herr remained an outsider, denied access to the inner circle, the brotherhood of arms, because in the end he was not a combatant.

There can be no doubt that Dispatches is a classic in it's genre and yet I nonetheless have some reservations about both the book itself and the reviews which it attracted. I certainly do not think it is the best Vietnam book ever written and neither do I subscribe to the view that Herr and his compatriots are to be commended as 'champions' of the Grunts whom they reported on. In many respects the book is an indulgence of an adolescent fantasy about war which finally turns around and bites the writer. Herr was there, he was scarred by the experience, but he was not a combatant and one is constantly reminded of this by his frequent sojourns back in Saigon. When the war got too much for him Herr, like many others on the fringe of the war, possessed a safe haven and the comforts of drink, drugs and women. The soldiers in the field, with whom Herr suggests he identifies, had to stay put while he helicoptered out. In the final analysis Herr was a reporter, a civilian, making a living on the war without contributing in any way to the actuality of the conflict except to record glimpses of it for posterity.

Dispatches is a good book, possibly a great book, and certainly ranks amongst those books which I would consider as a 'must read'. Writers such as Herr, while not necessarily contributing as combatants nonetheless make a huge contribution to our perception of war itself. This book is about nobility amidst futility, it is about a noble endeavor pursued by ignoble methods - ultimately it is about the death of innocence.

Reviewed by Mike R

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ARVN Armored Forces



Armor of the South Vietnamese Army, Part IV

Encouraged by their Cambodian experience, the ARVN decided to move into Laos near the DMZ to sever the Ho Chi Minh Trail. The operation was codenamed "Lam Son 719". The main objectives were the towns of Aloui and Tchepone, and the main progression axis was Route 9. The 1st Armored Brigade began the ground attack on 8 February 1971. Unfortunately, ARVN intelligence had underestimated the PAVN strength in the area and the initial drive was conducted only by the 11th and 17th ACRs, which had fewer than seventeen M-41A3 tanks. Route 9 turned out to be in very bad shape and in need of urgent repair by the engineer troops. Nevertheless, on 10 February the ARVN forces captured Aloui, but further advance was bogged down in the face of PAVN resistance.



M41A3 of 1st Armor Brigade advance during Lam Son 719

The 1st Armored Brigade was then redirected to support the Landing Zones (LZs) north of the town. Despite armored support, LZ Ranger North and South were abandoned. The PAVN then launched a series of infantry/armor assaults against LZ 31. On 19 February, the 17th and 11th ACRs reached the besieged position and engaged in combat for the first time with PAVN armor. By day's end the M-41A3 tanks had claimed no less than six T-54s and sixteen PT-76s, with no loss incurred by the ARVN tankers. Six days later the ARVN was forced to evacuate the position. During the retreat toward Aloui, the PAVN

kept up constant pressure, launching several armored attacks. On 27 February, the 17th ACR pushed south and destroyed an additional twelve PT-76s and three T-54s, losing three M-113s in the process. On 1 March, during a daylong battle, the regiment claimed another fifteen enemy tanks while losing six M-113s.

The tanks and APCs eventually reached Aloui and dug in around the town. There piecemeal armored squadrons sent there from the reserve of Military Region 1 reinforced them. In the meantime, a helicopter assault had seized Tchepone further north. Yet even this failed to ease the pressure on Aloui, and no troops could link up with those at Tchepone. Finally, a withdrawal was ordered along Route 9, where the PAVN had set up a series of ambushes with five infantry divisions and two tank battalions.

Five tank squadrons and six cavalry squadrons, some 75 M-41A3s and 130 M113 APCS, were committed to keeping Route 9 open. On 19 March, it was the 1st Armored Brigade's turn to withdraw. At a stream crossing between Aloui and LZ Alpha, the unit suffered a heavy ambush. Four M-41A3 tanks were hit in the middle of the stream, which then blocked the route. The 11th ACR tried to bypass the brigade, but soon all order in the armored column was lost. The retreat quickly turned into a rout, and the troops abandoned their vehicles to flee toward the South Vietnamese border. Nearly all the equipment of the 1st Armored Brigade was lost or abandoned.



Captured M-41A3 of the 11th ACR

After this staggering defeat, the ARVN armored units were refitted and trained with new equipment. In 1971, a new armored cavalry regiment, the 19th ACR, was created at Pleiku. Some M42A1 Dusters were also delivered to form artillery air defense battalions along with batteries of truck-mounted M-55 quad.50 calibre machine guns. The first tank regiment, the 20th Tank Regiment, was also set up at Quang Tri and attached to the 1st Armored Brigade. The unit inherited 54 M-48A3 tanks from the departing US units, but lacked bridging equipment and M-88 recovery vehicles. The unit had just ended its training when it became engaged in an effort to repulse an all-out PAVN invasion.

With the last US ground units gone, the Communist forces launched an all-out invasion of South Vietnam on three fronts - the Easter Offensive. Three infantry divisions and two armored regiments attacked across the DMZ on 30 March 1972. The ARVN forward firebases were quickly overrun. The 7th and 11th ACRs supported some Marine units that continued to resist around Dong Ha on the bank of the Cam Lo River. Then it was decided to commit the new 20th Tank Regiment to try to stop the PAVN offensive. On 2 April, a squadron from the 20th Tank Regiment engaged a PAVN armored column in a long-range shooting match west of Dong Ha, destroying two T-54 and nine Type 63 tanks, with no losses of their own. On 9 April, the 20th Tank Regiment, together with two squadrons from the 17th ACR, faced another PAVN assault and destroyed sixteen more T-54s and captured a running Type 59, again without losing any M-48A3s.



M-48A3 of 20th Tank Regiment on the Dong Ha line

In an effort to break the deadlock, the PAVN brought up additional men and material. The ARVN also brought up all the 1st Armored Brigade to the front line with the 4th, 11th, 17th ACRs and the 20th Tank Regiment. The 18th ACR sent by Military Region 3 was also directed to Dong Ha. On 23 April 1972, the PAVN employed wire-guided AT-3 anti-tank missiles for the first time in the war. Three M-48A3s were destroyed and other vehicles were damaged. Constant artillery attacks also began to extract its toll among the ARVN armored vehicles.

On 27 April, the PAVN opened up a new offensive against Dong Ha, and the ARVN was forced to retreat. This withdrawal was carried out without panic, but a lack of supplies and spare parts caused some tanks and APCs to be abandoned. After five days, the 1st Armored Brigade arrived at Quang Tri and dug in. This town was also to be abandoned, and the ARVN armored units continued their orderly withdrawal to the south. The month-long battle drained both sides, and the front once again stabilized. In the retreat, the 1st Armored Brigade lost most of its equipment, notably the 20th Tank Regiment, which lost all of its Patton tanks. Some were lost to rocket or artillery, but the majority either broke down, ran out of fuel or were stranded when bridges were destroyed. In return, the 20th Tank Regiment claimed over 90 enemy tanks. Nevertheless, it was a high price to pay since nearly all of the 1st Armored Brigade was lost.

The second PAVN offensive was aimed at the city of Kontum in the Central Highlands. The. 2nd Armored Brigade advocated the mobile use of its units, but the local commanders deployed the 14th

ACR and the tank squadron of the 19th ACR into static positions at Ben Het, Dak To II and Tan Canh. On 23 April 1972, PAVN infantry armed with AT-3 missiles attacked this last outpost. Within moments the M-41A3 tank troop deployed there was annihilated. It was followed by an assault of 18 T-54s, which routed the local defenders. Another tank assault took place against the other outposts and Kontum itself. The battle lasted for more than three months, but the ARVN infantry held its ground with the aid of air strikes and the 8th ACR. In July 1972, the 2nd Armored Brigade, with the 3rd, 14th, and 19th ACRS, counterattacked and relieved the siege.

The third PAVN offensive took place against the provincial capital of An Loc, near Saigon, after capturing Loch Ninh. The ARVN 3rd Armored Brigade lost many M-41s and M-113s from the 5th and 10th ACRS. In August the 3rd Armored Brigade fought its way up Route 13 to relieve the town, destroying some remaining PAVN T-54s that had escaped air strikes. The brigade was able to use the new 22nd Tank Regiment equipped with M-48 tanks that was set up near Saigon.

In Military Region 1, the ARVN also launched a counterattack from Hue to retake Quang Tri. The 1st Armored Brigade was reorganized and re-equipped for this task. The assault began in early September with an amphibious operation launched by a Marine brigade with a newly created Marine armored battalion equipped with LVTP-5s and M113s. The Marines landed behind the PAVN lines and soon linked up with the tanks and APCs from the 11th, 17th and 18th ACRs of the 1st Armored Brigade. With the resurrected 20th Tank Regiment leading the way, Quang Tri was retaken on 16 September 1972.

On 28 January 1973, after the ceasefire, the ARVN armored formations were re-equipped with new vehicles delivered by the Americans. A third tank unit, the 21st Tank Regiment, was created at Pleiku. With the vehicles maintained in reserve, the ARVN Armor Command now had a strength of around 450 M-41s and M-48s, 200 M-113s, and 450 other tracked vehicles, including the M-88, M-548 and M-578 support vehicles, V-100 armored cars and M-42 self-propelled AA guns. The 3rd Armored Brigade also received a small number of TOW anti-tank missile launchers mounted on M-113s.

The end of US support in 1975 significantly reduced the effectiveness of the ARVN armored formations. The PAVN final offensive began on 7 March at Ban Me Thout, where the local 8th ACR was overwhelmed in two days. Then the South Vietnamese government made the disastrous decision to evacuate all of Military Region 2. The PAVN intercepted the retreating column, which had mingled with civilian refugees, on Route 7B and routed the entire 2nd Armored Brigade. When the survivors reached the coastline city of Thuy Hoa, the ARVN had lost 300 tanks and APCS.

The PAVN then attacked Quang Tri, isolating Hue. The 1st Armored Brigade was prepared to defend the city when President Thieu issued the order to abandon Hue and evacuate toward Da Nang. As the troops retreated, mingling with one million refugees, they received orders to go back to Hue. These conflicting orders resulted in confusion, and the ARVN units began to disintegrate. On 25 March, Hue was taken, and Da Nang was occupied on 30 March. The PAVN had destroyed or captured 138 armored vehicles and had occupied all of the northern part of South Vietnam.

The PAVN offensive was now directed toward Saigon itself. The little ARVN armor that was left was abandoned without fuel along the coastal road. At Xuan Loc, the ARVN tried to stop the Communist offensive. For twenty days the 18th Division and a parachute brigade, supported by the 3rd Armored Brigade, put up a spirited fight. M-48s from the 22nd Tank Regiment engaged the Communist armor in successful combat, claiming 50 enemy tanks. Eventually Xuan Loc was evacuated. The ARVN tanks maintained a corridor at Dong Nai to allow the troops to withdraw. Encountering little resistance from the remaining ARVN units, the PAVN armored columns entered Saigon on 30 April 1975.



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