were destroyed and four damaged. Several truckloads of ammunition were destroyed also.[168] But all attacks were repulsed and the supplies never stopped moving.

The U.S. forces were augmented by units of the 23d Infantry Division and additional aviation assets as the campaign progressed. A large enemy build-up in the DMZ area threatened an invasion and allied forces prepared to meet it. However, the invasion never came.

The Air Force flew 1905 airlift sorties into Lam Son East carrying 12,846 passengers and 19,900 short tons of cargo. More than 1,000 tactical air strikes and 62 B-52 sorties were flown in support of the U.S. security forces. In addition, a variety of special missions was flown including photo reconnaissance, Commando Vault drops, psychological warfare leaflet drops and search and rescue missions.

For all of the operations associated with Lam Son 719, 137 Americans were killed, 818 were wounded and 42 were declared missing in action.

CHAPTER IV

AIR SUPPORT IN LAM SON 719

That the RVNAF could not have undertaken Lam Son 719 without air support has been established. Air made maneuverability possible, knocked out tanks, suppressed AA, and accounted for more than 4000 enemy casualties confirmed by ground units. This chapter examines various issues involved in providing air support for Lam Son 719.

PLANNING AIR SUPPORT

Sortie Allocations

In planning the tactical air support for Lam Son 719, 7AF decided that the ground force support sorties required would be filled by converting Steel Tiger interdiction sorties to the ground force support role.* Prior to Lam Son 719, ground force support sorties in Steel Tiger averaged only about ten percent of the total allocated to that area of Laos. These ground force support sorties for the most part were flown in support of Lao guerrilla operations against the Ho Chi Minh Trail. During Lam Son 719, however, the RVN employed elements of three divisions in the operations, and at the height of the action there were about 17,000 RVN troops engaged with the enemy. This heavy ground effort necessitated a large shift in the type of mission to which sorties were allocated in Steel Tiger. Figure 13 shows how the emphasis shifted from interdiction to ground force support

*These sorties in support of ground forces were primarily close air support sorties for troops in contact; but they also included sorties used for interdiction within the battlefield, for fire suppression and for landing zone preparation.

U.S. TACTICAL AIR SORTIES IN STEEL TIGER

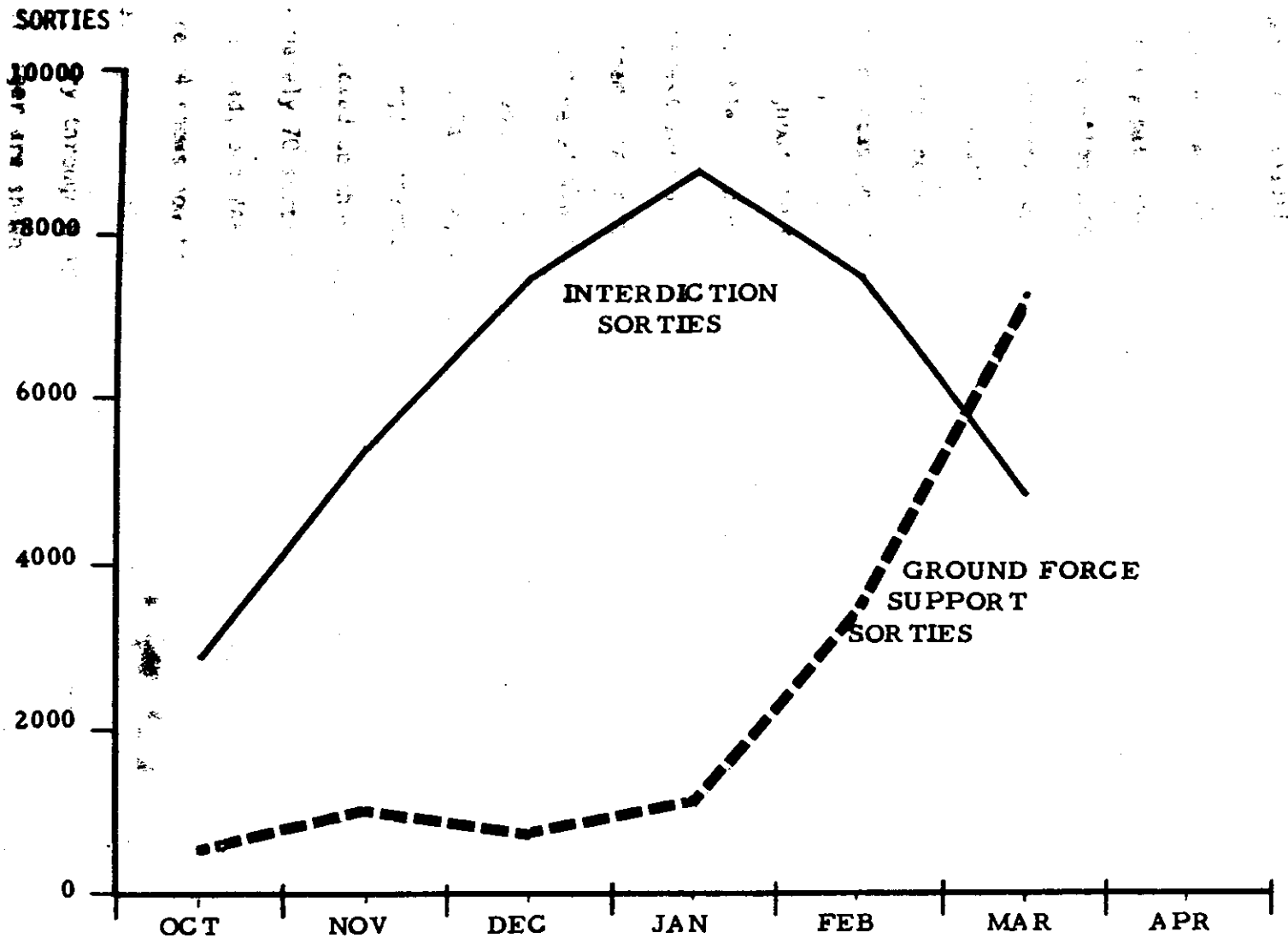


FIGURE 13

with the start of Lam Son 719 in February. This emphasis on ground force support rose steadily during the period of this report.[169/]

During the early stages of the operation, the Lam Son 719 sorties were easily met from the sorties normally marked for Steel Tiger. However, as the operation progressed and the demands on tactical air became greater, it was necessary to increase the number of sorties provided for Lam Son 719. These additional commitments were met when 7AF directed that operational units increase their sortie rates. The rate was surged from 1.0 to a high on occasion of 2.0 for certain units and averaged about 1.3.

Throughout the operation, even during the peak surges for Lam Son 719, 7AF was able to maintain required daily sortie allocations for other areas of interest such as Barrel Roll (Northern Laos), Cambodia and the Republic of Vietnam. In northern Laos where a serious dry season threat existed against General Vang Pao's forces, approximately 40 sorties per day were made available to supplement the 70 provided by the Royal Laotian Air Force. In Cambodia, where ARVN forces were conducting a large operation (Toan Thang) centered on the Chup Plantation, some 50 U.S. strike sorties daily backed up those of the VNAF. In South Vietnam, the VNAF with approximately 70 sorties per day were picking up more than 50% of the total sortie load, but 7AF still provided an average of about 60 sorties per day. Figure 14 shows how the daily sortie allocations were distributed between Steel Tiger, Barrel Roll, Cambodia and the Republic of Vietnam, from 1 February through 8 April. Strike sorties for the Lam Son 719 part of Steel Tiger are shown only for the period covered by this report, 8 February

through 24 March.

Security Aspects

Lam Son 719 planning was a very closely held secret. Only a few top officials within the military establishment had the details of the operation. At 7AF, as of 13 January, only the Commander, Vice Commander, the Deputy Chief of Staff for Operations and two other staff officers knew of the plan. At the field level, the only USAF officer with knowledge of the plan was the Deputy Director of I DASC at Da Nang. Within Army channels the situation was the same, and the plan for Lam Son 719 was closely held information at MACV Headquarters and at XXIV Corps.

These security precautions required that resources be assembled, subordinate units be alerted for operations, and personnel be deployed without individuals on the operating level knowing why such actions were being taken. The necessary actions were all accomplished, but the unavoidable restricted flow of information did have some repercussions on planning. The Army, for example, reported cases where units were requested to provide certain resources but were reluctant to comply, because they had previously been told that they were to stand down awaiting withdrawal and they knew nothing of Lam Son 719.[170/]

PROBLEMS ARISING FROM VIETNAMESE CONTROL

Command Structure

It has already been noted that problems arose because of the complete RVN control of the ground operations in Laos. General Lam had absolute

authority on the battlefield. Early in the campaign he frequently undertook heliborne operations supported by XXIV Corps but failed to coordinate such moves with 7AF representatives. Without such coordination, proper air support could not be provided.[171] It also became clear early in the operation that I Corps tactical decisions were being made as the result of consultations between General Lam and President Nguyen Van Thieu, the only one to whose orders General Lam responded. This command structure was graphically illustrated in that major decision made on 12 February when the RVNAF were stalled at A Loui. After General Lam and President Thieu conferred on that date, it was announced that I Corps would not attempt to move rapidly to Tchepone at that time as originally planned. Rather, I Corps was to concentrate on destroying caches that they could uncover to the north and south of their position.[172]

The battlefield decisions which General Lam made as Commander of I Corps and the plans which I Corps adopted as a result of consultations between President Thieu and General Lam were certainly the prerogative of the RVN. Nevertheless, such moves did create problems for the U.S. supporting forces. Frequently XXIV Corps and 7AF did not know what the battle plan for I Corps was, but such information was essential if the best possible support was to be provided. This lack of information was another factor which led to the establishment in early March of the Coordinating Committee of general officers to work with I Corps.[173]

Language Problems

With I Corps operating in Laos without U.S. advisors, language problems were unavoidable, especially for the FACs who were to direct strikes at the request of ARVN ground commanders. Vietnamese observers were assigned to fly on U.S. FAC aircraft to act as interpreters. The problem of communication was revealed in many Hammer Daily Intelligence Summaries. For example, on 20 February Hammer 86 had so much difficulty in trying to communicate with his backseat interpreter that he did not use him at all. Instead he worked directly with the Vietnamese on the ground who did an outstanding job directing air strikes. The ground commander reported that his position had "survived" because of the timely action of the FAC and the English-speaking communicator on the ground.[174/] Frequently it was necessary for the FACs to terminate their radio transmissions and ask repeated pointed questions of the Vietnamese observer in order to determine the ground situation and the strikes requested.

Several factors contributed to this problem with the backseat interpreters. Some of them just were not proficient enough in English. More important, however, was the fact that the observers were unfamiliar with the OV-10 aircraft. They had come from VNAF O-1 aircraft and had no experience in a higher performance airplane. They had arrived at Quang Tri only three days before the start of the operation and had received only one or two familiarization rides in the OV-10. Many of them became

air sick on the first rocket pass (a very natural reaction for someone unfamiliar with the OV-10), and when that happened they were of little use to the pilot for the remainder of the mission.[175/] The most efficient arrangement for directing strikes was when the ground unit had a fluent English-speaker available.

TACTICAL AIR CONTROL

The Tactical Air Control System in conjunction with the Joint Air Ground Operations System in South Vietnam has been refined over the years to a relatively uncomplicated, responsive airspace and air strike control system. This system, with I DASC at Da Nang as the controlling agency, was used for tactical air support of the Allied forces operating in Vietnam in the eastern portion of the overall Lam Son 719 area.

The minor modifications to the established tactical air control system for control of tactical air in Laos supporting Lam Son 719 have been discribed in Chapter II. However, it should be noted that the on-the-scene coordinating agency between tactical air and the ground combat forces was DASC Victor. This Direct Air Support Center had direct communication with the Seventh Air Force Command Post (Blue Chip) and the ABCCC. DASC Victor had operational control of the Hammer Forward Air Controllers (23 TASS, Augmented) located at Quang Tri who proved to be the focal point of air strike and air space control over the Laotian battlefield in Lam Son 719.[176/]

After operations in Laos began, the amount of tactical air was steadily increased. This increase was accomplished by reducing the time interval between sets of fighters in the streams of air which were provided to the Lam Son 719 AO in Laos. The interval was reduced from an original fifteen minutes between sets to ten minutes or less. As the South Vietnamese moved west and the area of operation in Laos expanded, the number of daytime FACs was increased to six which was the maximum number the small area of operations would allow. There was also the additional seventh FAC, noted previously, who flew along the northern and western edges of the AO to act as an artillery spotter, and on one day there were actually eight FACs airborne at the same time. At night there were always three FACs on station.[177/]

Strike aircraft reported in to the dedicated ABCCC and received an immediate handoff to a FAC. If the handoff could not be immediately effected, the aircraft were sent to designated orbit points to hold at specific flight levels. During the periods of heavy ground action, the strikes were employed to strike immediate request targets while at other times they were directed against preplanned targets or targets of opportunity identified by the FACs.

During the campaign, confusion involving radio frequencies was not uncommon. A typical example occurred on 3 March when Hammer 21 received

a report of troops in contact from Hammer Control but was unable to contact the friendlies on the frequencies given him or to contact U.S. Army helicopters operating a few hundred meters south of the friendly position. This problem delayed a strike by incoming fighters until Hammer 21 could straighten out the communication difficulties with Hammer Control, and when he finally did, the fighters had time for only one pass.[178/]

There were also problems with U.S. Army and VNAF helicopters whose proposed actions and flights were frequently unknown to the FACs, the fighters or to the ABCCC. Complicating the situation, the helicopters were often not on the same communications frequency as the FACs, and consequently it was difficult to clear an area before putting in a tactical air strike.[179/]

These few examples illustrate difficulties involved in conducting an operation of this type. As the operation progressed, however, problems that arose were resolved.

AIRMOBILE OPERATIONS

The employment of helicopters was critical in the scheme of maneuver of Lam Son 719. For the first time in the Indochina War helicopters were the basic mode of transportation for a multi-division force engaged in a corps-size offensive operation. Multi-battalion maneuvers were completely dependent upon helicopters for assault, resupply and extraction. This mode of operation exploited the advantages of initiative, mobility,

flexibility, speed and surprise in the initial assaults but suffered the acute disadvantage of vulnerability to hostile ground fire when forced to operate into fixed landing zones over a prolonged period of time. The lack of a ground line of communication for the ARVN maneuver units as an alternative to the air LOC posed serious problems for the U.S. Army and U.S. Air Force in their support of the South Vietnamese operations. The impact of these problems on tactics and techniques requires closer examination.

The terrain in the Lam Son 719 operational area is generally mountainous with dense vegetation. In this area there were few natural landing zones. It was both desirable and necessary to construct new landing zones with USAF-delivered weapons at places selected by the ground (RVNAF) and air (U.S. Army) mission commanders. Most of the landing zones used in Lam Son 719 were one-ship or two-ship LZs requiring hovering approaches and departures.[180/]

Weather had a major effect on the timing of airmobile (helicopter) operations in support of Lam Son 719. Early morning fog, rain and cloud cover frequently delayed both airmobile and tactical air operations until late morning or early afternoon. Though the weather was rarely so bad as to preclude such operations for an entire day, occasionally airmobile operations were conducted under ceilings and weather conditions that prevented employment of close tactical air support.

In addition to the terrain and weather influences, the NVA air defenses in the area presented locally severe hazards to air operations. The NVA deployed throughout the operational area an extensive, well-integrated, highly mobile air defense system. Whenever possible, the enemy units employed their entire family of antiaircraft guns, field and infantry weapons against aircraft in the air and on the ground. The favored technique was to mass the antiaircraft weapons around friendly troop positions and areas that were to be used as helicopter landing and pick-up zones.[181]

The ground fire environment threatening helicopters consisted primarily of 7.62mm small arms and automatic weapons such as 12.7mm machine guns. Although AAA (23mm or larger) was prevalent throughout the area, these more sophisticated weapons were seldom used against helicopters. They accounted for only four hits and three losses (the AAA threat is discussed in detail separately). In contrast, small arms (SA) and automatic weapons (AW) were responsible for 618 of the 695 hits reported. The majority of the losses were also due to SA and AW--44 losses to SA and 46 to AW. Once on the landing zone (LZ), the helicopters were subjected to a varied assortment of explosives, ranging from grenades to artillery. Mortars were responsible for the highest number of hits from this category.[182]

As the campaign developed, the North Vietnamese relied heavily on mobility to counter helicopters. When they detected the location of a

helicopter landing area, usually through Commando Vault drops and LZ preparations, the enemy would encircle the area. They stayed out of range while the area was prepared by tactical fighter strikes. After the LZ preparations, they rushed into the area with their small arms and automatic weapons setting up antiaircraft firing positions in anticipation of the coming helicopters. They normally held their fire while the helicopter reconnaissance teams tested the area and waited for the arrival of the lift aircraft. Then with coordinated barrage firing the enemy would try to drive the lift flights away completely, destroying as many as possible in the process. If this failed, or if they were not able to set up their AA positions quickly enough because the lift helicopters arrived at the LZ closely following the preparations, the enemy gunners used artillery and mortar fire to strike the helicopters as they were hovering to unload. The enemy troops moved in as close as possible to the friendly positions to achieve the greatest accuracy. This tactic of "hugging" friendly perimeters was especially effective where LZs served established South Vietnamese positions since it lessened the enemy's risk of tactical fighter strikes hitting him during the preparations for resupply or extraction lifts. Thus, every helicopter operation in the battle area had to be planned and conducted as a combat assault.[183/]

LANDING ZONE PREPARATIONS

The hazardous environment of the Lam Son 719 battle area and the large size of the airmobile operations required extensive and continuous

coordination in the planning and execution of these operations. Integrating the efforts of the numerous combat and combat support elements to insure the success of the missions presented complex problems.

Prior to combat assaults, large resupply missions and heavy lift operations, air cavalry elements (helicopter reconnaissance and gunship teams) reconnoitered the flight routes to and from the objective area, tentatively selecting landing and pick-up zones, locating enemy forces and weapons positions and directing attacks by supporting firepower on the enemy targets. The air cavalry commander directed the preparatory and suppressive fires on the landing and pick-up zones, the approach and departure routes, and enemy positions in the objective area. The air cavalry commander normally was accompanied by an air artillery liaison officer and worked directly with a USAF forward air controller (FAC) flying overhead.[184/]

The destructive and suppressive firepower directed on the objective area by the air cavalry-forward air controller team included ground artillery, aerial rocket artillery, helicopter gunships, B-52 heavy bombers and tactical fighters. Though all available sources of firepower were utilized, the mass of destructive firepower was delivered by the USAF.

Seventh Air Force officials expressed concern to MACV and XXIV Corps planners in January over the serious AAA and small arms weapons threat existing in the Lam Son 719 AO. A plan for employing Arc Light sorties,

Commando Vault drops and tactical fighter strikes in a three-hour-long, carefully coordinated ordnance delivery for landing zone construction and preparation was presented to the Army planners.[185/] However, the Commanding Generals of I Corps and XXIV Corps did not accept this plan in its entirety until they had staggering losses at LZ Lo Lo.[186/] The Army officers placed first priority on completing combat assaults early in the day so that night defensive positions could be prepared during the daylight hours. They believed that the time required to implement the Air Force LZ preparation plan seriously delayed the combat assaults.

For the initial combat assaults into five different landing zones, on 8 February, the Army used 27 Arc Light sorties in the areas of potential landing zones, but only 12 tactical air strikes (10 on the Range LZ alone). Small arms and automatic weapons fire hit helicopters on three of the LZs. On 10 February, no Arc Light sorties hit in the vicinity of landing zone sites, but 10 tactical air strikes were used to suppress automatic weapons fire at LZ A Loui and 21 fighter sorties on LZ Delta. Most of these sorties were called in after the lift helicopters received small arms and automatic weapons fire. LZ Don was constructed with "Daisy Cutters" (MK 82, MK 83, and MK 84 bombs with fuze extenders) delivered by tactical fighter strikes over a five-hour period prior to the lift on 11 February. Often Commando Vault construction ordnance were dropped on the LZ sites many days before they were used. Throughout February the Army relied heavily on its artillery, ARA and gunships for LZ preparations using tactical air strikes primarily

against known enemy locations. After 20 days of airmobile operations in Laos, 31 helicopters of all types had been lost by the allies and more than 230 had been damaged in combat.[187]

Seventh Air Force reiterated their plan for preparing landing zones. It called for at least 15 Arc Light sorties delivering their bombs in an orderly pattern covering the objective area. The last Arc Light sortie was to complete its drop by 0700H. At first light, the Army Air Mission Commander and the USAF FAC would select the LZ site, mark it and bring in a fighter strike to "calibrate" the landing zone for the Commando Vault drop at about 0730H. Following the Commando Vault six or seven flights of fighters would refine the LZ construction with "daisy cutters" and suppress the LZ area with CBU ordnance. Finally, at least 15 sets of fighters were to deliver MK 82 (500 pound general purpose bomb) and BLU-27 (napalm) ordnance over a two-hour period to complete the suppression of enemy weapons. Just before the arrival of the lift helicopters, two fighters would drop CBU-12 (smoke) to screen the assault.[188] The Army commanders did not seek the implementation of this LZ preparation plan in making the first of the "leap frog" combat assaults that would carry the battalions of the 1st Infantry Division to Tchepone. This assault was made at LZ Lo Lo on 3 March and proved to be so difficult and costly that its preparation demands a detailed description.

LZ Lo Lo

The FAC assigned to control the LZ preparation was Hammer 25 who

reported on station at 0715H. Enroute to station, the FAC contacted the ABCCC Hillsboro and told the controller that mission numbers 5900, 5902, 5700, 5702, 6200, 5904, and 6644 were fragged to H-25. Hillsboro acknowledged the message. The FAC arrived on station and conducted a visual reconnaissance of the LZ area. At approximately 0800H, the FAC contacted Red Dragon 09 (U.S. Army Air Mission Commander) who informed the FAC where to put the ordnance around the LZ. Both the FAC and Red Dragon 09 informed Hillsboro of the urgent need for ordnance on the LZ. The FAC received and worked three missions on LZ construction and preparation employing part of the ordnance on the construction of the alternate LZ. These three missions consisted of four F-4 and two A-4 aircraft which delivered heavy ordnance (MK 82, MK 83, and MK 84, all with fuse extenders) in the LZ construction phase from 0806 to 0915H. The FAC did not observe any ground fire during these strikes. The primary LZ appeared adequate for 3-4 helicopters. Three A-7s were then employed in LZ preparation strikes delivering MK 82, MK 83 and CBU-24 munitions with strafing by 20mm guns. The CBU was used mainly to cover the helicopter approach area east of the LZ. The "hard bombs" were expended in tree lines north and south of the LZ. This was at the request of Red Dragon 09. A 0945H friendly artillery started coming in. With the A-7 sorties, LZ construction and preparation were completed and the FAC contacted Hillsboro and told them to send incoming "snake" (High Drag MK 82) and "nape" (BLU-27) to cover the helicopter assault. Hillsboro said a flight would check in shortly, just prior to helo assault. The FAC was replaced by Hammer 40.[189/]

At approximately 1000H the assault began and helicopters reported taking fire from 200 meters northeast of the landing zone. As the assault progressed the helicopters reported incoming rockets and mortars from the south and southwest. Hammer 40 worked "snake and nape" on these positions at 1030H. The FAC informed Hillsboro that continuous tactical air would be needed to cover the assault. The FAC could not pinpoint any guns due to the foliage, though the helicopters were still taking fire after the 1030H strike. At 1050H Red Dragon 09 requested more tactical air strikes in the tree line southeast and southwest of the LZ about 800 meters. The FAC had radio problems and could only transmit on UHF with Hammer Control and the fighters. The FAC could monitor conversation between Hammer Control and the helicopters on FM and between Hammer Control and Hillsboro on VHF. The ground commander requested close-in support; and the FAC, after conferring with Red Dragon 09 on smoke and obtaining the ground commander's initials for close support clearance, directed an F-4 flight to strike in the trees 100 meters south of the friendlies. The strike of two F-4s went in at 1130H. All bombs were on target and resulted in a large white secondary explosion. The ground commander relayed through Red Dragon 09 that tactical air should be used south along the tree line again. The FAC worked two more sets of fighters till 1200H when he briefed Hammer 21 on the situation and returned to his base. The weather was clear with five miles visibility.

The combat assault was interrupted by enemy fire after 19 helicopters had delivered their troop loads. A total of 20 fighters expended "snake,

and nape" and strafed the area southeast and southwest of the LZ between 1030H and 1324H when the assault was again attempted. Hammer 21 rendezvoused with Hammer 40 at 1150H and was briefed on the heavy automatic weapons fire from south and southeast of the LZ. Between 1210H and 1324H the FAC directed 10 F-4s and two A-4 strikes with "snake and nape" on these positions. The friendly troops were unable to mark this position because of the close proximity of the enemy. The FAC was finding the friendly positions by low passes and marking for the fighters by rocking his wings. The helicopters approaching LZ Lo Lo continued to receive heavy ground fire, despite efforts by the FAC, fighters and helicopter gunships. The FAC was then replaced by Hammer 222.

Hammer 222 placed 10 fighter strikes with "snake and nape" south of the primary LZ between 1350H and 1455H. He was relieved by Hammer 48. Until 1555H when Hammer 48 spotted an enemy mortar position on the face of the escarpment north of LZ Lo Lo, the FACs had not seen any enemy positions but had directed their strikes on targets described by helicopter crews and the ground commander.

Hammer 48 reported the active mortar position to Red Dragon 09, but he was told not to direct tactical fighters on the enemy position. So the FAC left the area and went to the vicinity of FSB Delta to work with the Marines.[190/]

The helicopter lifts into LZ Lo Lo began again at 1600H and the assault was completed at 1830H.

Summary

The site of LZ Lo Lo was selected by the U.S. Army Air Mission Commander at 0800H. The FAC was informed of the selection and requested to put in ordnance. Beginning at 0806H six fighters delivered 14 MK 82 (500 pound, general purpose), seven MK 83 (1000 pound, general purpose) and eight MK 84 (2000 pound, general purpose) bombs all with fuse extenders to clear the LZ area of obstructions. Then at 0930H three fighters delivered antipersonnel munitions (eight MK 82, two MK 83, 16 CBU-24) and strafed with 20mm guns as final preparation for the combat assault into the LZ. No enemy fire was observed. The assault began at 1000H and immediately the lift helicopters were hit by automatic weapons and mortars. Four of the first 19 helicopters to be inserted were shot down on the LZ, and others received hits causing heavy battle damage.

The assault was stopped and for the next six hours, 30 more tactical air sorties struck the LZ area along with helicopter gunships and artillery.

The lift was completed at 1830H. Forty-two helicopters had been hit, 20 shot down and 7 destroyed in the operation. During the night of 2-3 March, eight Arc Light sorties had been placed on points south of the LZ. The closest strike was put one kilometer south of Lo Lo at 0455H. Figure 15 illustrates the Arc Light target pattern for each of the Landing Zones discussed.

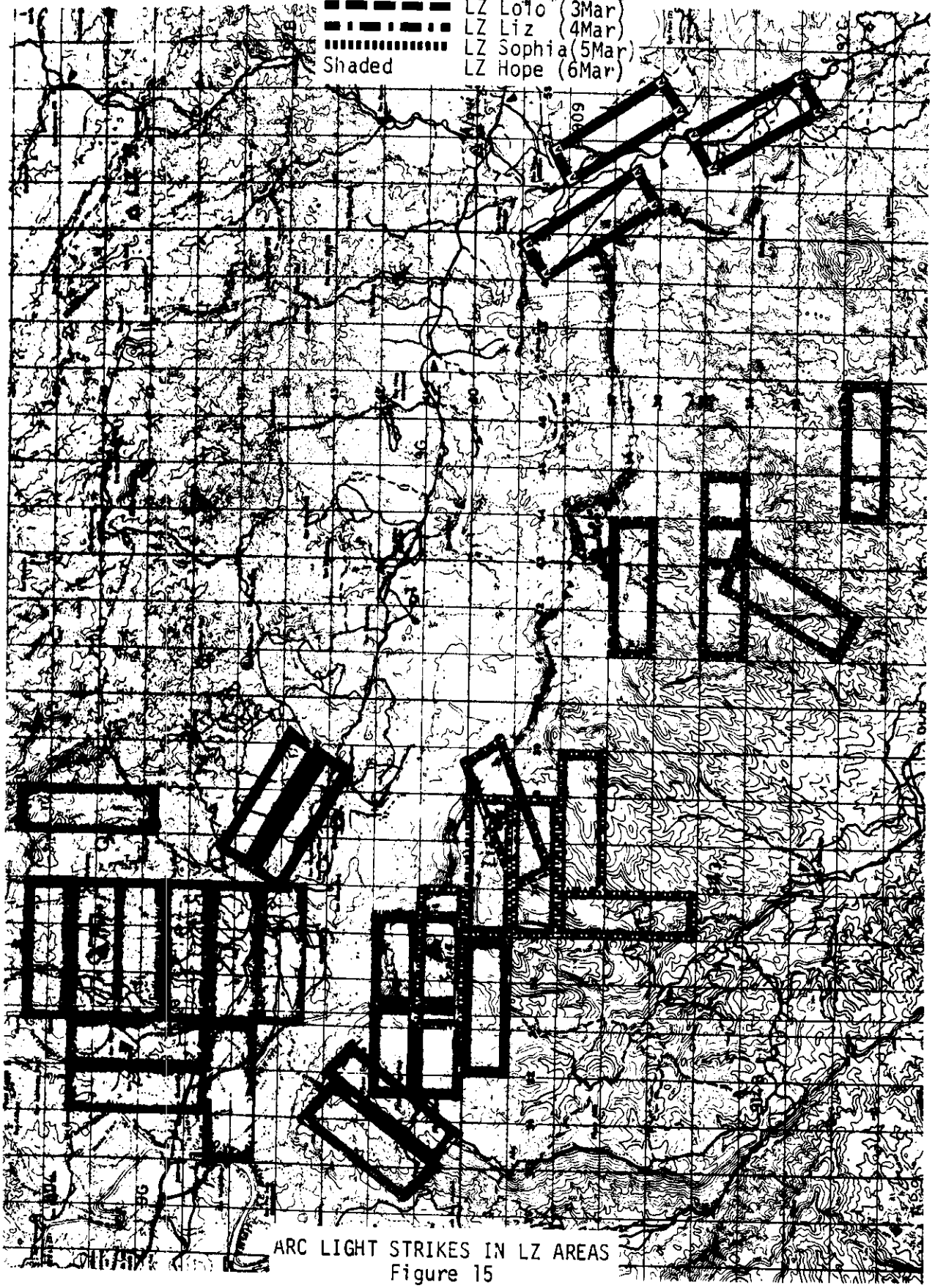
LZ Liz

After the costly and frustrating combat assault into LZ Lo Lo, the proposed LZ prep plan developed by 7AF was accepted by XXIV Corps, and

deliberate preparation and greater caution were employed in the lift on 4 March into LZ Liz. The LZ site had been cleared by a Commando Vault (BLU-82) drop on 1 March. Fourteen Arc Light sorties hit the area dropping in a rectangular pattern about the primary and alternate LZs. The last sortie delivered its bombs at 0635H. The FACs began directing four fighter strikes with heavy LZ construction ordnance on an alternate LZ at 0717H on 4 March. Between 0815H and 0845H they put in six fighters with heavy ordnance on the primary LZ and at 0915H began the final preparation with antipersonnel munitions. Thirteen sorties were used in this phase completing the preparation at 0945H. All was in readiness by 1000H in the judgment of the FAC, but the U.S. Army Air Mission Commander had not yet arrived. A continuous arc of fire burned from the north around the west to the south side of the LZ. The fire burned intensely and set up a smoke screen. The wind blew from the east. The weather in the area was hazy with 3 to 4 miles visibility. However, the lift helicopters were being held at Khe Sanh by low ceilings and poor visibility.[191/]

While waiting for the arrival of the helicopters, the FACs continued to place tactical air strikes about the LZ approximately every 10 minutes from 1000H to 1500H. The smoke and haze reduced the visibility to one quarter of a mile.

The helicopter assault was delayed from 1330H to 1430H by the Air Mission Commander because the FAC did not consider the LZ clear at this time. Then at 1430H it was again delayed because the reconnaissance



ARC LIGHT STRIKES IN LZ AREAS
Figure 15

helicopters drew machine gun fire 600 meters south and east of the LZ. The reconnaissance and tactical air strikes continued until the combat assault began at 1715H. A total of 61 fighter sorties were used over 10 hours to prepare the landing zone. An additional nine sorties dropped suppressive munitions during the assault which was completed at 1815H.[192/]

Despite this extensive preparation enemy automatic weapons took their toll. Sixty-five troop lift helicopters participated in the assault of which 18 were hit. Two of these were destroyed.[193/]

LZ Sophia

On 5 March a combat assault of two infantry battalions was made at LZ Sophia. Sixteen Arc Light sorties struck the western end of the escarpment in an orderly pattern during the night and early morning with the last sortie striking at 0740H. Beginning at 0814H the FAC directed three fighters with LZ construction ordnance on the LZ site. The combat assault was scheduled for 0900H but at 0830H it was put on a weather hold because of low ceilings and poor visibility at the pick-up zone and landing zone. Low clouds over the landing zone site were also preventing the FAC from delivering the preparation ordnance on schedule. However, the assault did not begin until 1325H allowing a total of 35 tactical air strikes to hit the LZ area in preparation for the helicopters. During this six hours the cloud coverage varied from 1/8 to 6/8 with the bases at 7,000 feet and the tops at 9,000 feet MSL and the visibility was four miles with smoke and haze.[194/]

The first helicopter arrived at the LZ at 1325H. Two F-4s delivered

CBU-12 (antipersonnel and smoke ordnance) at 1330H on the edge of the landing zone.[195] The assault continued until 1740H with six fighter sorties striking the area during the lift operation.

Three lift helicopters were downed by enemy fire.[196]

LZ Hope

The final combat assault in the series of "leap frogging" maneuvers occurred in the Tchepone area at LZ Hope on 6 March. It also was a two-battalion lift.

Twenty-five Arc Light sorties struck the Tchepone area about the primary and secondary landing zone sites during the night of 5-6 March with the last of these preparatory strikes hitting at 0620H.

The initial tactical air strikes were directed on the selected primary LZ site at 0720H. From 0720H to 0816H seven fighters delivered heavy LZ construction ordnance on the site. At 0817H a Commando Vault drop hit 300 meters north of the site being constructed by the FAC. The Commando Vault cleared an area on ground with a greater slope than the site already under construction. The FAC continued to work the originally selected site with 6 more fighters delivering construction ordnance on it to blow away the dense foliage. At 0912H a Commando Vault was dropped to clear an alternate LZ (Victory). The bomb hit 400 meters north of the planned coordinates but cleared a good site suitable for 3-4 helicopters. From 0925H to 0957H, eight fighters dropped antipersonnel munitions on the

primary LZ. Thus a total of 21 tactical air strikes were used in the LZ construction plus two Commando Vault drops. Suppressive ordnance (primarily hard bombs and napalm) was dropped by 24 more fighter sorties. The preparation of the landing zone ended at 1215H, with the drop of CBU-12 (smoke) by four F-4 aircraft. The combat assault began immediately following the smoke drop. Twenty-nine tactical air strikes hit the area during the troop lift which ended at 1343H.[197]

The lift helicopters departed from a pick-up zone in the Khe Sanh area and flew in a corridor over Landing Zones Hotel, Delta I, Brown, Lo Lo, Liz and Sophia. The helicopters began to let down at Liz enroute to Sophia turning north of Sophia to the Hope LZ. Two battalions of infantry were delivered in two waves of over 60 helicopters each. The only helicopter loss resulted from a hit over Sophia. It was downed but later managed to fly back to Khe Sanh.[198]

RESUPPLY AND EXTRACTION

There were no more major combat assaults after the one at LZ Hope. Yet the resupply, medical evacuation and troop extraction missions proved to be just as hazardous if less dramatic.

The heavy equipment, conex containers and artillery pieces to construct the fire support bases were brought in by helicopters. The fuel, food, water, ammunition and bulk supplies necessary to sustain the South Vietnamese troops were also brought in by helicopters. Virtually all of the infantry entered Laos by helicopter and more than three-quarters of

them left aboard helicopters. Over 22,000 helicopter sorties were flown moving personnel and supplies in Laos. The USAF provided firepower support for these operations when called upon to do so by the Army. The enemy frequently made it very difficult to get helicopters into landing zones with his encirclement and "hugging" tactics.

The medical evacuation of 122 wounded rangers on 22 February could not be effected until three Arc Light sorties and 46 tactical air strikes hit the pick up zone. Subsequently the 21st Ranger Battalion was forced to abandon its position because enemy fire had prevented helicopter resupply for several days. On 4 March, the commander of an airborne battalion located five kilometers north of FSB A Loui requested that the FAC flying over his position pass the following message to the Commanding General of the Airborne Division:[199]

> *"Under siege for 10 days, negative resupply, 200 killed and wounded. 10 APC and 3 tanks of friendlies destroyed. No food and water for last two days. Urgently request medevac helicopters, resupply and Hammer FAC and fast movers at first light. During siege friendlies and gunships have destroyed 14 enemy tanks and killed hundreds of NVA."*

He waited another day before any relief arrived. As the campaign progressed, the inability to effect helicopter resupply made this a recurring story and rendered some positions untenable. FSB Lo Lo's abandonment on 15 March was due in part to the enemy's disruption of resupply and medical evacuation efforts despite 15 Arc Light and 55

[redacted]

tactical air strikes on enemy positions. On 22 March after 22 Arc Light and 40 tactical air sorties, neither resupply nor extraction by helicopter could be accomplished at FSB Delta and the Marines evacuated the position.

CLOSE AIR SUPPORT

Except for the specific missions to construct landing zones, it was difficult to distinguish between fire suppression strikes about the LZs and close air support of the RVNAF troops. Less than three percent of the total tactical air sortie efforts went into landing zone construction as such but 42 percent of the effort went against enemy personnel and nearly nine percent against enemy storage areas and fortifications.[200/] The fact that the outnumbered South Vietnamese forces relied heavily on air delivered fire power to preserve their position, kill enemy troops and destroy enemy installations has been described in Chapter III. Figure A-2 shows the sorties flown in Lam Son 719 against personnel. The total daily number includes the sorties flown against confirmed and suspected enemy locations as well as those which supported troops in contact (TIC). The sorties against personnel varied with the level of enemy activity. As the enemy pressure mounted, the number of sorties against personnel rose from a low of 10 on 9 February to a high of 185 on 17 March. TICs had the highest priority among the targets for tactical air and of the 3593 anti-personnel sorties, 588 fighter and 90 gunship missions flew in direct support of troops in contact.[201/] Most enemy attacks were broken only by the repeated, accurate delivery of tactical air strikes on the enemy troops. The FAC's role in marking the targets, requesting proper ordnance

[redacted]

and coordinating with the friendly ground commanders was absolutely critical in the close air support operations. Despite the language difficulties, the FACs proved capable of filling the void created by the lack of tactical air control parties on the ground in the battle area.

During the period when the area of operations was at its largest, six FACs worked in sectors during the day with an additional FAC flying as an artillery spotter. At this time Seventh Air Force allocated a flight of fighters every ten minutes to the Lam Son 719 operation. FACs who were supporting ground units under attack occasionally had as many as six flights of fighters on station over the AO.[202/] To effectively employ the weapons system required a thorough knowledge by the FAC of the various fighters and the delivery modes for their ordnance. When the enemy launched his final major offensive to destroy the South Vietnamese force and engaged all of the friendly units, problems of congested airspace, overloaded communication channels and priority of strikes developed. Yet the skill and dedication of the FACs and the fighter crews prevented any midair collisions and delivered the air strikes so well that the enemy failed in his objectives.

At night three FACs were always on station with gunships (AC-130 or AC-119) and flareships (C-123) available to each of them. Most of the sorties in the Lam Son 719 AO were in support of TICs, but they also struck tanks and other vehicles.

Time after time in Lam Son 719 tactical air support was vital to the ground combat situation. The battle at Objective 31 on 25 February discussed

[redacted]

in Chapter III is just one example of the critical role played by tactical air strikes in close support operations. It was described by the Director of DASC Victor as follows:[203]

> *...Tac air was used against enemy troops coming up into the wire attacking in the daytime primarily from the northeast of LZ 31 on the first day. When they were far enough away from the friendly troops, by 800 meters or so, CBU-24 was employed on them as well as some 2000-pound bombs or daisy cutters with extended fuses until the ground commander asked that they not be used any more. They were a safe distance away but the blast and noise was disconcerting to the friendly troops...Tac air kept pounding all day long the entire period. When darkness came and the fighters could not be practically employed in a night owl operation in close proximity, gunships were brought on station and they fired constantly throughout the night. They expended seven gunships and sufficient flareships to flare on the gunships the first night. We had sufficient and ample gunships readily available on station to take over when one gunship expended its ordnance or a flareship ran out of flares. This became critical. In between gunships, three to four minutes, the enemy would be up and into the wire. The gunship would then shoot them back from the wire and do this until the next gunship came up. It continued all night. There is no doubt in my mind that Hill 31 would have been overrun that first day or at least that first night, if it had not been for tac air and gunships...*

The Hammer FAC Daily Intelligence Summaries are filled with examples of FACs bringing in fighters very close to friendly troops. On 4 March, Hammer 223 was flying north of A Loui when his Vietnamese back seater received word from the ground commander that he was in a heavy TIC situation. The FAC expended three sets of fighters with what the ground commander called good accuracy. Shortly after, the ground commander, a

[redacted]

Major Phu, said the TIC was broken. His troops moved into the bombed area and found 150 dead NVA soldiers, along with small arms, machine guns and rockets. Three dazed and wounded prisoners were captured.[204] In a less spectacular, but perhaps more typical strike on 28 February, Hammer 224 had a call at 0730 from a ground commander reporting contact with the enemy about six kilometers south of Route 9 near the border. An NVA company was in bunkers with small arms, automatic weapons and mortars. The friendlies were to the north and had their position marked with a red panel. The FAC requested napalm and Snakeye 500-pound bombs from Hillsboro, the ABCCC, and put in three sets of fighters with "snake and nape." The friendlies further marked their positions with smoke, and as the ground commander adjusted the fire through the back seater, the bombs were put right on target. A large and a small secondary explosion were reported, and the bombs also uncovered 20 bunkers and trenches under trees. An hour later, the ground commander was attacked again and the FAC was overhead with a set of fighters, putting them very close to the friendly positions marked with violet smoke. One napalm cannister burst very close to friendlies, but there were no casualties. Ground forces counted 12 KBA after the strike.[205]

In the hectic last days of withdrawal, tac air and B-52s worked together to preserve an ARVN battalion position until helicopters could get the surviving members to safety. Hammer 223 on the early morning of the 20th of March, was over the battalion south of FSB A Loui, when he was informed of a TIC situation. An Arc Light was put in just 300 meters

from the friendly battalion. In five minutes, after the smoke and dust of the B-52 strike had cleared, the FAC immediately started putting in fighters, nine sets of them, resulting in numerous secondary explosions and fires just outside the friendly perimeter. The battalion commander had insisted on these strikes very close to his position and the FAC double-checked with Hammer Control to make sure it was safe. When the strikes were over and the fighters had left, the ground commander reported that "the enemy was still taking fire," meaning that secondary explosions kept going off. The FAC destroyed a sizable ammunition storage area with these strikes.[206]

Most of the close air support sorties were flown by F-100 and F-4 aircraft delivering "snake and nape" ordnance in a low angle mode. The gunships employed their standard configurations of 7.62mm, 20mm or 40mm weapons. The aircrews and FACs reported 2406 personnel killed by tactical air strikes.[207] In addition to those killed there was an unknown number of enemy soldiers wounded and a significant quantity of weapons, ammunition and combat equipment destroyed.

In concluding this discussion of close air support, it must be noted that just as intensive tactical air strikes could not wholly suppress enemy weapons fire on helicopters neither could it prevent a friendly ground position from being overrun. Careful examination of the battles at Ranger Hill, Objective 31, FSB Lo Lo and FSB Delta show that when the enemy had numerical superiority and was determined to take a position, tactical air

power alone could not stop him from doing so once the ground defense was weakened.

The efficient employment of tactical air resources in the close support operations was affected by a variety of factors. The dense vegetation, low clouds and poor low altitude visibility presented technical problems for the aircrews and FACs. The allocation of strike aircraft and ordnance among competing requests posed problems of command and control. The F-100 and F-4 aircraft had limitations in on-station loiter time and ordnance carrying capacity which made it necessary to generate a high number of sorties in order to meet the ground forces' requirements of responsiveness in time and ordnance. A weapons platform with considerably longer loiter time and a greater capacity for carrying a variety of ordnance and equal survivability would have been very useful in meeting the firepower needs of the ground forces in the changing battle situation.

ATTACKS AGAINST AIR DEFENSES

More than 15 percent of the tactical air sorties in Lam Son 719 went against enemy antiaircraft weapons. As Seventh Air Force officials knew very well, the NVA had a formidable air defense network deployed along the logistics route structure in southern Laos. When warned of the threat, allied Army commanders failed to share the Air Force's concern.[208] While adhering to the Army's priorities in tactical air support, the Air Force conducted a concerted "gun killing" effort throughout the campaign. As a result of these operations 109 antiaircraft artillery pieces were

destroyed, 18 damaged and 42 silenced. Additionally, 54 automatic weapons were destroyed, 9 damaged and 10 silenced. Mortar and artillery positions threatening helicopter landing zones were also struck. A total of 225 weapons were destroyed, 48 damaged and 63 silenced by tactical air.[209]

Defenses Against Fixed Wing Aircraft

The principal threat to fixed wing aircraft from antiaircraft guns consisted of 57mm, 37mm, and 23mm. The predominant caliber encountered was the 37mm gun. At the onset of the operation, there were an estimated 155 antiaircraft guns in the Lam Son 719 area, 60 percent of which were 37mm. Near the end of the operation the estimated gun count had decreased by 20 guns to 135, indicating that the enemy's losses of antiaircraft weapons from air strikes had exceeded his capability to replace them.

It was not possible to estimate the number of automatic weapons (12.7mm and 14.5mm) in the area of operations because of their mobility; however, these guns posed the most significant threat. Automatic weapons were known to be associated with AAA units and infantry units as well, and were deployed throughout the Lam Son 719 AO. These weapons were credited with the largest number of hits and losses.

There were a total of 42 fixed-wing hits and seven fixed wing aircraft losses. These figures reflect 3.4 hits per 1000 sorties and .58 losses per 1000 sorties, and compare with 1.0 hits per 1000 sorties and .24 losses per 1000 sorties in Steel Tiger during November, December, and January.[210]

While electronic and photographic reconnaissance yielded some indications that there were fire control radars in the Lam Son 719 area, none was confirmed. There were no reported radar-directed AAA firings in the Lam Son 719 AO.

Defense Against Helicopters

The helicopters most vulnerable to enemy ground fire were those engaged in inserting or extracting troops. The largest number of hits were taken by the UH-1Hs, which carried the troops, and the AH-1Gs which flew gunship escorts. During the period 8 February to 24 March, 631 helicopters sustained hits by enemy ground-to-air fire. This resulted in U.S. forces losing 103 helicopters in combat operations. The overall statistics reveal a hit rate of 10.3 per 1000 sorties in the Lam Son 719 AO in Laos and a loss rate of 1.8 per 1000 sorties.*

Weapons Employed Against Defenses

There were 1284 sorties against enemy air defenses; of these, 738 sorties struck automatic weapons and small arms positions. Most of the sorties were to suppress enemy gunfire rather than to "kill" the gun. The

*As noted earlier, a helicopter frequently logged several sorties on one mission. For example, on a typical mission a helicopter departed Quang Tri, refueled at Vandegrift FSB, refueled at Khe Sanh, flew to a troop pick up point, carried the troops to an LZ, and then returned to Quang Tri again by way of Khe Sanh and Vandegrift. On such a mission, the helicopter would log seven sorties. Thus, Army helicopter sortie rates can in no way be compared with Air Force sortie rates.

primary munitions used in the suppression strikes were CBU-24, CBU-49, and BLU 27. These munitions could kill and wound the gunners, but not destroy the weapons.

Direct hits in the gun pit by hard bombs were required to destroy antiaircraft artillery pieces (such as 23mm, 37mm or 57mm). It was very difficult to hit a camouflaged gun surrounded by dense vegetation which was the typical emplacement in Lam Son 719, because it presented a very small target.

The most efficient weapon used against these small, obscure targets was the Paveway, a laser-guided MK 84 or M118bomb. The illuminator aircraft flew at 8000 feet as the strike aircraft released the ordnance in a 45-degree dive at 450 knots from 12,000 feet altitude. Using this delivery mode, both aircraft were beyond the lethal range of all but the largest of the enemy's AA pieces. During the 8 February - 24 March period, 99 sorties attacked antiaircraft artillery sites delivering 173 laser-guided bombs resulting in 70 AA positions destroyed and five damaged.[211/]

One USAF Hammer FAC who had developed a special skill in knocking out AA weapons was First Lieutenant Leonard J. Funderburk. Prior to Lam Son 719, he was credited with 75 guns destroyed in Laos and during the operation, he added another 47. His method was to request Paveway ordnance as soon as he arrived on station and began his visual reconnaissance. By the time the fighters arrived, he would have pinpointed the targets

usually by observing the location of muzzle flashes. He would direct the strike on the gun position and immediately request another set of fighters equipped with Paveway ordnance. He considered Paveway not only the best weapon against AA weapons but also the best against moving or stationary tanks.[212]

ATTACKS AGAINST ARMOR

Perhaps the most dramatic episodes for tactical air power during Lam Son 719 occurred in the attacks on enemy tanks. One of the surprising developments in the operation was the deployment of a tank regiment in the battle area. It is estimated that there were 120 tanks including the PT-76, T-34 and T-54 models.[213]

The PT-76 is a light, amphibious tank weighing 15.4 tons and armed with a 76mm main gun plus one 7.62mm machine gun mounted coaxially with the main gun. The T-34 is a medium tank weighing 35 tons when combat loaded and armed with a 85mm main gun. The T-54 is a medium class tank weighing 40 tons and armed with one 100mm main gun, one 12.7mm (.50 caliber) machine gun mounted on the turret roof and two 7.62mm machine guns, one mounted coaxially with the main gun and one mounted in the front of the hull. Most of the tanks in the Lam Son 719 area were PT-76s; however, the T-54 presented the greatest challenge to tactical air, not only because of its heavier armor, but its 12.7mm machine gun with a 1000-meter effective range gave the tank crews the capability to shoot

down aircraft that made low-altitude passes on them.[214/]

The tanks were intended to provide mobile firepower support of the NVA infantry as compensation for the U.S. air-delivered firepower supporting the ARVN. The destruction of these tanks was of importance throughout the campaign but critically so during the battle for Objective 31 and in the final days of the retreat.

Throughout the whole of the campaign the allies claimed the destruction of 108 enemy tanks. Tactical air strikes destroyed 74 and damaged 24 others in 241 attacks made during the critical period of fighting, 8 February to 24 March. (See Figure 16.) These attacks, in effect, neutralized the NVA tank regiment, denying the enemy what he undoubtedly considered a critical advantage against the South Vietnamese forces. Tactical air also was used on 24 March to knock out the usable tanks left behind by the withdrawing ARVN forces.

Since it was impossible to predict the time and location of enemy tank appearances, they were attacked by whatever strike aircraft and ordnance were available when they were sighted. Consequently, the greatest number of attacks were made with 500 pound general purpose bombs (MK 82) and napalm (BLU-27), either singly or in combination, because more than half of the daily fighter sorties carried this ordnance. There were 134 attacks made with these bombs resulting in 28 tanks destroyed and nine damaged.

[redacted]

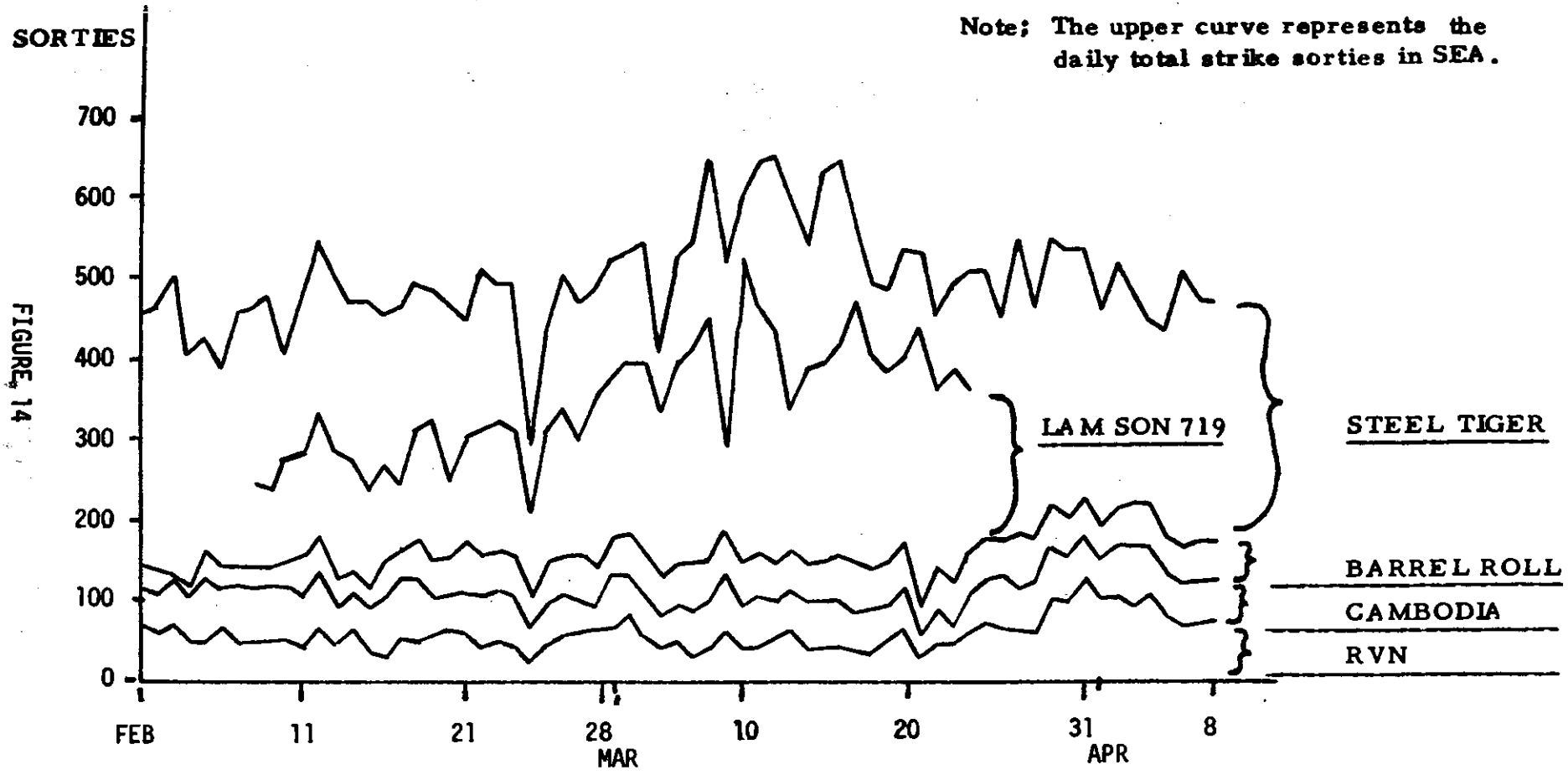
Rockeye II (MK 20; antiarmor, cluster bomblet) and CBU-24 munitions used in combination with general purpose bombs were delivered in 49 attacks and destroyed 11 tanks, while damaging seven others. In four attacks CBU-24s alone were dropped and one tank was destroyed. The Zuni rocket (5 inch, folding fin, aerial rocket with 15 pound shaped charge) demonstrated its effectiveness in destroying four tanks in four attacks.

The Paveway again proved to be a very efficient weapon. Despite the protection of camouflage, terrain cover and movement, seven enemy tanks were destroyed by the laser-guided bombs. In six attacks delivering 10 MK 84 LGBs five tanks were destroyed (the one tank was missed because of a "bore-sight" error in the illuminator). Two attacks with two M118 LGB weapons destroyed two tanks. A Hammer FAC described the efficiency of the Paveway:[215/]

> *...I put in two sets of conventional ordnance on this one tank, a set of A-37s and a set of F-100s with negative results. They got all around it, but didn't even knock the camouflage off the tank. I received a flight of Paveways, and with the first bomb, it was destroyed. The tank rolled over on its side and it was seen burning...*

In addition to its high-kill ratio, the Paveway was less dangerous to deliver against a T-54 with its turret mounted machine gun. The delivery mode was the same as that employed against the antiaircraft guns; that is, the laser-guided bombs were released by the strike aircraft in a 45 degree dive at 450 knots calibrated airspeed and 12000 feet

[redacted]



Note; The upper curve represents the daily total strike sorties in SEA.

FIGURE 14

US STRIKE SORTIES

[redacted]

ATTACKS AGAINST ENEMY TANKS

(8 FEB-24 MAR 71)

ORDNANCE	ATTACKS	DESTROYED	DAMAGED	SF/E*	RNO**
MK-82 HD/BLU-27	47	10	4	39	6
20MM HEI/API & 7.6MM (AC-119K)	11	10	1	18	
MK-82/CBU-24	24	4	4	11	3
MK-82/MK-20 (ROCKEYE)	22	5	2	1	4
MK-84 LGB	6	5			
MK-82/LAU-10 (ZUNI)	4	4			
MK-82/(NAPALM)	24	7	4	2	2
MK-83/CBU-24	3	2	1		
MK-82	44	3		1	11
BLU-27	6	2			
40MM HEI (AC-130)	28	14	3	3	
CBU-24	4	1		1	
AGM-62-A	3				3
NAPALM	1	1			
M-118 LGB	2	2			
MK-82/MK-81	7	4	3	8	
MK-82 HD	2		1		
MK-82/20MM	3		1	6	
TOTALS	241	74	24	90	29

* Secondary fires and explosions

** Results not observed

Figure 16

[redacted]

altitude with the illuminator aircraft at 8000 feet. On the other hand, hard bombs and napalm had to be delivered in a low angle, low altitude mode which placed the fighter in the fire envelope of the 12.7mm machine gun.

Tanks encountered at night were engaged by the AC-119K and AC-130 gunships. In 11 attacks, AC-119K aircrews reported destroying 10 tanks and damaging one with 20mm HEI/API (high explosive incendiary/armor piercing incendiary) munitions. AC-130 crews firing 40mm HEI destroyed 14 tanks and damaged three others in 28 attacks. All of these tanks are believed to have been PT-76 light tanks. The AC-130 results were reported by either FACs or ground reconnaissance. The AC-119K crews used the criteria that impacts on the target which resulted in secondary explosions or fires destroyed the target and impacts on the target with no target reaction are reported as damaged. The AC-130 firings were from 9500 feet AGL and the AC-119K attacks were from 5500 feet AGL. Both used normal gunship firing tactics.[216/]

Tactical air achieved a stunning success overall in the destruction of the enemy's armored force, yet in localized situations, low cloud cover and poor visibility did permit the enemy to maneuver his tanks unseen from the air. This gave him an advantage at Objective 31 and could have (save for a break-in-the-weather) on 22 March when he massed 20 tanks and sought to overtake the ARVN armored column.

[redacted]

INTERDICTION

To reduce the combat effectiveness of the North Vietnamese Army in the Lam Son 719 area, an extensive air effort was directed at denying logistical support to the troops on the battlefield, by striking trucks, supply and storage areas, and by interdicting the lines of communication supporting movement into the Lam Son 719 area.

Storage area targets within the AO were developed from visual and photo reconnaissance and other sources of information. These base camp, truck park and storage area destruction operations have already been described in Chapter III. However, it should be noted that more than six percent (538 sorties) of the tactical air strikes in the Lam Son 719 campaign were directed against these targets and accounted for much of the destroyed supplies and equipment listed in the BDA Table of the statistical appendix.

There were 1111 tactical air sorties which struck LOC interdiction targets. They represented 13 percent of the Lam Son 719 effort and resulted in 316 route cuts and road slides. Allied to this effort were the truck-killing operations. There were 1433 sorties flown against vehicles in the Lam Son 719 AO. The aircrews and FACs reported 1539 trucks destroyed and 485 damaged by these strikes.[217/]

The effects of the attacks against trucks and storage areas and route interdiction cannot be measured solely in quantitative terms.

[redacted]

[redacted]

Prisoners reported that NVA units were frequently short of food, ammunition, medical supplies and POL. Some NVA units were forced to avoid combat for a time because of casualties and inadequate logistical support. It is believed that the effects of air and ground attacks on the enemy limited the duration of sustained offensives. NVA offensive operations involved only two weeks of the six week campaign.[218/]

ARC LIGHT

During Lam Son 719, B-52s were heavily committed in support of the campaign. The B-52 aircraft, located at U-Tapao Airfield, Thailand, flew 1358 sorties between 8 February and 24 March. The peak of the effort occurred between 4 and 8 March during the "leap frog" push to Tchepone and the searching operation in the Tchepone area.

The initial planning for the application of B-52s in support of Lam Son 719 was accomplished at Seventh Air Force headquarters. A study was prepared and then presented to Lieutenant General Sutherland at his XXIV Corps Forward Headquarters which proposed the employment of blocking strikes against the enemy LOCs into the planned battle area. This proposal was approved and implemented. After the ground offensive was launched on 8 February, the target selection for the Lam Son 719 B-52 sorties was done almost entirely by Lieutenant General Lam, Commanding General of the South Vietnamese forces in the operation. Seventh Air Force sent an Arc Light liaison officer to Quang Tri to brief the Allied Corps commanders and staffs on B-52 operating and targeting procedures.

[redacted]

Through the liaison established during this visit, Arc Light target boxes nominated from the Seventh Air Force intelligence data base and photo interpretation were forwarded to XXIV Corps. However, General Lam personally made the daily target selections for the B-52 sorties allocated to the Lam Son 719 operation by MACV.[219]

The usual method of selecting targets based upon hard intelligence was modified in favor of using B-52s in direct support of the ground troops. This led to some novel tactics by the ARVN in their use of heavy strategic bombers. Capitalizing on the NVA tactic of "hugging" the friendly positions (sometimes as close as 30 meters), the 1st Infantry Division would set up night defensive positions out from the fire support bases and request an Arc Light strike on their NDP coordinates during the early morning hours. About one-half hour before the scheduled time-over-target, the infantrymen would withdraw from their position hoping that the Arc Light strike would find the NVA troops still in the vicinity of the night position.[220] It frequently worked. Variations of this tactic were also employed during the day. At LZ Lo Lo, Brigadier General Phan Van Phu, Commander of the 1st Infantry Division reported, "The enemy tries to get very close to us, hoping we will get hit by one of our own bombs. We let them come close, then pull back just before the air strikes, closing again when the bombers have finished. If you want to kill people, you must use maximum air."[221]

In another statement, General Phu added, "During the heavy fighting around FSB Lo Lo early in the week, I called for B-52 strikes within 300

yards of my units. Many of the nearly 1700 enemy soldiers reported killed in that fighting died in those strikes.[222] Some of the more spectacular "kills" of enemy troops by Arc Light have already been described in Chapter III.

The B-52s were also targeted against storage areas, base camps, troop concentrations, interdiction points and anticipated landing zone areas. RVNAF units searched in only 40 of the 617 Arc Light target areas struck in Lam Son 719.[223] The total ground confirmed Arc Light bomb damage as reported on 24 March included 2194 enemy killed by air and the destruction of 65 vehicles, 957 structures, 439 crew served weapons, 1711 individual weapons, 852 tons of ammunition and 1176 tons of rice.*[224]

In order to provide the greatest possible responsiveness to the fire-power needs of the ground commander, SAC developed special strike planning procedures which allowed target changes as late as three hours prior to the time-over-target. The Seventh Air Force B-52 defensive support aircraft were reprogrammed to meet the bombers' flexibility.

To increase the Arc Light striking force, the daily sortie rate was raised from 33 to 40 on 24 February. Later, the bombers were reconfigured to enable them to carry greater bomb loads. Initially each bomber carried

*As previously noted, tac air hit many of the same targets as the B-52s. Therefore, it frequently was not really possible to discriminate between B-52 and tac air bomb damage.

66 bombs consisting of 24 MK 82 (500 pound, general purpose) and 42 M117 (750 pounds, general purpose) bombs. On 6 March one cell (three B-52s) was configured to carry 108 bombs (84 MK 82s and 24 M117s) per aircraft. One additional bomber each day for the remainder of the operation was converted to carry 108 bombs. During the period 8 February to 24 March, B-52s delivered 9,219 tons of 500 pound bombs and 23,183 tons of 750 pound bombs for a total of 32,402 tons of ordnance dropped in support of Lam Son 719.

SHORT ROUNDS

There were three incidents in which the ordnance from tactical air strikes struck allied ground positions in Operation Lam Son 719. (30 January to 24 March). The first incident occurred on 6 February when a Navy A-6, Electron 512, dropped two Rockeye II (antiarmor CBU) dispensers on friendly positions near Lao Bao in Quang Tri Province, Republic of Vietnam. The ordnance hit elements of the 8th Airborne Battalion. Seven ARVN soldiers were killed, 55 were wounded and one armored personnel carrier was destroyed. The cause of the short round was attributed to poor weather requiring internal electrical guidance for expenditure of the Rockeye. Aircrew disorientation, target misidentification and possible equipment malfunction contributed to the incident.[225/]

Insertions into Landing Zone Lo Lo on 5 March resulted in 38 ARVN injured in another short round incident. Two F-4 aircraft, Gunfighter 26 and 27, from the 366th Tactical Fighter Wing expended CBU-12 white phosphorous incendiary smoke during the insertion.[226/]