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Title: XM-26 TOW: BIRTH OF THE HELICOPTER AS A TANK BUSTER

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EXECUTIVE SUMMARY

Title: XM-26 TOW: BIRTH OF THE HELICOPTER AS A TANK BUSTER

Author: Major John C. Burns, United States Army

Thesis: The successful development and employment of the XM-26 TOW in Vietnam established the attack helicopter as a credible anti-tank weapons system on the modern battlefield.

Background: The present day anti-tank missions and weapons of the United States Army evolved from the introduction of the armored tank during World War I. The unparalleled firepower, mobility and endurance of the tank led to radical changes in defensive strategy, tactics and equipment. In the early 1960s, the Army determined that maneuver forces operating beyond the range of their organic ground-based firepower require accompanying firepower in order to accomplish their assigned missions. Army studies of the armed helicopter concept concluded that helicopters equipped with anti-tank missiles provided a highly effective armor-defeating capability that is not restricted by surface obstacles. The XM-26 TOW armament subsystem clearly demonstrated the key to the successful employment of the attack helicopter in the anti-tank role was the development of an accurate anti-tank guided missile system capable of providing a high first-round hit probability at ranges in excess of 2,000 meters. With the development of the XM-26 TOW, the Army developed a stabilized sight system that corrected the major problem involved in firing missiles from helicopters. The 1972 North Vietnamese Army's all-out, tank supported invasion of South Vietnam provided the Army a unique opportunity to test the airborne TOW in combat. The success of the airborne TOW in South Vietnam's Military Region II proved the value of the helicopter as an anti-tank killer.

Conclusion: The Army used the publicity from the success of the XM-26 TOW in Vietnam to sell Congress on the Advanced Attack Helicopter Program and accelerate the development of the TOW/COBRA to counter the Soviet tank threat in Europe.

PREFACE

The present-day anti-tank missions and weapons of the United States Army evolved from the introduction of the armored tank during World War I. The unparalleled firepower, mobility, and endurance of these caterpillar-tread monsters in offensive warfare led to radical changes in defensive strategy, tactics and equipment. The development of the attack helicopter as an anti-tank weapons platform has revolutionized modern ground warfare in the mid to high-intensity environment and allowed warfighters to exploit the lower spectrum of airspace to balance tactical mobility with firepower and logistics. It was only through the vision and determination of General Hamilton Howze and other members of the Howze Board that this capability came to life. These Army aviation pioneers realized that the key to successful employment of the attack helicopter in the anti-tank role was the development of an accurate anti-tank guided missile system capable of providing a high first-round hit probability at ranges in excess of 2,000 meters.

This monograph traces the history of the development of the helicopter TOW (Tube-launched Optically-tracked Wire-guided) system from the 1962 Howze Board Report through

employment of the system in combat in Vietnam in 1972-73. The first chapter examines the successful XM-26/UH-1B helicopter development tests that were halted short of service tests when the Army made the decision to redirect the effort to the TOW/CHEYENNE armament subsystem. The second chapter discusses how the XM-26 subsystem was removed from storage and rushed to South Vietnam in the spring of 1972, when the North Vietnamese Army (NVA) swept across the Demilitarized Zone in an all-out, tank supported invasion. The third chapter looks at the area of operations as well as the enemy buildup and friendly situation in South Vietnam's Military Region II (MR-II) prior to the commitment of the helicopter TOW system. Chapter four highlights the initial NVA actions in the Central Highlands during the 1972 Easter Offensive. Chapter five analyzes the US Military Assistance Command Vietnam (MACV) decision to employ the 1st Combat Aerial TOW Team in MR-II during the battle for Kontum. The sixth chapter highlights the actions of the Second Combat Aerial TOW Team until the ceasefire in January 1973. The final chapter discusses the findings and conclusions related to the employment of the Aerial TOW Teams in combat and future developments of the advanced attack helicopter and TOW armament subsystem.

CHAPTER ONE

DEVELOPMENT OF THE XM-26/UH-1B HELICOPTER ARMAMENT SUBSYSTEM

In 1956 the Army initiated development of airmobile concepts and tactics using heliborne maneuver and firepower elements. The funded aircraft armament program was started in 1957. From 1958 through 1963, the armed helicopter concept was extensively tested in CONUS and Europe.[1] The Army determined that maneuver forces operating beyond the range of their organic ground-based firepower require accompanying firepower in order to accomplish their assigned missions. Armed helicopters organic to the maneuver force provided suppressive fires as escort during the movement, and close-in fire support as required during the landing and take-off in the objective area. The Howze Board studies of the armed helicopter concept concluded that helicopters equipped with anti-tank missiles provided a highly effective armor-defeating capability that is not restricted to surface speeds or impeded by surface obstacles.[2]

One of the major problems involved in firing missiles from helicopters was stabilizing the line of sight from the helicopter to point targets on the ground. The Army Missile Command (MICOM) selected Hughes Aircraft Company, as the TOW (Tube-launched Optically-tracked Wire-guided) missile system

prime contractor, and the Aeronutronic Division of Philco Ford Corporation, the SHILLELAGH prime contractor, to work on a solution to the problem. In December 1963, MICOM awarded contracts of $1.38 million each to Hughes and Aeronutronic to design, fabricate, and install on the UH-1B helicopter, a stabilized sight/sensor that would be compatible with each company's anti-tank guided missile. The contracts also called for a preliminary design of the complete tactical weapon subsystem, designated as the XM-26, which was to replace the M22 (SS-11/UH-1B) subsystem by January 1969.[3]

Hughes and Aeronutronic delivered their stabilized sights and preliminary design packages on 2 September 1964.[4] The Frankford Arsenal tested the competing sights under the direction of MICOM. At the same time, MICOM evaluated both contractor designs for the tactical subsystem. As a result of the evaluation completed in February 1965, MICOM concluded that both systems were superior to the M22, and that the Hughes stabilized sight/sensor was superior in performance to the Aeronutronic device. The Aircraft Weaponization Project Manager then authorized MICOM to develop the XM-26 airborne subsystem using the Hughes stabilized sight and the TOW missile.[5]

On 8 October 1965, Hughes Aircraft received a Cost-Plus-Incentive-Fee (CPIF) contract for $4.2 million which covered the first 6 months of the Research and Development (R&D) effort. Negotiations for the remaining 21 months of the

development program began on 18 April 1966, and were essentially completed by 17 June 1966. An increase in the contractor's cost estimate from $12.3 million to $18.6 million resulted in a revised scope of work written to reduce costs to an absolute minimum. This revision, together with the final negotiation efforts, helped to establish the final negotiated target price of $15.3 million for the 21-month period. The total estimated R&D cost of the XM-26 program, including in-house support, was $28 million. Advanced Production Engineering (APE) was expected to cost $3.6 million, and production of 165 units about $25.7 million, bringing the total estimated program cost to $57.3 million.[6]

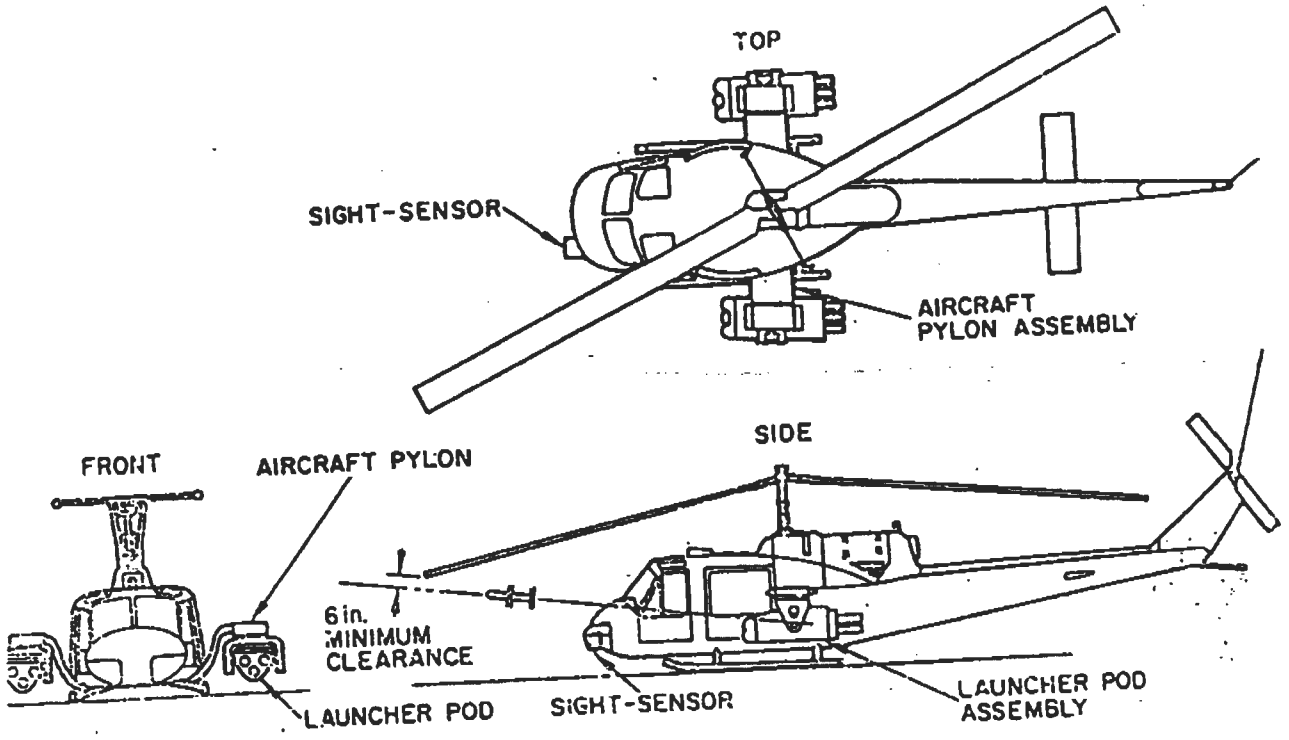
Upon completion of the contract negotiations in mid-June 1966, MICOM recommended to the Aircraft Weapons Project Manager that the XM-26 program be terminated. The reasons were twofold: excessive costs and the projected availability of the advanced TOW/CHEYENNE system within 1 year after fielding of the TOW/UH-1B (XM-26). With the rejection of the MICOM's recommendation, an R&D contract for $15.4 million was awarded to Hughes on 30 June 1966, retroactive to 8 April.[7]

During FY 1967, the R&D program was hindered by funding problems. The development contract originally specified an interim design release in August 1967, and was incrementally funded. It required a renegotiation in December 1966, because the Aircraft Weaponization Project Manager was unable to obtain funding in the negotiated amount. The renegotiated

contract which was to continue through 4 months of the Engineering Test/Service Test (ET/ST) program, specified an interim release date of 1 March 1968.[8] MICOM in-house funds paid for an overrun of $650,000 to cover effort during June 1967. An additional $506,000 from MICOM in-house funds was then included in the contract to cover effort through 17 July 1967, and $3.6 million more was needed to complete the development program. MICOM received $1.6 million to initiate a reduced APE program, but could not issue a contract because the Aircraft Weaponization Project Manager had placed a hold on the award until 31 October 1967.[9]

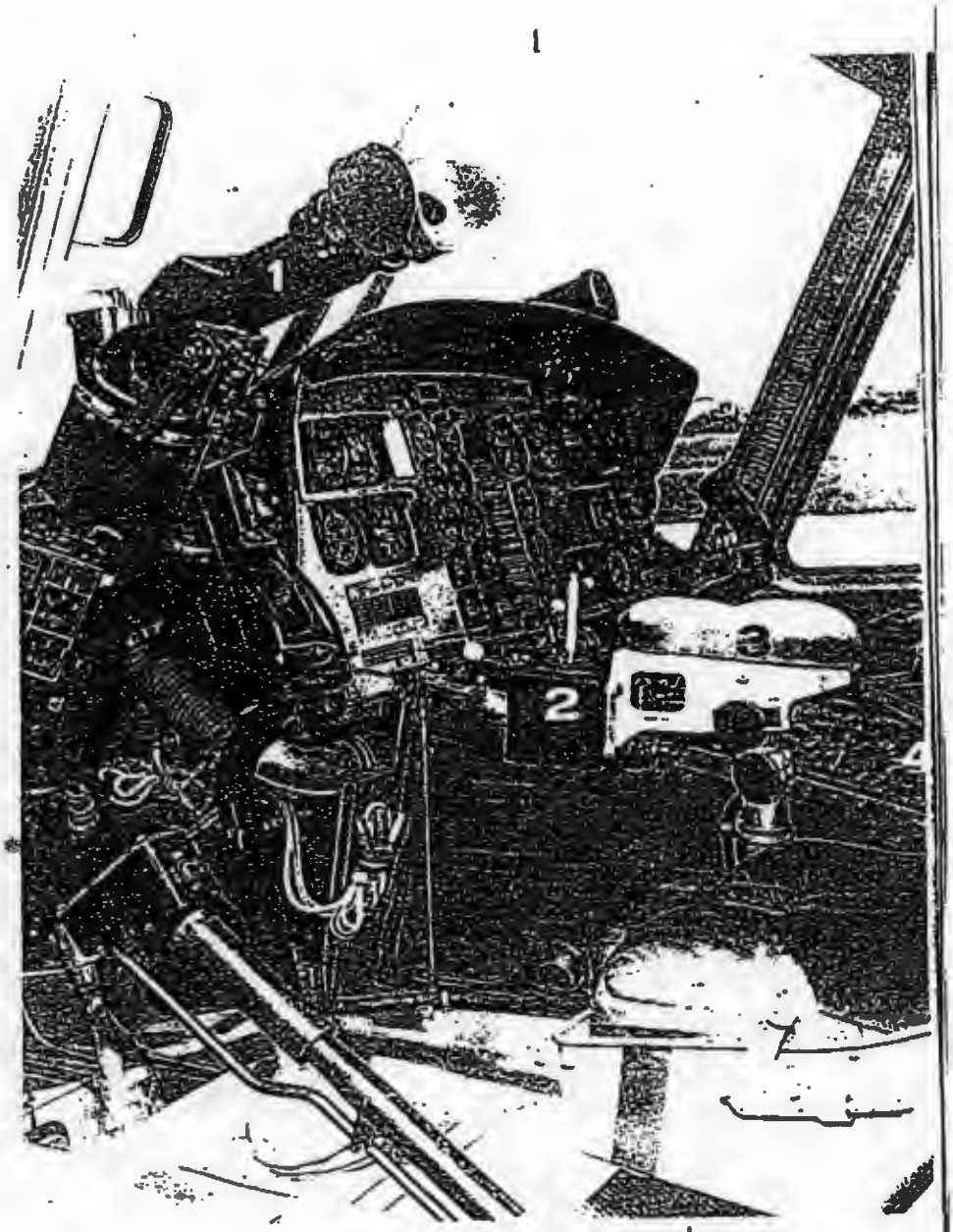
The overall design configuration of the XM-26 subsystem was approved during the Design Characteristics Review held at MICOM early in October 1966. As a result of a Tank, Antitank, Assault Weapons Requirements Study completed in February 1967, the Combat Developments Command recommended cancellation of the XM-26 program and transfer of the effort to the TOW/CHEYENNE (TOW/AH-56A) program. The Deputy Commanding General, Land Combat Systems, in an unexplained reversal of the previous MICOM position, later notified the Aircraft Weaponization Project Manager that he did not agree with this recommendation.[10]

The XM-26 armament subsystem (See Figure 1 and Figure 2) consisted primarily of two triangular three-missile pods, each mounted on an outboard pylon; a gyro-stabilized sight system designed to isolate the sight and sensor from the helicopter



Three-View Drawing of XM-26 Helicopter Armament Subsystem

FIGURE 1



UH-1B cockpit modification for TOW include:
(1) sight unit stabilized telescope
(2) Sight unit hand control
(3) Arm rest, unit hand control
(4) Control armament - TOW

FIGURE 2

motion and vibration; and three electronic units for stabilization, generation of missile signals, and regulation of electric power. For safety reasons, the TOW missile was redesigned for the XM-26 to include a flight motor delay feature which allowed the missile to move away from the helicopter before ignition of the missile flight motor.[11] When used in the XM-26, however, the missile was launched from its sealed case in the three-missile pod. Both pods were attached to M-4A bomb racks containing electrical and mechanical jettison equipment. Both the pilot and gunner could jettison individual pods electrically, or both pods could be jettisoned at once by mechanical means. The missile pods could be attached to the pylons by two men in 5 minutes, and they could be reloaded without the use of special tools.[12]

The XM-26 Development Test Program began with a series of 20 unguided ("slug") missile firings (10 ground and 10 airborne) from the experimental launcher in March, April and May 1966, to verify launcher design and determine missile helicopter reactions. The experimental subsystem was then modified to fire guided missiles, and design of the first Advanced Development Model (ADM) subsystem was initiated.[13]

Guided flight tests from the helicopter-mounted experimental subsystem commenced at Redstone Arsenal on 29 July 1966 and continued through 13 July 1967, with a total of 32 firings including 12 wire integrity tests. The latter

resulted in seven target hits, three missile failures unrelated to the XM-26 system, one wire break because of snagging in the trees, and one target miss as a result of gunner error. The problem with the TOW missile wire snagging in the trees was unique to the moving launch platform of the helicopter, and did not occur when it was fired from the stationary ground launcher.[14] The other 20 firings yielded 12 target hits and 8 failures, 6 of which were attributed to the missile, 1 to the subsystem, and 1 to instrumentation.[15]

The first ADM subsystem was fabricated and installed on the UH-1B helicopter during June 1967. Test firings were delayed until early October 1967 due to missile shortages and engineering changes. The 30-round engineering design test program began on 5 October 1967 and continued through 28 February 1968. During the tests, the TOW missile successfully hit both stationary and moving targets with a high degree of accuracy while the helicopter was hovering, traveling at high speed, or flying a zig-zag course.[16] Specifically, 22 of 30 missiles fired scored target hits. Six of eight failures were the result of design deficiencies later corrected; one was attributed to missile failure, and the other to an instrumentation problem. Excluding the round marred by instrumentation failure, which was scored as no test, 17 of the last 20 missiles fired hit their targets for a 20-round moving average of 85 percent.[17]

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During the third quarter of 1968 and the first half of

1971, a total of 62 demonstration firings of the XM-26 airborne TOW were conducted in the Federal Republic of Germany. Fifty-seven of the missiles scored direct hits for a 92 percent accuracy. Two of the misses were attributed to gunner errors and three to equipment failures.[18]

In addition to firings from the first ADM subsystem, Hughes Aircraft conducted qualification tests using the ADM Subsystem No. 2, MICOM performed reliability tests using Subsystem No. 3, and combined Government qualification and reliability tests were conducted on ADM subsystem No. 4. The fifth XM-26 subsystem was constructed for service tests which were to begin in April 1968; however, these tests were cancelled when the Army decided to redirect the XM-26 effort to the TOW/CHEYENNE program.[19] Subsequent efforts were directed toward verification of the contractor-developed XM-26 documentation package and completion of Advance Production Engineering on XM-26/CHEYENNE common items. The updated XM-26 package was retained at MICOM against future requirements for a TOW capability from the UH-1B or other rotary wing aircraft.[20]

1. Talking Paper, Deputy Chief of Staff for Operations and Plans, Army Staff, Subject: Armed Helicopters, 4 March 1963.

2. U.S. Army Tactical Mobility Requirements Board Report, 20 August 1962. This report is commonly referred to as the Howze Board Report.

3. Mary Cagle, History of the TOW Missile System, (Redstone Arsenal, Alabama: US Army Missile Command, 1977), p. 76.

4. Ibid.

5. Ibid., p. 77.

6. (1) Historical Report, Land Combat Commodity Manager, FY 66. (2) Historical Report, Small Rockets and Aircraft Armaments Branch, Directorate for Research and Development, MICOM, FY 66.

7. (1) Annual Historical Summary, Aircraft Weaponization Project Manager, Army Materiel Command, Aug 64 - Aug 65, p.25. (2) Historical Report, Small Rockets and Aircraft Armaments Branch, Directorate for Research and Development, MICOM, FY 66. (3) Historical Report, Land Combat Commodity Manager, FY 66.

8. Cagle, p. 77.

9. (1) SS AMSMI-I-130-66, Directorate for Procurement and Production, 27 Oct 66, subj: Request for Approval of Determination and Finding XM-26, TOW/Helicopter. (2) Historical Report, XM26 (TOW/Hel), Development Division, Directorate for Research and Development, MICOM, FY 67, p.1. (3) Historical Report, Land Combat Commodity Office, FY 67, pp. 1-2.

10. (1) Ibid., pp.1-2. (2) AMCTCM Item 6535, 18 Dec 68, subj: Armament Subsystem, Hel, GM Lchr: XM26 (TOW/Hel) Approval of Design Characteristics IPR, Proj DA1X164202D134 Task 05. Redstone Scientific Information Center.

11. Interview, author with Mr. Robert Whitley, former Deputy Project Manager, TOW Program, 20 Apr 94.

12. AMC TIR 18.2.1.15, Jan 67, subj: GM Launcher Helicopter Armament Subsystem, XM26. Redstone Scientific Information Center.

13. (1) Historical Report, Land Combat Commodity Office, FY 66. (2) Historical Report, Small Rockets and Aircraft Armaments Branch, Directorate for Research and Development, FY 66.

14. Interview, Mr. Robert Whitley.

15. Cagle, p. 81.

16. Ibid.

17. (1) Historical Reports, Land Combat Commodity Office, FY 1967-68. (2) Historical Reports, XM26 (TOW/Hel), Development Division, Directorate for Research and Development, FY 1967-68. (3) TOW Firing Data Furnished by Edwin E. Baker, TOW Project Office, MICOM.

18. Airborne TOW Fact Book, TOW Project Office, MICOM, Redstone Arsenal, Alabama.

19. Historical Report, XM26 (TOW/Hel), Development Division, Directorate for Research and Development, FY 68.

20. Historical Report, Aircraft Weapons Commodity Office, FY 69.

CHAPTER TWO

DEPLOYMENT OF THE 1ST COMBAT AERIAL TOW TEAM TO VIETNAM

The 1st Combat Aerial TOW Team, Vietnam was designated and deployed to the Republic of Vietnam on 22 April 1972. The original team was engaged in combat until 20 June 1972. The name awarded the team by the 1st Aviation Brigade denoted its association with that unit as being the first time in the history of the United States Army that a heliborne TOW system was employed in combat against an armored enemy.[1]

The team was originally organized to train and participate in United States Army Combat Developments Experimentation Command (USACDEC) Experiment 43.6 (Attack Helicopter, Daylight Defense) Phase III.[2] The XM-26 Visual Acquisition Sight System was one of three systems to be evaluated. Three Aircraft Commanders and two crew chiefs were selected from the 155th Aviation Company USACDEC Fort Ord, California. Additionally, three pilots/gunners were assigned from the 7th Squadron, 1st Cavalry Regiment (Black Hawks), Fort Knox, Kentucky. USACDEC assigned the Team OIC from within the command. Training began during the fall of 1971 and continued through February 1972 at Hunter Liggett Military Reservation, California. Identified as 43.6 Side Experiment VASE (Visual Acquisition System Experiment: a comparison of three heliborne sighting systems in target acquisition and

simulated TOW firings), a total of 108 record trials were completed during this period.[3] In February 1972, after an initial analysis of results, USACDEC recommended a repeat of the VASE experiment, utilizing only the XM-26 TOW Sight System as integrated into the UH-1B helicopter, at another location. Sites selected for the follow-on test included: Fort Riley, Kansas; Fort Lewis, Washington; and Fort Knox, Kentucky. As a result of commitments at Fort Riley, USACDEC made the decision to conduct the initial experiment at Fort Lewis with subsequent trails scheduled for Fort Knox. Over 85 exploratory and record trials were conducted at Fort Lewis during the period of 6 March to 16 April 1972.[4]

On 14 April 1972, the USACDEC 43.6 contingent at Fort Lewis received a JCS Warning Order directing preparation for deployment of the entire system to the Republic of Vietnam on 21 April 1972 to include the two test UH-1B aircraft.[5] Classified as an extension of Experiment 43.6 under combat conditions, the armament subsystem, to include TOW simulator trainer (XM-70), launching pods, missiles, XM-26 Sight, and all associated test equipment, were prepared for air movement to Vietnam. Designated to accompany the equipment and the TOW team personnel were technical representatives from Hughes Aircraft Company, Bell Helicopter, and US Army Missile Command (MICOM).[6] A last minute replacement pilot/gunner was obtained from the Advanced Attack Helicopter Program at US Army Aviation Systems Command, St. Louis, Missouri.[7]

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The order to have the experimental airborne TOW system on the way to Vietnam, ready to fight, in 7 days sparked one of the most unique deployments ever accomplished by the Army.[8] It was indeed a monumental task done in record time through a well-coordinated team effort headed by COL Robert W. Huntzinger, the TOW Project Manager. Only part of the XM-26 equipment was installed on the UH-1B helicopters participating in the 43.6 experiment at Fort Lewis, the remainder having been placed in storage at the Hughes Aircraft plant in Culver City, California. The TOW-peculiar hardware was removed from the helicopters and flown to Culver City, where the complete XM-26 subsystems were assembled, checked out, and packed for pickup at El Segundo, California. Maintenance was begun on the two helicopters at Fort Lewis as they were readied for airlift. TOW missiles were taken from production lots at Hughes' plant in Tuscon and assembled for pickup by C-141 aircraft at Davis Montham Air Base.[9] The equipment and personnel were consolidated at McChord Air Force Base, Washington and loaded on two C-141 aircraft. The team departed for the Republic of Vietnam on 22 April 1972 and arrived at Tan Son Nhut AFB, Saigon, Vietnam on 24 April 1972.[10]

At Ton Son Nhut, reassembly of the two aircraft and the complete installation of TOW systems were expedited. The advancing enemy armored thrusts were overwhelming the ARVN defenses in South Vietnam and the need for this new precision,

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yet unproven in combat, anti-tank firepower was needed to assist in the onslaught. On 26 April, the TOW team moved to Long Binh and was placed under the operational control of the 1st Aviation Brigade. The seriousness of the enemy armored threat in several crucial areas of the country was such that COMUSMACV considered immediate commitment of the team once the aircraft were operationally ready.[11] However, in this mid-intensity environment, training was recognized as the key to survivability. The period of 26-29 April was utilized to conduct additional gunner tracking training, continue system checkouts, and install the armored seat modification. The entire team was considered combat ready on 29 April, and with UH-1H escorts, were flown to Pleiku for live fire training and operational employment with the 17th Aviation Group. From 30 April to 2 May, the 1st Combat Aerial TOW Team conducted their initial live-fire training in the Pleiku area. The team had never fired a live TOW missile prior to their deployment to Vietnam.[12] In order to gain a true appreciation for the operational successes of the 1st Combat Aerial TOW Team, it is important to examine the area of operations, enemy and friendly situation in Military Region II, and the focus of the 17th Aviation Group prior to the April 1972 North Vietnamese Easter Offensive.

1. Mary Cagle, History of the TOW Missile System, (Redstone Army Arsenal, Alabama, US Army Missile Command, 1977), p. 165.

2. Special Report - Vietnam, 1st Combat Aerial TOW Team, US Army Combat Developments Experimentation Command (USACDEC), Fort Ord, Calf, 14 Dec 1972, p. 1-1.

3. Ibid.

4. Ibid.

5. (1) Ibid., p. 1-2. (2) Cagle, p. 163.

6. Interview, author with Mr. Hugh McGinnis, MICOM representative with 1st Combat Aerial TOW Team, 10 Mar 94.

7. Interview, author with CW3(Ret) Lester M. Whiteis Jr, Senior Aviator with 1st Combat Aerial TOW Team, 14 Apr 94.

8. (1) Cagle, p. 165. (2) Interview, author with COL(Ret) Robert W. Huntzinger, former TOW Project Manager, 20 Apr 94.

9. Interview, COL(Ret) Huntzinger.

10. Interview, author with CW4(Ret) Douglas R. Hixson, former Aviator with 1st Combat Aerial TOW Team, 10 April 1994.

11. Message, COMUSMACV to DCG USARV, 27 Apr 72, Subj: AT Weapons Systems.

12. Interview, CW4(Ret) Hixson.

CHAPTER THREE

THE NVA BUILDUP

Joining the southern boundary of Military Region I (MR-I) lay the vast territory of Military Region II (MR-II). MR-II was an area of sprawling high plateaus, rolling hills, and dense jungle commonly referred to as the Central Highlands, which sloped down toward a long, narrow, and curving strip of coastal land to the east (See Figure 3). Along the narrow coast where most Vietnamese lived, National Route QL-1 connected coastal cities such as Qui Nhon, Tuy Hoa, Nha Trang, Cam Rahn, Phan Rang, and Phan Thiet. From the coast, two major highways extended toward the highlands in the west: Routes QL-19 and QL-21. Route QL-19 connected the port city of Qui Nhon with An Khe, Pleiku, and Kontum, the latter two cities in Kontum Province. Farther south, Route QL-21 connected Nha Trang with Ban Me Thuot, the only major city on the Darlac Plateau. Both highways were important LOCs for MR-II. Running the entire length of the highlands from north to south was Route QL-14 which originated near Hoi An in MR-I and connected Kontum with Pleiku and Ban Me Thuot. As a result of frequent enemy interdictions, road communication between Pleiku and Ban Me Thuot was not always possible. South of the Darlac Plateau lay the Di Linh Plateau with its famous resort city of Dalat which connected with Bien Hoa and Saigon in Military Region III (MR-III) by QL-20. This sparsely

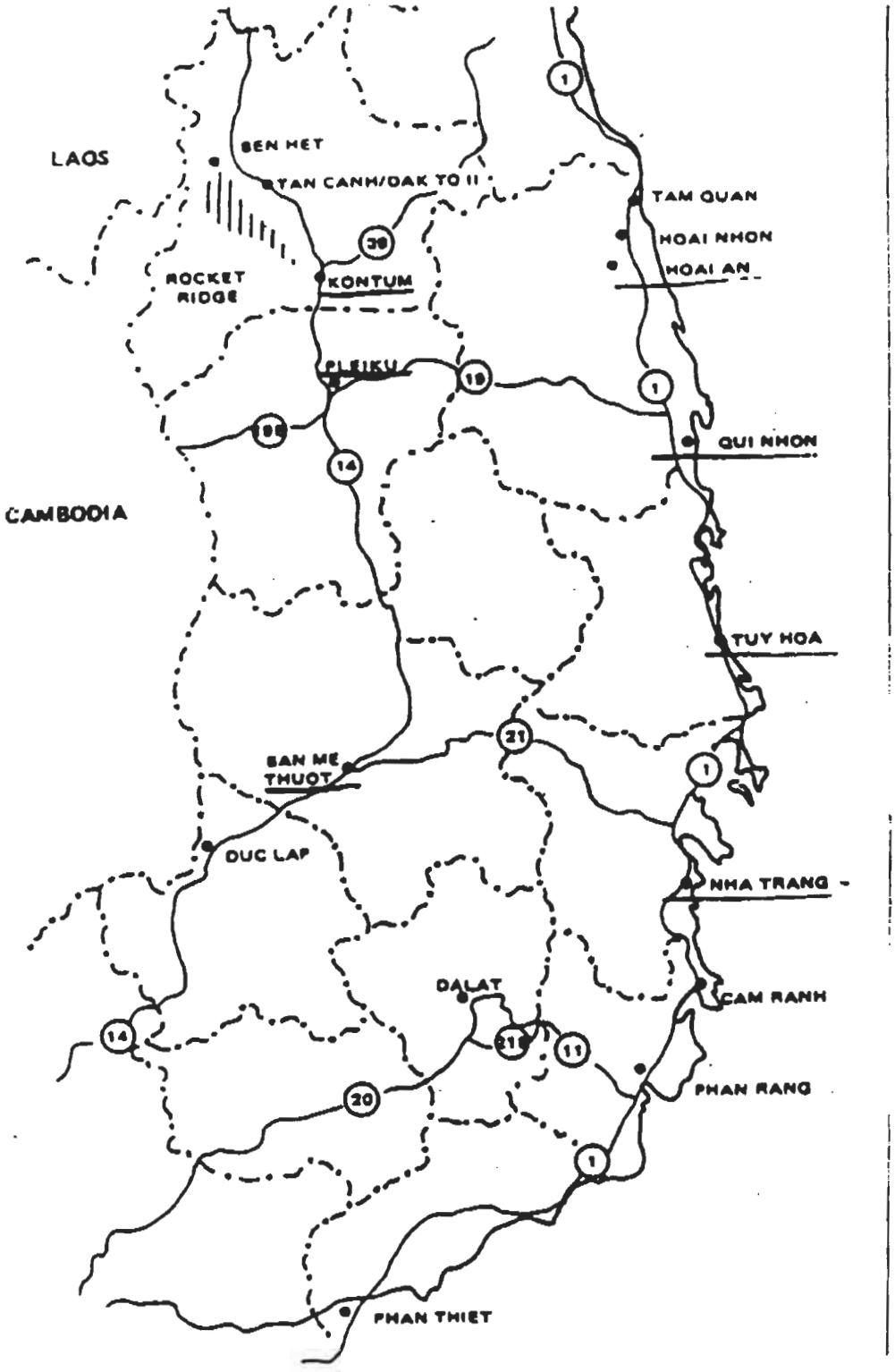
LAOS
BEN HET
TAN CANH/DAK TO II
ROCKET RIDGE
KONTUM
PLEIKU
CAMBODIA
TAM QUAN
HOAI NHON
HOAI AN
QUI NHON
TUY HOA
BAN ME THUOT
DUC LAP
NHA TRANG
DALAT
CAM RANH
PHAN RANG
PHAN THIET
1
19
14
21
11
20
25
30

FIGURE 3

populated Montagnard area of South Vietnam rarely attracted the interest of Vietnamese lowlanders.

MR-II, the largest of the four military tactical zones in the Republic of Vietnam, contained 47 percent of the country's total land area. However, it contained only three million people, about one-fifth of them Montagnards. For this reason, in the rolling, sparsely populated Central Highlands, neither side tried very hard to win.[1] Both North Vietnamese Army/Viet Cong (NVA/VC) forces and Army of Vietnam (ARVN) troops were used in economy of force roles.

The weather throughout MR-II, under the reversible influence of opposing monsoon seasons, proved to be a fairly important factor that regulated the pattern of military activities on both sides. The period from February to April was characterized by fair and dry weather affected little by either monsoon cycle. Each year during the dry season, the Annamite Mountains in Kontum Province became an area of increasing activity and 1972 was no exception.[2]

By early 1972, all US combat units had departed the Central Highlands, but there still remained some logistic units and security forces at Qui Nhon and Cam Ranh Bases on the coast. Two South Korean divisions were still deployed in MR-II, one in the An Khe-Qui Nhon area and the other in the Tuy Hoa-Ninh Hoa area. However, they were in a drawdown status in preparation for redeployment back to Korea. The most that could be expected from South Korean forces was a

continuation of security from An Khe to Qui Nhon.[3] The drawdown of US maneuver battalions and the relegation of the remaining 60,000 US military personnel in Vietnam to advisory roles resulted in Vietnamese responsibility for the war in the region. Failure of the American Vietnamization program would be a disastrous blow to US foreign policy and provide the enemy a decided advantage at the negotiating table.[4]

The ARVN II Corps performed search and rescue missions largely with its own resources and the assistance of US advisors and US Army aviation, plus whatever additional US combat support/combat service support could still be made available. It consisted of two infantry divisions and one mobile ranger group. The 22nd Infantry Division with its four regiments, the 40th, 41st, 42nd and 47th, was usually responsible for the northern sector of MR-II. The 22nd Infantry Division was under the command of Colonel Le Duc Dat, an armor officer and former province chief. Its efforts were concentrated on the two provinces of Kontum in the highlands and Binh Dinh in the lowlands. The 23rd Infantry Division was headquartered at Ban Me Thuot and under the command of Colonel Ly Tong Ba. The 23rd Division's three infantry regiments, the 44th, 45th and 53rd, were widely deployed over the division's large area of operations. For defense of the long western flank within MR-II, eleven ranger battalions were deployed in camps and bases along the border. The II Corps headquarters, under the command of LTG Ngo Dzu, was located at Pleiku. In

addition to its organic forces, II Corps occasionally received reinforcements from the RVNAF general reserve, usually airborne and ranger units, when necessary to cope with increased enemy activities.[5]

As early as the middle of December 1971, allied forces in the Central Highlands of MR-II began to receive reports of preparations for a major offensive to commence in the dry season of 1972. ARVN intelligence reports and interrogation of prisoners and defectors revealed large enemy troop movements from base areas in Cambodia and Laos into northern Kontum Province. The enemy campaign was reported to be a multi-phase effort and the first phase was to begin in late January or early February, the period of the traditional TET Lunar new year celebration. Prisoner and detainee sources further disclosed that the high point of the offensive was to be characterized by attacks on Tan Canh/Dak To II, the fire support bases on Rocket Ridge, and the liberation of the main population centers of Kontum City and Pleiku City.[6] In addition, VC local force activity in the southern portion of MR-II and the coastal provinces would increase in an attempt to widely scatter the ARVN forces and thus make the highlands vulnerable to a multi-divisional attack in Kontum Province. With the supporting attacks of VC units in traditionally VC-dominated Binh Dinh Province, a success on the Kontum battlefield would enable the NVA to cut the Republic of Vietnam in two and thus discredit the Vietnamization Program.[7]

Intelligence sources identified the controlling headquarters for the impending NVA offensive in the Central Highlands as the B-3 Front. Its major combat units were the 320th NVA Division, the 2nd NVA Division, and the organic combat units of the B-3 Front which equalled another division. These NVA units were supplemented by VC main force and local force units and the 203rd Armor Regiment from Hanoi High Command.[8] This would, in fact, be the first instance of the enemy's employment of artillery and armor in the Central Highlands.

As a result of increasing indications of an impending offensive, the US advisors in Second Regional Assistance Group (SRAG) in MR-II worked closely with their counterparts to utilize the remaining US assets in Vietnam. These assets were the air cavalry, tactical air support (TACAIR), and B-52 strikes. The 7-17th Air Cavalry Squadron was used to reconnoiter known enemy base area along the tri-border region of Laos, Cambodia, and Vietnam and also to the northwest of Kontum City in the Plei Trap Valley. The air cavalry and the USAF forward air controllers were able to detect enemy training areas containing mock-up tanks, mortar positions, and large bunker complexes.[9]

During the last week of January 1972, the first sightings were made of enemy armor activity east of Base Area 609 (See Figure 4).[10] On 25 January two AH-1 Cobra gunships from the 361st Aerial Weapons Company (Pink Panthers) reported engaging

two tanks in the Plei Trap Valley just west of Rocket Ridge. The aircrews also saw four other tanks under trees in the area. In this same area another Cobra team reported sighting six sets of tracks made by armored vehicles. Subsequent visual reconnaissance did not locate the tanks, but the tracks indicated that the enemy had at least one armor company in the area. Further tank sightings by gunships occurred on 30 January and sporadically thereafter.[11] Because these reports could not be substantiated by ground reconnaissance, little credence was given to them by Mr. John Paul Vann, the only civilian ever selected to head the advisory effort in one of South Vietnam's military regions. This problem would continue to plaque the SRAG staff during the period of NVA buildup in MR-II.[12]

As tensions began to build during the first week of February, the Vietnamese Air Force and 7-17th Air Cavalry Squadron continued to report sightings of enemy armor, as tensions began to build. Documents captured during the week of 4 to 10 February confirmed the presence of the 320th NVA Division in the B-3 Front area. One document also stated that the 320th was composed of the 48th, 52nd, and 64th Infantry Regiments and the 54th Artillery Regiment. The total strength of the division and its special battalions was listed at 10,400 men. An accompanying document revealed that both 122mm and 130mm Soviet field guns with ranges up to 17 miles were being infiltrated to the tri-border area.[13]

Upon evaluation of all available intelligence, the ARVN II Corps staff, lead by LTG Dzu, planned the defense of the Central Highlands. While the US advisors were kept informed of all developments, the Vietnamese themselves formulated the defense plan. The key US figure in this plan was Mr. John Paul Vann, who had spent over 11 years in Vietnam as an army officer and then as a civilian, and Vann was highly respected among the Vietnamese people.[14] LTG Dzu ordered Colonel Le Duc Dat, the new commander of the ARVN 22nd Division, to move the division forward CP, 47th Regiment, and logistical support to Tan Canh/Dak To II area, which was already occupied by the division's 42nd Regiment. In addition, elements of the 19th Cavalry Regiment were ordered to the Tan Canh area to reinforce the division's organic 14th Cavalry Regiment. COL Dat placed this new armor support at Ben Het because he felt that any NVA armor assault must come from that direction. LTC Tuong, the II Corps senior armor officer, argued against this deployment since it tied armor to static positions. He felt that these units should be kept free for a mobile defense.[15] The 2nd Airborne Brigade from the Government of Vietnam's strategic reserve was also committed to the fire bases on Rocket Ridge. LTG Dzu then defined his command structure. COL Dat was placed in command of the Dak To area to include the border ranger camps at Ben Het, Dak Mot, Dak Pek, Dak Seang, and Fire Bases 5 and 6. COL Long, Kontum Province Chief, was responsible for Kontum City and COL Tuong, the

Corps Deputy for Operations, was given command in Pleiku.[16]

The Tet New Year passed and there was no offensive, but nevertheless, the evidence of enemy battlefield preparation continued to increase. In an effort to disrupt the enemy's timetable, the USAF flew more than 80 B-52 missions in the Tan Canh area during the first three weeks of February.[17] President Nixon's visit to Communist China led many to believe the enemy would attempt widespread activity to discredit this meeting between the two powers. Once again the enemy acted contrary to intelligence estimates. The enemy continued to avoid direct engagements but increased his interdicting attacks on lines of communication and minor installations. The number of prisoners and defectors reduced to a trickle. In previous years, this had signaled an impending attack. Surveillance continued to detect an eastward movement of enemy supplies into Kontum Province in greater amounts than ever before. In retrospect, it appears that the offensive was delayed because the NVA/VC units had difficulty in moving their supplies into attack positions due to heavy US B-52 and TACAIR strikes on the base areas in response to 7-17th Air Cavalry Squadron surveillance and ARVN intelligence reports.

To further bolster the defense of the Central Highlands, the Airborne Division Headquarters and another brigade moved to Kontum during the first week of March and was assigned responsibility for the defense of Kontum Province. After the middle of March, contacts with larger enemy forces began to

increase significantly. The contacts with NVA battalion size forces marked the end of the period of enemy reluctance to engage in major combat. One major incident near Rocket Ridge resulted in the capture of several prisoners and one defector. They reported that the 320th NVA Division would support the B-3 Front in an offensive during the period April to September. The sources also reported seeing many tanks in the base areas through which they had moved and hearing that NVA armor units would accompany B-3 Front ground forces during the coming offensive.[18]

There were three other significant enemy contacts. One of these occurred 30 kilometers north of Kontum City where the 23rd Ranger Battalion was surrounded while assessing a B-52 strike.[19] Heavy tactical airstrikes, artillery, and supporting B-52 strikes were required to assist the rangers' breakout. A smaller engagement occurred between the 95th Ranger Border Battalion and the 141st Regiment, 2nd NVA Division, north of Ben Het. The third contact occurred toward the end of March when elements of the 47th Regiment and the 2nd Airborne Brigade made heavy contact along Rocket Ridge. The ARVN forces took a heavy toll on the attacking NVA forces with the support of B-52s along with US and VNAF tactical air support.

These successful ARVN offensive actions and the enemy's failure to launch his announced offensive on schedule lead the II Corps staff to believe that the enemy lacked the capability

to attack his intended objectives. They felt that the continued pressure on the enemy through increased patrolling, the aggressiveness of the 2nd Airborne Brigade, and the relentless use of available air resources had harassed the enemy sufficiently to delay his preparation of the battlefield. II Corps believed that aggressive ARVN ground action and massive air support would deny the NVA the initiative and reduce the size, duration, and effectiveness of the planned offensive.[20]

During the first week of April, this enemy estimate of the situation appeared to be accurate as the 320th NVA Division's 48th and 52nd Regiments sustained heavy losses in assaults on the fire bases on Rocket Ridge. (See Figure 4 for disposition of forces on 1 Apr 72.) B-52s and TACAIR pounded the massed enemy forces in the Rocket Ridge area until at least five enemy battalions were rendered combat ineffective. A prisoner taken in one of the attacks reported that reinforcements were infiltrating daily from the north and that units were regaining their original strength. At the same time, the 42nd and 47th ARVN Regiments were in heavy contact north and east of Dak To with elements of the 2nd NVA Division and the 66th Regiment of the enemy B-3 Front. Prisoners captured in these contacts revealed that the mission of the 2nd NVA Division was to capture the airfield at Dak To II, the 47th Regiment's headquarters at Tan Canh, and destroy friendly artillery units along Route 512. Additionally, the prisoners

indicated that the 66th Regiment had reconnoitered the Tan Canh compound and were in the final planning stages for a major attack.[21] The exact time of the NVA attack was not known, but it was undoubtably imminent.

Hearing these reports, the II Corps Commander felt that he had insufficient forces in the Dak To area to counter a multi-divisional attack. LTG Dzu wanted to strengthen the Dak To defense with nine ARVN battalions from the Binh Dinh Province. This would have left that province with no regular ARVN forces and defended only by territorial forces. Mr. Vann strongly advised against this move and convinced LTG Dzu to extend the 23rd Division's area of operations north to give it some responsibility in Kontum, which would eliminate the need to move the battalions from the Binh Dinh province. With this move, the II Corps order of battle showed the 22nd Division with a total of 13 battalions consisting of three border ranger battalions, eight ARVN infantry battalions and scout companies, cavalry, sector forces and 50 tubes of 105mm and 155mm artillery. The Airborne Division had six airborne battalions, one border ranger battalion, and 16 tubes of 105mm artillery. The Kontum sector consisted of a ranger group of two battalions and territorial forces. Fifty M-41 tanks belonging to the 14th and 19th Cavalry Regiments were spread between Pleiku and Ben Het. This realignment placed a tremendous strain on the logistical support of ARVN forces north of Vo Dinh due to the limited capability of the single

road into the area.[22] The northern sector of the Central Highlands lay poised for the expected enemy assault which was anticipated to follow the NVA attacks in Quang Tri-Hue (MR-I) and An Loc (MR-III).

While the North Vietnamese prepared for a major campaign in the Central Highlands, the 17th Aviation Group's objective was to prepare to close four aviation bases and inactivate four of the remaining five aviation battalions as part of the US withdrawal from South Vietnam. From 1 December 1971 to 31 March 1972, the number of aviation companies in 17th Aviation Group was reduced from twenty-seven to nine. This was a very significant event since one of the most difficult capabilities the South Vietnamese had to develop as part of the Vietnamization program was the helicopter support provided by the US Army.[23] During the course of the war, MACV had developed a system of dedicated support in which designated ARVN units were teamed up with specified US Army aviation units. The mission of 17th Aviation Group was to command and control all nondivisional army aviation assets in the II Corps Tactical Zone (MR-II). While it was under the command of 1st Aviation Brigade, the Group was under the operational control of the Second Regional Advisory Group (SRAG) and provided direct support to ARVN and South Korean forces in MR-II.[24]

By the beginning of April, it became very apparent that 17th Aviation Group clearly lacked sufficient attack helicopter aircraft with anti-tank weapons systems to counter

the growing enemy armor threat in MR-II. The 361st Aerial Weapons Company was the only remaining Cobra gunship company and it was slated for standdown on 7 April 1972. The 361st had lost many aviators and maintenance personnel in the 30 days prior to their inactivation.[25] By the end of March, property and tool boxes had been inventoried and all aircraft were prepared for retrograde. With the imminent threat of an NVA armor attack and the planned deactivation of the only attack helicopter company in MR-II, Mr. John Paul Vann set out to convince MACV to delay the inactivation of the 361st Aerial Weapons Company and request additional anti-tank weapons systems.[26]

1. Intelligence Report, Province Senior Adviser, Kontum Province, 18 January 1972.

2. Ibid.

3. LTG(Ret) Ngo Quang Truong, Indochina Monographs : The Easter Offensive of 1972, (Wash D.C.: US Army Center for Military History, 1980), p.117.

4. Bruce Palmer, Jr, The 25-Year War, (Lexington: The University Press of Kentucky, 1984), p. 117.

5. Truong, p. 118.

6. Report, CPT John Schandl, G-3 SRAG, 15 Feb 72, Subj: Battle for Kontum. (SRAG refers to the Second Regional Assistance Group which was under Mr. John Paul Vann. On 10 Jun 72 when BG Michael Healy succeeded Mr. Vann who had been killed in a helicopter crash, SRAG was redesignated SRAC: the Second Regional Assistance Command.)

7. Report, G-2, SRAG, 13 Jan 72, Subj: SRAG Weekly Intelligence Enemy Update.

8. Ibid.

9. Interview of CPT Jack Heslin, S-3 17th Aviation Group, by 1LT Gary R. Swingle, G-3, SRAG, Pleiku, RVN, 22 Jun 72.

10. Journal, G-2/G-3, SRAG, 24 Jan 72.

11. (1) Operational Report - Lessons Learned, 17th Aviation Group, 1 Nov 71 - 30 Apr 72. (2) Daily Operations Journal, 17th Aviation Group, 25 Jan 72 and 30 Jan 72.

12. Interview, author with COL(Ret) Joseph Pizzi, former Chief of Staff in SRAG, 19 Mar 94.

13. Report, G-2, SRAG, 10 Feb 72, Subj: SRAG Weekly Intelligence Enemy Update, 4-10 Feb 72.

14. Neil Sheehan, A Bright Shining Lie: John Paul Vann and America in Vietnam, (New York: Random House, 1988).

15. Report, LTC Ralph C. Waara, Senior Advisor, 2nd Arvn Armored Brigade, 5 Jun 72, Subj: Lessons Learned.

16. Report, CPT John Schandl, G-3, SRAG, 15 Feb 72, Subj: Battle for Kontum.

17. (1) Interview, MAJ Stanley Kweciak, G-3 Air SRAC, by 1LT Gary R. Swingle, G-3 SRAC, Pleiku, RVN, 21 Jun 72. (2) Report, G-2 SRAG, 17 Feb 72, Subj: SRAG Weekly Intelligence Enemy Update, 11 -17 Feb 72.

18. Report, CORDS, MR-2, Subj: SRAG Military Region Overview, March 1972.

19. Journal, G-2/G-3, SRAG, 28 Mar 72.

20. Report, G-2 SRAG, 6 Apr 72, Subj: SRAG Weekly Intelligence Enemy Update, 31 Mar - 6 Apr 72.

21. Message, Senior Advisor, SRAG to COMUSMACV, 9 Apr 72, Subj: Daily Commander's Evaluation.

22. MACV After Action Report, Oct 72, pg K-5.

23. Palmer, p. 119.

24. Interview, author with LTG(Ret) James H. Merryman, former Commander 17th Aviation Group, Springfield, Virginia, 3 Mar 94.

25. (1) Operational Report - Lessons Learned, 361st Aerial Weapons Company, for the period 1 Nov 71 - 31 Mar 72. (2) Interview, author with LTC(Ret) Richard N. Peterson, former Commander 361st Aerial Weapons Company, 7 Mar 94. (3)

9. Interview of CPT Jack Heslin, S-3 17th Aviation Group, by 1LT Gary R. Swingle, G-3, SRAG, Pleiku, RVN, 22 Jun 72.

10. Journal, G-2/G-3, SRAG, 24 Jan 72.

11. (1) Operational Report - Lessons Learned, 17th Aviation Group, 1 Nov 71 - 30 Apr 72. (2) Daily Operations Journal, 17th Aviation Group, 25 Jan 72 and 30 Jan 72.

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13. Report, G-2, SRAG, 10 Feb 72, Subj: SRAG Weekly Intelligence Enemy Update, 4-10 Feb 72.

14. Neil Sheehan, A Bright Shining Lie: John Paul Vann and America in Vietnam, (New York: Random House,1988).

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21. Message, Senior Advisor, SRAG to COMUSMACV, 9 Apr 72, Subj: Daily Commander's Evaluation.

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25. (1) Operational Report - Lessons Learned, 361st Aerial Weapons Company, for the period 1 Nov 71 - 31 Mar 72. (2) Interview, author with LTC(Ret) Richard N. Peterson, former Commander 361st Aerial Weapons Company, 7 Mar 94. (3)

Interview, author with COL William Reeder, former Platoon Leader, 361st Aerial Weapons Company, 7 Apr 94.

26. Interview, COL(Ret) Pizzi.

CHAPTER FOUR

ALL OUT NVA OFFENSIVE IN MR-II

By the end of the second week of April, contacts with major NVA units in the area of Tan Canh-Dakto had increased considerably. On 14 April, Fire Base Charlie (See Figure 4) on the northern end of Rocket Ridge received over three hundred mixed 105mm howitzer and 75mm recoilless rifle rounds, followed by a ground attack from the 48th NVA Regiment.[1] Although US Cobra attack helicopters from the 361st Aerial Weapons Company and USAF tactical aircraft were able to slow the initial advance, the ARVN 11th Airborne Battalion was forced to withdraw. Maj John Duffy, the Senior US Advisor to the 11th Airborne Battalion, noted in his debriefing that five of the nine enemy antiaircraft guns that encircled the fire base had been destroyed and that as many as 1,000 enemy bodies were lying on the perimeter wire.[2]

The 42nd and 47th ARVN Regiments continued their attempts to control the ridgelines around Tan Canh and Dak To II, but were slowly forced to fall back to the main compounds. COL Dat, the 22nd ARVN Division Commander, clearly failed to show effective leadership and determination to hold the ridgelines in the north and east of the compound which made the division's defense very vulnerable.[3] On 19 April, the 1st Battalion, 42nd Regiment was isolated by an estimated two

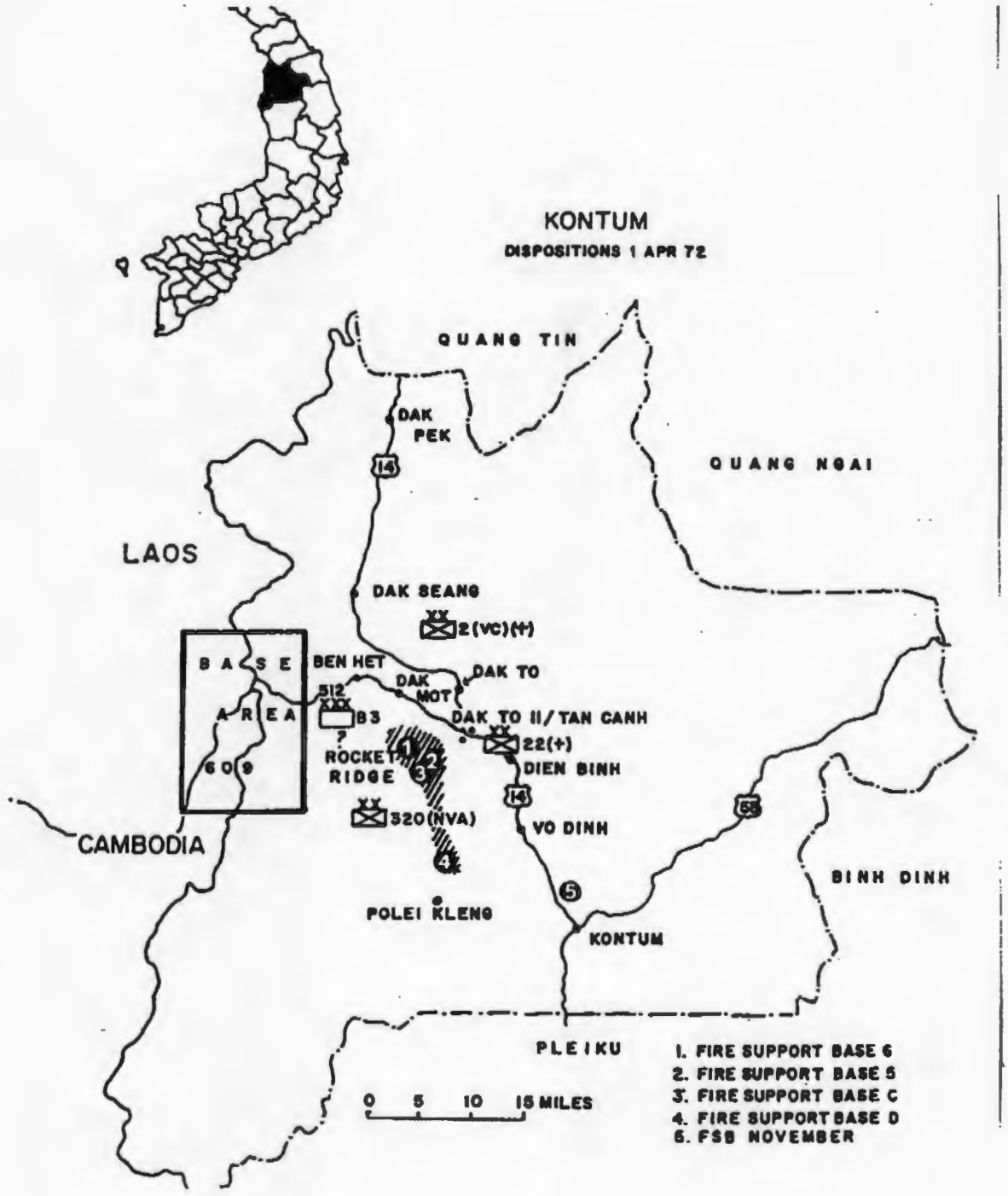

KONTUM
DISPOSITIONS 1 APR 72
QUANG TIN
DAK PEK
14
QUANG NGAI
LAOS
DAK SEANG
2(VC)(+)
BASE AREA 609
BEN HET
512
83
DAK MOT
DAK TO
DAK TO II/TAN CANH
22(+)
ROCKET RIDGE
1
2
3
4
DIEN BINH
14
320(NVA)
VO DINH
CAMBODIA
5
55
BINH DINH
POLEI KLENG
KONTUM
PLEIKU
0 5 10 15 MILES
1. FIRE SUPPORT BASE 6
2. FIRE SUPPORT BASE 5
3. FIRE SUPPORT BASE C
4. FIRE SUPPORT BASE D
5. FSB NOVEMBER

FIGURE 4

enemy battalions, making resupply impossible. COL Dat made only two feeble attempts to relieve this force. On the 21st, after running out of ammunition, 63 of the 360 men in the battalion filtered back to the regimental compound.[4]

On 20 April, the Vietnamese Joint General Staff ordered the release of one airborne brigade consisting of three battalions and the airborne division light command post from Military Region II to defend Hue in MR-I. In an attempt to fill the gap, the 6th Ranger Group was brought in from Hue, and the 23rd Division assumed the airborne division's area of operations with the 53rd Regiment. After several days of intense artillery barrages, the ARVN forces at Fire Base Delta on Rocket Ridge were overrun on the 21st. The defenders, composed of one airborne company and one company from the 2nd Ranger Group, held until an NVA attack supported by three tanks forced them to withdraw.[5] On 22 April LTG Dzu quickly moved some of his artillery to Dien Binh in the Dak To district to offset the setbacks on Rocket Ridge and give much needed depth to the battlefield. Mr. Vann had urged this move since the end of March but had not been able to convince the II Corps Commander of the tactical value of this shift in artillery assets.[6]

By 23 April the 22nd Division's defenses in the Tan Canh area appeared adequate with the 42nd Regiment and one battalion of the 41st Regiment near the compound. The

garrison defense was comprised of 1200 troops, of which 900 were support troops and not organized into the defensive plan for the compound. For anti-tank defense, the compound had two 106mm recoilless rifles, over 100 M-72 light anti-tank weapons (LAW), and a company of M-41 tanks. The 47th ARVN Regiment at Dak To II had a company of tanks and one airborne battalion in support. They also had two recoilless rifles and numerous M-72 LAWs. The airborne brigade and rangers at the remaining fire support bases on Rocket Ridge were well supplied; however, they were located too far south and were more useful for the defense of Kontum City than to Tan Canh-Dak To. The 22nd Division had more than 50 tubes of 105mm and 155mm artillery in direct support. ARVN II Corps and SRAG believed that the area was well prepared for the multi-division attack which threatened.[7]

THE ATTACK ON TAN CANH

During the morning of 23 April, the long-awaited NVA attack began with a strong enemy force consisting of elements of the NVA 2nd Division combined with B-3 Front units, sappers, and tanks. Their target was Tan Canh. During the initial attack, the enemy made extensive use of the wire-guided AT-3 "Sagger" missile which quickly disabled M-41 tanks and destroyed the 22nd Division command bunker with deadly accuracy.[8] The US advisors were completely surprised by the

introduction of this sophisticated anti-tank weapon and agreed that it signaled the beginning of the NVA offensive in MR-II. The 22nd Division's morale and confidence were dealt a devastating blow and the tactical situation rapidly deteriorated.[9]

By noon, US advisors established a new division command post in the 42nd Regiment TOC using US signal equipment. The division slowly regained a part of its composure, but COL Dat, the division commander, was visibly distressed. He declined to join the US advisors at the new TOC and remained at his destroyed command post with his deputy, his aide and several staff officers.[10] During the afternoon, ARVN artillery units opened counterbattery fire on suspected enemy without success. From the new division command post, advisers directed US tactical airstrikes onto enemy targets based on reports from regimental advisers; however, bad weather and heavy enemy anti-aircraft fire precluded accuracy and effect. With the exception of increased artillery fire and small ground probes, the remainder of the afternoon and early evening of the 23rd passed without significant incidents. When darkness closed in, enemy sappers, aided by B-40 and B-41 rocket launchers, destroyed an ammunition dump near the Tan Canh airstrip.[11]

A few hours before midnight, the US District Adviser of Dak To District reported to the 22nd Division that tanks were approaching from the west. At 2300 hours an AC-130 Spectre gunship arrived over the area and located a column of 18 tanks

moving toward the Dak To District Headquarters. Spectre's 105mm cannon had little success in destroying the enemy tanks. Since the tanks were T-54s, the only vulnerable points to attack from high altitude with high explosive ammunition were the rear fuel tanks and rear engine compartment. A hit anywhere else caused casualties among the crew but did not usually disable the tank.[12]

About midnight the enemy armor column turned south toward Tan Canh and the 22nd Division. COL Kaplan, the US Senior Adviser to the 22nd, forewarned the ARVN artillery commander to fire on the tanks before they were overrun.[13] His pleas were answered with a four gun volley which Spectre observed to hit one POL vehicle and land within five feet of one of the advancing T-54s. An intense NVA counterbattery fire sent the ARVN artillerymen scurrying for their bunkers and ended the attempt to engage the oncoming enemy with indirect fire.[14]

To reach the 22nd Division compound, the enemy column had to cross two bridges on QL-14. Both bridges were defended by a platoon of territorial forces. These forces had no anti-tank capability and quickly evacuated their bridge positions when faced with the advancing armor. This incident demonstrated a clear lack of coordination between regular and territorial forces. Both bridges were along likely avenues of approach and spanned unfordable streams. The 22nd Division Headquarters believed that the sector forces had prepared the bridges for destruction; however, this was not realized until

it was too late. The tanks continued unopposed into the outskirts of Tan Canh Village. Some of the tanks stopped while others drove back toward Dak To. Spectre requested permission to fire on the tanks which had entered the Tan Canh, but was refused because of ARVN dependents in the village and the fear of collateral damage.[15]

Enemy tanks and sappers began attacking the 22nd Division compound shortly before daybreak on 24 April, but it was already too late for any effective ARVN counteraction. The sight and sound of the advancing enemy armor proved too much for the 900 undisciplined and unorganized support troops within the compound, and they fled in utter fear through the defense perimeter.[16] After receiving the report that the support troops had fled, COL Kaplan and the remainder of the division advisory team fought their way through small arms and dodging artillery fire to make a hair-raising extraction by UH-1H and OH-58 helicopters with Mr. John Paul Vann aboard. Even though the compound had become defenseless, COL Le Duc Dat, the division commander, and his deputy and staff remained within the old division command post. During the afternoon of the 24th it began raining hard and they all took advantage of the rain to slip out of the Tan Canh compound. Since then, no one has ever learned with certainty what happened to COL Dat and his staff; however, they were all presumed dead. Only his deputy, COL Ton That Hung, managed to survive and reached Kontum several days later.[17]

THE ATTACK ON DAK TO II

About one hour after the enemy attacked Tan Canh, the 22nd ARVN Division's 47th Regiment at Dak To II came under increasing fire and some ground probes. The landing strip nearby was also attacked. The UH-1 originally scheduled to be used as the command and control helicopter of the 22nd Division was diverted to Dak To II where it was to evacuate the six 22nd Division advisors.[18] The helicopter received small arms fire from the perimeter but landed and then lifted off without damage. However, contrary to instructions received from the US advisor as to the location of NVA antiaircraft weapons, the pilot exited to the northwest and flew into the crossfire of two antiaircraft guns. The aircraft crashed on the southern side of the perimeter and burst into flames. There were no survivors.[19]

On orders of the 22nd Division command post, a relief column of two platoons of M-41 tanks from the cavalry squadron plus a platoon of infantry left Ben Het to counterattack the NVA force around Dak To II. They crossed the Dak Mot bridge and were ambushed by a large NVA force holding the high ground east of the bridge. Enemy B-40 rocket launchers and recoilless rifles destroyed all the M-41 tanks and scattered the infantry.[20] An additional tank battle occurred at the Dak To II airstrip when two T-54s were engaged by M-41 tanks. The two remaining operational M-41 tanks maneuvered to the flank

of the T-54s and engaged the NVA tanks with three rounds each. The NVA tanks received direct hits, but were not knocked out. The enemy tanks recovered quickly and destroyed both M-41 tanks with first and second-round hits.[21] Clearly, the ARVN forces lacked the anti-tank weapons to adequately deal with the new NVA tank threat in MR-II.

Without any hope for holding out, troops of the 47th Regiment fled their positions in mass and began movement south. Subsequently, all ARVN resistance faded away quickly and the Tan Canh-Dak To area fell to the NVA. During the 24th and 25th, NVA forces consolidated their gains and extended their control west of the Dak To II airstrip and south to Dien Binh on Route QL-14. They evacuated twenty-three 105mm howitzers, seven 155mm howitzers, and 14,000 rounds of ammunition.[22] In the meantime, the NVA 320th Division continued its pressure on the remaining fire support bases on Rocket Ridge during the attacks on Tan Canh and Dak To. On 25 April, the II Corps Commander decided to evacuate Fire Support Bases 5 and 6, affording the NVA covered movement down QL-14 to Kontum City. The enemy could now force the ARVN to abandon its defensive forces along QL-14 by bringing a heavy volume of fire to bear on the major highway. Kontum City now lay exposed to direct enemy attacks.[23]

At the same time as the enemy thrust in Kontum Province, the 3rd NVA Division and VC main force units attacked the three northern districts in Binh Dinh Province. Although the

40th and 41st Regiments had been quite successful in recent combat with VC units, the NVA regulars forced them to break and run from Landing Zone English and other fire bases and strong points in the area.[24] Enemy attacks then continued north along QL-1 and south along the Kim Son River. Under the pressure of the enemy's momentum, all defenses in the area crumbled rapidly.[25]

The focus of attention was now on the threat to Kontum City, as the NVA came within reach of their strategic goal to divide South Vietnam in two. MACV and the South Vietnamese Joint General Staff began to give credence to John Paul Vann's contention that the enemy campaigns in Quang Tri and An Loc were limited in scope and that the NVA's real goal was to take Kontum, Pleiku and Binh Dinh Provinces by multi-division attacks supported by armor and artillery across the Central Highlands. SRAG was very concerned about the new T-54 threat and desperately needed credible anti-tank weapons in MR-II.

1. Interview, LTC Terrence McClain, Deputy Senior Advisor, 22nd ARVN Division, by 1LT Gary R. Swingle, G-3, SRAC, Phu Cat, RVN, 27 Jul 72.

2. Ibid.

3. Message, Senior Advisor, SRAG to COMUSMACV, 21 Apr 72, Subj: Daily Commander's Evaluation.

4. Interview, CPT Raymond Dobbins, Acting Senior Advisor, 42nd ARVN Regt, by 1LT Gary Swingle, G-3, SRAC, Ba Gi, RVN, 6 Jul 72.

5. Interview, LTC McClain.

6. (1) Message, Senior Advisor, SRAG, to COMUSMACV, 22 Apr 72, subj: Daily Commander's Evaluation. (2) Interview, CPT Raymond Dobbins.

7. Interview, LTC McClain.

8. Interview, LTC McClain.

9. (1) Interview, LTC McClain. (2) Interview, CPT Dobbins. (3) Interview, MAJ John Wise, G-3 Advisor, 22nd ARVN Div, by 1LT Gary R.Swingle, G-3, SRAC, Pleiku, RVN, 22 Jun 72.

10. Interview, LTC McClain.

11. (1) Message, Senior Advisor, SRAC, to COMUSMACV, 23 Apr 72, subj: Daily Commander's Evaluation. (2) Interview, CPT Dobbins.

12. Interview, CPT Richard Cassidy, Assistant District Advisor, Dak To District, by 1LT Gary R. Swingle, G-3, SRAC, Pleiku, RVN, 22 Jun 72.

13. Interview, LTC McClain.

14. Interview , CPT Dobbins.

15. Journal, G-2/G-3, SRAG, 24 Apr 72.

16. Interview, LTC McClain.

17. (1) Message, Senior Adviser, SRAG, to COMUSMACV, 24 Apr 72, subj: Daily Commander's Evaluation. (2) Sheehan, pp. 770-776. (3) Truong, pp. 127-128. (4) Colonel Ton That Hung later retold his escape odyssey in a book he published under the title, The Man Who Came in from Tan Canh.

18. Journal, G-2/G-3, SRAG, 24 Apr 72.

19. Interview, CPT Charles Carden, Deputy Senior Advisor, 47th Regiment, by 1LT Gary R. Swingle, G-3, SRAC, 7 Jul 72, LZ English, RVN.

20. Report, LTC Waara.

21. Interview, CPT Carden.

22. Journals, G-2/G-3, SRAG, 24 and 25 Apr 72.

23. Message, Senior Advisor, SRAC, to COMUSMACV, 26 Apr 72, subj: Daily Commander's Evaluation.

24. Message, Senior Advisor, SRAG to COMUSMACV, 24 Apr 72, subj: Commander's Daily Evaluation.

25. Ibid.

CHAPTER FIVE

FIRST COMBAT AERIAL TOW TEAM EMPLOYMENT IN MR-II

The arrival of the 1st Combat Aerial TOW Team in MR-II and Pleiku was timely. The introduction of the two UH-1B aerial TOW helicopters considerably enhanced the armor-defeating capability of the 17th Aviation Group in the II Corps area of operations, that had been sorely missed in the battles at Tan Canh and Dak To. This chapter will look at the MACV decision to employ the aerial TOW team in the Central Highlands. It will include a resume of the tactical situation in MR-II, with particular emphasis on combat actions during the Battle of Kontum. Finally, this chapter will analyze the missions of the 1st Combat Aerial TOW Team, from 2 May to 12 June, to determine the key findings relevant to the tactical employment of the XM-26 TOW weapons system in MR-II.

The decision to employ the 1st Combat Aerial TOW Team in MR-II was based on three reasons. First, the Army desperately wanted to test this new anti-tank system in a target rich, combat environment against Soviet tanks.[1] The general situation in MR-II was such the heliborne TOW's commitment to combat at this critical time would result in numerous available targets and the Army expected decisive results for the 1st Combat Aerial TOW Team before the US pullout from Vietnam. With the numerous cost and performance problems

associated with the Cheyenne program in early 1972, the Army was in dire need of an anti-tank helicopter with an accurate point weapons system for NATO defense in Europe. With an impressive showing by the aerial TOW system in Vietnam, the Army could use the results to press Congress for additional funding for the Advanced Attack Helicopter Program. Second, the enemy's surface-to-air threat in MR-II was not as intense nor as accurate as in MR-I and MR-III.[2] The NVA had already introduced the SA-7 Grail, as well as intense anti-aircraft fires, in the initial assault at Quang Tri and An Loc. The anti-aircraft environment in MR-II was such that the slow and relatively unmaneuverable UH-1B aircraft would have a higher probability of survival because of terrain restrictions, and conservation of this extremely valuable and irreplaceable resource was essential. Third, and of most importance, the tactical situation in MR-II was critical. There were neither the troops nor the firepower assets available that there were in the other two offensive areas.[3] Mr. John Paul Vann convinced General Abrams, COMUSMACV, and the South Vietnamese Joint General Staff that the NVA's main effort was in the Central Highlands in a strategic attempt to divide the country in half and discredit the Vietnamization program.[4] Vann used the historical examples of Dien Bien Phu in 1956, the Battle of the Ia Drang in 1965, and the TET Offensive in 1968 to argue his case. Given his reputation and knowledge of the situation in Vietnam, Vann was so well-respected by the

associated with the Cheyenne program in early 1972, the Army was in dire need of an anti-tank helicopter with an accurate point weapons system for NATO defense in Europe. With an impressive showing by the aerial TOW system in Vietnam, the Army could use the results to press Congress for additional funding for the Advanced Attack Helicopter Program. Second, the enemy's surface-to-air threat in MR-II was not as intense nor as accurate as in MR-I and MR-III.[2] The NVA had already introduced the SA-7 Grail, as well as intense anti-aircraft fires, in the initial assault at Quang Tri and An Loc. The anti-aircraft environment in MR-II was such that the slow and relatively unmaneuverable UH-1B aircraft would have a higher probability of survival because of terrain restrictions, and conservation of this extremely valuable and irreplaceable resource was essential. Third, and of most importance, the tactical situation in MR-II was critical. There were neither the troops nor the firepower assets available that there were in the other two offensive areas.[3] Mr. John Paul Vann convinced General Abrams, COMUSMACV, and the South Vietnamese Joint General Staff that the NVA's main effort was in the Central Highlands in a strategic attempt to divide the country in half and discredit the Vietnamization program.[4] Vann used the historical examples of Dien Bien Phu in 1956, the Battle of the Ia Drang in 1965, and the TET Offensive in 1968 to argue his case. Given his reputation and knowledge of the situation in Vietnam, Vann was so well-respected by the

political and military leaders in South Vietnam at the time that he received the priority for the UH-1B aerial TOW helicopters.[5]

During the days following the 22nd Division's debacle in Tan Canh and Dak To, NVA forces gradually moved southeast toward Kontum City. South of the city, the short stretch of QL-14, which connected it with Pleiku, was also interdicted by enemy roadblocks in the Chu Pao area. Every attempt by ARVN forces to neutralize the roadblocks only resulted in more casualties. In essence, Kontum was isolated and surrounded. The final enemy assault to take Kontum City would surely occur once sufficient supplies and combat replacements had been built up in the staging areas.[6]

To combat the successes of the NVA offensive, the II Corps staff activated the following plan. COL Ly Tong Ba, the 23rd Division commander, would command all forces in Kontum Province. The 23rd Division headquarters was moved from Ban Me Thuot to Kontum City.[7] Four battalions of rangers would occupy blocking positions at Vo Dinh and south along the Dak Poko River. The 22nd Ranger Battalion moved to Polei Kleng to reinforce the battalion of border rangers there. In addition, Vann placed B-52 strikes along Rocket Ridge and over the evacuated fire support bases. With major battles in each military tactical zone in South Vietnam, all general reinforcements had been fully committed and II Corps had to rely on its own forces for defense of Kontum. Security of

southern MR-II became the sole responsibility of territorial forces.[8]

To ensure the division the maximum time to prepare for the defense, COL Ba assigned the 2nd and 6th Ranger Groups the critical mission to delay along Route QL-14 between Tan Canh and Kontum. The plan established an outer defensive line seven kilometers from the center of the city with a delaying position four kilometers in front of the final defensive positions on the edge of the city. Four 155mm howitzers and forty-four 105mm howitzers were available for fire support. The northern and western approaches were defended by rangers, while the 53rd Regiment defended the east and south.[9]

The defense plan appeared to be sound and well conceived; however, there was still a problem of command and control. COL Ba was faced with the difficult task of molding a conglomeration of units into a cohesive defense whose effectiveness had already been affected by the debacle at Tan Canh. The only 23rd Division unit under his command was the 53rd Regiment. Other units under Ba's operational command, including the 2nd and 6th Ranger Groups, the 2nd Airborne Brigade, and sector forces under the province chief's command, maintained their own command channels with parent units.[10] Additionally, several of the full colonels resented taking orders from another colonel, and as a result, COL Ba had an increasingly difficult time attempting to get them to response to his orders.[11]

Meanwhile, the 2nd Airborne Brigade, which had been holding Vo Dinh since before the loss of Tan Canh-Dak To, was ordered back to Saigon. This move left the 6th Ranger Group alone in the forward combat area with its battalions straddling Route QL-14 just south of Vo Dinh. On 27 April, the 6th Group was airlifted twelve kilometers southeast to Fire Support Base November, located north of Kontum. On 1 May, the ranger battalions at Vo Dinh came under attack and were ordered to withdraw by the group commander. As a result of this withdrawal, the ARVN defense line was moved back several kilometers to Ngo Trang, thirteen kilometers northwest of Kontum City. This setback exposed the weakness of the command structure in Kontum. At the urging of Mr. John Paul Vann, LTG Dzu moved the remaining organic units of the 23rd Division, the 44th and 45th Regiments, up to Kontum to replace the two ranger groups and the airborne brigade with no resultant loss in manpower.[12]

On 2 May, the 1st Combat Aerial TOW Team ("Hawks Claw"), with the XM-26 armament subsystem, was employed in combat for the first time. The team destroyed four M-41 tanks, a 2 1/2 ton truck, and a 105mm howitzer.[13] The equipment was all US equipment previously captured by the North Vietnamese when Fire Support Base Lima was abandoned on 1 May. The TOW missiles were fired from a range of 2700 meters and resulted in direct hits on the tanks and howitzer. Additionally, the TOW missiles created secondary explosions a few seconds after

impact as a result of ammunition rounds inside the tanks and howitzer. Clearly, the 1st Combat Aerial TOW team made a very impressive showing during the initial day of employment in MR-II.[14]

During the first week of May, attacks-by-fire on the ranger camps increased. Ben Het and Polei Kleng bore the brunt of these sporadic attacks because their locations hindered the enemy's movement of supplies into assembly areas for the attack on Kontum City. The enemy's massing forces to seize Polei Kleng provided lucrative targets for the sixteen B-52 strikes employed in the area during the three days of extended attack.[15] A captured defector later reported that his company of 100 men had sustained 40 killed and as many wounded.[16]

On 9 May, ARVN forces were wedged out of Polei Kleng by an assault of tanks and infantry. LTG Dzu then directed that anything within the evacuated perimeter at Polei Kleng to be taken under fire. Additionally, the NVA sent dogs into the perimeter wire at Ben Het Ranger Camp to detonate mechanical mines. The tactic was followed by a first-light heavy ground attack supported by six PT-76 tanks. Two of the tanks, along with infantry, assaulted the main gate but were knocked out by rangers using M-72 Light Antitank Weapons (LAWs). Five PT-76 tanks attacked the eastern perimeter; two were knocked out by LAWs. The three remaining PT-76 tanks were destroyed by the 1st Combat Aerial TOW Team from ranges of 2000-3000 meters

with first-round hits resulting in secondary explosions.[17] The remainder of the PT-76 tanks retired after the NVA infantry had seized the eastern perimeter and the rangers spent the rest of the day ejecting the enemy from the perimeter. By 1700 hours the perimeter was restored. The attacking NVA forces lost 11 tanks and over 100 dead in an attempt to overrun Ben Het. Although the forces there continued to be harassed with probing attacks, no additional major enemy assaults were made.[18]

The air cavalry troops from 17th Aviation Group had not been idle during the period since Tan Canh. Daily missions over the battle area detected new trails, caches and bunker complexes. SRAG began using a command and control helicopter in which senior officers flew as observers and went where they could best influence the action. On 10 May, BG John Hill, military deputy to Mr. Vann in SRAG, sighted an area that he was convinced was a main assembly area for attacking forces.[19] A prisoner captured that same day also confirmed that the 320th NVA Division had closed on its assembly area.[20] Subsequently, B-52 strikes were ordered on the suspected positions. On 12 May the 44th Regiment completed its replacement of the 2nd Ranger Group astride Route QL-14, the probable main enemy avenue of approach. The 44th Regiment's positions were approximately four kilometers northwest of Kontum. At 0700 hours on 13 May, radio intercepts confirmed that the 320th NVA Division was in its

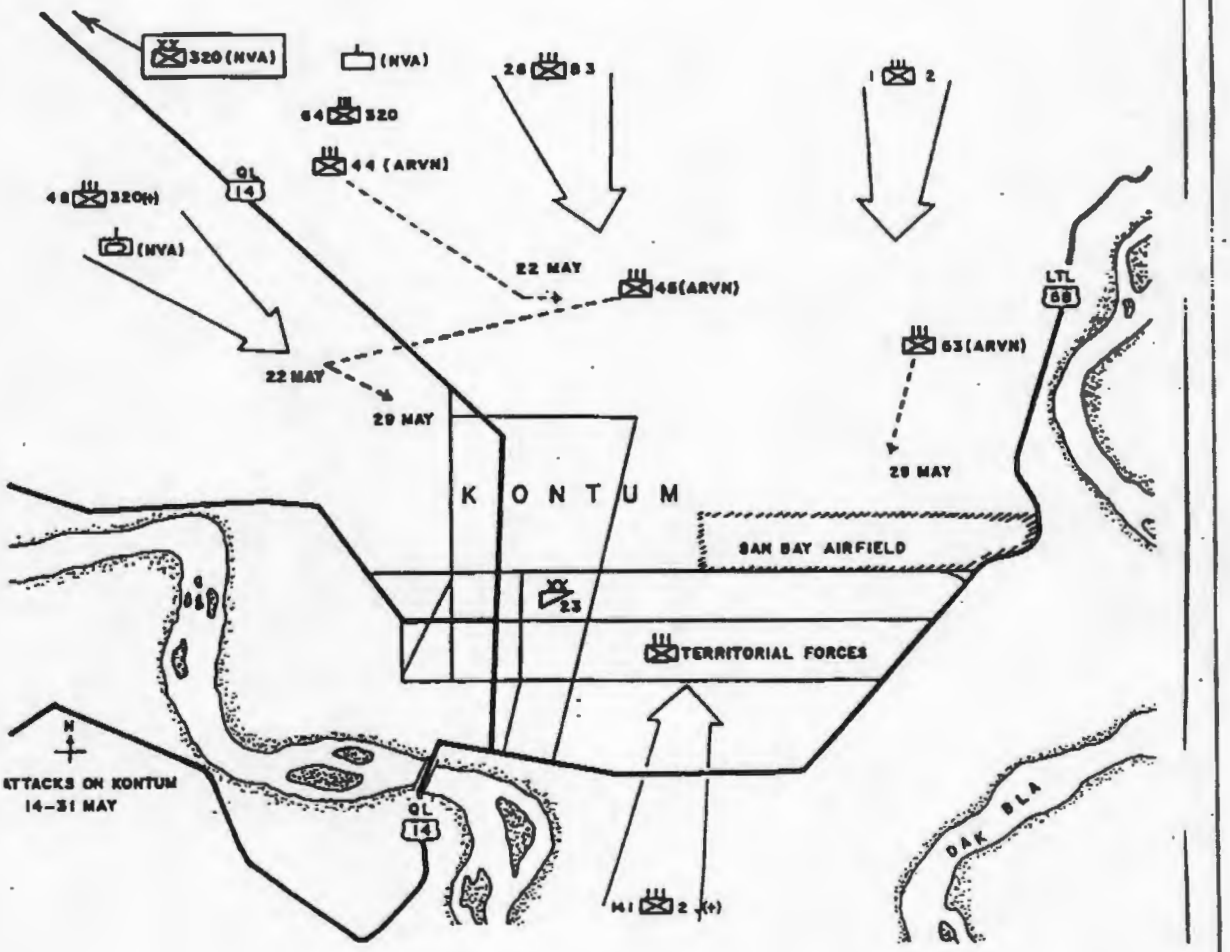
final stage of preparation in its assembly area, confirming earlier air cavalry reports of a large buildup of armor and troops just south of Vo Dinh.[21]

Fearful that US B-52 strikes would disrupt their momentum if they remained too long in their attack positions, the enemy planned to attack as early as possible. Vann was skeptical about an imminent attack since no concentrated artillery preparations were falling on the 23rd Division's defensive positions. Although there were scattered attacks-by-fire, the pattern of heavy bombardment before the attacks on Tan Canh and the fire support bases was absent. At 2230 hours a battalion of the 44th Regiment at Fire Support Base November reported many lights moving south on Route QL-14 toward their positions. This report did not cause alarm until it was realized that NVA experience with night movement of armor vehicles had caused them to use their lights when moving into attack positions at Tan Canh.[22] Additionally, the 23rd Division received a captured document sent from the 320th Division artillery commander to one of his units. The message stated that all division artillery units would support an attack by the 320th at 0400 hours on 14 May. Vann still considered this contention to be hasty, but he believed it was better to be prepared. He told COL Truby, the US advisor to the 23rd ARVN Division, that he would get air assets to them at first light. At 0430 hours on 14 May, Fire Support Base November began to receive an increasing volume of indirect

fire which continued until 0530 hours when the major assault on Kontum began.[23]

The NVA had been surprised at the ease with which they had taken Tan Canh. As a result they decided to attack Kontum City without a time-consuming artillery preparation. The attack had three major axes of advance (See Figure 5) originated along Highway QL-14 from the north and northwest. The 48th NVA Regiment and one company of the 203rd Tank Regiment attacked from the northwest along the west side of Route 14. The 64th NVA Regiment attacked south along the east side of the highway along with one company of armor from the 203rd Tank Regiment. The 28th NVA Regiment of the enemy B-3 Front advanced north against the 53rd ARVN Regiment. The 141st Regiment of the 2nd NVA Division probed the sector forces who defended the southern positions along the river.[24]

The air support was not yet on station when the 23rd ARVN Division tactical operations center received the call that two columns of infantry with tank support were moving down Route QL-14. A quick call from COL Truby to the II Corps operations center launched the US Cobra helicopters from the 361st Aerial Weapons Company and the UH-1B TOW helicopters from the 1st Combat Aerial TOW Team.[25] The ARVN artillery commander quickly massed his artillery fires on the enemy high speed avenue of approach, Route QL-14, and the 44th ARVN Regiment dispatched tank killer teams armed with the LAWs. The massed artillery made the T-54s easy prey for the tank killer teams by separating the infantry from the tanks. LTC Thomas



ATTACKS ON KONTUM
14-31 MAY 1972

FIGURE 5

McKenna, Senior Advisor to the 44th Regiment, reported that ARVN soldiers, while admitting that they were initially scared by the sight of T-54 tanks, crawled out of their bunkers and engaged the tanks with their LAWs at ranges less than 50 meters. Two quick kills of the tanks were made by the tank killer teams.[26] At 0600 hours the initial UH-1B TOW helicopter arrived over Kontum after responding to the tactical emergency declared by the SRAG advisers. Before two of the T-54 tanks could cross the river and reach the cover of the thick undergrowth along Route QL-14, the TOW missiles fired at a range of 2500 meters from the UH-1B helicopter stopped the tanks "dead in their tracks". Flames reached thirty feet high from the burning tanks as a result again of the secondary explosions from ammunition within the tanks.[27] The heavy artillery concentration along with the sudden destruction of the leading armor broke up the initial attack by 0900 hours.[28]

All of Kontum City received incoming artillery and rocket fire; however, US and VNAF air support was successful in spotting the origin and silencing the guns and launchers.[29] Some areas such as the Kontum airfield and the 23rd ARVN Division command post received light attacks-by-fire, indicating that enemy forward observers were adjusting their rounds for future fires. By nightfall on the 14th the front lines had been restored by the 23rd ARVN Division by fierce, hand-to-hand fighting.[30]

At 2000 hours the NVA again launched attacks against the 44th and 53rd Regiments. The renewed attacks were more intense than previous ones. In the confusion of fighting at night the two ARVN Regiments failed to interlock their fires, this situation spelled disaster when a battalion of the NVA penetrated the gap between the ARVN Regiments. Even the use of concentrated artillery and Spectre fires failed to stop the assaults and it appeared that the defense of Kontum was in serious jeopardy.[31]

As the tactical situation became more precarious, the 23rd ARVN Division commander and US advisors developed some last-ditch defensive measures to stop the enemy penetrations. US advisors wanted to place on the attacking enemy the two pre-planned B-52 strikes scheduled for 0300 hours. Since it would be impossible to request the B-52 strikes any nearer to friendly positions, the ARVN forces would be withdrawn one hour before the strikes. An increase in artillery fires was planned to compensate for the withdrawn force and both ARVN regiments were instructed to hold in place and move back on order. This was a bold and risky move, but the 23rd ARVN Division commander and US advisors had no other alternative to save Kontum from falling before dawn. When the critical time arrived, the 23rd ARVN Division commander ordered the withdrawal and directed the artillery to fire continuously for the next hour. The two B-52 strikes came on time and the nearness of the two strikes rocked the small city. As the

rumbling stopped, so did the ferocity of the attacks. At first light, ARVN search elements and US advisors discovered over 400 bodies scattered all around Kontum. The initial battle convinced the line troops that T-54 tanks were not invincible and that B-52 strikes could shatter the NVA human wave assaults.[32]

Vann and his staff at II Corps headquarters believed that the North Vietnamese were trying to save time by attacking with tanks before their usual artillery preparations. The enemy apparently hoped that the ARVN defenders would be frightened into retreat like Tan Canh three weeks before. Although fewer than 3,000 NVA troops had taken part in these initial attacks, SRAG knew a full NVA division of 10,000 men was within striking distance. Vann anticipated another major thrust within the next two or three days.[33]

On 15 May the 23rd ARVN Commander ordered limited offensive maneuvers in the areas of the previous night's B-52 strikes in an attempt to fix the enemy's new positions and develop new air and artillery targets. During these operations, elements of the 44th and 53rd Regiments received intermittent fire from heavy mortars and automatic weapons.[34] The 1st Combat Aerial TOW Team continued to seek out the enemy, destroying an ammunition truck and a large bunker in an area northeast of the city. The air cavalry reported a large increase in activity to the northeast, southeast, and west of Kontum and similar activity was detected further west of

Kontum City near the Dak Poko River.[35]

The relative quiet of the 15th was interrupted at 0200 hours on the 16th by an increase in enemy shelling. Some of this fire was 100mm fire from the main guns of six T-54 tanks.[36] A UH-1B TOW helicopter, along with Cobra gunships from the 361st Aerial Weapons Company, was tasked to engage and destroy the T-54 tanks. Initially, the aircrew had extreme difficulty acquiring the tank silhouette; however, once adequate flare illumination was obtained, the aircrew fired one TOW missile at the tank target but the missile infrared source blinded the gunner and he was unable to track the missile. The impact of the missile was not observed and the mission was terminated because of a flare shortage. Clearly, the first attempt to employ the UH-1B TOW helicopter at night was a failure.[37] The remainder of the evening passed without further significant enemy activity, until about 0615 hours when the tanks once again began to fire upon the positions of the 44th Regiment. There were no ground probes at this time.[38]

COL Ba examined the results of these first few probes. He had seen his defensive line penetrated and disaster narrowly avoided. His fear of this happening again led him to decide to tighten his defensive perimeter, and he discussed this with MG Nguyen Van Toan, the new II Corps commander, and Mr. Vann during their visit to Kontum City on the 16th. They had agreed to his plan to move the 44th Regiment back into a

reserve position in the hospital compound and move the 45th Regiment into its place.[39]

During the 16th, the 1st Combat TOW Team achieved significant results with the airborne TOW missile. They destroyed a truck and a 130mm howitzer from a range of 2500 meters. The first missile fired at the breech of the howitzer narrowly missed; however, the second missile hit the howitzer resulting in another secondary explosion. The TOW team also destroyed an abandoned ARVN ammunition dump at a fire base north of Kontum. Finally, the TOW team destroyed two NVA armored personnel carriers west of Kontum on the same firing run. The second missile was fired five seconds after impact of the first missile and demonstrated surprisingly to the aircrew that multiple targets could be engaged on the same firing run.[40]

The Kontum airfield came under increased observed indirect fire during the afternoon of the 16th.[41] Each time a helicopter landed to refuel, it was targeted with nine to twelve rounds of mortar and artillery fire. Three helicopters from 17th Aviation Group were damaged in this manner during the afternoon hours.[42] Two VNAF C-123s which were on the parking ramp were systemically targeted and destroyed. In addition to damaging aircraft, over 50 rounds of artillery landed on the airfield runway after 1700 hours and the airfield remained closed until 0645 hours on the morning of the 17th.[43] A US C-130 was unloading its cargo of ammunition

on the western end of the airfield on 17 May when rocket fire again fell on the airfield. The USAF pilot attempted to take off with his aircraft only partially unloaded and crashed shortly after takeoff. As a result of this incident and the increasing volume of observed artillery and mortar fire, Vann decided to limit fixed wing traffic to nights flights only.[44]

Meanwhile, the enemy studied the Kontum defense to find its weaknesses while NVA sapper elements infiltrated into the city by slipping through the southern defense sector manned by the territorial forces. At the same time, other enemy reconnaissance elements and artillery forward observers managed to penetrate the city under the disguise of civilian refugees and ARVN troops.[45]

Indirect artillery fire continued to land on Kontum airfield on the 18th. Intelligence information gathered during the lull in the fighting indicated that a major registration of artillery fire would be made on the 18th when the North Vietnamese Army celebrated Ho Chi Minh's birthday.[46] From 1740 to 1940 hours over 200 rounds of mixed artillery and mortar fire peppered the Kontum City defenders. Forward elements of the 44th Regiment located seven T-54 tanks to their front.[47] A forward air controller (FAC) previously spotted the tanks about two miles out from the defenders indicating the NVA's reluctance to expose their armor to accurate anti-tank fire. The FAC also noticed an island on the river just north of Kontum City perimeter that

was not there the day before. The island turned out to be a camouflaged T-54 tank that had stalled crossing the river and the 1st Combat Aerial TOW Team succeeded in destroying the tank from a range of 2500 meters. The same controller also spotted two 23mm antiaircraft guns firing from the vicinity of Polei Kleng on Kontum City. The TOW team fired the first missile at the 23mm guns, but they were out of range and the missile fell short of the target. The second missile was fired from an estimated range of 2800 meters and destroyed one of the 23mm guns. Even though the NVA air defense crew realized they were detected, the second gun continued to fire on Kontum until they were destroyed by USAF tactical aircraft.[48]

At 2345 hours on 18 May an increased barrage of artillery fire marked the beginning of a ground assault by the 48th NVA Regiment against the forward defenses of the ARVN 44th Regiment. Antipersonnel claymore mines sowed on the perimeter created gaping holes in the wall of NVA attackers. ARVN artillery, the tenacity of the ARVN frontline soldiers, and the devastation wrought on by the claymores thwarted the first attack. Finally, a B-52 strike at 0015 hours on 19 May ended the first assault.[49]

The only significant activity on the 19th occurred at 2115 hours when the NVA troops fired canisters of CS gas onto the frontline ARVN bunkers, followed by an assault on the defenders. The attack was quickly dispersed by ARVN artillery

and ground fire. At 0345 hours on 20 May, the 53rd ARVN Regiment received the first of three successive attacks on their positions. During the final assault the 53rd was pushed off their positions and this lack of resistance may have caused by weariness from the past three weeks of intense fighting.[50]

Throughout the day of the 20th, ARVN forces unsuccessfully tried to regain the lost position. By 1645 hours the enemy had tunneled to within twenty meters of the positions of the 53rd Regiment, too close for the use of tactical air support. The 23rd Division commander was plagued by numerous false reports of success from subordinate commanders. COL Ba had been very reluctant that day to commit his armor or attempt to verify the false reports coming in. Finally, Vann persuaded him to commit his division reserve.[51] Success was achieved by linking up nine M-41 tanks firing direct fire with the support of the gunships from the 361st Aerial Weapons Company and the UH-1B TOW helicopters. This decisive action resulted in the withdrawal of the enemy forces. Meanwhile, the air cavalry reported intensive activity in the area north and east of Kontum City. The NVA movement in the area was down the valley along Route 5B pushing closer to the defenses in the area.[52]

The tactical situation remained quiet through the night of the 20th until 0500 hours on the 21st. The 44th Regiment, which had been scheduled to be replaced by the 45th Regiment,

received heavy indirect fire. Under the cover of the artillery barrage, an NVA sapper battalion maneuvered behind the 44th Regiment's 3rd Battalion and cut Route 14 three kilometers northwest of Kontum City. At the same time another NVA battalion penetrated between the 45th and 53rd Regiments creating a wedge in the ARVN front lines. Quickly and efficiently, two battalions of the 44th Regiment and a battalion from the 45th Regiment conducted a linkup and cleared the road of enemy sappers. Cobra gunships and USAF tactical aircraft played a key role in support of the linkup and clearance operation. The wedge between the 44th and 53rd Regiments greatly concerned COL Ba. He went to the site of the battle and his personal presence inspired his men in their counterattack and was a key factor in the ejection of the NVA and restoration of the front line.[53] These successes enabled the restoration of the Kontum Airfield to normal operation and allowed the desperately needed resupply of ammunition and fuel by US C-130's.[54]

The successes of the previous night inspired COL Ba and the 23rd Division to make their first extensive offensive efforts. With the support of US tactical air and Cobra gunships, the 23rd Reconnaissance Company was airlifted to the north and northwest of the city within artillery range. During these operations, they discovered additional evidence of heavy enemy casualties caused by B-52 strikes. In the meantime, MG Toan launched a major effort to clear Route QL-14

from Pleiku to Kontum. This vital resupply road had been interdicted at Chu Pao Pass for several weeks by the NVA 95B Regiment. Convoys were needed to carry supplies from Pleiku to the forces defending Kontum City. The II Corps relief task force consisted of the 2nd and 6th Ranger Groups, augmented by armored cavalry and combat engineers. Despite the vigorous support of tactical air and artillery firepower, the attack was slowed by multiple blocking positions on both sides of the highway. The relief effort was finally stopped by a system of NVA strong points entrenched on the rocky southern slope of the Chu Pao Mountain.[55]

After ten days of preparing his forces, the NVA resumed the attack on Kontum on 25 May. The attack had all the intensity of a decisive, make or break effort. It became imperative for the enemy to achieve a quick victory or withdraw his troops altogether for refitting. The drenching monsoon had started to settle in over the Central Highlands and its first effects had begun to be felt in the Kontum-Pleiku area. Even if the NVA had the resources for replacements, a drawn-out campaign at this time could only spell disaster.[56]

The attack began with indirect artillery fire on units of the 23rd Division near the airfield and south of the city. At 0300 hours the enemy 406th and 10th Sapper Battalions began to infiltrate the southeastern positions held by territorial forces. Reconnaissance had revealed what the US advisors had

known; the territorial forces left gaps in their defenses each night when they went back into the city to stay with their families. Moving in small squad size groups, some of the enemy were dressed in captured 22nd Division uniforms.[57] The sappers successfully moved into the built-up area near the airfield, a school, a Catholic seminary, and the home of the French Bishop of Kontum. From the north and northeast, enemy infantry and T-54 tanks swarmed down and penetrated the city. Throughout the morning and early afternoon, the 23rd Division command post and division artillery received very accurate incoming artillery and mortar fire.[58]

At 1300 hours BG Hill, military deputy to Mr. Vann, declared a tactical emergency for Kontum City, diverting all available air and gunship support to the area. By 1515 hours the 23rd Division artillery was completely neutralized. Their guns and ammunition were either destroyed or the crews were pinned in their bunkers by the enemy's volume of fire. Among the artillery fired into the city were the 105mm and 155mm howitzers captured at Tan Canh. By 1900 hours only fourteen 105mm and two 155mm howitzers were operational to support the 23rd's operations. The C-130 resupply aircraft was cancelled the night of 25-26 May due to the tactical situation; this meant that the division went without resupply for 24 hours.[59]

At 0100 hours on the 26th the attacks by indirect fire increased to several rounds per minute. A coordinated attack from the north by four tank/infantry teams concentrated on the

53rd Regiment. In addition to the principal attacks against the 53rd, pressure also increased on the sector forces around Kontum City. At first light the 1st Combat Aerial TOW Team began firing TOW missiles and by mid-afternoon had destroyed ten T-54 tanks, an enemy bunker, an ammunition truck and a machine gun position on top of a water tower.[60] The average engagement ranges for the tank targets were 2200 meters. With the support of Cobra gunships, a task force of one battalion from the 44th Regiment, reinforced by eight tanks, counterattacked and successfully contained an enemy penetration between the 45th and 53rd Regiments. The 23rd ARVN forces were unable to push the enemy out of his newly captured positions. The situation remained fairly stable for the remainder of the day within the city; however, after dark, indirect fire on the command posts of the 45th and 53rd Regiments increased. The 45th was faced with the heaviest attacks by three battalions of the 64th NVA Regiment and the attackers penetrated between the 45th and 53rd regiments and enveloped the forces of the 45th Regiment. All tactical air support was diverted to the embattled regiment. Again, two B-52 strikes, diverted from scheduled missions decreased the ferocity of the attack.[61]

In the early morning of 27 May, the enemy made a surprise main thrust with infantry and armor against the 44th Regiment held in division reserve in the city's hospital complex. When the 44th Regiment completed the move into its reserve position

on the 22nd, they failed to place any security to their front. They mistakenly believed that the 45th and 53rd were to their front. This error nearly proved disastrous. The main NVA armor and infantry thrust struck this area with attacks by the 1st Regiment, 2nd NVA Division, and the 66th Regiment, B-3 Front, supported by one company of T-54 tanks. A coordinated attack was made by the 52nd NVA Regiment of the 320th NVA Division, with the assistance of the 64th Regiment which had enveloped the 45th Regiment the previous night.[62]

The TOW helicopters had been scrambled from Pleiku at first report of T-54 tanks and infantry in the wire near the ARVN 44th Regiment. At 0600 hours they were over the northern battle front at Kontum. The open terrain north of the city provided no cover or concealment for the attacking tanks, making them easy prey for the UH-1B helicopters which scored two TOW missile hits on T-54s that were moving to join the attack on the northeastern defenses.[63] Tactical aircraft, the TOW helicopters and the efforts of the front line soldiers stemmed the enemy advance by 1000 hours. The NVA infantry still held the northernmost compound and continued to harass the airfield.[64]

By midday the enemy fanned out and formed pockets of resistance all across the northern front. The pockets of resistance were in areas where friendly use of fire was limited. Despite all the efforts of ARVN troops and the firepower of US tactical aircraft and gunships, it was

difficult to dislodge the enemy from his positions. The NVA seemed determined to dig in and exploit his foothold in the city. To prevent further penetrations and consolidate his defenses, COL Ba decided to tighten the perimeter again. He ordered the 45th to withdraw from Fire Support Base November and move into a tighter ring around the city. His purpose was to allow for better utilization of B-52 strikes. Later that evening, MG Toan also agreed to strengthen the defenses by pulling in the 53rd Regiment to maintain greater integrity.[65]

By the early morning of the 28th, the NVA infantry was firmly entrenched in the hospital compound only 40 meters away from ARVN defensive positions. Tactical air support was impossible because of bad weather. Elements of the 44th and 53rd Regiments, supported by tanks from the 8th Armored Cavalry Regiment, attempted to dislodge the enemy from the northern compounds. At the same time territorial forces engaged in bitter house-to-house fighting in the southern portion of the city where the NVA were still dug in inside a school and some houses at the edge of the airfield. An NVA machine gun crew on a water tower overlooking the area halted the ARVN counterattack in the hospital compound by stopping the ARVN infantry. This was the same water tower that the 1st Combat Aerial TOW Team had fired a TOW missile on the 26th to take out the enemy machine gun and crew. The TOW Team was ordered on this day to destroy the machine gun position and the water tower. The TOW helicopter silenced the machine gun

and attempted to topple the tower by firing three TOW missiles at the eighteen-inch diameter tower legs. The TOW missiles hit two of the legs from a distance of 2800 meters; however, the water tower was empty and did not fall because of multiple supporting cross members.[66] The 53rd Regiment advanced to within 500 yards of the airstrip in hand-to-hand fighting throughout the day. Kontum was reinforced during the afternoon by the 3rd battalion, 47th Regiment from Pleiku. The 45th Regiment, pulling back into a tighter ring around the city, encountered heavy resistance by an entrenched NVA battalion and was unable to enter the city's defensive ring until the 29th of May. By the night of the 28th the situation remained critical; the NVA still held the same area he had at the beginning of the day. The 23rd Division's only accomplishment was in containing the two penetrations in the northern compounds and southern area.[67]

By this time in the battle both sides found it difficult to resupply their troops. The hourly B-52 strikes forced the North Vietnamese to store their supplies great distances from the city. Captured soldiers revealed that originally each NVA soldier had been provided three belts filled with cooked rice. Transportation elements were to carry food and ammunition to the front lines. However, heavy airstrikes disrupted the telephone lines and the transportation elements trying to reach the front. In short, the NVA had to achieve success swiftly or withdraw to the sanctuary of the mountains in order

to resupply and refit.[68] Likewise, the 23rd ARVN Division began to feel the pinch from lack of resupply. The critical situation in the city also made friendly medical evacuation difficult. To counter this, US C-130 aircraft airdropped a total of 64 tons of ammunition, of which three-quarters were recovered. Additionally, CH-47s from the 17th Aviation Group responded adequately to emergency requirements.[69]

29 May was a day of light activity that consisted mostly of sniper fire and sporadic attacks-by-fire, with only 30 artillery rounds hitting the city by mid-afternoon. The ARVN counterattack force was pinned down by sniper fire from strengthened enemy bunker defenses. Although sixty sorties of assorted tactical aircraft destroyed 39 of these heavily fortified bunkers, the stalemate continued through the evening despite the heavy fighting. Just before midnight the 44th and 53rd Regiment command posts received 50 to 100 rounds of heavy mortar fire followed by NVA ground attacks against the northeastern perimeter. The attack was joined by renewed activity just south of the airfield, when the enemy made a last attempt to link his penetrations. One of the enemy mortar rounds strayed into the remains of the ammunition dump between the ARVN defenders and the attacking enemy. The resulting explosion and fire caught the enemy in the middle of his assault, causing many casualties and breaking up the assault.[70]

The attrition caused by airstrikes and gunships finally

allowed ARVN forces to counterattack the northern compounds and regain the initiative. Soon after daylight on the 30th, 23rd Division forces engaged in bunker-to-bunker fighting, using hand grenades and individual effort, to dislodge the enemy. The enemy bunkers were too well fortified and hidden to be damaged by artillery or air support. Slowly but surely the bunkers were won back. Shortly before noon, the 23rd Division regained control of the entire hospital complex. As the 44th Regiment moved forward, the troops saw large groups of the enemy withdrawing to the northeast. This was the only avenue of escape left as the counterattack forces were on the other three sides. The air cavalry and forward air controllers also reported the enemy leaving the battlefield. By day's end some NVA soldiers still remained in Kontum, but their positions rapidly weakened under ARVN pressure.[71]

By midday on the 31st, Mr. Vann believed that the main battle was over, although pockets of resistance would remain for a time. The NVA needed resupply and personnel replacements for their battered forces and retreated back to their sanctuaries.[72] Nearly 4,000 NVA dead littered the battlefield. The ARVN forces had suffered heavily, but they held the field with the assistance of US advisers, tactical airstrikes, Cobra gunships, and UH-1B TOW helicopters. Effective enemy resistance in Kontum City ceased by 10 June 1972.[73]

The most dramatic impact of the heliborne TOW system was

demonstrated in the Battle of Kontum 26-27 May. As the 1st Combat Aerial TOW Team was committed to the battle at first light on 26 May, approximately 4000 NVA troops, accompanied by twelve T-54 tanks, had penetrated the defenses of Kontum City. By relieving each other on station throughout the morning, the two TOW helicopters maintained constant pressure on the attacking NVA armor and destroyed ten T-54 tanks. The following morning, the TOW team returned and destroyed the only two T-54 tanks known to be still in the area. It is significant to note that in the Battle of Kontum on 26 and 27 May, USAF tactical air was not able to respond to the armor threat because of low daytime cloud ceilings of 5,000 feet in the area.[74] Additionally, the USAF tactical bombers could not have accomplished the anti-tank mission without severe collateral damage to friendly troops, civilian refugees in the area, and the city itself.[75] With the enemy troops and T-54 tanks intermingled with ARVN forces in the city, the aerial TOW teams were able to destroy tank after tank in the built up areas with pinpoint accuracy from ranges that exceeded 2000 meters. Finally, it is important to recognize that the NVA was unable or unwilling to mass an armor threat in the Kontum area after 27 May.

The enemy reaction to the TOW missile attacks was strangely passive. In almost every mission, the enemy tanks engaged were stationary at the time of missile impact and did not take evasive action. An example of the enemy reaction

occurred on 14 May as two T-54s were crossing a river five kilometers northwest of Kontum. One enemy tank was in the middle of the river and the other tank was behind it preparing to cross. As the aerial TOW team rolled in and destroyed the tank in the middle of the river, the command and control aircraft reported that the crew of the second tank abandoned their vehicle. The second tank was subsequently destroyed by the aerial TOW. It would appear that the introduction of this new weapon system into the battle situation totally surprised the enemy.[76]

During the time of employment in MR-II, the 1st Combat Aerial TOW Team never received a single hit by enemy air defenses. The lack of enemy air defense influence on engagements by the airborne TOW can be attributed to the long standoff range and altitude maintained by the aerial TOW teams, and the disciplined training and experience gained by the crews while participating in the USACDEC 43.6 trials.[77] Also, the TOW Team developed very close operational procedures and teamwork with the dedicated UH-1 command and control aircraft from the 7-17th Air Cavalry Squadron and the AH-1G gunship escorts from the 361st Aerial Weapons Company employed on every mission.[78] When the TOW Team was employed in MR-II, the enemy air defense capabilities included 51 caliber machine guns and 23mm and 57mm anti-aircraft weapons. The NVA did not possess a heat seeking missile air defense capability during

this period in MR-II. The enemy air defense fires were active and were primarily directed at air cavalry and Cobra helicopters, USAF tactical aircraft, and forward area controllers that flew in close proximity to the targets. The TOW teams operated at an average altitude of 2500 feet as compared to the nap of the earth (NOE) technique used in Experiment 43.6. This was deemed appropriate in the absence of an enemy surface to air missile (SAM) air defense capability combined with the small arms ground fire threat at lower altitudes. The presence of an enemy SAM capability would have forced the TOW teams to risk the ground fire at NOE as opposed to a SAM at altitude.[79]

The airborne TOW concept proved to be highly adaptable to combat operations.[80] Though installed in an overage UH-1B aircraft, the TOW stabilized optical tracking system proved to be simple in operation and capable of achieving a very high percentage of first round hits. The airborne TOW demonstrated its capability to track easily and to destroy targets with surgical precision and with no collateral damage. As aircrews gained more expertise with the system, they were able to make multiple launches on the same target run if the first missile malfunctioned.[81] When engaging multiple targets, the crews discovered it was also possible to engage the second target a few seconds after impact of the first missile. It was also successfully employed during periods of marginal weather. The results in terms of combat kills for the 1st Combat Aerial TOW Team are shown in Table 1.

TABLE 1 - TOW FIRINGS
1ST COMBAT AERIAL TOW TEAM - 2 MAY TO 12 JUNE 1972

COMBINED KILLS

24	Tanks (10 T-54, 6 PT-76, 8 M-41)
4	A.P.C. (Believed to be AA I CVM-1967)
2	Artillery Pieces (1 105mm, 1 unknown type)
7	Trucks (6 2-1/2 ton,1 3/4 ton)
1	Anti-aircraft position (Twin 23mm)
2	Machine Gun Positions (1 12.7mm, 1 30 cal)
1	Wooden bridge
1	Hut with small arms ammunition
1	Small arms ammo dump at abandoned fire base
1	122mm rocket launching position
3	Bunkers
47	**TOTAL KILLS**

SYSTEM PERFORMANCE

21	Practice Firings
85	Combat Firings
106	**TOTAL FIRINGS**
7	Combat Missile Failures
3	Missile Failures (2 no IR source, 1 no flt motor)
1	System Failure (power supply cut off at firing)
3	Failures to capture missile (could have been system, missile or crew - unknown)
3	Practice Missile Failures
96	**TOTAL GUIDED FLIGHTS**
11	Missed Target
3	Known Misses (Gunner Tracking Error)
8	Out of Range (2 of these at night)
85	**TOTAL TARGET HITS**

Source. Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, 14 Dec 72, Table 3-1.

While daylight combat operations were a dramatic success, the aerial TOW system had limited usefulness at night.[82] Early night firings failed because the gunners were blinded first by the bright infrared (IR) source and then by flares. When a red filter was retrofitted to the sight, it lowered the light transmission ability of the sight and altered the clarity of the reticle which made the operation more difficult. The filter did enable night firings without blinding the gunner; however, it was nearly impossible for even the most experienced gunners to locate the range of the targets at night.[83] Several misses also occurred due to the gunner's inability to see the target while guiding the missile. Flares entered the field of view of the 13-power sight which resulted in both missile guidance problems and danger to the gunner's eyesight. The flares also caused an extraneous IR source which resulted in missile guidance problems. The experiences of the 1st Combat Aerial TOW Team at night clearly demonstrated the need for a passive night vision system for target detection and tracking before the XM-26 TOW could have an effective night capability.

1. Interview, author with MG (Ret) William J. Maddox, former Director of Army Aviation, 30 Apr 94. Note. As the Director of Army Aviation on the Army Staff in the Pentagon, he was primarily responsible for the deployment of the XM-26 TOW system to Vietnam in 1972.

2. Interview, author with COL(Ret) John A. Todd, former Deputy Commander, 1st Aviation Brigade, Springfield, Virginia, 29 Mar 94. Note. COL(Ret) Todd was in charge of all aviation assets in MR-II during the Battle for Kontum and worked directly for BG Hill, military deputy to Mr. Vann.

3. Interview, COL(Ret) Pizzi.

4. Ibid.

5. Ibid.

6. Message, Senior Advisor, SRAG, to COMUSMACV, 26 Apr 72, subj: Commander's Daily Evaluation.

7. Journal, G-2/G-3, SRAG, 27 Apr 72.

8. Truong, p.130.

9. Interview, COL John O. Truby, Acting Senior Adviser, 23rd ARVN Division, by 1LT Gary R. Swingle, G-3, SRAC, Pleiku, RVN, 17 Aug 72.

10. Ibid.

11. Ibid.

12. (1) Journals, G-2/G-3, 23rd ARVN Division, 27 Apr and 1 May 72. (2) Message, Senior Advisor, SRAG, to COMUSMACV, 1 May 72, subj: Daily Commander's Evaluation. (3) Interview, COL Truby.

13. (1) Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, p. C-3. (2) Interview, author with CW3(Ret) Lester M. Whiteis Jr, Senior Aviator with 1st Combat Aerial TOW Team, 14 Apr 94. (3) Gun Camera Tape, Hughes Aircraft Company, Culver City, Calf, Oct 72.

14. (1) Interview, COL(Ret) Todd. (2) Interview, COL(Ret) Pizzi.

15. Journals, G-2/G-3, SRAG, 5, 6 and 7 May 72.

16. Report, G-2, SRAG, 10 May 72, subj: SRAG Weekly Enemy Intelligence Update, 4-10 May 72.

17. (1) Interview, CW3(Ret) Whiteis. (2) Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, 20 Jul 73, p. C-4. (3) Gun Camera Tape, Hughes Aircraft Company, Culver

City, Calf, Oct 72.

18. Journal, G-2/G-3 SRAG, 9 May 72.

19. Interview, COL(Ret) Todd.

20. Report, G-2, SRAG, 17 May 72, subj: Weekly Enemy Intelligence Update, 11-17 May 72.

21. Interview, COL Truby.

22. Report, G-2, ARVN II Corps, no date, subj: II Corps Scenario.

23. (1) Journal, G-2/G-3, SRAG, 13 and 14 May 72. (2) Interview, COL Truby. (3) Report, G-2, ARVN II Corps, no date, subj: II Corps Scenario.

24. Battle of Kontum, MACV After Action Report, Saigon, RVN, Oct 72.

25. Journal, G-2/G-3, 23rd ARVN Division, 14 May 72.

26. Interview, COL Truby.

27. Interview, CW3(Ret) Whiteis.

28. Message, Senior Advisor, SRAG to COMUSMACV, 14 May 72, subj: Daily Commander's Evaluation.

29. Journal, G-2/G-3, SRAG, 14 May 72.

30. Interview, COL Truby.

31. (1) Journal, G-2/G-3, SRAG, 14 May 72. (2) Interview, MAJ Wade Lovings, Deputy Senior Advisor, 44th Regiment, by 1LT Gary R. Swingle, G-3, SRAC, Kontum, RVN, 22 Jun 72.

32. Interview, COL Truby.

33. (1) Report, G-2, SRAG, 17 May 72, subj: Weekly Intelligence Enemy Update, 11-17 May 72. (2) Message, Senior Advisor, SRAG, to COMUSMACV, 15 May 72, subj: Daily Commander's Evaluation.

34. Journal, G-2/G-3, 23rd ARVN Division, 15 May 72.

35. Journal, G-2/G-3, 17th Aviation Group, 15 May 72.

36. Journal, G-2/G-3, 23rd ARVN Division, 16 May 72.

..., Interview, CW3(Ret) Whiteis. (2) Mission Summary ...orm, Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, p. A-21.

38. Journal, G-2/G-3, SRAG, 16 May 72.

39. (1) Interview, COL Truby. (2) Message, Senior Advisor, SRAG, to COMUSMACV, 16 May 72, subj: Daily Commander's Evaluation. Note. LTG Dzu developed a heart ailment and was replaced by MG Toan on 10 May.

40. (1) Interview, CW3(Ret) Whiteis. (2) Gun Camera Tape, Hughes Aircraft Company, Oct 72. (3) Firing Summary, Supplement to Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, 20 Jul 73, pp. C-5 and C-6.

41. Journal, G-2/G-3, SRAG, 16 May 72.

42. Journal, G-2/G-3, 17th Aviation Group, 16 May 72.

43. Journal, G-2/G-3, SRAG, 17 May 72.

44. (1) Journal, G-2/G-3, SRAG, 17 May 72. (2) Message, Senior Advisor, SRAG to COMUSMACV, 17 May 72, subj: Daily Commander's Evaluation.

45. Truong, p. 136.

46. Report, G-2, SRAG, 24 May 72, subj: Weekly Enemy Intelligence Update, 18-24 May 72.

47. Journal, G-2/G-3, SRAG, 18 May 72.

48. (1) Interview, CW3(Ret) Whiteis. (2) Firing Summary, Supplement to Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, 20 Jul 73, p. C-6.

49. (1) Journal, G-2/G-3, SRAG, 19 May 72. (2) Interview, MAJ Lovings.

50. (1) Journal, G-2/G-3, SRAG, 20 May 72. (2) Interview, LTC Norbert C. Gannon, Senior Advisor, 53rd ARVN Regiment, by 1LT Gary R. Swingle, Kontum, RVN, 22 Jun 72.

51. Message, Senior Advisor, SRAG to COMUSMACV, 20 May 72, subj: Commander's Daily Evaluation.

52. (1) Journal, G-2/G-3, SRAG, 20 May 72. (2) Journal, S-2/S-3, 17th Aviation Group, 20 May 72.

53. (1) Interview, LTC James W. Bricker, G-3 Advisor, 23rd ARVN Division, by 1LT Gary R. Swingle, G-3, SRAC, Kontum, RVN, 22 Jun 72. (2) Message, Senior Advisor, SRAG, to COMUSMACV, 21 May 72, subj: Daily Commander's Evaluation.

54. Journal, G-2/G-3, SRAG, 21 May 72.

55. (1) Journal, G-2/G-3, SRAG, 22 May 72. (2) Message, Senior Advisor, SRAG, to COMUSMACV, 22 May 72, subj: Daily Commander's Evaluation.

56. Report, G-2 SRAG, 24 May 72, subj: Weekly Enemy Intelligence Update, 18-24 May 72.

57. Interview, COL Truby.

58. Interview, LTC Gannon.

59. (1) Journal, G-2/G-3 SRAG, 25 May 72. (2) Message, Senior Advisor, SRAG to COMUSMACV, 25 May 72, subj: Commander's Daily Evaluation.

60. (1) Interview, CW3(Ret) Whiteis. (2) Gun Camera Tape, Hughes Aircraft Company, Oct 72.

61. (1) Journal, G-2/G-3, SRAG, 26 May 72. (2) Message, Senior Advisor, SRAG to COMUSMACV, 26 May 72, subj: Commander's Evaluation.

62. Interview, MAJ Lovings.

63. Interview, CW3(Ret) Whiteis.

64. Journal, G-2/G-3, SRAG, 27 May 72.

65. (1) Ibid. (2) Message, Senior Advisor, SRAG to COMUSMACV, 27 May 72, subj: Commander's Daily Evaluation.

66. Mission Firing Summary, Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, p. A-36.

67. (1) Journal, G-2/G-3, SRAG, 28 May 72. (2) Journal G-2/G-3, 23rd ARVN Division, 28 May 72. (3) Message, Senior Advisor, SRAG to COMUSMACV, 28 May 72, subj: Commander's Daily Evaluation.

68. Report, G-2, SRAG, 31 May 72, subj: Weekly Enemy Intelligence Update, 25-31 May 72.

69. Journals, G-2/G-3, 23rd ARVN Division, 26-28 May 72.

70. (1) Journal, 23rd ARVN Division, 29 May 72. (2) Report, MACDI, 4 Jun 72, subj: PW Interrogation.

71. (1) Journal, G-2/G-3, 23rd ARVN Division, 30 May 72. (2) Interview, MAJ Lovings.

72. Message, Senior Advisor, SRAG, to COMUSMACV, 31 May 72, subj: Commander's Daily Evaluation.

73. MACDO-43, 18 Jul 72, subj: DO Historical Summary for June 1972.

74. Interview, COL(Ret) Todd.

75. Interview, COL(Ret) Pizzi.

76. Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, pg. 2-3.

77. Special Report Vietnam, 1st Combat Aerial TOW Team, USACDEC, pg.2-3.

78. Interview, CW3(Ret) Whiteis.

79. Ibid.

80. Special Report Vietnam, 1st Combat Aerial TOW Team, USACDEC, pg. 3-1.

81. Interview, CW3(Ret) Whiteis.

82. Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, pp. 3-1, 3-2, 4-1 and 4-2.

83. Interview, CW3(Ret) Whiteis.

CHAPTER SIX

2ND COMBAT AERIAL TOW TEAM REMAINS IN VIETNAM

After enemy resistance was eliminated within Kontum City, combat activity in Kontum Province centered on ARVN clearing operations north and northwest of the city in an effort to reclaim the lost territory. Additionally, the activities of government forces focused on opening Highway QL-14 between Kontum and Pleiku. With the immediate NVA armor threat defeated in MR-II, General Abrams made the decision to keep the XM-26 aerial TOW system in Vietnam as insurance against any future NVA armor penetration.[1] As a result, the 2nd Combat Aerial TOW team was formed and assumed the mission in MR-II. From 8 to 14 June, the replacement members, selected from 17th Aviation Group's Cobra gunship units, were trained by the 1st Combat Aerial TOW Team in the Pleiku area. Knowing that they had helped to turn the tide at the Battle of Kontum, the 1st Combat Aerial TOW Team redeployed to the US during the period of 18 to 22 June.[2]

At the time the 2nd Combat Aerial TOW Team assumed the mission, the combat action in MR-II had subsided and the monsoon season started. As a result, target availability and opportunities for combat missions were greatly reduced.[3] The major mission for the TOW team during June was support for the Highway QL-14 road opening operation. They provided aerial coverage for the fourteen maneuver battalions required to

accomplish the task. The TOW team's only combat mission during this operation was the destruction of two 2 1/2 ton ammunition trucks on 20 June from a range of 2000 meters.[4] The enemy fought fiercely in the initial phases; however, by 26 June, the advancing ARVN forces secured the high ground east and west of the highway. On 30 June the highway was open and a military convoy of 36 vehicles traveled from Pleiku to Kontum City without incident. During a support mission for an ARVN clearing operation near Rocket Ridge on 4 July, the 2nd Combat Aerial TOW Team expended four missiles to destroy a T-54 tank from a range of 2000 meters.[5] Finally, on 6 July, QL-14 was opened to civilian traffic.[6] The 2nd Combat Aerial TOW Team remained in the Pleiku-Kontum area of MR-II until 18 July.

Based on intelligence reports of a suspected armor threat near Qui Nhon in the Binh Dinh Province, the 2nd TOW team departed for Lane Army Airfield in An Son for a ten-day operation in support of the 22nd ARVN Division.[7] While at An Son, the team conducted a successful night firing against an abandoned armor personnel carrier. This controlled test demonstrated the night capability of the heliborne TOW utilizing a spectral eyepiece, developed by the in-country Hughes engineers, and 2.75 inch flare rockets fired from AH-1G Cobras.[8] After the 1st Combat Aerial TOW Team's dismal display of night firing capability during the Battle of Kontum, Hughes engineers and technicians were anxious to

develop a make-shift eyepiece to give the XM-26 TOW system a temporary night firing capability.[9] Based on a lack of targets in the An Son area and a reported buildup in the southern portion of MR-I, MACV made the decision on 1 August to move the team once again, this time north to MR-I.[10]

While in MR-I, the 2nd Combat Aerial TOW Team was under the operational control of 11th Combat Aviation Group and further attached to F Troop, 8th Cavalry. Initially, the team operated from Marble Mountain Army Airfield near Danang until the airfield was closed as part of the US withdrawal plan. On 31 August they moved from Marble Mountain Army Airfield to Danang Air Force Base. While attached to F Troop, 9th Cavalry the team conducted operations from Danang and a forward base at the 2nd ARVN Division's headquarters at Chu Lai. This allowed them to support 2nd and 3rd ARVN Infantry Divisions and other 11th Aviation Group operations in southern MR-I. Due to the SA-7 surface-to-air missile threat and anti-aircraft artillery (AAA) intensity in the northern sector of MR-I along with the inability of the UH-1B to fly nap-of-the-earth (NOE) with the XM-26 TOW system installed, the team was restricted from operations in the Hue-Quang Tri areas.[11] Having arrived in MR-I in May 72, an attack helicopter platoon of six UH-1M helicopters with SS-11 anti-tank missiles operated at NOE altitudes in the northern sector near Hue-Quang Tri.[12] The XM-26 TOW system was decidedly superior to the SS-11 as a helicopter anti-tank missile system in MR-I.[13]

The aerial TOW had a 5 to 1 advantage in single shot kill probability over the SS-11 missile.[14] Although the 2nd Combat Aerial TOW Team engaged a number of targets successfully in the MR-I, targets were not present in the numbers anticipated. Again, MACV made the decision to move the 2nd TOW Team to an area with increased enemy activity. As a result of the action around Saigon during September and October, the 2nd Combat Aerial TOW Team moved to Bien Hoa Air Base on 27 October to counter anticipated enemy moves around the Saigon area.[15]

The 2nd Combat Aerial TOW Team commenced operations with the 12th Combat Aviation Group on 1 November. A significant armor threat had developed in MR-III and the TOW team was employed to counter the threat.[16] The team was attached to F Troop, 9th Cavalry and received missions from the Army Aviation Element, Third Regional Assistance Command. The TOW aircraft were employed daily with both air cavalry troops operating in the armor threat area. They were not only used to engage point targets, but were also employed in a reconnaissance role to further enhance the air cavalry mission.[17] Although the anticipated NVA armor threat never materialized in MR-III, the team did destroy one T-54 tank, two armored personnel carriers, and eight ammunition trucks.[18] Finally, with the ceasefire on 28 January 1973, the mission of the 2nd Combat Aerial TOW Team ended in Vietnam and the UH-1B helicopters with the XM-26 TOW system were retrograded back to the United States.

1. Interview, COL (Ret) Todd.

2. Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, pg. 1-2.

3. Interview, author with LTC(Ret) Karl B. Hill, Commander of the 2nd Combat Aerial TOW Team, 24 Feb 94.

4. Ibid.

5. Ibid.

6. MACV Command History, Vol II, pp. K-25 - K-26.

7. Journal, G-2/G-3, SRAC, 17 Jul 72. Note. On 10 Jun 72, when BG Michael Healy succeeded Mr. John Paul Vann who had been killed in a helicopter crash, SRAG was re-designated SRAC: the Second Regional Assistance Command.

8. Supplement to Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, pg. 1-3.

9. Interview, author with Mr. Ken Blum, Hughes Aircraft Company technician with the 2nd Combat Aerial TOW Team in Vietnam, 18 April 1994.

10. Message, COMUSMACV to Senior Advisor, SRAC, 31 Jul 72, subj: Deployment of Aerial TOW Team.

11. Interview, LTC(Ret) Hill.

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15. Message, COMUSMACV to Senior Advisor, First Regional Assistance Command, 27 Oct 72, subj: Movement of Aerial TOW Team.

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CHAPTER SEVEN

CONCLUSIONS

This chapter will analyze the combat actions of the 1st and 2nd Combat Aerial TOW Teams in Vietnam to determine the findings and conclusions relevant to the tactical results, system operation, employment system improvements and tactics. A comparative analysis of the performance of both teams will be presented, along with a discussion of training on the heliborne TOW system and the effectiveness of that training. Finally, conclusions drawn from the successful employment of the aerial TOW system in Vietnam will be presented that were key to the future development of the attack helicopter.

The ultimate test of a weapons system is its successful utilization under combat conditions to accomplish the purpose for which it was intended. Between 30 April 1972 and 11 January 1973, the two UH-1B helicopters fired a total of 199 TOW missiles - 37 in training and 162 in combat engagements. Of the 162 airborne TOW missiles fired in combat, 151 (93 percent) were reliable and 124 (82 percent) of the latter scored hits on a variety of targets. Among the targets destroyed were 27 tanks, 21 trucks, 5 armored personnel carriers, 3 artillery pieces, 1 anti-aircraft gun, 1 122mm rocket launcher, 5 machine gun positions, 2 57mm guns, 5 caves, 8 bunkers, 2 mortars, 2 bridges, 2 ammunition storage dumps, 2 anti-tank jeeps, and 1 house.[1] The TOW

missile system was cited as having a very positive effect on ARVN morale due to the visible nature of this form of close support and its dramatic results against NVA armor.[2] The high success rate also convincingly demonstrated that the TOW missile was more than a tank killer, it was an accurate point weapons system that could be used for many different tactical applications. With the TOW missile's tactical flexibility, pinpoint accuracy and powerful warhead, the Army aviation leadership received the same results in combat as previously demonstrated in attack helicopter tests in the US and Germany.[3] With the two helicopter TOW systems proven so effective in Vietnam, the Army could clearly visualize the enhanced anti-tank potential which a far larger number of attack helicopters and TOW missiles would bring to a modern American division fighting a war against the Soviets in Europe.

The airborne TOW system operation proved to be very adaptable to combat operations. The high percentage of first round hits demonstrated that the stabilized optical tracking system was simple in operation and capable of effective employment in periods of marginal weather. The XM-26 TOW system performed very well and technical problems which did occur were minor and were handled by Hughes Technicians.[4] It is important to note that the XM-26 system, being a test bed, was not designed for maintainability in the field, and as a result, required extensive laboratory test equipment and

highly trained engineers and technicians to maintain it operational. Though problems of facilities and parts availability existed, the Hughes Technicians were able to maintain the systems operational and achieve a system reliability of over 90 percent for the entire period of employment in Vietnam.[5] The systems were "ready to go" and operational whenever the aircraft were operational, due to the efforts of the Hughes personnel and the fact that there were three XM-26 systems for the two aircraft, with the third system used for running spares and parts. Evidence also suggests that some of the system or missile failures may have been as a result of mishandling of the missiles at ARVN ammunition dumps, since some of the rounds were received with dented cases or end caps, smashed boxes, or with water in the boxes.[6]

The largest degradation of XM-26 system effectiveness was in the lack of limited visibility and night capability.[7] Even though there may have sufficient light to fly, the attenuation of light through the telescopic sight unit was such that target acquisition and engagement under low light conditions was difficult at best. This occurred under conditions where low light level existed, such as morning and evening twilight, heavy overcast or dark cloud shadows. The night capability of the XM-26 system was essentially non-existent. Though successful nights firings were conducted, they were under carefully controlled test conditions against targets that had

been selected for their clarity and contrast with the background. All of the personnel interviewed concerning the night firings in Vietnam were in agreement that the XM-26 TOW system did not have a viable night employment capability. This degraded overall TOW system effectiveness since most enemy movements occurred at night, and unless the enemy was in an assault, the NVA armor unit camouflaged his assets during the day. The experiences of the 1st and 2nd Combat Aerial TOW Teams at night in Vietnam clearly demonstrated the requirement for a passive night vision system for target detection and tracking. Surprisingly enough, this requirement in the aerial TOW system was not fielded until 1989 when the C-NITE telescopic sight unit was delivered to the Army.[8]

The other major employment system improvement highlighted by combat operations in Vietnam was the need for a laser rangefinder.[9] This problem was probably less apparent during test firings at known targets as part of the USACDEC 43.6 Attack Helicopter - Daylight Defense Experiment. In combat, the aircrews were presented with a varied cross section of target types under conditions ranging from open terrain to under jungle canopy or in buildings. This made range estimation difficult, and enemy fire provided an incentive to engage targets at maximum possible range. A total of 11 missiles (8-by 1st Team, 3-by 2nd Team) were fired out of range while in Vietnam.[10] This fact presented a very strong argument for both range estimation training and a rangefinder.

While the aerial TOW was very successful in MR-II during the Battle of Kontum, the tactics used by the teams would have been suicidal in a mid to high-intensity environment.[11] The survivability of the two UH-1B TOW aircraft may be attributed to the element of surprise and the stand-off tactics of the aircrews. However, employed against an enemy force with better intelligence information from which to determine target priorities, the survivability of the two aircraft would have been questionable, especially if the enemy had employed a heat-seeking surface-to-air missile. The aircrews were not able to employ nap-of-earth (NOE) and pop-up tactics largely due to the power limitations of the overage UH-1B aircraft. The aircraft lacked sufficient power for many desirable combat maneuvers and firmly supported the need for a more advanced and more powerful aerial platform for the TOW. This fact limited the employment considerations available to the commanders in Vietnam. Clearly, the NOE tactics developed by 11th Aviation Group in MR-I during this same period were critical to subsequent material acquisition and tactical strategies of the attack helicopter in an anti-armor role.[12] Consequently, the developments in both MR-I and MR-II cannot be evaluated independently in terms of their influence on future attack helicopter development and force structure.

There was no significant difference between the performance of either or both of the TOW teams.[13] Both teams performed effectively under varied conditions of terrain,

weather and enemy fire against various types of targets. Table 2 is a compilation of the firing results summary and overall performance summary for both TOW teams in Vietnam. It is important to note that any comparison of results achieved in combat is overshadowed by the plethora of hard targets which presented themselves to the 1st Team in a short period of time, contrasted with the less frequent availability of targets for the second team. Interviews with key members of both TOW teams indicated a tendency on the part of both teams to overkill targets on occasion by firing several missiles where one or possibly two would have been sufficient.[14] Finally, in terms of systems availability, operational effectiveness and the judgements of US advisors on the ground in Vietnam, both teams were relatively equal and effective, and the XM-26 system was regarded as an extremely effective combat support weapon.

One of the major advantages of the aerial TOW system over the other helicopter anti-tank system, the SS-11 missile system, was that of operator training. Although the XM-26 system was relatively simple to operate, training was, nevertheless, very important to effective system operation. A training program was both essential and necessary to master the operation of system controls and characteristics and to develop the hand-eye coordination essential for smooth and accurate tracking. Interviews with aircrews revealed that

TABLE 2

FIRING RESULTS SUMMARY COMPARATIVE ANALYSIS

	1ST TOW TEAM	2ND TOW TEAM
FIRED	109	67
NO TEST	21	12
SCORED - XM70 Trainer	88	55
MISSES	2	6
HITS	86	49
HITS/FIRED	78.9%	73.2%
HITS/SCORED	97.7%	89.1%
NO TEST/FIRED	19.3%	17.9%

	1ST TOW TEAM	2ND TOW TEAM	RVN OVERALL
SYSTEM PERFORMANCE %	92.6%	86.6%	90.4%
ASSIGNED CREW PERFORMANCE %	85%	85.7%	85.3%
OVERALL PERFORMANCE %	78.6%	73.1%	76.7%

SOURCE. Table 4-1 and 4-2, Supplement to Special Report - Vietnam, USACDEC, 20 Jul 73.

training with the XM-70 TOW simulator, which yielded an immediate tracking error after each mock firing, was very effective in refining tracking performance.[15] However, missile firing reports indicated that in addition to the range estimation problem addressed previously, other essential training areas that required additional emphasis were the following: target acquisition and identification; system malfunction indicators to facilitate troubleshooting by maintenance personnel; and crew drill procedures.[16] Although the XM-26 system was easy to train on, these findings indicate the need for a comprehensive initial qualification as well as subsequent unit training program for attack helicopter organizations with anti-tank missile systems.

In conclusion, as a result of the successes of the 1st Combat Aerial TOW Team in Vietnam, thinking about the future development of the attack helicopter shifted towards a low cost moderate airframe with a single suppressive gun, point target missile system with laser rangefinder and infrared telescopic sight unit.[17] The experiences of the Aerial TOW Teams in Vietnam was the final nail in the coffin of the CHEYENNE attack helicopter. With a combat-proven point weapons system, the Army was able to use the publicity to sell Congress on the Advanced Attack Helicopter Program. As a result, the source selection board was convened in November 1972 to select the airframe for the advanced attack helicopter and initial production began in 1973. Finally, with a

demonstrated effective anti-tank missile system, the Army could accelerate the production of the TOW/COBRA to counter the rapidly-growing Soviet tank threat in Europe.[18]

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3. Interview, MG(Ret) Maddox.

4. Interview, author with Mr. Tom Zagorski, Hughes Aircraft Company Engineer during the deployment to Vietnam, 18 Apr 94.

5. Supplement to Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, pg 3-1.

6. (1) Interview, CW3(Ret) Whiteis. (2) Interview, Mr. Zagorski. (3) Interview, LTC(Ret) Hill. (4) Supplement to Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, pg 3-2.

7. (1) Supplement to Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, pg 4-4. (2) Interview, CW3(Ret) Whiteis. (3) Interview, LTC(Ret) Hill.

8. Interview, author with Mr. George Gaskill, Hughes Aircraft Company, 21 Mar 94.

9. Supplement to Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, pg 5-3.

10. Ibid., pg 4-5.

11. (1) Interview, CW3(Ret) Whiteis. (2) Interview, LTC(Ret) Hill. (3) Interview, COL(Ret) Todd. (4) Interview, CW4(Ret) Dixson.

12. (1) Interview, MG(Ret) Maddox. (2) Interview, LTC (Ret) Kennedy. (3) Interview, CW3(Ret) Whiteis.

13. Supplement to Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, p. 5-4.

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16. Supplement to Special Report - Vietnam, 1st Combat Aerial TOW Team, USACDEC, pg. 4-2.

17. (1) Interview, MG(Ret) Maddox. (2) Interview, COL(Ret) Todd. (3) Interview, CW3(Ret) Whiteis.

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