U.S. ARMY
COMMAND AND GENERAL STAFF COLLEGE

AIR CAVALRY IN PERSPECTIVE
BEFORE THE HELICOPTER A TANK,
BEFORE THE TANK A HORSE,
BEFORE THE HORSE A CHARIOT

Fort Leavenworth, Kansas

U.S. Army Command and General
Staff College

AIR CAVALRY IN PERSPECTIVE

Before the Helicopter a Tank, Before the Tank a Horse, Before the Horse a Chariot

by

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for

The Individual Research Elective

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CONTENTS

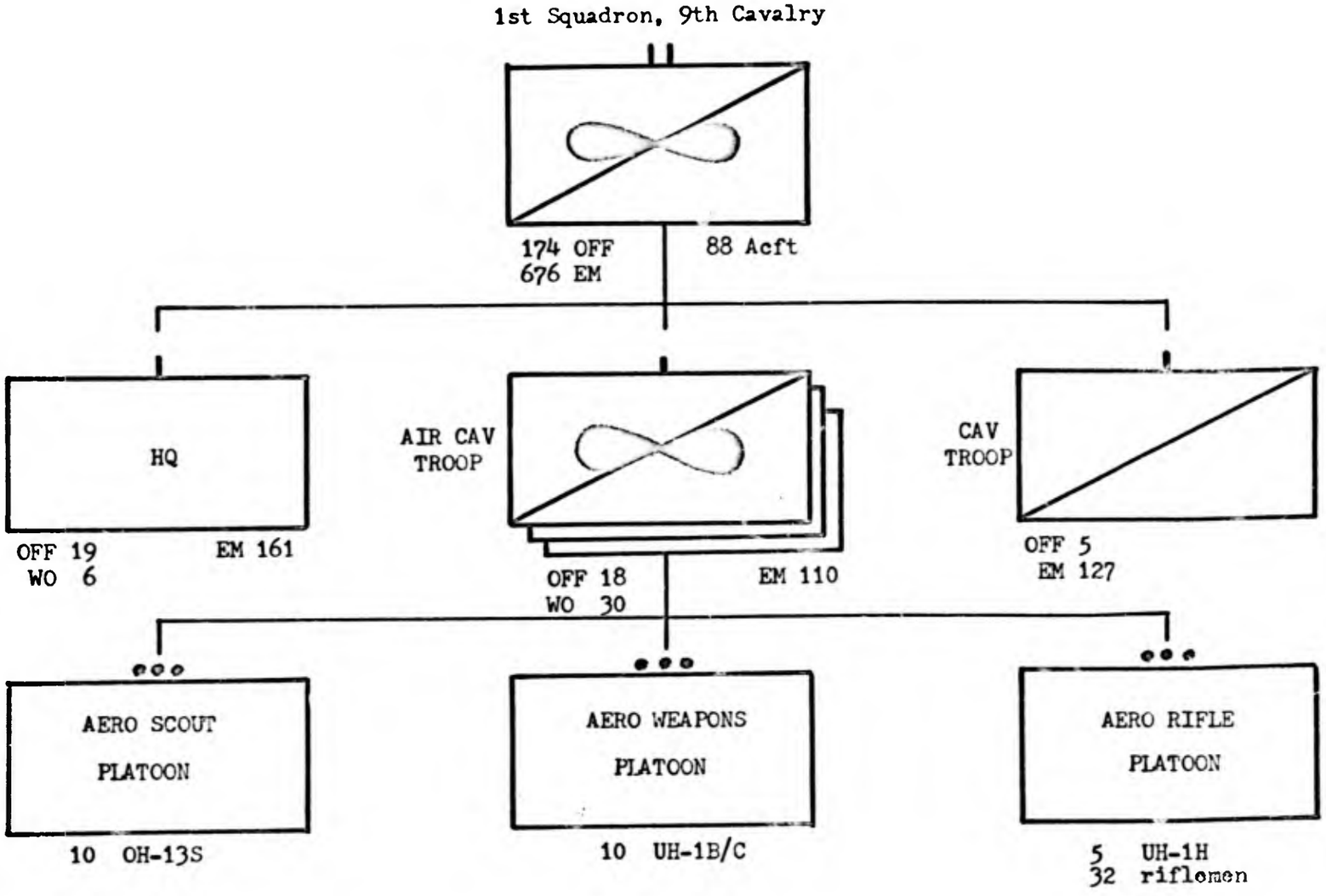
I INTRODUCTION

The Promise

Those of us who, for the past 10 or 15 years, were Armor officers first and aviators second have observed some profound changes in the professional climate. Initially, as we met with indifference and even hostility, we were concerned about our own careers and the future of Army aviation in general. Then, as exciting things began to happen in other branches, we worried about Armor being left behind. Worst of all was the feeling that there were few in positions of influence who understood or cared about the situation. Now, all of this has changed. The reason, of course, was the Vietnam War and the success of the helicopter as a new means to unprecedented battlefield mobility. More specifically, for Armor officers, it was the outstanding showing made by the Army's original air cavalry squadron.

When the 1st Air Cavalry Division (Airmobile) arrived in Vietnam in the summer of 1965, the Army already had several years of experience with lifting troops into combat by helicopter. Since the first armed helicopter company had been sent over as early as 1962, the business of providing escort and suppressive fire for the troop carrying ships was not new either. What was new was the 1st Cavalry Division's reconnaissance element--the 1st Squadron, 9th Cavalry.

FIG. 1


1st Squadron, 9th Cavalry
174 OFF
676 EM
88 Acft
HQ
OFF 19
WO 6
EM 161
AIR CAV
TROOP
OFF 18
WO 30
EM 110
CAV
TROOP
OFF 5
EM 127
AERO SCOUT
PLATOON
10 OH-13S
AERO WEAPONS
PLATOON
10 UH-1B/C
AERO RIFLE
PLATOON
5 UH-1H
32 riflemen

As shown in Figure 1, the original air cavalry squadron was made up of three air cavalry troops and one "ground" cavalry troop. This was an exact reversal of the armored cavalry squadron of the ROAD division, and the idea was that it would provide the airmobile division with a like capability. It actually did much more than that.

The squadron's major task was to find and fix enemy forces so that the division could destroy them using its airmobile infantry. The air cavalry troops' aero scout and aero weapons teams conducted reconnaissance throughout the area of operations (AO). Information was passed to the brigades to keep them advised of enemy activity in the extensive areas where they had no units on the ground. When significant sightings were made, the troop used all available fires to develop the situation; and, in coordination with the brigade responsible for the area, often put its aero rifle platoon on the ground to fix the enemy force. Many of the division's major contacts resulted from these efforts.

The squadron also supported brigade operations. Specific missions might entail reconnaissance of an area proposed for a search and destroy operation, screening a ground element in contact, reconnaissance of possible exfiltration routes, and reconnaissance to regain contact with an evading enemy force. Frequently, in an economy of force role, an air cavalry troop would insert its aero rifle platoon to block enemy escape routes. Although the aerial rocket artillery (ARA) battalion was the main source of helicopter weapons support for the infantry, the troops' aero weapons teams frequently provided emergency, close support for elements in contact. Because the squadron used both artillery and

tactical air in its own reconnaissance operations, it became quite adept at fire coordination. As the ground commanders became more accustomed to air cavalry support, they would often turn over control of all fires to the troop working with them.

In addition to supporting the brigades, the squadron maintained surveillance over vast, unoccupied areas. It reconnoitered targets for B-52 raids and made the post-strike damage assessment. To exploit these strikes and to conduct reconnaissance in force in the more remote areas of the division AO, the squadron developed the artillery raid. The cavalry troop or an OPCON infantry company was air assaulted to secure an LZ for use as a firebase. An Artillery battery was then airlifted in by CH-47's from the division's aviation group. Supported by these fires, an air cavalry troop conducted a reconnaissance in force. Operations like these kept constant pressure on the enemy, interdicted his base areas and supply routes, and generally kept him off balance.

Thus, the air cavalry squadron proved itself in the economy of force role as well as in reconnaissance and security operations. How effective was it? Besides finding the enemy, the squadron itself accounted for over one-third of the total killed by the division.

The Progress

LTG Harry W.O. Kinnard, who organized the 1st Cavalry Division and led it through its first battles in Vietnam, credited the 1st Squadron, 9th Cavalry for much of the division's success. LTG John J. Tolson, after commanding the division for more than a year, stated that every

division in the Army should have an air cavalry squadron. We now have five air cavalry squadrons in Vietnam. In addition, each infantry division and the 11th Armored Cavalry Regiment has an assigned air cavalry troop. As a spokesman for Armor branch wrote in the July-August 1967 issue of Armor:

> The trend to Armor air mobility continues. . . . one of the most significant trends in Army aviation has been the increasing interest in the organization and employment of air cavalry units. The success of the First Division (Airmobile) with its organic 1st Squadron, 9th Cavalry was a major consideration in the decision to organize additional air cavalry squadrons. (26:22)

These new additions to the Vietnam scene considerably broadened the scope of air cavalry experience and further stimulated Armor officers. A search through the back issues of our magazine, starting with January 1967, turned up over 20 articles that deal with air cavalry operations in Vietnam. COL George S. Patton, in an outstanding series on the activities of his 11th Armored Cavalry Regiment, makes frequent mention of the air cavalry troop. (17) (18) (19) LTC Robert H. Nevins and others give examples of the techniques used so effectively by the "First of the Ninth" (10) (15), LTC R.W. Mills reports on the initiation of air cavalry operations in the Delta (13), and CPT Charles W. Donaldson tells of the effectiveness of armored cavalry and air cavalry working together. (6) There are other fine accounts of Vietnam action; but, once whetted, imaginations do not stop there. Still other articles discuss such things as the capabilities of an air transportable cavalry troop containing

both ground and air combat vehicles (4), and even speculate about the advantages of including armed helicopters in the tank battalion. (21)(20) Clearly, Armor minds are going at full gallop!

Yes, there has been much progress. Where there once was a blissful ignorance of the promise (and problems) of helicopters, we now have a proven combat capability. Where until recently most of our doctrine was unwritten SOP, we now have a new field manual. Where there once appeared to be only silence at high levels, we now hear a call for action from many senior Armor leaders. GEN Hamilton H. Howze, the "father of airmobility", has outlined a broader role for the "mobile branch" (11), MG Delk Oden has warned about the danger of ignoring the tank killing capability of the armed helicopter (7), and MG George P. Seneff, Jr. has asked for some "wild-eyed radicals and perceptive leadership." (23)

The Problems

These signs of progress are reassuring, but there remains much to be done. In March 1967, the Evaluation of U.S. Army Mechanized and Armor Combat Operations in Vietnam (MACOV) report said that "the employment of air cavalry has developed far beyond the limits of current doctrine. . . . Continuing operations conducted by the Air Cavalry of the 1st Cavalry Division (Airmobile) have vastly expanded the doctrine contained in the current training text." (32: I18-I21) The MACOV group prepared a revised text and submitted it to the 1st Squadron, 9th Cavalry for comment. Later, back at Fort Knox, experienced air cavalry officers

made additional changes. The result is the new Army field manual, Air Cavalry Squadron, FM 17-37. It is an outstanding effort--but it is based in large part on Vietnam experience.

There is a very real danger here; for, as LTG Tolson pointed out in the March 1970 edition of ARMY, ". . . we must be selective in what experience we extrapolate from Vietnam. . . . all the tools, tactics and techniques used in Southeast Asia may not apply as well to other contingencies." (28:58) Several examples come to mind from FM 17-37. One is the complete absence of any mention of the aero scouts landing to perform dismounted reconnaissance. The original doctrine had them doing so frequently--to check out bridges, potential obstacles, etc. Based on objections from the field that this was much too dangerous in Vietnam, we eliminated it from the manual. But would it be so impractical in the more open terrain of Europe? Another question is concerned with command and control. Repeatedly the manual stresses platoon integrity and mission direction by the platoon leaders. Yet in Vietnam we found it necessary to maintain centralized control in order to employ the best mix of aero scout, aero weapons and aero rifle elements, and to prevent the troop from becoming over extended.

MG Seneff, a keen observer of air cavalry operations, has also had a say on this subject. He too is concerned about "learning a lot of bad lessons," but equally with things we are not learning. He mentions bad weather flight techniques, night operations, antitank tactics, and techniques for dealing with enemy ground-to-air missiles and high performance aircraft as some of the things we need to work on. (23:48) He is also convinced that "our equipment is too complicated," using the M60 tank and the AH-56A Cheyenne helicopter as examples. But will

unsophisticated equipment work as well in Europe or the Middle East as it has in Vietnam?

In addition to questions of employment doctrine and equipment, there are some issues involving organization. The 1st Air Cavalry Division (Airmobile) repeatedly recommended a fourth air cavalry troop be added to its squadron. The squadron agreed but also wanted to retain the ground cavalry troop and have it refitted with tracked vehicles. (33:50) This might be a good idea for the airmobile division (even though the most frequent use of the cavalry troop was as reinforcing aero rifle elements for the air cavalry troops), but what about an air cavalry squadron supporting an armored or armored cavalry organization? Is there a need for the ground element, or might we best start with "pure" units and cross attach as necessary?

Clearly there is a need for field experimentation to decide these and other issues. And, according to a recent report of ARMY TIMES, we are going to get the chance. An air cavalry squadron is being sent to Germany.(8) All the more reason now to get our "ducks in a row" and be ready to go!

This has been quite a lengthy introduction. It has attempted to arouse a certain sense of urgency. It has drawn on many sources in an attempt to present an over-all view. It is offered in the belief that, while there may be a much more complete study within the agencies of the Combat Developments Command, there is none other available to the general reader. It is in this spirit too that the following two sections, History and Comment, are offered. This is a critical time for Armor. We have lessons learned from Vietnam; we should also be able to profit from the lessons of history.

II HISTORY

Chariots and Horses

Although air cavalry is new to the military scene it is not without traditions. In fact, history seems to suggest that it is just the most recent in a long series of evolutionary stages in the art of mobile warfare. Richard M. Ogorkiewicz, in his classic book, ARMOR--A History of Mechanized Forces, begins the story over 4000 years ago in the ancient Middle East. He describes how the Hittites, Egyptians and Assyrians developed the chariot, which he regards as the ancestor of the modern tank, into the dominant mobile arm. Gradually, however, the Assyrian chariots grew larger and heavier, a result of the desire for added armor protection and greater carrying capacity. Then came the discovery that men could fight on horseback and the appearance of a new mobile arm, the cavalry. With it Persia became the master of western Asia. (14:445-449) The Persians retained some chariotry, but it ". . . degenerated into a kind of ponderous super-heavy cavalry." (14:449)

In the Eastern Roman Empire and in Western Europe mounted troops achieved preeminance before the feudal system of the Middle Ages brought on another form of super-heavy cavalry, the medieval knight in armor. In the thirteenth century the pendulum again swung to mobility as the Mongols, under leaders like Jenghis Khan, proved greatly superior to all

their opponents. But both they and the knights were stopped by the addition to infantry formations of Swiss pikemen and English archers. Cavalry now usually functioned as a supporting arm to infantry. (14:5-7) The gradual improvement in the effectiveness of firearms served to further limit use of the horse. More and more it came to be mainly a means of transport into battle. By the time of our own Civil War, cavalrymen were ". . . mounted on light horses, . . . were trained to fight mounted or dismounted and . . . depended on their firearms rather than shock action with sabers." (27:16) Mounted actions tended toward reconnaissance, security and raids, while close-in fighting was done dismounted as infantry.

World War I

The development of the machinegun effectively eliminated the horse as an assault vehicle, and caused the First World War to degenerate into a static, trench warfare stalemate. In this setting, the first tanks made their appearance. Their assistance to the infantry, as barbed wire crushers and machinegun destroyers, enabled the Allies to break through the German trenches in a number of places for modest gains. Although most military thinkers viewed the tank as a "perambulating fortress" suited only to accompany infantry as mobile artillery; a few, such as GEN Fuller of Great Britain, saw the potential of surprise, mass assaults with large numbers of tanks. (14:12) At Cambrai in November 1917, 400 British tanks made a spectacular (for that war) penetration of almost six miles on a seven mile front. Unfortunately, the endurance of these early tanks prevented any exploitation and the infantry failed to secure the gains of the tanks. (27:42)(14:12-13) And so the war ended. The main role of the tank

infantry, but a few forward looking individuals would continue to develop tactics for the use of tanks in mass. (27:48)

Between the Two World Wars

This was a period of confusion about the proper place of the tank in military organizations. At the end of the war France had the strongest army and the largest tank force with a stock of about 3,000 tanks. French tank units, which from the beginning had been regarded as mobile artillery, now became an integral part of the infantry. This example undoubtedly influenced U.S. planners; for the National Defense Act of 1920 abolished the war-time Tank Corps and assigned all tank units to the infantry. It also defined the tank's primary mission as "facilitating the uninterrupted advance of the riflemen in the attack." (14:13-14)(27:50)

Political and economic pressures played a part in this decision as the usual demobilization and return to a peace time economy forced cutbacks in military spending. Also significant was the reluctance of cavalry to adopt the new mechanization. The tank's slow speed, clumsiness and unreliability were some of the reasons. By the late 1920's, a few light mechanized vehicles could be found in cavalry units. A mechanized cavalry regiment equipped with combat cars was formed in the early 1930's. These vehicles were actually tanks, but were called combat cars to differentiate them from the tanks of infantry.

Throughout this period there was a small group of dedicated men working for the creation of large, mechanized, strike forces built around the tank as the primary weapon. GEN Fuller of Great Britain was its

most famous figure and Liddell Hart its most prolific spokesman. The U.S. Army was represented by men such as BG Daniel Van Voorhis and COL R. Chaffee; who, by 1938, had managed to merge two cavalry regiments and miscellaneous units at Fort Knox into the 7th Cavalry Brigade. There was still opposition, however, as exemplified by a statement the Chief of Cavalry, MG John K. Herr, made that same year: "We must not be misled to our own detriment to assume that the untried machine can displace the tried and proven horse." (27:54)

It is ironic that the final impetus needed for the creation of an independent armored force came from the past and future enemy--Germany. Liddel Hart's words were largely ignored in Britain and met few receptive ears in the United States, but they were heard in Germany. Restricted as they were by the Treaty of Versailles, the Germans had to look ahead. Heinz Guderian and Erwin Rommel were doing just that. Out of this fortuitous combination of circumstances came the panzer divisions that were to conduct the blitzkrieg of Poland in 1939. (3)

The shockingly quick success of this offensive affected military thinking around the world, but nowhere more than in the United States. "Tank enthusiasts at Fort Knox now began to advocate publicly what they had been considering privately--the formation of true armored divisions . . ." (27:57)

Events now began to move rapidly. A new Armored Force was formed on 10 July 1940 with Chaffee, promoted to brigadier general, as its first chief. The 1st Armored Division was formed at Fort Knox out of the 7th Cavalry Brigade; and, at Fort Benning, a provisional tank brigade

furnished the nucleus for the 2d Armored Division. Hampered by a dearth of modern tanks and other equipment, the Armored Force began intensive preparations for the war that to many now appeared inevitable. (14:58-59)

World War II

This is probably the best known of all wars to students of mobile combat. The battle for North Africa and the final charge of Allied forces accross France and into Germany caught the imagination of the public and of military scholars alike. That these experiences, now over 25 years old, continue to be the basis of our tactics for large land-mass warfare is no more surprising than the recent success of the motion picture "Patton".

When the war was over, 16 armored divisions had seen combat in Europe, and a peak number of 65 separate tank battalions had served with various infantry divisions. The latter had been formed to prevent the infantry's continued need for tank support from sapping the strength of the armored divisions. Organized at first to meet what was thought to be the special requirements of infantry, these separate battalions soon came to be interchangable with those organic to the armored divisions. (27:61-63)

With the creation of an independent armored force, the position of conventional cavalry became more and more anachronistic. Although a few traditionalists still clung to the horse, the trend to mechanization continued. Of the two cavalry divisions active during the war, only

one, the 1st Cavalry Division, operated as a unit--and it fought dismounted. In the jungles of Burma and the mountains of Sicily and Italy, a few horses were used for logistical transport and for scouting. The 26th Cavalry Regiment of the Philippine Scouts was the Army's last horse cavalry unit to fight mounted. Early in 1942, after the withdrawal to Bataan, it had to destroy its horses and fight on foot. Several of the old cavalry regiments were used in forming the new armored divisions. Seventy-three nondivisional cavalry units, mostly squadrons and groups, saw service during the war. Groups were assigned to armies, further attached to corps and frequently placed under the operational control of infantry divisions. In addition, each armored division contained a reconnaissance battalion and each infantry division had a reconnaissance troop. (27:71-72)

It was probably inevitable that these new mechanized cavalry units should inherit the limiting doctrine that had evolved for horse cavalry. In 1943, the War Department established the principle that these units were ". . . organized, equipped, and trained to perform reconnaissance missions employing infiltration tactics, fire and maneuver." They were to engage in combat only to the extent necessary to accomplish their missions. (27:71) What actually happened was quite different.

> The types of missions assigned and the approximate percentages of their frequency of occurrence were: (1) defensive combat, including defense, delaying action, and holding of key terrain until the arrival of main forces, 33 percent; (2) special operations, including acting as a mobile reserve, providing for security and control of rear areas, and operating as an army information service, 29 percent; (3) security for other arms, including blocking, screening, protecting flanks, maintaining contact between larger units, and filling gaps, 25 percent; (4) offensive combat, including attack, pursuit, and exploitation, 10 percent; and (5) reconnaissance, 3 percent. Hence, purely reconnaissance missions for mechanized cavalry were rare, and defensive missions were common. (27:73)

Post World War II and Korea

For some defense planners, the atomic bomb that ended the great war also ended the requirement for large ground forces. We would rely on our monopoly of atomic bombs and on our strategic air forces' capability to deliver them. The need for highly mobile and flexible organizations to conduct the occupation of Germany served to preserve smaller armor and cavalry units as part of the U.S. Constabulary. By 1948, however, the Regular Army had been reduced to 10 divisions, including just one armored division. (27:74-76) There were, in fact, serious doubts about the future of the tank itself, brought on by the appearance of air-to-ground rockets for fighter aircraft and new antitank weapons such as rocket launchers and recoilless rifles for infantry units. (14:29)

Not until the Korean War did this trend really change. The Russian-made T-34 tank was very effective in the early days of the war and brought home again ". . . the old maxim that the best defense against a tank is another tank." (14:30) While the U.S. rushed tanks to Korea, the NATO countries began to look more seriously at the large number of Soviet tanks facing them in eastern Europe. By this time the Red Army had been reorganized so that more than 50 armor units, about one third of its total strength, made up the principal striking force. Under these stimuli, a new tank, the M48, was developed and additional armor and armored cavalry was added to U.S. and other NATO armed forces. (14:30)

The decade following the Korean War was to see several reorganizations that would bring the U.S. Army to essentially the form it has today. The first of these (during the period 1957-59) was the pentomic plan. It was precipitated by the development of low yield, tactical nuclear weapons which could be utilized against military forces on the battlefield rather than against strategic targets such as cities. With this development came a requirement for relatively small, self-contained forces which could assemble quickly, attack with speed and decisive fire power, and then disperse equally as fast to avoid presenting a lucrative nuclear target. Armor was the answer, but it must be organized together with infantry into small groups capable of independent action--or battle groups. By the early 1960's, the certainty that any future war would necessarily be a nuclear affair was further eroded, and the Army moved to reorganize all divisions for greater effectiveness in conventional as well as nuclear war. The result, of course, was the ROAD division--quite similar to the armored division of World War II.

Sky Cav to Air Cavalry Troop

This concept, the forerunner of air cavalry, was born of the need to increase the reconnaissance and security capability of the armored cavalry squadron. As long as the bulk of the main combat force was foot infantry, the horse had provided cavalry elements the mobility differential they needed to do their job. This advantage largely disappeared with the advent of mechanized formations. In the original armored division, reconnaissance units were mounted in armored

cars and other wheeled vehicles. Later, these were replaced, first by half-tracks and light tanks, and then by medium tanks and APC's. The following comments by Ogorkiewicz point out the disadvantages of both the wheeled and the tracked vehicle approach:

> In the former case, under favorable conditions, reconnaissance units have had a considerable margin of superior mobility over the rest of the armored formation but, due to lack of suitable wheeled reconnaissance vehicles frequently have been road bound. In the latter case they had adequate off-the-road performance but lacked a sufficient margin of mobility over the other units to fulfil their role of medium distance reconnaissance and other tasks, such as screening. (14:52)

Light aircraft had been used in combat since 1942 when three L-4 airplanes (Piper "Cubs") participated in the invasion of North Africa. But these and follow-on fixed wing aircraft could not live in the field with reconnaissance units. After the successful use of helicopters in Korea (mainly for aeromedical evacuation), it was natural for cavalry thinkers to turn to this new device as a means of regaining the mobility differential that had been lost. (31:12)

Experiments in the arming of helicopters began at Fort Rucker, Alabama soon after the end of the Korean War. Doctrinal studies at Fort Knox led to the formation of an organization called "Sky Cav". It contained light tanks and riflemen, plus observation and utility helicopters. Tests conducted during Operation SAGEBRUSH (winter of 1955-56) led to limited acceptance of the armed helicopter concept. The airborne division was first authorized an airborne reconnaissance troop of 10 utility and 2 observation helicopters. Next, a provisional unit, called an aerial reconnaissance/security troop, was formed within

the 2d Infantry Division. It had 27 helicopters, 17 of which were armed. Finally, when the new ROAD TOE's came out in 1963, the armored cavalry squadron of all types of divisions was authorized an air cavalry troop. (27:83) This was the beginning, but a greater impetus was to be provided by other developments.

Air Assault and Airmobility

In 1962 there were many military men who opposed the Army's experiments with armed aircraft. Fortunately, Robert S. Mc Namara was then Secretary of Defense. Favoring inovative attempts to increase efficiency, he gave the go-ahead with a directive to ". . . explore further application of air vehicles to land warfare." (40:3) To carry out this order, the Army formed the Army Tactical Mobility Requirements Board, headed by GEN Hamilton H. Howze. The "Howze Board" made its report in August, recommending a great increase in Army use of organic aviation. Its most far-reaching result was the formation of the 11th Air Assault Division, a completely new organization in which 459 aircraft replaced approximately 1900 of the ground vehicles organic tc a ROAD division. The new division could airlift one-third of its combat elements in a single lift. (5:3)

Activated at Fort Benning, Georgia in February 1963, the 11th Air Assault Division went through two years of intensive training. There was much that had to be developed from scratch, such as the techniques for large scale airmobile operations. Procedures for logistical support had to be worked out, doctrine and troop leading SOP's published. Finally, in August 1965, after a successful field test against the

82d Airborne Division, the 11th AAD was redesignated the 1st Cavalry Division (Airmobile) and sent to join other U.S. forces in the war for South Vietnam. (5:2, Annex A)(12)

After this brief "historical walk", we now come full circle to the point where the success of air cavalry operations in Vietnam began to exert such a remarkable pull on Armor thinking. We have also come back to the problems and questions brought forth in the introduction. The next section will draw on this abbreviated "history" in an attempt to provide some insight into current issues.

III COMMENT

One phenomenon history can help us understand is the initial coolness of Armor toward the helicopter. Cavalry officers of the 1920's looked at the slow, noisy and completely unreliable tank and found it compared most unfavorably with the horse. Armor officers of the 1950's viewed the feebleness and vulnerability of the first helicopters and then gazed fondly on the majestic might of the tank. Just as the majority of cavalrymen could not see the cumbersome tank assisting them in the traditional missions of reconnaissance and security, the post-World War II Armor thinker could see little place for the helicopter in massive armor attacks. In spite of some valiant efforts to break free, we were still transfixed by visions of George S. Patton, and the 3d U.S. Army marching across Europe.

The position of the tank between the two world wars and the status of the helicopter today are strikingly similar. Then we had many infantry tanks and a few cavalry "combat cars"; now we have many helicopters in infantry formations and a few in armor units. At that time the infantry looked upon the tank as mobile artillery that could assist the advance of the foot soldier, while the Armored Force saw it as a combat vehicle around which could be built a powerful combined arms strike force. Today the infantry still sees the helicopter mainly as a means of transport, while air cavalry advocates look upon it as a fighting vehicle.

Our analysis of history suggests that there is room for both views. The ROAD concept still distinguishes between armored divisions and mechanized divisions, though the difference is much less than before. In World War II, separate tank battalions were formed to prevent a drawdown on the tank strength of the armored divisions. We might well remember this as we contemplate pulling air cavalry assets together in order to experiment with larger formations. We might also recall--as we look at various TOE's for air cavalry units--that it was finally decided best to organize these separate battalions the same as those organic to the armored division.

All officers who have served in Vietnam will agree that airmobility has proven itself in that environment. Yet many seriously question the ability of the helicopter to survive and contribute to ground operations on a conventional battlefield. History should teach us to be more forward looking. The drawbacks of the early tanks did

not deter the pioneers of Armor, nor did the introduction of new air and ground antitank weapons cause us to abandon the tank after World War II. The AH-1G Cobra and OH-5A Cayuse, that are now operational in Vietnam, are a far cry from the helicopters in being when the air cavalry idea was first conceived. And better things are coming. A new, boron carbide composition armor, weighing about 12 pounds per square foot, will protect vital parts of the AH-56A Cheyenne against .50 caliber armor piercing projectiles. (16) Probably further in the future is a true armored aerial reconnaissance vehicle. According to Ralph Alex, chief of Sikorsky Aircraft's research and development effort, however, a one-quarter inch steel airframe for such a vehicle is now within the state of the art. It would protect the entire aircraft (except the rotor blades, which would be "ballistic tolerant") against direct hits up through .30 caliber. (1)

The point is obvious, we should not let the shortcomings of existing equipment limit the development of new doctrine. On the other hand, we should not become so enamored with armor plate that we end up with another form of "super-heavy cavalry." Related to this is the question of simplicity. MG Seneff maintains that we should ". . . stop complicating the equipment turn it out in such fashion that the rapid turnover soldier . . . can handle it in combat." (23:45) This advice makes good sense. The "black box" concept, where the output is simple despite the complicated workings inside, may get a big boost from new logistical concepts revolving around the C-5A, but we cannot possibly have everything we would like. The question then becomes: What capabilities do we give up for the sake of simplicity?

All questions about organization, equipment and doctrine ultimately come down to one, basic issue: What part is the helicopter going to play in armored formations? Related to this question is the need for a decision on the missions to be assigned to air and armored cavalry. The conduct of large scale airmobile operations seems to be an infantry function, although the combination of airmobile and armor capabilities could fall to either branch or be covered by joint doctrine. Armed helicopters are natural to cavalry units in their traditional scouting role. But what about in the attack role? Sould we put armed helicopters in the tank battalion? This would provide some interesting capabilities, as several writers have pointed out in ARMOR, but would also burden the battalion commander and his limited staff with aviation-peculiar requirements. There is, however, a way in which we can avoid this problem and still provide an armored force with the same capability.

We can do this by keeping the bulk of our armed helicopters in air cavalry units, by combining armored cavalry and air cavalry in larger formations, and by expanding the mission of these units. Unlike the homogeneous tank battalion, cavalry units are used to operating with a mix of different type combat vehicles, and cavalry officers have demonstrated an outstanding ability to control both air and ground operations. The combination of air cavalry with armor has been limited in Vietnam, but it has shown that a mutual relationship develops that greatly benefits the force as a whole.

An organization with both air and ground cavalry is ideally suited to the traditional reconnaissance and security job, but need

we stop there? Historically, cavalry has been a major combat arm. Today, with armored vehicles and helicopters working together, it is capable of more than the traditional, subsidiary missions. We should heed the warning of General Chaffee and not make the same mistake as our predecessors did.

> It is often said, and it may be true in the abstract, that the principles of war do not change. It is, nevertheless, absolutely true that methods do change and are constantly changing. We may study the great captains of the past to learn of their principles and, above all, of their character, but do not let us be tied too much to their methods. For methods change with every change of armament and equipment. (27:86)

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