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LOGISTICS SUPPORT FOR THE UNITED STATES CAVALRY PAST
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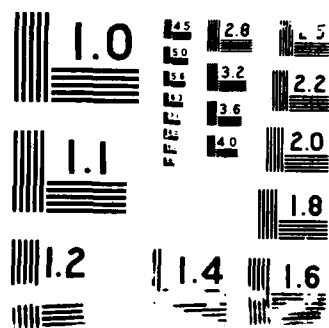
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LOGISTICS SUPPORT FOR THE UNITED STATES CAVALRY
PAST, PRESENT AND FUTURE

An Individual Study Project
Intended for Publication

by

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INTRODUCTION

Throughout the history of the United States Army, the Cavalry has been routinely depicted as flamboyant, glamorous and even romantic. Nearly everyone, at one time or another, has seen pictures of long columns of men on horses riding into battle looking resplendent in their colorful uniforms. Even today, long after the retirement of the horse, the modern cavalryman is depicted maneuvering with the latest armored and aviation technology. Seldom seen, often forgotten, is the packer and wagoneer or, in more current terminology, the logistical support that has been the backbone of the cavalryman. This study will look at these unsung partners of the cavalryman and examine their vital role.

First, we will look at logistical support of horse cavalry, then we will review the early days of mechanization and trace the armored cavalry period up through the Vietnam War. The second part of the paper will discuss concepts for support of today's cavalry and then conclude with some thoughts on future concepts.

Horse cavalry and horse artillery will be considered together prior to the era of mechanization. From the late 1930's until the early 1970's, the term cavalry will cover mechanized or armored reconnaissance squadrons, groups and regiments. Dismounted cavalry, which fought as infantry, and pure armor units will not be included. Finally, with the emergence of the attack helicopter, new air cavalry organizations have become part of our force structure. These

organizations not only bear the title of cavalry; they also embody the spirit and mission orientation that has long been a cavalry tradition. Therefore, they will be considered within the scope of the paper.

BIRTH OF THE REGULARS

In 1833, the United States Government decided that a Regiment of Regular Cavalry should be raised. Prior to this time, groups of mounted volunteers were organized for a particular need and then quickly disbanded. This Regiment and the second that followed in 1836, were formed to patrol the expanding Western Territories of the United States, provide protection for the new settlers and keep an eye on Mexican forces in the South. (1)

Life was somewhat uncomplicated but very austere for these early cavalryman during the years prior to the Civil War. With the exception of the Mexican War in 1846-47, the two original (and later four) regiments of regular cavalry occupied numerous small outposts and rarely campaigned even at regimental strength. Normally field expeditions were much smaller. Logistical support for these forces was correspondingly limited. The troopers carried what supplies they could and packed additional assets on mules and perhaps an occasional wagon. These meager resources were supplemented by foraging. Early cavalry campaigns are replete with stories of failure and total disintegration of units because of lack of essential supplies. A classic example was in 1846, when Colonel Stephen Kearny led a cavalry force on a "speed march" from Santa Fe to San Diego, both then in Mexican Territory. By cutting off his logistical tail, Kearny may have saved some time. But his cavalry

arrived at San Diego riding mules or walking --- badly in need of replenishment. (2)

The Regular Cavalry Regiments and their volunteer augmentations fared somewhat better during the brief war with Mexico. The limited cavalry forces employed were in great demand throughout the war, used for reconnaissance, early warning, and pursuit. Another important mission was the protection of lines of communication against substantially larger Mexican Cavalry elements. The American Armies advancing into Mexico were tied to logistical bases in South Texas and along the Mexican Coast. Cavalry escorts insured the safe delivery of supplies forward. With the exception of an occasional long-range patrol, the cavalry forces with the army were supplied directly from depots conveniently established as the army moved forward. (3) Overall, the wholesale logistics system during the Mexican War was rife with problems. For example in mid 1846, General Zachary Taylor assembled his forces in South Texas for the campaign into Mexico. While well supplied in this assembly area, the army quickly ran into serious problems once it marched South. Taylor had failed to inform the Quartermaster Department of his plans, so they failed to have sufficient wagons and mules on hand when needed. (4) A modern G-4 would encounter a similar problem if his commander failed to keep him informed of his intentions. In spite of this, the cavalry commanders found a vast improvement over what they had experienced in their earlier campaigns in the West. For the most part, logistics was someone else's problem.

MASSED FORCES

The United States Cavalry came into its own during the Civil

War, although not immediately. The six pre-war Regiments grew to 62 Regiments (figure 1) by early 1863, but they were scattered throughout the various Divisions and Corps performing a variety of duties. In April 1863, a Cavalry Corps was finally created to fully maximize the combat potential of this arm of service. (5) Early in

CAVALRY REGIMENT 1865

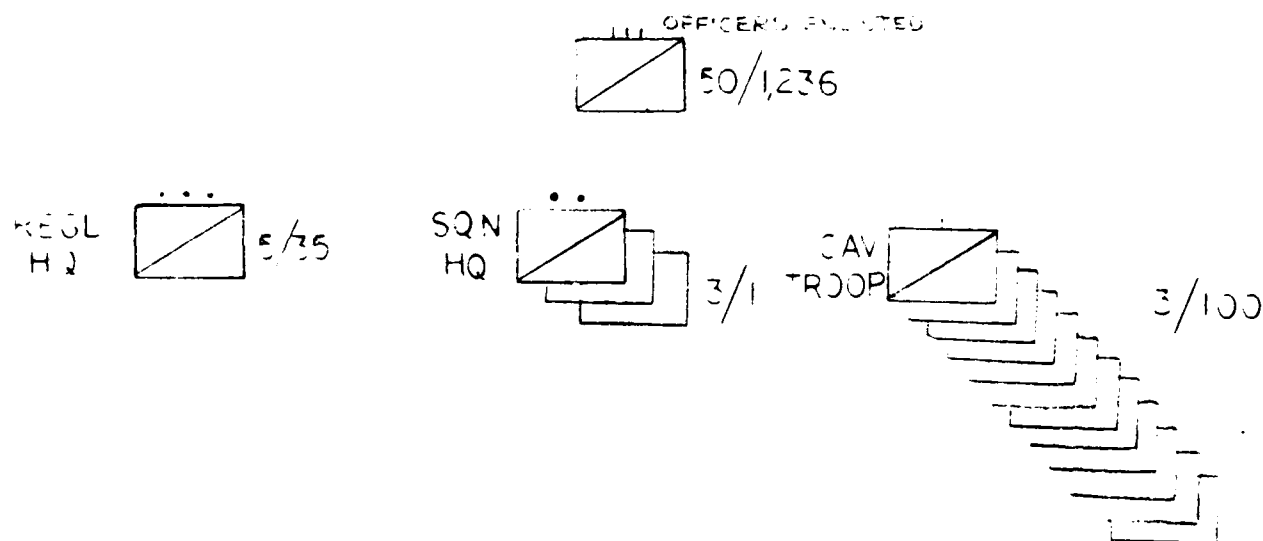


Figure 1

the war, cavalry was used mainly in scouting, picket duty, skirmishing and in guarding lines of communication. Once they were employed in large formations, Federal Cavalry became a mobile maneuver force capable of dismounted combat or applying shock action and power when attacking mounted. Cavalry forces were also very effective in the pursuit role. (6)

The very size of the Union Cavalry formations forced their General Officers to take a more active role in logistics. Each echelon, regiment through corps, had a Quartermaster and Commissary Officer, the forerunner to the modern S-4/G-4. Their responsibility

was to coordinate the delivery of supplies to the fighting units. The extensive supply trains of the army were not only apportioned, but each wagon was clearly marked with its Corps badge, Division color and Brigade number. Furthermore, the wagons were identified by contents, such as ammunition by type, forage by type, and even specific rations. (7) The wagons were capable of carrying about one ton each and were pulled by four horses or six mules. (8) Each unit had two types of wagons. Those that carried organic unit baggage would be similar to our modern day TOE vehicles. The others provided direct support, transporting consumable supplies. Unit Quartermaster and Commissary Officers and Non commissioned Officers kept track of both sets of wagons. The wagons with organic equipment, tentage, officers' baggage and the like closely followed the unit on the march. The wagons with consumables would deliver supplies to replenish the material carried by the individual troopers and provide for his daily needs. Then, as they were emptied, they would return to the major supply base to be refilled with the specific item for which they were designated. (9) This system, which is remarkably similar to modern procedures, became very efficient during the last two years of the war.

The cavalry's most significant maintenance problem was their primary means of transportation, the horse. Each soldier was responsible for the care and feeding of his own mount, much like the present day cavalryman is responsible for his assigned vehicle. Each element of command had horse care experts and veterinarians, but it was still a command responsibility to ensure that the animals were well maintained. Good commanders understand maintenance, whether of horses or vehicles. Maintenance of other equipment - weapons,

wagons, tentage, saddles and bridles - was also an individual or unit(company) responsibility. If it couldn't be repaired at that level, it was replaced and returned to a fixed depot for disposition. (10)

Resupply wagons have been mentioned; in fact, they were the primary method of transportation. For the first time, however, the railroad assumed a significant role within the logistical structure. To a lesser extent, but predominately in the West, watercraft also became a prominent source of military transportation. (11)

By the end of the Civil War, the United States Cavalry had grown significantly and matured into a dynamic, effective fighting force. Likewise, it was supported by a logistical system that enabled a good unit Quartermaster/Commissary officer, supported by a capable commander, to anticipate resupply requirements and have them where and when needed. Much of this capability and power was quickly lost with the massive demobilization at the end of the war. The US Army in the East became an occupation force, and the forces West of the Mississippi River focused their attention on expansion and the continuing unrest with the Indian Nations. Fortunately, some of the logistical lessons of the Civil War were retained, such as the management of transportation assets. But the shrinking size of both the Regular Army and military budgets caused numerous shortfalls.

WAGONS AND MULES WEST

By 1866, the massive cavalry organization of the Union Army was demobilized, leaving active only the six original pre-war regular regiments plus four new ones. The regular cavalry strength remained at ten regiments for the 35 arduous years of the Indian Wars.

Although the Infantry played an important part in taming the West, the bulk of the hard fighting and campaigning fell on the cavalry. The primary mission of the cavalry was to keep peace by maintaining a presence throughout all of the Western Territories. The Army was scattered among dozens of forts with garrisons of company size and larger. Each of these posts was responsible for constant surveillance of a specific area. Operations from these garrisons were mostly limited to short patrols, escorts for travellers, and very limited campaigns against raiding parties. To successfully fight the wars with the major Indian tribes, it was usually necessary to bring together larger groups of soldiers, usually a regiment or more in size. These combined forces would campaign against a specific group of Indians. (12)

Much of the logistical structure created during the Civil War continued to function, though on a reduced scale. The two most significant factors influencing support for Armies of the West (including the cavalry) were the vast distances covered and the frugality of the government. Economy was the watchword. Military appropriations were very small and there was considerable reluctance to purchase new material until the large stocks left over from the Civil War were depleted. (13) Many of our current reserve component units would argue that nothing much has changed!

The logistical support organization began with the Quartermaster Sergeant authorized at each troop. A Cavalry Squadron was authorized a Quartermaster Officer and a Commissary Officer. Since these were not highly prized duties, the appointments routinely fell on the most junior lieutenants in the unit. That problem was aggravated in the late 1870's, when a shortage of cavalry officers required the

placement of infantry officers -- not always the best -- in these positions. How many present day combat arms officers view the unit S-4 position as a holding slot for pre- and post- company command? The daily logistics responsibility fell on these individuals, except at the large posts serving as Regimental Headquarters. In that case, the position of Quartermaster and Commissary were authorized captains, but seldom filled with them. (14)

The key to peacetime and wartime logistical functions was the installation or post. Military necessities, such as clothing, camp equipage, harnesses and wagons, were requested through the supply system from the Quartermaster General. They were eventually shipped from centralized depots. (15) Likewise, weapons and munitions were requested and provided by the Ordnance Department. The ammunition of the day did not have a long shelf life, so cartridges, powder, lead, primers and other components were frequently shipped separately and assembled by the soldiers. (16) Subsistence and other consumables were sometimes purchased locally in bulk by the Commissary Officer or Quartermaster Officer, in the case of fodder and fuel. Then they were shipped to the various smaller posts. Although the supply sources were often located in the Midwest, deliveries could be slow. The more isolated posts would frequently locally purchase or trade for fresh food or grow what they could on their own. (17) Once the frontier forts were supplied, the routine pre-war operation of limited objective patrols was simple. The soldiers would carry about three days march rations, some grain for the horses and limited ammunition. These patrols could be extended by hunting, fishing or bringing along several pack mules. Winter season and major campaigns were another story.

Truly successful campaigns, such as General George Crook's 1884 operation that captured Geronimo and most of the Chiricahua Apaches, were characterized by extensive logistical planning. (18) Except on a limited scale, it was impossible for the US Cavalry to match the mobility of the Indian Nations. They were, however, capable of long term sustainment during all seasons. Specific logistical requirements for the size force and anticipated duration of the campaign had to be projected in advance to allow sufficient time for the purchase and delivery of the supplies. As the railroads moved West, the order-ship time was drastically reduced. In order to push these stocks of supplies further forward, the most efficient means were employed. Government chartered rivercraft and/or ox drawn wagons were most often used. Ox-drawn wagons were slow, travelling about 20 miles per day. But they could pull about two tons of cargo and the oxen required minimal care and forage. (19) With careful planning, these mobile supply bases or depots could be moved to convenient locations to support the campaign. These large ponderous ox trains were normally civilian owned and operated under a government contract. Steamboats were of course much faster. They also were owned and operated by commercial companies under government contract. This mode of transportation was used when possible.

Further projection of forces and increased mobility were achieved by using mule drawn wagons. An army wagon with six mules could pull about one ton of cargo over all but the most rugged terrain; however, it only had an effective radius of about 150 miles. Military commanders preferred to use army wagon trains for field operations. They were more expensive than the contracted ox trains, but much more flexible. Normally the wagons and mules were owned by

the Army, who hired civilian teamsters to operate them. (20) Cavalry columns so equipped could negate any disadvantage by rotating through the slower, but still mobile civilian operated field depots.

The old pack mule was sometimes used during large campaigns, particularly in mountainous terrain. A well-packed mule could carry about 200 pounds, but soldiers as a general rule did not do a good job in managing the animals. Large mule trains were also more difficult to defend than wagons. (21) Soldiers may have had problems with mules, but their importance was obvious. For example in 1879, the Army with about 9000 cavalymen owned 10,990 horses and 10,032 mules. (22)

Maintenance as we know it today was in its infancy during the late 19th Century. Wagon maintenance was limited to lubrication and replacement of parts. If the parts were not anticipated and brought along (like PLL), a broken wagon might end up being abandoned. Many of the manufactured parts could not be locally fabricated, and the Army had not as yet initiated a repair parts system. (23) Animal care was still a major concern for soldiers and commanders alike. Without their horses, cavalryman became infantryman. Most of them disliked this reduced status.

The logistics system had many problems, such as inferior equipment and poor quality rations. But it did the job. Good advanced planning and commander involvement often made the difference between a successful campaign and disaster. A major deficiency was the diversion of cavalry soldiers, already in short supply, to perform logistical tasks. This problem was noted by the Army Inspector General in 1875. He recommended that a military transportation battalion be created, but the idea was rejected by the

leadership of the manpower constrained Army. (24) Today's Army leaders face similar challenges. The basic doctrine was to slowly, deliberately push supplies toward, then mobile field forces would come to them and pick up what they needed. Fortunately for the US Army, the enemy - the American Indian - did not have a formal logistical system. If they were unable to live off the land, such as during the wintertime, and their village (depot) was destroyed, they were forced to capitulate.

Several of the logistical lessons are applicable today. Advance logistical planning is essential so that supplies are on hand when and where needed. Cavalry operations imply mobility, so it is important that their logistical support have similar mobility. Finally, logistical support must be provided in all types of weather to permit combat operations when conditions are most favorable for success.

TWILIGHT OF HORSE CAVALRY

As the year 1900 approached, the Indian Wars faded into history. The military establishment received a sudden jolt when war was declared with Spain. As the United States assembled and deployed an army to Cuba, weaknesses in the wholesale logistical system became a national disgrace. The limited demands of the Indian Wars left the War Department totally unprepared for and unable to cope with the deployment of an army overseas. Food was bad and inadequate, clothing was unsuitable, and the transportation system was inefficient. (25) A division of six cavalry regiments deployed to Cuba, but only one squadron was mounted. The rest fought as infantry. (26) Additionally, limited cavalry elements deployed to the

Philippines and even China, but they also often fought dismounted or in small groups. The difficulty in transporting horses along with the nature of the local terrain in country created this situation. In any case, there were few changes from the same direct support logistics system employed during the Indian and Civil Wars.

During the 16 years prior to the First World War, the size of the U.S. Cavalry grew to 17 Regular Regiments or 15,424 soldiers. The organization of the regiment also changed with the addition of a machine gun troop and a supply troop. The advent of the machine gun boosted the firepower of the regiment, but it as well increased the ammunition resupply requirements. The supply troop finally provided the Regimental Commander with an organic resource trained and equipped to help sustain the maneuver elements in the field. The heart of the supply troop was the transportation platoon, which was equipped with wagons and mules. Also it experimented with early model 4-wheel drive trucks. (27)

The first test of this organization came in 1916, during the Punitive Expedition into Mexico. Six of the Regular Regiments were deployed in what became a pursuit operation. These cavalry units operated over rough, irregular terrain in a very dry climate. The motor vehicle provided a new dimension in the logistical system supporting the army. But because of the technical limitations of the actual vehicle, it was not a resounding success. Mechanical failures and mobility limitations convinced many that there was no substitute for the mule or mule and wagon combination. (28) Only a few visionaries could see that the days of the horse cavalry were numbered.

THE BIRTH OF MECHANIZATION

The US Army closely followed the lessons learned during the early phases of the First World War. Horse cavalry was not able to perform its traditional roles in the closely packed, machine gun dominated, trench warfare of Western Europe. Allied Cavalry units performed very well in certain theaters of the war, such as in Palestine; however, with the exception of use of the truck, their resupply methods were unchanged from the U.S. Civil War period. (29) Virtually all US Forces fought only on the Western Front, so just one cavalry regiment was deployed overseas, and it saw little combat.

According to its established pattern, the U.S. Army demobilized rapidly at the end of the First World War. The Cavalry, however, was little affected by this process and retained its pre-war strength of 17 regiments, about 17,000 soldiers. The future of cavalry was at issue, though, because of its limited involvement during the war. The development of the tank for shock action and mobility along with the emergence of the airplane for reconnaissance created doubts about the future of the Cavalry. (30) In the end, the staunch cavalryman won the argument. Cavalry units remained in the force structure, but they were subject to considerable reorganization.

The National Defense Act of 1920 created a cavalry division. Unlike its Civil War predecessor, this was a TOE organization. The division consisted of four regiments organized into two brigades. More significantly, these maneuver forces now had dedicated combat support and combat service support units as part of the division. The size of the regiment was reduced to two squadrons of three troops each, but the supply troop was retained and redesignated as a service troop (figure 2). Pack animals and wagons were still in common use

performing their traditional supporting role. But trucks were improving in quality and capability and were beginning to play a more significant part. By the late 1920's, the strength of the US Army

CAVALRY REGIMENT 1920

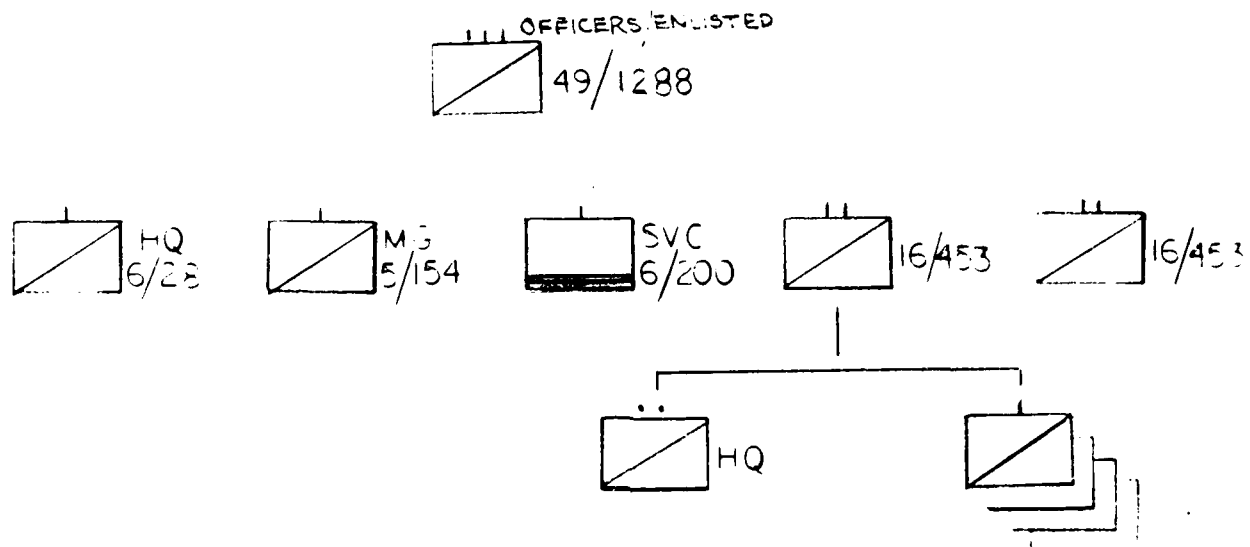


Figure 2

had declined to the point where most TOE units were only shells. Field testing of the new cavalry division was largely limited to paper exercises because of fund constraints. In 1932, the Army Chief of Staff, Douglas MacArthur, declared, "that horse cavalry was a thing of the past, and that mechanization was the answer for future wars". (31)

Thus the first half of the 1930's was a period of turbulence within the cavalry. Significantly, mechanization was finally accepted as inevitable for the survivability of Cavalry as an arm of service. Various experimental organizations were examined, including combinations of horses and light armor within the same unit. Service

elements were added to provide the logistical resources necessary for armored forces. In addition, special transportation units were included to move the horses quickly by road, then discharge them in the tactical area of operations. (32) By 1940, even the most devoted proponent of the horse knew that it was time for it to retire. The German Army had demonstrated the capabilities of armored forces to the world by their lightning victory over Poland.

THE DEVELOPMENT OF ARMORED CAVALRY DOCTRINE

Virtually all of the pre-war cavalry regiments can trace their participation through the Second World War, but not all were employed as traditional cavalry. Some units became pure tank formations and others were dismounted and became infantry. Those units that remained cavalry, plus numerous National Guard, Army Reserve and National Army organizations, fell into two basic types: divisional and non-divisional. Each of the 69 infantry divisions had a reconnaissance troop which, because of its size and limited value, will not be discussed here. The 16 armored divisions had a cavalry reconnaissance squadron organic to it; finally 24 non-divisional squadrons were organized into 12 cavalry groups, vice regiments. Normally, one of these groups was part of a corps. (33) Virtually all armored cavalry fought in Europe and North Africa.

Armored divisional cavalry often operated in troop size elements with combined arms task forces. Their most common mission was to provide reconnaissance and to screen for the formation. The cavalry groups, composed of two squadrons plus attachments, operated independently within a corps area performing a variety of missions (figure 3). Its unique combined arms organization, armor and

MECHANIZED CAVALRY GROUP 1944

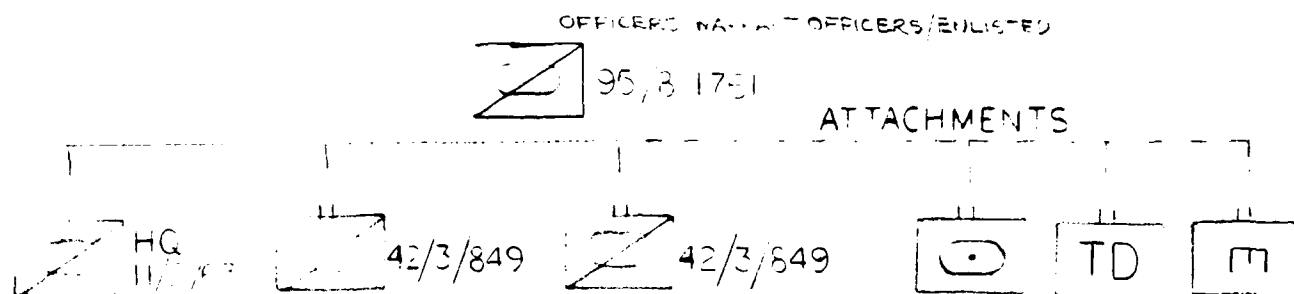


Figure 3

CAVALRY RECONNAISSANCE SQUADRON 1943

DIVISIONAL/NON-DIVISIONAL

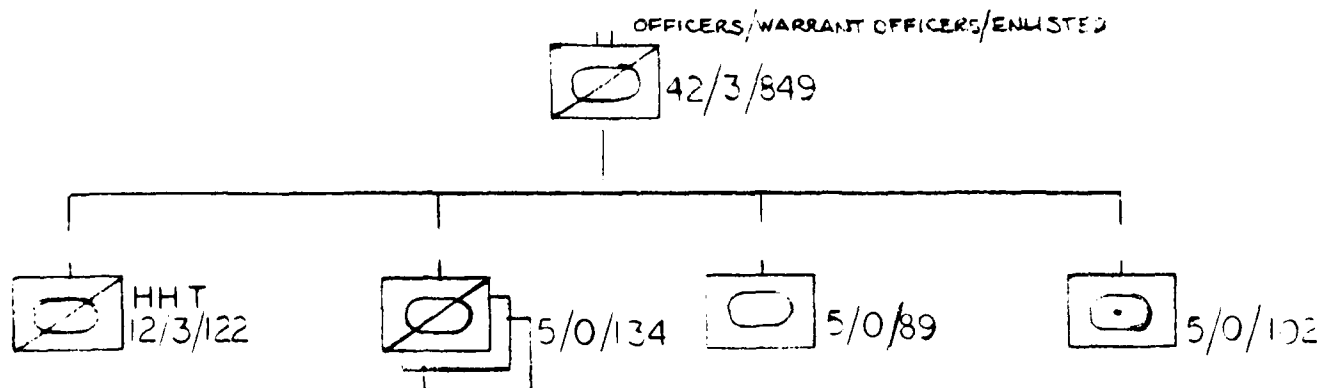


Figure 4

mobility allowed it to operate deep in enemy territory, where it sought out and reported enemy forces to the commander. The cavalry group was also used to screen flanks, perform economy of force missions and conduct pursuit operations. As organized during World War II, armored cavalry units were too light to tackle strongly defended areas or enemy armor. (34)

Both divisional and non-divisional squadrons were identically organized with organic supply and fuel transport vehicles, as well as organizational maintenance elements in the headquarters troop (figure 4). In the divisional element, the squadron S-4 was responsible for getting the resupply vehicles to a divisional supply point for fuel, ammunition, rations, and other support. Once loaded, they would then proceed to a designated replenishment point to resupply the combat elements. This system worked very well for divisional cavalry, since they used the same supply points as the other maneuver elements in the division. Back-up support could also be arranged through other divisional units. Maintenance support was handled in a similar way. The organizational maintenance personnel with each troop were backed up by squadron maintenance. They in turn were reinforced and supplemented by the ordnance maintenance battalion at division. (35)

The non-divisional squadrons attached to the cavalry groups had a different problem. The group was only a tactical headquarters, without logistical capabilities. The Group S-4 had to arrange for use of corps supply points, which were actually established and provisioned by army logistical troops. The corps was also only a tactical headquarters and usually did not own logistical resources. Depending on how the cavalry group was employed, this arrangement could be difficult to manage. The greatest challenge was resupplying

a cavalry group that was performing route or zone reconnaissance in advance of the corps. Considerable planning and coordination were necessary to bring essential supplies forward into divisional sectors of advance, then arrange for the transit of squadron resupply vehicles back and forth through the lead elements of a division. Recognition, route priorities and protection were among some of the more critical problem areas. Sometimes it was necessary to attach the cavalry group to the division. We will return to this issue, since the problems have not changed for a modern armored cavalry regiment. Cavalry groups would routinely remain with the same corps.

Coordination between the Group S-4 and the Corps G-4 would then become easier. If this relationship changed as a result of a shift in corps assignment, the Group S-4 had to "plug in" to an entirely new group of logistical operators. This was quite difficult with the small staff provided. Confusion often abounded when direct support maintenance units were changed. Return of vehicles from that level could be complicated. (36)

Despite the problems, the system worked quite well. It only really had to function from June 1944 until May 1945 when the war ended, although it could have no doubt continued. Except for a brief period of time, August - September 1944, the U.S. Forces enjoyed an overwhelming level of logistical resources. Most important, the mechanized cavalry group concept was proven during the war. This organization in effect became the father of our current day armored cavalry regiments.

POSTWAR REORGANIZATION

At the conclusion of the Second World War, the usual massive

demobilization and reorganization resulted in considerable turbulence. After some growing pains, the armored cavalry regiment was locked into the force structure by 1951, when the Army contained five active regiments. Their stated purpose was however, "to engage in security, light combat, and reconnaissance missions". "It was not designed or equipped to engage in combat with hostile armor or strongly organized defenses". (37) The approved 1950 TOE organized the regiment with a headquarters troop, service company and three maneuver squadrons. On paper this looked like an organization with improved capability over the cavalry group, but the service company was created by moving the supply, transportation and maintenance elements up out of the squadron headquarters' troops. The service company provided the capability to establish a regimental support area to serve as the interface with corps logistical elements. Routinely though, one third of the service company assets were in support of a specific squadron, leaving the Regimental Commander with little flexibility. The emphasis was on fuel resupply assets, about 15,600 gallons capability per squadron. Transportation for ammunition was limited perhaps because of the mission statement. The regiment was still totally dependent on forward resupply points established by the corps or on augmentation with corps transportation. (38) By 1951, only two divisional cavalry squadrons were active, one in each of the active armored divisions. Although the division became heavier, the cavalry squadron changed very little. In fact, it continued to function much as it had in World War II. (39)

The Korean War had little impact on armored cavalry since none participated in that conflict. During the mid to late 1950's, the

only significant change to the armored cavalry regiment was the deletion of the service company and the release of its assets to the maneuver squadrons. The internal organization of the divisional squadron became lighter when it lost its tank company and assault gun battery, but an armored cavalry squadron was added to the ICB of all infantry and mechanized infantry divisions. (40)

Just as the late 1930's was a period of experimentation with the horse armor mixture, the late 1950's saw the birth of the helicopter armor combination. Army aviation technology made great advances during this period, and many army leaders envisioned an important role for the helicopter in reconnaissance and as a fighting platform. By 1963, air cavalry units were organized and one troop was added to each divisional cavalry squadron and to each cavalry regiment (figure 5). Of necessity, these units were very large, self

ARMORED CAVALRY REGIMENT 1960

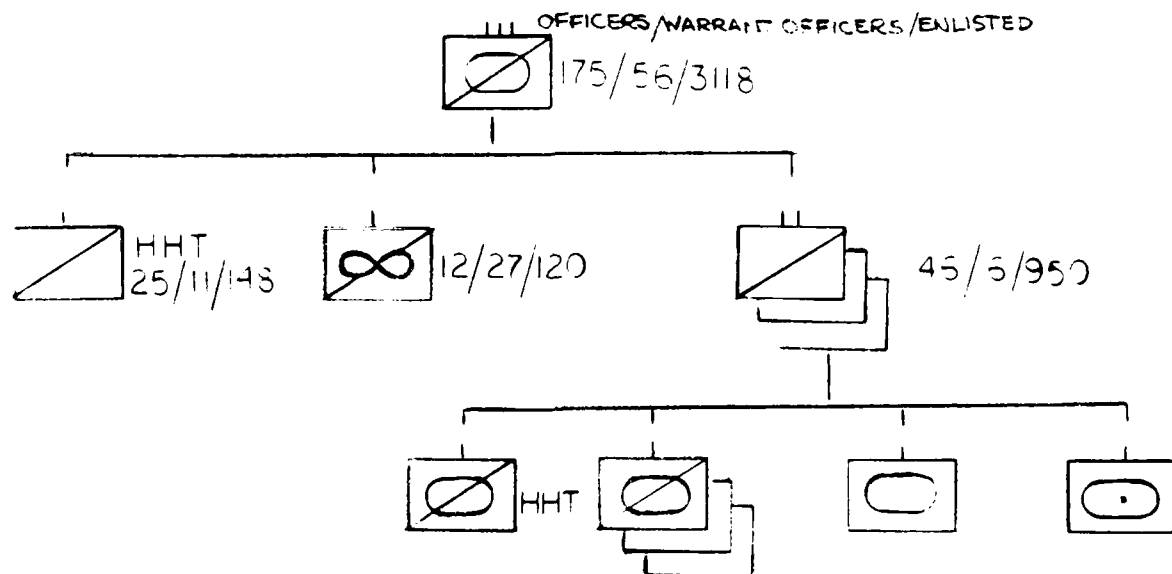


Figure 5

contained organizations, heavy in aviation fuel and maintenance assets. While these new units provided a significant boost to the capabilities of their respective organizations, they also added a corresponding logistical burden. (41)

ARMORED AND AIR CAVALRY AT WAR

The Vietnam conflict provided the US Army with the opportunity to employ its newly created air cavalry and reorganized armored cavalry units. Although much was learned during these years, many mistakes were made and a lot of bad habits developed. Field commanders applied organizations developed for mounted combat in conventional wars to the requirements of unconventional warfare. Experience and knowledge gained lead to modifications to these organizations so they could perform their new missions.

The traditional cavalry missions of reconnaissance, screening and economy of force were seldom performed by armored cavalry units in Vietnam. Some of these functions, as we shall see, were shifted to aviation elements. The armored cavalry units in Vietnam provided firepower, shock action and limited mobility in certain scenarios. Each of the five conventional infantry divisions deployed to Vietnam with their armored cavalry squadrons. In addition, one complete armored cavalry regiment was deployed. Logistically, the Vietnam War was an anomaly. Since there were no conventional front line traces, there were very few secure rear areas. Supply activities at all levels were organized in base clusters, which had to be defended. Likewise resupply columns had to move under escort. Armored cavalry resources were frequently used to protect their sources of supply and fire support. Maneuver units would frequently shift their areas of

operation, but the major supply activities seldom moved. There was no air threat. All armored cavalry squadrons, including those in the regiment, had organic fuel, ammunition and ration vehicles, plus maintenance resources so that they could "plug into" the nearest source of supply. These supply activities could be divisional or non-divisional. What was important, as in previous wars, was the advance planning required prior to each operation. As in World War II, the toughest coordination task fell to the cavalry regiment. Since the Regimental Commander did not own direct support resources, his S-4 staff had to arrange for support from the unit for whom he was working during a specific operation. A new concept was the use of helicopters for resupply of armored cavalry. This allowed limited operations to be conducted without ground resupply. But we must recall that small tonnages were involved, and the air and anti-air threats were minimal. (42)

Armed helicopters were among the first elements deployed to Vietnam, but the air cavalry troops and squadrons really added a new dimension to the war. While these units were highly successful on the battlefield, logistical planners began to realize the tremendous efforts necessary to keep them adequately supported. Here again, the nature of the war allowed most of these units to operate out of fixed or semi-fixed facilities. While the task was by no means easy, it was simple compared to an European war scenario. (43)

By 1973, U.S. Forces withdrew from Vietnam with a lot of good ideas and many bad habits, like ignoring threats from the air. Cavalry forces not engaged in Vietnam went through a period of uncertainty as to how they should be organized, equipped and fight. What was their mission? The U.S. Army had focused the bulk of its'

attention toward unconventional warfare, and our doctrine toward conventional war floundered. The 1973, Arab-Israeli War, among other things, helped to change this.

Before we proceed with our look at today's cavalry formations, it would be worth summarizing some of the more significant logistical principles noted during our historical review. The most important is command involvement. Commanders who wage successful campaigns without involving themselves in logistics are lucky commanders not necessarily good ones. Solid advance planning and anticipation of needs are critical. Organic logistical resources and/or habitual supporting relationships increase the chances for success. Self-contained, mobile logistical elements increase the commanders flexibility. Logistics must be available in all types of weather and logistical units must be able to defend themselves. With these principles in mind, we will now look at the cavalry forces of the 1980's.

CAVALRY OF THE 1980's

Two new concepts have had a major impact on Cavalry Forces in the 1980's, Airland Battle and Army of Excellence. Airland Battle gives the doctrine on how they will fight, and the Army of Excellence provides a program with forced constraints on resources. For simplicity, only one type of cavalry unit will be looked at, the armored cavalry regiment. The heavy divisional cavalry squadron and the air cavalry squadrons of the airborne and air assault divisions are still supported in much the same manner as their predecessors of World War II. The more complex armored cavalry regiment warrants a closer look.

By 1985, there were three cavalry regiments in the active army, two in Germany and one in the US with a wartime mission to reinforce Germany. Since their revival in 1950, the regiments experienced three significant changes: First, they were no longer light in terms of firepower and armament. In armored vehicles alone, they have the lethality of a reinforced armored brigade. The second major change was the addition of an air cavalry squadron, which, equipped with the newest helicopters, provides significant capabilities. The final change was the addition of a complete combat service support squadron. The Regimental Commander is not merely responsible for his own logistics; he has his own resources. For the first time in its history, the cavalry has become a total combined arms organization. Along with the scout/armor/artillery resources of the three cavalry squadrons, the regiment has aviation, combat service support, military intelligence, engineer, chemical and air defence assets. It is now a true combined arms team (figure 6).

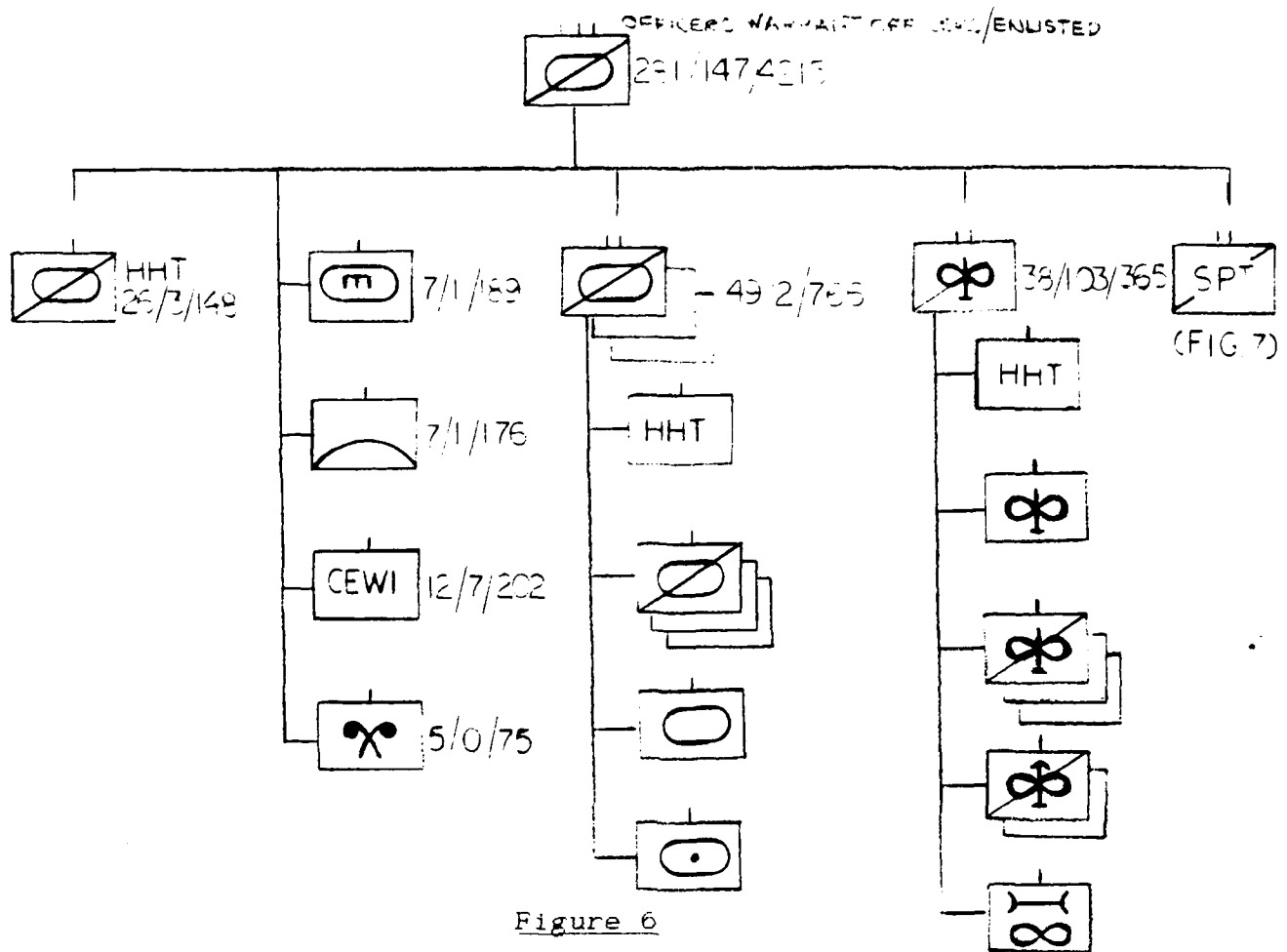
Before examining the specific logistical operations within the regiment, let's look at the role of the cavalry in relation to the Airland Battle Doctrine. As defined by the Cavalry Department, US Army Armor School, "Cavalry, by providing current combat information, facilitates a commander's ability to seize and sustain the initiative and concentrate overwhelming combat power against the enemy at the decisive place and time".⁽⁴⁴⁾ In very simple terms, cavalry performs reconnaissance missions. During defensive operations, cavalry provides the buffer between the Corps or Division and delays the enemy, strips away his reconnaissance and forces him to deploy. Cavalry, the regiment in particular, can provide the commander with the means to conduct economy-of-force missions. The cavalry regiment

currently has a significant advantage over its predecessors -- firepower. The regiment provides the Corps Commander with "the ability to seize and retain the operational initiative and concentrate overwhelming combat power against the enemy at the decisive time and place". (45) In other words, cavalry is a highly mobile force that can be used for offensive and defensive operations. Particularly important is its potential as a counterattacking force and its role in fighting the Corps Deep Battle. (46) Since this paper is not focused on the detailed employment of cavalry, the logistical analysis will look at only two significant missions, defense (to include economy of force) and offense (to include deep battle).

The Cavalry Regimental Support Squadron (RSS) is a large, versatile and capable organization, even after having been cut by the Army of Excellence rules. It consists of four Troops: Headquarters, Medical, Supply and Transport and Maintenance (figure 7). A TOE provides the commander with the resources to perform a mission. How they are organized and applied to the task varies with commanders and situations. The doctrine developed for the employment of the RSS is very limited and in many cases fails to fulfill the needs of the regiment. I will offer some recommendations on how to employ the RSS to support the regiment logistically when deployed as part of a corps.

The Headquarters Troop has the normal command and control structure, but it also has an additional capability provided by the Regimental Materiel Management Center (RMMC). The command and control structure requires a closer look. The usual army battalion functions through its S-3 shop. In the RSS, the S-3 provides only one part of the operations team. The other part is provided by the

ARMORED CAVALRY REGIMENT 1985



REGIMENTAL SUPPORT SQUADRON 1985

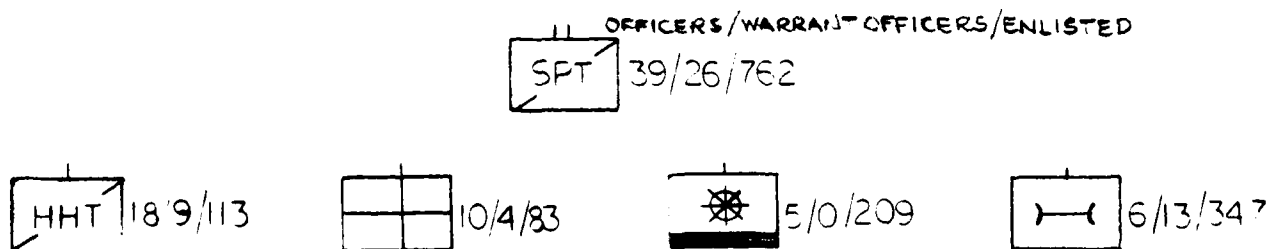


Figure 7

RMMC. In simple terms, the RMMC is the logistical brain of the organization and the S-3 is the mouth. The RMMC is organized with functional managers for class I, II, IV VI and water; class III; class V; class VII (property book); class IX and maintenance. It is supported by the Regimental Automation Section, which also serves the entire regimental automation planning needs. The only supply category not represented in the RMMC is class VIII (medical), which is in the Medical Troop. The RMMC serves the entire regiment, performing an essential service during peacetime. But my analysis will concentrate on its wartime operations. (47)

Command and control is the essential element of any military organization. Performing this function for a support squadron of an armored cavalry regiment, regardless of how it is employed, presents some interesting challenges. First we'll look at a way to do business with the resources currently provided, then later we'll explore ways to improve. When organized for combat, the main RSS Tactical Operations Center (TOC), consisting of the Commander, S-2, S-3, elements of the RMMC with communications, is located near, but not with, the Regimental main TOC. When possible, the two elements should be hard wired together. Information flow is the critical element. The frontages usually covered by a cavalry regiment often exceed the range of the current FM radios. Proximate location with the regiment provides the RSS HQ's access to redundant communications and access to the corps communications system. This will be the primary link with the Corps Support Command (COSCOM). To efficiently plan support operations as well as stay clear of combat operations, RSS units must know what is going on at all times. The RSS S-2 and S-3 must glean current information from regimental nets and transmit

the appropriate orders or warnings to subordinate units. The mission of the RMMC is to anticipate logistical requirements, then to assure that resources are available and pushed forward to the right place at the right time. The key word is anticipate. Historically, maneuver units were required to estimate their needs and make formal requests on the logistical system. This is usually done by the unit S-4, who in reality is too busy operating to do this effectively. RMMC managers must understand the requirements for various situations. Using their knowledge of the battle being fought, the supply situation, weather and other factors, they must accurately anticipate the maneuver element's needs. These requirements must be available whenever the maneuver units have time to replenish. Traditional LOGSTAT Reports are a bother to unit S-4's, often inaccurate and usually late. In order to satisfy the requirements of the Corps G-4 and the Corps Support Command, the RMMC must take over the total reporting mission. Unit S-4's should report their status only on an exception basis. The role of the Regimental S-4 has changed from earlier times, but he still performs a vital function. He is the immediate logistics advisor to the commander and operations staff. He also maintains close contact with the Corps G-4, so that the logistical posture of the regiment is current at that level. Regardless, the Regimental S-4 must maintain close contact with the RSS TOC.

The organization of the three remaining troops of the RSS is shown on figure 7. At a glance, we can see that the organization reflects the doctrine of employment as a complete squadron with troop integrity. FM 17-95, Cavalry Operations, calls for the establishment of a Regimental Support Area (RSA) about 20-25 KMs behind the FLOF.

The RSA then serves as the interface between Corps resupply activities and those of the three ground maneuver and air cavalry squadrons. Under certain circumstances the regiment can operate in this way, such as when performing economy of force or defensive missions on a narrow front; however, in other situations, distances dictate more dispersion. The two cavalry missions noted earlier will now be covered in detail. (48)

DEFENSIVE OPERATIONS

A cavalry regiment can perform defensive operations by either delaying or screening over a wide front, or it can hold ground as part of a formal defensive line. Under the worst case scenario, the RSS must establish at least two support nodes or Forward Area Support Teams (FAST's) to service the regiment. Each node requires a command and control element, a slice of assets from the S&T Troop, treatment and evacuation resources of the Medical Troop, and a Maintenance Support Team (MST) from the Maintenance Troop. Depending on the terrain and road networks, each FAST will support about half of the regiment (figure 8). The exact composition of each of the FAST's depends on the size of the force to be supported, the terrain and the resources available. Furthermore, it provides the Regimental Commander with the capability of weighting his logistical effort where he felt the greatest need. For illustration, a sample FAST is shown at figure 9.

Each FAST should maintain maximum mobility so that it can move frequently and quickly. When possible, the FAST's should be resupplied by corps assets. This would allow RSS vehicles to move class I, II and V forward to the maneuver squadron field trains. In

all likelihood, corps transportation resources would be extremely limited early in a European scenario or in an undeveloped Theater. Under these circumstances, RSS line haul transportation would have to rotate between a corps supply point and the FAST. In this situation fuel and cargo vehicles from the maneuver squadrons would have to utilize the supply point distribution method. Rations and ammunition would be transferred directly from the RSS semi-trailers to the squadron HEMTTs, which will eventually go forward to replenish individual cavalry troops. They can be crossloaded with specific munitions and other supplies for their intended customers. Fuel likewise would be transferred from 5000 gallon tankers, using a distribution system that would fill two HEMTT fuel trucks simultaneously. As we have seen, the RMMC staff must anticipate requirements and push the necessary supplies forward. Then they can save time and compensate for erratic communications. At the FAST level, personnel from the maneuver units may make specific requests and modify what they receive.

Another important component of the FAST is the Direct Support Maintenance Support Team (MST). Within the Maintenance Troop are three MSTs, one for each maneuver squadron. As in the supply effort these teams can be modified and reinforced as required. They may also be located forward with the field or combat trains of the maneuver squadron. Regardless of their actual location, the FAST OIC must keep a string on the MST for command and control and assume that the team OIC has a conduit back to the Maintenance Troop. Replacement of combat vehicles in World War II was often a critical problem. (49) It was later cited as essential by the Israelis during the '73 War. With the limited replacement assets available to the

US, it will be even more essential in future conflicts. Replacement calls for a team effort. Armored vehicles damaged in combat will be triaged by organizational maintenance personnel along with the vehicle crews. When possible, the vehicle should be recovered and moved back to the squadron field trains. If it is not possible to recover the vehicle, but time is available, the organizational maintenance personnel must have a prioritized list of components that should be salvaged. When possible RSS maintenance personnel, reinforced with organizational mechanics, should work at a consolidated collection point. This will allow maintenance leaders to make decisions, like a doctor, as to what to repair first, what parts to cannibalize, what to evacuate and what to abandon. Repairs in the forward area will be confined to replacement of major components, cutting, welding and minor adjustments. It is essential that repairable assemblies and components be evacuated back to the Maintenance Troop main location. Returning empty supply trucks can be used. A tailored slice of the regimental ASL, major assemblies and recovery assets from the Maintenance Troop main will be positioned forward with the MST for maximum efficiency. It is possible for DS maintenance personnel to go forward of the combat trains, but this is not advisable since it dilutes the maintenance effort.

Let's take a look at the Maintenance Troop main. The troop is a very large organization with considerable mobility, but it takes time to set up. Also it must limit its movement so that it can work to maximum efficiency. We have seen that mobile elements of this troop are pushed forward where they can perform most effectively. The remainder of the troop, now limited in mobility in favor of the

forward elements, takes care of the more complex major repairs, does a lot of component repair (radios, fire control, etc.) and is the primary source of repair parts, repairable exchange and major assemblies. The maneuver squadrons and the forward DS Detachments will request these items through the main repair parts section or Tech Supply. The RMMC class IX section will be co-located with Tech Supply and will place replenishment demands on the Corps Support Command. The Regimental Automation Center will also be at this location to support this effort.

In addition to its maintenance mission, the Maintenance Troop performs two other essential tasks. First, it is the focal point for major end item replacement. Combat losses are reported to the class VII or property book section (RPBO) of the RMMC located with Maintenance Troop. RPBO will requisition replacement items from the COSCOM. Once released, it is essential that these items of equipment be delivered to the MT Troop location by corps transportation. At that point, MT Troop personnel will prepare the item, particularly combat vehicles, for issue. Based on the Regimental Commander's issue priorities. The item will be moved forward, perhaps with S&T assistance, to the FAST supporting that squadron. Fuel and ammunition will be provided and a crew from the gaining unit will take over and proceed to the final destination. The other important Maintenance Troop function is to serve as the collection point for all regimental elements not required for the immediate battle, in effect acting as the regimental field trains. The MT Troop is large enough and autonomous enough to perform this task, rather than having all of these assets collect at the maneuver squadrons or at the regimental main CP.

Medical treatment and evacuation are not normally covered under tactical logistics, but a Medical Troop is an organic part of the RSS. Since these assets form part of the FAST, let's take a quick look at their functions. The Treatment Platoon of the Medical Troop has four squads that can be located in the FAST area or pushed forward, if desired, to reinforce squadron aid stations. Evacuation vehicles from the Ambulance Platoon will be used to transport patients from the forward aid stations to a Corps or Divisional holding facility further to the rear. The Medical Troop also has a small holding capability, but this would only be used on a limited basis for minor injuries or illnesses. The medical supply (class VIII) section in the Medical Troop would push supplies forward by any available means or deliver to squadron aid stations if required.

So far we have treated the Combat Aviation Squadron (CAS) as a maneuver element, but there are some important qualifications. The original force design for the RSS did not provide for total CAS support. Since this unit would be centralized at the rear of the regiment, it could draw fuel and ammunition from corps supply points using their organic HEMTTs. However, during actual operations the squadron establishes forward arming and refuel points (FARPs) at dispersed locations throughout the regimental area. This concept not only ties up truck assets, it requires a long turn around time back and forth to the corps supply points. Some FARPs can be established and/or supported using organic utility helicopters within CAS, but this capability must be augmented by RSS vehicles. So the commander must prioritize the logistics effort so that the FARPs expected to have the heaviest volume will receive the greatest support. One other difference in support for CAS is in aviation maintenance. The

RSS is not organized for this mission, either with repair personnel or parts. So a corps DS aviation maintenance unit must provide such support. How well they deliver such services can be a critical issue in sustaining RSS capabilities.

OFFENSIVE OPERATIONS

So far in our discussions, we have looked at supporting the regiment in a somewhat static role, covering wide lateral distances. Logistical elements have the capability to spread out and are not severely threatened on their supply routes. Cavalry forces try to be aggressive and act offensively in all missions, even when in the defense. Maneuver and mobility are the essential ingredients to success of the mission. (50) With this in mind, let's look at the organization of logistical elements for combat during a deep battle scenario, which is probably the most ambitious of offensive operations. Since there are numerous possibilities, I'll just outline one situation as an example. The armored cavalry regiment is in corps reserve, about 100 KM behind the forward line of troops (FLOT). The mission is to attack on a narrow front with one squadron leading on two axes, and two squadrons following abreast. The CAS is scouting forward and screening the flanks and rear. The attack will be at the neck of a penetration to the FLOT in a division sector and will drive deep, about 40-50 KM, to attack the enemy's second echelon. Depending on the situation, the regiment will either consolidate and defend its gain or make an offensive sweep and return to the FLOT.

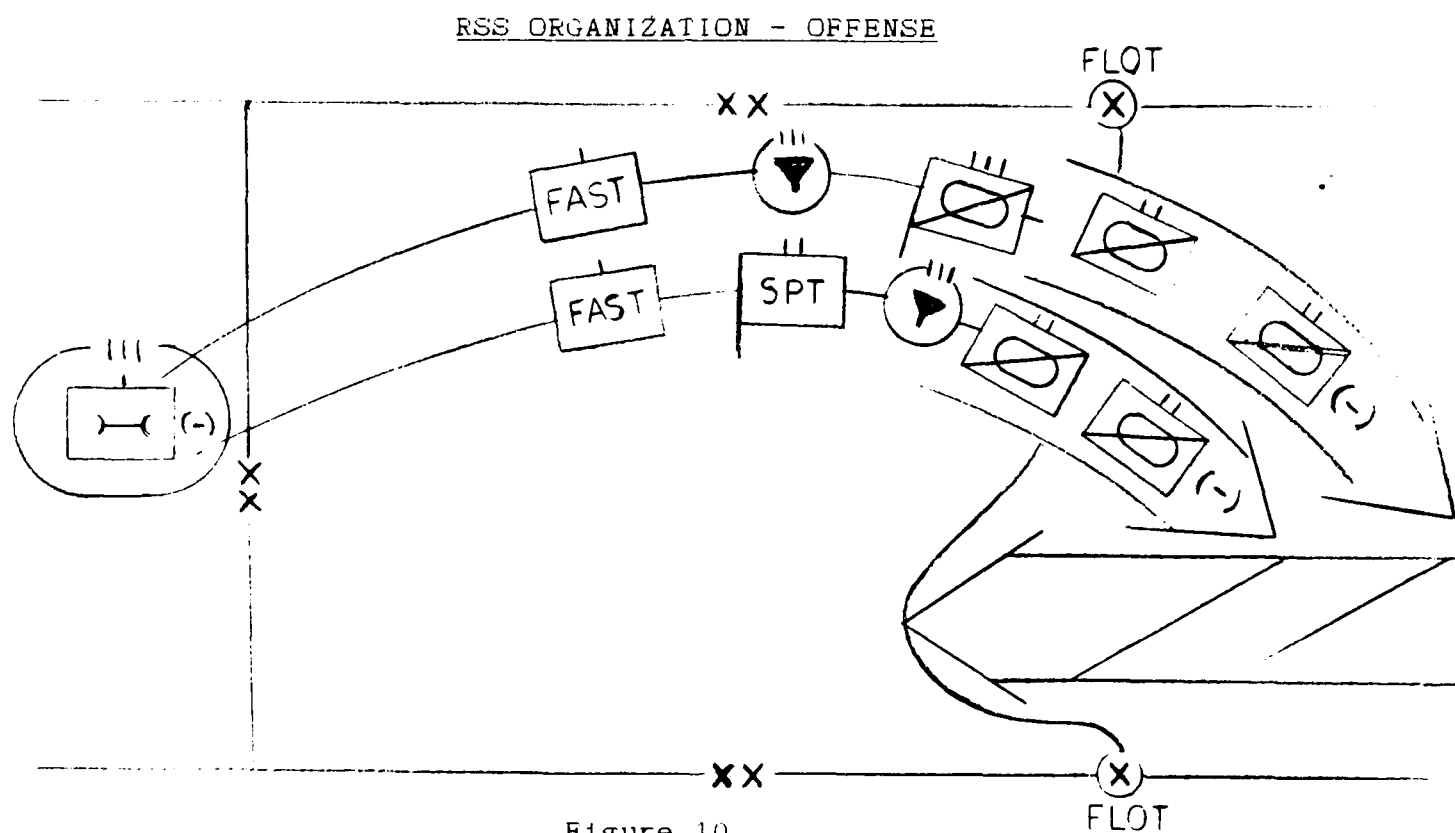
When organizing the RSS for offensive combat, several important factors must be considered. First, when the combat vehicles of the maneuver elements cross the FLOT into the attack, they must be fully

loaded with food, fuel and ammunition. Likewise, the logistics support vehicles within each squadron must be fully loaded. RSS elements moving forward must be 100% mobile and echeloned for continuous operations. The regimental base must remain fully functional throughout the operation. Movement of vehicles in forward areas requires careful coordination. Now let's look at each of these points.

Resupply of forces involved in a deep attack is tough at best, and perhaps impossible under certain circumstances. For this reason, it is essential that all combat vehicles be fully loaded with sustaining supplies. Food, water and ammunition can be loaded in the reserve assembly area. It should not be consumed during the movement to the line of departure (LD) for the attack. Fuel, especially for the M-1 tanks and the M-3 cavalry fighting vehicles, is another matter. In order to alleviate this, the RSS 5000 gallon tankers will be pushed forward to a covered position, along the main routes of movement, just to the rear of the FLOT. The tankers will be set up so that a platoon of four M-1's or six M-3's could pull up on either side, simultaneously top-off and then proceed forward. This entire process would only require about 5 minutes per platoon or about 15-20 minutes per troop. The combat vehicles would cross the LD with full tanks, and the fuel HEMTTs in the squadrons would remain full.

As in the defense, the RSS would organize two mobile support teams or FAST's. Each FAST would be task organized much as discussed earlier, except all elements would remain loaded and ready to move instantly. The positioning of the FASTs would depend on the terrain, but in our example one is located astride each of the attack corridors as shown in figure 10. The FAST's act as mobile supply points for the

squadron resupply vehicles. The critical question is how far to deploy soft-skin vehicles into the penetration. Many factors must be considered: the distance to be covered, the specific mission and its importance and the protection available for these resources. In this example, the penetration is about 40-50 KM, a terrain feature is to be occupied, and there are insufficient forces to protect the shoulders. Therefore, some of the squadron vehicles should move forward behind



the attacking elements and be available for resupply at the objective. Once emptied, these vehicles become a liability until they can be escorted back to friendly lines, a safe corridor is opened, or the entire unit breaks out. Some limited resupply of critical items is possible by helicopters from CAS or other aviation elements, but a

serious anti-air threat could make this costly. Movement of soft-skinned vehicles forward in a deep attack is a risky operation. These logistical resources could be lost through recklessness or poor planning. Forward movement of RSS vehicles would be even more costly because of their size and limited cross-country mobility.

This scenario stresses the mobility of the logistics effort. To recognize the importance of this, one must truly understand the flexibility of an armored cavalry regiment. In our scenario, the regiment attacked deep to seize an objective. Once that occurs, the Corps Commander must quickly link-up with the regiment. Or more realistically, he may order them to attack the rear of the enemy and rejoin the corps at another point. The third option would be to have the regiment retrace their route of attack and return to their starting point. Logistical mobility is essential for the first two options. Logistical elements must either follow the link-up forces with critical resupply or move quickly to the re-entry point for immediate replenishment of the maneuver elements when they return. Supply expenditures in this scenario depend on many factors, but one thing that is reasonably certain: M-1's engaged in heavy combat will require fuel about every 12 hours. The M-3's can probably go a little longer - perhaps 18 hours. This makes it almost essential that a certain number of fuel resupply vehicles accompany the attacking forces.

Maintenance support for this operation comes in three phases: the movement to contact, the attack, and reconstitution. The DS maintenance elements during the movement to contact should recover and repair all vehicles that failed to make it to the LD. The commander would decide when and where the repaired vehicles would rejoin their

units, but the important point is that replacement vehicles would be limited. Also repair of combat vehicles during offensive operations will be very limited. Some easy to replace assemblies may be taken forward in armored maintenance vehicles, but the extent of repair for each specific vehicle must be weighed against the time available and the intensity of the combat. Battlefield recovery should be given highest priority. (51) RSS recovery vehicles must be pushed forward to designated collection points. Troop and squadron recovery assets should evacuate repairable equipment back to these collection points and return to forward areas as quickly as possible. Again, time and circumstances permitting, critical components should be salvaged from non-recoverable equipment when possible. The primary activity at the collection points is to place the damaged vehicle back into service, even limited service, as quickly as possible. This requires a joint organizational/direct support maintenance effort. The long term repair jobs and component repair (repairable exchange) would be evacuated back to the maintenance troop main for disposition.

Let's consider medical support. Friendly casualties will be heavy during the attack. Three of the medical treatment squads and all of the ambulances from the medical troop should be pushed forward to the maneuver squadron medical platoons. As long as the ground lines of communication remained open, casualties received during the initial stages of the attack would receive life saving medical aid and then be evacuated. Perhaps some limited air evacuation would also be available, but it is unlikely that unarmed helicopters could survive in the anti-air intensive environment. As the penetration got deeper, medical personnel and ambulances with the wounded may have to move along with the maneuver elements much like the resupply vehicles. If

they proceeded to friendly lines unescorted, they could be destroyed or captured. Given the prospect of holding patients for longer than normal, it is essential for these forward medical elements to be well supplied with skilled personnel and medical equipment. Many will argue that medical units do not have the responsibility for KIAs. This is true, but the maneuver commander must make a conscious decision on what to do with his dead. They could be left where they fall or picked up and moved with the column. The first solution is the easiest, but it runs counter to American dogma. A possible solution would be for both the medical and logistical personnel who follow the maneuver elements, to place remains in body bags, load them on empty ammunition vehicles for eventual evacuation to corps graves registration points.

So far we have observed the ground maneuver squadrons, but the CAS also plays a significant role in this scenario. It is not advisable to place ground elements of the CAS forward of the FLOT. Fuel bladders and/or ammunition may be flown forward to establish temporary FARPs which must be quickly moved. Mobile ground elements would add to the burden already created by the wheeled vehicles of the maneuver squadrons. This situation then makes it somewhat easier, compared to the defense, to support CAS logistically. The fuel and ammunition vehicles of the CAS would establish FARPs at selected points behind the FLOT, so that they could best service their aircraft. Of necessity, these points would be within close proximity to the regimental sector. As in the defense, designated RSS fuel tankers would pick-up JP-4 from corps or division fuel points and deliver it to the CAS HEMTTs at the FARP. The same system could be followed for ammunition, if necessary. But ideally the corps would line

haul ammunition to a regimental ammunition transfer point (ATP), where it could be drawn directly by CAS trucks. Ground maintenance would still be handled by RSS maintenance troop elements, but DS aviation maintenance support would remain a corps responsibility.

The RSS command and control apparatus for this scenario is similar to that used for the defense. A small operating headquarters will be located close to the regimental main TOC. The regimental tactical headquarters will no doubt deploy forward with the maneuver squadrons. Current information and access to regimental communications is critical. The remainder of the RSS headquarters and the RMMC will be located with the MT troop main/regimental base. Control of the two FASTs will be via FM radio. To conduct the counterattack, the corps may assign the regiment a sector and retain control, or it may attach the regiment to a division. This relationship is important for coordination of field locations and sources of supply. The most likely scenario would be to attach the regiment to a division. In this case, the RSS would have to coordinate the establishment of logistical assembly areas and resupply routes with the division G-4. The regimental S-4 can be a major player in this, but the RSS S-3 must also be actively involved. At the same time, the RMMC chief must coordinate with the division support command for use of division supply points. A principal concern is the use of a division bulk POL distribution point. In all likelihood, little support will be available from divisional Forward Support Battalions in the area because of their own requirements. It may be necessary for the division to request assistance from the corps. The key point is that without a regimental support squadron, both the corps and the division would have a very difficult time

arranging adequate support for the regiment.

The one element of the RSS that has not been discussed as yet is the Maintenance Troop main. In our scenario, the troop initially functions as the regimental base. Of course, it continues its normal repair and repair parts supply mission. The regimental and RSS Commanders must decide what follow-on mission to give this element. If the regiment will remain in place awaiting link-up with the corps, then the base should jump forward to a position where more responsive support can be provided. Another possibility is that the regiment would return to the FLOT and revert back to corps reserve. In all probability, a reconstitution effort will be necessary. Doctrine specifies that reconstitution of the regiment be a corps responsibility, carried out through the COSCOM. (52) In reality, the COSCOM may not have sufficient resources to fully carry out this function. In order to help itself, the RSS commander would act as the executive agent for reconstitution of the regiment. The rear detachment of each squadron supported by elements of one FAST would establish initial assembly areas. The initial areas would be close to the FLOT. They would provide fuel, limited ammunition, medical evacuation, remains collection and chemical decontamination support to each maneuver element upon its return to friendly lines. With the exception of chemical decontamination, the other services would be performed rapidly so that the combat elements could proceed directly to their final assembly areas. Also located in the initial assembly areas would be RSS established maintenance collection points. Vehicles towed out of the combat area and those unable to move to the rear would be collected, repaired or evacuated as necessary. Without COSCOM assets, support in the final assembly area would be limited to

what could be provided by MT troop main. Operations would be slow, and the command should prioritize reconstitution activities. Realistically, only one FAST would be available in the final assembly area since the other would service the initial assembly area. The toughest part of reconstitution would be the replacement of major end items and receipt of replacement personnel. The Corps Commander would be responsible for deciding on the allocation of replacement personnel and equipment based on the assets available and future operations. RSS personnel would be responsible for receipt of the equipment and then issuing it to the maneuver squadrons according to the Regimental Commanders guidance. Ideally, replacement personnel would be received in the final assembly area by the Regimental S-1, and would assist in the preparation and movement of replacement equipment. Decisions to cross level equipment and personnel between maneuver squadrons (particularly if combat vehicle models were different) will require significant command involvement. Advance planning and exercises in these issues would improve ultimate wartime performance.

CAVALRY 2000

In the last part of the paper, we'll look at the future of cavalry and consider ways to improve it logistically. "Corps are the largest tactical units in the U.S. Army, the instruments by which higher echelons of command conduct maneuver at the operational level.....Once tailored, however, they contain all the organic combat, combat support and combat service support capabilities required to sustain operations for a considerable period." (53) "Corps battles are where the challenges and capabilities of Airland Battle doctrine reach their optimum. The corps must simultaneously

conduct the close, deep and rear operations as well as plan at least 72 hours into the future." (54) Those two quotes are from the forthcoming FM 100-15, Corps Operations. This manual sets forth doctrinal principles for corps operations of the future. The armored cavalry regiment fits securely into this doctrine because it performs reconnaissance, security and economy of force operations for the corps. It can conduct offensive, defensive and delay actions. It may be attached to a division but is fully capable of independent operations. (55)

The internal organization of the regiment is not expected to change from its current configuration. The regimental support squadron does, however, require some modifications. Without doubt, the realities of limited manpower and dollar resources will restrict any significant expansion of current force structure. But I believe that many of these suggested improvements can be accomplished with these constraints in mind.

We cannot overstate the importance of command and control. Historically, logistical organizations have often been shortchanged in this area. Logistics officers are usually competent commodity managers, but they have limited means to receive and pass information.

The RSS must have an upgraded capability for internal communications, with focus on extended range and on the ability to rapidly gather and pass along logistics data. This equipment must also be secure. Presently, FM radio is the primary means. Increased capability must be developed at the troop HQ/FAST and squadron level. Similar capability must be available to the maneuver squadron S-4s. At RSS HQs level, the only means to communicate with Corps/COSCOM is through the regiment. The one organic RATT is unsatisfactory. Mobile

subscriber equipment would vastly improve this situation.

The RSS is organized with functional troops for many excellent reasons. Tactically, however, the RSS creates task organized FASTs as described earlier in the paper. With the maintenance troop forming the regimental base, this leaves the headquarters elements of the headquarters, S&I and medical troops to form the FAST command and control HQ. While the S&I troop is excellent for this part, the other two are not. I would propose splitting the S&I troop into a supply troop and a transportation troop. Each would be smaller but would have a troop HQs with the necessary vehicles, communications and other resources to command a FAST. Then the HQs troop and medical troop could perform their normal functions.

We have heard much over the years about the requirement for an armored logistics vehicle. Given our current Airland Battle doctrine, I feel that such a vehicle is needed. It must be of simple design with a power train and suspension compatible with existing equipment. Three models -- one for fuel, one for ammunition, and a maintenance vehicle -- would be necessary. These assets would provide the capability to follow maneuver elements cross country and provide necessary resupply, even when they attack deep. Soft-skinned vehicles may not survive the deep battle.

We have noted that the combat aviation squadron is not provided through the RSS TOE for aviation fuel and DS maintenance. This should be corrected. Additional line haul assets must be added, perhaps 6-8 5000 gallon tankers, so that current assets are not diverted from armor support to make up for this deficiency. An AVIM capability must also be added, either directly to the CAS or, as in divisions, to the RSS. The RMMC must also have oversight of aviation related spare

parts.

Finally, because of the ability of the cavalry regiment to operate any place on the battlefield, to include forward of the FDOI, self-defense is a vital concern of the RSS. Traditionally, combat service support units, regardless of mission or major unit of assignment, are provided with a fixed number of crew-served weapons. This allocation for the RSS should be substantially increased. Weapons allocated should include more .50 cal. machine guns with vehicle mounts, Mk-19 grenade launchers and some Dragon anti-tank missiles. The .50 cal. MG would serve against both ground and air threats, and the Mk-19 and Dragon would provide protection against troops and armored vehicles. This additional armament would obviously place an increased training burden on the RSS, but the war fighting benefits would make it worthwhile.

I have proposed fixes to only the most glaring weaknesses. Seldom does a commander receive everything that he wants or even requires for a task. I have analyzed something that is already good and sought to make it better. We continue to work on doctrine to improve our war fighting abilities, so we must also work on improving our tactical units so that they can successfully implement that doctrine. Additionally, our warfighting logistical doctrine, particularly for tactical support units, must be flexible -- not overly burdened with peacetime requirements.

CONCLUSION

Just prior to our discussion of modern cavalry operations and logistics, a number of logistical principles were highlighted. Are these still valid and important? The answer is yes! Even in this era

of hi-tech communications, a battlefield commander may find himself isolated by communications difficulties. Just like his cavalry predecessor of the Indian Wars, he must know and understand his logistical situation and capabilities. Additionally, he must have the organic means to influence them. The regimental and squadron commanders and their logistical operators must plan combat service support in advance and anticipate needs or the necessary support may be too late to influence the fight. Logistical units are lucrative targets so they must be mobile, self-contained and capable of operating in all weather conditions and in any environment. Lastly, logistical units must be able to defend themselves against ground, air and chemical threats.

Today's armored cavalry regiment is a very powerful and flexible organization, capable of performing a variety of missions. To some extent the cavalry has possessed these characteristics throughout its history, but the cavalry commander always required augmentation from other arms and services. Today's logistical organization continues the spirit of independence and the mobility that were pioneered during the Indian Wars. Many of the hard learned logistical lessons of the past have been incorporated into the force structure. Cavalry forces have and will continue to have an important position in the force structure of the United States Army. The key to their success is solid, responsive logistical support. Perhaps a humorous line from the 1943 Humphrey Bogart film Sahara said it all. When referring to his tank, Lulubelle, Bogart remarked that, "they're just like a woman, if you don't feed 'em, they don't do nothin." Without food, fuel and ammunition, modern and future cavalry will do nothing.

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