

ARMOR

The Magazine of Mobile Warfare



May-June 1985

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Armor Leadership



The Army theme for 1985 is leadership. Leadership for cavalry and armor is an enduring theme spanning the decades; and this issue of ARMOR is dedicated to cavalry and armor leaders who rose to the highest levels of responsibility in the Army.

One mark of a leader is his development of professional communication skills including writing. Armor and its predecessors, the Journal of the U.S. Cavalry Association, the Cavalry Journal and the Armored Cavalry Journal, have recorded over the years the professional thoughts of outstanding cavalry and armor leaders of all ranks. This issue attempts to present some selections of writing from many of them. Due to space limitations, the staff was forced to exclude many deserving armor and cavalry leaders. Most who were included, however, rose to three- or four-star rank. Second Lieutenant John J. Pershing, Cavalry, rose to the rank of General of the Army while Major Henry Cabot Lodge, Cavalry Reserve, rose not only to two-star rank, but to the position of U.S. Ambassador among many senior government positions. All those selected are retired now and some have passed away. And we included an article by John Wayne. While not a general, he showed to the American people, throughout his distinguished film career, the best qualities of the American fighting man and Cavalry leader.

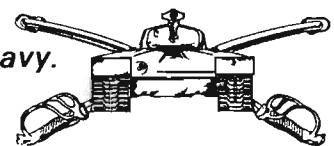
Those not selected far outnumbered those selected and include such names as Major Dwight Eisenhower, Infantry; First Lieutenant Frank D. Merrill of Merrill's Marauders; Lord (Lieutenant General) Baden-Powell, founder of the Boy Scouts; Colonel John S. Mosby, CSA; Lieutenant Colonel Joseph (Vinegar Joe) Stilwell, of the China-Burma Theater; Brigadier General Edward Stackpole, book publisher; Presidential Advisor Henry Kissinger; Colonel Robert Icks, tank historian; General Heinz Guderian, panzer leader; Britons, (General) Sir John Hackett, General Douglas Haig, Major General J.F.C. Fuller, Liddell Hart. The list of possibilities goes on and on.

The articles have generally been presented in chronological order. Many of these authors wrote articles at various ranks in their career. Our effort in this undertaking was to select not only authors who served distinguished careers, but to cover roughly the last century in a balanced fashion and present some of the history of the Armored Force and the philosophy attached to it.

Throughout the articles, many threads common to today's concerns can be found, including debate on the Army's pistol; the proper use of cavalry; combined arms operations.

Addressing the diversity of opinion, Major Robert Grow reminded readers that our branch was one. One Cavalry.

*Today, we are not cavalymen, tankers, light or heavy.
We are armor, the combat arm of decision.*



ARMOR

The Magazine of Mobile Warfare

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COVER

Reproduced here in monochrome is the painting "Centennial of Armor" by Mark Irwin, an artist at Fort Knox. The painting is a graphic reminder of the historical continuity that links Old Bill with today's Army of Excellence, which these soldier-authors helped to forge.



Mine-Sweeping Tank, 1918

A Letter to the Editor: 1889

by Second Lieutenant John J. Pershing, 6th Cavalry

More prominence should be given to the revolver competitions and some changes might be made in the manner of conducting them. We should have a regular revolver competition and team, with competitors, one from each troop, selected from among the best pistol shots in the troop, and not have pistol competitions supplementary to carbine competitions, though the two might be held at the same time and place.

In connection with the Army carbine competitions, there should be an Army revolver competition, competitors to be selected from various revolver teams, as they are selected for Army carbine competitions.

The medals for the revolver teams should be the same as those awarded to the infantry department teams; and for the army revolver team the same as those awarded to infantry division teams.

No good reason can be seen why dismounted revolver firing should not be held at the three ranges, twenty-five, fifty, and seventy-five yards, the same as for individual record in the troop. In the mounted firing, both in troop practice and competitions, no gait slower than ten miles an hour should be permitted. These changes would give a stimulus to revolver firing in the army which would bring about surprising results.

The Service Pistol

by Major S. D. Rockenbach, Philippine Scouts

In considering a service pistol, it is necessary at the outset to agree to the proper uses of the arm. That a pistol will shoot accurately at one hundred yards and over is nothing in its favor; better use a rifle.

A good service pistol is assumed to be one that is accurate up to fifty yards for bull's-eye target practice, is a deadly (stopping) close quarter fighting weapon, a quick firer, and substantially and simply made so as to keep in order with the usage of the cavalry service. The .38 service Colt appears to be the only pistol which a majority of cavalry officers agree possesses all the requirements, except the most important, a deadly close quarter fighting weapon. It has not the necessary shock or stopping effect. This defect is attributed generally to caliber. It is not questioned that a .45 bullet moving with the same velocity as a .38 has more shock effect than the .38, but the assertion, frequently made, that the wound made by the .38 which failed to stop a man, would have stopped him if made in the same place by the .45, has not been demonstrated. It is not believed that the so-called "New Service .45 Colt" with its long heavy powder charged cartridge with cylindrical bullet would do much better. The old .45 Cowboy Colt with its short light powder charged cartridge and short hollowed bullet has a national reputation for stopping power.

The stopping effect of a bullet depends upon something more than caliber: 1st, the sensitiveness to shock of the man shot; 2d, the locus of the wound; and 3d, the velocity, shape and size of the bullet.

To illustrate: Sensitiveness to shock and the consequent incapacitating or deterring effect generally increases with the culture of the man shot. A wound that may stop and incapacitate for further aggressive action

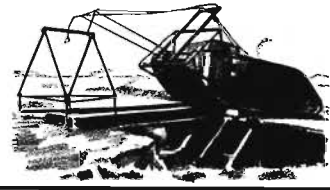
a civilized man, may only increase the fury and efforts of a savage to destroy his enemy; especially is this true if the savage is imbued with the idea that, if killed while killing his enemies, his future bliss is assured.

A shot in the brain will stop any man. A horse drops instantly from a .38 bullet striking the brain. A deer shot through the heart with a .45 Winchester will run fifty yards. In the case of a man shot with a .32 revolver, the bullet penetrated the left cheek and entered the brain; death was instantaneous, so that the man fell backwards; his cigarette remained in his mouth and smoked up. In another case, a man was shot through the belly with a .45 carbine so that his intestines protruded. He walked over a mile, and his wound was only discovered by his death two hours after the shot.

The bullet from a .30 Krag ball cartridge can be fired through a pane of glass without shattering the pane. Decrease the velocity of the bullet by reducing the powder charge and the pane will be shattered. The bullet from the gallery cartridge will shatter the pane. A spent bullet may knock a man down insensible or stop him, yet inflict a slight wound. Velocity appears to control the shock effect.

It is not to be expected that the influence of civilization will perceptibly affect the sensitiveness of the savage to shock in the near future; nor can we hope to attain the skill in pistol shooting necessary to hit a man in the head with every shot, but it is believed the shock effect of the pistol can be increased without decreasing its accuracy up to fifty yards.

The trooper must be instilled with confidence in his pistol, otherwise it is of little use in his hands; this can be instilled only by target practice. For accurate bull's-



Bridging Tank, 1918

eye target shooting, a well-made long barrel pistol, using a cartridge with cylindrical bullet and large powder charge, is advantageous. Such a cartridge is not essential or even desirable for close quarter fighting. A multi-ball cartridge, two balls and a small powder charge, it is believed, has greater shock effect than either the service .38 or .45 cartridge.

The old .45 Springfield carbine, worn till it is practically a smooth bore, with multi-ball cartridges is the best short range brush fighting gun in the service. Fifteen men shot with it in the present year stopped, three recovered, one with his right arm amputated. Self-preservation is the first law of nature. Against the savage with kris, head knife, spear or arrow, the so-called humanitarian should either come and practice his theories, or keep quiet; should he come without police protection (a cool protector with a stopping weapon) the theorist will succumb to the fittest.

Before the .38 is discarded it should be demonstrated that a .38 cartridge suitable for target practice and having the necessary shock effect cannot be made. It seems practicable to furnish pistol target ammunition (the present cartridge) and pistol service ammunition that will stop a man; at least this seems worthy of trial.

The writer is not acquainted with the reasons which lead to the change from the .45 to the .38, but he is reluctant to believe that the change was made without recommendations and cogent reasons;* nor does he

*That the Journal did not favor this change, see articles in No. 20 and No. 22, April and October, 1893, by First Lieutenant (now Major) Eben Swift, and an article in No. 23, December, 1893, by Major Alfred A. Woodhull, Medical Department, (now Brigadier-General, retired).

think it reasonable to again incur great expense, and change back to the .45 till it is demonstrated that the .45 will do all that is claimed for it, and the .38 cannot be made to do just as well. The case seems somewhat similar to that of the shotgun. Very few men possess more than one shotgun, yet their shooting is very much varied by varying the powder charge and size of the shot.

The undisputed claim for the "New Service .45" is that it is a better club than the .38; this value has an offset in weight.

The writer carries in the field a .45 Colt, 3 $\frac{7}{8}$ -inch barrel, police model (as that fits his hand) using short cartridges. He believes this pistol, due to the shape and small velocity of the bullet, has greater stopping power at close quarters than the "New Service .45," with a six-inch barrel and powerful cartridges. He once saw a cowboy filing two inches off the barrel of a beautiful six-inch barrel Colts for which he had just paid a month's salary. The reasons given for his act were that he could draw the short barrel quicker, and when he hit a man he stopped. The short barrel Colt is not as accurate for bull's-eye target practice as the service .38. Accuracy must be retained, but careful experiments should be made with varied ammunition to ascertain if the shock effect of the .38 cannot be increased without loss of accuracy.

With the present ammunition, the .38 reminds one of the remark made by a grizzly bad man of the far West, when a pink and white tenderfoot from the East drew a .32 on him: "Don't pop that thing, you might make me mad."

Packs and Leading

by Colonel Daniel Van Voorhis, 12th Cavalry

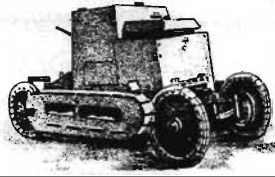
When the 1st Cavalry Brigade left the concentration camp at Cotulla, Texas, in May, 1930, with a maneuver mission of harassing and delaying the 2d Division, each troop took a light wagon and each regiment an escort wagon. The remainder of the trains were left in camp. The plan contemplated rapid movement of the combat troops and supply by night by means of the most readily available transportation from the base to caches determined as a result of the day's action.

With combat and field trains cut to almost nothing, pack loads naturally assume great importance. The number of packs in a cavalry regiment is astounding when compared with the days of relatively small fire power. The 12th Cavalry at the strength with which it entered the maneuvers had approximately 330 riding horses and 80 pack horses, counting officers' second mounts, or 60 counting only combat packs. For comparative purposes, I will explain that the rifle troops include four machine rifles, the machine gun troop eight ma-

chine guns, and the headquarters troop two radio sections and the pioneer and demolition section. Each troop carried kitchen, ration and picket line packs. The latter pack load was made up of extra oats since no picket lines are used in the combat area. The 37mm guns were mounted on wheels.

Although the number of pack animals per regiment will vary somewhat in each situation, the percentage will seldom be less than 20 percent. It requires no study to see at once that the pack element of the command is of the greatest importance in all cavalry operations. It includes the bulk of the fire power with its ammunition, the signal communications, demolitions and messing facilities. Without its packs, Cavalry would be reduced to approximately the power it had at the end of the Civil War and would be out of place in modern combat.

Thanks to the efficient pack saddle, Cavalry has been able to add modern equipment without appreciably decreasing its mobility or power to execute missions



St. Chamond Wheel-Track Tank, 1921

appropriate to "light" Cavalry. However, the pack load presents a problem in transportation which differs from the "transportation" of the cavalryman and requires special consideration when the riding horse and pack horse are both included in a tactical unit.

When the end of the day's march finds the troop commander inspecting his animals, invariably, the pack animals give him the most concern. Our heaviest

pack loads but slightly exceed 200 pounds. Their dead weight, however, causes more difficulty than the considerably greater combined dead and live load of the rifleman. From the time the horse is packed until the day's work is over, he is seldom relieved of any of his load except in combat. Pack animals cannot be expected to carry their loads more than seven hours a day during long periods and should not carry them more than five hours.

The Second Cavalry in the Meuse-Argonne

by Captain Ernest N. Harmon, Cavalry

The two days following the St. Mihiel drive were spent at Menil-la-Tour, where the squadron underwent a general policing of both horses and men. On September 17, orders were received to march to the vicinity of Les Islettes en Argonne. The march was scheduled to begin daily at 9 p.m. and to continue until 5 a.m. Special precautions were to be taken to avoid hostile aerial observation. The march covered a distance of 125 kilometers and was to be completed in five nights. The squadron arrived at Rarecourt en Argonne on the 22d and went into camp within the woods near by. Troop B, which had been detached from the squadron during the St. Mihiel attack joined on the march. The weather was rainy and cold during the march, which made conditions very unpleasant for the men, as no fires could be built during the day, nor could the men leave the woods to dry their clothes when the sun came out.

The strength of the squadron on September 26, on entering the Argonne attack, was equal to the effective number of our horses, as all men not mounted on horses that could at least keep up with the column were sent to the headquarters of the regiment. Probably a quarter of our horses would have been placed on sick report in peacetime under garrison conditions, but we were anxious to enter the attack with as many men as possible.

The squadron, consisting of 12 officers and 302 enlisted men, saddled at 2 a.m. September 26, and moved toward Clermont en Argonne. The sky was frequently illuminated by the flashes of our artillery bombardment. The noise grew deafening as we approached nearer. The whole aspect of the heavens was like that of a great electrical storm. Now it was pitch blackness; in an instant it became so light that one could see the tense faces of the troopers and the nervous attitude of our horses.

We were ordered to arrive at Aubreville at 6 a.m. and to follow the reserve infantry brigade of the 35th Division at 1,000 meters until we crossed the front line trenches and reached Cote 290. We were to remain under cover at the latter place until further orders. As the head of our column entered Aubreville, it came under artillery fire, directed at our batteries located on the edge of the town. Two men of Troop B were wounded. The squadron passed through the town and marched diagonally

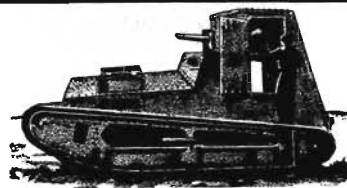
across "No-Man's-Land" toward Cote 290, situated two kilometers northeast from Neuville. The passage by the horses through the trenches and wire was very slow and difficult. We jumped the horses over narrow trenches and by the use of our helmets prepared the broader ones so the horses could go down in and come upon the other side. Passageways had to be cut through the belts of wire. Fortunately, the enemy's artillery was moving to the rear at this time, and with the exception of an occasional shell, we crossed without trouble from the enemy. The enemy harassed our position at Cote 290 all during the night, but we sustained no serious casualties.

At 4:30 a.m. September 27, the squadron moved forward to Cheppy. We wormed our way through entanglements and trenches and now began to see the effects of the attack. Dead were lying about in groups, and at a crossroads a few hundred yards south of Cheppy were the mangled bodies of eight Americans, a corporal and his squad, killed by a single shell hitting the crossroad. The sight was a silent lesson to our men of the danger of standing on crossroads, where the enemy knew the range to every inch of the ground.

As we entered Cheppy, the enemy began to shell the town, and the squadron took cover on a reverse slope south of the town. On the evening of the 27th, patrols of an officer and eight men were sent from each troop to the front lines. Two patrols took the right flank and two the left flank of the division. The patrols were to meet at the center of the division front line. Their mission was to ascertain the accurate location of the units of the front line and to name the units as they found them, for during the attack many units had become mixed together in line.

The patrols approached to points within 200 yards, in most cases, of the line under the cover of darkness and proceeded the rest of the way on foot. Considerable gas and H. E. was sent over by the enemy, which made the mission of the patrols difficult. For the next three nights these liaison officers' patrols were sent out, while there was continual daylight patrolling. Due to the technical information required, officers' patrols were necessary and the amount of patrolling called for, both day and night, was very fatiguing to the officers. Cavalry troops in the field should have at least five officers with each

German Light Tank, 1918



troop, as the reconnaissance work expected of cavalry and the technical information required necessitate patrols led by officers. Our squadron furnished practically all of the combat liaison for the 35th Division; for, in addition to the liaison patrols, after the second day of attack we furnished strong combat patrols on each flank of the division, as well as on the flanks of the two attacking columns in the center.

The squadron established its headquarters in a ravine just north of the Cheppy-Montfaucon road. Partial cover for the horses was found under the apple trees in the ravine, and some filthy German dugouts afforded cover for the men. Our patrols had many interesting experiences. Scarcely a patrol returned without some casualty from shell fire. The patrols were required to go out at all times, and the German artillery sniped at them with their 77's. However, our men scorned the danger and rode about on their missions boldly, and even the doughboys hugging the ground admitted that our men were either ignorant of their danger or had lots of nerve.

Cavalry that keeps moving fast from place to place can proceed with its missions without serious danger from artillery fire. It is only when cavalymen move slowly and with too much caution that they are in great danger from anything. The only severe casualties we had in any one unit was when that unit, either from orders or through an error of its leader, was caught tied down to the ground in one locality.

On September 29, we received a general order for an attack all along the line. Our mission in this attack, which was to begin at 5:30 a.m., was to cover the flanks of the division and prevent small bodies of the enemy from getting through between the flanks of our division and the division on our right and left; also to keep liaison with those divisions. To accomplish this mission, a troop was assigned to cover each flank of the division, with the remaining two troops as a reserve in rear of the line.

The attack was to start from Baulny Ridge, and our troops were to be in position near Charpentry at 4:30 a.m. The ground was traversed with belts of barbed wire, some high and other nearly invisible, being about ten inches high. The ground was rolling, a series of parallel ridges, and to move forward we must go over the tops and down the valleys. The artillery of the enemy had perfect observation and, at times, seemed to blow the tops of the ridges off the map. The narrow valley between Charpentry and Cheppy had been heavily shelled with gas all night preceding the attack. The concentration of the gas was not sufficient at 4:30 a.m. to affect the horses, but was heavy enough to require the wearing of the gas masks by the men. Just below Baulny, many of our horses got into the low wire in the darkness and several were badly cut up.

A few incidents of this day's fighting will give the reader an idea of the character of the fighting and of the practically impossible conditions that we, as cavalry, were required to work under. The attack began at 5:30 a.m. Troop B covered the right, Troop F the left, Troop H

the center, and Troop D was held as reserve near Charpentry.

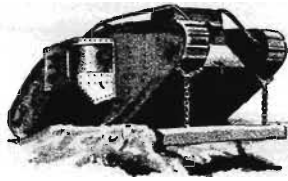
Troop D was discovered at daylight by the enemy airplanes. No cover was available. All the surrounding terrain was taken up by the divisional artillery and infantry reserves. Enemy artillery immediately opened fire on the troop. The troop opened in a checkerboard formation, but finally withdrew down the valley toward Cheppy, as its presence merely drew the enemy's artillery fire on our infantry reserves in the vicinity, and it could accomplish nothing where it was located.

Troop F moved out at 5:30 a.m. in line of section columns with 75 yard intervals. It passed over a ridge and descended into the Aire River valley. At once the German artillery, from a ridge of hills about 3,000 meters to the west, opened fire on the troop. There was no cover available; the German observation balloons were plainly visible down the valley, and the troop was within effective artillery range. To proceed down the valley was sure annihilation; to return back over the ridge was nearly as bad. The only course open was to cross the river toward the hostile batteries and get on the reverse slope of the high ground rising from the river bottom.

The enemy were bracketing in range. The river was narrow, deep and with almost perpendicular banks. There was a narrow bridge about 200 yards downstream and the troop was ordered to cross at a gallop. Although the Germans shifted their fire on the bridge at once, yet so swift was the movement of the troop that all crossed with the loss of only one man and three horses hit. The troopers dismounted and led their horses up the sides of the steep slope bordering the river. An enemy observation balloon kept their position. However, the slope afforded perfect protection, under cover of which the troop was defiladed from the enemy's shell-fire.

Realizing that a troop was too large a force to maneuver under the conditions, and that the two American divisions on either bank of the river were being fought to a standstill, the commander directed that the troop be taken back to the squadron commander as soon as the barrage lifted, while with 20 men he moved north, under the protection of the slope, in a reconnaissance toward Apremont. The patrol rode to within 500 yards of Apremont, when it was fired on by a machiengun in the town. The town was in possession of the enemy, although at that moment the 28th Division was attacking it from the plateau above the river bottom. Three prisoners were captured by the patrol at this time. Messages were sent back, giving the progress of the 28th Division and the information that the river bottom was clear of the enemy.

One could look across the river valley onto the plateau on the farther side and could see the attacking line of the 35th Division going into battle. It was an inspiring sight. The men were running forward in successive waves about 500 yards apart. A line of small tanks, with wide intervals, were on line with the attacking wave. The German artillery were pounding the plateau, and



British WWI Tank

the air was filled with the smoke of the bursting H. E. and dust. Now a tank would be hit; now a shell seemed to swallow a line of doughboys, and all the while one could hear the incessant "tack-tack" of machineguns. Just above where our patrol was covered, the 28th Division were advancing on Apremont. By raising one's head above the bank, one could see down the attacking line as it moved forward. The German batteries were pounding unmercifully the plain over which they were advancing.

Across the river, under the steep hill upon which rested the town of Baulny, Troop H could be seen, dismounted, hugging the reverse slope for cover. There was nothing they could do. The main attack was only a few hundred yards in front of them, and their presence in the open simply drew more artillery fire on our infantry. Surely cavalry was out of place in a battle where the line moves forward only a kilometer in a whole day, while the enemy has the high ground and his aerial observation is perfect. The patrol moved south from Apremont and joined the squadron at Charpentry, being again the target of artillery, by the fire of which three men were badly wounded. Only by rapid gaits and maneuvering were our cavalry patrols able to live at all under the fire they went through.

On the right flank, Troop B kept liaison with the 91st Division. This troop also got caught under a barrage and was saved serious casualties by a quick movement under cover. Several messages were sent in of importance. Among them was the accurate location of a German battery that had been inflicting losses on the right flank of the 35th Division. On one occasion, a strong combat patrol succeeded in outflanking a machinegun nest that was holding up the extreme right of the line. It drove the enemy out by dismounted rifle fire, having reached the flanking position mounted.

At nightfall the troops returned to Cheppy. Many important messages were delivered and practically all the liaison to the flanks was performed by the cavalry patrols. Many of our horses were hit and, in cases, the escapes of the troopers were miraculous. In fact, the men felt safer mounted than when on the ground and their experiences seemed to justify this idea. Our morale was not of the best. Our infantry reserves received many casualties from shell fire directed at our patrols and we were not a welcome addition to their attack on this account. In the evening, four officers' patrols were sent out, as usual. Our horses showed signs of the lack of forage and of the hard work. The ration at this time was one-half of the regular allowance of oats and one-third that of hay.

The attack was renewed the next day, the squadron having the same mission as on the previous day. Troop D was detached from the squadron about noon this day and was sent to the 5th Corps, to act as advance military police and traffic control in the vicinity of Montfaucon.

Before leaving the sector, the captain of Troop D led a patrol to the center of the 35th Division line and returned with information of our artillery fire and the

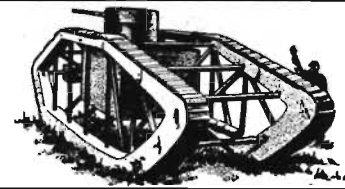
lack of liaison between units. He found a portion of the line in which men of four regiments were mixed together, with no officer in command. The captain took charge until an officer from brigade headquarters was sent to relieve him. The main body of the squadron was kept under cover this day, having learned that patrols were of more value at this stage of the fighting. A patrol from Troop F, led by a lieutenant, was badly shot up in Apremont, nearly every man, including the officer, being hit. Practically the entire liaison to the flanks and within the division combat line was furnished by our patrols this day. The squadron retired to a position near Charpentry about 3 p.m.

That evening the 35th Division fell back and dug in on Baulny Ridge. Due to severe losses during the day's attack, especially in officers, the line had become confused. Several of the officers of the squadron assisted the division staff officers in restoring cohesion in the line. The 1st Division relieved the 35th Division late that evening. The squadron was attached to the 1st Division and was ordered to remain at Cheppy, ready to move at a half hour's notice. The 1st Division had excellent organization and no liaison was required of us at first. The division headquarters stated that they had hopes of breaking the line, and in such an event wanted us to be in readiness to go through and keep contact, as we had done at St. Mihiel.

The weather was cold and rainy; the service had been nerve-racking, under the constant shell fire and night patrolling. For a few days after the 1st Division took over, we had a lull in our activities. Our wagons came up from the rear with needed supplies, and the horses were given especial attention as to shoeing, etc. Horses that were wounded or run down were evacuated at this time. There was no opportunity for grazing. The saddling up and moving out in the darkness caused many saddle sores, on account of poor adjustment of equipment and the emaciated condition of the horses. As the horses were evacuated, the troopers were sent back to regimental headquarters, 20 kilometers in rear. No replacements for horses could be had and our strength was diminishing from lack of mounts.

On October 4, we received orders to send mounted detachments to establish liaison between the P. C.'s of the 1st and 32d Divisions. Small patrols were ordered to report to the commanders of the infantry brigades for use in establishing liaison between brigades and advanced elements on the flanks. It was evident that the division commander realized the impossibility of using cavalry at this stage and found use for us as mounted messengers only in small numbers.

From October 4th to the 9th, the squadron remained at Cheppy, sending out the required patrols and detachments. These patrols were led by officers. The men and horses were changed frequently, thus giving every one a rest. The patrols at the brigade P. C.'s were constantly under fire as they carried messages to the regiments on line and to the rear. The fact that we were used in this duty shows that, with all our methods of liaison, the



Skeleton Tank, U.S., 1918

mounted messenger is still the reliable means of communication when you have men that are not afraid to ride through the fire. Our men upheld the traditions of cavalry in this respect. On October 9, the division continued the attack. The duty of our squadron was as follows: "The C. O. Cavalry Squadron will send suitable mounted patrols, each commanded by an officer, to report to the C. O.'s of the infantry brigades for liaison work to the front rear and laterally."

On the 10th of October the squadron moved out of Cheppy and advanced to Montrebeau Woods, just in rear of Exermont. From the latter position, in addition to the officers' patrols already engaged since the 4th, three additional strong patrols, each led by a captain, were sent out. The patrol from Troop B maintained liaison with the 28th Division, on our left, during the day. The captain of Troop H led a mixed patrol of 50 men from B and H Troops, and reported to the P. C. of the 2d Infantry Brigade. The brigade commander said that there was little he could use cavalry for at this time.

The patrol was finally ordered to select a position of cover for its horses near the Cote de Chatillon, and to proceed dismounted, and to hold a position in advance of our infantry line, sending patrols to reconnoiter and keep contact with the enemy during the night. It was expected that the enemy might fall back during the night, leaving only a small force on the front line to cover the withdrawal. If this was done, it was very logical for cavalry patrols to keep contact with any such movement, since airplanes could not detect a night movement. Such movements by the enemy were made during the Argonne attack at different times, but on this particular occasion the enemy did not retire, but instead reinforced this part of his front line.

During the night, a patrol of four men, led by a lieutenant, reconnoitered the vicinity of Sommerance. The patrol was fired on and lost one man, captured. This man broke away later and got back to our infantry lines, giving information of the enemy in that locality. The Germans shelled all areas just in rear of the front lines all during the night. The main patrol, led by the captain of Troop H, escaped annihilation by a miracle. Their position was suddenly concentrated on by H. E. shell and gas, with the result that practically two-thirds of the horses were either killed, wounded, or gassed, and there were also many casualties among the men. The position occupied was on the actual front line held by the infantry. During the entire barrage, with no cover available, the cavalymen not being equipped with intrenching tools, the traditional discipline and courage of the regulars came to its own, as the outfit stuck to its mission without a murmur. The next day the captain left an officer and eight men with the brigade P. C. and returned with the remainder of the patrol to Montrebeau Woods.

On the evening of the 10th, the captain of Troop F reported to the P. C. of the 1st Infantry Brigade with a patrol of 20 men. He received orders to take the patrol and reconnoiter the condition of our front line between Fleyville and Sommerance. One battalion of the 28th

Division had swung across the Aire River and covered a part of our division sector, and it was reported that there existed a gap in echelon between this battalion and the left flank of the 1st Brigade. The captain was directed that in case such a gap existed, he was to fill the gap and hold the line until morning using such additional forces from the cavalry squadron as he might find necessary.

The patrol arrived at Fleyville at dusk. The enemy were shelling the town with gas. Fleyville was held by our infantry support line. Not caring to expose his patrol to the machinegun fire and shelling coming from the ridge north of the town, the captain placed the patrol in an apple orchard near Fleyville and, with one N. C. O. and three men, proceeded dismounted to reconnoiter the line. Our lines were found to be intact. Liaison had just been secured by the left battalion of the 16th Infantry. The patrol entered Sommerance, held by the enemy, and were driven out without loss. The captain passed down the infantry line and reported to the battalion commander information obtained; then, gathering up the patrol at Fleyville, reported back to the brigade commander at 2 a.m. During the entire evening the enemy laid down a severe, harassing fire all along the line.

The 42d Division relieved the First on the 11th, and all during this day, and the following night, Montrebeau Woods, where we were bivouacked, received harassing fire. The squadron moved about continually within the woods to escape casualties. The usual patrols were sent to the 42d Division P. C.'s. The 42d Division had hopes like the First, that the line would break, and retained us for a possible use in such an event. At this time, we had less than 150 horses in the squadron. On the evening of October 16-17, the squadron was relieved, and it marched twenty kilometers to the rear, to Camp Mallory, near Rarecourt. After a brief rest of two days, the squadron was divided, Troop F going to Avocourt to perform military police duty for the 5th Corps, Troop H and Troop B to military police duty with the 1st Corps, in the vicinity of St. Menehould and Fleury.

On November 1st, a lieutenant and fifteen men from Troop F reported to the P. C. of the 1st Division at Beaumont. This patrol did excellent work in keeping contact with the German retreat from the 1st to the 11th of November. The patrol reached Sedan ahead of any allied troops and were on the go day and night. When the attack was over, on the 11th, ten of the fifteen men in the patrol had to walk back, as their horses were completely done for. They returned with seven horses, the remainder having been casualties, mainly from exhaustion, but in a good cause.

Here was a wonderful opportunity for cavalry. The corps commander told the lieutenant he wished he had a division of cavalry to send through on the morning of the 1st of November. It would have been a great opportunity for our squadron, a greater chance than at St. Mihiel; but when the chance came it found us with the squadron separated and only a few horses left. We sent all we had, however, were in at the finish, and spared neither men nor horses to give what the cavalry is supposed to give when called upon.



Italian Ansaldo Wheeled Tank, 1918

What the World War Did for Cavalry

by Major George S. Patton, Jr., Third Cavalry

Although much progress has been made since our ideas of the tactics of dismounted action were epitomized in the command "To fight on foot," we are still very far from being proficient in the art of handling men in the presence of the enemy.

Colonel Sir Thomas Cunningham, while an instructor at the A.E.F. Staff College, said, in a lecture: "The characteristic of war is its constant change of characteristic." An incessant change of means to attain unalterable ends is always going on; we must take care not to let these sundry means loom with undue eminence in the perspective of our minds; for since the beginning, there has been an unending cycle of them, and for each its advocates have claimed adoption as the sole solution of successful war. Yet the record of all history shows that the unchanging end has been, is, and probably ever will be this: predominant force of the right sort, at the right place, at the right time; or, as Forrest is credited with putting it, "Getting there fust with the mostest men."

Predominant force has been effected by the phalanx of Greece, the legions of Rome, the columns of Napoleon, by walls and ditches, wire and machineguns, artillery and tanks, and countless other means, successful or not, according as they were applied at the right place at the critical moment.

We, as subordinates, have little choice in the selection of our force. So far as it is concerned, our chief responsibility rests in conserving its magnitude by avoiding dispersion and waste. But we are deeply interested with the place and time of its application. A mistake of yards or minutes in these respects may blight our career and butcher our men. Hence the vital necessity of mastering, in as complete a manner as possible, the mechanism of its application — orders, maps, and tactics.

While I do not hold with those who consider the World War as the sealed pattern of all future efforts to maintain peace, it is, nevertheless, our most recent source of information, and the tactical tendencies shown will most certainly color to a considerable degree our initial efforts in the next war.

As soon as the first battle of the Marne was won, the World War became a special case, due principally, in my opinion, to two reasons: Fixed flanks, which prevented maneuver, and the splendid rail and road net on both sides, which permitted a very heavy concentration of men and a relatively easy ammunition supply. Without these good roads and short hauls, it would have been impossible to have fed and supplied the vast armies, and the war would have taken a different course.

Predominant force, after the Marne, first appeared in the well-sited and constructed German trenches. This was countered by increased expenditure of artillery

ammunition. The single line was pierced only to again have force desert the guns and appear in concentrated reserves for the counterattack. More and heavier guns adjusted the balance, only to again have it disrupted by the defense in depth with machineguns. This was answered by the *tank* and countered by more elastic defense, with greater depth, and we were back, almost, to pre-Marne conditions of open warfare; but with many more and complicated engines of destruction and excessive potentialities in guns, ammunition, airplanes, and accurate intelligence — excessive, is, in comparison with other possible theaters of war — and all due to the roads.

So much for a hurried survey of what has occurred. Now, to safeguard our perspective of the relative importance of these happenings, let us analyze certain features which are bound to crop up in the future with undue emphasis, since they have been grasped by the popular mind and have filled the writing of many thoughtless critics and historians, both civil and military.

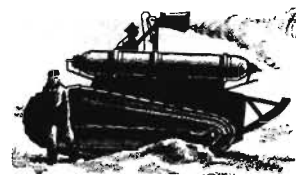
The restricted area, long deadlock, and vast resources permitted the employment of masses of guns and ammunition which probably, during our lifetime, cannot be duplicated, certainly not in any other theater of operations. The great results, apparent and real, accomplished by these guns has so impressed the majority of people that they talk of future wars as gun wars. To me, all that is necessary to dispel such dreams, or at least limit their sites to western Europe, is a ten-mile drive along country roads in any State of the Union, except perhaps a favored half dozen along its coast.

Tactics based on a crushing artillery are, then, impossible except in one place. But, even where roads permit its use in mass, the effect of artillery alone is negative, so far as offensive victory is concerned. Sufficient shells concentrated at the right time and place will, as at Rheims, stop any attack; but all the artillery ever built cannot defeat an enemy unaided; for that the personal touch of the infantry (with bayonet) is needed.

The guns are the greatest auxiliary, but only that. Infantry without them cannot beat infantry with them. The great range of the present gun has helped both the attack and the defense by making concentrations of great density possible at widely different places from the same gun positions. The same increased range has made it possible to place the artillery in depth, which in turn has made turning movements less deadly and more expensive.

Still, guns in moderation or in excess will not win a war. And the more open the war, the more uncivilized the country where it is fought, the less will they affect the issue; for in war of movement there will be less guns,

Chemical Warfare Tank, post WWI



less time to bring up ammunition, less time to hide batteries. Airplanes will locate them more easily, and they will have to use their limited ammunition supply shooting at each other and less of it shooting infantry. Get all the guns you can, and then steal or otherwise procure all the shells possible, but don't deceive yourselves with fancied zero hours and barrages.

Another feature resulting from the war, and which also has left its mark, is the evolution of the *specialist*.

His birth is the result of an unholy union between trench warfare and quick training. Fighting in trenches was more or less stereotyped; hence men apt at bombing, shooting rifle grenades, using automatic rifles, etc., had time and opportunity to ride their hobbies. Further, it was easier and quicker to make a good grenade-thrower than a good soldier. Time pressed, so one-sided men were evolved who knew little and cared less for anything but their one death-dealing stunt. But the evil did not stop here; these one-idea gentry could be more quickly produced by instructors of a like ilk. These instructors and their pupils assembled in schools, with the result that unit commanders did not train their men, did not learn to know them; leadership suffered, and, as one drink leads to another, so the evil grew. The only way to fight such collections of specialists was to devise "set-piece" attacks, where each did his little stunt in his little way. This made necessary voluminous orders defining in detail the littlest operation, and in consequence taking all initiative from the fighting officers. All that was left to them was to set heroic examples; and this they did.

Now, so long as the specialists could ply their sundry trades behind the barrage and scavenge in the wake of the shells, they were efficient; but when they either lost the barrage or progressed beyond the range of the guns, they were lost. Untutored courage was useless in the face of educated bullets; so when the barrage was gone, officers and men felt naked and at a loss. They had no confidence in the rifle which they had never used; for confidence is the result of habit. Fire and movement, as taught by the Field Service Regulations, were forgotten or never learned.

Our own men, thanks to the genius of General Pershing, were less troubled by the specialist disease than were our allies; but, due to lack of time, many of ours were not, and could not have been, well-rounded open-war soldiers.

Now, the moral of this story of the specialist is this: The combat officer must be the combat instructor of his own men; not only must he know his own tactics, but he must know how to use the various instruments with which his unit is equipped to ply its trade, and he must know each better than any of his men. Further than this, he must have taught and practiced the use of his complicated instrument, so that it plays equally well under his hand the simple one-step of the set-piece attack or the complicated tango of the open-war fight. He must *think, teach, and practice* the tactics of his arm.

Still another development of the war, and one from

which we shall surely hear in the future, was the enthusiast of the special arm -- the man who would either bomb, gas, or squash the enemy into oblivion, according as he belonged to the Air, Gas, or Tank Service. All these men, and I was one of them, were right within limits; only they were overconfident of the effectiveness of their favorite weapon. In the future there will be many more such, and we must accept all they say and give them a trial, for some may be right; but we must not plan our battles on the strength of what they think they will do until we have more than oral proof.

Whether we or the Germans first realized the futility of trench warfare is open to discussion. In the winter of 1917 German and American infantry practiced open-war formations, while the rest of the world still clung to trenches. But, whoever first originated the idea, there is no doubt that the Germans first practiced it, and 1918 saw in its colossal struggles the results of that training.

First, in Artois, in Flanders, and in the first phase of the 1918 Marne, the mighty German attacks met with great success. Here the time and place of the attacks were not so much a surprise as were the methods used in pressing them.

Next, east of Rheims a similar great attack was a complete failure, and again due to surprise as to method; but this time as to method of defense by the French under Gouraud.

Followed an allied attack south of Soissons, using open-war methods, where a complete success was prevented by the fact that the attack was not a surprise.

Then came the British attack with tanks, on a limited front, at Villers Bretonneux, with complete success, as a result of surprise as to both method, time, and locality. And finally our great surprise attack in the Meuse-Argonne.

The outstanding tactical features of all these great battles were, first, open-war methods, and, second, surprise, made possible by secrecy and deception. Notice that all these features are as old as war.

In the Rheims battle prisoners captured the day before gave exact data as to the time and place of launching the attack, so that the resulting victory was an example of good tactical dispositions combined with peculiarly exact knowledge. The outstanding features of this momentous success were the following: The abandoning of the outpost zone and the filling of the dugouts with mustard gas; the placing of sections of determined infantry along what would have normally been the line of resistance of the outpost zone. These sections were in strong points from 350 to 450 yards apart and were well supplied with machineguns; the S.O.S. barrage was placed to fall both between and beyond the strong points. Finally, the excellent French counter-preparation, which, due to the prisoners above mentioned, fell in great density, at the exact time and place desired. This counter-preparation is a fine example of the results obtainable from a mass of guns whose collection was made possible by the European road system.



U.S. Christie Tank, 1919

Little of interest in purely cavalry tactics is at present available as a result of the World War in the west, although details of the defense of the Messines sector by Gough's cavalry between the forces of General Haig and General Paltenev, in November, 1914, will show splendid cavalry work. Yet, even with the locking of armies in the west and the total absence of flanks, there were chances for cavalry. High authority is of the opinion that the German failure to use their mounted arm at Artois and on the Marne probably cost them, if not decisive, at least great strategic success.

In Russia and under Allenby, cavalry was as important as ever in its history. In Palestine alone there were seventeen mounted charges against infantry in position, only one of which was a failure.

A general survey of the tactical tendencies at the close of the World War seems to me to point to greater, and not lessened, usefulness and importance for cavalry. The necessity, due to air observation, for most marches of concentration being made at night adds vastly to the destructive power of the mounted man, because charges with the saber or pistol or surprise fire by machine rifles will be terribly effective and most difficult to prevent.

True, no such operations took place in the west; but this is accounted for by the lack of flanks and by continuous wire. In the Civil War, on the other hand, Mosby so operated against the Union wagon trains with great success and almost complete immunity. That he did not do so against columns of infantry or guns is due to the fact that in the Civil War, marches by these arms at night were seldom necessary and hence not indulged in.

The machine-gun and automatic rifle, which at one time we considered so prejudicial to our usefulness, have in fact made us more effective. They give us the fire power dismounted which we lacked before.

Our present effort must be to study using these weapons as pivots of maneuver — that is, to use their fire to pin the enemy to the ground while the mounted elements use their mobility to attack the flanks or rear of the enemy so held. I do not believe that such encircling attacks will invariably be made mounted, but the use of the horse for speedy transportation will make their prompt and judicious application possible.

In this connection the cavalryman must be careful to differentiate between his action dismounted and that used by the infantry. The present infantry attack is the most deadly and powerful operation developed in the long school of war; but the very immensity of this power makes the speed of its application somewhat slow. To progressively develop its intense firepower and consummate it with the final resort to the steel, required a relatively deep formation; and since the man on foot, unlike the horse, has but one rate of speed, it takes time to get the final rearward elements into action. Further, to secure this depth, great manpower is of necessity required.

The cavalry, on the other hand, both because of its organization and the necessity of caring for its led horses, which, due to the menace of enemy airplanes,

will almost always have to be kept mobile, cannot develop the manpower necessary for an attack, along infantry lines, on anything like an appropriate front, except in very special cases, where great bodies of horsemen are available; and even here only peculiar circumstances of terrain or tactical necessity would justify the cavalry in making a long dismounted attack on the principle that is foolish to batter down a door if a window is quickly available for entry.

Since, then, the time allowable for our dismounted action will always be short, we must study to gain effect for it by surprise, by an advantageous selection of the direction of attack, and by the prompt development of maximum firepower. In other words, we must make our maximum development early, start it at short range by the use of cover and mobility, and rush it to a conclusion, holding out only sufficient supports to give the impetus for the final charge.

Clearly, such tactics will be difficult in very open country where distant observation will prevent the employment of the mounted encircling movements on which such an attack is predicated.

These considerations lead to the enunciation of a rather revolutionary theory as to what is *good cavalry country*. We have for years been told that open, unfenced pasture land was "ideal cavalry country"; but I believe that enough has been shown here to prove that such is no longer the case. Closed country, preferably wooded, is what we want for the cavalry. When such conditions permit cavalry to launch its attack close to the enemy, by surprise, it will be hard to stop, mounted or dismounted.

The foregoing remarks might give rise to the opinion that the usefulness of cavalry will be limited by the necessity for special country peculiar to its own needs. This would be true were it not for the fact that the increased importance of the airplane will probably make all arms seek similar country. Certainly, open prairies, where every camp, bivouac, and line of supply will be open to the ever-growing menace of air bombardment, where every movement will be seen and reported, make it seem probable that future armies will in war, at least, eschew billiard-table country, however pleasant it may be for bulletless maneuvers. Speaking generally, then, cavalry tactics seem to simplify themselves into the following:

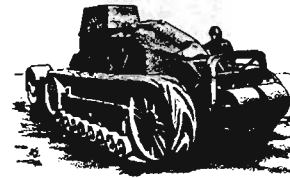
(a) Delaying or harassing action against infantry.

To be effected by long-range fire of automatic weapons, and offensive by counterattacks by mounted mobility against flanks and rear; these last to be made by day if cover permits, and, failing such cover, by night.

(b) Attacks against flanks or thinly held sectors.

To be effected by methods similar to (a). It should be noted that in delaying actions by cavalry the essence of success lies in the use of numerous positions for short actions rather than in the strong resistance in favorable localities which the slower rate of infantry make necessary.

(c) Actions against enemy cavalry — *always offensive*.



French Renault, Rubber Tracks, 1924

This is to be effected by the use of the fire of automatic weapons as a point of rest around which the mounted action pivots, the final attack being *mounted* against the *enemy* if he is also mounted, and against his led horses if he is dismounted; for the cavalryman who dismounts in the face of a mounted opponent gives his birthright for a mess of pottage; he sacrifices his mobility to lack of determination and assumes the defensive without hope of crippling his agile enemy.

When mounted action is used in conjunction with fire action, as above, every effort must be made to have the charge at right angles to the direction of fire. The guns must keep in action till the lines meet. This requires good ground observation.

(d) Action against enemy lines of communication.

To be executed mounted and by surprise, effected either by cover or by night.

(e) Actions by patrols.

(f) Actions against strong positions, where either cover or obstacles prevent maneuver.

To be effected dismounted by adopting a formation as near as possible to that used by the infantry; that is, by deploying troops abreast with platoons in column to form the successive waves, and attaching the machine rifles to the rifle platoon. This will absolutely immobilize the troops, but circumstances are possible where such a thing will be necessary. If it occurs, cavalry must show the same heroic determination that infantry does, and close, using the pistol in place of the bayonet.

Against the Turks, troops of the Desert Mounted Corps also attacked strong positions, unwired trenches and batteries mounted, using covering fire from machineguns and horse artillery to assist their advance. As much as 3,000 yards were covered in such attacks. The formation for the advance was line of platoon columns with wide intervals. The troops in each squadron followed one another at 100 yards' distance. The gait during all the war was a trot or gallop, depending on the condition of the horses. In any case, the final closing was at a charge. In the attack against trenches, the first line jumped them and went on against the supports; the second line jumped the trenches and dismounted, turning the horses loose, mopping up the trenches with the saber; the third line assisted. The

losses sustained by the mounted men were small and the killed among the enemy with the saber very large. The *point* was used exclusively.

It now remains to discuss the tactics of the mounted charge. To my mind, this is a very simple operation, since tactics, under such circumstances, will be lacking, just as they apparently are in the bayonet charge.

For, though the preliminaries to the bayonet charge involve much shooting and crawling and rushing, the charge itself is simply a blind stampede of furious and exhausted men, initiated on the spot by a few brave spirits who start going and are followed pell-mell by the rest. Unless the enemy is so situated that he cannot get away, he departs before the bayonets ever reach him. At least that is how I have pictured it, how I have heard it described, and how I once saw it enacted by about twenty Americans against a group of machineguns.

So, with the mounted charge, there is much search for cover, much maneuvering for position, some trotting in column; but when the golden moment comes, there will be simply a rush, the faster the better, and unless, as in the case of the bayonet charge, the enemy cannot get away, he will never stop to meet you; his wounded will be punctured in the back.

The bayonet charge and the saber charge are the highest physical demonstration of moral victory. The fierce frenzy of hate and determination flashing from the bloodshot eyes squinting behind the glittering steel is what wins. Get as close as you can to the objective unseen or helped by covering fire, and then *charge* in line, in column, or in mass; it makes no difference. Such an attack will no more resemble the majestic charge of Murat's horsemen than did the blind rush of the twenty doughboys simulate the advances of the Old Guard at Waterloo. It will generally be conducted by small bodies, platoons, troops, or, at most, squadrons. Remember that there is nothing too good for the man who brings off a successful saber charge; and though 16 to 1 was fatal in 1896, Palestine* proved that it will be the ratio of your success when you give the war-cry of the cavalry: "*Charge saber!*"

*According to Colonel Preston ("The Desert Mounted Corps"), there were 32 successful and two unsuccessful cavalry charges in Palestine.

Oh! How the Horses Laughed!

by Second Lieutenant Samuel L. Myers

Fort D. A. Russell, Texas

December 2, 1930

SUBJECT: Report on Transportation of the 2d Platoon, Troop "E" 1st Cavalry, to Fort Clark, Texas and Return.

TO: The Commanding Officer, Fort D. A. Russell, Texas.

1. Following is a detailed account of the trip from Fort D. A. Russell to Fort Clark and return which was made

during the month of November.

2. On the night of 7 November 1930, six Class B Horse trucks, two Class B baggage trucks and one Class B tanker were spotted in the rear of the "E" Troop barracks. All the trucks were running well and were expected to get an early start and make a short run to Sanderson, our prospective first camp.

During the night, a light rain fell, but it was thought that this would cause no trouble and the next morning at 6 a.m., we started to load. Due to the fact that the



U.S. Light Tank T1E2, 1927

horses were unaccustomed to being loaded in trucks, a great deal of difficulty was encountered, but after an hour and a half, everything was in readiness and we started. From that minute until we arrived at Fort Clark, five days later, our lives were just one trouble after another.

Before the last truck had cleared the post, one truck had locked in gear, necessitating a halt of 20 minutes to make repairs. This being repaired, we set forth once more only to find the two leading trucks stuck in the mud not more than 200 yards from the gate. Twenty minutes more were consumed in getting them out and on the way again.

From there on, everything went well until we were six miles west of Marathon where it was necessary to gas the trucks and eat. Forty-five minutes were consumed doing this, but 1 o'clock saw us on our way and only 70 miles from our campsite.

But trouble was close upon our heels, and we had not covered ten miles when the rear end went out on one of the trucks, rendering it helpless and necessitating using a good truck to tow it. Another five miles and the carburetor and intake manifold dropped off a truck. We stripped the necessary parts from the crippled truck and once more continued, this time to the end of the pavement 13 miles east of Marathon. By this time, I had decided that it would be impossible to reach Sanderson, so Lieutenant Berry went ahead to pick out a campsite nearer to us. He took the G.M.C. truck with the rations and cook ahead with him.

We progressed about 5 miles into the mud east of the end of the pavement without mishap. Then the truck which was being towed went into the ditch and became stuck, stuck so fast that it was impossible to get it out without endangering the other trucks. As night was fast approaching and we were still 16 miles from our camp, I gave orders to leave the truck and continue the march. At this point, an epidemic of stopped gas lines struck the train and at least six halts had to be made to repair these troubles. But we kept on moving in low and second gear, some hours making 2 miles and some only one, until 9:30. Then two more trucks went dead and the mud was so deep that the live ones could not tow the dead ones. I decided we must halt even though we were still 8 miles from camp. We stretched two chains between the trucks for a picket line, unloaded the horses, fed them, and, since the only water available was in the mud holes, we watered them there. In the meantime, I went into camp and sent the G.M.C. out with food for the men. This done at 11:30, the men camped beside the road and I took two men back to the abandoned truck to ride the horses from it in bareback. After this, Lieutenant Berry and I had a brief council of war and reached the conclusion that we could not go farther without aid from Marfa, so he went for help and I went back to camp to get more food ready for morning. Before daylight, I brought this food out to the men and at once we started moving the trucks and horses the remaining 8 miles to camp. This consumed all the morning.

Since we had contemplated only a one-day trip, we

had but two and one-half days rations and forage, and this was already low. Also the trucks were all in bad shape; consequently, I decided to stay here and get ready to move on as soon as the help came from Marfa.

The relief expedition also encountered difficulties and did not arrive until well after dark. We then exchanged two dead trucks for their live ones, changed a horse body from one of our trucks to one of theirs, reloaded our baggage, rations and forage, took over the supplies brought from Marfa and tried to sleep. But it was raining so much that there wasn't a dry spot and sleeping was out of the question. The result was several small fires with groups of shivering men huddled around them discussing the possibilities of ever getting back to Marfa again.

We were all ready to go the next morning at daylight and go we did, about one mile. At this point, we struck ten miles of road which I'm sure will always cause a shudder in every man who crossed it that day as long as he lives to remember it. It was a newly built road with a bottom of sand and a 10-inch surface of the slipperiest mud I have ever seen. It took us 10 hours to cross that 10 miles and we had to shovel, pick and pull every inch of it. In some places where the trucks would sink in to the body, it was necessary to dig all around them, jack them up and build a road of stones, brush and boards underneath. This same process had to be repeated for nearly every truck that crossed each hole, for the roads we built, though better than the ones we were traveling on, were none too substantial. Finally, at 7:30, we reached the pavement 11 miles west of Sanderson and from there to Dryden, we traveled with but one breakdown. One of the trucks blew out a cylinder head 4 miles west of Dryden and it had to be towed in.

At this point, Sergeant Stutz came to me with the news that we were out of gasoline. This seemed impossible for we had left Marfa with 980 gallons, but a check soon proved that we were indeed out. But Dryden has an airdrome and airdromes always have gasoline, so we soon had three drums. Camp this night was quite comfortable because we were permitted to sleep in the hangar, out of the rain and wind.

Tuesday, the fourth day out, we proceeded on slowly but steadily with only an occasional breakdown and without getting stuck until 8:30 p.m. when we encountered a treacherous detour 6 miles west of Shumola. Lieutenant Berry had gone on to Fort Clark for more gas and rations, I had sent the G.M.C. to Shumola to make camp and there was no possible chance to camp near this detour, so we had to try to cross it, even though I felt certain that it could not be accomplished. At this time, we were towing two dead trucks which proved a great hindrance. However, we tried it and the first two trucks got through. Then came two live trucks towing a dead one and down they went into the mud, stuck hard and fast in the bottom of a gully where the sides were too steep to go forward or backward. After working for two hours, it became apparent that we never would get out of this hole under our own power. It also became necessary that we get out somehow because cars were filling the



French Heavy Tank, 3C, 1926

road for many yards on each side waiting for us to get out so they could pass. At this moment, a lifesaver in the form of a highway man came to our rescue with the good news that he had a tractor which would pull us out. He went for it and soon returned. It was just a matter of minutes from then until we were out for that tractor walked through the mud and up the hill with 2 or 3 Liberty trucks fully loaded as easily as if it had no load at all. It seemed now that our troubles were lightened, but fate still had some bad news in store for us. We hadn't proceeded a half-mile before two trucks got stuck and while attempting to pull one out, a third went in the same hole. There was nothing to do but unload. The men rode the horses in to Shumola bareback and Sergeant Stutz, his drivers, and myself stayed to get the trucks out. After excavating about 50 yards of road, we got them all on solid ground and this time made our camp at about 1:30 a.m. There we found rations, forage and 110 gallons of gasoline from Fort Clark.

On Wednesday morning, we started out with both the Pecos and Devil's rivers to cross and only 110 gallons of gasoline. We knew that this much gas would only take us a short distance, so Lieutenant Berry left at once for Fort Clark for more. Meanwhile, we crossed the Pecos Canyon without mishap and were on our way to Comstock. About 5 miles west of Comstock, we again ran out of gas, but inside of ten minutes from the time we halted, a tanker came out from Del Rio with 430 gallons which sufficed to complete the trip. From this point on in to Fort Clark we had one broken connecting rod which necessitated towing another truck. Aside from this trouble, the remainder of the journey was comparatively uneventful and we arrived at Fort Clark at 10:00 p.m. 12 November, just five days after we had left Marfa.

On the trip, we used 1,670 gallons of gasoline, 90 gallons of oil, 3 trucks were out of action and nearly stripped to replace parts on the ones which were running; all our tow chains were broken; the whole train was in bad condition and parts were missing from every truck. The men and horses suffered a great deal from exposure and irregular meals, but two days rest put everything back in fairly good shape. Nearly all our clothes were almost ruined from the mud.

The return trip was much easier for the roads were dry nearly all the way. Of course, there was continual motor trouble and, even with the good going that we had, it was necessary to tow 3 trucks into Marfa. One of them with a broken cylinder head had to be towed all the way from Del Rio. However, in spite of all this trouble, we made 95 miles a day and the third day out from Clark saw us safely home.

3. In my opinion, the transportation of Cavalry by Liberty trucks is not only impracticable, but a waste of time in any weather. In wet weather, it is impossible. These trucks are so old and worn out that the strain caused by pulling heavy loads over long distances is too much for them. On good roads and for short distances, this means of transportation might prove valuable. The bodies are excellent for this purpose. They are large enough to accommodate 5 horses without crowding and the tailgates made in the form of a collapsible ramp make loading and unloading easy. But until there are some good dependable trucks under these bodies, I would much prefer to do my future marching as it should be, on the back of a horse.

Although published in ARMOR in 1976, this after-action report by Second Lieutenant Samuel L. Myers was originally written in 1930, as the Army struggled to make the changeover from horses to horsepower.

Comments on the 8th Cavalry Leadership Test

by Lieutenant Ralph E. Haines, Jr., 8th Cavalry

SCENE: The annual Thanksgiving dinner at the Eighth Cavalry Bachelor Officers' Mess.

TIME: Four days before the proposed cavalry leadership test.

SPEAKER: The regimental commander, Colonel I. P. Seift (leaning against the mantelpiece).

"Gentlemen, it is only the mediocre officer in the Army who does not welcome competition."

This terse statement exploded like a bombshell on the consciousness of every member of the mess and temporarily stilled the frivolous holiday banter. It remained in the back of every lieutenant's head and lent moral encouragement to his efforts to prepare himself for the competition at hand. It became, in fact, the very keynote of the Eighth Cavalry Leadership Test.

Seven officers and over two hundred enlisted men of the Eighth Cavalry participated in the Infantry Division maneuvers in San Antonio until two weeks before

the date of the test. The platoons were, therefore, not organized nor the platoon commanders named until much later than normal. This resulted in a frenzy of last minute preparations, causing officers and men to give up their weekends and Wednesday afternoons. The weatherman, realizing full well that the time was so short that not even one day's training could be foregone gave a sarcastic twist to the whole affair by inflicting a span of raw, wet days on the troops for their preliminary training. Officers and men found that they were woefully out of shape. Many of them had not ridden for three months and all of them needed to train for the specialized events of the individual phase. A program for clipping, shoeing, and conditioning the horses to be drawn up immediately in view of the fact that these matters were partially neglected during the Infantry Division maneuvers due to the skeletonized available personnel. All these handicaps demanded that each



Italian Pavezia Prime Mover, 1930

troop mobilize all its energies and men in an effort to make a creditable showing.

The Individual Phase: The individual phase of the leadership test was held on December 6th and 7th. It was divided into two parts, one for officers and one for enlisted men. All the lieutenants in the regiment (seventeen in all) were required to enter the officer's individual phase, in the capacity of an actual or alternate platoon leader. The object of this phase was "to demonstrate the endurance, courage, and ability of each officer and the development and training of his mount" in a series of events approximating possible physical requirements in actual service. There were twelve different events: namely, schooling mounted, handiness and speed of mount, cross country riding, hand grenades, pistol mounted, pistol dismounted, rifle, swimming, high jumping, broad jumping, rope climbing and running.

The schooling course was held on a regularly marked twenty by sixty meter ring. It included a series of prescribed movements at the walk, slow trot, and gallop. Lt. Cole won this event with a practically flawless performance.

Handiness and speed of mount were demonstrated on the grannis course. The same horses had to be used throughout by each rider in all the mounted events and, since the horses were of the hunter rather than the polo pony type, many officers encountered trouble here. Lt. O'Brien made the best time, spinning around the course in highly approved style.

The cross country ride was a mile course with twelve obstacles. A fourteen mile an hour gallop was prescribed and penalties were awarded for completing the course too rapidly or too slowly in addition to those for refusals at any obstacle. Four officers made perfect scores on this event.

Officers were required to throw hand grenades from the prone position into a shell crater three yards in diameter and thirty-five yards distant. They were also required to gallop by an escort wagon representing a scout car ten yards distant and throw two hand grenades into it. Throwing hand grenades is a novel experience to most cavalymen and the contestants experimented a great deal beforehand trying to determine the approved solution. Three lieutenants made perfect scores on this event.

The mounted pistol course consisted of one overhead target, two to the right front, and one to the left front.

The dismounted pistol event consisted of firing five rounds in fifteen seconds at an L target at twenty-five yards. The entire seventeen officers were put on the firing line at one time. Natural nervousness over the announced ruling to allow no alibi runs caused the score to be lower than otherwise.

The contestants fired the rifle from the two hundred yard point — standing and sitting. Lt. Davis won this event with a perfect score.

The swimming event consisted of a forty yard race, free style — two lengths of the Army "Y" pool. All the contestants proved to be better than average swimmers with Lt. Cole copping the event in excellent time.

The high jump was run according to regular track rules with the bar going up two inches at a time. The contestants appeared in weird track uniforms — everything from long drawers on up. Lts. Paul, Alger, Walker and Martz fought it out, Lt. Martz finally winning with a jump of five feet, three inches.

The broad jump followed immediately on the heels of the high jump. Apparently the officers had used up so much energy in the high jump that they were in poor condition for further exertion. About half the contestants pulled or strained a thigh muscle in the broad jump and consequently did not take full advantage of the three jumps allowed. Lt. Martz maintained his reputation as a leaping gazelle placing one again.

The rope climb was a fifteen foot climb against time — no holds barred. The muckers came into their own here and went up the rope hand over hand in excellent times.

The last event was the 440 yard dash — probably the hardest race there is to run. Few of the contestants knew much about running it, but none of them lacked determination. Taped legs and perceptible limps were very much in evidence as they lined up at the starting point in successive heats. Nevertheless, they all went away on the gun in a racing start and somehow or other kept muddling through until they crossed the finish line. Cries of "Pump your knees" and "Give her the gun" were heard as the contestants wobbled down the home stretch gasping for breath. Lt. Martz again finished first, thus make a clean sweep of the track events. He also was determined the winner of the entire individual phase and was presented with a silver trophy. Lts. Cole, Palmer and Walker followed him in that order.

All six troops of the regiment entered a platoon in the individual phase for enlisted men. Each man in the platoon was required to enter a series of ten events: namely, cross country riding, hand grenades, pistol mounted, pistol dismounted, rifle, swimming, broad jumping, rope climbing, running, and wall scaling. To simulate actual service conditions, they were required to perform all events except the swimming with full field equipment and arms. Their events were practically identical with those of the officers except that they were generally made a little easier.

The running consisted of a spectacular 2,700 yard relay race held on the parade ground between barracks and the officers' quarters. This parade ground is broken up by several streets and there are also two chain fences over which the men had to jump. The troop guidons were passed from man to man as the batons in the race.

The wall scaling was another unique event held in the bottom of the Seventh Cavalry swimming pool. The platoons were required to scale the twelve foot side of the pool using nothing except regular field equipment. The winning platoon got all twenty-seven men up the wall in the remarkable time of one minute and twelve seconds.

The individual phase results were duly tabulated, the officers' efforts being given a coefficient of five percent and the men's efforts one of twenty percent. Machine Gun Troop was declared the winner and was presented



with a handsome regimental trophy and \$135.00 in cash. The rifle troops finished in the order "B," "A," "F," "E"; they were the only platoons eligible to compete in the second phase of the test by a directive from the chief of cavalry.

The Collective Phase: Six days were allowed after the completion of the leadership phase for the platoons to polish up on their tactical work. Platoons were required to enter absolutely the same horses and men in the collective phase as in the individual phase. This caused the platoon leaders no small amount of worry because of horses going lame, men breaking in the hospital, etc. As it turned out, two platoons entered the collective phase with all twenty-eight men and the other two platoons with only twenty-seven.

The order of departure for the collective phase was determined by lot with the platoons leaving on successive days in the order "A," "B," "E," "F." Each platoon was given a warning order at 10:00 p.m. of the evening before it was scheduled to start.

The mission assigned caused each platoon to march via Hueco Tanks Road to Cerro Alto Pass; bivouac at Cerro Alto Pass; observe to the east of Hueco Mts. early the next morning; march via Nations Salt Well to Newman and then to Ft. Bliss via Castner Range.

The tactical situation was continuous for two days. During the march, the platoon received an airplane attack and met hostile armored reconnaissance vehicles; the platoon was blocked on its axis of march by a strong hostile dismounted force on terrain which required the platoon commander to go around the enemy position and reconnoiter for the strength of the opposition; the platoon leader was forced to select a bivouac in Cerro Alto Mt. pass, reconnoiter to the east of the Hueco Mts. at dusk of the first day and again in the morning, provide for security during the night and so place his detachment as to deny any hostile passage through the pass to the west during the night; the platoon encountered a disabled hostile personnel carrier transporting twelve enemy and, because of its mission, had to attack and capture some of the hostile group; the platoon had to reconnoiter several ranch houses and a small village; the platoon rejoined its regiment just prior to a dismounted regimental attack and took part in the attack. At the completion of the combat phase, the tactical situation ceased and the platoons returned to Fort Bliss for a final examination of the condition of men, animals, and equipment.

Lt. Walker's platoon went out on a cold, rainy morning. He ran into interlocking bands of enemy machine gun fire at the pass southeast of Nation's East Well, and attempted to avoid them by scaling the mountains to the south. He dismounted his platoon and led his horses seven hundred feet up the side of a mountain. During this maneuver, one horse did a complete backward somersault and strangely enough landed on its feet. When Lt. Walker reached the top, he discovered that the mountain sheered off in an almost vertical precipice on the far side, and he disconsolately retraced his footsteps. He reached the appointed bivouac area in the

Cerro Alto pass about eight-thirty that evening, winding his way up the pass in inky darkness. He ran into rain, sleet, snow, and below freezing weather. When the problem was called off for the evening, he attempted to build fires, but the scant available firewood was so wet that it only smoldered. His men were too cold to attempt to heat up their reserve ration and stolidly munched on their semi-sweetened chocolate bars with their blankets drawn tightly around them. Lt. Walker failed to locate the water tank up in the pass and many of his men ate snow to quench the thirst induced by the chocolate bars. Lt. Walker himself burnt the sole completely out of one of his boots standing on a smoldering log.

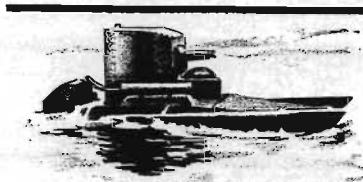
Because of the physical beating that his men and horses had taken, Lt. Walker proceeded very slowly on his mission the following day and did not get to Fort Bliss until after nightfall. He was even forced to forego the last phase of the problem, namely, the combat exercise, until the third day.

The platoons under Lts. Cole, Alger and Haines did not experience the same difficult weather conditions as that under Lt. Walker. However, it was below freezing up in the Cerro Alto pass all four nights of the competition, and many officers and men had holes burned in their blankets from huddling in Indian style too closely over the fires.

Examples of sheer nerve among the men was numerous. One soldier sprained his ankle very badly, another broke his finger, and still another had a blank shell discharged into his forearm at close range. All continued on the test displaying great fortitude under intense physical pain.

The horses, too, did nobly despite an abbreviated conditioning period. Over half the animals in each platoon were young horses, turned to duty in the last year after undergoing systematic remount training under the direction of Major W. B. Bradford. Nevertheless, there was not a lame horse in the entire four platoons on their return to Fort Bliss. They carried their riders between eighty-five and a hundred and ten miles in two days. In addition, they did a great deal of galloping due to the tactical conditions imposed. The terrain was difficult, varying from deep sand on the mesa to a bed of sharp pointed rocks on the floor of the Cerro Alto canyon. The horses were fed no long forage and a maximum of eight pounds of grain the two days they were out. "F" troop's horses came in the last twelve miles at an eight and a half mile an hour rate because of the necessity of reaching Castner Range to fire the combat problem before sundown.

The spirit and pep which the men put into the combat exercise, advancing by infiltration for about five hundred yards could not fail to impress deeply anyone who witnessed it. The men had had practically no sleep the previous night and were out on their feet. Nevertheless, they zigzagged through the deep sand at full speed and hit the ground hard behind cover of the mesquite bushes. More than one of them got sick at his stomach from the exertion.



Vickers Amphibious Tankette

The umpires too did a grand job. Several of them had to ride as much as a hundred and forty-five miles in the four days of the test. Many times they had to ride miles out of their way because of faulty decisions made by platoon leaders, yet they never became impatient or irritated at the turn of events.

In the collective phase of the leadership test, which was given a weight of seventy-five percent, the troops finished in the order "F," "B," "E," "A." When the results of the individual and collective phases were consolidated, "B" Troop was declared the winner of the 8th Cavalry leadership test for small units, with "F," "E," and "A" troops following in the order.

The leadership test was a distinct success in every way. On a large post the size of Fort Bliss, the lieutenants do little but carry out the tactical decisions of the

regimental, brigade and division commanders. The leadership test provided them with a welcome opportunity to use their own judgment and initiative. The men in ranks, who have only a nebulous idea at best of what transpires in most "jaw-bone wars," gained first hand contact with tactical principles and decisions.

They responded to this contact with a newly awakened interest that was highly gratifying to all concerned.

In conclusion, we believe that the 1937 platoon leadership test has proved that the men and animals of the regiment are made of stern stuff and fully prepared for the emergencies of actual combat. The test is now but a hazy memory, however, as the lieutenants of the Eighth Cavalry turn with great anticipation to preparation for the annual officers' endurance ride.

The Seventh Cavalry Brigade in the First Army Maneuvers

by Brigadier General Adna R. Chaffee, Commanding the Seventh Cavalry Brigade

As early as December, 1938, information was received to the effect that at least part of the Seventh Cavalry Brigade would engage in the First Army Maneuvers which were scheduled to take place during the month of August, 1939. Whether or not the Brigade would participate in its entirety was predicated upon the amount of funds which were to be made available.

Later on in the winter, it was announced that the whole brigade would take part in the maneuvers and that the maneuver area would be in the vicinity of Plattsburg, New York, instead of at Pine Camp as planned originally.

As plans for the maneuvers progressed, it was found that the funds allowed the First Army for gasoline and oil expenditures would be insufficient to permit the track and half-track vehicles of the Brigade to march overland to and from the maneuver area, but that an ample allotment for rail movements did exist. Therefore, it would be necessary to ship the above vehicles by rail.

During the first part of June, two Brigade Staff Officers made a reconnaissance of the proposed route of march from Fort Knox to the maneuver area. Enroute, the suitability of roads was determined, camp sites were selected and arrangements made for the purchase of supplies. While in the maneuver area, the Brigade Commander, who had flown to Plattsburg, and these officers selected the camp site which the Brigade was to occupy during the maneuvers. Although the First Army Supply personnel were not present at Plattsburg so far in advance, it was found possible also to make preliminary contracts for gasoline and oil to be supplied during the maneuvers, and to make arrangements with the railroad authorities for the unloading of the track and half-track vehicles upon arrival at Plattsburg.

Since the railroad loading facilities at Fort Knox were inadequate for such a movement, it was decided to load all vehicles to be shipped in Louisville. Accordingly, on August 1st, 112 Combat Cars from both cavalry regiments, 21 half-track Machine Gun Personnel Carriers of the 1st Cavalry and 28 half-track vehicles of the 68th Field Artillery with the eight 75-mm Howitzers belonging to the two half-track batteries, were marched to Louisville and loaded for shipment on 77 flat cars.

The next day, August 2d, the Brigade commenced its march overland to the Plattsburg area with all of the wheeled vehicles, and with the personnel of its track and half-track vehicles carried in trucks. There was a total of 480 vehicles in the column; and the total distance of 1,010 miles was completed in six marches. The strength of the Brigade was approximately 2,300 officers and men. The following was the itinerary:

August 2d — Fort Knox to Hamilton, Ohio — 188 miles.

August 3d — Hamilton, Ohio, to Ashland, Ohio — 175 miles.

August 4th — Ashland, Ohio, to Erie, Pennsylvania — 166 miles.

August 5th — Erie, Pennsylvania — Layover.

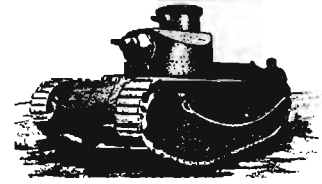
August 6th — Erie, Pennsylvania, to Rochester, New York — 164 miles.

August 7th — Rochester, New York, to Pine Camp, New York — 172 miles.

August 8th — Pine Camp, New York, to Black Brook, New York — 145 miles.

Terrain of the Maneuver Area

The Maneuver Area was a strip of land approximately 20 miles from east to west and 30 miles from north to south located west of Lake Champlain. The eastern portion along Lake Champlain was gently



U.S. Medium Tank, 1926

rolling country gradually sloping away and upward into the Adirondack Mountains to the west. The mountainous section which constituted about two-thirds of the area, was heavily forested and extremely rough and broken. Three more or less parallel river valleys — the Ausable, Salmon and Saranac ran east and west through the area. All in all this country, with its extremely limited amount of free maneuverable area, surrounded as it was by dominating mountains, and with its numerous rivers and lakes, constituted about as difficult a locality as could have been chosen for mechanized operations.

Units Participating

The following units participated in the 1st Army Maneuvers:

Provisional Blue Corps:

- 1st Division
- 18th Infantry Brigade
- 7th Cavalry Brigade:
 - Brigade Headquarters and Headquarters Troop
 - 1st Cavalry
 - 13th Cavalry
 - 68th Field Artillery
 - 12th Observation Squadron
 - 19th Ordnance Company, Maintenance
 - Co. E, 5th Quartermaster Regiment, Maintenance
 - Detachment Medical Corps
 - Co. E, 1st Engineer Regiment (attached for Maneuvers only).
 - 97th Observation Squadron
 - 2d Battalion, 25th Field Artillery.

I Corps:

- 26th Division
- 43d Division

II Corps:

- 27th Division
- 44th Division

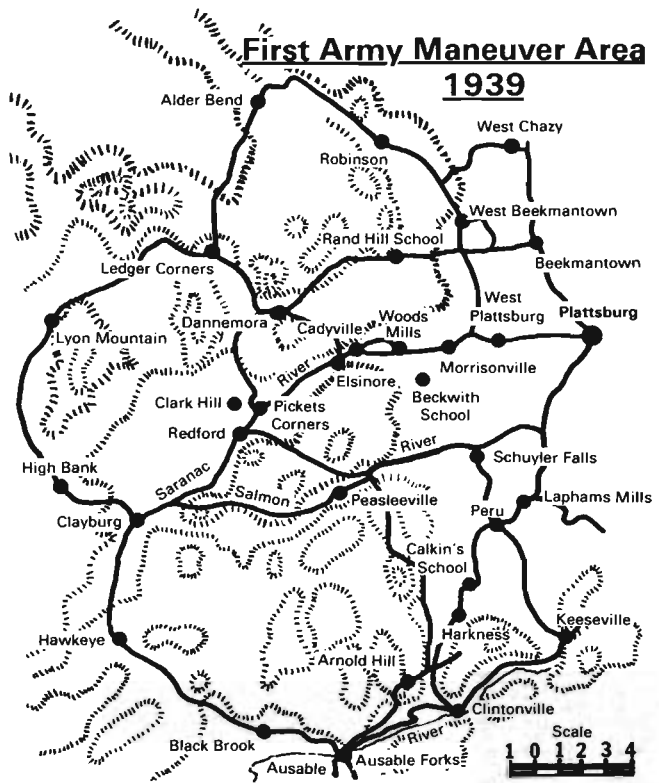
Miscellaneous Army and Corps Troops:

- 101st Cavalry
- 101st Signal Battalion
- 197th Coast Artillery (AA)
- 212th Coast Artillery (AA)
- Battalion 66th Infantry (Light Tanks)
- 29th Ordnance Company
- 8th Photo Section
- 1st Radio Intelligence Company
- 51st Signal Battalion.

On account of the expansion requirements of the Air Corps, there was no combat aviation of any kind available for the maneuvers.

Only arms and equipment as authorized by the Tables of Basic Allowances were used. No assumptions were permitted.

After the arrival in the maneuver area, the period August 9th to 20th inclusive was spent by the Brigade in establishing camp and conducting Troop, Squadron, Regimental and Brigade problems. In addition, the Brigade gave demonstrations for the 1st Division, the



18th Infantry Brigade, and the 26th, 27th, 43d and 44th Divisions.

Corps Exercise

August 21st and 22d

Two separate Corps Exercises were held simultaneously on August 21st and 22d. One exercise was confined to the western half of the maneuver area and the other to the eastern half. Elements of the 7th Cavalry Brigade participated in both problems.

In the Western Portion

The 18th Brigade, with the mission of preventing the advance of hostile force into the Saranac and Salmon Valleys, opposed the 1st Division (Motorized). By 9:00 a.m. 21 August, the 18th Brigade was heavily pressed.

The 7th Cavalry Brigade (less the 13th Cavalry, reinforced), on being made available to the Commanding General, 18th Brigade, made a rapid 18-mile march from its assembly area via Elsinore, and attacking at 10:00 a.m., secured the high ground north of Redford, closing the Saranac Valley to the hostile advance. Two batteries of the 68th Field Artillery were attached to the 25th Field Artillery to augment the artillery support of the 18th Brigade. Initially, mechanized reconnaissance elements only operated on the south of the 18th Brigade, the bulk of the Mechanized Brigade being held on the north flank.

During the afternoon, it was found that the hostile main effort had developed on the south and was push-



Soviet T-26 Light Tank, 1932

ing east along the Salmon River Valley. The Commanding General, 7th Cavalry Brigade, was directed to leave a strong detachment in the Saranac Valley to hold the line Clark Hill-Picketts Corners and to move rapidly with the remainder of the command and check the hostile advance on the south flank.

After initial successes around Peasleyville, the situation became stabilized at dark. About midnight, persistent infiltration by the enemy through the wooded rough slopes flanking the valley threatened our artillery position, and the Brigade withdrew four miles to the east to a delaying position which it was occupying at the termination of the exercise. From this position, it was prepared to counterattack to the south.

In the Eastern Portion

During the same period, the 13th Cavalry, with a battery of field artillery and detachments of engineers, air, maintenance and Medical Corps attached, was operating with the II Corps against the I Corps. The mission of each Corps was to secure a bridgehead over the Saranac River.

The 13th Cavalry (reinforced) with the 101st Cavalry attached, was released from its assembly area west of Schuyler Falls, one hour after the infantry was allowed to move. It quickly overran advance hostile motorized elements and seizing the high ground northwest of Beckwith School, held this dominating terrain until relieved by friendly infantry sent forward in trucks. It then moved to the northwest and operated against a hostile force which was supported by tanks in the vicinity of Woods Mills.

After dark, the regiment withdrew into a night bivouac. At dawn, it moved again to the north and located the hostile main effort advancing southwest against the II Corps which had succeeded in securing crossings over the Saranac River and was marching to the north. One squadron was dispatched immediately toward Woods Mills to assist friendly infantry in delaying the hostile advance at that point. The remainder of the regiment, consisting of one squadron of combat cars, part of the Machine Gun Troop, the Mortar Platoon, with one battery of field artillery and a regiment of horse cavalry (less 1 squadron) attached, made a coordinated surprise attack against the exposed west flank of the hostile marching column just as the exercise terminated.

Army Exercise — 23-25 August, 1930

General Situation: Without going into all the background, the General Situation for the Army Maneuvers was as follows:

A Black Army of two Corps which had penetrated to the west shore of Lake Champlain was preparing for further advance to the west. The Blue 18th Brigade, which had been gradually falling back in front of the Black Force, was reinforced by the highly motorized 1st Division and a Provisional Corps was formed.

At the start of the maneuver, the 18th Brigade was near Saranac and the 1st Division in the region south of Redford. The Corps decided to march to the east and

attack to gain the high ground on the line Woods Mills — Mt. Etna. The Corps moved out at 12:00 noon, 23 August. Elements of the 1st Division in motors were soon near Peasleyville.

Under the conditions of the problem, the 7th Cavalry Brigade arrived at Black Brook at 12:00 noon, 23 August, and came under the control of the Provisional Corps. The mission given the 7th Cavalry Brigade was to march to the northeast prepared to attack the hostile left (south) flank or rear.

As to the operation of the 7th Cavalry Brigade in the Army Maneuver, it is thought that it would be more interesting for this account to come from a source other than a member of the Brigade. Major Rufus S. Ramey, Cavalry, an instructor at the Command and General Staff School, was detailed by the War Department for duty both as an umpire and as an observer, and has kindly given his consent for the following extract from his report to be quoted in this article:

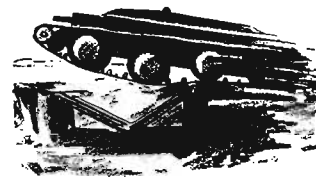
"It had been anticipated that Black would make a strong thrust north of the Saranac. Since a river crossing in the vicinity of Elsinore was required as a training exercise, it became necessary to stop, arbitrarily, the rapid advance of elements of the 18th Infantry Brigade north of the Saranac. Immediately south of that river, however, the Black 101st Cavalry moved rapidly to the west, gained contact with the 18th Infantry Brigade and very effectively delayed its advance throughout the afternoon.

"On its front, the 1st Division made very effective use of motorized detachments by way of the Salmon River Valley, Patton School and Calkins School, at which point junction with the 7th Cavalry Brigade was established about 2:30 p.m., 23 August.

"In its front, the 7th Cavalry Brigade reconnaissance elements quickly made contact with Black motorized detachments in the vicinity of CLINTONVILLE, to the north thereof and near HARKNESS: and developed the fact that the CLINTONVILLE-HARKNESS defile was effectively blocked by demolitions, where Black had apparently concentrated his antitank efforts. However, the parallel trails to the east and west of this defile, over COLD SPRING MOUNTAIN and ARNOLD HILL were neglected and permitted the mechanized cavalry to debouch into the more favorable terrain to the northeast of HARKNESS.

"While reconnaissance elements had cleared the CLINTONVILLE-KEESEVILLE defile of hostile motorized and antitank detachments and were operating well to the north toward LAPHAM MILLS, the Mechanized Brigade Commander determined late in the afternoon to concentrate his effort to the northeast towards PERU and eventually against the South Flank and rear of the hostile main force. The afternoon had seen a succession of isolated actions against enemy delaying detachments operating in the almost continuous defiles of this section.

"Shortly before dark on the 23d, the 13th Cavalry was moving to the northeast of COLD SPRING MOUN-



U.S. Christie Tank, 1932

TAIN and covering the brigade right flank by detachments in and north of KEESEVILLE. The 1st Cavalry, by a double envelopment, was successfully occupying PERU. At this time (about 8:00 p.m.), the Commanding General, 7th Cavalry, by means of staff officers, directed that the combat elements withdraw at once, and move without lights, to concealed bivouacs in the general area; CLINTONVILLE-ARNOLD HILL-RJ 984-ROGERS for reservicing, rest and feeding in preparation for the following day's operations. The bivouac area was outposted and liaison with 1st Division maintained.

"Instructions had already been given by messengers for kitchen and fuel trucks to proceed to the bivouac areas when orders were received (as the troops were arriving in the bivouac areas) directing the Brigade to move to the west, thence to the north flank (north of the SARANAC RIVER) prepared for new operations at daylight 24 August. This movement called for the assembly of the Brigade over difficult mountain trails, a night march of some 60 miles, all without lights, and after some 9 hours of strenuous operations.

"Previous orders were countermanded and new orders carried by staff officers. Assembly of march serials was completed and the march initiated at 11:15 p.m. (preceded by reconnaissance) with an amazing lack of confusion and minimum of delay.

"About 2:00 a.m., 24 August, the Brigade was halted in march column between REDFORD and SILVER LAKE; kitchen and fuel trucks joined organizations to provide a hot meal and refuel. The march was resumed about 2:45 a.m. over a narrow road along the SARANAC, which was rendered hazardous by frequent temporary bridges and fills on a road which flanked the river.

"At SARANAC, regimental and similar commanders joined the Brigade Commander who issued instructions calling for the following:

"The Brigade to march via PICKETTS CORNERS to DANNEMORA. From there the Brigade, less the 1st Cavalry, reinforced by a battery of artillery and platoon of engineers, to march on RAND HILL; the 1st Cavalry to turn north at DANNEMORA, move via LEDGER CORNER on the line WEST BEEKMANTOWN — BEEKMANTOWN where it would report arrival and receive orders (a further wide swing of about 30 miles).

"On resumption of the march there occurred one of those contretemps which can so easily occur at night with all troops and especially with fast moving columns. A guide stationed at a crossroads near PICKETTS CORNERS became confused and directed part of the column on the wrong road. It was some time before the error was discovered and as a consequence the planned operation was delayed for more than one hour. Elements of the Brigade which had taken the correct route reached DANNEMORA at 5:15 a.m., but it was after 6:00 a.m. before the remainder of the column arrived.

"The unfortunate delay had two immediate conse-

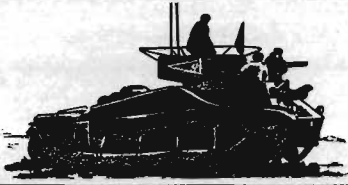
quences. Information was received about 6:30 a.m. that Black troops were crossing the SARANAC on two bridges to the west of ELSINORE and CADYVILLE respectively and that there was a large truck movement in the same vicinity. (This was the 43d Division, the Black Army reserve, which was undertaking an envelopment directed against the north flank and rear of the Blue position.) The 13th Cavalry moved east from DANNEMORA in the direction of the hostile river crossing. About 2 miles east of DANNEMORA, progress was effectively halted by hostile demolitions and antitank dispositions hastily provided after daylight. Earlier, an armored car platoon had been in possession of the defile at CR 1161 (over CANFIELD BROOK), but for some reason had been withdrawn. As a consequence, the advance of the 13th Cavalry for the next two hours was a succession of limited objective flanking actions against antitank dispositions in a continuous defile. Combined trains and service parks were halted at DANNEMORA whence they operated until late in the afternoon of the 24th.

"By 9:00 a.m., the 13th Cavalry had succeeded in pushing to RAND HILL, but was held up by a Black battalion strongly supported by artillery. The 1st Cavalry was ordered to assist by flanking action from the east, then resume its advance.

"Following the combined attack to complete the occupation of RAND HILL, a terrain feature which dominated the entire northeast of the SARANAC, the 1st Cavalry was directed to seize the high ground about 2 miles northeast of WEST PLATTSBURG in order to assist the movement of the 13th Cavalry to the southeast (in a zone immediately east of SANDBURN BROOK). There was another purpose behind this plan — to clear the area in order to permit the movement of the fuel trucks which were urgently required for the replenishment of fuel.

"By the middle of the morning, it was apparent that the entire area north of the SARANAC was infested with Black antitank detachments ranging from single 75-mm guns supported by infantry to entire batteries supported by battalions of infantry. These detachments were installing road blocks and completing assumed demolitions at the frequent defiles. From this time to the end of the maneuver, the impression was gained that Black efforts were directed more to protection against the mechanized cavalry than to any offensive action. Actually, it is believed that close to fifty percent of the Black 75-mm artillery was dispersed as antitank guns in his rear areas. By 10:30 a.m., the Blue Mechanized Cavalry was deep in the Black rear area, moving rapidly from north to south across the rear installations.

"By 12:30 p.m., 24 August, the main body of the 1st Cavalry had reached the road: MORRISONVILLE-PLATTSBURG, with reconnaissance elements south of the SARANAC (which was readily fordable in a great many places southeast of MORRISONVILLE). About 12:30 p.m., the 1st Cavalry surprised a Black tank



British Medium Vickers Tank, 1929

company going into what would have been an excellent ambush. In the ensuing action, the hostile tanks were ruled out. *Undoubtedly, this head-on engagement would have been costly to both groups of vehicles.*

"By this time (shortly after noon the 24th), the Mechanized Cavalry Brigade had been continuously in action since 1:00 p.m. the preceding day. Only part of the units had had one hasty meal. Necessary refueling and maintenance had been most limited. All ranks, but especially combat vehicle drivers, were fast approaching exhaustion though still filled with admirable enthusiasm and aggressiveness. Accordingly, orders were dispatched to withdraw all elements of the Brigade well to the north to the vicinity of WEST CHAZY for rest, reorganization and refueling. (Actually, it is believed that this move was in conformity with the desires of the Maneuver Director in order to prevent the complete collapse of the remaining scheduled exercises — the extension of the Black envelopment combined with a night attack, Blue night withdrawal, and a daylight attack by Black on the 25th.)

"The 7th Cavalry Brigade completed its assembly in the WEST CHAZY area late in the afternoon in a torrential rain, trains joined units, all elements refueled, the area was outposted, much needed rest was gained, and plans were announced for a resumption of the advance early the 25 August.

"The plan of operations for the 25 August provided:

"The Brigade to advance to the south, force a crossing of the SARANAC, seize the high ground as far as the SALMON RIVER, then turn to the southwest to strike the Black left flank and rear.

"Regiments to advance abreast in more than one column, the 13th Cavalry on the right; advance guards to cross the outpost line at 5:00 a.m.; reconnaissance detachments to move at 2:00 a.m.

"One Combat Car Troop 13th Cavalry to follow the 1st Cavalry as reserve.

"Trains to assemble and await orders in Bivouac area (vicinity of WEST CHAZY).

"The advance to the south was initiated as planned. By daylight, reconnaissance elements had crossed and were south of the SARANAC. North of the SARANAC, the main Brigade columns encountered frequent anti-tank 75-mm guns and groups of machine guns which were promptly reduced by flanking maneuver and by artillery fire. By 6:30 a.m., the 1st Cavalry was crossing the SARANAC at the bridge immediately northeast of BM 294 (about 5 miles southwest of PLATTSBURG). Shortly afterwards, the 13th Cavalry encountered serious resistance at the bridge at MORRISONVILLE (consisting of two batteries of 75-mm guns and machine guns) which was being reduced when the exercise terminated. Here at MORRISONVILLE, the 1st Cavalry surprised and captured important Black Army headquarters installations. The 1st Cavalry and reconnaissance elements were moving to the south of the SARANAC deep in the Black rear. The exercise was terminated shortly after 7:00 a.m., 25 August.

"Since the 7th Cavalry Brigade assembled promptly and marched immediately across the Black rear in returning to the base camp at BLACK BROOK, an opportunity was presented to observe Black protective dispositions in his rear areas. In addition to the bridge defense at MORRISONVILLE, there was a large concentration of all arms just north of BECKWITH SCHOOL with 75-mm guns disposed for antitank defense. A similar disposition was observed northwest of SCHUYLER FALLS and frequent 75-mm guns and infantry detachments observed as far south as PERU. This is mentioned to indicate the psychological effect of the mechanized cavalry as well as to emphasize the dispersed nature of the Black antitank defense.

"The following comments on the Army Exercise are deemed important:

"The rapid night march of the 7th Cavalry Brigade, without lights, from the south to the north flank, demonstrated the great strategical mobility and value of the unit.

"Continuously demonstrated was the serious need for a reconnaissance and support echelon for the Mechanized Cavalry brigade — to consist of reconnaissance elements and a fire support group of machine gun and rifle units. Such a composite unit would provide the necessary brigade reconnaissance elements, protection for trains, and required mobile fire support.

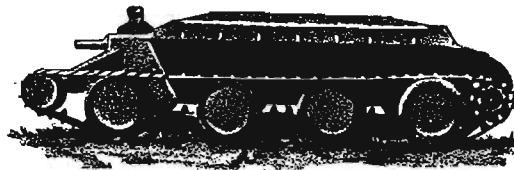
"Night movement of the Brigade without lights (except for concealed indirect rear wheel illumination) demonstrated that rates as high as 15 miles per hour on fair roads (except in dust) is feasible.

"While the total lack of suitable antitank weapons exercised a decided influence, yet one lesson stood out — that was the necessity for careful coordination of antitank protection and the maintaining of mobile antitank units. Piecemeal demolitions, road blocks and dispersal of antitank means is entirely ineffective.

"The rapidity of mechanized cavalry action, the speed with which units energetically lead may disperse against targets of opportunity, was recognized by the Brigade Commander who guarded against such action by assignment of successive objectives and frequent phase lines from which units reported, then advanced therefrom only on Brigade orders.

"Experience in these maneuvers demonstrated the need for a greater number of trained assistants in the operations section of Brigade Headquarters who may be used as liaison officers. The kaleidoscopic change of the situation in mechanized cavalry operations makes necessary the dispatch of orders, frequently by officer messenger. Also, adequate, timely and correct appreciation of the existing situation can be gained only through staff officers' conferences with advance commanders and reports of observations.

"While the maximum mobility and effectiveness of mechanized cavalry is only obtained in favorable terrain, the broken terrain of the PLATTSBURG area demonstrated that terrain must be difficult in the extreme to constitute a complete barrier to mechanized units.



"The umpiring of mechanized cavalry operations is a difficult problem. In this maneuver, umpires were provided down to include the squadron. It is believed necessary that sufficient umpires be provided with mechanized cavalry to include the troop unit because of the many isolated actions which develop in reconnaissance and in maneuver against antitank dispositions.

"Similarly, umpire communications with umpire headquarters and contact umpires is a difficult problem in mechanized cavalry operations. Pigeons were used by the senior brigade unit umpire as a means of communication with Umpire Headquarters.

"In conclusion, it is desired to pay tribute to the high degree of training and leadership demonstrated during the operations of the 7th Cavalry Brigade. The enthusiasm, the devotion, and efficiency of all ranks and units, displayed throughout an arduous period of one month, was an inspiration. The existing mechanized cavalry brigade is an extremely well-trained unit which, in the First Army Maneuvers, forcibly demonstrated its effectiveness in mobile exercises — though operations were often in terrain far from favorable to the exploitation of mechanized cavalry capabilities."

During the maneuvers, Mayor La Guardia of New York City made a request for the presence of the Brigade at the New York World's Fair. This request was approved by the War Department and on August 28th, three days after the close of the Maneuvers, the Brigade, including its track and half-track vehicles, commenced its march of 350 miles to New York City where it was to camp just outside of the World's Fair. En route it passed through West Point where it was reviewed and inspected.

The entire column of over 600 vehicles was received in New York City by the Mayor and Lieutenant General Drum. From the George Washington Bridge, it marched down the west side of New York, north up Broadway and Fifth Avenue and over the Queensboro Bridge.

Leaving the camp at the World's Fair at 1:00 a.m., September 8th, after again loading its track and half-track vehicles, the Brigade reached its home station, Fort Knox, on the 13th of September.

During the last 36 hours of the march, the Brigade travelled 390 miles. This included a short bivouac at Hamilton, Ohio, and five-hour halt in Jeffersonville to unload its track vehicles and reorganize. The last 40 miles of the journey were made by the Brigade with all its vehicles.

Upon arrival at its home station, the Brigade, exclusive of maneuver operations, had marched a distance of 2,238 miles in 15 marching days.

Conclusions

Mechanized Cavalry is a highly technical weapon, and in order to function efficiently, requires experienced, well-trained personnel in all grades. Due to its high mobility and great radius of operation, its supporting troops must be familiar with its tactics and technique. This familiarity can be attained only by constant combined training.

Mechanized Cavalry is a powerful striking force capable of operating effectively even over very difficult terrain. It is also capable of making long strategic moves rapidly, under cover of darkness, and without lights.

A Mechanized Cavalry Brigade should be employed as a combat team in order to realize the full value from its air service, ground reconnaissance, combat car, machine gun and artillery elements. It is a mistake to divide the Brigade and a greater mistake to divide the regiment which is the basic combat unit.

Mechanized Cavalry should be assigned to those missions of mobile combat which are most important to the success of the Army. Its successes or failures are capable of affecting the operation of the entire Army.

Mechanized Cavalry must be preceded by adequate reconnaissance, both ground and air, in order to locate obstacles, ambushes and anti-mechanized weapons. Likewise, it must be covered by security detachments to prevent surprise and provide freedom of action when hostile forces are encountered.

Mechanized Cavalry must leave roads and move cross country when within the range of hostile artillery.

Mechanized Cavalry should not be assigned the mission of holding extensive sectors during darkness, particularly in terrain which severely restricts vehicular maneuver. It should be relieved at dusk and withdrawn for the purpose of feeding the personnel and the refueling and maintenance of vehicles. Under cover of darkness it should then be moved to a point from which it can launch an offensive blow at daylight. *The personal rather than the mechanical factor controls the limit of endurance.*

Mechanized Cavalry gains surprise by:

Secret marches at night without lights.

By the use of feints and demonstrations while the direction of the main effort is kept concealed.

By rapid movement even though observed. Time and space factors often do not permit the enemy to make or change dispositions in time to counter a mechanized thrust.

Mechanized Cavalry, due to its great fire power, rapidity of action and striking ability, has a decidedly adverse effect on the morale of other ground troops who realize the comparative ineffectiveness of their small arms fire against rapidly moving armored troops.

Not only infantry regiments and divisions, but the rear areas of Corps and Armies must possess adequate means for anti-mechanized defense.

In order to provide for defense against the threat of the Mechanized Brigade in the recent maneuvers, the Black Army was forced to use its organic artillery. This resulted in the supporting fire of many battalions being lost to the front line units at times when their fire support was sorely needed.

When infantry is equipped with adequate means for anti-mechanized defense, and makes dispositions which would afford protection against mechanized attacks from any direction, such as a cordon defense, it is in danger of losing its mobility and becoming defen-



German Heavy Rheinmetall Tank, 1939

sive minded. The same may be said of horse cavalry.

Infantry tank units do not possess the auxiliary means of reconnaissance and support to successfully oppose a strong force of mechanized cavalry.

Reconnaissance from unarmored vehicles is often of doubtful value and very liable to be most costly in men and vehicles.

The majority of the road blocks encountered during the maneuvers were not sufficiently extensive or defended strongly enough to be more than temporarily effective. The bulk of the mobile anti-mechanized units should be held centrally located and in readiness for quick dispatch and employment in previously reconnoitered positions upon receipt of timely information from air and ground reconnaissance.

The best defense against a powerful mechanized cavalry is a similar mechanized unit.

Both horse cavalry and motorized infantry are ideally suited to support mechanized cavalry and to operate in conjunction with it. Horse cavalry is capable of operating more rapidly when the distance is short; motorized infantry when the distance involved is long.

Prior to September 1939, the question as to what part mechanization was destined to play in large scale modern warfare was largely an academic one. This question, however, was answered most conclusively on the battlefield of Poland within a few days after the close of the 1st Army Maneuvers, when the German Army, using its mechanized divisions so successfully and decisively conquered a valiant army of a million men in the amazingly short period of two weeks. The lessons brought out by the maneuvers of the 1st Army and other such maneuvers have been confirmed by war.

New Battle Lessons on Reconnaissance

by Lieutenant Colonel Bruce Palmer, Jr.

It has been military usage from early times to put men on foot, or horseback, out in front of an Army to signal "enemy in sight." This duty has been entrusted to run-of-the-mill personnel. Such personnel, so long as ground reconnaissance remained a simple task, performed the duty as well as any other sort could. With the advent, however, of mechanization and long range weapons, ground reconnaissance has become a complicated and vital phase of military art.

Theoretically, at least, we place those with the greatest military talents in command positions, but no commander, no matter how fine his military characteristics or genius, can intelligently dispose his troops, strategically or tactically, without proper information of the enemy.

It has been fully demonstrated that men of the proper caliber can accomplish remarkable results in dissipating the so-called fog of war — our present alibi for mistakes in the operation of military forces.

It is plain that if suitable reconnaissance personnel can lift the veil from the commander's eyes (and unsuitable personnel cannot do this) reconnaissance personnel should be selected with the same care and with as much regard for its particular employment, as is the high command personnel.

A man performing a reconnaissance mission should have first, the intelligence to enable him to grasp general and special situations in order that he may seek the information which the high command most needs for evaluating conditions confronting it; second, knowledge of terrain, maps, military organization, and weapons; third, the ability to exercise good judgment under stress; fourth, bold courage; and fifth, physical stamina. In short, officer or noncommissioned officer material of the highest type.

It must be remembered that reconnaissance duty is continuous and never relaxed, that operations often will be conducted by individuals or by individual reconnaissance vehicles, that all the men of a vehicle crew, or of a dismounted patrol, are subject to the usual hazards involved, and above all, that the information returned by these vehicles is always essential and vital to the success of the whole operation. From these factors, it is evident that all members of a reconnaissance vehicle crew must be capable men, each prepared to take over the duty of driver, radio operator, gunner, or leader.

Training

Lieutenant Colonel Hoy comments on his experience in Tunisia as follows:

"First and foremost, I am positive that all reconnaissance personnel should receive uniform basic training and that training must be specialized. A properly trained reconnaissance unit can do reconnaissance for a corps, an armored division, or an infantry division.

"All the reconnaissance training you and I ever received is fundamentally sound. There are certain fundamentals, however, that I would stress. First, your information must be accurate, complete, and quickly passed. To be accurate you must always know your location; get expert in using map, compass and protractor to establish your position and the enemy's. Never surmise, embellish or exaggerate; inaccurate information is dangerous. Truth is war's first casualty, but reconnaissance leaders must protect it on the battlefield and fight rumors, lies and exaggerations with the same enthusiasm and ability that they fight the enemy. I cannot stress this too much, for I have found out that it is always the reconnaissance battalion that has to go out and check all rumors and all exaggerated reports.



French Renault Tankette, 1933

Never believe a straggler and seldom believe a casualty. The former lies to explain his absence from the battlefield; the latter, especially if he has been knocked out of his vehicle, is rarely rational. To be complete, report everything; and if no movement is seen, report that. That is information.

"To pass information quickly, we must use a definite sequence — a simple code, and I have found that when things are hot, I want to talk directly to the platoon leader who is actually in contact. I had all platoons and company commanders on the same net, ran as high as 13 or 14 sets in net. It worked fine after we got it rigidly disciplined. The company commander did not lose any of his prerogatives. In fact, he became more of a battlefield C.O. His place when things are hot is out there helping his platoons. With all of us on the same net, he and I could go bouncing off to any point and still be in communication. I had a 193 in a peep; it was worth a million.

"The reconnaissance personnel must be trained to handle their own mine sweeping. It's no mysterious science and most of the mines we have found were removed by us. Of course, the big areas were later swept by engineers, but our own paths were generally cleared by reconnaissance personnel.

"Reconnaissance personnel should attend a battle school and have mortars, artillery and antitank guns fired at them, not to make them braver, because I have my doubts about that, but to make them recognize the sound of the weapons. Everybody has a tendency to report anything bigger than a .22 caliber as an 88mm. I would not let my men report 88's, and we are the only ones who didn't. Let a mortar land, a mine explode, or an artillery shell land, and the report will be 88mm. This is dangerous, for if believed by higher command, it will denote German troops in an area which may or may not be so. (However, after we took Mateur, I saw *beaucoup de* 88's). Now that we have so much of the enemy's equipment, all reconnaissance personnel should have an opportunity to see it. Don't put it in a motor park, put it out in a field.

"Last, but certainly not least, the best jobs that we have done have been where lieutenants with a small crew, through cunning and daring, get an OP deep in the enemy territory, or on his flank, and sit there for hours and report vital information. We used to say about such things, 'OK for maneuvers, but not in war.' This is not so. As an example, I had a lieutenant and three men go up on an OP about 4-5000 yards in enemy territory, stay there for two days with a radio set dismantled from a peep, and send back the information necessary."

Tactics and Technique

Mechanized reconnaissance vehicles, when not employed in reconnaissance in force, should be used in small groups for the following reasons:

1. Larger groups are often tempted to fight, and unless such fighting is merely to protect themselves, or to

escape, they are losing sight of their mission while so engaged.

2. A wider, deeper, and more closely knit reconnaissance may be effected by the employment of many small groups than by the use of relatively fewer large groups.

3. Mechanized reconnaissance duty is arduous and hazardous and necessitates frequent relief. Such relief is normally possible where small groups are sent out, and becomes proportionately difficult if the groups are strengthened.

4. Vehicles in a small group can operate in support of one another on a mission at considerable distances apart by simply watching what the others do. In a larger group, orders must be exchanged on every change of purpose of the leader.

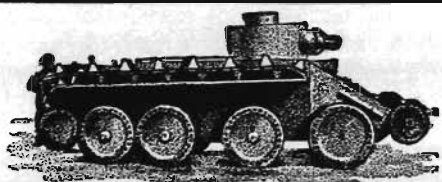
Colonel Hoy comments further:

"Beware of that misused word 'fire power.' Don't tie a reconnaissance unit down with tanks, 81mm mortars, 37 SP guns, because it makes the unit too unwieldy, and few officers can take care of all those additions and still do the job of gathering information. Understand me, I am in complete accord with General Scott's statement that 'Reconnaissance capable of only observation is not worth the road space it takes.' The reconnaissance unit should have sufficient fire power, but too much is as bad as too little. Anyone in a reconnaissance unit who is not primarily a reconnaissance man must be there for a very good reason. If I get the armored car, then I don't want the light tank.

"For clarity, I give you my recommended organization at this time. Reconnaissance battalion of 3 reconnaissance companies and Hq. company; reconnaissance company to have 3 platoons and Hq. platoon; each platoon to have 2 sections. The section is the basic unit. Each section should have 2 armored cars and 3 peeps; the first section should have an assault gun; both sections should be commanded by an officer. We have tried it out by using the scout car in place of the armored car. We are sold on the assault gun. Our companies fired it more than anyone in North Africa. It gives us poise and confidence."

There is no theorizing in all this. In a command on the field which does not have a *professional* reconnaissance, the movement in a given direction is habitually a blind groping, or halting at a given place because of ignorance of the tactical situation. *Capable* reconnaissance personnel can return a flood of information that is remarkable — information that is never superfluous and is always valuable, and that enables the commander to know where he is going and why. If the Army invests only a small part of its most efficient personnel in reconnaissance units, its dividends in the form of increased fighting efficiency will be incalculable.

Interspersed in these notes are quotations from Lieutenant Colonel Charles J. Hoy, who commanded a reconnaissance battalion throughout the Tunisian Campaign. Colonel Hoy states that his experience has been further confirmed by that of Lieutenant Colonel Lawson, 11th Hussars, who has had five years service in Africa and three years of combat as a reconnaissance leader.



Christie Wheel-Track Tank

Reconnaissance Battalion, Armored Division

by Major I. D. White, Cavalry

Organization

There are three agencies available in the Armored Division which are specifically organized to execute reconnaissance. They are:

The attached air service.

The reconnaissance battalion.

Regimental reconnaissance companies of the armored regiments.

In addition to the above, the execution of reconnaissance is a continuing function of all combat units in the march and in combat.

The availability of specially organized reconnaissance agencies within the division permits the initiation of reconnaissance at the earliest practical moment. The organization and means of communication within these elements facilitate maintaining contact once the enemy has been located.

The Reconnaissance Battalion is organized with a Battalion Headquarters and Headquarters Detachment containing the elements essential to command, control and administration; two Reconnaissance Companies (Armored); one Armored Company (Light) and one Rifle Company (Armored). It also has an organic Medical Detachment equipped with cross country ambulances.

The Reconnaissance Companies each consist of four 4-car reconnaissance platoons and a motorcycle platoon. The reconnaissance platoons are equipped with scout cars and have motorcycle scouts. The motorcycle platoon is equipped with solo motorcycles and tricycles or the ¼-ton 4x4 truck (Bantam). The motorcycle platoon dismounts 16 rifles and 15 sub-machine guns. The Armored Company (Light) comprises three 4-car light tank platoons and a company headquarters. The Rifle Company (Armored) is organized into three 34-man rifle platoons and a special weapons platoon consisting of one 60-mm mortar section (3 mortars) and a .30 caliber machine gun section of two light guns.

The Rifle Company is transported in armored half-track personnel carriers which mount .30 caliber light machine guns.

The Armored Company and the Rifle Company are included in the battalion organization to support and assist the Reconnaissance Companies by furnishing the combat strength necessary to reduce road blocks, penetrate hostile screens, and to seize and hold vital terrain features pending the arrival of advance elements of the division.

Moral attachments include Ordnance and Quartermaster maintenance elements and a specially organized Engineer platoon. The latter organization assists in terrain and route reconnaissance, in constructing or

destroying road blocks and in effecting demolitions. It has also available a small number of assault boats to ferry personnel across unfordable streams and can construct, in a very short time, a raft to ferry scout cars and motorcycles.

The function of the Reconnaissance Battalion is to provide the Division Commander with an independent reconnaissance unit capable of performing distant, close and battle reconnaissance. Under average conditions of weather and visibility the attached air service may be expected to provide distant and preliminary route reconnaissance and by obtaining early information of hostile dispositions, permit the focusing of the ground reconnaissance agencies where more detailed information is necessary. However, when the air service for any reason, is prevented from securing information which is obtainable only through distant reconnaissance, the reconnaissance battalion must be prepared to execute such missions.

Distant Reconnaissance

The distance to which ground reconnaissance elements are dispatched depends largely upon the efficacy of air observation. Conditions of weather, darkness or hostile air superiority may prevent or restrict air reconnaissance. Under such conditions the reconnaissance battalion will be required to extend its activities. At other times the battalion may be required to verify or confirm air service reports over extended distances. When performing distant reconnaissance, the battalion commander must be closely supported by the regimental reconnaissance companies.

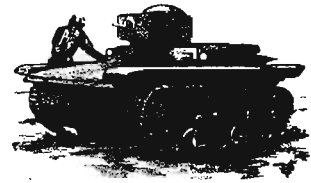
Close Reconnaissance

In performing close reconnaissance, the battalion seeks to obtain all possible information concerning terrain, routes and hostile dispositions within a specified area, necessary for the Division Commander to formulate a plan of action and issue necessary preliminary orders for its execution.

Battle Reconnaissance

When the division is committed to combat, the reconnaissance battalion performs battle reconnaissance as follows:

- a. It seeks to locate the hostile flanks and rear.
- b. It maintains observation at a considerable distance to the flanks in order to give timely information of the movement of hostile reserves and reinforcements and report areas contaminated with persistent gas.
- c. It performs harassing operations against hostile command and supply installations and in furtherance of this may execute hasty demolitions.
- d. It prepares plans to initiate pursuit, generally by encircling maneuver.



Soviet T-37 Amphibious Tank, 1932

- e. It continues more detailed reconnaissance of terrain and hostile dispositions — frequently dismounted.
- f. It seeks gaps or soft spots in the hostile lines.

Note: *e* and *f* are generally taken over by regimental reconnaissance companies as rapidly as possible.

Missions and Reconnaissance Instructions

The most important factor in successfully executing reconnaissance missions is a complete and thorough knowledge and understanding on the part of reconnaissance unit commanders of the mission of the division as a whole and the general plan of the Division Commander for its execution. This knowledge and understanding must be maintained throughout operations, especially as the situation and plans are developed or changed. Close liaison must be maintained with the Division Commander through the Intelligence and Operations Sections of the division staff. After contact has been gained and as the main body of the division closes on the battalion, the Reconnaissance Battalion Commander will find it desirable and often necessary to report in person to the Division Commander or his representative, both to give and receive information.

Initial reconnaissance instructions issued to the battalion are generally simple and include the assignment of a zone or area to be reconnoitered and a brief statement of the information desired. Phase or control lines, the time the information is desired and other measures for control and coordination may be prescribed. The essential features of the reconnaissance instructions are:

a. That the battalion commander understand what information is desired and the general area where it is to be obtained and:

b. That he understand the mission of the division as a whole and the general plan of the commander for its execution.

Within the battalion, more elaborate and detailed instructions are necessary. Zones, routes or areas of responsibility must be clearly defined for each reconnaissance company. Measures for control and coordination must be clearly specified. Missions to subordinate reconnaissance elements generally take the form of specified questions.

After contact has been gained or as a result of information obtained from air reconnaissance additional and more detailed and specific missions may be assigned to both the Reconnaissance Battalion and then in turn to its subordinate units.

It is extremely important that the battalion commander be kept informed of information and intelligence received by G-2 from other sources. One of the functions of the battalion liaison officer maintained at division headquarters is to facilitate and expedite transmission of such items to battalion headquarters.

Standing Reconnaissance Missions

The assignment of missions and the issuing of reconnaissance instructions is greatly simplified and facili-

tated by means of *Standing Operating Procedure* which prescribes standing reconnaissance functions for all reconnaissance agencies. These reconnaissance functions apply to all reconnaissance elements regardless of size; are carried on automatically without additional orders and in conjunction and coincident to the execution of specified missions.

These automatic functions require that information covering the following items be obtained:

Item No. 1 — Contaminated Areas.

Includes the location, size of area, and type of gas encountered.

Item No. 2 — Hostile Forces Other Than Mechanized or Motorized.

Includes strength, composition, movement, location, and disposition of hostile forces which are not mechanized or motorized.

Item No. 3 — Hostile Aircraft.

Includes type, altitude, and direction of flight of hostile aircraft observed.

Item No. 4 — Hostile Mechanized and Motorized Forces.

Includes strength, composition, movement, disposition, location and type of hostile mech and mtz elements.

Item No. 5 — Communication.

Includes water, light, power, railway facilities, telephone and telegraph stations, and radio stations.

Item No. 6 — Supplies.

Includes gasoline, oil, food, and other types of supplies suitable for the use of the division.

Item No. 7 — Landing Fields.

Includes landing fields suitable for aviation attached to the division with special attention to landing fields for courier type planes.

Item No. 8 — Routes and Bridges.

Includes type, location, number of lanes, usability in wet weather, and suitability for all vehicles of the division. Includes obstacles, road blocks and other defensive works.

Item No. 9 — Estimate of Terrain.

Includes the suitability of terrain for mechanized attack, assembly positions, cover, and concealment.

Item No. 10 — Friendly Troops and Miscellaneous.

Includes friendly troops within the sphere of action of the reconnaissance battalion and other intelligence data not included in other items pertinent to the operation, such as weather, visibility, etc.

Reports on these items may be required to be rendered as soon as obtained; hourly; or at specified times or places.

An understanding by all concerned of these standing missions, gives the word "reconnoiter" definite substance and meaning.



Vickers Amphibious 3-ton Tank, 1931

Cooperation With the Air Service

Air service missions are closely linked to the successful operation of ground reconnaissance agencies. In addition to any planes for division missions, it will be frequently desirable to assign one plane for close and direct cooperation with the reconnaissance battalion. The function of the plane is to conduct route reconnaissance; to direct the attention of subordinate elements on suspected areas; and to assist in control coordination and communication within the battalion, especially during periods when radio communication is not possible or desirable.

When a plane cannot be made available for direct attachment to the battalion, any planes performing air reconnaissance missions cooperate to the fullest extent. Observers are kept informed of the zone of operations of the battalion, particularly of the axis of march of the battalion command group. The battalion and each reconnaissance company maintains a radio set in the division air ground net and all concerned take necessary action indicated as a result of intercepted messages. It will frequently be desirable under certain conditions, for planes executing division missions to insure that vital information is transmitted direct to the reconnaissance battalion, either by radio, or more frequently by dropped message.

Cooperation With Regimental Reconnaissance Units

Regimental reconnaissance companies, functioning under regimental or column commanders, perform more detailed reconnaissance than that of the Reconnaissance Battalion. Based on information received from the *division* reconnaissance elements, both air and ground, the attention of regimental units is closely directed to specific routes or areas. When the elements of the reconnaissance battalion have gained contact and are held up, regimental units close and gain contact with divisional units within their respective zones. They assist and cooperate in every way to secure the continued advance of the division reconnaissance elements. Regimental units also relieve reconnaissance battalion elements which have been left to guard bridges or hold vital terrain. The latter units then either push on and rejoin, or become attached to the regimental units, depending on time and space factors and enemy activity. Regimental units must conduct the detailed reconnaissance necessary to locate small bodies of hostile troops and secure accurate information of routes and terrain features not covered by the Reconnaissance Battalion.

Security

Security for the division other than that furnished by timely information of the enemy; is not a function of divisional or regimental reconnaissance agencies, except as follows:

a. Vital stream crossings or other defiles must be guarded along the route of advance of division columns, pending the arrival of advance elements from the main body.

b. Hostile threats which may develop within or adjacent to the battalion zone and which may seriously interfere with the movement of the division, must be delayed, pending further instructions from the division commander. Column commanders cannot expect either division or regimental reconnaissance elements to perform the security functions expected and required of an advance guard.

Other Missions

Obviously, the Reconnaissance Battalion is organized and equipped to perform missions other than reconnaissance when necessary. Such missions will often include the following:

Security.

Delaying and harassing action.

Seizing and holding key terrain.

Participation in combat with the division.

Pursuit.

As a division reserve.

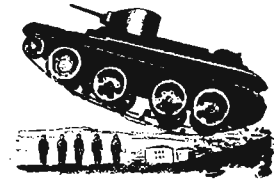
It must be prepared at all times to execute any of the above missions upon completion of a principal reconnaissance mission.

While it would be exceptional to assign a dual mission to the battalion, the execution of one type of mission may require a temporary transition to another type. It may also be necessary under certain conditions for different elements within the battalion to be performing different types of missions. However, the collection and transmission of information always receives the utmost attention, regardless of the assigned mission.

Combat

Many reconnaissance elements have ruined their effectiveness through too great a willingness to engage in combat. Fleeting but minor targets often present a temptation almost too much to be resisted. The desire to engage in combat must be overcome and controlled by the leaders of small reconnaissance elements. Whenever possible, subordinate units should be advised as to the extent or the necessity for engaging in combat. However, the final decision rests with the leaders of the platoons, sections and individual vehicles. Leaders must be guided by the principle that the best reconnaissance is performed by stealth and that when the presence of their unit has been disclosed to the enemy by the noise incident to combat, the enemy will bend every effort toward their destruction and will institute a relentless search toward that end.

A reconnaissance element whose presence has become disclosed to the enemy can expect to be hunted down as its continued existence is an ever-present menace to the enemy, not because of its combat power, but because of its ability to furnish information.



Missions may be assigned which will require combat for their accomplishment. Certain missions may require a combination of reconnaissance and security. An example of such a mission would be — "reconnoiter Highway 77 to BLANKTOWN and hold the NORTH RIVER crossing at that point pending the arrival of units from the main body."

At times, units which find themselves cut off from their own forces will frequently find it necessary to fight their way out. On the other hand, if stealth is employed under such conditions there is a possibility that the advance of the main body will restore their own freedom of movement. It should be remembered that a reconnaissance unit which has penetrated the hostile forces to such an extent that it has become cut off has placed itself in the most desirable position to secure valuable information.

The whole question of combat can be summed up as follows: Reconnaissance elements engage in combat when necessary to accomplish their mission; when given a definite combat or security mission; or to provide for their own protection.

Tactical Employment

The method of employment of the reconnaissance battalion and the method of execution of a reconnaissance mission is generally based on the amount of time available for its execution. When sufficient time is available, the principle of stealth is employed to the maximum advantage and combat is avoided. Where time is pressing and division columns are closing on the reconnaissance elements, combat must be resorted to more frequently. In a moving situation, the battalion will operate from 25 to 150 miles in advance of the division. Frequently the battalion will move during the night to the area from which it will commence its operations. Sufficient time must be allowed to conduct reconnaissance before division columns close up. Satisfactory reconnaissance cannot be conducted at the rate of march of division columns.

A simple tactical situation, illustrated by a diagram (below) will serve to show the actual tactical functioning of the reconnaissance battalion.

In this situation, the Reconnaissance Battalion has been assigned the mission of reconnoitering the zone between Routes 1 and 3, both inclusive, to report on a hostile force reported in the vicinity of M and to pay particular attention to the high ground in the vicinity of K. Streams shown are unfordable. The division is to march in three columns via Routes 1, 2, and 3.

The zone was subdivided to the two Reconnaissance Companies and small elements from the rifle company were attached to each, to be left to guard the bridges at A, B and C.

Battalion Headquarters with the Rifle Company (less detachments) and the Armored Company, marched on Route 2, fifteen minutes in rear of the reconnaissance element on that route.

Pending information from the Reconnaissance Companies, the Battalion CP was established at CRH. Meantime, the rifle elements left to guard the bridges were relieved by advance elements from the division and rejoined the battalion at H.

The reconnaissance unit on Route 1 reported that it was held up at the bridge at J and thus far had been unable to side slip because of the type of terrain.

The reconnaissance unit on Route 2 reported strongly defended road blocks in the vicinity of K and attempts to reconnoiter the high ground in this vicinity by vehicular reconnaissance have been stopped by hostile fire. Dismounted patrols from the motorcycle platoon have been sent out.

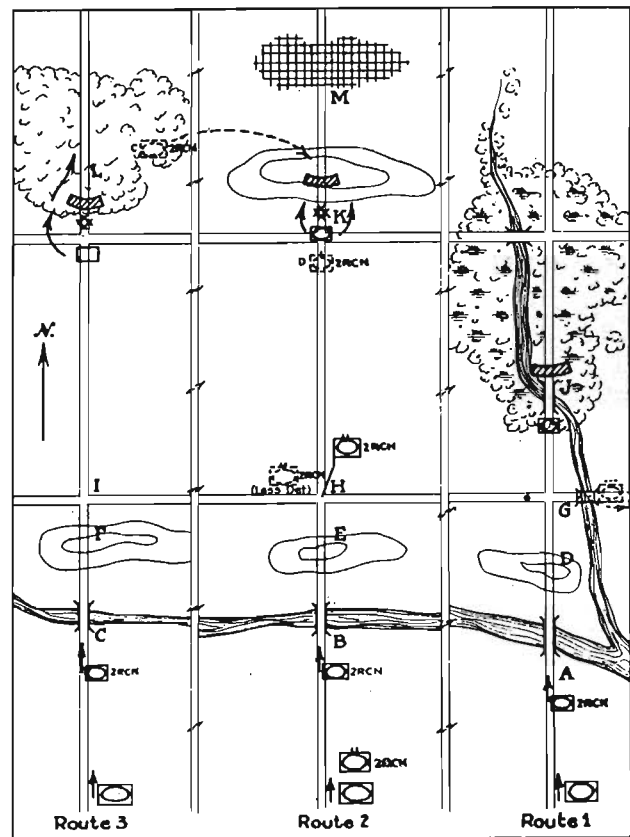


Plate 1

The reconnaissance unit on Route 3 reported that it was initially held up by road blocks in the woods near L, but that part of this unit has been able to side slip to the west and is continuing reconnaissance to the north.

The battalion (less detachments) moved forward initially on Route 2. Based on information received and as the result of personal reconnaissance, the battalion commander decided to attack in order to determine the strength of the hostile forces opposing his advance, and to seize the high ground in the vicinity of K.



Soviet 5-Turret Heavy Tank, T-35

The attack was based on the following plan:

The Armored Company (Light) to attack the hostile right and rear from the vicinity of the woods east of I.

The Rifle Company (Armored) and reconnaissance elements now in contact to support the tank attack by attacking generally astride Route 2.

During the progress of this attack, the air service reported a hostile motorized force approaching G, from the east. Part of the Reconnaissance Company (including its motorcycle platoon) which has been operating near J was ordered to gain contact with this hostile force and delay its advance.

Assuming that the attack of the battalion has secured the high ground near K, the way has been cleared for

reconnaissance elements to continue their advance toward M. Necessary steps are taken to hold the important terrain in the vicinity of K, pending the arrival of elements from the main body.

Conclusions

Experience has developed the following principles which are applicable to reconnaissance performed by all types of armored units:

a. The basic principles of Scouting and Patrolling are applicable to the execution of reconnaissance by all armored reconnaissance units.

b. Time being available, the best reconnaissance is performed by stealth. Where time is pressing, combat must be resorted to.

The Enemy in Africa

As Told to the Editorial Staff of The Cavalry Journal

by Major Henry Cabot Lodge, Jr., Cavalry Reserve

The British Eighth Army is now pursuing the fleeing German *Afrika Korps* back over the route along which we saw it advance last summer. Simultaneously, American expeditionary troops have "landed in force" on the western coast of Africa to allay any possible German retreat into French North African territory. With these two recent developments in mind, the strategic importance of Africa and the Middle East is again limelighted.

During the past two years our enemy in Africa has seen fit to keep a considerable army in Italian Libya and, more recently, in Egypt. In addition, Germany has maintained even more divisions in the Balkans and Italy. Undoubtedly, the Axis has had an envious eye on the Middle East, control of which would mean possession of the Suez as well as the rich oil fields of the Tigris-Euphrates and the Persian Gulf.

The loss to the Allies of the Middle East would have been the greatest shock that they would have yet sustained. It would have seriously imperiled the British Empire and relegated their war effort to a defensive role in the United Kingdom. It would have isolated, if not eliminated, both China and Russia from major participation in the war. It would have aligned the Moslem world with the Axis, consigned Africa to Axis exploitation, and enabled Hitler and the Japanese to join hands.

At the same time, no great amount of imagination is required to conclude that as soon as the theater of war is under complete Allied control, Hitler is not only blocked in his program of expansion, but Germany itself is menaced from any one of several directions.

For two years the British forces in the Middle East have fought against an enemy formidably trained and equipped and often superior in strength. At last the tide of war in Africa has turned, and the Germans are suffering their first major defeat. But the war is still far from over, and other German armies remain to be

conquered. The job ahead is still not an easy one; and our enemy whenever and wherever we meet him, is *not* a weakling.

This I learned while serving with other American tankmen during the German advance in Libya last summer. We were shelled, bombed, and machine gunned. We saw the German army in action, saw it work with precision and efficiency, saw it push back the British forces, and seriously endanger the Allied life line in the Middle East. Although our small American tank force "took it" and struck back with a final score that did credit to both men and machines, from our short experience in Africa we acquired a healthy respect for the Nazi fighting machine.

I was serving on active duty with the Second Armored Division last spring when I learned that a small group of volunteer tankmen — officers and men — were to be sent to Libya to observe and participate in the fighting then going on. I was fortunately among those who were selected to go.

We flew from the United States, across the Atlantic and over the teeming continent of Africa. This trip in itself was exemplary of the new developments brought about by this war, and the vital importance of Africa as a link to future victory.

The Ferry Command has performed a miracle in creating and operating this route. It enjoins distant continents, straddles sea, jungle and desert, and furnishes a supply line that measures transit in days and hours instead of months.

Spacious airfields have been established in country that only a few months ago was known as the "White Man's Graveyard." Comfortable quarters have been built for ground crews, antiaircraft guns erected, doctors and medicines imported. Even new movies are flown in.

Several days after our departure from the States we



Soviet Wheel-Track BT Tank, 1932

arrived in Cairo and reported for duty. The next day, we moved up to the front in a train crowded with British, Free French, Indian, and Australian soldiers.

At Capuzzo, on the Libyan-Egyptian frontier, most of the party of Americans went on to Bardia for a week's training with British units. I went forward to make an overall observation of the combat area where Field Marshal Rommel was just beginning his push that eventually took him to within forty miles of Alexandria.

One day we were driving a command car from Tobruk to Bardia when the Stukas appeared. We jumped out of the car and dived headlong for a slit trench just about the time that they dived. They were after a line of British supply trucks en route to the front. After the Stukas blasted the entire line of trucks, they swept back in graceful arcs and started strafing us with machine guns.

Back in Bardia, I learned that our men had made rapid progress in their training and were ready for combat. They went into action on June 11th, swung their tanks along side British-manned tanks, and were promptly attacked by German tanks from a range of about 4,000 yards.

The main engagement started at about 3:00 a.m. All day the American crews kept up a withering fire that held the Germans some 700 yards away. Although it is difficult to keep an accurate score in a tank battle, the American crew knocked out at least eight German machines before the Germans brought up their 88mm guns and the British gave the order to retreat. The American machines and men had been through their baptism of fire and acquitted themselves well. The next day the men turned in their machines and prepared to report what they had learned.

One of the important conclusions drawn from our observations and brief experience was that the remarkably efficient organization, drive, and timing of the German army should not be underestimated. Nor should it be forgotten that the German equipment is on a par with their aggressiveness.

A man would have to be blind not to see that the German soldiers were superbly equipped for the peculiar rigors of desert fighting. German civilians have had to content themselves with *ersatz* makeshifts, but not their fighting men. One afternoon I talked with a German prisoner who was calmly confident that his side would win — “We will win,” he said, “because our equipment and organization are better.”

I did not remind him that America had not yet added her first punch.

Now that that time has come, America must have quality as well as quantity. Her army must have supply systems, organization, and above all, brilliant military leadership on the battlefield. America can achieve all of this through the individuals who make up our army and the individuals who back it.

As we left Africa last summer one man remarked, “It seems a damned shame to clear out after our first crack at 'em.”

“Yeah,” said another, “but we'll be back — here or France or somewhere.”

Already American men and machines are back in Africa. Sooner or later they will come into contact with the enemy. That enemy must be beaten at all costs, must be driven out of Africa in order that we may keep the supply lines open, hold out hope to the fighting people of China, Russian, and all the conquered countries, and secure our own route to future victory.

Ground School Demonstration On Air-Ground Cooperation

by Major D. H. Cowles

Success in battle can be assured only when there is complete cooperation of all arms.” — This dictum is demonstrated forcibly to the students of The Ground General School at Fort Riley, Kansas, in a joint air-ground operation, an attack of associated arms against an incompletely prepared defensive position. The students from a centrally located observation post witness all phases of the attack as it rapidly develops before them.

A mechanized cavalry reconnaissance troop, appropriately reinforced by a platoon each of light tanks, armored riflemen, and howitzers, moves into view 4000 yards south of the student observation post. The troop, with three platoons committed over a 7000-yard front, is screening the advance of a regimental combat team. As the leading platoon on the center axis approaches the Observation Post, the students are given an excellent

opportunity to observe the proper employment of the point team.

When the leading one-quarter-ton truck reaches a position 100 yards from the students, it is first seen by the enemy and draws heavy fire from a camouflaged antitank gun, forcing the crew to hit the ground and crawl hurriedly to cover.

The point immediately forms a base of fire and is soon augmented by the balance of the platoon. Armored car commanders select primary and alternate firing positions. The one-quarter-ton truck crews locate firing positions and dismount their machine guns to provide more stable and accurate firing positions from adequate cover.

The troop commander, upon hearing the heavy volume of fire up ahead, hurries forward to investigate. Enroute, he orders the liaison aircraft, which has been



U.S. T-5 Light Tank, 1936

assisting a flank platoon, to move to the critical point.

By the time that the troop commander reaches the forward positions, the platoon leader has coordinated his base of fire and committed his rifle section as flank security. (Each cavalry platoon in the proposed Tables of Organization has two scout squads and one rifle section). Preliminary estimates by the platoon leader indicate that a sizable enemy force of infantry supported by antitank guns is dug in along a ridge line 1000 yards to the north.

Detailed reconnaissance, greatly facilitated and expedited by the employment of liaison air, reveals that the enemy holds the ridge line with perhaps 100 infantry, at least two 75mm antitank guns, and a few medium tanks. The liaison plane also locates unidentified enemy activity in a wooded draw 700 yards northwest of the ridge line. Ground and air reconnaissance together determine that the terrain on the east flank is rough and cut by a deep ditch; whereas, on the west flank a shallow draw offers a possible avenue of approach for ground troops to within 500 yards of the enemy positions.

Reconnaissance reports lead the troop commander to the obvious conclusion that he needs assistance to crack the enemy resistance. From the Regimental Combat Team he requests, and receives approval for, the support of fighter-bombers.

(As a result of previous high-level planning, fighter-bombers of the Ninth Air Force are on air alert in direct support of ground troops in this area.)

Fifteen minutes later, the advance guard commander for the main body arrives at the Cavalry troop Command Car with the Tactical Air Central Party attached to his force.

From an observation post, the advance guard commander, air controller, and troop commander plan the attack. They decide that the tank and rifle platoons will make a carefully coordinated assault on the objective from the west under cover of an air strike. The cavalry and howitzer platoons are to support the assault from their present positions.

As the tank and rifle platoons begin to deploy, the P-51 fighter-bombers hit the target. Four planes, armed with two 250-pound general purpose bombs each, soften up the objective and are followed swiftly by four more planes each armed with six 5-inch high-velocity rockets. The eight planes in turn then make a final pass, strafing targets of opportunity. Before the air strike is completed, the tank and rifle platoons have reached their attack positions some 500 yards to the west of the objective. As the last plane strafes, the troop commander launches the ground assault by radio command. Followed by the armored rifle platoon at 100 yards, the tanks sweep on to the objective with all weapons firing. On the near edge of the ridge the personnel carriers halt, and the riflemen pour out to cover the tanks, mop up, and consolidate the objective.

While the tank and rifle platoons reorganize, the fighter-bombers provide air cover, prepared to attack enemy reserves or enemy efforts to displace to the rear.

Ground and air reconnaissance immediately push forward in pursuit.

The students are moved to the demonstration area along the axis of advance of the regimental combat team. The troops employed in the problem were lined up for inspection in their respective tactical formations along the route. Where elements of the Regimental Combat Team were simulated, flags marked the locations of separate units comprising the RCT. Thus, the students were able to visualize clearly various time-space aspects of the problem before it commenced.

From the student observation post, which was located 1000 yards from the objective in accordance with safety regulations, the approach march of the ground troops, their deployment, the assault of both air and ground elements, the reorganization following the assault, and the pursuit were easily observed.

Student briefing prior to the commencement of the problem was minimized. The tactical situation and the safety measures employed were explained, and the capabilities and limitations of P-51 aircraft, aircraft weapons, and ammunition were reviewed briefly. In order that the students might appreciate more fully the problems of planning, coordination, and execution of such an attack, pertinent radio transmissions of all tactical units were amplified. The students thus heard, as well as observed, first enemy contact, orders of the platoon leaders and troop commander, the direction of the air strike, the ground assault, and liaison air reconnaissance. This method of "reading" the students into the demonstration proved to be most effective.

Because live ammunition was used, the problem required a high degree of cooperation and coordination. The amount of rehearsal time necessary to achieve the desired standard was determined directly by the state of training of the demonstration troops. Six hours of rehearsal for ground troops and four hours of joint air-ground rehearsal proved to be adequate.

To control the problem, an elaborate communications system was devised. Radio was the basic means of communications for both tactical and administrative control.

To supplement radio communications for emergency purposes, flares, wires, and panels were ready for instant use. Each safety officer with the separate firing units was equipped with a ground signal projector and colored flares. By this means the firing could be stopped, or ordered to commence, as the situation required. The howitzer platoon and the mortar platoon (the troop employed its three 81mm mortars in battery) operated a joint observation post. A single telephone wire was laid from the OP to the mortar position and thence to the howitzer firing position. An open circuit telephone net was maintained by these elements; in the event of radio failure these units were able to control the firing of their batteries with no difficulty. A set of air-ground liaison panels (AP30D) was held at problem control headquarters in the event of radio communications failure with either tactical or liaison air. Panels also were used to



Soviet MS-1 Escort Tank, 1927

mark the direction of flight for tactical air and the emergency drop area.

With the exception of dismounted riflemen and bow caliber .30 machine guns in the light tanks, all units fired live ammunition. Riflemen, least subject of all elements in the attack to immediate control, fired blanks. This substitution was not discernible to the students. The bow guns of the light tanks fired blank ammunition to minimize the danger to dismounted riflemen, who might inadvertently get in the field of fire of these guns and still not be visible to the bow gunners who were "buttoned up."

The enemy was represented by silhouette targets (type F) and by obsolete tank hulls. Each tank hull was equipped with twenty pounds of waste wool saturated in salvage crankcase oil and gasoline. Preparations were made to insure that the tank hulls could be electrically set on fire should air or ground hits not ignite the inflammable mixture.

Thirty 2-pound charges of TNT were spotted throughout the area occupied by the base of fire, mortars, and howitzers. These were staked with white flags as a warning to ground troops. They were fired electrically from the control OP to represent enemy artillery fire.

Armor in the Team

by Lieutenant Colonel Creighton W. Abrams

During WW II, the ground army operating jointly with the Tactical Air Force in a series of brilliant campaigns destroyed one of the best trained and equipped armies the world has yet produced. This success was achieved despite the far greater battle experience of the German Army, their development and exclusive operational use of large rockets, their operational use of jet aircraft, and the widely accepted superiority of their armored equipment, notably tanks. Post-war writing and discussion have not entirely clarified the apparent contradiction between results and the superiority of German arms. In fact, so much has been written and widely publicized about the mistakes in leadership, the errors in procurement, and the inferiority of equipment that — victory the fact — appears to be — victory by "luck."

WW II was not won by "luck." While mistakes were made and much can be learned through examination of past errors, there is a wider field for learning through study of the principles, the factors and the techniques which contributed to the decisive victory by American arms in WW II. Many factors have contributed to the success of American arms, but the greatest of all is the fundamental principle of teamwork. Teamwork is a positive and tangible result of a blending of forces, each in its proper proportion, each exploiting its outstanding capabilities and complementing the limitations of

The problem was controlled from the student observation post by an instructor who, by virtue of the communications setup, was in contact with each element of the tactical force at all times. During the execution of the problem, the instructor's role was entirely supervisory. The problem was executed by troop officers who called upon the instructor only for decisions affecting safety.

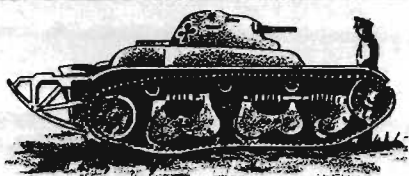
The elaborate precautions taken to make the execution of this problem safe were in no way visible to the spectators. To all appearances the tactical force seemed unfamiliar with the terrain, free from instructor interference, without additional communications, and unrestricted by exaggerated safety zones. The fact that ground troops did not approach closer than 1000 yards to the enemy objective until after the air strike (in compliance with safety regulations) was the only artificiality injected into the exercise, and this, because of the general overall activities of the units, was not emphasized. This tactical air-ground problem was presented after the students had completed their courses of study in both weapons and tactics. It represented a summation of all the previous instruction into one tactical firing problem paralleling closely actual battlefield conditions.

others to produce a concerted effort toward the achievement of the ultimate objective.

The necessity for teamwork is understood by all from the veteran rifleman, who knows what tanks and artillery can do when they all work together, right up to the top where Army, Navy, and Air have been joined to achieve a concerted effort. In WW I, the ground combat team consisted principally of infantry, engineers, and artillery. WW II added one other member to this team — armor.

The objectives of the field armies of WW II were seized by a combat team of infantry, armor, engineers, and artillery supported by a proper balance of service units. Tanks became essential to the successful operation of infantry divisions. Mechanized cavalry units as economy forces filled the great gaps in mobile operations providing security and reconnaissance for the major elements. In Africa and Europe, the armored division became a full member of the ground team, placing in the hands of the field commander the means for rapid seizure and holding of decisive objectives of great tactical, and often strategic, importance.

In the ground team, armor is the arm of mobility, armor-protected firepower, and decisive shock action. Mobility in armor is attained not only through the wide use of tanks, full-tracked personnel carriers, and self-propelled artillery, but also through the extensive organi-



French Light Tank, with Trench-Crossing Tail

zation of mobile service support at all echelons of command. The extensive use of radio communication supports mobility and permits effective command control in the most fluid operations. The separate battalion type of organization permits the greatest flexibility and latitude in the commitment and control of armored units in a war of movement. Mobility permits the rapid concentration of firepower at the point of decisive action. The characteristic of "armor-protected firepower" permits the maneuver of armor under fire of machine guns, mortars, and artillery and the effective return fire of crews within the armored vehicles. Mobility and firepower produce shock action. Shock action is a psychological effect achieved upon the mind of the enemy soldier or leader when fear or apprehension replaces judgment and common sense. Armored action achieves this to a decisive degree as shock action travels with an ever-broadening effect from the frontline soldier to his division, corps, and army commanders.

An understanding of the characteristics of armor is only the foreword to the employment of armor. The successful application of the principle of teamwork to the employment of armor in the ground team requires the assignment of objectives and missions which will utilize to the maximum the distinguishing characteristic of armor. This applies with equal importance to tank units organic or attached to infantry divisions, the armored cavalry regiment (light), and the armored division.

In the infantry division, tank units are provided to support the rifleman in the accomplishment of his mission in both offensive and defensive operations. The word "support" does not imply a position to the rear or defilade within the division zone of action. Nor does support imply the availability of a tank or tank section to each small group of riflemen in the division. Tanks, organic or attached to the infantry division, should be employed at the decisive point of action in the greatest numbers possible. The mobility of tank units will permit rapid concentration at the decisive point of action. The plaintive wail of the indecisive and unimaginative who fancy, like the ostrich with his head in the ground, some security by equal distribution of strength throughout the depth and breadth of the division zone, must be ruthlessly resisted. If tanks are to make the contribution in the infantry division of which they are capable, then they must be employed to the maximum advantage of mobility, armor-protected firepower, and decisive shock action. This means in many cases preserving the tactical integrity of the tank company and tank battalion and providing for it the necessary infantry, engineer, and artillery support.

The armored cavalry regiment (light) is another armored formation differing somewhat in equipment and organization from the tank battalion or the armored division. The armored cavalry regiment (light) is

the most mobile of armored units. It lacks the heavy gun firepower of tanks or the armored division. The self-contained organization of its platoons, companies, and battalions and the extensive use of radio communication make it admirably suited for deployment over broad frontages as a security force to permit the concentration of other forces at the decisive points of action.

The armored division is the largest armored formation. It is in itself a force of combined arms. The armored division provides the corps or army commander with the means to seize rapidly and hold distant and decisive objectives. In defense, it provides depth to the corps and army sector and the most effective means of countering penetrations of the defensive organization.

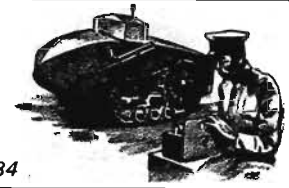
The armored division is a decisive weapon. It is assigned the *ultimate* objective of the next higher commander. The opportunity for the employment of the armored division in offensive operations is frequently created by infantry divisions. This technique results in overcoming initial obstacles to secure terrain from which the launching of the armored attack will permit the use of armor's mobility and firepower.

The minimum controls are placed upon the operations of the armored division. Phase lines, intermediate objectives, and boundaries restrict the mobility of armor. Armored action is fast moving, and unnecessary controls only cause delay and jeopardize the successful accomplishment of the corps mission.

The armored division should be given and should use mission type orders. It is unrealistic for the corps commander to assume that he can visualize the circumstances in which the armored division will find itself three days hence and one hundred miles behind the enemy lines. It is even more unrealistic for him to visualize that he will be on the spot at the time to make appropriate decisions. The greatest possible latitude should be permitted the armored division commander in the movement, formation, and disposition he makes to accomplish his mission. Only then will the mobility and flexibility of armor be fully utilized.

The armored division in conjunction with Tactical Air is the principal means available for the destruction of large enemy armored formations. Therefore, a realistic view should be taken in the conduct of the defense. A line of defense as such has no strength. Strength in defense comes in depth which permits maneuver of forces not engaged to create a favorable balance of forces at the point of penetration. Depth should be considered in terms of miles and not in yards. The armored division should not be employed in the line for the primary purpose of making a continuous line. The most effective use of the division in the corps and army team is its employment in a position in depth where it can maneuver properly for the purpose of destroying penetrations.

The armored division is a teammate of Tactical Air. The flexibility of formation and the ability to con-



Japanese Remote-Control Tank, 1934

concentrate effective power and influence over wide sections of the battle zone are similar. The teaming of these two forces deep in the enemy's rear achieves the maximum in destruction of materiel and the enemy's will to fight.

Finally, there is one weapon more effective than any

arm or service or equipment: the weapon upon which the future of the army depends — TEAMWORK! Teamwork motivated by flexibility of mind and progressiveness in thought — teamwork that will cut across boundaries of jealousy and prejudice without permission — teamwork that does not recognize rigidity in unit organization — teamwork inspired by objective and selfless leadership.

The Future of Armor

by General Jacob L. Devers

The weapons of warfare have changed through the ages, but the principles of warfare, which dictate the employment of weapons, have remained substantially the same. Of all the weapons which have come to hand, there is none, not even the airplane, which lends itself more readily than armor to the application of all the principles of winning warfare.

The generic term armor, of course, includes the whole of the armored team—the light, medium and heavy tanks of the armored cavalry, the armored infantry in personnel carriers and the self-propelled artillery.

In the selection of an *objective* which is to be seized and physically held, only the airborne commander is afforded a wider choice than the armored commander. Even so, for the consolidation and exploitation of that objective, he is today dependent upon the arrival of his attached armor by land or sea, and will tomorrow await armor by air as well as land or sea.

As for maintaining or regaining the *offensive*, it was armor, almost without exception in World War II, which gave our commanders this capacity, and prevented costly repetition of the static combat of World War I. Armor is equally preeminent in the practice of the allied principles of *mass, movement, surprise, and simplicity*.

This emphasis on the advantages of armor does not in any way detract from the credit due other ground arms, and the sea and air forces, for their contributions toward victory in the last war. But armor possesses to a marked degree the advantages of *economy of force* and *security*, both principles of major importance in any conflict. Comparison of armored division accomplishments with casualties per day of combat gives striking

evidence of efficient utilization of manpower, plus added security for units as well as individuals.

And, lastly, it is in *cooperation*, in basic battleground teamwork, that armor completely fulfills the final principle of warfare. On the working level, armor helps infantry realize its greatest potential, infantry complements armor, artillery supplements both. World War II demonstrated the invincibility of the United States Army's infantry-tank-artillery team; any future war would prove the same combination an even better bet, no matter what the odds, because of the improvements we have already effected and those we are in process of achieving, in both organization and materiel.

To take full advantage of the potentialities of armor from all of these aspects, its role in the field forces is being emphasized heavily in current training, and would be stressed even more strongly in the event of a future mobilization. We envision a field army organized on the basis of one armored to three infantry divisions; each infantry division would have organic to it the equivalent of two heavy tank battalions, and each corps would have one light armored cavalry regiment and one heavy tank group—a total of more than three thousand tanks in an Army of three corps. Each airborne division, too, would have attached to it two tank battalions, and we may hope that, in time, some or all of these tanks will be air transportable.

The future of armor is limited only by the ingenuity of American industry and the resourcefulness of the officers and enlisted men who belong to armored units. To those qualities there are no limits—nor are there to the future of armor.

The Fine Art of Losing

by Colonel Hamilton H. Howze

In this short article, I shall undertake to discuss a number of matters, mostly unpleasant, pertaining to the fighting of a losing battle. It is more agreeable to write about victories, and those are the tales that find their way to the pages. But it is healthy, sometimes, to have a good look at the dirty end of the stick.

United States forces operate on an offensive principle and feel that by vigorously carrying the battle to the enemy, the greatest gains are to be had. As a theory this is irrefutable, but I do suggest that some of our commanders have come to look upon it as a simple and infallible secret of success to be applied, like paregoric, in all



Soviet T-28 3-Turret Medium, 1933

cases. The theory produced a succession of impressive victories in World War II—when backed by a tremendous superiority of means. It is not too difficult to work up an enthusiasm for the offensive if one has three times the enemy strength in tanks and infantry, can lay down twenty-five rounds of artillery for each round one must take in return, and commands a hundred-to-one superiority in tactical aircraft. Of course it was not ever thus, but in the last few months of the war it was.

In the limited field of my own observation there was, in the last phase in Europe, a pretty general disregard of the requirements of defense, and some startling arrangements were to be found: battery positions and fire direction centers a few hundred yards behind a thin outpost line, 40mm Bofors casually disposed forward of the infantry battalion CPs, ammunition stocks so far up that the handlers could hear the burp pistols of the German patrols—and very frequently, no reserve position prepared or occupied behind the front line. Besides this, we neglected almost totally the practices of dispersal and camouflage, we drove streams of 6 x 6 trucks over supply lines in full view of the Germans, we flew cubs lazily up and down the front lines at three thousand feet, and when we heard fighter aircraft overhead, we didn't even bother to look up.

This is not criticism. The German forces by this time were so short of ammunition, equipment and manpower that they did not (with one notable exception) possess the capability of launching a sizable countereffort. Consequently, Allied troops were able to attack until they were quite worn out and then take a comfortable breather, confident that the battle would not be resumed until they themselves judged the time and place to be right. It is a great privilege thus to be able to call the play, but it leads to sloppy habits which will, in other circumstances, be a bit costly.

It is unnecessary to point out that the next war will start with our having something less than a preponderance of ground-and-tactical-air combat strength. From this it is not wise to conclude that we cannot eventually gain preponderance in this field, but (unless strategic bombing can accomplish the whole job practically unaided) we must go through the whole cycle: an initial inferiority; after a period of Allied rearmament, a struggle on approximately equal terms (so far as individual combat units are concerned) to establish superiority; and finally, we hope, a supremacy which will be decisive. So it is not only the initial stage of the fighting which must concern us, but also Phase II; in both of these phases we must be prepared to operate under unfavorable circumstances—the most unfavorable being that the enemy exceeds us locally in combat power and is possessed of a fervid desire to do us in.

My principal qualification to write this article arises from having participated on the losing side of an important battle, at Sidi bou Zid, in early 1943. There is no glory in such an experience, but it is illuminating. Both sides in a severe engagement suffer losses, but the retiring side finds its normal battle difficulties compounded.

We had very heavy battle casualties at Sidi bou Zid. In

our withdrawal from that area, across the Tunisian desert and through Kasserine Pass, we had the usual, normal, percentage of mechanical failures among our vehicles. The difference was that the tank or halftrack or truck that threw a track or blew a bogie or clogged its fuel line stayed right there; it was set afire if there was time, otherwise it fell into the hands of the enemy. The number of vehicles totally lost on this account may become a serious matter.

A similar fate, all too often, befalls misplaced or "lost" vehicles and detachments. In an advance these are a nuisance to the commander principally because, by their confusion, they fail to repair to the spot where they are needed; in a retreat, the enemy will scoop up a lot of them. In this and other ways small units or parts of units simply drop from sight, without explanation, and the higher commander not only sees holes developing in his defense, but becomes acutely aware that he may be penetrated in some areas on which he has no reports at all.

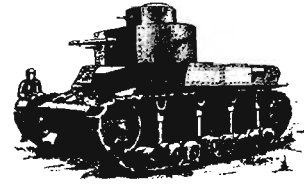
Retreat Compounds Confusion

The retiring force will leave behind a number of maps which betray part of its plans and dispositions; it will lose complete radio sets, codebooks and procedural data. So the attacker receives intelligence that gets better and better, more complete, while the retreating force finds that the situation grows progressively more obscure and misleading. A graphic demonstration of this, repeated again and again in the long advances, arose when a German column was unexpectedly intercepted by an American column. Almost in every case the American force lambasted the other. Our people were more alert, with their weapons loaded and their eyes peeled; for while our subordinate commanders were well informed of the situation—and particularly that they were part of a deep penetration—the German officers were almost always astounded to find us at their throats. The advance disrupted their communication nets, and their resulting ignorance aggravated the general disaster.

An incurable Pollyanna may contend that the retreating commander gets some compensation in that he falls back upon his supply system, and shortens his line of communication—so he does, but in the course of it he leaves a goodly portion of the end product of the LOC, the supplies themselves, to the enemy for his use. Suggestions for the improvement of the logistic situation are always in order, presumably, but a general retreat is not usually a satisfactory solution.

An examination of the matters above listed, plus a vivid memory of the rather terrible days of Sidi bou Zid, is discouraging—it brings to mind the Irishman who said of a particularly trying epidemic of influenza, "there's people dying now that never died before."* Of course there is no satisfactory solution—the very fact that one is losing ground is indication enough that the situation is partly out of control. I, nevertheless, have a number of points to make.

*Somerville and Ross. *Further Experiences of an Irish R. M.*



Soviet T-24 Tank, 1930

First, I suggest that we study the art of battle fought under unfavorable conditions. It will be an unpleasant and sobering study, and will pose problems many of us have never faced. I recall the order issued by Headquarters First Armored Division during its first days on the Tunisian desert—that no vehicle would use any road, in daylight, within thirty miles of the front line, unless on a mission of urgency. This order was brought on by the simple fact that even a single vehicle scurrying across the desert invited *probable* destruction by a Messerschmitt—a startling contrast to the situation obtaining a couple of years later, in which it was not uncommon to see a number of U. S. units locked in a tight, motionless (and usually wrathful) embrace, vehicles bumper-to-bumper and four columns wide, within light artillery range of the enemy. There is a vast, indescribably great difference between these two situations: what can be accomplished easily and without much risk in the absence of strong enemy air and artillery, is quite out of the question where these elements are present. When one side of a battle enjoys air *supremacy* the very rules of ground warfare are different; what is entirely permissible for one side is totally forbidden to the other. To a somewhat lesser extent the same remark applies when there is a great disproportion in the strengths of artillery.

The second point is akin to the first. In our war games and maneuvers conducted, as suggested above, under unfavorable conditions, we should determine how to minimize the punishment incident to numerical and material weakness. Certainly we must learn how to force the enemy into concentrations sufficiently large to make profitable the employment of atomic explosives, while avoiding similar concentration. And we must develop the art of the defensive zone,* as distinguished from the linear defense.

A Survey of Soviet Armor

by Lieutenant Colonel Michael S. Davison

I. Introduction

When Hitler's armies lunged across the borders of the Soviet Union in the summer of 1941, the Red Army became the center of hopeful world attention. It has remained so ever since with the rather significant exception that hope has been replaced by apprehension.

The remarkable performance of the Red Army in sustaining the initial punishing blows of the blitzkrieg, in applying its strategic concept of defense in extreme depth, in refraining from piecemeal commitment of its strategic reserves, in retaining its organizational unity despite initial wholesale surrenders and tremendous losses in men and materiel, and in turning imminent defeat into a final successful counteroffensive and victory over Germany's finest troops — all this bears evidence that the Nazi defeat in Russia is not to be explained away merely by a group of whining German generals passing the buck to Hitler's intuition. Accep-

A corollary matter is that of the active defense. Everyone acknowledges the validity of the theory, but the practice of it is quite another thing. The diversionary attack or the counterattack, essential to effective defense, requires forethought and advance planning—and it requires reserves. An already committed unit that has been severely punished in the recent past will not make a good effort on a counterattack mission, and it is frequently a waste of means to order it to such a task. On the other hand, the commander of a greatly inferior force will require strong will and fixity of purpose to stand off the entreaties of his subordinate commanders, made even before the main battle, for help. These pleas he must firmly resist, and keep sizable reserve forces mobile and in hand.

Though a little obvious, I bring up the subject of discipline—for never is this soldierly quality put so severely to test as in retreat. Rumors of disaster spread like wildfire and are difficult to controvert; panic is close to the surface, nurtured constantly by confusion and rumor. The temptation to funk it is ever present. Truly, the seeds of discipline must be sown deep, and cultivated carefully.

Finally, the leader must previously have developed in himself "great strength of mind and soul," as Clausewitz says. He'll need it, to contend with the conflicting and erroneous reports, the false tales of disaster, and the very real facts of loss of ground and men and materiel. He'll need it to withstand all the disadvantages of the retrograde movement, while fighting to bring about, a little sooner, the grand turning of the tide.

*The defensive zone must, it seems to me, have one outstanding characteristic. It must absorb, without vital effect and without moving the general location of the zone, fairly deep enemy penetrations, to be dealt with first by a slowing process, then a containment, then a choking-off at the root, and finally destruction. But although the zone itself may not be forced backwards, units within it at the point of enemy thrust must know how to retire gracefully—and hence the requirement for study of the fine art of losing.

tance of the German rationale might lead us to underestimate the true strength of the Soviet Army.

It must be understood that, from the early 1930's on, the Politburo took the threat of war seriously. The messianic vision of international communism entertained by the Bolsheviks demanded that Soviet Russia be armed against the inevitable capitalist attacks. Preparations for war were no less intense than they were in Nazi Germany. The five year plans developed the industrial base. Dispersal of industry was put into effect. The psychological preparation of the Soviet people was commenced through propaganda and agencies for the defense training of civilians. Increased emphasis was placed on Russian nationalism or "Soviet patriotism" to give the moral driving force to total mobilization. Marxian propaganda was subordinated to national unity and patriotic appeals. The army was



British Matilda Mk II, 1939

increased, discipline tightened, officers corps strengthened, training improved, weapons developed. All this prepared Russia for the Nazi onslaught.

As the events of 1941-42 proved, the preparations were not complete and it was the timely intervention of General Winter plus some carefully hoarded reserves which gave the Soviet Army a much-needed period of grace. Nevertheless, the foundation had been laid and the sources of strength existed. It remained for the Soviet high command to marshal and apply the strength with proper strategy, tactics, and technique. What was achieved in the armored field is the subject of this investigation.

It is necessary first to insert a word about the sources of information used for this paper. The paucity of authoritative detailed information on the current Russian scene is well known. Since there are no Soviet Congressional Records or Drew Pearsons available for consultation, researchers without access to classified information are reduced to poring over the Russian press, propaganda publications, government releases, radio announcements, and belles lettres. Then by drawing on their extensive knowledge of past Soviet behavior, they can arrive at some sort of interpretation. These evaluations are then used by other evaluators, errors are compounded and realities become more tenuous. Most of the writing is on high level matters and eschews the worm's-eye view. This general field plus a clutch of propaganda articles written by Russian army officers during the war for foreign consumption represents the source material. I have a very definite feeling that my crystal ball is cloudy but I hope that more astute observers will endeavor to correct my errors and to elaborate the somewhat skimpy fabric of my presentation.

II. Tactics

A. Prewar Concepts

In 1925, Frunze succeeded Trotsky as War Commissar. Frunze was acutely aware of two fundamental facts bearing on the Soviet military strength. First, the capitalist countries enjoyed a considerable industrial head start. Until the Soviets could overcome the capitalist lead, the Red Army would be deficient in equipment at the outset of any war. Second, Russia in the vastness of her territory possessed a considerable source of strength. Space could be traded for time. But this same space afforded opportunity for maneuver on a vast scale. There could be no static war of position because the tremendous reaches of the Russian territory would soak up troops like a sponge and still there would be room for maneuver. Thus, Frunze visualized maneuver warfare conducted by a mobile army imbued with the spirit of the offensive.¹ The new Field Service Regulations published in 1936 summed up the Russian concept as follows: "Modern technical means of reducing the defense (above all, tanks, artillery, airplanes and mechanized units, when used on a mass scale) make it possible to organize a simultaneous attack on the enemy throughout the whole depth of his position, to

isolate him, to encircle him completely and finally destroy him." This was the point of departure in developing the doctrine of the various arms.

Early thinking on the employment of the tank placed it in two roles. The doctrine distinguished between tanks for support of infantry and tanks for "distant action." The latter were to be independent tank formations employed for extended maneuver and operation against the enemy's rear areas, in particular, communications centers, reserves, and artillery positions. However, tactics and technique for the "long-distance" units were not worked out in detail. In 1941, at least half of the total tank strength was in infantry support units indicating a conservative attitude towards large independent armored formations.² That this attitude was destined to change after the war began is reflected in a statement attributed to the future Marshal of Armored Forces Rotmistrov speaking as a colonel in 1939: "Tanks must be employed in masses. The best opportunity for a tank commander is to be in command of large groups — a brigade, a corps, an army. Those are splendid instruments in an offensive. A concentration of a thousand tanks — that is the dream of every tank commander."³

B. WWII — Offense

During the course of the war, a fairly consistent picture developed of Soviet employment of tanks in the assault and breakthrough of a prepared defensive position. At any rate, rather more writing has been devoted to this phase of armor in the attack than to the conduct of the "rat-race" after the breakthrough has been made.

The assault and breaching of the enemy position is a combined arms operation in which the infantry is the decisive weapon. Soviet doctrine stresses the detailed prior planning of the operation. The various units to be employed in the operation are brought together beforehand for combined training under conditions closely simulating those of the actual operation. Training is climaxed by CPXing the conduct of the proposed battle. Extensive reconnaissance is used to develop details of the terrain and of the enemy positions. Such information is incorporated in the training of units preparing for the attack.

The actual attack is preceded by an air and artillery preparation extending through the depth of the position. The Soviet Army delights in massive artillery preparations delivered in great weight and for a prolonged period. However, even though this is their preference, Russian military writers emphasize that the attack preparation must not be stereotyped and they offer as an alternative a rolling barrage commencing at the time of attack or an attack without preparation using artillery and air as the battle develops.⁴

Of concern to Soviet commanders is the problem of marrying-up the tanks and infantry in the initial attack position. Coordination should be such that the tanks are not held up once they arrive at the attack position. Obviously, the tanks would be the center of considerable enemy attention.



German PzKpw I Light Tank, 1935

The initial wave of the attack, coming in close on the heels of the artillery preparation, consists of heavy tanks accompanied by infantry on foot. The primary mission of the heavy tanks is to destroy known AT guns, to force the disclosure of unlocated AT guns, and to deal with any enemy tanks that appear upon the scene.

The second wave, following at approximately 500 yards according to one account, is composed of medium tanks each carrying some ten infantrymen. Each team of tank and infantry has been allotted a bunker, weapon position or other objective in the enemy position. The mediums pass through the first wave when the AT opposition has been eliminated. They may assist the heavies in dealing with the AT defense.

A third wave, similar in composition to the second, attacks enemy positions in depth and is prepared to exploit the success of the second wave. Infantry on foot follows the second and third waves to consolidate their gains thus freeing the tankborne infantry to continue with their assigned tanks.⁵

Light tanks, if employed, follow behind the mediums and are used after a breakthrough is made to secure the flanks and conduct reconnaissance.

Once the tank-supported infantry has succeeded in breaching the enemy position, armored formations are passed through and encirclement of the enemy is sought. Illustrative of this type of action is the highly publicized November offensive in 1942 at Stalingrad which resulted in the capture of Von Paulus and his army.

In this action, the XXVI Tank Corps (roughly equivalent to our armored division of World War II) passed through a breach opened by a combined arms attack and moved some 75 miles through enemy territory to a juncture with a similar spearhead. The operation was characterized by the usual detailed preparations, including hours of night driving for the tank crews across the steppes learning to negotiate ravines and gullies in the dark.

The tank corps passed through the infantry in two columns traveling cross country. They immediately plunged into the tremendous space of the steppe where compass navigation was required. No effort was made to maintain a line of communications to the rear. Presumably ammunition trains accompanied them and one writer specifies that German supplies were to be used for refueling.⁶ No halt was made the first night and only short ones thereafter. Once well into the enemy rear they had no compunctions about using vehicular lights at night. As a matter of fact, if one can believe the Russian military writers, this is a common practice in the Soviet armored force.

The final objective was a bridge across the Don River which was to be secured intact. This was accomplished by using an advance detachment consisting of five captured German tanks and three captured trucks transporting sixty tommy-gunners. This force secured the bridge and held off the Germans until the main body of the corps arrived.

So much for the general employment of Soviet armor on the offense. However, there are some interesting details of Soviet tank technique worth noting. The observations that follow are derived either explicitly or implicitly from articles by Russian officers written for U.S. consumption and perhaps should be well salted before swallowing.

There are repeated references to tank battles with the Germans in which the Soviet tanks attack firing their cannon as they move. The Russians call it more effective than stationary fire which they don't care for because the enemy then has a standing target at which to fire. They are singularly reticent about how they obtain accuracy with the tank gun while moving, making only this rather smug comment: "Fire from moving tanks naturally requires high skill and training of crews."⁷ This is, of course, a degree of proficiency only attainable under the dictatorship of the proletariat and quite beyond the reach of the decadent capitalist. In fact, the Soviet tanks on occasion carry the "charge" to the point where they are completely intermingled with the opposing tank formation. Numerous citations for decorations carry accounts of ramming German tanks in order to disable them.⁸

Another point of interest is the use of observation posts by Soviet tanks in an engagement. It would appear that the tank unit commander uses the OP as the point from which he controls the action of his units. In the early days of the war when sometimes entire battalions were without radios, control from the OP was achieved by motorcycle messenger or liaison tank. If the OP is still part of the scheme, presumably control is now by radio.

In summary, Soviet use of armor on the offense calls for a massive stroke by tank-saturated infantry followed by breakthroughs of highly mobile armored formations striving for encirclement link-ups while the mass of infantry mops up behind them. A graphic description of such an advance is given by General Manteuffel, a panzer commander in the East, when he said, "The advance of a Russian army is something that Westerners can't imagine. Behind the tank spearheads rolls on a vast horde, largely mounted on horses. The soldier carries a sack on his back, with dry crusts of bread and raw vegetables collected on the march from fields and villages. The horses eat the straw from the house roofs — they get very little else. The Russians are accustomed to carry on for as long as three weeks in this primitive way when advancing. You can't stop them like an ordinary army, by cutting their communications, for you rarely find any supply columns to strike."⁹

C. WWII — Defense

The basic Soviet defense strategy in World War II is well known. It was essentially one of trading space for time in which to complete mobilization and the assembly of forces for a counteroffensive. It was a costly strategy because the German offensive was launched through the productive heart of prewar Russia. Some dispersal of industry had been accomplished in the five



German PzKpw III, 1939

year plans prior to 1941 and transplanting of factories took place during the retreat, but the agricultural economy of the German-occupied areas suffered great loss from the scorched-earth policy of the Russians.

In implementing their defensive strategy, the Soviet Army disposed its troops in great depth. The May 1942 issue of *Fortune* speaks of a Soviet Corps being disposed, according to the situation, on a 5 to 12 mile front with a main defense zone 9 to 12 miles in depth. While these figures are somewhat ambiguous, it is clear that defense in great depth is firmly rooted in Soviet tactical doctrine.

Large armored formations are held in army or "front" reserve for use in counterattacks against successful enemy breakthroughs. In the event of breakthrough there is no general withdrawal along the line. Units adjacent to the breach refuse their flanks. Reserve units are disposed against the flanks while others attempt to contain the point of the enemy spearhead by occupying previously prepared secondary positions. If these moves are successful, the large armored units in reserve counterattack, preferably against the flank of the breakthrough.

Within the defensive position, infantry-support tanks may be employed in dug-in positions in forward areas if other antitank means are considered insufficient. However, the preferred employment is to hold them in mobile reserve. The reserve position is selected so as to place the Soviet tanks athwart the probable line of advance of the enemy armor. The tanks are placed in camouflaged positions to cover with flanking fire the obvious tank routes through the position. When the enemy attacks, the Soviet infantry allows the enemy armor to pass through their position. The Soviet infantry then engages the enemy infantry in order to separate them from their armor. Soviet tanks ambush the penetrating enemy vehicles. A mobile reserve is maintained to either exploit or reinforce the defensive battle.¹⁰

Soviet defensive doctrine calls for the tanks to organize for an attack from any direction and to conduct constant reconnaissance of the area surrounding the position. This is vital where the great expanse of land and the tremendous length of the fighting front make for conditions of highly fluid and mobile warfare.

Armor on the defensive carefully and expertly camouflages its tanks. If the ambush system is to be used, sectors of fire and control arrangements are carefully laid out beforehand.

In the event of a daylight withdrawal, the tanks are expected to cover the extrication of the infantry. The tanks then move back by leapfrogging units to the rear. However, night withdrawals are preferred.

The underlying principle of Soviet defensive action lies in their firm conviction that a battle is never lost as long as there exists even the slightest means of resistance. Bypassed units do not surrender; they fight on and, when fuel and ammunition are exhausted, the men join the guerrilla units.

D. Operations at Night

Most of the Soviet Union lies north of the 50th parallel. During the winter, major operations are handicapped by the short period of daylight. Consequently, the technique of night operations became highly developed during the war, the general principle being that the infantry would penetrate the enemy defenses during the day and the tanks would pass through at night.

Such an operation requires extremely careful preparation. The Russians emphasize detailed prior planning and training by the units involved. Reconnaissance is carried out to select routes, locate obstacles, and remove mines. Drivers are taken over the selected routes at night up to the enemy positions.

For the attack, moonlight nights are preferred so that the tanks and accompanying infantry can maintain their orientation. The infantry assists in keeping the tanks on course and in designating targets. Formations are echeloned in depth making movement and control easier. According to one writer, such a formation also gives the enemy an impression of much greater strength because it is more difficult to estimate at night the strength of a unit deployed in column rather than in line.¹¹

Tank-infantry cooperation is even more important at night than in daytime. Under no circumstances, the Soviets feel, should the tanks and infantry become separated. Upon arriving on the objective, the infantry organizes the new position while the tanks are withdrawn to a rear assembly area.

Thus with tremendous quantities of tanks (30,000 armored vehicles per year 1943-45¹²) and by rotation of units, the Soviet Army can maintain the tempo of its offensive around the clock.

E. Operations in Winter

The Soviet Army reckons that its armor can operate effectively for 10 months out of the year in central and north Russia. There is a period of from 6 to 10 weeks at the beginning and end of winter when General Mud commands the battlefield and tank operations are extremely difficult.

Maintenance and driving seem to be the major problems in winter operation. Formations in snow must be echeloned to avoid tracks of preceding tanks. Extra wide tracks and grousers assist in negotiating deep snow. Drivers are trained to make their turns wide and smooth. Drifts and snowbanks may be broken through at high speeds.

During rest periods or when in reserve positions, special precautions must be taken to protect men and machines. Tanks are dug-in up to the base of the turret (implying the use of TNT on the frozen ground), a trench is dug between the tracks and a portable stove set up. Tanks are covered with paulins and camouflaged with snow. Engines are turned over three to four times a day to insure easy starting. The crew gets shelter and warmth under the paulin.

Tactics in winter dictate careful terrain reconnais-



German PzKpw IV, 1939

sance to avoid snow-filled gullies, ravines, and depressions. Ski-troopers are attached to the tanks — 4 to 5 skiers per tank — to carry out forward reconnaissance in difficult or unknown terrain. In the attack armored sleighs carrying 6 to 7 infantrymen are towed by the tanks. It is claimed that this scheme had definite value in reducing infantry casualties in the opening stages of the attack by carrying the infantry rapidly into close contact with the enemy.¹³

III. Organization

The Russians were extremely careful throughout the war to prevent disclosure of any organizational details of their army. Press releases and military articles were written with only rare reference to units below the army or "front" (army group) level. Although corps, brigades, and divisions might be named, details of their composition were not given. However, sufficient information has been assembled by various means to indicate the general scheme of armored organization. The fact that much of the information is contradictory in detail perhaps indicates that the Soviets were not inflexible in their organizational concepts and that throughout the war they adapted their formations to the experience they gained as the war progressed.

Major General Katukov, a Russian tank officer, has this to say on organization: "At the beginning of the war, the Red army tank troops were organized into divisions. Battle experience has shown, however, that these units were unwieldy and inconvenient for managing. The tank divisions have since been broken up into small units and re-formed into brigades that are more pliable on the battlefield."¹⁴ Berchin and Ben-Horin place the strength of the tank brigade at the beginning of the war at 270 tanks. They note that during the Finnish War a heavy tank brigade consisted of three heavy tank battalions, each having 35 heavy tanks and 15 light tanks. They do not mention any infantry component in the brigade.¹⁵ In May 1942, *Fortune* magazine also placed the brigade at 270 tanks. The Red Army was calculated to have 25 tank brigades some of which had motorized infantry *attached* to them.

General Guillaume, French Army, indicates that the tank brigade in common use during the war was composed of three battalions of 21 tanks each — again, no infantry element. In place of the armored division had appeared the armored corps. The early armored corps contained two tank brigades and one infantry brigade.¹⁶ By the end of the war the normal armored corps had been increased in tank strength from two brigades to three.¹⁷ No strength or composition is given for the infantry brigade of the corps but since, in the case of the tanks, battalions are the components of the brigade, a safe assumption would have the infantry brigade consist of three battalions. Thus for each brigade of 63 tanks, there would be one motorized infantry battalion. The armored corps had a total of about 200 tanks, 100 artillery pieces, 24 antitank guns, and 28 anti-aircraft artillery pieces. In 1943, self-propelled guns were furnished to large armored units. By

the end of the war, there was a ratio of one SP to two tanks. It is not indicated whether this was in addition to or at the expense of the tank strength.

With respect to infantry support tanks, *Fortune* of May 1942 states that normally each infantry division had attached to it a battalion of 45 tanks. In the normal three division corps there was a tank brigade of 135 tanks.

The three major tanks employed were the T-34, the KV-2, and the Stalin. The T-34 medium was considered the primary exploitation weapon. Initially it was armed with a 76mm gun but this was later raised to an 86mm weapon. This was a 30-ton vehicle. The KV-2 was a 52-ton tank mounting a 76mm gun. It was designed primarily for infantry support. In 1943, it began to be replaced by the Stalin. Guillaume describes the Stalin as a 57-ton tank armed with a 122mm gun and three .30 caliber machine guns. Its Diesel engine generated 600 horsepower and it had 3.85-inch armor. Its ground pressure of 11.6 lbs/sq. in. outclassed the German Tiger with 17.7 pounds and the Royal Tiger with 12.8 pounds.¹⁸

German commanders in the East were unanimous in their praise of Soviet tanks. Rundstedt said: "The Russian heavy tanks were a surprise in quality and reliability from the outset.... Their T-34 tank was the finest in the world." Manteuffel, who also fought both in the East and the West, felt the Stalin tank to be the best tank he saw anywhere during the war.¹⁹

IV. Training

The Soviet citizen entering the army is not the military innocent to be found in the reception centers of our country. In the first place, he is thoroughly accustomed to regimentation, having been exposed to it from the time his mother stuck him, at the age of four weeks, in the community nursery of the collective farm and went back to her allotted place behind the plow. As soon as he entered school, he came under the jurisdiction of the junior affiliation of the Young Communists known as the Octobrists. He began learning how to march in formation and became acquainted with Soviet discipline. Whether he progressed from the Octobrists into the Pioneers and thence to the Komsomol (Young Communists) or failed to advance in the party auxiliary, he still would come into contact with the Osoaviakhim.

This civilian agency was designed to teach rudimentary military skills to the people such as rifle marksmanship, grenade throwing, and partisan tactics. Thus military preparedness and the art of war were to be part of the daily life of the civilians.

A second influence in the tanker's training was the MTS or Motor Tractor Stations of the collective farm system. An integral part of Russian agricultural plan is a high degree of mechanization. Tank recruits from this source had the mechanical technique and skill which is readily transformed into the specialized requirements of an armored unit.



Soviet T-60 Light Tank, 1941

Once in the army the individual soldier lived under a rigid training schedule based on the maxim of Catherine the Great's famous general, Alexander Survorov — "Hard on the training ground, easy on the battlefield."²⁰ During the war, an average day went something like this: reveille 0600 followed by physical training exercises, breakfast 0700, training 0800-1300, dinner 1300. Afternoon programs varied but one afternoon a week was devoted to political education. Supper was at 1700. The evening was devoted to discussion of the day's news by the political commissar. Occasionally entertainment programs were provided in the evening. At 2200 lights were out and the men in bed. Soldiers had approximately 30 minutes of their own time a day.

In unit training the Soviet Army took advantage of the vast range of climate and terrain available to them in their huge territory. Conditions range from the constant cold and scanty vegetation of the far north through the more temperate area of far-reaching belts of coniferous forests to the great spread of the ocean-like steppe in the south. There are mountains and deserts, huge lakes and wide rivers, and great maneuver areas unrestricted by farms and cities.

The army takes advantage of these conditions through a device called "route training."²¹ Under this system, units are constantly on the move. Detailed and exact schedules are drawn up indicating the arrival time at various training areas, the training to be performed, location of bivouacs, etc. Stress is placed on precise adherence to the time schedule. Variation of terrain and climate enhance the training. Separation from barracks life hardens the men. Tank crews learn to operate under a great variety of conditions, particularly those of difficult driving.

In the forward areas of the combat zone rigorous training continues unabated for reserve units. Conduct of special operations is emphasized — attack of fortified positions, raids, river crossings, etc.

The Russians were quick to correct their mistakes of the early period of the war. They improved and intensified their training based on the experience they had gained. General Kleist, CG 1st Panzer Army, had this to say of the Russian soldier: "The men were first-rate fighters from the start.... They became first-rate *soldiers* with experience. They fought most toughly, had amazing endurance, and could carry on without most of the things other armies regarded as necessities. The staff were quick to learn from their early defeats, and soon became highly efficient."²²

V. The Soviet Soldier

Who is the man who mans the tanks of the Soviet Army? In the camp of the most extreme Red-baiters, he is depicted as a brutish lout, a fatalistic Asiatic barbarian, raping, looting, and swilling his way across the Eurasian continent under the cynical guise of "liberator." Less than ten years ago, we were calling him a noble ally, a valiant patriot standing defiant before the Nazi scourge, fighting for his home, his family, and his country. The Kremlin says he is the superior product of

a superior system, more intelligent, more efficient, and more cultured than the slaves of the capitalist warmongers — in essence, the Soviet Patriot.

Disregarding the extremes of judgment, it is evident on the record that he is a capable soldier. His very way of life has made him hardy and used to adversity. This is good because it enables him to fight without Coco-Cola, USO shows, food-service inspectors, and rear-area empires. He is accustomed to harsh discipline although it does not necessarily follow that he is always amenable to it or incapable of breaches of discipline — after all, there is a revolutionary tradition in Russia. He is young — the Soviet population has a high proportion of young people. He loves his country and his land and, as for his government, well, it may be a hard life under the dictatorship of the proletariat but the sacrifices of today will bring the perfect society of tomorrow. And even if he believes that tomorrow may be beyond his reach, it is still better to be a Soviet citizen, however grim life might be, than it is to be a capitalist slave.

In any event, in the new Soviet social hierarchy, the soldier occupies a favored spot. The Bolsheviks have made many concessions to insure that the army remains a loyal political instrument. While many of the privileges and benefits of higher social status are reserved for the officers, the soldier is not ignored. We might not think his position very enviable but relative comparisons are dangerous. What is famine to us might be a feast to someone else.

With regard to the technological skill of the average Soviet inductee, the evidence indicates that the army suffers by comparison with the West. This can be understood in terms of the industrial time-lag in Russia. General Deane noted the surprise of Russian soldiers observing the unloading of special purpose trucks at an American shuttle-bombing base when it became evident that *any* American selected at random could drive any of the vehicles. A Russian would require special instruction to be able to drive more than one type.²³ However, this gap is being closed under the influence of forced-draft industrialization and intensive mechanization of agriculture.

In Soviet Russia, in order to maintain its people at mobilization pitch and to extract maximum effort from them, the state deliberately creates and fosters an atmosphere which is designed to make each citizen feel that he is personally building the socialist state. For the Soviet soldier this means the defense of the fatherland. Daily the danger of capitalist encirclement and attack is pointed out to him in which the United States is the main antagonist. This same line was used during the war to inspire Soviet hatred of the Nazis. Added to the natural Russian love of home and land, it resulted in a battlefield performance grudgingly admired even by the Germans. The *Voelkischer Beobachter* of July 1, 1941 stated: "The Red Army men are fighting like madmen, to the point of absolute exhaustion." And again on July 4, the paper wrote: "Our army has this time met an enemy who is defending himself with persistent obduracy, regardless of losses, and who does



Soviet T-34 Medium Tank, 1940

not give up one foothold of land without an exasperating fight.”²⁴

Ah yes, we say, he may fight like a bearcat, but he is the product of a system which crushes initiative, penalizes independent thinking, and vitiates the power of decision. Such a line of reasoning seems logical and there is some evidence to support it, particularly in the middle grades of the officer ranks. However, the Soviet Army early recognized the need for developing non-commissioned and junior officers. Voroshilov stated, prior to the war: “Junior commanders will play the foremost and the most influential role in the next war.”²⁵ Appropriate training was carried out vigorously and accounts of small unit actions during the war testify to its effectiveness. At the other end of the scale it is generally recognized that, during the war at any rate, the Soviet Army High Command encompassed such huge responsibilities and played such a vital role that its major commanders enjoyed considerable freedom of action. According to Guillaume, the commanders of the various fronts were men of considerable talent “for in the Red Army, as elsewhere in the USSR, advancement depends, apart from unswerving devotion to the regime, solely on the ability to get results.”²⁶

VI. Conclusions

Several points appear to stand out as a result of this brief survey.

a. Early thinking on the employment of armor tended to neglect its exploitation role in independent formations in favor of its infantry-support role. During the war, the trend was in the opposite direction with increased use of large armored commands.

b. Offensive operations of Soviet armor are characterized by deliberation. Emphasis is placed on detailed planning and careful rehearsals.

c. The motivating factor of the offense is the massive infantry assault, saturated with tanks and given violent artillery and air support.

d. The continuity of the attack is maintained by around-the-clock operations.

e. The conduct of the defense is marked by great

tenacity and by the employment of reserves in a coordinated counterattack rather than in piecemeal commitment.

f. Organization appears to be flexible, adapted to the mission assigned and the material available.

g. Training is intensively and realistically conducted with an eye on the great variety of terrain and climatic conditions to be found in the Soviet Union.

h. The Soviet soldier is a very capable fighting man with strong patriotic motivations.

i. The gigantic space and sweep of the Soviet lands have had a fundamental effect on the development of Soviet strategy, tactics, and military technique.

j. Armor is an essential component of the Soviet combined arms team. Its employment is tactically sound and its material is of a high order. Postwar improvements can be expected to advance its performance.

Footnotes

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Preparing For the Payoff at Belsen Hohne

by Brigadier General James H. Polk

Gunnery is the battle payoff — and the Belsen Hohne Rangers are ideally suited to prepare for it. Belsen Hohne refers to a modern British tank firing range situated in the North German lowlands between Hannover and Hamburg. A range devoted exclusively by U.S. tank battalions to practice and qualification with the 90-mm cannon, it accomplishes a vital role in an integrated program for tank gunnery in Germany. For approximately two months a year, American Seventh Army tank gunners use its facilities to blast away at various targets.

Student gunners participate under a Seventh Army program so organized as to permit sole concentration on tank gunnery. Groups from the Seventh Army, normally 934 men strong, travel to Belsen Hohne for a week's training. A carefully planned schedule permits expert training of this large group of men. Some of the men have been training in Germany for over a year. Others, for instance those recently attending from the 3d Armored Division, had been in Germany only two weeks before they went to Belsen Hohne. Both new and old men are commanded and instructed by school troops



Soviet SU-122 SP Gun, 1944

which this year are selected from units of the 4th Armored Group.

The Germans used Belsen Hohne before and during the war. The inspiration for the present range goes back to 1935 when a battle run facsimile of the Maginot Line was constructed and used for extensive and realistic rehearsals. Over two years ago, the British started modernizing and extending the range into its present form. The work, consisting of deforestation, scraping and construction, was completed a year ago at a cost of 24 million marks.

Today the range is a permanent British base consisting of numerous camps for the various British units. Each camp has its own mess hall and barracks, and is near to the numerous facilities that are available. Three camps are set aside for other NATO tankers who then use the range for nine months a year. Bids for training dates are submitted by each of the NATO countries, and subsequent negotiations produce a calendar. Operation of the range is financed with NATO funds. The British serve as the controlling element for coordination and overall supervision, repair and operation, maintenance and safety. But each group of visitors organizes its own school program and advises the British as to how and when they want to have the ranges operated.

Belsen Hohne is not the only site in Germany where the main armament is fired. At Grafenwohr, for instance, both maneuver training and heavy armament firing are conducted. But the training at Belsen Hohne represents an ideal rarely attained in firing ranges. Particularly important is the opportunity to fire at moving targets. Unlike Grafenwohr, the ample opportunity provided at Belsen Hohne for firing Table VII is not made available at the expense of concurrent use of the other ranges. In a land where training areas are limited, training cannot be conducted at one large site. But Belsen Hohne is geared with other major training areas, miniature ranges and home kasernes to form an integrated program of thorough gunnery training.

What then is Belsen Hohne? Its success may be primarily attributed to the excellent facilities which the British have constructed there, as well as to the organization which the 4th Armored group set up this spring. Twenty ranges comprise Belsen Hohn, each with a capacity of a company of 18 tanks. Arranged around the circumference of the 17 x 8 kilometer area, they all fire towards the center. The tanks reach the firing position via the "Grand Circle" of a hard-surfaced highway. The firing positions themselves are concrete surfaces which eliminate the mud, ruts and rocks typical on less formal tank firing ranges. A specially constructed gravel bed stretches out before each firing position, reducing the obscuration common to other ranges when the cannon is fired.

The four standard tables, all different target exercises, are fired by each of the participating gunners. Though not used this year by the United States forces, three of the ranges can be converted into battle run ranges.

Each range can be set up for at least one of the tables

used to qualify the students as tank gunners. Each student must attain a minimum score on the four tables in order to qualify, having already qualified on the subcaliber tables at his home station. Every student is rated according to the proper use of his instruments, his firing speed and accuracy. The rating which the students receive on the basis of their scores permits determination of the relative efficiency of the individual tank crewmen. It gives the men an additional incentive to excel in the performance of gunnery duties.

All ranges can be set up for Table V. This is the first requirement for every student. Table V is designed to test the gunner's ability to zero the M20 periscope and M97 telescope, using four or five rounds of shot ammunition. The students line up the gun barrel, periscope, range finder and telescope on one of the 6 x 6 foot targets positioned in groups of three at 1500 yards. They then strive to fire three rounds in a tight group of target hits. After correcting the reticles of the sights without moving the gun, a fourth round is fired for checking purposes. In order to provide against sighting difficulties caused by weather or a total miss with one of the first rounds, a fifth round may be fired when necessary.

Table VI tests the gunners' ability to utilize the burst-on-target adjustment on stationary targets. The men fire eight rounds of ammunition at four targets. These targets are staggered at unannounced distance intervals: between 800 to 1200 yards, 1200 to 1500 yards, 1500 to 1800 yards and 1800 to 2000 yards. The students are given a "battle sight" designating one of these intervals. They then have two rounds of HE ammunition for each of the first two targets, and two rounds of AP ammunition for each of the latter two. The near targets measure 3 x 5 feet; the farthest, 6 x 6 feet. Direct hits must be scored on the shot targets, while the HE ones are considered hits if the shellburst is one mil above or below the target, or five mils to either side.

Table VII consists of two parallel tracks on which tank silhouette targets move at distances of 1000 and 1400 yards from the firing position. It tests the gunners' ability to utilize burst-on-target adjustment on moving targets using shot ammunition. The targets move at eight miles per hour back and forth between two flags which mark the limits of the 200-yard tracking distance. The gunners are instructed to track the targets with a lead equivalent to the length of the target. Care is taken to see that the gunners learn to actually track the targets rather than trap them. Two rounds are fired at each target at the two ranges and an extra round is available for contingencies.

On Table VIII the gunners estimate target distances in a simulated night firing exercise. The gunners are tested on their ability to determine prearranged firing data for selected targets and engage area type targets with HE ammunition under conditions of restricted visibility utilizing range cards. The targets consist of crossroads, road houses and points comparable to enemy positions from whence an attack might be made. In the actual exercise, the gunner uses his range card to



U.S. M4A2 Sherman Tank, 1941

fire one round on any target selected by verbal command of the tank commander.

In previous years, the platoon battle run was always a feature of training at Belsen Hohne. It has been cut out of the current season for Seventh Army tankers as a better and more realistic course is nearing completion at Grafenwohr. The new tank-infantry platoon proficiency course, built under the personal direction of Lieutenant General Bruce C. Clarke, incorporates many of the features of the Belsen battle run but will be a vast improvement as it maintains tactical integrity, presents more realistic situations and permits employment of the tank-infantry team with supporting weapons. It is programmed to open in July of this year.

In addition to the ideal range, a rigorous one week schooling program is dedicated exclusively to work with the tank cannons. No passes are issued nor are details such as guard duty assigned. Hence the optimum atmosphere is created for concentration on the opportunities that Belsen Hohne provides. The schedule provides a six-day week for actual gunnery. One of these is reserved for make-up periods and graduation. Two additional days are allowed for travel. Each day the gunners fire on a different table, except that two days are reserved for the more difficult Table VII.

Five orders of students switch 13 work periods of 45 minutes each. With two actual firing periods, one for practice and one for qualification, each gunner actually fires for an hour and a half per table, and three hours on Table VII. Holidays never interfere with the standard number of hours that each student fires at Belsen Hohne.

In the practice firing period, the instructor makes criticisms and answers questions. In the qualifying period the instructor's sole purpose is to score and oversee the students' firing technique. Spotterscopes located behind every two tanks facilitate scoring, and

telephone communication with the tanks serves to cross check the exact determination of hits.

Each firing period is followed by a thorough critique of the individual's performance. Two other instruction periods permit the optimum use of each student's skill in dry firing. Other periods consist of varying chores such as unloading and supplying ammunition. One period of physical training assures combat fitness.

A unique feature of each gunner's training is the standardization of both the shooting conditions and the critiques. The majority of gunners fire all tables on one range. They use the same tank, work with the same fellow students and receive the criticisms and training instructions from one instructor. This continuous association offers the instructors a chance to perceive and work with an individual's problems as they develop. The stabilized program also serves to improve the scores.

The aim is to qualify as tank gunners three men from every tank crew in Seventh Army. Crew integrity is maintained by having members from the same crew train together in so far as possible. Company integrity of the various units participating in the Belsen Hohne program is achieved by assigning each member of the company to the same order. This preserves and enhances the *esprit de corps* of the units involved, and obviates as well the adjustments that would be necessary between men who had not hitherto worked together.

The students graduate at the end of their Belsen Hohne week. They return to their units via the same trains on which the next week's groups arrives. This synchronization typifies the organization achieved at Belsen Hohne. And with the ideal facilities available at this British base, these students thoroughly accomplish a vital portion of the integrated program that makes each tank battalion in Germany an effective fighting unit.

Leadership — Commandership — Generalship — Followership

by General Bruce C. Clarke, Retired

I can assure you that it's a great privilege for me to return to the Command and General Staff College even though this is the first time I have been permitted to be on this platform in civilian clothes. I've been here over a long period of time from time to time.

I entered here as a student 24 years ago. I've taken a great interest in the Command and General Staff College, because I was able to work in the field of Army Education on several occasions. I don't know that there is any institution in America that is so favorably known worldwide in military circles as your College.

And while I can't think of many things that I contributed to the College, I did contribute one thing that I think was important. I was responsible for changing the name of it from the Command and

General Staff School to the Command and General Staff College. Now you may think that to be a play in semantics, but it isn't; it's important because, after all, you gentlemen here are getting the equivalent of your Master's degree in your profession.

I wanted to just talk with you this morning. I didn't come here to deliver a lecture. I came to talk to you about certain aspects of the job that you're learning to do. After all, this is the Command and General Staff College and that name was not arrived at without some thought, and of course, it sets forth your mission for being here.

I was a troop commander for 13 straight years before I retired and that encompasses the career of a great many of you people, so that I didn't come here today to play



Soviet T-40 Light Tank, 1940

over again the record that I think a lot of you have heard me play many times.

You have a very good course at the College in leadership and I assure you that I'll not repeat that or go into the attributes that are required in the field of leadership. I think they are very well known.

They're not very complicated really. The art of leadership is only complicated to the theorists, it's not complicated to practical men. There are only a few, really a very few, simple rules and precepts that build makeup of character that are necessary to be better than a satisfactory leader and I'm sure that each one of you has passed that qualification or else you wouldn't be here, so we'll not get into those.

I would like to go further into this particular field and point out to you that I believe we have become inexact in the use of terminology, because I was reading last night a memorandum which said that we teach leadership at the Command and General Staff College from the level of the division commander on up. I take issue with that statement for the reason that leadership is a peculiar art or a technique in itself and a division commander is not basically a leader.

He is a commander and I'm going to point out to you that you should adjust your thinking to a different point of view. I will talk to you briefly about what I call *commandership* and *generalship* which are quite different from being a leader.

If you will go to the title of the people who are in charge of military echelons, starting at the bottom, you'll first come to a squad leader, then a platoon leader, and every other title after that has the word *commander* after it. Why was that done? There are no company leaders; there are no battalion leaders; there are company, battalion, and brigade commanders and then you get to division *commanding generals* which is a further progression.

I'd like to point out to you that I hope that you will graduate with an appreciation of the transition that is necessary to go from leadership to commandership. I hope you don't think this old man now is involved in semantics because I hope I'm not. It's an important thing and a lot of people have never bridged it. They're still exercising leadership as company commanders or even when they get higher and by so doing, they're bypassing or poorly using their subordinate commanders and staffs.

You came here to learn commandership or generalship and that involves the proper organization and utilization of subordinate commanders and staffs to accomplish what you want done with your command, and the technique is much different than the technique of getting in front of a platoon and saying, "Follow me," which is leadership.

But when you're in a different position with reference to your soldiers, then you become more or less a director and the technique of directorship is far different from the technique of saying, "Follow me."

I will give you a homely illustration. Suppose that you

have a horse at A that you want to move to B. You take hold of the halter shank and he follows you on down the road; you're the leader. But if you get on and ride him you use different techniques; you use different aids; you use your legs and other things, that I learned in the ancient days when we had riding at West Point, to accomplish your purpose and I would say that that might be termed commandership. You're then the commander of the horse. You're not his leader but the purpose is the same, to move him from A to B. Now if you're affluent enough to own a sulky and drive him with reins and with a whip in your hand, then that's generalship. I bring that up because it isn't too far fetched in the problem that I would like to bring to you.

I will give you a historical example of a fellow who was a tremendous leader during the Civil War, probably one of the greatest leaders of the Civil War, and I use the term leader in the sense that I have used it up to now. A great leader in the Civil War was Hood who commanded the Texas Brigade. He was a most fantastic troop leader and sometime, if you'd like to look into it further, there's a very good book entitled, "The Gallant Hood," by John P. Dyer. Hood was a leader of the old school; in front of his men with his saber in his hand. That's how he handled his brigade, and it was an effective organization.

It was inevitable that a man with such capabilities would be promoted and he was. He went up rapidly throughout the war. He ranked next to Lee at the end of the war, but when the war was over, he had lost his command. It was a sorry ending to a man who had never mastered the transition from leadership to commandership to generalship. He never knew how to handle a staff or subordinate commanders. Logistics to him was something he paid little attention to. As a result, as he went up in rank, he got increasingly ineffective.

The following is quoted from "The Gallant Hood":

"He was transformed from a shy, awkward young general perplexed by the minutiae of paperwork, tactical details and camp routine into a fearless and almost terrible leader who inspired his men to heroic feats. This quality of leadership so necessary in a combat officer became one of his greatest liabilities as a commanding general."

When you move into the field of commandership, as against the field of leadership, you go to the techniques, or the art, of how you use your subordinate commanders to get the most out of them — the art and technique of how you organize and use your staff in order to enable you to carry out your job of directing, organizing and handling operations.

And also, you must realize, as you go up in the various echelons of organization of the Army, from the squad on up, you become increasingly removed from the individual soldier and your influence on the individual soldier



no longer is carried on by an eyeball-to-eyeball approach. It's carried on through echelons of your command down to him, and you become increasingly just an image to him which you develop in several different ways; but you get into the field of proper staff organization and staff relationship because that is a very important part of commandship and generalship.

In your recent Military Review, there is an article on *Faulty Staff Relationships*. I hope it will cause you to give a little thought to that problem because it is an important one.

You come to one of the most important parts of commandship and leadership, and that is establishing a chain of responsibility so that every man in your organization knows who he works for and who works for him.

That is basic. How many organizations have you been in where that wasn't known? I've been in several. I had no idea who I worked for or who made out my efficiency report. After all, there is one basic rule in the Army that you can't violate and I, over a period of 44 years, have tried to violate many of them. I have been successful in a few, but this one I have never been successful in, and that is *you work and devote your loyalty to the man who makes out your efficiency report and the man who endorses it*. If you don't do that, you're never going to be a general.

Establishing a chain of responsibility is just as important in your staff as it is in your command. If you don't have that, your headquarters mills around and creates what I call "command and staff inertia." That is a state of frustration and lack of purpose that exists in many military staffs.

Then, of course, it comes down to the art of commandship or generalship as to how you issue your directives or how you project your desires and will down through the command. It comes out in directives and so forth, which is an art within itself and which I am sorry to say we sometimes don't do very well. We could do a lot better than we're doing in that field. I've worked at times for a commander for whom I felt I wasn't doing a good job because the truth of the matter was I didn't know what he wanted me to accomplish.

Now we get to the point of making progress as a commander. I can't conceive of anybody who takes over a company, a battalion, a brigade, or a division, or a corps, or a field army, who doesn't sit down and say to himself, how will I impress upon my superiors, the men who make out my efficiency report, that I am a good commander?

How do I do that? I've seen it done every way that you can think of in my career, but I would suggest to you that the best way to do that in a military organization is through the exercise of what I call "little pluses" — of making a little progress in every field, every day. Over a period of time, if you do that, your organization will tighten up, your organization will become good, and you'll gradually come up with the understanding and the reputation of really being a good commander. You

will also not create turbulence which detracts from the effectiveness of your unit.

I've seen people walk into an organization and immediately start to make headlines. I would like to point out to you a great truth in the military that "He who lives by headlines is destroyed by headlines." Remember that if you start seeking headlines and creating images of yourself as a superman, pretty soon somebody will find a hole in your armor and when he does he will certainly give it to you. That follows from the rule about the monkey who climbs up a pole — the higher he gets, the more of his rear he shows to the people who are below him and that often goes for a person who goes up the chain of command in the echelons of the Army.

I hope that I have impressed upon you that there is a technique in commandship and generalship — techniques that are different from leadership although the characteristics of the individual as to honesty and sincerity and all those other things are just as applicable. You have to master the transition as you go up. There's a little different technique being a company commander than from being a battalion commander. You have a bigger staff; you have more senior subordinate commanders and as you go up, that of course increases.

We talk about a chain of command — I have conscientiously tried throughout my career to live and conduct my job in such a way that I didn't exercise control of my organization through channels of command. I exercised it through channels of suggestion.

I think that is very important and I only used the channels of command when I wanted to discipline somebody, and I didn't have to do that very often. I figured that if I couldn't run an organization by getting things done by suggestion, then I had failed as a commander. I commanded the troops of 12 nations as a corps commander in Korea. I didn't have any strong chain of command between me and the allied troops. If I put out something that I wanted done that violated their national ideas, they didn't pay very much attention to it. In that case, what are you going to do next?

I was down at the Infantry School and commented on this not long ago and one captain got up and he said, "General, I have listened very carefully to your channel of suggestion approach and I'm familiar with it. I served in your command in Europe and I think you have to be a very powerful suggester to make it work." Maybe that's true.

I want to get from there now to another subject and then I'll end up my presentation. That is the topic that fits right along with leadership, what I call *followership*. Everybody who is a leader or commander of any echelon is also a *follower*. You never get in the hierarchy of the Army to the point where you are not a follower.

The Chief of Staff of the Army is a follower; he follows the desires and directives of the President, Secretary of the Army, Secretary of Defense, the Joint Chiefs of Staff and so forth. Even the President of the United States is a



German Panther Medium Tank, 1943

follower in that he follows public opinion.

What you are today, each one of you, is the result of 35 to 40 years of *following* whereby you have taken into your makeup ideas, instruction, and concepts; and through a process of discernment, acceptance, and elimination, you have stored away in your makeup certain characteristics, ideas, and procedures and you have discarded others.

In that process of sifting the good from the poor, or what you consider the good from the poor, you have created as of today your present makeup and character which is *you* as an individual. If you have attained good characteristics and a storeroom of good ideas, learning, and concepts that you can use effectively in the future, you have been a good *follower*. If you haven't, you'll not be a good leader or a good commander.

Needed For Armor: An Idea Center

by Major Walter F. Ulmer, Jr.

Each and every day, in all parts of the world, officers and NCOs of armor units wrestle with the myriad of minor technical, administrative, and management details that consume so much valuable time. The sign-out of tools from the tool sets, the care of machinegun repair parts, methods of starting the tanks in cold weather, techniques for carrying extra oil and grease, ready-rack organization, and arms security are among the perennial small but powerful problem areas.

At battalion and brigade level, there are comparable kinks to be ironed out with assault bridging, column control, vehicle evacuation, situation reports, aid station location and so on. Eventually, with practice and sound judgment, these and other rough edges are honed down, their solutions incorporated in SOP's and memory.

New problems arise with changes in locale, equipment, and people, but are eventually overcome. And more often than not, these have not been unique problems, and the solutions are rather standard solutions. But to the person who is incommunicado, all problems are unique. In other words, there is a great deal of effort spent solving problems that have already been solved.

I would suspect, based on personal experience, that many of the ideas submitted as new in the recent tank design contest of the Armor Association had already been voiced in one paper or another. This circumstance stems from the physical inability of anyone to keep abreast of all the technical and tactical developments in any branch of the Army.

The means of intercommunication within the military profession have been unable to assimilate the avalanche of new data generated by the technological and theoretical advancements of our age. This situation is certainly not limited to the military field, but is a current problem in almost every area of study.

Publications such as *Armor* and *Infantry* magazine, and the field manuals and Department of the Army

It follows from that, that you must, through this process of discernment and storing away, create in yourself a balanced man — whereby you can handle concurrently all the different parts of the job. You don't concentrate on one and forget the other, such as maintenance; you don't concentrate on marksmanship and forget something else. The best organizations in the American Army are the *organizations that are good or better in everything*. They may not make many headlines, they may not be "superior" in any one thing, but they are our best organizations. These are the type of organizations that we want to develop in the Army.

I have tried to lead your thinking through the transition from *leadership* to *commandership* and *generalship* and to point out to you wherein *followership* is very important in this process of your development.

Pamphlets have reduced part of the problem to somewhat manageable dimensions. However, there exists no centralized screening facility to document and disseminate new ideas, novel techniques, and unofficial but often helpful optional hints to junior leaders.

PS Magazine is worth its weight in gold; the *Military Review* and *Army Information Digest* include monthly news on professional developments; the *Marine Corps Gazette* and *Ordnance Magazine* frequently describe innovations of real interest to Armor leaders. And so do *The Military Engineer*, *National Defense Transportation Journal*, *Army*, *United States Naval Institute Proceedings*, and so on.

In the files of staff studies at the Armor School and the archives at the Command and General Staff College rest the possible immediate solutions to some frustrated commander's dilemma in Germany or Viet Nam or Fort Knox.

Now it is not feasible, even with ADPS, to catalogue all the current thought in any one field, much less to file and reference every past experience of all former Armor leaders. Field manuals and the school system should carry the substantial burden of the long range doctrine and fundamentals problems. What is, however, practicable and necessary is a system of collecting and disseminating new approaches to the solutions to contemporary problems of technique in armor units.

The objective of the idea center, then, is to conserve time and effort in both research and execution through the organized exchange of ideas. The tasks inherent in the problem are collecting information, evaluating the information for its originality and general applicability, and disseminating the information to those it would assist. Thus there must be physical facilities to receive and store ideas, and qualified personnel to scan, evaluate and package data into meaningful and identifiable bits of relevant information.

There are two principal sources of information that



Soviet KV Heavy Tank, 1940

must be tapped: professional publications — foreign and domestic magazines and unclassified studies and unpublished personal experience. (If all persons with fertile suggestions could have their thoughts published, there would be only the one source of new ideas, but this condition is not likely to be met for a variety of reasons.)

The staff of the idea center would have to monitor the many pertinent periodicals, extract, condense, catalogue and file ideas. Individuals in the field with ideas would submit them in writing — with minimum formal administrative requirements — to the idea center through the mails. Frequently, the center would publish idea abstracts. It would also publish periodically a

complete index of titles and ideas. Officers could request specific information or a bibliography on a particular subject.

No magazine can ever be a substitute for experience. Many times also, the locating of a former solution to the problem could be more time consuming than the engineering of a new solution. Understanding these considerations, and mindful of the prime reliance on individual initiative and ingenuity, it seems that a more efficient system for exchanging ideas is certainly in order. I would be most interested in hearing the views of others on this matter. Again, the object of the exercise is to enhance combat readiness through the most efficient use of that most precious commodity — a man's time.

Tanks Forever

by Major General Donn A. Starry

Everyone is talking about tanks.

Armor soldiers — users of tanks, examining modern battle, view the tank as a multipurpose weapon with a variety of essential combat capabilities. The October War confirms their views, and demands improvements in tank capabilities. Other observers — budget analysts, antimilitarists, skeptics — for a variety of reasons, view the tank as an anachronism, a system rendered useless by recent advances in numbers and effectiveness of long-range antitank systems. The October War, they say, suggests that tanks can now be replaced by large numbers of antitank guided missiles (ATGM's).

Are tanks necessary, or are they not?

In answering this question, two things must be said.

First, modern war is a contest of measures and countermeasures. For every modern weapon system, there is an effective countersystem. For aircraft, there are surface-to-air cannons or missiles; for tanks, there are other tanks and ATGM's; for artillery, there is counterbattery; for infantry, there is direct and indirect fire suppression by tanks and artillery.

It is quite like the children's game of "rock, scissors, and paper." Rock breaks scissors, which cut paper, which, in turn, covers rock. The goal in battle is to apply the tactic which best utilizes the capabilities of each battle system, while minimizing its vulnerability to countermeasures. As in the "rock, scissors, and paper" game, a mixed strategy enables a win. We do not refuse to play the game just because each tactic has an effective counter.

Armor soldiers have never viewed tanks as a self-contained battle system, tanks have always been a part — an essential part — of the combined arms team. We learned this lesson at Cambrai; it has been reinforced by every tank engagement since. No one denies that on today's battlefield, unsupported tank attacks face mass destruction from accurate and lethal ATGM's, as well as from other tanks.

Therefore, the question really is — are tanks a necessary part of the combined arms team?

Second, tanks were created in an attempt to restore mobility to battle, enabling the side using them to seize the initiative from the enemy. Tanks were the first element of the combined arms team to become other than foot or horse mobile. However, the essential lesson of the need for and value of mobility as a means to seize initiative was drawn from lessons history taught about the effectiveness of mobile cavalry, dragoons, horse- or elephant-mounted infantry in battle. Therefore, the question really is — are tanks necessary as a part of the mobile weapon combination to seize battle initiative, or can some other systems do the job?

How, in modern battle, would an army fare that did not use tanks? While the answer to this is a function of threat and environment, modern war games show that a force in which tanks are either not present, or present in insufficient numbers, simply cannot fight successfully against an enemy equipped with even a modest number of tanks. Light infantry units equipped with the latest ATGM's are only marginally effective against armor. It is necessary to balance the combined arms team in order to have sufficient staying power, and enough mobile integrated firepower to wrest the initiative from the enemy. In summary, we don't fare well without tanks in the combined arms team. Tanks are necessary.

Survivability

Can the tank survive? Again, this depends on threat and area; but what concerns us all is the allegation that modern ATGM's have driven the tank from the battlefield. There is no question that when tanks are employed alone against a combined arms force in terrain such as that in Europe, or the Mideast, their survivability is greatly reduced.

In the early stages of the October War, when the Egyptians crossed the Suez, and the Israeli Defense Force (IDF) was trying to contain the crossing, a pure force of 50 IDF tanks lost 40 in a local counterattack against an Egyptian defense based on dug-in *Sagger's* and *RPG-7's*.

When the IDF crossed the Suez, and attacked the well



German Tiger Heavy Tank, 1943

prepared defense, it was with a combined arms force, using time proven combined arms tactics.

In the breakthrough, the IDF lost 25 percent of its attacking tanks, destroying 30 percent of the defending Egyptian tanks. When the cross-Suez battlefield became fluid, the IDF, without ATGM's, destroyed 90 percent of the defending Egyptian tanks with no IDF losses, sweeping up the canal banks, destroying Egyptian ATGM positions where crews had been destroyed or driven from their positions by suppressive fires of artillery or by infantry.

How well can an individual tank survive a hit from another tank, compared to a hit by an ATGM?

We know that overall, our tanks have a higher probability of surviving a hit from a Soviet *Sagger* than from a kinetic energy round fired from a *T-62*.

But the fact remains that the most lethal antitank weapon on the battlefield is the high-velocity tank cannon, and within range, tanks defeat tanks much better than do ATGM's.

How well can an ATGM survive on the modern battlefield?

Studies tell us that a division subjected to a 45-minute artillery preparation can expect to lose 25 percent of its ATGM teams. The tank's armor protection makes it relatively invulnerable to artillery fire.

How effective are ATGM's?

Although antitank guided missiles are generally considered to have high hit probabilities at ranges from 500 to 3,000 meters, experience in the October War does not reflect a high hit probability. It is estimated that several thousand missiles were fired at IDF tanks, yet *at most* only a modest number of tanks destroyed were victims of missile hits.

Improved Fighting Ability

It is becoming increasingly apparent that we could be much more productive were we to concentrate on how to improve the fighting ability of our mobile combined arms team, instead of spending the inordinate amount of time now dedicated to proving to antimilitary skeptics that we need tanks at all. Proceeding along this line of reasoning, *what needs to be said?*

Traditionally, we have begun speculations about what to do next with any armament system with an analysis of what systems our potential adversary will have in the field. This global mindreading is called "threat analysis." It tries to read the minds of a group of men who probably haven't made up their minds yet. And so the further away from today one goes, the less useful this process becomes.

What is most instructive is to begin a "whither tanks" study with a technical analysis — a systematic evaluation of state-of-the-art developments in a number of technologies. What is the purpose of this study? It is to sum up where we are, and where we might most profitably go by pursuing one or more technical approaches.

Let me be specific. In the field of gun-ammunition, it

now appears that we have the technical capability to produce armor that can defeat chemical energy rounds which depend on the shaped charge for penetration, in diameters that can reasonably be used on a mobile weapons platform. True, with a 10- to 12-inch diameter cone, even advanced armor might be penetrated. But even the most voluble tank enthusiast would probably be reluctant to suggest a gun that large. So what this tells us is that our technical problem is now to optimize kinetic energy systems that can defeat modern armor. For if we have the armor technology, we must assume our major adversaries have it.

We also know that a kinetic energy system can be optimized using advanced penetrator design and materials technology, and that it can be done in calibers smaller than those now considered necessary.

Propellant technology analysis suggests that we can exceed burning rate limits imposed by today's powders, and by so doing increase penetrator velocities, and thereby penetration ability.

Therefore, technology analysis tells us it is both necessary and possible to build smaller, lighter, gun-mount combinations with much improved lethality.

A look at fire control technology suggests that we can provide our smaller, more lethal gun-mount combination with vastly improved fire control capabilities, rounding out the range-lethality equation. If we can increase the hit performance of tank cannon in the 1,500- to 4,000-meter range band, then the utility of ATGM systems will have been considerably degraded, and the old "rock, scissors, and paper" game has to be played again — with new rules.

Further, if we can mount such a system as I have just described on a more agile platform, the system itself could be more survivable, and, therefore, more lethal.

Again, technical analysis tells us that we have probably exhausted torsion spring technology, and that if we are to dramatically improve the way a vehicle meets the ground, some other technology has to be explored. We also know that technically, hydropneumatics, especially hydropneumatic energy storage systems, may offer a new agility dimension — hyperagility. For years, we have insisted on higher horsepower-to-ton ratios as a means to greater agility. However, in World War I, my father's tank outfit marched to battle at speeds about the same as today's tank battalions, despite tenfold increases in horsepower per ton.

So we have to start asking the right questions — questions about agility and how it relates to survivability. Thus, we must explore battlefield intervisibility segments — lengths, discontinuities, silhouette heights, acceleration rates in the low speed band, and other agility related parameters, in the end describing survivability in terms of ability to escape enemy fire control systems. Once this is done we can perhaps marry up our new, more lethal gun-mount system with a more agile, survivable platform — a tank for the year 2000.

While we are doing all this, we can reasonably expect others to be doing the same thing. So by the year 2000 we can expect to find ourselves, as we are today, with



Soviet Josef Stalin Heavy Tank, 1945

competing hardware systems which, despite some differences in sophistication, are relatively equal in battle.

Meanwhile, we can expect that for every *tankerbangerboomer* someone develops, there will soon appear an *antitankerbangerboomer*, and so “rock, scissors, and paper” is a game destined to continue. And about this phenomenon we must make one final observation.

The clear lesson of war is that in the end, the outcome of battle depends on the excellence of training, the quality of leadership, and the courage of soldiers. It is also quite clear that the side that thinks it will win, usually does.

Conversely, the side that thinks it may lose, or whose soldiers are not convinced that they can and will win, regardless of the odds, usually loses. We simply cannot

permit ourselves to be seized with the defeatist malaise which underlies the antimilitarist dialogues now in vogue in our country.

For the U.S. Army must confront its foes in the first battles of the next war with soldiers whose state of training, whose confidence in themselves, and their leadership, whose confidence in the excellence of their equipment and tactics, and whose understanding of the dynamics of modern battle are such that they can fight successfully at odds of ten to one or more and win. Win through excellence in training, tactics, and weapons employment. Win because they are better led, and because they are convinced they can win the first battles, win outnumbered, win using the combined arms team built around tanks.

One Cavalry

by Major R. W. Grow, Cavalry

Ever since that momentous day in 1931 when General MacArthur said that the term “Mechanized Force” was abhorrent to him, and that Cavalry and other arms would adopt mechanization when and where practicable, we have been hearing references to “horse” cavalrymen and “mechanized” cavalrymen. In my humble opinion, it is high time to drop all this controversy between horse and mechanized and get together as *cavalrymen*.

The horse was essential to Cavalry in the past. The horse is essential to Cavalry today. In my opinion, the horse will be essential to Cavalry beyond the lifetime of any man living. Why? In this day and age for one reason and one only — battlefield mobility (to avoid argument, I am willing to extend this sphere of action to the entire theater of operations; I want to eliminate “strategic” mobility *behind* the lines, for the horse is not the best answer there.)

The watchword for Cavalry is mobility and the ability to fight mounted, dismounted, or both at the same time. Quick thinking, quick action, opportunity on a little scale and on a big scale, mental mobility, physical mobility, and punch. Association with the horse made Cavalry possible. Nothing else could do it. Today, association with the horse is more important than ever to stimulate the mounted spirit. I say more than ever because the daily existence of the American citizen does not include, as it once did, contact with the horse. May the horse ever remain a living stimulus to the mental and physical development that makes Cavalry!

Now, stop and face the facts. There are iron horses that provide battlefield mobility and from which men can fight mounted, dismounted, or both. Neither the four-footed horse nor the steel horse, in themselves, make Cavalry. Both provide the means by which men properly organized and trained can become Cavalry. Cavalry stands above its means. It is an Arm with a

definite role in war. Its continued existence depends upon its ability (and willingness) to grasp every available means to increase its battlefield mobility and power. Leaders in cavalry development today must not be fettered by tradition if the battle leaders of tomorrow are to maintain the prestige of the arm.

Let us be horsemen. Yes. But, above all, let us be Cavalrymen. To be pointed out as a “horse” cavalryman savors too much of hidebound tradition. To be pointed out as a “mechanized” cavalryman savors too much of a scatter-brained enthusiast without his feet on the ground. The great majority of cavalry officers today are neither old-fashioned or wild dreamers. They have their feet on the ground. They recognize the role of cavalry in war, and are boldly (as befits cavalrymen) but carefully weighing the means at hand and the possibilities of its future development to make better Cavalry.

Is it not time to remove the tendency toward a cleavage in our branch? There is one Cavalry; one Chief of Cavalry; one Cavalry School; one Cavalry Board; and one cavalry doctrine. It is a progressive Cavalry imbued with a glorious heritage and forever seeking, finding, seizing greater mobility, greater power.

Would Sheridan have been a “horse” cavalryman today? Would Stuart? Would Forrest? Can we imagine those realists, those masters of mobility and combat, failing to grasp the iron horse and fitting him into the cavalry scheme of things? They were not bound by tradition. They accepted every known lesson from the past, but they applied them to a very real present and utilized every known means at their command.

Buick says, “When better cars are built, Buick will build them.” Cannot we well say: “When better horses are bred (or machined), cavalry will use them?” Let’s not be “horse” cavalrymen or “mechanized” cavalrymen. Let’s be CAVALRYMEN.



German Tiger II Heavy Tank, 1944

The Men Who Put the Arm in Army

by John Wayne

They may have changed the Cavalry to Armor, but nothing can ever erase the great tradition of its heroic past. And in the very change itself the Cavalry is living up to its famous heritage.

In spite of all the glamour of the name, the Cavalry was never just an arm on which the lavender and old lace of chivalry could be draped. The American cavalryman has always been trained to fight as the circumstances demanded. He was a first-rate infantryman when he had to fight on foot, and he quickly got the knack of artillery. As a member of the Armor Branch, the cavalryman is sure to give the enemy "hell on wheels."

And what does a movie actor know about Cavalry? Well, you might say I'm a cavalryman by profession: a "veteran" dating back to the 1870's. You see, I was a cavalryman in "Fort Apache," in "She Wore a Yellow Ribbon," and recently in "Rio Grande."

Actually, I am in a unique position to be able to choose my favorite branch of the service. In my film roles I've been in the Army, the Navy, the Air Corps, and the Marines. I've even been a rifleman in the Second Kentucky Regiment of Civil War days. If anyone were to ask which branch I choose, all I can say is "give me my boots and saddle."

It's no accident that a great producer such as John Ford at least three times chose the Cavalry as the subject for great motion pictures. In selecting the Cavalry, he chose a subject with built-in thrills, and with the drama and spine-tingling action recorded in history by men like "Light Horse Harry" Lee, Francis Marion, "The Swamp Fox," of Revolutionary War fame; men like Jeb Stuart and his Civil War raiders; men like Phil Sheridan and his "Yellow-leg" troopers of the Army of the West. History has recorded them all: Custer, and Patton, and all those nameless heroes who helped to mold this country's destiny.

My roles as a cavalryman awoke an interest in this great branch of our Armed Forces — an interest which led me to a new appreciation of the heroes who fought on horseback. Of the Arms which in a modern army are auxiliaries charged with the duty of assisting the Infantry in accomplishing its mission, Cavalry is the only one which has a military history as a self-sufficient fighting force.

The armies with which the Moslem conquerors, as well as Genghis Khan, carved out their empires were composed almost exclusively of Cavalry. With the passing of the Age of Chivalry, along with the development of firearms, the Cavalry inherited the pride and traditions of the ironclad knights. They developed the technique of utilizing the mobility of Cavalry for surprise, and its shock power for disrupting the enemy

lines. The well timed Cavalry charge against a vulnerable flank or line became the conventional knockout punch of competent commanders.

Even the so-called blitzkrieg is merely the Cavalry tactics of the American Civil War, streamlined, and moved by machines instead of horsepower; supplied with increased firepower, tremendously speeded up, and supported by planes.

In World War II, horse Cavalry troops with speed and daring carried out vital reconnaissance missions in the rugged mountains of Central Italy. They penetrated ravines and reached precipitous mountain peaks inaccessible to mechanized troops. They gained information of unmapped trails and roads which the infantry used in moving up to surround and capture objectives.

The Cavalry has been an important part of the U.S. Forces since the first dragoons of Washington's Army. But it was in 1832, when the Sacs and Foxes became restive along the Upper Mississippi, and General Scott was making the Army famous for its pacification measures, that the Cavalry really came to the front. After the War of 1812, the Cavalry had fallen into the discard. Now it was rejuvenated with a force of 600 mounted "rangers." From then on, Cavalry grew to its golden age. Cavalry was essential to pursue the hard riding Indians, and first a full regiment of dragoons was drummed to the colors, and then a second regiment.

When the new territories of New Mexico, Arizona, Colorado, Nevada, Utah, and California came under the flag, with an army of but 8,000 men to cover and protect a vast area, the role of the Cavalry was plain.

The 3rd Dragoons marched 2,500 miles from Leavenworth, Kansas, to Oregon, in those days. By 1855, the army had five regiments of Cavalry to ten of infantry. After the Civil War, Indian tribes in the West began again a war of extermination against the whites, and it was then that the Cavalry came into its own. Ten regiments, the striking force of a small but tough and rigidly disciplined army, were placed in the field. There were 300,000 Indians facing General Sheridan, who had but 1,200 Cavalry and 1,400 Infantry when the campaign started.

It was this great era of the Cavalry that John Ford chose for his pictures. And somehow, I feel that it was Ford's most recent, "Rio Grande," that made me a full-fledged cavalryman.

It was early in September of 1947 that Ford read a story called "Mission With No Record" in the *Saturday Evening Post*. It was an amazing and little known story of a heroic but unsung chapter in the colorful history of the U. S. Cavalry following the Civil War. Ford bought the rights to the story, and then set it aside for the time when he could produce a picture based on the event.



British Churchill Mk IV, 1942

The time came when Herbert J. Yates and John Ford signed a long-term contract, and Ford chose this thrilling Cavalry epic for his first movie for Republic Studios.

Months of preliminary research preceded the actual filming of "Rio Grande," and I spent many a fascinating hour with Ford reading up on Cavalry lore, even to the music favored by cavalymen of the past.

Back in 1870, for example, when Phil Sheridan's outnumbered troopers waged their fierce battles against the Apache and Sioux, the ringing notes of "The Girl I

Left Behind Me," played by the post band, would be the last thing the intrepid "Yellow-leg" detachments heard as they galloped through stockade gates after the enemy.

But no single historian — least of all a movie actor — can put into words the whole thrilling story of the Cavalry. No more than any legislation of Congress can ever change the true meaning of the word Cavalry. They may have taken the word out of the Army: but they'll never take it out of our history.

A Tribute to the Cavalry

by Hanson W. Baldwin

Reverse the stirrups, turn out the mounts to pasture; the cavalry has gone. The crepe is on the pommel, the mourning bow upon the sword hilt; the cavalry has gone.

No more the glint of sunlight on the saber, the sweet music of the creak of saddle harness, the champ of bits. The sound of "Boots and Saddles" sings no more across the Great Plains; the horse has retired from the field of battle. The "yellowlegs," who won the West with carbine and with Colt; the "Garry Owens" of the famous Seventh, who died with Custer at the Little Big Horn, ride no longer; for the cavalry has gone forever...

Even the gallant name...

Today for the first time in a century and a half of "progress" there is no cavalry in the United States Army. A signature last week — that of Harry S. Truman — was its requiem. But the President's endorsement of a bill reorganizing the Army, abolishing the cavalry as an arm and substituting armor for it represented merely legal recognition of historical fact.

Nostalgia for the past, melancholy pride in great achievements, and all the panoply of jingling harness and troopers at the charge could not hide the doom of the horse on the field of battle. Inanimate mechanisms made by men were his undoing; the machine gun, the tank and the plane were the robots which inherited his world.

Not since the Twenty-sixth Cavalry, harried and bloody, tired but gallant, covered the rear guard of the Army from Damortis to Bataan had the "yellowlegs" straddled their mounts. The First Cavalry Division, a fighting outfit, was in the van of combat from Australia to Japan, but it fought dismounted, and improvised horsed commands and mule pack trains toiled in small units over the bitter mountains of Italy. In World War II, the horse, in the United States Army, had but a small role.

And so the cavalry, like all things mortal, has died.

But its soul goes marching on

For the soul of the cavalry is elan, aggressiveness, the will-to-fight, dash, the debonair, reckless but ordered discipline that took The Six hundred into the Valley of Death at Balaklava, that rode with Stuart and with Sheridan, with Custer and with Lee. The spirit of the

cavalry is the spirit basic to any army, a spirit not exclusive to this arm alone, but one of which it was peculiarly possessed.

For the cavalry had a sense of tradition, an awareness of its responsibility to history, to the men who have gone, to the standards of the past, to those who died that the way of life we want, the things for which we fight, might live.

It has been popular in these times of fatalism and doubt to impugn tradition, to cast aside as worthless the bright heritage of valor and hope the past has given us. No more fatal mistake to Army or Nation is possible, for tradition, sound tradition, both civic and martial, is the inspiration from the past which must light the future.

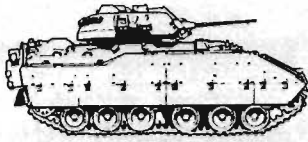
The history of the cavalry, gone in name but never in spirit, provides some of the finest of our Army's traditions. The lilt of von Borcke's songs, he who rode with "Jeb" Stuart, long has been stilled: Pelham's guns thunder no more: "Light Horse Harry" Lee, and Marion, "the swamp fox," are long dead; the dragoon with brass helmets and horsehair plumes who fought with Wayne at Fallen Timbers, live only in old prints.

Resaca de la palma and the wild charge with sabers are but an incident in the history books now, and the Indian Wars, when the "yellowlegs" fought from Red River and the Rio Grande to Montana and the Rockies, are but dates and figures. The Cheyenne, the Sioux, and the Apache are mere ghosts from a dim, forgotten past.

The men are dead, the graves grass-covered, the horses gone, even the monuments weather-stained and strange, a bronze or marble charger oddly out of place in this mechanized age.

But the tattered battle streamers and the silver battle rings bear the great names of the past into the future: Bull Run, Chancellorsville, Gettysburg, Comanches, Oklahoma, The Admiralties, Leyte, Luzon, Tokyo. And the great names will not die. From Henry Dodge, the first colonel of the "American Cavalry Service," to George Patton, the roll call of the cavalry will live on.

The cavalry is not dead; its spirit, its traditions, its immortal intangibles endure. Its tactics, its *esprit* are the heritage of armor and of the Army; the "yellowlegs" are gone, but they have left behind them the things that soldiers live by.



About the Authors

SECOND LIEUTENANT JOHN J. PERSHING (1860-1948). Commanded the American Expeditionary Force in France during World War I. Served as Chief of Staff of the Army before retiring in 1924. Rose to the rank of General of the Armies.

MAJOR SAMUEL D. ROCKENBACH (1869-1952). Father of the American Tank Corps in World War I and Chief of the Tank Corps until 1920 when tanks were merged with the Infantry branch. Retired in 1933 with the rank of brigadier general.

COLONEL DANIEL VAN VOORHIS (1878-1956). First commander of the Experimental Mechanized Force, formed in 1930, he helped develop the doctrine of the Armored Force that would emerge a decade later. An enlisted man in the Spanish-American War, he rose to the rank of lieutenant general before retiring in 1942.

CAPTAIN ERNEST N. HARMON (1894-1979). Another key theorist in the development of U.S. armor doctrine, Harmon commanded armored divisions in the North African, Italian, and Northwest European campaigns of WWII and was first commander of the U.S. Constabulary Force in postwar Germany. Retired as Deputy Commanding General, Army Ground Forces, in 1948 with the rank of major general.

MAJOR GEORGE S. PATTON (1885-1945). The first member of the U.S. Tank Corps in WWI, he organized the tank school at Langres, France in 1917. A prolific contributor to the *Cavalry Journal* during the 1930s, Patton led American armor forces in the North African, Sicilian, and Northwest European campaigns. He commanded American armor in the breakout and exploitation following Normandy, the dash across France, and the final thrust into Germany. Died in an accident in 1945, when he held the rank of general.

SECOND LIEUTENANT SAMUEL L. MYERS (1905-). A young cavalry officer in the early mechanized force. Myers retired in 1963 with the rank of lieutenant general after serving as Deputy Commanding General, Eighth Army.

LIEUTENANT RALPHE. HAINES JR. (1913-). An armor officer during World War II, Haines commanded CONARC and rose to the position of Vice Chief of Staff of the Army, retiring in 1973 with the rank of general.

BRIGADIER GENERAL ADNA R. CHAFFEE (1884-1941). Instrumental in the development of the U.S. mechanized force during the 1930s, Chaffee was the first commander of the Armored Force at its designation in 1940. Died of cancer in 1941, while holding the rank of major general in command of the Armored Force. Is considered "the father of American armor."

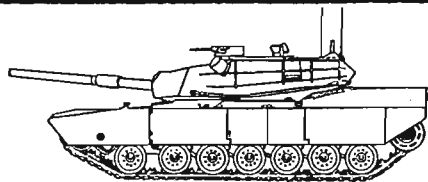
LIEUTENANT COLONEL BRUCE PALMER, JR. (1913-). A cavalry officer prior to WWII, Palmer served on the general staff during the war years, commanded U.S. forces in the Dominican Republic in 1965 and was deputy commander of U.S. forces in Vietnam in 1967. Appointed Vice Chief of Staff of the Army in 1968, Palmer retired as a general in 1974.

MAJOR I. D. WHITE (1901-). Another key armor theorist in the 1930s, White commanded U.S. armor units in World War II in Africa, Sicily, and Europe. Last commander of the U.S. Constabulary Forces in Germany following WWII. He was in command of U.S. Army, Pacific, when he retired as a general in 1961.

MAJOR HENRY CABOT LODGE, JR. (1902-). Lodge left the U.S. Senate to go on active duty in World War II, returned to the Senate and was reactivated before the end of the war, serving as a lieutenant colonel in Italy. A diplomat and political leader, Lodge was the U.S. ambassador to the UN, ambassador to South Vietnam in the war years, and was President Nixon's representative at the 1969 Paris peace talks. He led Eisenhower's successful presidential campaign in 1952 and ran unsuccessfully for vice-president in 1960. He retired as a major general in the Army Reserve.

MAJOR DONALD H. COWLES (1917-). The 3d Armored Division commander in Europe in the late 1960s, Cowles became chief of staff of USMACV, Vietnam, in 1971. He retired in 1975 as a lieutenant general while serving as deputy chief of staff for operations.

LIEUTENANT COLONEL CREIGHTON W. ABRAMS (1914-1974). Leader of the relief column to Bastogne in the Battle of the Bulge, his unit was the Third Army's point battalion in the drive toward Germany. He commanded the 3d Armored Division during the postwar Berlin Crisis, led federal troops during civil rights confrontations in Oxford, Mississippi and Birmingham, Alabama, and served as Vice Chief of Staff



of the Army until his assignment as deputy commander in Vietnam. Commander in Vietnam from 1968 to 1972, he was confirmed as Chief of Staff of the Army in 1972. He served two years and died of cancer in 1974, holding the rank of general.

GENERAL JACOB L. DEVERS (1887-1979). An artillery officer who fought to modernize that branch during the 1920s and '30s, Devers was designated by General Marshall to head the Armored Force in 1941, following Major General Chaffee's death. Appointed overall commander of American forces in Europe in 1943, he was responsible for much of the planning for the Normandy invasion. After Normandy, he led the U.S. invasion of Southern France, and commanded an army group in the sweep across Europe. Retired in 1949 as CG, Army Field Forces, with the rank of general.

COLONEL HAMILTON H. HOWZE (1908-). First Director of Army Aviation, he chaired the Howze Board which developed the airmobile doctrine of rapid battlefield movement of troops, supplies and firepower by air. Retired as CG, Eighth Army-United Nations Command, with the rank of general in 1965.

LIEUTENANT COLONEL MICHAEL S. DAVISON (1917-). A divisional and corps-level staff officer during WWII, Davison commanded the 3d Armored Division in Europe in the early 1960s and was Commandant of Cadets of the U.S. Military Academy. Served as chief of staff and deputy commander in chief of U.S. Army Pacific during the Vietnam war years and later was commander in chief, USAREUR, before he retired in 1975 with the rank of general.

BRIGADIER GENERAL JAMES H. POLK (1911-). A cavalry officer in the 1930s, Polk commanded the 3d Armored Cavalry Group during WWII. After serving as CINC, USAREUR, he retired in 1971 with the rank of general.

GENERAL BRUCE C. CLARKE (1901-). Originally commissioned in the Engineers, Clarke never changed branches. Clarke's command of CCB, 7th Armored Division, during the St. Vith battle, is credited with delaying and ultimately disrupting the German Ardennes offensive. Commanded every echelon from company to theater. Was CG of the 1st Armored Division after WWII and commanded U.S. Army Europe in the early 1960s during the Berlin crisis. Retired as a general in 1962.

MAJOR WALTER F. ULMER, JR. (1929-). Presently a lieutenant general in command of III Corps,

Fort Hood, he successfully defended An Loc during a prolonged North Vietnamese armor assault. Ulmer has also served as Commandant of Cadets at West Point. It was announced that he will retire 30 June 1985.

MAJOR GENERAL DONN A. STARRY (1925-). An armor battalion commander in Europe in the early 1960s, Starry commanded the 11th Armored Cavalry Regiment in Vietnam during 1969-70. After three years as commander of the Armor Center, he later served as commander of the V Corps in Europe, as TRADOC commander, and as commander of U.S. Readiness Command before retiring as a general in 1983.

MAJOR ROBERT W. GROW (1895-). Another pioneer in the mechanization of the cavalry, Grow was the first S3 of the Mechanized Force for Chaffee and Van Voorhis. He led the 6th Armored Division in the European theater during WWII and retired as a major general in 1953 after serving as military attache in Moscow.

JOHN WAYNE (1907-1979). Starred in "Fort Apache," "Horse Soldiers," and "She Wore a Yellow Ribbon," among other movie epics of the cavalry. Winner of an Academy Award, capping a long movie career as a prototype of the man of action. Died of cancer in 1979.

HANSON W. BALDWIN (1903-). Commissioned at Annapolis in 1924, Baldwin resigned his commission in 1927 to enter journalism. He was for many years the military and naval correspondent for the New York Times and is a noted author.



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