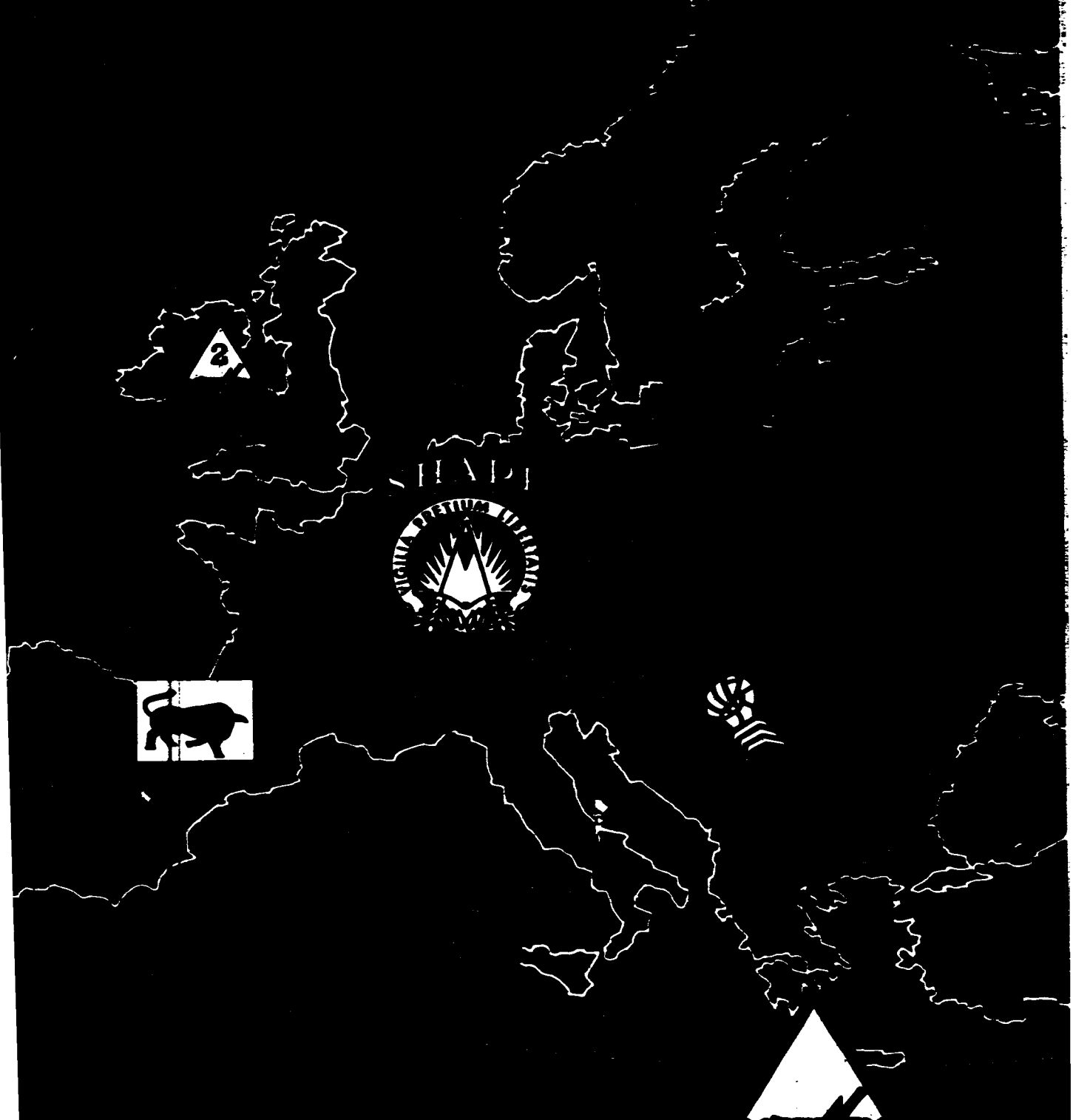
Armor Magazine Index—Vol. LXII, 1953

TITLES

AUTHORS



ARMOR

The Magazine of Mobile Warfare

Continuation of THE CAVALRY JOURNAL

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LETTERS to the EDITOR

Combat Command C?

Dear Sir:

I read with interest the article on "The New Armored Division Organization" by Major General Bruce C. Clarke and Brigadier General L. L. Doan in the November-December issue of ARMOR. I am in accord with most of the article and with the employment of the Reserve Command, 1st Armored Division on exercise LONG HORN. I have great respect for the ability of both General Clarke and General Doan. There is, however, one principle on the organization and employment of the Armored Division expressed by the writers with which I cannot agree. I know personally many other well qualified Armor officers who share with me the point of view I am about to express.

The Armored Division is organized on the "triangular concept" to provide the flexibility so ably described by the Chief of Staff, General J. Lawton Collins, in his article in the November issue of *Combat Forces Journal*, "Stress the Fundamentals." All of the Combat Command Headquarters in the division are organized identically and are capable of performing identical missions. It is unfortunate that one of these Combat Commands has been mis-labelled "Reserve Command," and given an additional mission neither in keeping with the "triangular concept" nor assigned to the other Combat Commands. If we are to have the desired flexibility within the Armored Division any one of three Combat Commands may find itself in reserve (and, as a matter of fact, should from time to time) and must then be capable of performing the rehabilitation mission ascribed to the Reserve Command in the article in question. To assume that the same Combat Command will always be in reserve is unsound from a practical standpoint. It is a violation of the principle of flexibility. It violates the "triangular concept" on which our Army and doctrine are based. It will have an adverse psychological effect on units tabbed as "reserve" by SOP. It can be construed, by the inference of its title and implied primary role, as an infringement on the prerogative of command.

That I am not a lone wolf crying in the wilderness is evidenced by the present organization of the 2d Armored Division. It has three Combat Commands, Combat Command "A," Combat Command "B," and Combat Command "R," with the headquarters organized and trained to perform identical missions. There is no Reserve Command. The announced policy of the present Division Commander, Major General George Read, is that the situation and division mission will dictate which combat command is in division reserve and which are committed to combat.

In furtherance of this concept, it is felt that combat commands should be redesignated so as to remove any such undesirable connotations as now exist. A consecutive numerical designation for each combat command is proposed. Thus, in the 1st Armored Division the combat commands would be designated CC-1, CC-2 and CC-3; the 2d Armored Division would be CC-4, CC-5 and CC-6, and so on throughout the other armored divisions. These distinctive designations would permit rapid identification of combat commands without reference to the parent division. This would preclude the possibility of any confusion when two or more armored divisions are operating in the same area as was frequently the case in World War II.

Now that this point has been raised, I feel you can do a great service to Armor by furthering this discussion and obtaining the views of others on this controversial subject.

COL. BOGARDUS S. CAIRNS
CO, CCR 2d Armd Div

APO 42

Dear Sir:

Reference is made to the article "The New Armored Division Organization" by Generals Clarke and Doan beginning on page 42 of the November-December 1952 issue of ARMOR, specifically the paragraph which concludes with the sentence, "When circumstances require it, the reserve command may be used as a fighting force for short periods of time." The Armored School teaches that the reserve command is employed exactly the same as the other two combat commands. This is certainly logical as the organization of the headquarters of the reserve command is identical throughout to the other two combat commands. This also complies with the principles enunciated by General Collins concerning the value and employment of triangular organization. In no way, however, should this doctrine be interpreted as reducing the flexibility of armored organization.

The Commanding General of the Second Armored Division has recommended that the name of the reserve command be changed to something that definitely indicates its equality to Combat Commands A and B. In this the Armored School wholeheartedly concurs.

LT. COL. WILLIAM T. HAMILTON, JR.
Secretary, TAS
Ft. Knox, Ky.

Need of Belonging

Dear Sir:

Lt. James L. Morrison shouldn't have been so bashful in presenting his answer to the problem of better troop *esprit de corps* in his article "For Garry Owen and Glory" which appeared in the Nov-Dec '52 issue of ARMOR.

The question can no longer be one of *should* such a system be adopted. It has become a question of *"When?!"*

Maj. Gen. C. L. Scott's article, entitled The Replacement System, in the same issue, presents some of the formidable reasons why a system of unit integrity, from induction to demobilization (or individual discharge) *must* be adopted.

General S. L. A. Marshall's *Men Against Fire* and the whole document of military history provide all the other reasons any planning body would need.

I was disappointed, however, not to find in Lt. Morrison's fine article the words "National Guard."

In the Guard, the Army has, ready-made, almost the exact system which Lt. Morrison and many others of similar bent recommend. Organized at home, bolstered by community, as well as unit spirit, and by a record of service 140 years longer than that of the regular establishment, the National Guard of the US provides the framework for the adoption of the unit integrity principle, not years hence, but *now*.

At the present time the National Guard is battered by a ruthless Regular recruiting policy. It is sapped by drafting of its hard-gained recruits and plagued by break-up of its units inducted, as units, into the Federal service.

How many of the men enticed, or dragged, into the Federal service as individuals are more efficient or better adjusted soldiers now than they would have been if they had entered the service as members of a unit and been kept in that unit?

For the past 15 months I have talked to many men called into Federal service with National Guard units early in the Korean emergency.

Many of them, far too many, are bitter men. Ask them whether they are willing to reaffiliate themselves with a reserve component and all you get back is a sardonic laugh.

In each and every case, the reason underlying the present bad feeling was not that the individual had been taken away from home and family, for either the first or the second time, but that *his outfit had been broken up and that he and his buddies had been scattered to the four winds, malassigned and their individual skills and abilities ignored or misused.*

For years the Army and Air Force have envied the Marines their magnificent *esprit de corps*. The army has spent considerable effort and a not inconsiderable sum of money on public information projects designed to enhance Army prestige. Somebody has even got the idea that all that has to be done is to find the Army a catchy song, something along the lines of the Marine Corps *Hymn*, and we'll be all set.

The answer lies in the maximum employment of the National Guard and eventually the Regular Army and Reserves along the general path outlined in Lt. Morrison's article.

The Marine Corps is compact enough to excite the spirited devotion of all its members. Because of this the Marines have wisely toned down emphasis on any one Marine division, emphasis that might lessen devotion to the corps as a whole. The Army, and to a lesser extent, the Air Force, however, are just too big to be loved all at once. But the division, the regiment, the battalion, and the company aren't too big.

Camaraderie and *esprit de corps* developed by use of the principle of genuine unit integrity in units of division-size and smaller will develop in the individual soldier what Lt. Morrison has described as the "feeling of deep pride in the fact that he has served his country to the best of his ability in an organization whose name will forever stir fond memories within his heart."

LT. WILLIAM V. KENNEDY
A.F., NGUS
Mechanicsburg, Pa.

Skeleton in the Closet

Dear Sir:

This magazine was, after all, once upon a time the *Cavalry Journal!* It must still be read by not a few rather horsy people. Hence, the following upon the best loved, perhaps, equine in History: "Marengo."

Marengo was Napoleon's favourite steed, and he was of the famous whitish in colour, like the Mercedes-Benz racing team in the current 20th Century era. In Whitehall, home of the well-known British "Blues," on the left going towards olde Westminster, is the skeleton of the great *Pferd* in the really excellent Royal United Service Museum. Thousands of people, French, English, and even Ameddican (inc. the writer), stop to admire Marengo, and there he is in bony structure.

Marengo is 14 hands high (plus one inch), and the Little Corporal (blessed be His name) bought him in Egypt after the famous battle at Aboukir. The fine little fellow bore the Corporal at *Marengo* (1800), hence his august name, and also at 1806's Jena, where the celebrated Prussian Guards collapsed. Subsequently, Marengo travelled with Bonaparte to Wagram (1809) when Vienna was taken for the second time. Goode old Marengo also marched on the retreat from Moscow (1812); and Vernet, the artist, has pictured him crossing the Alps en route to the Marengo field in Lombardy.

Marengo was wounded at Waterloo, and also captured, as Napoleon fled by coach. The writer finds *five* pictures of him, quite by accident, in his living room. Then, Lord Petre achieved Marengo and took him to England, where he was kindly treated as a matter of course. General Angerstein, of the King's German Legion purchased the splendid little "barb" and kept him in triumph at Ely, where he bred freely. Marengo died of a happy olde age, and snuff boxes were made of his hooves, one being still at St. James' Palace. He was the idol of England, just as Hitler's fine Mercedes has become an idol in America. Marengo was, and is, an English rally-point, and since very many inquiring people ask for him, it is a pleasure for a returned traveller to furnish this indispensable information.

ROGER SHAW
Hartford, Conn.

Off-Duty Study

Dear Sir:

As a reserve officer of some nine years of commissioned service, I have been distressed by the lack of enthusiasm displayed by many of the young, recently commissioned officers for professional training during non-duty hours. There are many ways in which this may be accomplished; extension courses, professional reading, USAFI courses; yet the reports of enrollments in these courses are far from encouraging: in my own unit, the number of officers attending these courses, particularly the young regulars who have so much to gain by professional study, is tragically small.

There is a crying need for encouraging professional self-improvement, and I believe that ARMOR is in a position to do much to correct the situation. There are three things which I believe should be done.

First, encourage self-study through the medium of extension courses of The Armored School. This can be done editorially and by short articles in "Sum and Substance" by senior officers, which state the value these courses have had in furthering their professional training. Secondly, publish more articles similar to the one by Mrs. B. A. Patton on professional reading. I can think of nothing that strengthened more my own desire to continue my professional reading. Thirdly, and to my mind most important, publish a list, from time to time, of books which will enhance professional study, particularly in conjunction with extension courses presented by The Armored School. Such a bibliography would be invaluable in correlating current thought and doctrine to thought and doctrine of past years and sources other than our service schools.

In times of international tension, the failure of an officer to continue his professional self-improvement and to widen the horizons of his knowledge through reading and study is tantamount to criminal negligence.

CAPT. MORTON SEMELMAKER
S2, 3d Armd Cav Regt
Camp Pickett, Va.

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Rates: See bottom of contents page.

THE COVER

Western Europe is the classic area for Continental warfare, which is to say mobile warfare. Against the background of history it is strange that the Western Powers hold to a balance in their ground forces which leans to infantry rather than the mobile element, armor. A rampaging Red drive to the West could best be countered by highly mobile defense. Our five Allied armored divisions are a core for continental action.

NEW CIVILIAN TOP COMMAND

Commander in Chief

New York Times

Dwight D. Eisenhower

Dwight David Eisenhower . . . United States Military Academy, Class of 1915 . . . second professional soldier to be president (Grant) . . . infantry troop officer and instructor to 1918 . . . commanded Tank Corps troops at Fort Dix and Fort Benning from 1918 to 1919 . . . commanded tank battalions at Fort Meade, Md., from 1919 to 1922 . . . graduated from the Infantry Tank School in this period . . . troop, staff and school assignments to 1935, when he became Assistant to the Military Advisor, Commonwealth of the Philippine Islands, General MacArthur . . . Chief of the War Plans Division, War Department General Staff, February 1942 . . . ACofS Operations, March 1942 . . . appointed Commanding General, European Theater, June 1942 . . . commanded American forces in the North African invasion, November 1942 . . . Supreme Commander, Allied Expeditionary Forces, planning and coordinating land, sea and air forces for the Normandy invasion, December 1943 . . . commanded Normandy invasion, June 6, 1944 . . . Military Governor U.S. Occupied Zone in Germany . . . Chief of Staff, United States Army, November 19, 1945 . . . president of Columbia University, June 7, 1948 . . . designated Supreme Allied Commander, Europe, on December 16, 1950, with operational command of all U.S. forces in Europe . . . retired from active service May 31, 1952 . . . resigned commission July 18, 1952 . . . sworn in as President, January 20, 1953.

Secretary of Defense

Charles Erwin Wilson . . . born in Minerva, Ohio in 1890 . . . Carnegie Institute of Technology graduate in 1909 as electrical engineer . . . became a student apprentice shortly thereafter

General Motors

Charles E. Wilson

with Westinghouse Electric & Manufacturing Company . . . in 1912 designed the first automobile starting motors made by Westinghouse . . . given charge in 1916 of all its automobile electrical equipment engineering . . . in World War I he was in charge of design and development of Westinghouse radio generators and dynamotors for the Army and Navy . . . joined General Motors in 1919 as chief engineer and sales manager of the automobile division of Remy Electric Co., GM subsidiary in Detroit . . . on to Anderson, Indiana to become chief engineer . . . factory manager in 1921 and general manager in 1925 . . . president and general manager of Delco-Remy Corporation in 1926 . . . vice president of General Motors in Detroit in 1928 . . . executive vice president 1929 . . . acting president of GM when William S. Knudsen joined the government on war production, 1940 . . . elected president of GM in January 1941, the post he held at the time of his nomination to be Secretary of Defense, succeeding Robert M. Lovett . . . approval by Armed Services Committee and Senate confirmation followed action to dispose of GM interests.

Deputy Secretary of Defense

Roger M. Kyes . . . a native of East Palestine, Ohio . . . broad experience in business and industry . . . special studies in business administration and administrative engineering . . . cum laude graduate of Harvard in 1928 . . . for the next two years assistant to the president of Glenn L. Martin company, with offices in Baltimore and Cleveland . . . assistant to the president of Black and Decker Manufacturing company at Towson, Md., from 1930 to 1932 . . .

General Motors

Roger M. Kyes

became vice president of the Empire Plow Company in Cleveland in 1932 . . . in 1941 named executive vice president and general manager of the Ferguson-Sherman Manufacturing Company . . . later became president of that Detroit firm, manufacturing tractors and agricultural equipment . . . joined General Motors in 1948 . . . for two years he was executive in charge of procurement and schedules . . . elected general manager of the Truck and Coach division . . . then vice president of the General Motors corporation, present position at the time of appointment to the second spot in the Defense Department . . . is 46 years old . . . has worked closely with the new Secretary of Defense in the GM corporation . . . succeeded William C. Foster as Deputy Secretary of Defense following Armed Services Committee and Senate approval of his action to dispose of GM holdings.

Secretary of the Army

Robert Ten Broeck Stevens . . . born in Fanwood, New Jersey in 1899 . . . received his bachelor's degree from Yale University . . . graduate degrees from Lafayette College and New York University . . . served as a second lieutenant during World War I . . . in World War II was in the office of the Quartermaster General . . . appointed deputy director of purchases for the Quartermaster Corps in 1943, held the post for two years . . . has seen much government service . . . in 1933 was chairman of the Industrial Materials Department tion's Policy Board . . . in 1940 was group executive of the textile section on the staff of Edward R. Stettinius, head of the Industrial Materials Department of the National Defense Advisory Com-

Wide World

Robert Ten Broeck Stevens

mission . . . in 1941 he was named coordinator of the Office of Production Mobilization's defense contract service in New York City . . . is a member of the executive committee of the Commerce Department's business advisory council . . . is chairman of the board of J. P. Stevens & Co., chairman of the board of directors of the Federal Reserve Bank of New York and a member of the boards of General Electric, General Foods, New York Telephone and many other business firms . . . nominated to succeed Frank Pace, Jr. as Secretary of the Army following legislative consideration and confirmation to the top Army position.

Secretary of the Navy

Robert Bernerd Anderson . . . born at Burleson, Texas, 42 years ago . . . graduated from Wetherford College in 1927 . . . received his law degree from the University of Texas in 1932 . . . began practice in Fort Worth the same year . . . elected to the Texas Legislature that year and later became assistant attorney general of the state . . . professor of law at the University of Texas in 1933 . . . State tax commissioner in 1934 . . . chairman and executive director for the Texas Unemployment Commission in 1936 . . . vice president of the Associated Refineries, Inc., since 1943 . . . a director of the Northwest Broadcasting Co., Inc., since 1934 . . . director and deputy chairman of the board of the Federal Reserve Bank of Dallas, Texas . . . director of the Vernon Times Publishing Company, the Vernon Transit Company, Mid-Continent Oil and Gas Association, and Texas Wesleyan College . . . member of the Texas Bar Association and the Independent Petroleum Association of America . . . attorney for the W. T. Waggoner estate, and its general man-

Wide World

Robert B. Anderson

ager . . . chairman of the Texas Board of Education . . . has never been to sea on a Navy vessel . . . nominated to succeed Dan A. Kimball as Secretary of the Navy following consideration and confirmation by the Armed Services Committee and the Senate.

Secretary of the Air Force

Harold E. Talbott . . . born at Dayton, Ohio, in 1888 . . . graduated from Yale University in 1910 . . . in World War I he served as a major in the Airplane Service . . . from 1916 to 1920 he was president of the Dayton Wright Airplane Company, and from 1931 to 1932 was chairman of the board of the North American Aviation Company . . . in the period 1942-1943 he served as director of aircraft production of the War Production Board . . . in the field of business he has been in charge of hydroelectric development and industrial construction . . . is a former vice president and general manager of Dayton Metal Products Company and chairman of the board of the Standard Cap and Seal Corporation . . . he has served as chairman of the Finance Committee of the Electric Autolite Corporation and is a director of several other corporations . . . was an original investor in the Chrysler Corporation and is now a director of that firm . . . now president of the investment banking firm of H. E. Talbott & Company of New York City, the post he held at the time of his designation as Secretary of the Air Force . . . is a prominent sports figure, and especially a horseman, having been a ten-goal polo player some years ago . . . likes big game hunting . . . nominated to succeed Thomas K. Finletter as Secretary of the Air Force following Armed Services Committee consideration and Senate confirmation to the top Air Force position.

Wide World

Harold E. Talbott

"We should not let the politically and geographically restricted war in Korea blind us to the fact that decisive land warfare can hardly escape being continental. We should not let our preoccupation with mass obscure our vision of mobility."

ONE WAY TO LOSE A WAR!

by MAJOR GENERAL ROBERT W. GROW

AIRBORNE infantry, atomic weapons, guided missiles or other nonconventional means may win a war of the future, *but a failure to provide a properly balanced and equipped mobile ground arm is more likely to lose it.*

It is high time that more consideration be given a ground army which is balanced to fight a modern continental war.

History teaches that the most successful commanders employed two main assault elements in battle. The first and usually the larger one was an infantry force, while the second was a cavalry force. Both were supported by artillery, engineers, etc. The purpose of the cavalry force was to enable the commander to quickly seize key terrain, to exploit success, and to carry out wide and rapid maneuver. The need for such a ground force arm was never greater than today. The means to create cavalry forces for modern war were never more available than today.

Cavalry existed in the past because there was a need for a force which could *fight mounted;* a force which could maintain a higher combat tempo than could be maintained by forces fighting on foot. Through history the word cavalry has come to mean the mobile combat arm, and it is in that sense that the word is used in this article. No one need hesitate to read further from fear that this is a plea to revive the horse. Horses are no more synonymous with cavalry than with artillery. Horses have no place on the modern battlefield.

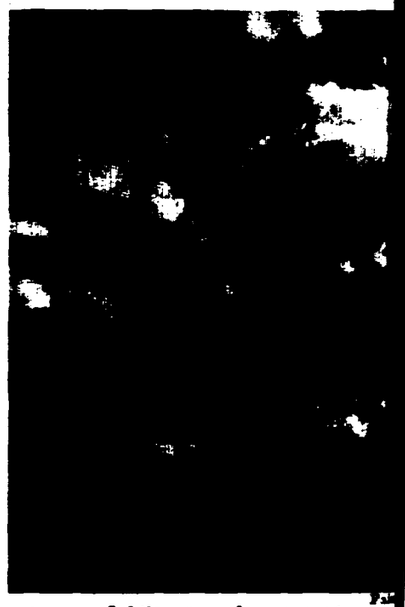
There is a marked tendency today to confuse *transportability* with *mobility*. In the old days, infantry was sometimes transported on horses, but this didn't make it cavalry. Today infantry may be transported by rail, motor vehicle or aircraft. *But infantry fights on foot!* Combat mobility of a degree higher than that of the foot soldier is achieved by the use of mounts from which soldiers can use their weapons, can close with the enemy under fire. Thus mobility, as the term is used here, refers to movement on the battlefield: the same means may or may not be used to reach the battlefield.

The fact that the horse has been eliminated from the battlefield has in no sense eliminated the cavalry role. For reasons that are difficult to understand, the name "cavalry" was abandoned with the passing of the horse, and the word "armor" was substituted. Unfortunately, it is not an accurate substitution: it has caused much misunderstanding and may do irreparable harm. "Armor" does not signify a role in battle. It does not apply to a single arm. Everyone needs armor today; even the foot soldier wears it.

Another misconception is that tanks and armor are synonymous. Branches of the service are determined by their role in battle. That there is a mounted combat role, none can deny. To carry out that role was the task of the Arm known as Cavalry, and is the task of the Arm known as Armor. But tanks are weapons needed by both Armor and Infantry.

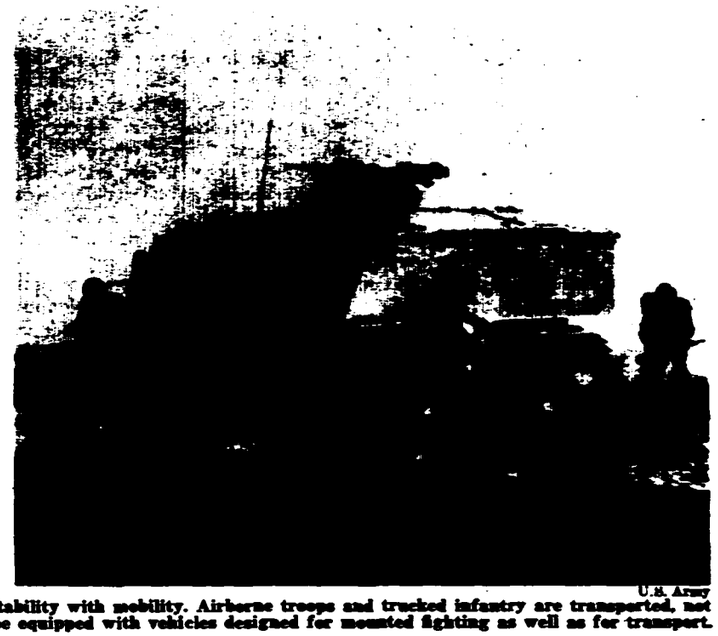
Tanks are highly mobile, armored supporting weapons, needed for the support of both Infantry and Armor.

MAJOR GENERAL ROBERT W. GROW has just retired following a career of service in the mobile field, including early years in Cavalry and an association with armor dating from its formative years through its peak in World War II, when he commanded the 6th Armored Division.



Regardless of the efficiency of its air support, no ground force can win unless it possesses a fighting ground component of greater mobility than infantry. Airborne troops and tactical air are ideal support units for mobile ground operations.

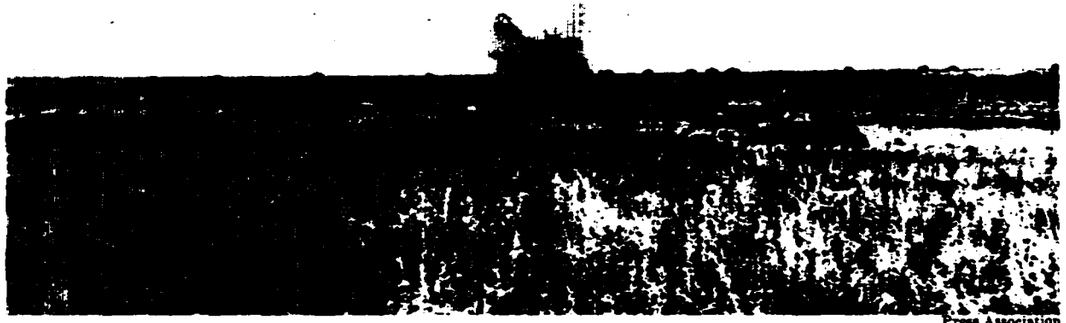
Fairchild



U.S. Army

There's a tendency to confuse transportability with mobility. Airborne troops and trucked infantry are transported, not mounted. Armored infantrymen must be equipped with vehicles designed for mounted fighting as well as for transport.

"The side which produces mobile-minded leaders
who develop armies balanced between mounted and dismounted elements . . .



Press Association
German appreciation of mobility in battlefield employment brought her decisive victories on all fronts in World War II.

The same tank might do both jobs. but in one case it is supporting the action of the foot soldier at infantry tempo. while in the other case it is supporting the action of the mounted soldier at cavalry tempo.

Suppose tanks are used to lead an attack. If the attack is made by Infantry. the tanks can go only as far and as fast as the foot soldier can accompany them: the fact that the tanks make short bursts of speed. then wait for the foot soldier, does not alter the picture. If the attack is made by Armor. the tanks can go as far and as fast as the mounted soldier can accompany them. Herein lies the fundamental difference.

Another misnomer has crept in to confuse the mobile picture—"armored infantry." The name is misleading in that it implies that the soldiers fight only on foot.

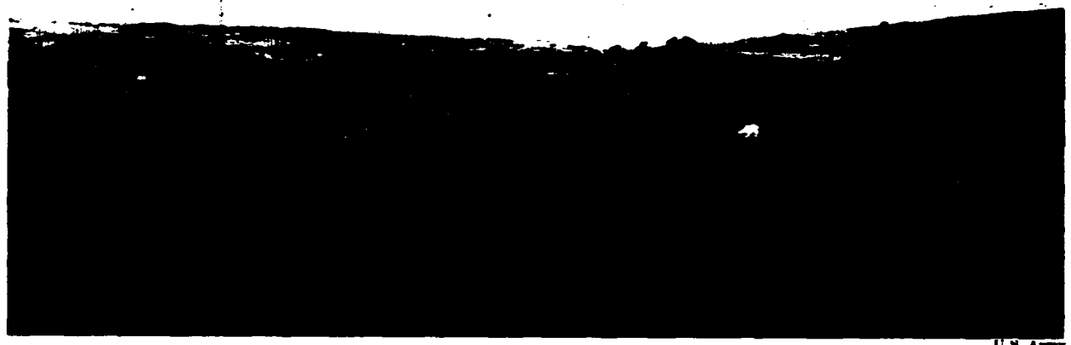
Our "armored infantrymen" must become. in effect, our cavalrymen, mounted on a vehicle which permits them to fight mounted, as well as retaining for them the ability of our horse cavalrymen to dismount and fight on foot should the occasion arise (something which our tankers are not in a position to do). Herein lies the basis of our modern cavalry—a mechanical mount from which the soldier can fight, from which he can dismount to fight on foot, and which permits him to switch rapidly from one method to the other in combat.

In this respect we must not let a complete preoccupation with tanks compromise our development of ever more suitable mechanical mounts. From the crude beginnings prior to World War II, our mounts have reached a stage that gives promise of meeting the demands of mounted combat. If design does not veer too strongly in the direction of "complete" protection, if we have a design permitting personnel to effectively employ weapons while mounted, and if there be agility and speed and the numbers required, we will restore mounted combat. The history of several of our armored divisions in World War II provides many examples of modern cavalry. Such cavalry. the same as infantry, requires tank support; in fact, its requirement in this respect is even greater than infantry's.

To permit the American army to fall into a pattern cut to fit certain restricted areas in the Pacific is to court disaster. It is not necessary to revive the name "cavalry" if, as seems to be the case, this is anathema to many, but it is of the highest importance to be prepared to carry out the cavalry role. There is need for increased mobility of mind to sense this problem. On the continent of Europe, Asia or Africa, no ground force, regardless of the efficiency of its air support, can win unless it possesses a fighting ground component of greater mobility than Infantry. Employing our current terminology this component should be composed of armored divisions organized into one or more armored armies. Successful though they were in the European campaigns of 1944-45, our armored divisions were not employed in a mass that would likely have been decisive in 1944. For one thing, they were not properly organized or equipped. There were too many tanks and not enough "armored infantry" so that the armored divisions were closely anchored to the infantry divisions. The mount for the armored infantryman wasn't good enough, either in mobility or fire power. Improvements have been made and more are due to come. As of this date we have a pretty well balanced division that can fight mounted or dismounted, that can perform the cavalry role in battle, that can outfight a greatly "superior" Soviet force in any continental theater.

We should not let the "tank-infantry" slogans and tactics lead us to forget the "tank-cavalry" team, the mounted combat team. We should not let the politically and geographically restricted war in Korea blind us to the fact that decisive land warfare can hardly escape being continental. We should not let our preoccupation with mass obscure our vision of mobility.

. . . and, on the battlefield, effect a balanced
use of mass and mobility, will win the land battles of the next war."



U.S. Army
American mobility was not massed, requiring static fronts and masses of infantry with sheer weight producing victories.

World War I became a military stalemate when mobility was lost. World War II saw a revival of mobility, but only in part, because the substitution of the iron horse for his four-footed predecessor was far from perfect and because too many commanders thought the role of Cavalry had passed.

The side which produces mobile-minded leaders who develop armies properly balanced between mounted and dismounted elements and, on the battlefield, effect a balanced use of mass and mobility will win the land battles of the next war. It requires no super-imagination to see that cooperation with air power—including air-transported infantry—demands self-contained, balanced mounted combat units. No country is as capable as ours of providing such units.

Mobility begins in the mind. Leaders must think mounted. There are plenty of mobile minds in America.

The item of cost, even if it were important, need frighten no one. It does not require a vast increase in quarter-million-dollar tanks. It does require a large output of iron horses for mounted soldiers; relatively small, relatively cheap (compared with tanks), highly fast and agile vehicles capable of carrying a squad of soldiers delivering a sheet of fire, teamed with tanks, artillery and engineers equally well mounted, in units that can fight mounted, dismounted, or both.

There is nothing new in the idea. There is nothing new in the equipment—except that it can be improved. But there is something alarmingly new in the current trend of thought. which is dangerously backwards: backwards toward trenches, stalemates. immobile human masses, immobile minds and the defensive; *one way to lose a war!* Let us balance the American Army, at least one armored division in three with double the ratio in Europe where other nations can better furnish infantry divisions. Let us revive the mobility of mind which will create and can employ an American Army in which mass and mobility are balanced.

Not many weeks ago readers on the home front were being thrilled by the report of a hot action on the Korean battle front involving a small group of tankers. Here is that incident phased into its overall operation, the whole a story of what armor can accomplish in mountain operations under present tactical conditions.

1,200 Reds Fail To Stop 3 Tanks In Night Fight

2 G.I.s Die, but Rest Escape Trap After Beating Back Foe Swarming on Vehicles

EASTERN FRONT, KOREA. (AP). — Twelve hundred savage, burp-gunning North Koreans surrounded three American tanks for fifteen hours on a fog-shrouded peak on the eastern front. Two members of the tank crews were killed, but all the others [illegible] safely in one of

by FIRST LIEUTENANT CLARK C. MUNROE

Armor Holds the Hills

THE war in Korea has been called many things. It is an infantryman's war; it is an engineer's war; it is a different kind of war to different people. But this much is certain, it has never been called a tanker's war. Be that as it may, however, when the story is finally written, many a shining chapter will owe much of its brilliance to the actions of the men in the iron monsters.

A typical action took place in September of 1952 on Hills 854 and 812 in Eastern Korea. The terrain was anything but ideal from the tanker's viewpoint, for as it stretched before the eyes of the men from the 245th Tank Battalion they could see only steep, rocky mountains and occasional corkscrew-like dusty roads, while off to the north as far as the eye could see were only more purplish peaks which lay in North Korean hands.

The fight which took place here and which will not soon be forgotten by those who played a part in it began early in the evening of September 21, 1952. Company C of the 245th Tank Battalion was adding the firepower of its guns to that of a Republic of Korea (ROK) Division in position on the MLR. Two tank platoons originally were emplaced on the line while the uncommitted portion of the company was slightly to the rear, ready to move into support should the need arise. The ten tanks of the two platoons were dispersed as shown on the map in Positions 1, 2, 3, and 5 and later were reinforced when Position 4 was occupied.

Radio silence was in effect on each position but all of the tanks were tied in by wire. Because of the extremely rugged landscape, it was impossible for the positions to be mutually supporting, but every effort was made to have the tanks on the individual positions placed so as to be able to cover one another with fire. Captain John Salco's command was ready for whatever the future might hold.

The North Korean troops had been showing increasing interest in Hills 854 and 812 during the days preceding September 21st. Thus, when enemy probes were reported in the vicinity of Position 2 early in the evening of the 21st, there was no unusual excitement, although everyone was alerted for action.

During the early hours of darkness, enemy artillery let loose extremely heavy volumes of fire on both hills, and simultaneously, reports of an enemy company-size attack on Hill 812 between Positions 1 and 2 were received at the tank company headquarters. After less than half an hour of the enemy shelling the wire communications to Positions 2 and 5 had been destroyed, and by 0230 hours the phones were out from the company CP to all the firing positions. Radio silence was lifted when the phones went out and it was determined that two enemy battalions were swarming onto the Hill 854 terrain complex after an initial diversionary assault on Hill 812. Friendly artillery roared down on the attackers from above while fire from the well-

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emplaced tanks added to the devastation.

Initial information was slim, primarily due to two factors—disruption of the wire communications, and the natural difficulty arising from the language differences between the tankers and the South Korean troops whom they were supporting. However, Captain Salco alerted his uncommitted tanks and the commander of the 245th Tank Battalion, Lt. Col. Charles W. Walson, ordered Company A to prepare for possible employment in Company C's sector.

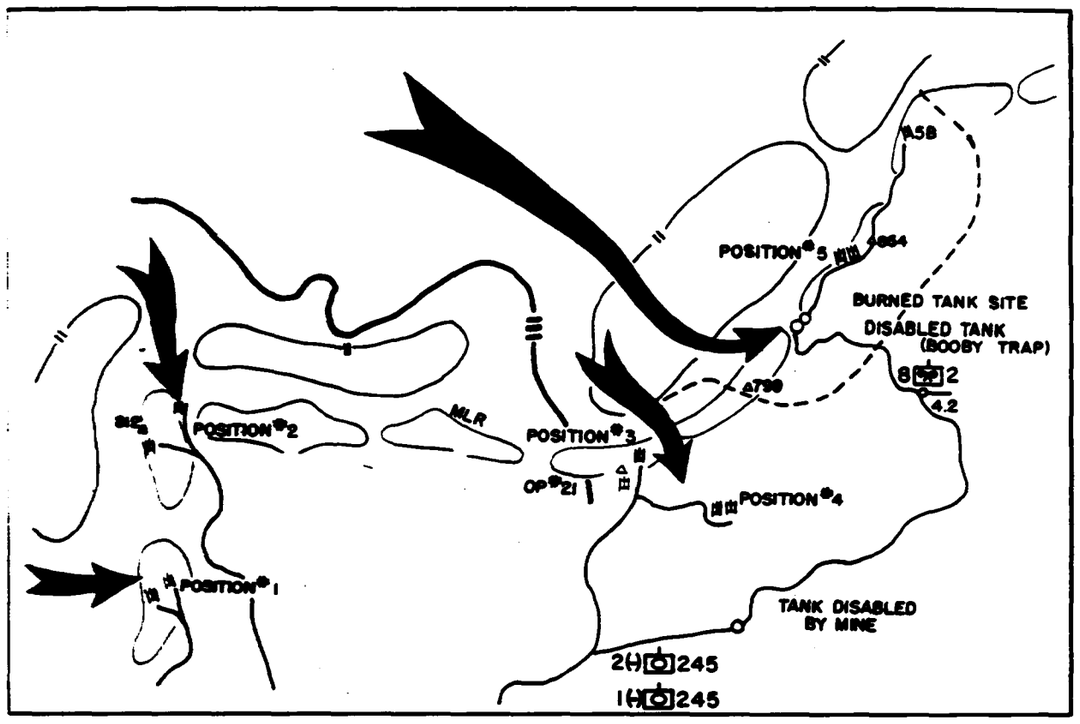
The full story, however, is best described by taking each firing position in turn and telling of its part in the fast-developing action.

Position 1 near Hill 812 was the lightest hit of the four original positions. It was manned by two tanks from Lt. Malcolm E. Givens' platoon and came in for its share of the heavy shelling which preceded the attack. Friendly infantry forces were hit early in the evening by two enemy platoons, but except for infiltrations the North Koreans failed to breach the MLR at this point.

Position 2, occupied by the two tanks making up the remainder of Lt. Givens' platoon, was not so fortunate. At the time of the attack, both Lt. Givens and the company executive officer, Lt. Patrick H. Lynch, were at Position 2. North Korean artillery started to fall on their location at 1800 hours on September 21st. It was followed by an infantry attack and by 2100 hours the enemy had reached the crest of Hill 812. Friendly searchlights, which had been furnishing artificial moonlight, had been turned off, and in the pitch blackness it was impossible to tell friend or foe. Heavy small arms fire pierced the blackness from close at hand on all sides. The two lieutenants knew there was an artillery forward observer in a nearby bunker so they dismounted to move forward on foot to contact him and determine the situation so as better to employ the fire of their tanks.

They inched forward a short distance when suddenly a burst of machine gun fire from close by raked over the two officers, seriously wounding both of them in the legs. They both fell and neither could walk. The enemy fire continued to kick up a shower of dirt near them and hand grenades came lobbing into the meager cover into which they had rolled. Both Lieutenants Lynch and Givens picked up grenades falling within their cover and tossed them back at the North Koreans. Finally, Lt. Lynch, although painfully wounded, succeeded in crawling through the fire to the friendly bunker to get aid for Lt. Givens. Two friendly infantrymen from the 279th Infantry Regiment, which was in position adjacent to the ROK unit, left cover immediately to get Lt. Givens but in the hail of fire one was killed and the second wounded. Two other infantrymen from the 279th made a second attempt to rescue Givens and were successful in bringing him into their bunker.

Friendly artillery with VT fuze was called onto Position 2 at 0100 hours and the fighting continued without letup at hand grenade range. Friendly infantry in the bunkers and the nearby tanks fired on one another's positions throughout the night



to keep the enemy clear. Finally, at daybreak, the North Koreans pulled back into nearby trenches where they were subjected to the pounding of the tank fire and infantry support weapons. A ROK soldier, after attracting the attention of the tank nearest to him, began pinpointing enemy positions by tracer fire from his rifle and the tank took up the cue and unloaded 76mm shells into the shelter of the enemy. One position fired on in this manner resulted in a confirmed kill of 37 enemy soldiers.

As dawn broke on September 22nd, three tanks commanded by Master Sergeant Homer E. Coen began moving up to reinforce the troops on 812. An armored personnel carrier (APC) attempting to follow the tanks onto the position to recover 25 to 30 wounded men was forced to withdraw as the enemy showered the area with mortar fire. However, Lt. Paul A. Hilty of Company A, which had moved up to support Company C, volunteered to go forward again in the APC and he succeeded in making two trips during which he evacuated all of the wounded. As the reinforcing tanks moved up, a company of North Koreans regrouping for a renewed attack withdrew, and contact was then broken except for sniper fire. Sergeant Coen remained on the position all day both securing it with his fire and acting as a radio relay station for tanks on Positions 1, 2 and 5. Hill 812 was secure.

Position 3 southwest of Hill 854 was occupied by two tanks under command of Master Sergeant Zack S. Gregg. It too came under enemy artillery and mortar fire during the early evening of September 21st, followed by several probes which were repulsed. Another fire fight flared briefly at 2115 hours and then at 2130 hours the Communist troops threw in the heaviest concentration of fire ever received on Position 3. This was followed closely by another infantry assault which forced the ROK soldiers to pull back. Sergeant Gregg contacted Captain Salco by radio and was ordered to position his tanks for mutual support and stand fast.

Radio contact from Position 3 was lost soon after the exchange of messages between Sergeant Gregg and Captain Salco, because in the heavy firing the antennae on both of Sergeant Gregg's tanks were destroyed. The fighting continued to rage but with the help of the few ROK's still on the position and by moving into previously selected secondary positions the tanks were able to secure their ground against the repeated enemy attacks. Toward morning, the tankers were joined by United States personnel from a nearby observation post which had been overrun. According to the OP party, the MLR between Positions 3 and 4 had been penetrated by the enemy. However, Sgt. Gregg, who still had not regained any communications with his headquarters, remained in position and carried on the fight which raged to within ten yards of the tank positions.

The Koch Incident

Position 5, commanded by Lt. David C. Koch, underwent what was probably the heaviest fighting of the period, as it was there the enemy made his main effort. Sitting as they were atop the primary enemy objective, Hill 854, the tanks on Position 5 could dominate the entire surrounding area with their fire. The action began there at 2030 hours on September 21st with a series of small probes which were repulsed by 2145.

At 2400 hours, an enemy company was observed coming toward Hill 854 from the slopes of Hill 799. The two tanks on the left of 854 opened fire with their machine guns as enemy artillery and mortar fire began to fall in ever-increasing volume. Two of the tank crewmen were wounded by the incoming fire and both tanks were required to button up for protection. The enemy continued to close on the positions, absorbing punishing casualties but moving in until they had infiltrated the tank positions.

North Korean troops crawled up onto the tanks, blocking the vision devices, exploding shaped charges and attempting to jam the 76mm gun tubes and plug the .30 caliber coaxial machine guns in an effort to silence the fire from the tanks. The tankers fired on one another, traversing their turrets to knock enemy troops from the decks. The fighting raged all night as the enemy reinforced his assault force to battalion size. Daylight on the 22nd revealed North Koreans all around the tank positions and in control of the hilltop. Friendly infantrymen had been forced off the crest, but the tanks held their ground. One Red soldier was observed firing the .50 caliber machine gun from the top of one of the tanks. He was shot off by friendly fire.

The third tank on Position 5, commanded by Sgt. Eugene J. Gregor, was situated about 1,000 yards north of the other two tanks and was also in serious trouble. An enemy battalion had surrounded the area and the incoming artillery had forced that tank also to button up. The narrow ledge upon which the tank was sitting, weakened by heavy rains, began to crumble. The tank commander, whose radio contact also was lost because of a destroyed antennae, could see nothing but North Korean troops when he cracked his turret hatch. He ordered the driver to pull down the hill to the position of the other two tanks. Although the road was extremely narrow, with a sheer drop on one side, the driver managed successfully to maneuver the tank down near the area where the other tanks were. However, the tank commander could see nothing but enemy troops so he continued down to the bottom of the hill where he joined Lt. Barney H. Kengla's platoon from Company A which was preparing to relieve Lt. Koch's tanks on Position 5.

Meanwhile, Lt. Koch had observed Sgt. Gregor's tank fighting its way down the enemy-held hill. By this time his own position was devoid of friendly infantry and had become untenable. He ordered his driver to prepare to follow the first tank down the hill. Backing up so as to bump the other tank as a signal, Lt. Koch started the descent on the narrow trail, taking under fire the North Korean troops attempting to consolidate their hold on the hill. The second tank also began to move down the hill but its clutch failed to function on the steep slope and it was forced to halt.

Lt. Koch's tank had gone about 300 yards when it was hit by an enemy bazooka shell. It burst into flame which the fixed fire extinguishers failed to quench. Lt. Koch ordered his crew to abandon the tank, and amidst a hail of enemy fire they made their way to a bend in the road where an overhanging bank offered temporary protection. North Koreans directly above the unprotected tank-

ers opened fire and although the angle of the bank gave momentary cover. Lt. Koch realized his crew must be gotten quickly to safety. The only escape was to jump over the cliff formed by the road on the far side from where they were huddled. Explaining the maneuver, Lt. Koch then made the first break and his crew followed, throwing themselves over the ledge. Everyone cleared the road, but one crewman broke his leg in the fall. Lt. Koch and one of his men carried the injured man along while the remainder of the crew moved out of immediate danger. Enemy mortar and small arms fire peppered the three tankers, but they were able to make their way 600 feet down the steep slope where they were met by ROK infantrymen forming for a counterattack on the hill.

The Payoff

Back at the tank immobilized with the bad clutch, the situation grew steadily worse. It was desperately engaged with the North Koreans when a bazooka round penetrated the turret, killing the tank commander. A medic who was in the tank opened the hatch but was killed by a burst from a burp gun. Several North Korean hand grenades then were lobbed into the open hatch but the remaining crew members managed to throw them out before they exploded and then succeeded in securing the hatch. The Reds fired several machine gun bursts at the hole caused by the bazooka, while inside the tank a crewman attempted to hold a helmet over the hole to stem the fire.

The gunner attempted to get clear of the trapped tank but was blown to the ground as soon as he was out. North Korean troops stabbed him with a bayonet, dragged him toward the tank and, after taking his pistol, left him for dead. However, the gunner managed in spite of painful wounds to roll under the tank where he remained unseen until several hours later.

Down at the base of the hill, Lt. Kengla's platoon, joined by Sgt. Gregor's tank, the only uncommitted portion of Company C, was preparing to move out to relieve Lt. Koch's battered force. A counterattack was to be executed by the ROK Army elements simultaneously with the relief effort by the platoon from Company C, but Captain Salco's communications with the ROK force were out so he ordered Lt. Kengla to proceed independently to Position 5.

Lt. Kengla moved out, and as his lead tanks approached the positions of the 4.2 mortars he observed the mortarmen engaged in a fire fight with North Korean troops who had fought their way into the rear. Adding the fire of the tanks to the fight proved to be the turning point and the Reds withdrew while the tanks moved on up the slope.

Moving by bounds where the terrain permitted, the first section tanks came upon Lt. Koch's burned out tank, which was blocking the trail. Two members of the leading crew dismounted and made their way to the tank where they determined that no wounded were aboard. As the two men attempted to return to their own tank they were caught in a burst of enemy fire and wounded. The remainder of the crew of the blocked lead tank dismounted to give aid but in face of heavy fire they were forced to seek cover, taking the wounded with them. Continued enemy fire prevented their returning to their own tank, so all except one made their way to the rear tank in the column. The remaining man who had also been wounded managed to crawl into a ditch where he remained under cover for eight hours until rescued.

The second section of Lt. Kengla's platoon by this time had also started up the road near the 4.2 mortar positions when the lead tank struck a mine. The following tank successfully covered the disabled tank and prevented the North Koreans from making a direct assault upon it.

Lt. Kengla's tank, with the one remaining first section tank, alternately moved and fired on Hill 854, gradually working its way forward. When Lt. Kengla reached the unmanned first section tank blocking the trail he dismounted and climbed into the driver's compartment to move the tank clear of the route of advance. However, he noticed crude booby traps fashioned from hand grenades attached to the laterals and clutch. A ROK sergeant, part of the counterattacking force which was now moving up, climbed into the tank, disarmed the grenades and handed them to Lt. Kengla who tossed them over the cliff by the side of the road. This accomplished, the ammunition from the unmanned tank was transferred into Lt. Kengla's tank and after the section had succeeded in shoving the burned tank off the cliff, Lt. Kengla continued his movement up the hill.

As the advance of the first section continued, it came upon the tank which had been forced to halt because of the faulty clutch. It was still in action but it was imperative the wounded be removed for treatment. Lt. Kengla had them placed on the back of his own tank and sent to the company assembly area, for he had learned that a relief force of three tanks commanded by Lt. Braxton K. Collins of Company A was also on its way to Position 5. When the three new tanks arrived, Lt. Kengla oriented Lt. Collins on the situation and then, acting on orders, made his way back to the company assembly area leaving Lt. Collins in command.

Position 4 now entered the picture, for it was from that point that Lt. William J. Beckwith commenced his fire support of the ROK counterattack. It was now 1600 of the 22nd. Lt. Beckwith's mission was to advance from Position 4 to Hill 854 but after several attempts were made it was certain that the terrain was such that the tanks would be unable to make the ascent from their location. At 1610 hours it was reported that Hill 854 had been secured by the ROK troops, so Lt. Beckwith organized his force on Position 4 so as to be able to repel by fire any possible enemy counterattack on 854.

Staying Power!

The expected counterattack failed to materialize and the fight for 854 was over. It had been a violent action on both 854 and 812, although it lasted less than 24 hours. The tanks of Company C, supported by those of Company A, had given an excellent account of themselves and, though operating in terrain which seriously limited their maneuverability, they were able to provide vital fire power and "staying" power when and where it was most needed. Their aggressive employment both in the defense of the position and in the later counterattack proved to be a major factor contributing to the success of the operation.

John Ziska was not in league with the devil.
He was nothing more—nor less—than a medieval Patton,
spawning the tactical ancestor of today's tank
and dishing out an advance portion of Hell on Wheels.

The Tanks of the Middle Ages

by LYNN MONTROSS

SEVENTY years before Columbus discovered America, the tactical ancestor of today's tank made its appearance on the battlefield. It is hardly needful to add that this product of the Middle Ages could only seem quaint and primitive to a modern generation. But the concept of an armored vehicle with firepower was terrific in the year 1422, and even a present-day M46 might envy the Hussite wagon-fort its long string of victories.

Throughout military history, of course, the wagon has played a persistent part in defensive tactics. The Goths of the ancient world fought behind a barricade of wagons, just as American pioneers saved their front hair from the redskins sixteen centuries later by forming their prairie schooners into a tight perimeter. But the wagon-fort of the Hussites was something different and special. It was actually a horse-drawn armored car, co-ordinated with other arms and used for offense as well as defense. It was trying to be a tank to the best of its ability, and it raised so much hell with opposing forces that its battlefield victims accused the Hussites of being in league with the devil.

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The Armor of Antiquity

Even in the Middle Ages the idea of armor was not new. For the chariot of the ancient world may be dated back to the beginnings of recorded history in Mesopotamia. A two-wheeled cart, low in the stern and rising to a curved prow covered with bronze plates, this horse-drawn vehicle provided both protection and mobility. The bone-crushing tactics of Assyria depended to a large extent on the armor of antiquity, and it was likewise a reliance of Persia when that empire fought it out with Greece for supremacy.

Chariots being better suited to plains than mountainous peninsulas, it is not remarkable that they had a very minor part in Greek and Roman tactics. And in the decisive battle between East and West, chariots failed to save Darius III from a fatal defeat at the hands of Alexander the Great.

The Persian potentate had already taken a beating from the Greek invaders in a preliminary test of strength along the eastern Mediterranean littoral. After placing a force in Alexander's rear, compelling him to fight to regain his line of communications, Darius allowed himself to be drawn into a narrow coastal plain between the hills and the sea. There his chariots and cavalry were too cramped for space to be effective, and the Persians bowed to defeat on the field of Issus in 333 B.C.

Two years later Darius tried to avoid the basic error of that reverse by awaiting his adversary on a broad plain near the river Tigris that offered unlimited elbowroom. After clearing away all obstructions until the terrain was as level as a parade ground, the king of kings drew up a host estimated with the usual Oriental hyperbole at half a million men. He placed his cavalry on both wings and his masses of foot in the center, according to standard procedure. But at the battle of Arbela he wooed victory with an advance line of chariots armed with stout scythes protruding from both sides. These armored vehicles were to charge, covered by a "barrage" of arrows, while the Persian cavalry closed in for a double envelopment.

The 7,000 horse and 40,000 foot of Alexander's army were probably outweighed at least four to one. But he did not hesitate to seize the initiative after placing his phalanx of spearmen in the center and the cavalry on both wings, with hinges of light infantry between the two arms. His right, followed in echelon by the rest of the force, struck a surprise blow at the enemy's left before Darius could set his ponderous machine in motion. The Persians made a corresponding shift to meet this oblique attack, but the invaders were already

in position to pour arrows and javelins into the flank of the chariots when they advanced. Enough drivers were killed and horses wounded so that the charge got out of control, with the scythes doing more hurt to friend than foe in the melee.

Alexander took advantage of the confusion to drive a wedge with his cavalry between the opposing left and center, cutting the Persian army in two. The flight of Darius and his nobles led to a general panic, ending in the collapse of an army still retaining a great numerical superiority. The victors sacked the Persian Empire from end to end after making a captive of a ruler who had learned, belatedly, that badly handled armor may be worse than no armor at all.

A Neat Perimeter

Six centuries later, wheeled vehicles were to affect the outcome of another decisive battle resulting in the downfall of a greater empire. The grandeur that was Rome had become sadly tarnished by 378 A. D., when waves of land-hungry barbarians beat against the northern and eastern frontiers. The legion of the glorious past had been largely replaced by mercenary cavalry, and long-distance attack by war engines had more appeal to Roman warriors than the shock of infantry attack. Even so, the Emperor Valens anticipated an easy victory when he set out to subdue the Visigoths who had found lodgment across the Danube in Roman territory. He attacked on a plain near Adrianople when the cavalry of the barbarians was absent on a foraging expedition. The Gothic foot took refuge behind a barricade of wagons, which sheltered them from the Roman missile "preparation" as Valens advanced with his infantry in the center and his horse on both wings.

Victory was far from the thoughts of barbarians who hoped only to gain time until their own cavalry could return. But the wagon barricade proved to be the decisive factor when it stopped the Roman cavalry and threw it into disorder. The Gothic foot took heart and came out fighting just as their own horse appeared "like a thunderbolt" on the Roman left flank. A flight of the cavalry on the Roman right left the rest of the army huddled into a mass too dense for the infantry to use their weapons. And in the ensuing massacre, Valens perished along with two-thirds of his army.

Rome never recovered from the disaster. Emperor Theodosius, the successor of Valens, managed to postpone the death agony for a generation by hiring defenders from among the hosts of the barbarian invaders themselves. But this desperate expedient could not save an empire that had already dashed itself to pieces against the wagon barricade of Adrianople.

The lessons of this battle and Arbela were known in the Middle Ages, when educated men groped back to the classical past for guidance. But it is not likely that such precepts had any influence on the Bohemian peasants who developed the armored vehicle with the best historical claim to the ancestry of today's tank. For the fanatical followers of John Huss sought their inspiration from the Old Testament rather than the classics, and they found their earliest weapons among such familiar agricultural tools as forks and flails.

The first premature blows of the Reformation were struck in 1419, four years after Huss died at the stake. His Bohemian disciples not only rejected most of the doctrines of the Roman Church; they also revolted against the large landowners at a time when the clergy owned two-thirds of the soil. A powerful ferment was brewing in the ancient land of Bohemia, and the germs of civil war were present in the political and religious differences of the Hussites themselves.

A Military Genius

In 1420 a crusade of all Christendom was proclaimed against the heretics by Pope Martin V. The first army of invasion was led by Sigismund, king of Bohemia and Hungary as well as Holy Roman Emperor. Meanwhile, the moderately radical faction of Hussites, made up chiefly of peasants, had found a leader in John Zizka. A petty noble of Prague, he had distinguished himself so little that not much is known about his past save that he had lost an eye in a civil war battle and participated in the Polish victory over the Teutonic Knights on the field of Tannenberg in 1410. Even Zizka's age is in question, but he was probably 44 at the outset of his Hussite career in 1420, though some accounts represent him as being a sexagenarian. At any rate, the first great military genius of the Age of Gunpowder had emerged.

The effects were not immediately evident. Zizka held Prague in the summer of 1420 against an inarticulate feudal host led by Sigismund, but the successful defense did not owe to unusual tactics. The 9,000 Hussite warriors, entrenched outside the city on a palisaded height known to this day as Zizka's Hill, beat off all attacks by dint of courage and hard fighting. Even the women took part as ammmunition carriers, and weapons of gunpowder played little part as compared to pikes, arrows and crossbow bolts. Dissension among the crusaders aided the Hussites, for the invading army fell apart without making a united effort.

Tactics Department

Some of Zizka's men still had no better arms than forks and flails when he withdrew to a stronghold given the Biblical name of Tabor and located about five days' march south of Prague. In this remote hill town Zizka founded the arsenal and tactical laboratory of the Hussite Wars, and his followers were soon known as Taborites to distinguish them from opposing Hussite factions.

Bombards, handguns and other weapons of gunpowder had been known in Europe for a century, but their effect on tactics had not been spectacular. The Feudal Age had taken some hard knocks, it is true, but these blows had been dealt by weapons or formations reminiscent of the classical past—the arrows of the English longbowmen which cut down the French knights at Crècy, and the hedge of spears wielded by the Swiss phalanx which defeated the Austrian men-at-arms at Laupen.

Only in siegecraft had the crude cannon of the day spoken with some authority. Europe was dotted with the stone castles of ironclad lords preying upon commerce. Ransom and robbery were a flourishing business for these feudal barons until gunpowder provided the means of battering down their walls. Even so, the armies of the age proved more than ordinarily resistant to change, and the early cannoneers considered themselves craftsmen of a secret guild rather than soldiers. These specialists

and their bombards could be hired by anyone willing to pay the fee, and sieges offered more profits and fewer risks than battle. Foundries sprang up for the manufacture of cannon, and every large town soon had its ammunition quarry for the production of stone balls. But mechanical progress lagged to such an extent that the bombards of 1420 were still mounted on clumsy wooden sledges, their muzzles being elevated or depressed for range. The handgun was merely an iron tube clamped to a straight stock and fired by applying a smoldering cord to the touchhole.

These limitations explain why tactics had been so little influenced by a century of gunpowder, even though a few handguns had appeared at Crècy as early as 1346. The defensive was still all-powerful, allowing for rule-proving exceptions, and there was no infantry worthy of the name. Medieval armies went into action with the heavy cavalry on both wings and a center composed of the masses of untrained serfs fighting on foot. The ironclad men-at-arms came together in splintering collision, then slugged it out with lance and sword in hundreds of single combats. Unhorsing an opponent and holding him for ransom was the prime object, and battles sometimes ended with a wing of each army prevailing. Nobody troubled to count the casualties of the miserable drudges fighting on foot, though the losers often perished by the thousands in a happy massacre.

Human Dreadnoughts

Knightly cerebral processes were not notably keen, and little had been learned from the lessons taught by the Swiss spearmen and English longbowmen. As for gunpowder, the only reaction of Europe's masters had been to build thicker stone walls and encase themselves in heavier armor. By the early fifteenth century this trend had gone so far that a fully-armed knight in plate-armor panoply weighed between 300 and 400 pounds. Special breeds of horses were reared in Flanders to carry the human dreadnaughts, their descendants having come down to us as Belgian or Percheron draft animals.

These were the adversaries with whom John Zizka had to deal when he withdrew to Tabor to organize, arm and train the first coherent army of the Age of Gunpowder. It did not require a man of genius to perceive that the armored knight on the barded horse had become an anachronism. But Zizka must also have recognized that the thundering charge of the men-at-arms was still a fearful and unnerving thing for the unmounted serfs awaiting the impact. Even if you armed some of your serfs with handguns, they could only hope to put a ball through a plate-armor cuirass at very close range. Besides, there was the psychology of the age to be considered, even though that term was not a glib catchword of the year 1420. For generations the serfs of Europe had acknowledged as masters the arrogant lords who held their bodies in bondage. It was difficult to transform this cringing attitude into the confidence of soldiers bidding for victory on the battlefield.

Promotion by Merit

Zizka began the task by imposing a Roman discipline at Tabor without regard to social rank. Battle drill went on tirelessly, and drastic punishments were prescribed for such ancient military vices as tippling, gaming and wenching. Promotion was based upon merit, with Zizka setting the example by declining title, honors or rewards.

Such a stern military system could not tolerate the hordes of camp followers encumbering other medieval armies, and Hussite women, old men and children were trained to dig field fortifications and bring up ammunition. Theory was combined with practice as Zizka sent his troops out on expeditions against the castles and walled monasteries of Bohemia. These forays not only provided combat experience but also gold for the war chest and such much-needed weapons as bombards, handguns and crossbows.

Seventeen months elapsed between the defense of Prague and Sigismund's second crusade late in 1421. The invading force, estimated at 200,000 and probably numbering half as many, was made up of Austrian, German and Hungarian contingents. Plunder and conquest were doubtless greater incentives than religious zeal, since war-wracked Bohemia appeared to be ripe for the plucking. But there was little cohesion and less discipline among men-at-arms from a hundred petty states of the Holy Roman Empire—that vague political structure described as being "neither holy nor Roman nor yet an empire." About all that Sigismund's polyglot host had to recommend it was human tonnage and the muscular tactics of knighthood; and its chances for victory might have been likened to those of an over-inflated balloon challenging a blowtorch.

John Zizka had only 15,000 men at most, but he had an army—an army made up of infantry, cavalry, artillery and primitive tanks. Displaying his preference for the strategic offensive combined with the tactical defensive, he marched northward from Tabor in December and took a position calculated to compel an attack.

Sigismund obliged with a headlong advance from the northern frontier and the first clash took place on January 6, 1422, near the town of Kutna Hora, some 40 miles east of Prague. The Taborites were drawn up in a formation that must have puzzled the unsuspecting crusaders. Across the field stretched a line of wagons armored with sheet iron and joined to one another by chains. Each vehicle sheltered several marksmen with handguns or crossbows, and pikemen were posted in the intervals. As a further innovation, Zizka had mounted medium bombards on wheels instead of the usual sledges and placed them along the center, protected by the wagon-forts and pikemen. The Taborite cavalry was on both wings, and a small reserve waited in the rear.

Tactics, Not Sorcery

Unhappily, there are no satisfactory detailed accounts of the ensuing battle. The Hussites, like the Carthaginians of old, left military chronicles pretty much to their enemies, some of whom earnestly believed that Zizka won his victories by sorcery. It is a consolation, however, that all reputable sources dealing with these campaigns have been made the basis of chapters in two of the world's most scholarly works of military history.*

*Sir Charles W. C. Oman: *History of the Art of War in the Middle Ages* (Vol. II). London, 1924. Hans Delbrück: *Geschichte der Kriegskunst im Rahmen der Politischen Geschichte* (Vol. III), Berlin, 1900-1920. The mysterious career of John Zizka has also inspired less authoritative books, including a popular history by George Sand, the French novelist.

WHY NOT USE OUR BEST WAR SKILLS?

The following item appeared in the November 10, 1952 issue of the Los Angeles Times and is reprinted with permission as a matter of interest to Armor personnel.—THE EDITOR.

The criticism of Garrett Underhill and Ronald Schiller [in a recent article in *Look* magazine] on the shortcomings of the weapons of the American foot soldier only scratch the surface of certain basic errors of the American Army in its attitude toward the utilization of modern weapons.

The American people, accustomed to a prodigious expenditure of industrial might, are bewildered at the inability of their Army to impose a decision on soldiers of an agricultural country with a largely illiterate population. They feel there is something drastically wrong and they are right.

In Korea today two infantry armies face one another with only incidental tank support. The results are practically a duplication of the first three years of World War I. mass slaughter and insignificant gains.

We were not directly involved in the first three years of that war, and the bloody battles of the Somme, Verdun, Passchaendaele and Ypres are now largely forgotten, but they were the prototypes of the battles now raging at Bunker Hill, the Hook, Heartbreak Ridge, etc.

Despite elaborate artillery preparation, the infantry never could make any significant advances in the face of machine-gun fire. What they did accomplish were massacres and a stalemate exactly as we have in Korea. So ended the infantry as an offensive arm. This was in 1916.

In that war, however, for the first time a spectacular application of the machine age was applied directly to the battlefield in the form of the fighting machine or tank. Despite its crudeness, it was a machine. It was power driven, it had greater firepower, mobility. Above all else it could advance in the face of machine-gun fire, something the infantry never could do. Gen. Ludendorff in his memoirs pays tribute to the decisive role which the tank played in the closing days of World War I.

Unfortunately, the tank appears to have made a far greater impact on the Germans than it did on the former allied countries. The results were demonstrated in World War II. The tank had now come of age. Its firepower had been increased, the armor thickened, the speed improved. Its qualities, as befits a machine, were constantly improved as technological knowledge increased. The infantry still moved on foot, carried a rifle, bayonet and hand grenade.

These two basic forms of military organization, the armored division and the infantry, met for the first time on a large scale in World War II. The results were classic. The mechanized Panzer divisions of the Germans tore the infantry divisions of Poland, France, Belgium, Holland and Yugoslavia to shreds.

Even in Russia where the German armies conquered vast areas, but were finally defeated, the mechanized armies of Hitler made so great an impression, that the Soviets built the greatest tank army in the world.

The debacles of the infantry in World War II completely ended its role as a significant factor in modern war. It now had neither offensive nor defensive abilities. It was now completely obsolete.

Unfortunately, this was obviously not the conclusion of the American high command, for it continued to put its faith in the foot soldier. When the Korean war began and only an armor-tipped North Korean army attacked South Korea, Gen. Bradley assured the American people that the South Korean army would give a good account of itself. He thought it was a good army, and it was a good army as infantry armies go.

Unfortunately, it was hit by an armored force, and it did what all good infantry armies do when hit by a mechanized offensive. It fell apart, and this despite the air superiority which we provided.

Belatedly a tank program has been inaugurated, but it is apparent that there is little faith in mechanized warfare among the top brass of the Army. Why this should be is almost incomprehensible. If ever there was a nation that was suited for machine warfare, it is this country which has outstripped the world in mechanical achievement.

Gen. Patton demonstrated what Americans could do with even inferior tanks. The superiority of the tank stems from the fact that it is a machine tool. As such it is susceptible to constant improvement. Its firepower can be increased, new metals can be employed in its manufacture, automatic controls can be installed. Possibilities are limitless.

Conversely the inferiority of the infantry lies in the fact that it is really a collection of laborers using hand tools. Hand grenades, rifles, bayonets, rifle butts and fists are pathetic weapons to use in a mortal struggle with the most populous nation on earth.

It is significant that the Chinese cannot dream of fighting our Navy, which is largely technological, or of competing successfully with the Air Force, but find no special difficulty in stopping infantry assaults.

The army must be completely reorganized with the active assistance of scientists, engineers and production executives. It must be brought to the same technological level as the most advanced branches of American industry.

Such an armored technological Army could bring the war to a close against the hordes of Chinese infantry. The time is short and unfortunately the technical gap is closing.

J. MARGOLIN

Doctrine was esteemed so much more than tactics in an age of fanaticism that we know all the shades of Hussite religious and political opinion. But we do not know much about the battle of Kutna Hora except that the crusaders shattered in disorder against the Taborite line. Heavy cavalry had no chance against four integrated arms composed of men drilled intensively for the past seventeen months. And Zizka's bombards, handguns and crossbows had already inflicted grievous losses on the men-at-arms when his cavalry closed in on both flanks to finish the job without pity for captives.

The victor pursued his routed foes more than fifty miles and caught up with them four days later near Nemecky Brod, where they had joined a secondary invading force. There on January 10 the Taborites won another victory, completing the ruin of the crusaders. The broken remnants streamed in wild flight toward the Moravian frontier, harassed all the way by vengeful Hussite peasants.

Sorcery was suspected by the medieval mind when a situation could not be understood, and the Bohemian heretics were believed to be receiving active aid from the devil. There was no other convincing explanation for such one-sided victories against numerical odds, and John Zizka became a sinister figure when his enemies learned that he was now totally blind. An arrow having pierced his one eye during the siege of a castle in 1421, he had depended on the sight of subordinates while making dispositions for the two battles.

Moravia was the next scene of operations as Zizka marched to the aid of sympathizers who had embraced the Hussite creed. Sigismund was represented by a renowned *condottieri* captain, Pipa of Ozora, with an army of 23,000 mercenaries. The Taborites made chaff of this force in a swift campaign of aggression, but meanwhile civil war had broken out in Bohemia.

The Hussite movement was an agrarian and political as well as religious revolt, and in the spring of 1423 Zizka had it out with an army representing the kingdom's nobles and large landowners. He defeated them in April on the field of Horic and again in August at Borek. And with the Hussites temporarily united, the blind leader invaded Hungary to punish the nobles of that land for aiding Sigismund.

In this campaign the Taborite military machine was only partly successful. Although Zizka won all his combats with ease, his column was severely harassed by swarms of irregular Hungarian horsemen. Before the objects of the invasion could be accomplished, a new outbreak of civil war drew the Taborites back to Bohemia. They won two more victories over the nobles and landowners in 1424, and in September a peace was concluded between all Hussite factions.

The Pope had been endeavoring meanwhile to raise new crusades, but Zizka's reputation was so formidable that little came of these efforts. The blind leader's dream of Bohemian solidarity seemed realized in the early autumn of 1424, when he led another invasion of Moravia, parts of which were still held by Sigismund. But Zizka died of the plague in October before reaching the frontier, and the Hussites were soon at one another's throats again.

The chronicle of the next decade is a dreary record of Hussite civil war actions varied with successful raids on Sigismund's cities. Legend had it that after Zizka's death, his followers made his skin into a drum to frighten his foes. But this result was accomplished by the tactical system he founded. For Zizka's affliction had resulted in his officers thoroughly learning his methods while he used their eyesight.

A married priest named Prokop the Great succeeded to the Hussite leadership. And though his talents were political rather than military, he won victories which enabled him to wring concessions from the Pope and Emperor. Plunder and conquest soon became the main objects of Hussite warfare as loot-lured Polish and Hungarian mercenaries filled the ranks thinned by Bohemian deaths. Eastern Europe was helpless as the cities of Austria, Silesia, Saxony, Bavaria and Thuringia were sacked by Hussite forces which met little resistance. Several more crusades were preached against the heretics, but each time the feudal host dissolved without striking a blow.

The end came in 1434 when the bloody civil war battle of Lipany virtually amounted to Bohemian national suicide. Prokop's main army was defeated by a large Hussite force led by one of Zizka's former generals, with both sides bringing wagon-forts and wheeled bombards into action. The kingdom having already been bled white by fourteen years of cruel and incessant warfare, the 18,000 slain of Lipany weakened it beyond recovery. The Hussites themselves had accomplished what their enemies were unable to do, and soon the Pope and Emperor established their domination again.

Military history is the poorer because we do not know more about this tactical system which accounted for victories in fifty battles or combats as well as the capture of some five hundred walled towns, castles and monasteries. Contemporary accounts credit the wagon-forts with complex offensive movements executed at a gallop, but it is doubtful if the heavy armored cars were capable of such maneuvers. Certain it is, however, that they were mobile enough for offense as well as defense, and more than a third of Zizka's foot was eventually armed with handguns.

* * *

His opponents never understood his methods well enough to describe or imitate them intelligently. This is not astonishing when it is considered that a century would pass before another army of the Age of Gunpowder combined infantry, cavalry and artillery on the battlefield, but without reviving the wagon-forts which are the ancestors of today's tanks. Thus the tactical system created by blind John Zizka flamed like a meteor across the sky, spreading terror and confusion, and then vanished into the medieval darkness.

FOR CONTINENTAL WARFARE . . . . . AN ARMORED CORPS

A baker's dozen years ago, under the urgent prompting of Germany's blitzkrieg victories on European battlefields, the United States Army formed its I Armored Corps, a major mobile organization born coincident with the birth of its component parts—the 1st and 2d Armored Divisions—and, indeed, coincident with a belated recognition in this country of the potentialities of mechanization applied to mobile warfare. On that July day in 1940, the persistent dedication of Generals Daniel Van Voorhis, Adna R. Chaffee and Charles L. Scott and a small group of progressive-minded professionals came to realization.

In the following two years the United States Army organized three more armored corps, the II, III and IV; each came into being as the divisions to fill it were activated.

The formation of these projected mobile corps was inspired by a rather limited but enthusiastic American acceptance of the mobile idea. Our delayed acceptance of a mobile concept was perhaps a by-product of the military thinking which followed the conventional lines set down in World War I. The story had a singular parallel in many countries. Even in Germany, where the mobile concept was to pay handsome dividends in the early stages of history's greatest war, the progressives fought the long fight against traditionalism and reaction.

While our recognition of the mobile technique carried us forward to a height of sixteen armored divisions, the refinement of that technique in the larger sense—armored corps—was short-lived. Our entry into the war took the I Armored Corps components overseas piecemeal, cancelling the corps, while a reshuffling and redesignation of divisions and corps by late 1943 had also eliminated the II, III and IV American Armored Corps in favor of the two-to-one combination which was to obtain during the war and which exists today—essentially an infantry corps in which the armored division is hamstrung in its mobility through association with an organization in which it is a support rather than an assault element.

Against this history, any consideration of the armored corps must be based on German and Russian experience. Our comparatively short period of corps organization was involved primarily with the training of its components rather than with the operation of the whole. But it is significant that General Willis D. Crittenberger, commander of our III Armored Corps during its entire existence, in a recent address at the Armored Center stressed our need for armored corps today.

The starting point for any consideration of a mobile armored corps is the mind—*the mobile mind*. Mobility of the mind is the primary condition to mobile warfare, and it requires no dialectics to establish that fact. Thinking "mounted" cuts across the entire question, applying equally to planning, command, and execution. The tributes which history accords the Fullers and Chaffees and the Guderians and Pattons, are tributes to the mobile mind. Such men possessed it! But they were few. They are few today.

The mission of an armored corps is something to be determined before its organization. Obviously that mission, in the broad sense, is mobile warfare. It embraces aggressiveness, the offensive, speed, surprise, large results, real decision! A corps such as this should be complete and self-sustaining, a team of balance capable of strategic as well as tactical operation, its field of action by definition well beyond the visible horizon. Guderian set the theme in 1940 when he gave his panzer corps the Channel Coast as a goal. Hitler tagged it in his Operation Barbarossa directive with the general intention of destroying the Western Russian Army by "bold operations involving deep penetrations by armored spearheads." The record need not be labored.

In the matter of organization, the Germans, in the crescendo of operations that took them from Austria to Czechoslovakia, Poland, the West, the East, the Balkans and North Africa, were able to test, improve and prove the panzer technique. The French and British forces, holding to the theory of parcelling out their armor to infantry, were no match for concentrated armor supported by motorized infantry. Thus the German massing of means, with forward command and air support, carried the field in a large way.

The Russians were not long in learning the lesson from the Germans. At a time when the United States Army was eliminating its four armored corps, the Russians were using their 3d Tank Army (a Russian tank army was their equivalent to an armored corps, is now their mechanized army) to attack the German Rzhev-Suchevsk sector, succeeding where two infantry armies had failed. Really decisive use of the tank army was made at Stalingrad in 1942 when several of them broke through to effect a broad double envelopment of Von Paulus' Sixth German Army.

In the summer of 1943 at Kursk, which the Russians consider the turning point of the war, the outcome hinged upon whether the Germans or Russians committed and exhausted their armored corps first. The Russians came out on top. Their 5th Tank Army effort to cut off the Germans at Kharkov failed only because of the arrival of German armor and a series of violent tank battles.

January of 1944 saw a classic double envelopment by two tank armies, doing terrible damage to German forces pocketed around Korsun in the Ukraine. The Minsk operation, the Jassy battle in Rumania, the drive to the Oder and the push to Berlin are some of the outstanding Russian tank actions.

Whatever the form of organization, certain it is that armored or mobile corps should be a subject of study at our service schools and in our planning staffs. More than that, we should have a corps testing organization and tactics, much in the manner of our existing airborne corps, which is ironing out the problems in that special field. The excuse that we are in no position divisionwise to form an armored corps is invalid. It serves only to point up our limitations at the armored division level. But whether we team another armored division with the 2d in Europe, or activate one of our present training armored divisions and combine it with the 1st at Fort Hood, or seek some other solution, the war behind us should be convincing enough proof of the need for an armored corps, without the necessity for the further prompting of another continental war.

Obvious and ideal support tools for armored corps would be tactical air and airborne units. The Germans effectively used both. This combination supplies the balanced team for large results—strategic penetrations to enemy airfield complexes, communications and supply zones, critical rear areas. With atomic weapons to blast the initial hole for a penetration, rather than the slow and costly use of infantry divisions, the combination is truly one for the modern battlefield.

ARMOR's preoccupation with the armored corps idea may seem untimely to those preoccupied with Korea. But Korea, admittedly far from being the ideal area for employment of an armored corps, is farther yet from being the common denominator of war, and is more an extreme than a mean in respect to battlefield terrain. Even at that, an armored corps might well have been used to advantage there on several occasions over the course of the last 36 months. Korea's most potent lesson lies in the fact that we should never forget that it is not the kind of war to fight, if fight a war we must. Its characteristics—stalemate, attrition, involvement, cost, casualties, defensive-mindedness—are at odds with offense, speed, surprise, aggressiveness, decision—synonyms of mobility, attributes of an armored corps. We must be prepared for all types of warfare, and in an uneasy world who will say that the European continent—classic mobile warfare battleground—is not a touchy area, a "center of gravity" along the front door of the Iron Curtain?

ARMOR's cover spotlights the five allied armored divisions that comprise the NATO core for mobile defense of Western Europe. Britain's General Harding recently emphasized the importance of NATO armor in "hedgehog" defense. Elsewhere in these pages General Robert W. Grow expresses the belief that America's contribution to coalition continental defense should be what we are most able to supply—a mobile (armored) army, not infantry divisions. Our present contribution is one armored and four infantry divisions.

The Russian forces posed against NATO in Germany are reported to consist largely of Mechanized Armies—armored corps! As Garrett Underhill states it, "That the Russians have 'bought' armor as a result of World War II, and make such a prominent display of the Armored Corps and afford such recognition and rank to mobile warfare specialists, makes the U. S. armored corps question far from an academic one. 'They have the tanks, they have the men, and they have the organization.' In World War II the expert Germans lacked the tanks, while the Russians lacked sufficient training at all levels. Now, six years of intensive training topping war experience may radically alter the Soviet armor formation picture even from World War II."

General Alphonse Juin, commander of NATO's Central European ground forces, recently added some weight to the center of gravity when he told a group of reserve officers, "The enemy has installed himself in Saxony and in the Thuringian salient, 150 kilometers from the Rhine . . . If one transplants to the Rhine region that offensive maneuver developed by the Russians in White Russia against the Germans in 1944 and grants them the same concentration of forces and rhythm of advance, such an attack . . . would be capable of reaching Paris in 23 days."

The lessons of history and the counsel of the mobile warfare experts should be plain. We must think beyond battalions, regiments, groups and divisions; beyond the visible horizon to mobility's horizon—the ranging area of armored corps.

AN ARMOR SOLDIER RETIRES

LT. GEN. WILLIS D. CRITTENBERGER:

Good luck and best wishes to a great cavalryman, a great leader of armor and a great soldier. Your many contributions to the Army's mobility and your distinguished record of service to your country in war and in peace will long be remembered.—

GENERAL J. LAWTON COLLINS

ON December 31, 1952 the Army's senior lieutenant general and ranking tanker retired following a full career's service in the mobile arm.

Willis Dale Crittenberger was commissioned a second lieutenant of Cavalry upon graduation from the United States Military Academy's Class of 1913, and was assigned to the 3d Cavalry in Texas, where three years later he became aide to General James Parker, commander of all cavalry along the Mexican Border. General Parker at that time also was president of the U. S. Cavalry Association, which his aide would head some thirty-five years later.

In the span of years up to 1934 General Crittenberger served in the normal troop, staff and school assignments, as instructor at the Military Academy and the Cavalry School and student in the Cavalry School, the Command and General Staff School and the Army War College.

Returning from an assignment as military intelligence officer in the Philippine Department at Manila, Gen. Crittenberger joined the 1st Cavalry (Mechanized) in December of 1934 to begin his long association with the development of mechanization in the United States Army. This duty kept him in the field for a period up to 1938, when he entered the Office of the Chief of Cavalry in Washington for further duty in connection with the development of mechanization.

In 1940 he returned to Fort Knox to become the first Chief of Staff of the newly organized 1st Armored Division. A year later he assumed command of the 2d Armored Brigade of the 2d Division at Fort Benning.

1942: CG of 2d Armored Division.

As the next step in the chain of armor command, he took over the 2d Armored Division, in February 1942.

In August of 1942 came command of II Corps.

It was during this early command period that General Crittenberger stressed such matters as first echelon maintenance, as big a problem as any in the training field. He was an early advocate of completely armoring the armored division, to insure that all of its elements—support as well as assault—were mounted in vehicles that would make the division a self-contained and balanced organization.

He emphasized accuracy of fire in those early days, stressing always the fact that the one who got in the first aimed shot had the jump on the other fellow. And he was an early advocate of the belief which he stated often, that the tank is the best tank destroyer.

An interesting sidelight from the days at Benning: while commanding the 2d Armored Division General Crittenberger organized the Army's first commando unit. It served as the guinea pig for the Rangers of later days.

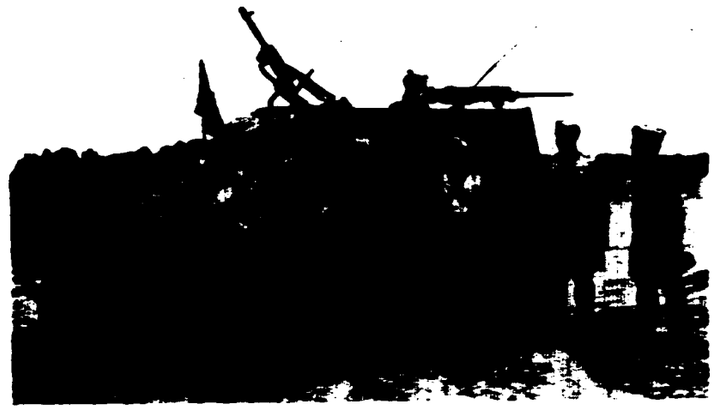
In August of 1943, General Crittenberger was ordered to Camp Polk, Louisiana, where he organized and became commanding general of III Armored Corps. This was redesignated in October of that year as the XIX Army Corps. It was the headquarters of this Corps which he took to England in January of 1944.

In March 1944 General Crittenberger was named commanding general of the IV Corps in the Italian campaign. This Corps fought continuously against the Germans for 401 days, as a part of Fifth Army. On April 29th in 1945, General Crittenberger received the unconditional surrender of the German Ligurian Army, which marked the beginning of the German collapse in Italy, completed three days later, on May 2d.

A part of IV Corps under the command of General Crittenberger was the U. S. 1st Armored Division, with a number of separate tank and tank destroyer battalions adding up to a sizable package of armor for the experienced tanker to command. The IV Corps armor rolled when it reached the Po Valley.

From Italy, General Crittenberger moved to a new headquarters at Quarry Heights, Canal Zone, to assume command of the Caribbean Defense Command and the Panama Canal Department. This was broadened into the assignment as commander in chief of the Panama Defense Command, with the establishment of a unified command in that area.

In mid-1948 General Crittenberger was assigned to the Office of the Joint Chiefs of Staff for duty as Senior United States Army Member of the Military Staff Committee of the United Nations, and Senior United States Army member of the United States Army Delegation to the Inter-American Defense Board. In March of 1949 he was appointed Chairman of the U. S. Delegation of the Military Staff Committee of the United Nations. Retaining these duties, he was additionally appointed as Deputy Representative for the U. S. on the Military Committee of the North Atlantic Treaty Military Organization and its Standing Group.



The mid-1930's: With the First Cavalry (Mechanized) at Fort Knox, Kentucky.

In November of 1950 he moved up to command of First Army, with headquarters at Governors Island, New York, the post he held upon retirement on the last day of 1952.

General Crittenberger has two sons, Colonel Willis D. Crittenberger, Jr., and Lieutenant Dale J. Crittenberger. Both are members of the Armor branch. A third son, Corporal Townsend Woodhull Crittenberger, was killed in action at Remagen Bridgehead in Germany in March of 1945 while serving as a gunner with the 745th Tank Battalion.

Despite his advancement into senior staff assignments, General Crittenberger has maintained his active and intimate interest in armor and mobile warfare. A career member of the organization of professionals of the mobile arm, for the past three years General Crittenberger has been president of the Armor Association. His is a firm position in the small group of professionals identified with mechanization and armor in its early days, when, as some will recall, it was considered almost a professional hazard to be identified with a medium that was new and about which no firm doctrine had been established.

His long association with armor development and command, the latter leading from a brigade through division and corps, placed him in on the ground floor of a coming field. He, perhaps more than any other individual, can say of all the greats in the U. S. armor picture, "I rode in a command car with him." And he wasn't along for the ride. He was an integral part of the step-by-step evolution of the gathering thunderbolt, making a major contribution to mobility in the United States Army.

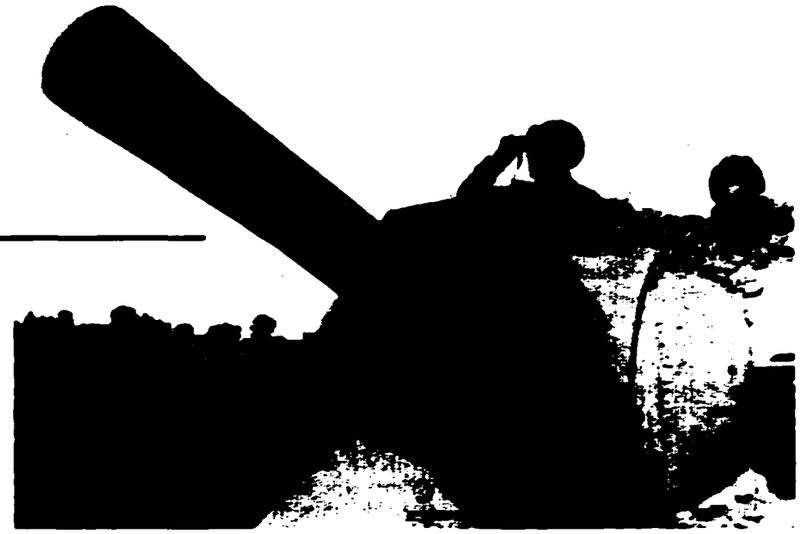
In World War II: Crossing the Po River in Italian campaign as CG, IV Corps.

THE STORY OF SOVIET ARMOR

The Big SU's

by GARRETT UNDERHILL

The story of Soviet mobility moves on to self-propelled artillery, infantry-accompanying and antiaircraft weapons and their part in the known pattern of Soviet ground operations



THE Soviets have often admitted that they found out about mobile forces' need for self-propelled artillery the hard way—from actual operations. The operation which brought home the need was the escape of von Kleist's armored army from the Reds' Rostov counteroffensive in November, 1941. To the Reds' dismay von Kleist fought his way out of encirclement, battled off pursuit, and retired to favorable positions on the Mius Line where he held out all winter. The Soviets probably will never get over speculating on what might have happened if they had had SP artillery to jeep up with their mobile forces and act with the required speed.

It took the Soviets well over a year to produce weapons to make up for their lack of mobile artillery, and when the new weapons did appear they weren't at all like the U. S. armored division artillery's 105mm howitzer motor carriage M7 (which incidentally was conceived as an essential need and produced and put into service well before the whole line of Soviet SP's). The Soviet self-propelled artillery produced and used primarily for support roles was similar in design concept to the Soviet SP's intended primarily for antitank missions. Like the latter, the Soviet support SP's were called "SU's" and were intended for assault-type employment—for delivery of direct-laid fire from forward positions overwatching the action of tanks, cavalry and infantry. The Soviets never did have any self-propelled field artillery intended primarily for indirect fire.

Apparently the closest the Soviets came to SP field artillery was the SU-122 using T-34 medium tank chassis. It appeared in the summer of 1943 along with the SU-85 and the SU's on heavy tank chassis. It was like all the SU's (except the SU-76) in mounting its cannon low in the sloping frontal plate of a box-like armored fighting compartment built up on the front of the tank chassis' hull. In detail it was very much like the tank-destroyer SU-85, except that its light artillery 122mm howitzer M-1938 (the standard Red Army division artillery light howitzer) was fitted so that its recoil mechanism stuck well out in front of the front armor plate. This feature required clumsy and bulky armoring with welded plate, as on the SU-76's similarly protruding recoil mechanism. But unlike the SU-76, the SU-122's fighting compartment had the normal SU flat armored roof. The armor was generally the same as the SU-85's—a little under two inches on the sides and front.

The vehicle commander (in the left front corner) had a periscope, as did the SU-85's; also a radio. The howitzer was laid with a panoramic telescope as on the field piece version, there being a square armored box (with raising front flap) atop the crew space to house the 'scope head. The piece itself had very slight traverse. Aiming stakes were stored above the tracks—an added indication that these SU-122's often were used for indirect fire. Since their low-velocity pieces would suffer little bore erosion (compared to the high-velocity SU guns) such usage would be in accordance with Soviet-German doctrine prescribing low-velocity weapons for indirect fires and restricting armor's high velocity weapons to direct-laid fires. Evidence indicates that these SU-122's were organized in platoons of three SU's each (like medium tanks), instead of being organized like artillery in four or six piece batteries.

These SU-122 howitzers didn't stay in production long and went into the discard towards the war's end, very evidently because they were outclassed by a bigger SU which came into production and service about the same time—the summer of 1943. This big SU, which had vastly greater slugging power than the light 122 and yet excellent mobility, was the SU-152: the M1937 corps artillery gun-howitzer (with typical muzzle brake of the field artillery version) on a KV heavy tank chassis.

The 152 was a unique weapon even in its field artillery version. It and its companion gun (122mm M1931/37) lie somewhere between medium and heavy artillery in weight of piece and in range. Like other armies, when the war began the Red Army had a medium how (like the U. S. 155, though shorter-ranged) and a medium (107mm) gun; they also had a heavy how (203mm) and gun (a 152mm counterpart of the U. S. 155 Long Tom). But during World War II the intermediate 152mm gun-how was the field artillery favorite and was produced and used in great masses.

To achieve its maximum field artillery range of over 19,000 yards, the 152 has to generate the considerable muzzle velocity (for a howitzer) of some 1,900 ft. per second. This velocity appears to be the feature which made the 152 gun-how piece most suitable for the assault roles which the Soviets planned for their big SU's. Although this velocity doesn't compare with that of the 85mm and the 100mm guns, it is not much less than the 2,200 ft. per sec. of M1940 76mm guns mounted in the 76mm T-34 and KV tanks. The Soviets found that against armored and concrete targets the mere mass of the heavy shell counted for a great deal, affording battering ram rather than penetrating effect.

Like the 122mm M1938 light how, the big 152 was little modified for its armored SU mount. The recoil mechanism was sheathed in a clumsy mass of armor; a large bulge forward of the crew compartment front plate housed the mount and provided for elevation. As with other SU cannon mounted for assault use, the 152 couldn't attain its maximum potential range with the elevation provided for in the SU carriage; the SU would have to park on a suitable slope. But Soviet doctrine was (and is) against such use and indeed, the SU-152 was fitted with a direct-laying telescope only (the aperture to be noted to the left of the gun atop the recoil mechanism housing). The real handicap was even less traverse than on the smaller SU's—about 10 degrees.

The ammunition was heavy (HE shells weighing about 95 lbs.) and though the powder charges for the M1937 come in brass cases the ammunition is semi-fixed and case and projectile must be separately loaded. Unlike the 76's, 85's, tank 122's, and 100's, the 152 gun-howitzer uses an interrupted thread breechblock instead of the wedge type. That may save weight, but it adds to the factors making for a slow rate.

The crew was housed in the usual SU manner—in a large, heavily armored box with slightly sloping sides crudely welded together. The vehicle commander was positioned to the right (as on all SU's), where he had a periscope of prewar type, and radio with exterior buggy-whip antenna. The driver sat on the left front. There was a pistol port above him and other ports on the right and left sides, with KV-type fixed episcopes protruding from the roof above them. The top edge of the compartment had handrails for tank-borne infantry.

The crew compartment may have looked large from the outside, but

when filled with crew, breech and slide for recoil there wasn't much room for ammunition. Only some 28 rounds could be put in. A German photo showing an SU-152 with its compartment top blown off—reveals the cramped interior and calls to mind the story of the U. S. airman who took his first look at a captured German Messerschmit 109 fighter. He was amazed at its small size: peering into the cockpit in order to comment for the benefit of the assembled press, he exclaimed: "Why, Goering would have to wear a damn tight girdle before he could even sit in that thing."

All in all the SU-152 followed the general design concept for Soviet SU's. it was more lightly armored than the turreted tanks using the same chassis. it was somewhat heavier (55 as compared to 52 tons), for which drawbacks it mounted a much more powerful gun, and had a lower silhouette.

Thanks to the very broad tracks and long ground contact of the KV heavy tank suspension, the SU-152 could get around very nicely. It was noted for fording rivers at least as deep as the top of the suspension, and could negotiate difficult wooded terrain. In the latter roles it served as a good trail-breaker for medium tanks. Often it operated over rough terrain with cavalry corps to envelop and blow apart the crossroads villages which the Germans converted into strong points to deny the road nets to Red motorized forces after the latter had broken through and started a war of maneuver. The Red monster was also good for blowing out or crushing roadblocks. It naturally was very useful in street fighting in major towns and cities.

Built at the same time as the SU-152 was an SU-122. This vehicle was identical to the SU-152 except that it mounted the 122 long gun (M1931) which in field artillery was the companion piece of the 152 gun-howitzer. The SU-152 could be told from the 122 because the gun was longer than the gun-howitzer and had no muzzle brake. Though in SU form the 122 did not have a carriage affording elevation for maximum field artillery range (which was over 22,000 and therefore near that for a U.S. 155mm "Long Tom" gun), it could generate its maximum field artillery velocity of 2625 feet per second. This SU was never in wide use. It lost its *raison d'etre* when the Stalin appeared, for the Stalin mounted in its turret a proper tank version of the corps' artillery 122.

SU-152 production was given great publicity during 1943, the Kirov Plant's new Urals setup coming in for the spotlight. Indeed, at this time the KV heavy tank was dropped and KV output facilities concentrated upon KV-chassis for SU's.

As soon as designer Kotin and his crew had modified the KV into the Joseph Stalin (production of which was undertaken later in 1943), the Stalin chassis came into use for big SU's. Such 152's and 122's were designated the "ISU's" (referred to in English as JSU's). At the same time the crew compartment was made higher and more rectangular, giving its side armor the appearance of having less slope. KV-type hatches were replaced with that type used on tank and SU-100 cupolas then in production. These hatches were fitted with the new wartime simplified standard periscope of which there was one in the front right, one in the front left hatch. No cupola was fitted. However, a 12.7mm (cal. .50) air-cooled machine gun was mounted by the commander's hatch. This was the standard DShK ("Day-Pshaw-Kar") AAMG of the Soviet Army and Navy. The armor in front of the commander was holed for a pistol port, a PPS submachine gun being provided (as became standard for all Soviet armor) to shoot out the ports.

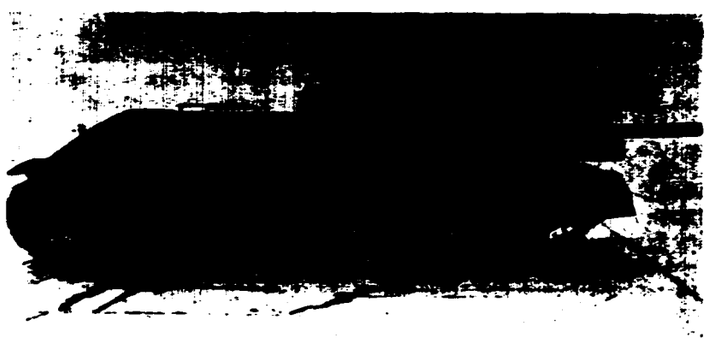
A small slotted dome was positioned in the roof over the gun breech to help evacuation of powder fumes, but it seems evident that these remain a handicap in action. These JSU's clearly have the same obvious limitations as the SU-100 so widely used for antitank today: relative blindness, coldness in winter, too little ammunition. Though the 152 can fire low-velocity artillery ammunition, it is noteworthy that no effort appears to have been made to provide for indirect fire on-carriage fire control (other than that fitted to other assault-type SU's), and that there is no provision for rapidly servicing the piece with ammunition carried outside the crew compartment.

Though the JSU-122 may still be seen, it is the JSU-152 which (with the SU-100) makes up the SU complement of the shock elements of the Soviet army's shock and mobile warfare divisions: the Tank, and the Mechanized. In these divisions the tendency has been to pair the T-34 85 medium tanks with the JSU-152's in the basic shock unit: the Tank Regiment. The Heavy Tank Self-Propelled Regiment (which may be used to reinforce the Tank Regiments) is the big pool of antitank power, with its Stalin tanks and SU-100's. The Red Chinese have displayed some JSU's in Peking, but not in Korea.

During the Berlin street fighting, the Soviets used a JSU fitted with the Stalin's muzzle brake fitted 122mm. This weapon is not to be confused with the JSU-122 artillery piece. Since the turreted JS-III had a fine silhouette as well as better armor, the tank-destroyer assault gun mounting of the Stalin's gun was obviously not a worth-while development.

Self-Propelled Infantry Weapons

The Germans went to some trouble to provide their mobile troops' infantry cannon with mobile carriages. As early as the 1939 Polish Campaign their 150mm Heavy infantry howitzer appeared on a lightly shielded Panzer I chassis, and later it turned up on a better armored Czech tank chassis for use by Panzer Grenadiers. The whole assault gun program begun by the German artillery arm in 1939—which reached such large proportions as a result of the French campaign and the first summer in Russia—was an effort to provide German infantry with mobile direct support weapons designed especially for that role. The Germans thus had two SP infantry gun types —the assault guns being for direct fire, and the armored infantry cannon largely for indirect fire.



SU-122 Howitzer

Outside of the 76mm M1927 infantry cannon which they truck-mounted for support of the pre-World War II Tank Brigade of their "Moto-Mechanized Corps" (mobile divisions), the Soviets had nothing similar. Indeed, since World War II began, all their infantry has been in a bad way for accompanying cannon. During the war the short 76mm M1927 "regimental gun" proved too heavy, the M1943 too short-ranged and unstable, and after the war the Soviet Army dropped both models from first-line use. The 76mm M1942 artillery piece (the 1939 tube with muzzle brake on a very light and unstable tubular carriage) often substituted as an infantry cannon during the war and has been assigned that role since. But it is still rather heavy and bulky for manhandling in action.

The makeshift SU-76 has been drafted since World War II to do the infantry accompanying job, and has generally replaced the short 76's in infantry cannon companies. Its present role by no means indicates that direct-fire wheeled-carriage artillery won't open up in direct fire to start an attack, or that the 57mm antitank and 76mm field artillery pieces won't be manhandled along with the infantry as in World War II. The Soviet view seems to be the more fire power the merrier.

Many SU-76's have been made so that their crew compartments are armored over on top, but the armor still remains tinplate and the whole vehicle a rattletrap. The 13½ lb HE shell can't really do a job on protected infantry weapons emplacements and has too little fragmentation for good antipersonnel effect. Clearly a larger weapon with a better-designed chassis and armor is in order. The poor performance of the SU-76 in Korea underlines the Reds' critical shortcoming.

There is some firm Soviet opinion maintaining that what Red infantry needs is a special armored SP howitzer, which can concentrate on targets bothering the infantry, undertake assault-type fires and yet reach targets in defilade, and move along within the forward infantry formations (which should afford the SP hows protection). The requirement for such a weapon has been urged by some Soviet tankers who believe that tanks should be free to exploit their surprise action and mobility to a maximum, and that the powerful SU's (like the 100 and 152) should be able to concentrate on their main job of supporting the fast-moving tanks.

Self-Propelled Antiaircraft

The mysterious Russians are at their most mysterious when it comes to revealing why they have so long neglected the sort of SP flak which Western armies have found so vitally needed.

Before World War II the Soviets believed that the menace of strafing aircraft warranted improvisation of every possible weapon to light flak roles. The Reds in Korea have well demonstrated what this improvised light flak can accomplish even if lots of it consists of infantrymen cutting loose with personal weapons. But when it comes to developing and introducing light flak especially intended for use against tactical aircraft, the Soviets have been very weak indeed—apparently weak in the heads as well as in materiel. They used widely before World War II a multiple-mount machine gun (four belt-fed water-cooled cal. .30 heavy Maxims grouped on a pedestal) which was sometimes truck-mounted; this they didn't discard till after the first summer campaign of '41, although years before, U. S. Army tests had shown with Brownings that this type of light flak was no good. The Soviets had during the war a 12.7mm (cal. .50) air-cooled M1938DShK AA machine gun and a Bofors 37mm M1939 automatic cannon (like our 40mm), but unlike the Western allies and the Germans the Reds never grouped these in multiple mounts. They never had any homemade armored flak at all. All they had in the SP line outside of captures were some 100 M15's and 1,000 M17's via Lend-Lease. Both were half-track mounted, the former comprising a Colt 37mm cannon and two air-cooled .50's; the latter four .50's.

It is said that when the Soviets awoke to the need for SU's they could see that the need for SP and armored flak would be about nil by the time SP's could be gotten into service. Conditions were indeed such as to permit the Soviets to see that it was most unlikely that SP flak would be needed, but the question

SU-155

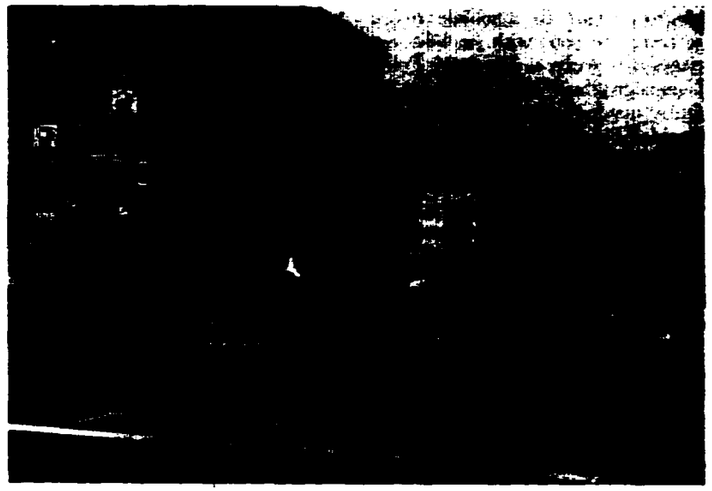
is: did they really think things out or, like so many of the Germans, were they so conditioned by their Eastern Front experiences that they didn't realize what good tactical air could do?

The Luftwaffe at its prime never had anything like the mass of tactical aircraft which the Allies used in the narrow cockpits of Western Europe and the Mediterranean. Except possibly for Richthofen's outfit, it didn't approach the efficiency of Anglo-American forces in tac air. The broad reaches of Russia, weather, and the possibilities for concealment on the Eastern Front imposed great handicaps on air operations. And as the Red Army slowed and then drove back the Germans, the Western Allies were drawing off the Luftwaffe until General Spaatz utterly destroyed it in the great February-March 1944 air battles over Germany. So the Soviets had no more reason than the Germans to learn from the Luftwaffe about what really good tactical air could do.

The Soviets' own air operations weren't such as to demonstrate convincingly enough to anybody the potentialities of tac air. Certainly the Red air armies—despite their use of swarms of homemade and Lend-Lease aircraft mainly on close-support missions against combat troops—left the Germans somewhat contemptuous of air's effect on ground action. Indeed the Germans, seasoned on the Eastern Front, wouldn't credit Rommel's warnings of what Anglo-American air had done to him in Africa. They only learned their lesson from Normandy.

Did the Soviets learn theirs by studying the Germans' experience?

At least Marshal Rotmistrov, their foremost mobile warfare theorist, seems to have learned his. He and some other Red tankers consider SP flak indispensable not only to protect tanks on the march, but to cover them in assault. But the only native Soviet product displayed (outside of the usual light flak set up in trucks) has been a 37mm M1939 Bofors mounted on the rear of a modified SU-76 (minus of course, the 76mm gun). This SP flak appeared in the 7th Kantemirovka Tank Division's Tankists Day parade in Moscow in 1946 and hasn't been displayed since. The 37 was mounted on a turntable



JSU-122

with chest-high armor for the crew, the crew having no overhead protection. By all standards of World War II and Korean experiences, such a single-barreled 37 had quite inadequate firepower and deserved to disappear.

Certainly the lack of SP flak—particularly armored SP automatic cannon—has been in the past a glaring weakness of the Soviet Army in general and its mobile arm in particular, at least so far as its efficiency in a contest against Anglo-American type forces is concerned. It would be hard to tell short of actual combat whether the Reds have really learned their lesson—gotten it in their bones. That the Soviets did not learn from World War II is suggested by the action of their Korean satellite army, which was not only very ill-armed with mobile flak but took off into the teeth of the U. S. A. F. and Navy tac air power in a manner which can only be characterized as foolhardy. Nevertheless, it is dangerous to draw conclusions from the actions of a satellite, and what has happened in Korea may well prove to be an inestimable boon to the Soviet Army—if indeed they needed to be awakened to the danger of Anglo-American tactical air.

The Soviet Army tank SU situation during and since World War II is such as to cause the average person to wonder what goes on, anyway. There are many things to be said for the Soviet Army's tanks and SU's, for the concepts behind them, and for their tactics and technique. But there are also obvious defects, and instances where practice doesn't jibe with theory and doctrine.

The use of the heavy SU's—particularly the SU-152's, would appear to afford very rapid and powerful support to both armored and infantry attacks (i.e., ones in which the Tank Regiment of medium tanks is the prime assaulting unit, with its own protecting tank-borne tommy gunners; and ones in which a Rifle Regiment is the main element of the assault). Certainly the sudden eruption of both tanks and heavy-gun SU's onto the battlefield from well-concealed positions and routes must have no mean surprise effect. The sound and fury of their presence and fire should have considerable shock effect. Undoubtedly the SU's large projectiles can be very destructive, and may achieve morale effect on infantry even from near misses and high-velocity ricochets. There may be something to be said, too, for the Soviet claim that such direct-laid support fire is available more quickly, and can gain effect with fewer rounds in less time than indirect fire concentrations of medium (or even heavy) artillery.

In the view of some Soviet authorities, the SU's are a natural and necessary development. They say that machine guns and long-range musketry drove field artillery to cover and to the use of indirect fire methods about the

time of the 1904-5 Russo-Japanese War. Batteries then stopped galloping up to take position between infantry formations (or in front of them), and firing at the enemy over open sights. In World War I the use of defiladed cover for artillery (and some heavy infantry weapons) brought forth howitzers with the curved trajectory needed to reach such targets. But such fire took time and loads of ammunition—with consequent loss of surprise effect and speed of action. Moreover the most intense artillery preparation failed to neutralize or destroy all hostile infantry and artillery weapons. Hence direct fire accompanying artillery was created, to be followed by tanks. The tanks themselves opened up warfare, necessitated a high degree of mobility for all arms and thus—in the Russian view—created in World War II a need for self-propelled artillery. In order to maintain the tempo of the attack by speed of reaction to target location and by conservation of ammunition supply—making a round or two do where indirect fire artillery would fire a concentration—the SP artillery had to be the direct-fire assault type, able to intervene directly on the battlefield and move within tank formations in pursuit and withdrawals. In effect, the Soviets say, war has come full circle and back to the execution of many artillery missions the horse artillery way—a way which should never have been abandoned. By this view much that happened between 1890 and 1943 was along improper lines of thought; it was a dreadful mistake to open up range, emphasize the development of complex techniques and matériel when old-fashioned speed and surprise and shock were still the best way to achieve combat objectives.

Some Soviet armor authorities made the point right at the end of World War II that they had been aware of the need for reform of armor—and ground forces—tactics even before the discovery of "mass effect" weapons like the atom bomb. They stated that the potentials of artillery and tactical aircraft demonstrated in World War II were such as to require warfare to be reformed so as to move at a much faster tempo—with more rapid marches, greater dispersion, looser formations and faster groupments for the attack. They claim that the tactics and capabilities of the World War II tank-SU team meet the requirements of the future's high-tempo shock warfare as does no other weapons system.

But are these Soviets *really* aware of the capabilities of U. S.-type artillery and tactical air? What have their observers in Korea reported? Are the Reds still justified in claiming that the heavy SU's—moving right with the tanks, whether in mass assaults, or as part of a point feeling its way forward in pursuit—are the best means of stepping up the tempo of warfare?

Certainly the SU's have one advantage over U. S. armored artillery in present-day operations: their crews are fully protected and don't have to expose themselves when serving the piece. Their roof armor, Korea indicates, should be useful in mobile warfare as protection against mortar and artillery fire, small arms, and—to some extent at least—atomic weapons.

Nevertheless, the Soviets' wisdom in employing so many heavy guns so far down the line may be questioned. The armament of the SU-100 and 152 after all is classed as corps artillery when on towed mounts. In such form on U. S. artillery SP carriages it could intervene at great ranges, and cover a very wide front. Its potentials would seem gravely limited when as SU's it is locked up as organic equipment within relatively small divisional tank units. The potentials may seem even more limited when normal SU employment is taken into account, for usually two heavy-gun SU's (in guns the equivalent of a third of a U. S. medium artillery battery) devote themselves exclusively to the support of five to ten tanks and maybe also a battalion of infantry.

There may be a great deal in the Soviet claim that a faster tempo of war is necessary, and that heavy direct-laid overwatching fire for tanks is the way to attain it. But there is every reason to suppose that the Soviets have been influenced in their thinking by having to make the most of their own field artillery's notoriously poor flexibility and general indirect fire shortcomings. A nation lacking the human material convertible into artillerymen to equal America's may well be forced to fall back on "Sherlock Holmes" marksmanship techniques (the great detective's gunnery skill is illustrated by the incident in which Holmes confronted a culprit and "clapped a pistol to his head").

The suggestion is strong that the Soviets did indeed develop their emphasis upon SU's because of the influence of conditions peculiar to the World War II Eastern Front in general and to Soviet Russia in particular. Just as the Soviets failed to experience the sort of tactical air the Germans did in the Mediterranean, so they failed to come up against hostile field artillery which in quantity and techniques and ammunition supply approached the American. The Red Army's own vaunted artillery arm of World War II was a horrible example of what can happen

37mm M1939 Bofors mounted on a modified SU-76

when the Soviets strive for bigness and numbers at the expense of quality. The Soviet artillery empire-builders who sold Stalin in 1941 on an immense wartime field artillery program overreached themselves. Red industry could turn out the guns, powder and shell, but it couldn't turn out the sort of fuzes needed. The Artillery arm itself couldn't train personnel able to carry out more than rudimentary pre-planned operations and simple techniques.

While the Artillery at first had jurisdiction over the SU's, it is significant that by the time the SU's appeared in 1943 the mobile arm (Tank and Mechanized Troops) had taken them over. The implication is plain that the mobile arm found the Artillery quite incompetent to satisfy the requirements of mobile warfare and hence by bureaucratic finagling the tank general seized control of the SU's. With the SU's, in no time they built up a very sizable artillery empire of their own.

The situation recalls similar ones in the U. S. Army, as when the Cavalry managed to get tanks when the National Defense Act allotted tanks to the Infantry: the Cavalry simply called their tanks "combat cars." It may also be remembered how the Coast Artillery refused to adapt its flak cannon to fire against ground targets for fear—and a justified fear—that the Field Artillery would then lay claim to jurisdiction over flak.

Hence it is possible that the reason why the Soviet SU's lack indirect fire on-carriage fire control is other than purely tactical. It may be that the Soviet mobile arm wants to be sure that the Artillery lacks reasons to put in a claim for the return of the SU's. To preserve one's "empire" is only a human feeling, and in the Soviet tankers' case is easily bolstered by the doubtless righteous feeling that with SU's they can do a better mobile warfare job than can the Artillery.

A very strange feature of the Soviet tank-SU setup is the way the Soviets mix up their SU's and tanks. Some Soviets have asserted that considerable advantages in march and combat efficiency and in logistics should result from having SU's and tanks which both use the same chassis. But in the mobile warfare divisions T-34 turreted tanks have been and still are mixed in units with JSU's, and Stalin tanks with SU-100's using the T-34 chassis.

Obviously much theory has been evolved to fit happenstance—with the result that it far from fits in all cases.

For example, the Soviet-German concept—that the SU shall mount a heavier gun than the turreted tank using the same chassis, has been several times upset by technological progress. The concept may be completely upset in the future. If the Soviets introduce a new "medium" tank with a 100mm gun in its turret—a development held desirable in their military press towards World War II's end—what requirement is there for the SU-100? What, for that matter, becomes of the Stalin tank with 122mm gun? And how about the future of the SU's in the 152's class? Some Soviet authorities have said that they don't want a big SU with gun larger than 152mm. It would be too big if large enough to carry adequate ammunition and anyway would be poor as antitank. If they got the chance, might not the Soviet armor people come up with a 152 more like the pre-World War II KV-II job—one with considerable traverse if not a turret and also good indirect fire capabilities?

In short, may not the Soviet tank-SU scheme result from World War II requirements and the necessity to make do with guns and chassis then available? With an opportunity to develop entirely new vehicles and armament, may not the Soviets take a whole new look at tactics and armored vehicle requirements? Might they not scrap SU's (though they'd hold onto the old for economy) and in a future line of armor simply come out with a new medium and a new heavy-gun tank as before the war? Would they then also try to convert their present field artillery components of mobile divisions from towed to SP?

Whatever may be the answers to these questions—whatever may be the real value of SU's in current warfare, it is clear that Americans at present have no reason to shout with joy and clap their hands.

Though for nine years the Soviet tank-SU team has been a vital element in both Soviet offensive and defensive warfare, two years of war in Korea have gone by without the Reds giving us a single chance to see one of the big SU's (much less a team) in action. In the very first action American ground forces fought in Korea, Americans were treated to the "mad-bull" charge of T-34's when leading off infantry attacks, but the ill-trained Red tankers passed right through the U. S. position (including the artillery) and disappeared down the road. The North Korean infantry lacked both the big SU's and the skill to capitalize upon this charge of Red knights in armor. But might not regular Soviet soldiers, with far more prolonged training and with SU's to maintain the supporting fires, do far better? Even decisively better against current U. S. infantry defense, of which the Reds have made so close a study?

And then what about the question of new armor with or without SU's and changes in tactics and techniques?

It can't be stressed too much that the tanks and SU's the Soviets display today are old in basic design of chassis and engine—the T-34 being 16 years old. Morosov surprised the world when that T-34 tank made its debut in action in 1941, and Kotin did the same when the wraps came off his KV heavy tank (of which the Stalin and JSU's are modifications).

What original armor projects have these great brains been working on?

Until we know for sure, it is dangerous for Western authorities to announce that even the Patton 48 is the "finest tank in the world," and that the new U. S. heavy "can outslug any land fighting machine ever built." That is the sort of blind "one-way" thinking which—history repeatedly warns us—can get us in a lot of trouble.

Just how much trouble no one can tell. As in the case of the Red Chinese and Koreans, so far the worth of even extant Soviet armor has been obscured by the low level of Soviet troop skills. But the record of the engineers who design Soviet armor proves only too alarmingly that the Reds can vastly improve their skills over the course of years. If the Soviets' Tank and Mechanized Troops can develop their skills the way the designers of their Tank Engineering Service did theirs, the West has little reason for complacency and much for worry.

FROM THESE PAGES

65 Years Ago

In the celebrated charge of the Dragoons of the Guard at Mars la Tour, their loss was 96 officers and men and 204 horses. Note again the loss of horses. Surely the horse in a charge becomes a projectile with great velocity and battering force. The infantryman must either stop him or get out of his way. "His neck," in the words of JOB, "is clothed with thunder; he rejoiceth in his strength, and goeth on to meet the armed men; he smelleth the battle from afar off, neither turneth he back from the sword." That is why so many horses are killed. Let us now substitute the revolver for the saber, and the effect of cavalry is at least doubled by the new element that enters the question. The skirmisher can no longer ignore the rider, the reach of whose terrible arm is now increased a hundred fold.

Sabers or Revolvers?

LT. EBEN SWIFT

50 Years Ago

The Boer War affords a broader field than our operations in Cuba, China and the Philippines, for comment and criticism regarding the use and importance of mounted troops. Here again we find the cavalry star in the ascendant. The British cry from South Africa has been for cavalry, more cavalry, and then cavalry. Something over 200,000 animals have been transported to Cape Town, and British agents in various parts of the world are still buying and shipping them. Their mounted infantry has done some good work, but it has proved more expensive than cavalry, owing to the enormous destruction of horses. The Boer is a natural horseman, and it is owing to his mobility that he has been able to strike in unexpected places, to make his fights in one defensive position after another, and to turn a British flank attack into a frontal attack. Had the British been as mobile as the Boers, the war would probably have been ended months ago.

Cavalry Experiences from 1898 to 1901

CAPT. KIRBY WALKER

25 Years Ago

If we carefully study our Field Service Regulations and the important cavalry operations during the World War, we shall find that success can be attained when the important characteristics of cavalry are fully exploited and the employment of the field artillery is adapted thereto. The outstanding characteristic of cavalry, wherein it differs from infantry, is its mobility. The more restricted this mobility, the nearer will cavalry combat approach that of infantry. When cavalry is separated from its horses or transport, it becomes infantry in fact if not in name and adopts the combat methods of the latter. This mobility endows cavalry with the ability to carry out certain combat actions which it would be difficult for infantry to execute. For example, cavalry can move by bounds, quickly transport its fire power to a critical locality, operate at a considerable distance from the main forces and often by surprise, and operate on an extended front with wide intervals between its combat groups.

Field Artillery with Cavalry

MAJ. EDMUND L. GRUBER

10 Years Ago

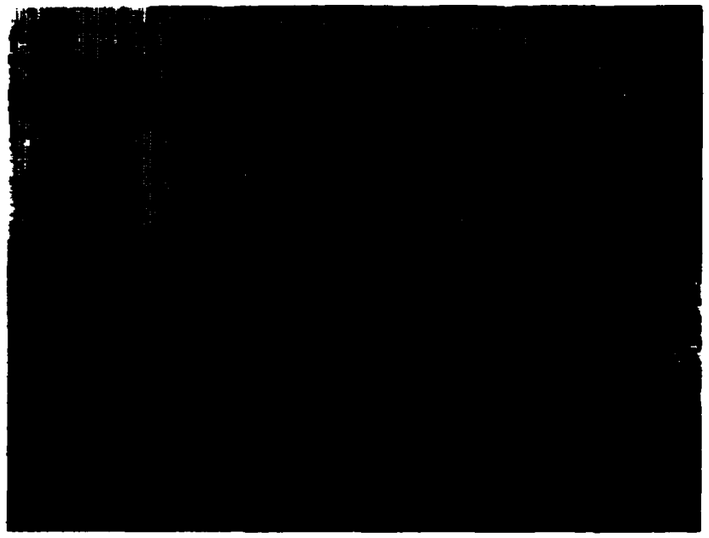
Practice has frequently confirmed the advisability of putting heavy tanks in the first echelon, mediums in the second, and then the light tanks. This formation considerably reduces losses and brings better results.

Tanks give the best results when employed *en masse*. This decreases the losses and achieves success in battle. Success, however, can be achieved only with reliable help from the artillery, aircraft, and infantry. When employing massed tanks the commander must have at his disposal a strong control of the center, by means of which he can maintain constant contact with his tanks and maneuver them one unit at a time and thus make the greatest possible use of each minor unit.

Until now radio has been almost the only means of communicating with tanks and directing them in battle. Experience has taught us that radio stations frequently break and become useless. A recent example of this occurred when several dozen tanks were sent into action but towards the end of an encounter communication and control of the tanks had to be maintained through one single station. Since then the tank commander's control center has included two or three light tanks which the commander uses to carry orders and information to tanks in action. At the same time these light tanks form protection for the headquarters as well as for the commander in the event that his tank is knocked out or that the enemy makes a flank attack. In order not to disclose the whereabouts of the commander to the enemy, tank units advance in open order behind the machines which flank the commander's tank.

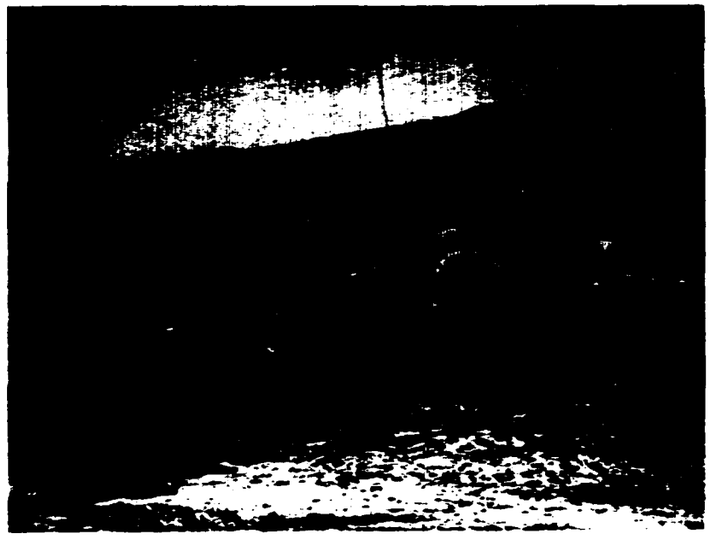
Tank Communications in Battle

COL. M. KROTIMSKY
Red Army



Tanker students at the Republic of Korea Infantry School's Armored Group section study the intricacies of tank gear mechanism under a Korean instructor.

Lacking the mechanical background of the American GI, ROK tankers have yet made amazing progress in learning how to use the complicated weapons of war.



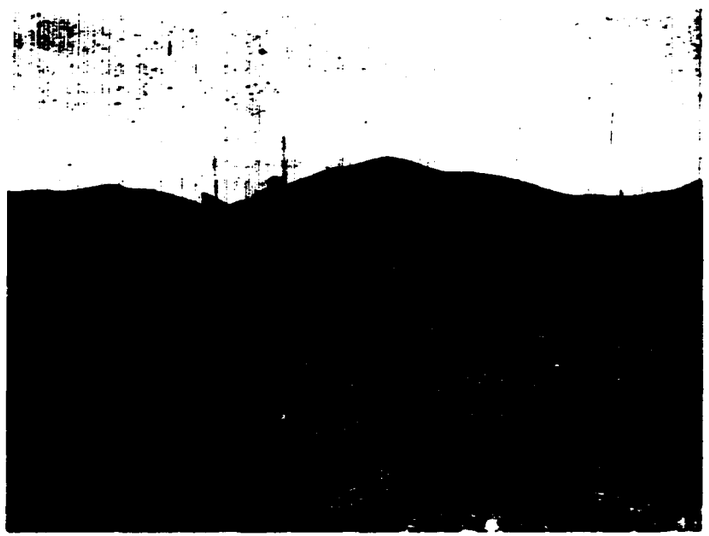
ROK tankers clean the tube of their tank gun, an operation in strange contrast with their agrarian past as evidenced by a backdrop of terraced land.

Here's a Preview for the

ROK Army Will Take Time to Build

KOREA, Nov. 6—When President-elect Dwight D. Eisenhower comes to Korea, he probably will be told that the South Korean army, even if given all-out American material support, cannot be counted upon to defend Korea alone for a long time.

[illegible] officers agree



ROK tank crews fire the M24 tank weapons on the ROK school range, under supervision of U. S. KMAG personnel. Koreans are good at range estimation.

THE ROK ARMY BUILDS ARMOR BACKBONE

One bleak October morning in 1951, 20 American-built medium tanks, bearing the red, black and blue insignia of the Republic of Korea, nosed their way out from behind a hill on the East-central front and into the pages of history.

It was the first time that tanks manned by members of the ROK Army had gone into action on the Korean battlefield.

Today many ROK divisions have their own supporting tank companies, an important consideration in the plan to build the South Korean forces to the stage where they can assume an even greater role in the United Nations effort than their present substantial one, and thus relieve the United States of a portion of its heavy troop contribution.

In 1950, the Red drive across the 38th parallel caught the Republic of Korea forces without armor or artillery support. Since that time, the United States Military Advisory Group to the Republic of Korea has been hard at work building one of the greatest armies in the Orient from the excellent material available. Today Korean troops stand fast along more than half the battle front. The Army's ten combat divisions have been put through the most rigorous pre-battle training the American officers could devise. Induction centers are handling more than 900 draftees a day.

The importance of the combat team has been stressed, which has meant providing tanks, artillery and air support for the new army.

With courses patterned on the Stateside model, a Korean faculty was set up by KMAG, then officer and enlisted tank training got under way. ROK tankers get 14 weeks of training, leading from individual up to full company training. Next is the front line, where they are turning in a good account of themselves.—Sergeant Thos. H. Mapp.

Defense Dept. Replies to GOP

ROK Army Will Be Strengthened Soon

By United Press

The Defense Department today countered mounting Republican criticism by announcing that the South Korean army will be strengthened substantially "in the near future."

[illegible] denied published [illegible]

[illegible] Yesterday

Past the individual training stage, ROK tankers take a full platoon of tanks on a day of unit field tactical training; Next step up the line is the front.

OFFENSIVE by FIRE!

by FIRST LIEUTENANT ROBERT S. HARPER

Armor's trinity of characteristics has had to be modified to some extent for the Korean battlefield. But in spite of a sacrifice of full mobility and shock, members of the arm have the big gun—firepower—to carry the fight to the enemy

THE superiority of American armor in Korea has not been seriously challenged since the morning of September 1, 1950 when elements of the 72d Tank Battalion routed an attacking enemy tank brigade at Yongsan, South Korea. Properly exploited, this unchallenged superiority can become the decisive factor in ground operations in this theater.

The tank is a weapon of mobile warfare, but we must not ignore the inherent mobility of the tank gun. The capabilities of this weapon permit a mobility of fire not wholly dependent on freedom of maneuver. Positioned in selected firing sites on our present MLR the tank gun combines sufficient accuracy, range and power to destroy the formidable enemy emplacements opposing us along the Korean front.

We are capable at any time of assuming the offensive—an offensive by fire.

By the planned, methodical destruction of enemy weapons emplacements, observation posts and personnel bunkers we can render selected areas of the enemy line untenable through the effect of accurate concentrated tank fire.

FIRST LIEUTENANT ROBERT S. HARPER, Armor, was an enlisted man in World War II. He has just completed his second tour of duty in Korea, where he has been a tank platoon leader and company commander.

In conducting such an operation there are two vital factors: proper selection of firing sites and accurate adjustment of tank fire on distant targets.

Selection of Firing Sites

As reconnaissance is the key to mobility in maneuver, so it remains the key to mobility of fire.

Prior to a detailed reconnaissance, information of the enemy, available through G2 sources, should be utilized to estimate local enemy strength and disposition. A personal reconnaissance should then be conducted of the entire zone of responsibility. During this reconnaissance it is advisable to prepare an overlay indicating limits of fire to the flanks and dead spaces in the zone of fire from each tentative position. Utilizing the information gained from a hasty study of enemy dispositions and combined fields of fire from proposed positions on the MLR, an estimate can then be made of the number of tanks required in each sector to dominate a designated target zone. Experience indicates that a minimum of two tanks should be employed in any isolated position. If the area offers a restricted field of fire with so few lucrative targets that the employment of only one tank is warranted, it is usually preferable to designate the area a supplementary firing position from which, on occasion, a tank can execute such firing missions as are deemed necessary. Defensive considerations may leave us no alternative; however, we must avoid the common error of immobilizing our tanks and neutralizing their fire by placing them singly in nonproductive firing positions.

Tanks must be positioned on high ground to exploit fully the range capabilities of the tank gun.

Fields of fire must be complementary to insure that every possible portion of the enemy position may be brought under fire.

Firing sites must be selected to permit the massing of the fire power of the maximum number of tanks on a designated target area.

Except where antitank defense is the primary consideration, tanks should be positioned along the entire sector rather than clustered in platoon size units with duplicated fields of fire. By this method we encourage a proper distribution of defensive fire to support any threatened portion of our line while at the same time we further our offensive aim of directing tank fire against the target area from every possible direction.

Supplementary and alternate firing positions must be prepared to permit the employment of the entire armored unit on line simultaneously. These positions are then available from which to deliver massed defensive tank fire against strong enemy forces attempting to penetrate our line or for use in support of local infantry operations.

Ease of supply should be considered but must remain secondary to tactical considerations. Far too frequently we are content to occupy the more accessible positions on the false assumption that only these can be economically supplied. It is preferable to adopt the more positive approach of selecting those areas from which maximum damage may be inflicted on the enemy—then find a way to supply the position. Every tank company is issued tank dozer equipment to assist in the construction of tank roads in difficult terrain. Failing this it is often feasible for tanks to return to a forward dump for resupply. This is particularly appropriate for tanks occupying positions of limited defensive importance. Tanks may be resupplied by M39s or other tanks. During periods of poor trafficability, a shuttle system composed of wheeled vehicles, tracked vehicles and finally pack board to the tank position can be employed regardless of trafficability. However, it is advisable to maintain a three-day supply of ammunition, combat rations and water at primary firing positions to permit operation even though supply routes may be temporarily impassable due to enemy action or inclement weather.

U.S. Army

Having maneuvered tanks into seemingly inaccessible positions we will be amply rewarded by targets ill prepared to withstand the effect of concentrated tank fire from a surprise direction.

Adjustment of Tank Fire

Accurate adjustment of tank fire on distant targets is the other factor vital to the success of such an operation. At a range of 5,000 yards the tank cannon possesses sufficient power to destroy most enemy emplacements. However, the gunner's telescope is not sufficiently powerful to permit the accuracy of adjustment necessary to engage these distant targets. Due to the frequent periods of poor trafficability and the prevalence of antitank mines in normal tank approaches it is often not feasible to move tanks forward to engage targets at close range. To exploit more effectively the range capabilities of the tank weapon, an observation scope more powerful than the standard five to eight power instrument available to the tank gunner must be provided.

Both the Battery Commander's Telescope M65 (10 power) and the Observation Telescope M49 (20 power) are suitable. Tank observation posts equipped with one of these instruments must be established to assist the tank gunner in adjusting accurate fire on distant targets. Other advantages are immediately apparent, for example, the increased accuracy possible when engaging close range targets requiring great precision of fire—such as individual weapons emplacements or when adjusting fire on apertures or other vulnerable points of bunkers which cannot easily be destroyed by ordinary methods. By use of these more powerful instruments it is possible to penetrate enemy camouflage and insure destruction of targets which would otherwise escape detection.

Tank observation posts should be established sufficiently removed from firing positions to insure that muzzle blast and dust will not interfere with accurate adjustment. This is particularly important if close range targets are to be engaged. This separation of tank OP from firing position also reduces the possibility that enemy fire directed at tanks will fall on observation posts.

The observation posts should be located so that the fire power of the maximum number of tanks may be adjusted into the target area. Obviously, to fulfill this requirement the OPs must occupy high ground. However, since their function is to adjust direct fire, the dominant considerations must be an unobstructed view of the target area and a location to permit adjustment with a minimum amount of interpolation by the observer.

Location and operation of these observation posts is dependent primarily on proximity of the enemy and his ability to direct effective small arms, mortar and artillery fire on the position. To insure continuous operation when subjected to observed artillery fire it is necessary to construct a bunker type OP capable of withstanding the heaviest enemy artillery. To minimize the effect of small arms fired into observation apertures it is advisable to use the BC scope for observation. Since this instrument is equipped with periscope-type heads, the observer is able to remain in complete defilade while adjusting tank fire. When general area observation for an extended period is conducted the BC scope is less fatiguing than the telescope (20 power). However, it is only under these conditions that the BC scope is preferable to the more compact, more powerful 20 power scope.

Volume of enemy mortar and artillery fire must be considered for it is on this basis that means of communication between observation post and tank firing positions is determined. If the volume of fire is so heavy that telephone lines are likely to be destroyed, the communication must be exclusively by radio. An SCR 300 in OP netted with an ANVRC-3 in the firing tank is suitable. When operating in mountainous terrain and coordinating fire for an extended sector it is sometimes necessary to utilize a tank as a relay station. The observer equipped with a BC scope and SCR 300 having observed a target, designates the tank to execute the fire mission, then adjusts fire by SCR 300. If a relay tank is being used, the tank commander receives the transmission on his ANVRC-3, relaying the corrections to the firing tank by SCR 528. This is an extreme case and such conditions prevail in only isolated localities in this theater or for limited periods of time. However, by employing a relay tank, where wire is not feasible, the fire power of any number of tanks may be directed into target zone.

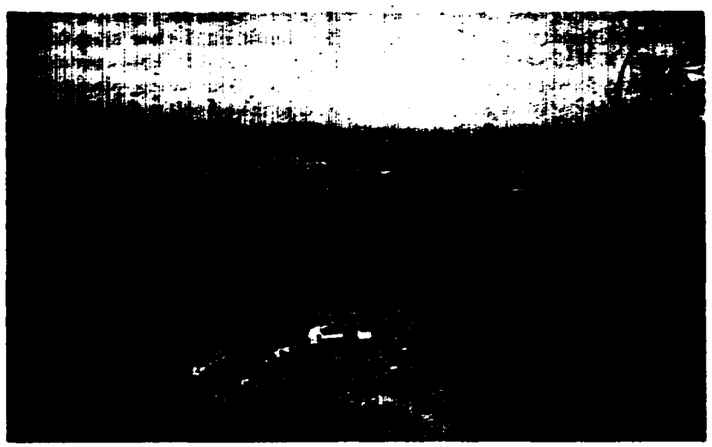
In those areas where the volume of artillery is light we can lay a direct telephone line from tank observation post to the various tank positions.

In those areas where we occupy the dominating terrain, and the artillery is negligible and the enemy is not in close proximity to our firing positions, it is feasible for a tank, occupying a suitable position, to be used as an OP. Under these conditions the tank commander places the 20 power scope on his tank turret and adjusts fire as with binoculars. However, it is ordinarily preferable to establish a ground OP approximately 50 yards from the tank. Dust and concussion from tank weapons are minimized. The observer has a stationary observation site within voice distance of the tank commander. The driver or BOG may be used as observers.

It is under these latter conditions that this improved method of observation is most effectively combined with the destructiveness of the tank cannon.

At 1,000 yards, utilizing either of these instruments, a tank gunner is able to adjust precision fire on any aperture large enough to serve as a firing port for small arms weapons. At 5,000 yards he can adjust on individual bunkers and destroy them with the powerful tank gun. This capability combined with the high rate of fire, the variety of tank ammunition available and the ability to shift this accurate volume of fire rapidly over an extended target area constitutes *mobility of fire*.

Having selected firing positions and established tank observation posts to cover the sector of responsibility, we are now able to begin a battle of tactical attrition at its deadliest. Firing initially from the security of our present MLR this armor protected base of fire can lay siege to the enemy line.



High ground positions allow full exploitation of range capabilities of the gun.

Phases of the Operation

Since the enemy is wholly dependent on ground observation to direct effective artillery and mortar, our first objective must be to blind the enemy by destruction of his forward observation posts. By neutralizing these positions early in the operation we will materially reduce both the volume and accuracy of enemy counterfire. Since the enemy will exert every effort to reestablish these important installations, the destruction of enemy OPs must remain a priority mission throughout the operation. Simultaneously, artillery weapons capable of bringing direct fire on our MLR and identified command posts must be neutralized.

While we remain on the alert to counteract enemy efforts to reconstruct destroyed positions, we are now able to begin the methodical destruction of enemy weapons emplacements to our immediate front. We must not be content with destruction of widely separated obvious targets but by utilizing the observation scopes every bunker in the designated zone must be destroyed. To insure that the entire target area is covered effectively, primary sectors of fire should be designated for individual tanks. This makes it less likely that tanks will engage only the more obvious targets, or shift fire to targets already engaged by an adjacent tank, when one tank is sufficient to accomplish destruction.

During this phase tanks should move into firing positions simultaneously throughout a regimental sector. Since a number of targets are presented to the enemy, the concentration of counterfire is consequently reduced. It is during this period when effective tank fire is directed against the command posts and forward observation posts that enemy reaction will be most violent. In those areas where the volume of enemy artillery is heavy, communication trenches should be dug from personnel bunkers to tank escape hatches. Personnel are then able to remain under cover at all times.

In those areas where concentrations of mortar are directed on tank positions, heavy logs should be placed across the back deck of the tanks.

Firing positions should be prepared to insure that the suspension system is protected.

This is an important period for it is clearly the decisive battle between the tanker and the enemy artillery forward observer. The objective of the FO is to drive the tanker from his firing position by a volume of artillery before the series of command posts and OPs can be destroyed. The enemy forward observer often wins this battle when engaged with inexperienced or halfhearted tankers; for they are easily bluffed off position by fire incapable of inflicting more than superficial damage. Therefore, a special indoctrination and training period must precede operation.

Pressure should be exerted along the entire front. However, there are some areas more favorable for decisive action than others. Dominating terrain features insuring long fields of fire combined with flanking terrain to be used as a base of fire are particularly suitable. Terrain from which relatively flat ridges radiate to flanks and rear of enemy positions can be used to advantage. It is from this no-man's land, forward of the MLR, where the volume of observed enemy artillery fire renders daylight infantry operations prohibitively costly, that tanks will find the most profitable targets. We must never be content with establishing firing positions on the MLR and remaining there indefinitely. We must move forward continuously, utilizing favorable tank approaches, moving ever closer to the enemy positions, reaching forward with the tank gun to destroy the enemy power to resist.

Well dug-in positions give maximum protection against enemy retaliatory fire.

We must avoid routine in conducting firing missions. This campaign is as much a battle to destroy the enemy will to resist as to destroy his ability to resist. Therefore, he must never be able to predict at what time, in what manner or from what direction his destruction will be accomplished. We can achieve a high degree of shock action by capitalizing on the psychological effect of tank fire. One method is to concentrate the fire power of a number of tanks on a relatively small target area, then shift rapidly to widely separated targets which the enemy has been led to believe are immune from effective tank fire either because of their range, location or obscurity. The variety of tank ammunition, properly employed, is effective as a psychological weapon. High explosive, fuze delay in addition to being most effective for use in bunker destruction has an increased psychological effect over HE, super quick. APC will destroy installations which the enemy believes to be impregnable. Tactically, White Phosphorus is useful when registering on distant targets. Used to exploit its psychological effect, we may fire it in heavy concentrations and cause the enemy to abandon formidable emplacements. Indeed, there is a positive shock effect inherent in receiving accurate devastating fire from an armor-protected weapon which cannot be neutralized.

Indications of disintegration of the enemy front will be unmistakable. During the initial phase of the operation the enemy will direct a great volume of accurate mortar and artillery fire on the tank positions. He will attempt to reconstruct every destroyed emplacement. After a few days, however, it will become apparent that the enemy is rebuilding only those installations which he considers vital to the security of his battle position. This decision is the fatal one for where previously there were perhaps 50 bunkers in an individual target area, it is discovered that only half are being consistently rebuilt. Consequently, it is possible to mass a greater volume of fire on remaining positions.

Simultaneously, it will be noted that both the volume and accuracy of artillery and mortar fire have decreased. Ofter the greater volume of incoming mortar fire lands well forward of the tank positions and artillery is apparently being fired with little opportunity for proper adjustment. This of course indicates that the enemy artillery forward OPs and mortar firing positions have been forced to the rear.

Utilization of Weapons

It is during this phase that night harassing fire assumes importance. Once the locations of the vital enemy emplacements are ascertained it is a relatively simple matter to direct effective harassing fire against these

positions to discourage reconstruction during hours of darkness or during periods of restricted visability.

The M16 mounting four .50 caliber machine guns is well suited to restrict movement in target area under cover of darkness. The M19 mounting two 40mm cannon is capable of delivering a highly accurate volume of fire at intermediate ranges. Infantry mortars can be employed effectively to inflict casualties on reconstruction parties working under cover of darkness. Machine guns from the Heavy Weapons Company can be used in designated areas to discourage movement of enemy troops. Recoilless weapons are well suited for employment in direct fire missions against well defined targets at relatively close range. They can be effectively employed during daylight to maintain neutralization of local target areas and free tanks to engage more distant targets.

The artillery will be our most powerful ally during the entire course of the operation. Their ability to direct volume fire on reverse slopes combined with their system of ground and air observation insures valuable support. The artillery observers are a source of accurate information regarding location of enemy targets. Close liaison must be maintained between tank commander and the artillery FO located in vicinity of firing position. If feasible a direct telephone line should be installed from the artillery OP to the tank position so that the forward observer can direct tank fire on precision targets, targets of opportunity appearing in his sector or targets out of range of the forward battalions. The artillery is a defensive weapon of great power; however, its offensive capabilities are somewhat limited. While the artillery is capable of neutralizing an area temporarily by forcing enemy personnel under protective cover, it does not possess sufficient accuracy or power to destroy the more formidable enemy emplacements. It remains the primary antipersonnel weapon. The tank is the primary antiemplacement weapon.

When all these weapons are effectively coordinated the enemy will discover that his OPs are neutralized, his personnel bunkers and weapons emplacements are destroyed and he is denied the opportunity to reconstruct these installations under cover of darkness. He is besieged by fire. He has the alternative of being destroyed on position or displacing to the rear. His decision is immaterial for the effect will be the same. It is impossible to maintain an organized battle position under these conditions.

The tank gun has a long reach, can dominate terrain without physical possession.

During darkness the enemy is able to reinforce and resupply his beleaguered positions without the threat of observed fire. It is believed that decisive results can be achieved more quickly if this cover of darkness is removed. This may be accomplished by moving searchlights forward to specially designed bunkers on the MLR to permit direct illumination of selected target areas. Searchlights mounted on tanks are suitable for intermittent coverage in local sectors to illuminate close range targets or to frustrate enemy ground attack. By this measure the enemy is denied the opportunity to recover from the effect of our fire for with artificial illumination it can be delivered with equal accuracy during day or night.

When it becomes apparent that the enemy has withdrawn the bulk of his force from a besieged area we must begin the decisive phase of the operation—relentless pursuit by fire. The enemy must never be permitted to disengage. As his outposts are neutralized we must move forward to these positions with the observation scopes and our impregnable base of fire to engage at close range his MLR. This is the period for aggressive probes into the neutralized areas. However, these areas must be carefully selected to insure that lucrative targets may be engaged. To reduce the possibility of prohibitive matériel losses due to antitank mines, high ground should be used to the maximum during this displacement forward. When necessary to cross an area believed to be mined, a safe lane should be cleared under cover of darkness and clearly marked with engineer tape or luminous objects so that it can be easily followed by the tank driver. This precaution combined with local trafficability studies by individual armor commanders should permit a certain degree of maneuverability.

Ground Campaign

Basically the ground campaign should be directed toward seizing neutralized areas to serve as forward firing positions. The objectives must be selected with due consideration for trafficability and fields of fire into target zone.

Seizure of these designated objectives by infantry should be accomplished just prior to first light. In this way we avoid the hazard of assaulting under observed enemy artillery and mortar fire. Likewise it is believed the enemy will outpost these exposed positions only at night and will ordinarily withdraw these security forces to permit their return to enemy MLR under cover of darkness. By proper timing it is probable that many areas will be unoccupied by the enemy at the time of the assault.

During daylight hours preceding the attack, tanks positioned on the MLR register both offensive and defensive fire on critical portions of the objective. The firing data is recorded and a concentration number assigned to permit accurate fire during hours of darkness or periods of restricted visibility. The infantry commander should maintain radio contact with the armor commander throughout the operation. If the objective is believed to be occupied the infantry commander should call for preregistered tank fire as he begins the assault.

In planning these infantry operations, we must not ignore the possibility that the enemy will have previously withdrawn the bulk of his force from effective range of our weapons, leaving only a small holding force on position. He would rely on these to give him sufficient time to reinforce the forward areas by using his elaborate system of communications trenches. We can counteract these tactics by placing assault type fire on widely separated target areas. Numerous feints utilizing assault fire over an extended area will tend to frustrate enemy plans. By proper coordination of tank fire and infantry assault we can insure that the objective will have been seized before the enemy can react. Concurrently with the delivery of tank assault fire on the forward slope, a fire block should be established to the rear of the objective to prevent reinforcement during the attack. This may be achieved by preregistration of tank weapons to permit direct fire into communication trenches. If required, additional tanks may be moved forward into prepared positions on the MLR to execute these interdiction missions. Ordinarily, however, a sufficient number of tanks should be able to place fire on these limited objectives to permit the simultaneous execution of both the interdiction and the assault fire missions. Tanks occupying positions overwatching infantry routes of attack should be used to deliver assault fire while tanks occupying flanking positions deliver interdiction fire. The artillery, mortars and M16s add depth and insure a continuous barrier while M19s can be employed to place direct preregistered 40mm cannon fire throughout trench network. Thus the objective is isolated by fire. While tanks are engaging known targets on the forward slope of the objective, the remainder of available weapons maintain a fire block to rear of the beleaguered position.

A fire plan of this type in which tanks only are employed against the forward slope of the objective, permits the infantry to attack a position under assault fire by these flat trajectory weapons with comparative safety. The capabilities of the tank gun, particularly when delivering assault fire from dominating terrain down on the objective, permits an accuracy not possible with any other weapon at comparable range. This technique of tank assault fire should be fully exploited during this phase.

Skyline positions place a burden on enemy antitank gunners using direct fire.

To decrease the possibility of causing casualties among the assault elements, the same type ammunition should be used for registration and assault fire with the exception that HE and WP may be used interchangeably.

Since the infantry commander is in radio contact with the armor commander and all tanks in the sector are operating on the same frequency, the assault fire may be adjusted or shifted at will. Prearranged visual signals may be used in case of radio failure.

Having secured the forward firing area, the infantry should deploy and dig in to minimize the effect of enemy counterfire. When this has been accomplished, tanks should move forward to infantry secured firing positions. Tanks on the MLR remain in position to neutralize enemy OPs, reinforce forward fire and deliver preregistered defensive fire on call of the infantry commander.

If the forward position offers particularly profitable targets, an uninterrupted volume of fire may be maintained into the target zone by organizing a shuttle system in which either platoons or individual tanks alternate between supply point and firing area. The duration of such an arrangement and the rate of fire is determined by the importance and extent of the target area.

Infantry assault should be reserved to seize defensible, strategically located terrain exposing profitable target zones. However, once an objective has been occupied by friendly troops, tanks must remain on position to assist in its defense. If available, it is advisable to include tanks equipped with searchlights in defense of these forward areas exposed to enemy ground attack. They should move to forward position just prior to darkness and be integrated into the defensive perimeter.

In support of daylight infantry attacks against strongly held positions we must be prepared to provide a maneuvering element. A maximum of one half the supporting tank force should be utilized in this role. We must consider that the fire power of these tanks will be neutralized over extended periods of time while traversing difficult terrain or when masked by intervening obstacles.

Therefore, the stationary base of fire must be adequate in itself to dominate the objective, while the maneuvering element capitalizes on the shock effect and close support capabilities of the tank.

In securing indefensible isolated areas for use as daylight firing positions only, and against which enemy daylight assault is not likely, the following method may be used. Tank-infantry coordination during the assault phase is basically the same. However, instead of remaining on position, the infantry, having searched the area, return to the MLR just prior to first light. The tanks move into firing positions unaccompanied by infantry troops.

A primary consideration when conducting this phase of the operation must be to expose our infantry troops to enemy counterfire only when unavoidable. Ordinarily, under these conditions infantry should not move forward with tanks. If enemy troops are likely to intercept tanks between the MLR and forward firing position, friendly infantry overwatching the route from strategic terrain within effective supporting range plus the overwatching tank support from the MLR should prove adequate.

Tanks must bear the brunt of this operation for they are ideally suited to wage this critical battle of tactical attrition. Operating from properly selected terrain, armed with the decisive weapon, they remain the one instrument of ground combat which the enemy is incapable of neutralizing.

Enemy Countermeasures

Initially the enemy will attempt to neutralize tank fire by mass employment of artillery and mortar directed on individual positions. This type fire is not effective when employed against armored vehicles. To counteract this measure we need only rely on the training and courage of our crews to execute missions without regard for ineffectual enemy counterfire.

Since armor attracts armor it seems likely that the enemy will commit limited numbers of tanks and self-propelled artillery to engage us with direct fire. This is doomed to failure. By utilizing more powerful instruments of observation plus artillery ground and air OPs, we are able to adjust accurately against enemy firing positions. If the enemy vehicle is positioned beyond effective range of APC ammunition, White Phosphorus adjusted with a 20 power scope will either set fire to his tank or will serve as an easily identifiable target marking for destruction by friendly air. In most cases, enemy armored vehicles lured forward by this operation will be destroyed from the air before they arrive at a forward firing position.

Following this failure the enemy may dispatch tank hunter teams under cover of darkness, armed with rocket launchers and antitank grenades, to destroy tanks in firing positions. By installing barbed wire, antipersonnel mines and trip flares in depth well forward of our positions, we can frustrate enemy efforts to approach positions undetected. These passive measures, combined with alert guards operating tank-mounted searchlights and tank weapons should be sufficient to neutralize such raids. During the later phase of this period, when it becomes apparent that he cannot succeed with relatively large groups operating against our MLR, the enemy will probably resort to infiltration tactics to penetrate our lines. These small groups will have the mission of laying antitank mines behind the MLR and in the vicinity of firing positions. Some, armed with AT grenades, will attempt to destroy the tanks and crews in reserve areas and on the MLR. Since during this phase the operation is to be conducted from the relative security of our MLR, this type counteraction, conducted by small uncoordinated groups, can accomplish little more than harassment. This phase is likely to yield many prisoners—both those thwarted in the accomplishment of their mission and individuals anxious to escape the effect of our fire.

Enemy air power, so far uncommitted over the battle positions, while being our most powerful threat, is unlikely to prove an effective countermeasure. Passive defensive measures such as camouflage, cover and concealment, reinforced firing positions and proper dispersion tend to neutralize the effect of air attack. These measures combined with the strength of our antiaircraft defense, the efficiency of our radar interception, and the presence of our own planes over the positions, tend to counteract the threat of effective intervention by enemy air.

Organization

This operation can be successfully conducted with armor presently available. The three line companies in the tank battalion organic to each infantry division should be placed in direct support of the infantry regiments. Both the regimental tank company and the company from the tank battalion should be employed on the regimental front simultaneously. Rather than an arbitrary equal division of the regimental sector, the zone of responsibility allotted to each company should be based on the number of tanks required to dominate a specified target area.

By this simultaneous employment both companies are permitted to retain a local reserve to be used in case of enemy attack, to execute missions in forward firing positions, or to relieve front-line platoons for maintenance and rehabilitation. In this way pressure can be exerted against the enemy for an extended period of time.

Since the company occupies less frontage, close tactical supervision is assured.

The burdens of supply and communications are eased since the specialized personnel, equipment and transportation of two tank companies are available for use in the regimental sector.

The regimental commander is assured of having a reserve element from his organic tank company at his disposal at all times to execute special missions which he may direct.

The tank battalion commander and staff are available to plan, coordinate and supervise the employment of armor in the division sector. This group, operating under the supervision of the Corps Armor Officer, should prove an effective means of coordination during the operation.

Committed aggressively and employed imaginatively, the tank, in coordination with other arms, is capable of inflicting such prohibitive losses that the enemy cannot maintain his present battle positions in Korea. By proper application of the principle of *mobility of fire* we can restore *mobility of maneuver* to this theater of operations.

Creation of the post of Corps Armored Officer came at about the same moment as the outbreak of the Korean war—and with an equal degree of surprise for several officers who drew the initial assignments to the new post and gave it the battlefield baptism. One of those who "was" comes up with some guidance

For the Potential Corps Armored Officer

MANY times during his career an Army officer is assigned to a responsible position although lacking the technical knowledge for the job. If he is ambitious, alert and has pride in his accomplishments, he will turn to the proper manuals for guidance. He will seek out the advice of his superiors, who have served in similar positions.

But, when he is assigned to a newly created position for which there are no written material or experienced officers available, he must trot out his ingenuity and plain common sense.

As a prelude to shipping out for Korea as a Corps Armored Officer, I remember gathering my material and leaving the classroom at Fort Benning late one morning in the summer of 1950 after trying to sell the concept of employing armored personnel carriers to a class of field grade infantrymen. Dropping my instructor paraphernalia in a pile, I called the phone number noted on my desk and there it was—PCS orders to a new Corps forming at Fort Bragg and preparing to ship out for Korea immediately. The MOS in the orders read 2162, so I thought my new job would be as an assistant G3, but this was not to be the case. When I reported into Fort Bragg four days later, I found a building full of packing crates and was told we were leaving for the POE in 3 days. "Incidentally," the assistant AG said, "you're the Armored Officer and the first member of the new Armored Section to report in. See Colonel _____ and find out what equipment he has gathered for your section." I did and luckily encountered a real soldier and gentleman who had realized that the Chief of the new Armored Section wouldn't arrive in time to handle his equipment and had secured some office and administrative equipment for me. The section had two packing crates of paper, 4 folding chairs, one typewriter, a field desk, the FM's and TM's I had brought from Benning, and my cigar box of assorted grease pencils. Needless to say, it was quite an auspicious beginning. Two officers and 4 EM reported in time to fill up the section T/O and we were en route to Korea. We were faced with jobs for which we had received no training and tried to find something in the manuals about the function of an Armored Section. Don't try for there's nothing there. FM 101-5 covers everything except the janitor—and the Armored Officer. I soon found out that the rest of the staff knew less about it than I (or so it seemed to me), so I gathered the small Armored clan of Executive and Armored Supply officers together and got their opinions. Since we had a supply officer, we had a lead on part of the job. I spent my waking hours at sea preparing a memorandum outlining the duties of the Armored section. If the Chief of Staff would publish it, we would have an operating directive and could meet new problems as they arose. The big problem was to get recognition and cooperation from the rest of the staff for a new and heretofore unknown section. We did, however, obtain the necessary concurrences and the memorandum was published, establishing the activities of the Armored Section. When IX and I Corps switched commanders our old CG carried all of his chiefs to IX Corps and gave us the identical jobs that we had held previously, then the memo was republished for IX Corps. There was many a reason to be thankful that I had done so when I left that job in Korea on 7 Nov 51—15 months and 3 Corps Commanders later. The memorandum is included here just as originally published:

ACTIVITIES OF ARMORED SECTION

MEMORANDUM

1. The duties and activities of the corps Armored Section are not enumerated in FM 101-5. This memorandum is published to orient the General and Special Staff Sections _____ Corps with the activities of the Armored Section.

2. The Armored Section is placed under AC of S G-3 for administrative convenience and general staff co-ordination.

3. The Armored Officer:

a. Has operational control of all armored units (except armored divisions) not assigned or attached to subordinate commands.

b. Advises the corps commander and staff on all matters pertaining to armor.

c. Coordinates the corps anti-tank defense plan.

d. Determines the requirements for the types of armored units and makes recommendations for their employment.

e. Makes recommendations for the size, composition and employment of the corps armor reserve.

f. Keeps current record of the status of armored vehicles and material. Renders appropriate reports to higher headquarters.

g. Makes recommendations for the employment of armor and supervises the preparation of detailed plans to include the paragraphs of the operation order pertaining to armor.

h. Advises the corps commander on the use of tanks in the role of indirect fire.

i. Studies and evaluates enemy armored capabilities (coordination with AC of S, G-2).

j. Collects and evaluates information

of enemy armor (in coordination with AC of S, G-2 and Ordnance Officer) including technical information of enemy armored vehicles.

k. Recommends the allocation of replacement tanks and other armored vehicles and all armored material, ammunition, fuel in short or critical supply (coordination with G-3 and G-4).

l. Keeps a record of the current status of battlefield recovery of armored equipment (coordination with Ordnance Officer).

m. Recommends action such as training programs to improve the efficiency of armored units organic to or attached to the divisions of the corps.

n. Prepares and supervises training programs of the armored units under his operational control and exercises technical supervision over armored training throughout the command.

o. Provides an armored officer to serve on all planning groups.

p. Makes recommendations for the employment of mechanized flame throwers (in conjunction with the Chemical Officer).

BY DIRECTION OF THE CHIEF OF STAFF:

Operational Control

At first glance our ambitious gesture of not assuming operational control of the Armored Divisions seems ludicrous in light of Korean events; but the memorandum was written while we were at sea with no knowledge of high level plans. At some time during the period from 6 Sep 50 to 7 Nov 51, the Armored Section had at least one problem under each of those categories. Many, of course, became continuous.

You will notice that we had the Armored Officer "Advise the Corps Commander on the use of tanks in the role of indirect fire." Naturally, my advice was against indirect fire by tanks but by making this a function of the Armored Officer, it pulled the teeth from attempts by Artillery Officers to get the tanks attached to the artillery for indirect fire missions. On one occasion an ambitious Artillery Officer had a tank company firing indirect before I got the word; even the CG got the word before I did. That should *never* happen. My objections to tanks firing indirect were the wearing out of gun tubes, the relative inaccuracy of the fire, the difficulty of observing and controlling it, the effect of reducing the tanker's desire to overrun his enemy, and the increase in the idea of using only the gun power of the tanks. Unfortunately terrain, habit, and lack of previous experience by many tankers in using tanks in the assault had a bad effect on the tanker's assault role in Korea. It has even caused FEC personnel officers to give tankers a lower rotation point score per month than the infantry. As a proud ex-Armored Division Tanker in W W II, I had to hide my shame at seeing tankers put in the category of supporting weapon operators. Yet, direct or indirect fire, if all the tanks do is shoot, they are not being used for any purpose except as support weapons.

A high priority project is to coordinate the corps antitank defense plan. This ties in very closely with "studies and evaluates enemy armored capabilities." When we in the IX Corps first became operational, the NK's had an operating tank division—the 105th. The Armored Section followed the career of this unit closely from that day on as well as other enemy armored units as quickly as they were identified. The section must maintain a map depicting routes of approach for enemy armor and enemy armor sightings. We worked closely with G2 and whenever the armor sightings, PW reports, and other collecting media indicated, we prepared an Estimate of the enemy armored capabilities that G2 published as an annex to his periodic intelligence report. It could also have been issued as an annex to the Intelligence Annex of an operation order.

Once again we were faced with lack of precedent. The format for an Intelligence Estimate in 101-5 was used for the first of these Estimates of enemy armored capabilities. However, it was found to be inapplicable, so we prepared our own. This is the form we used continuously after January 51:

Issuing HQ
Location
Date time group

ENEMY ARMORED CAPABILITIES

Map: Korea 1:250.000 and 1:50.000

1. ROUTES OF APPROACH
a. List Routes
b. Describe routes enumerating critical points and key terrain along each.
2. WEATHER
Include weather forecast and how it will affect soil trafficability, depth of fords, etc.
3. ENEMY TANK SIGHTINGS
Include location, number, date and types of enemy armor sighted in tabular form.
4. IDENTIFICATIONS
Identify units and types of armored vehicles. Types identified are very important in the event the enemy has an uncommitted tank better in quality than friendly tanks.
5. ENEMY ARMOR RESERVES
Describe enemy armor reserves capable of intervening and replacement tank availability.
6. ENEMY ARMORED CAPABILITIES
Enumerate
7. DISCUSSION
8. EFFECT OF ENEMY ARMORED CAPABILITIES ON OUR MISSION

s/_____
Armored Officer

1 Incl:
Technical Report on MK86
(This report should be included whenever new types of enemy armored vehicles are identified and should give the characteristics, armament, speed, maneuverability, weight, etc., of the vehicle and any "best methods" of combatting it w/friendly armor)

Tank Allocations

One of our biggest jobs was securing the allocations for and coordinating the delivery of replacement tanks. We got information from EUSAK Armored Section on numbers, shipments, etc., and coordinated allocation and pickup by the units. Ordinarily we merely recommended the allocation of tanks to divisions but on one occasion had to recommend allocations right down to units within a division. This was necessary in order to see that the few available tanks were used to best advantage. In this division it was a fight between the division tank battalion and the regimental tank companies and we were the referees. However, this situation is to be avoided if at all possible.

Battlefield recovery was quite a problem but has already been covered in several previous editions of ARMOR. Let me, however, call your attention to your training role. One way to prepare for a special operation or to improve the training status of a unit is to establish a Tank Training Center under Corps Control. Your operational control clause gives you authority to establish these centers and you can do some effective indoctrination, as well as replacement and all around crew training there. However, based on experience, the operational control part of the directive should be changed to "commands all non-divisional armored units assigned or attached to the Corps." This will give you administrative as well as operational control of the units. It's hard to distinguish between the two and bad feeling can result if you are not careful. You need command authority.

Be sure to have yourself included as one of the Tactical Planners in the Corps Headquarters. If G3 sets up a special planning group, the Armored Officer must be represented. This is self-evident; but you may have a fight to get the right. No one likes an advisor. You have to be a diplomat in this situation as well as almost all others to accomplish anything.

So far I've discussed only those points covered in our initial directive. Others can be added to the list now as a result of experience. The first that should be added is:

"Monitors personnel assignments to all armored units and allocates critical specialists and MOS's where critical shortages exist."

Training

Other important points are:

"Arranges for specialist training and special schools to alleviate shortages in critical MOS's.

"Maintains a tank trafficability map of the corps area of operation and the projected area of operation to show the maximum size tank unit that can be employed in each terrain area."

This is not merely a map and engineer road report study. It involves covering *every* area in the corps zone yourself in a ¼ ton truck or tank, and flying in a light plane over the enemy-held projected area of operation to see what information you can obtain on tank trafficability. This information can be reduced to a tinted and overprinted map, using different colors to represent the maximum size tank unit that can maneuver in each area. We used red for impassable areas (mountains, etc.), green for platoon size areas, orange for company size areas, and blue for companies to unlimited. In many defensive situations, roads and mountain passes were widened to permit tanks to be used in pre-planned counterattacks. The same principle applied for the attack. Engineers followed the infantry and widened passes that enabled the tanks to join and support the infantry. This type of information and road widths, bridge capacities, fording sites, etc., should all be included as overprinted information on the trafficability map. One of the best methods of securing general distribution of this information was to have the completed overprinted map issued as an annex to the G2 PIR. The basic distribution of sending copies direct to all armored units made sure that they got the information; but we also wanted the infantry regiment and division staffs to use it. When the studies first began, division reconnaissance companies and tank battalion reconnaissance platoons were used extensively to gather road information. We later had a working agreement with all armored units to send us information, and traded information with the other Corps when either one needed it. However, the Armored Officer personally answers to the Corps Commander if he should report an area as not suitable for tank employment and events show it to be to the contrary. Also the CG would not appreciate advice that resulted in bogging down a large group of tanks in quicksand on the Naktong or in a rice paddy. Verify your data before you stick your neck out on a trafficability map!

There are many unforeseeable jobs that you will be called upon to perform; such as delivering critical spare parts in a ¼ ton trailer from one tank unit to another in order to get tanks off deadline, investigating alleged malpractices of all types, submitting daily maintenance and operational status reports to Army Armor, instructing infantry in use of armored half-tracks (provisional armored infantry), supervising rail loadings and unloadings, and above all—trying to help the *fighting* tanker in any and every possible way. We ran a way station for tank crews, tank officers, etc. Anyone in Armor was welcomed into the Armor Section and his problem was solved if we had the means.

To save yourself grief, get a tank radio (SCR508 at present) mounted in your ¼ ton and listen in on the frequencies of the units in whose area you are visiting. You can get a good picture of the situation in this fashion and you can use the radio for control when you are called upon to conduct rehearsals for special operations. It also comes in handy in coordinating tank support for a UN or ROK unit that is using tanks for the first time or where a coordinator is needed. In addition, listening in may save your neck when searching for some isolated tank platoon along the front. I once had the dubious pleasure of giving two soldiers a ride back down a road on one of these hunts only to be told that they had been sent to look for mines on that road I came in on but since I made it they guessed there weren't any mines. Remember the combat situation may have changed (during periods of movement fore or aft) since you left the CP, so listen. Also establish a callword for yourself that each tank unit will recognize on the radio. That eliminates this unknown station routine if you want to communicate with someone in a hurry. You also need the radio as a command vehicle in those situations where you are used as a Task Force Commander.

Know the Situation

The only way to know the armored situation is to travel and visit the units yourself. Don't create the impression of being a snooper or an inspector but rather become the helping hand. The tankers soon learn whether your visits result in any positive return for the trouble you cause in being fed and sheltered for the night. If you don't accomplish something your welcome will wear out fast. During these visits you will become the unofficial confidant of most of the tankers. You will soon learn the tank knowledge of the various infantry commanders, the tanker's problems with supporting ordnance, personnel and equipment problems, and a mass of other facts and opinions.

As stated in the beginning, there were no books or manual references for a Corps Armored Officer then and I have seen none since. Someday the Armored School may start teaching the duties of the Corps and Army Armored Officers and someone might have these duties incorporated in 101-5. Until then a gap exists in our service school curriculum and manuals for training officers for responsible jobs in branch assignment.

OFFENSE is a Word . . .

by COLONEL JOHN D. BYRNE

The Army has long been sensitive to the variety of labels which have a negative connotation in the business of soldiering. And it has focused much attention on the terminology on the positive side as well. But our author feels that we must have some careful planning in the word game to avoid the pitfalls inspired by satire and slang—in order to insure that terms bear the trade-mark of "offense" rather than "offensive"

THE military terms used by the Army affect its offensive spirit. The United States, with its traditional aversion to things military, finds it difficult to assume the bearing of a "strong man armed." Our new Army terms, or their abbreviations, often contain an unmilitary second meaning—one that offends the ear or gives an unpleasant, even defeatist, tone. For instance, alphabetese shortens Mobile Army Surgical Hospital to MASH, a set of initials with a most unmedical connotation. And in national emergencies, when Army talk changes and grows most rapidly, new ideas or things are very apt to get derisive slang epithets tied to them. It is only natural for conscripts, however loyal and brave, to be satiric about their temporary Army associations. Furthermore, our numerous and energetic journalists not only parrot the conscripts but also dream up bookfuls of new words. Neither soldier slang nor the slant of a newspaper story is likely to concern itself primarily with the Army's offensive spirit!

The Army, therefore, with its offensive mission in mind, must colorfully name its weapons, equipment, and isms during design and planning stages.

Consider, for example, the naming of the "Launcher, Rocket, 2.36-in." As everyone knows, this officialese was immediately translated by the soldiers to "bazooka." Now "bazooka" may supply needed comic relief to a battle-tough veteran with a Big Red One on his shoulder; but what does it do for a reenforcement spending his first night in combat? Wouldn't it be better to call this weapon the Rattlesnake? Such a name would teach and reassure the soldier that the weapon, used from concealment at short range, is poison.

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I advocate no ban on soldier humor. But while the warrior's chuckle may be grim, it must be optimistic. The Army can talk more aggressively, more colorfully, and still retain its funnybone.

Illustrations by Lt. Col. E. W. Jacunski

As a matter of fact, many of our weapons now have offense-minded names. We have the Walker Bulldog tank, the Eager Beaver cargo truck, the Weasel cross-country vehicle. The new jet fighters have very combative names: Sabrejet, Thunderjet, Pantherjet, Cutlass.

A tough old soldier may squawk that this giving of names to our military tools is juvenile. Perhaps it is; but it is also the base for an important practice—the naming of ideas. I cannot prove that it will make the soldier more efficient to call his rifle the Jesse James or his jeep the Ben Hur. But surely the naming of *things* will alert us to the more careful naming of *ideas*.

The world-famous user of fighting names is the British Royal Navy. Her ships carry such names as Golden Hind, Victory, Bellerophon, Conqueror, Formidable, Revenge, Furious, Warrior, Royal Sovereign, Eagle, Iron Duke, Dreadnought, etc. That the British apply this principle to the naming of ideas is clear from the writing of the "former naval person" who said that "operations in which a large number of men may lose their lives" should receive code-names neither "boastful and overconfident" nor "despondent" nor "frivolous." And he goes on to rule out such abstract weaklings as Triumphant, Woebetide, and Bunnyhug.

Americans are lucky in their vast heritage of fighting names. All of us are familiar with the lore of the cowboy and with the settings of our Western novels, stories, and movies. The best names from this source are the Indian ones: Apache, Cheyenne, Kickapoo, Sitting Bull, Crazy Horse, Medicine Man, Cochise, etc. From the cowboy's open range come the names of the native wild animals: Grizzly Bear, Copperhead, Wolverine, Badger, Wild Boar, Armadillo, Timber Wolf, Cougar, Bobcat, Diamond Back, etc. Mixed with all these are the romantic people and places of the Wild West: Longhorn, Owlhoot Trail, Pinto, Last Chance, Lone Star, Calamity Jane, Poker Flat, Pecos, Tonto Rim, Staked Plains, the Panhandle, etc. And the West brings to mind all of American history and legend: Paul Bunyan, Headless Horseman, Puritan, Salem Witch, Knickerbocker, Eldorado, Leatherstocking, Railsplitter, Davy Crockett, Bowie, Casey Jones, Rough Rider, Stonewall, Black Jack, Valley Forge, Adirondack, Buccaneer, Yellowstone, Yosemite, Cassino, Bataan, etc.

If these sources aren't enough, there remain the names of the Old World and of mythology: Ajax, Centurion, Prometheus, Agamemnon, Vulcan, Gladiator, Calliope, Titan, Jupiter, Thor, Orestes, Minotaur, Triton, Pandora, Centaur, Aurora, Cassandra, Beowulf, Falstaff, Genghis Khan, Attila, Orpheus, etc.

The naming of things is easy; but what about ideas? And here we can look back at the development of phrases that most of us now consider harmful. When we think of the first appearance of these phrases, we may find that we helped to invent them. Here are a few examples:

a. *The Brass*, for officer leadership.

During World War II, Kipling's phrase "gilt ornamentation of his [the naval officer's] cap" came into overuse

THE AUTHOR'S TABLE OF SUGGESTED NAMES

Item	*Proposed Name*
Anti-personnel Mine	Gila Monster
Rifle, Recoilless, 75mm	War Arrow
Mortar, 4.2-in.	Thunder Jug
Gun, Antiaircraft, 40mm, twin	Kingbird
Machine Gun, Multiple, cal. .50	Flycatcher
Howitzer, 105mm	Vulcan
Howitzer, 240mm	Little John
Gun, 280mm	Thor
Car, Armored, Utility, M20	Calamity Jane
Motorcycle, Solo	Traveller
Tank, Light, M24	Apache Chief
Tank, Medium, M45	Crazy Horse
Tank, Heavy, M26	Grizzly Bear
Truck, ¾-Ton, Ambulance	Florence Nightingale
Armored Infantry Personnel Carrier	Centaur
4.5-in. Rocket Launcher, Multiple, T-66	Calliope
Flame Thrower	Beelzebub
Tactical A-Bomb	Big Brother
81mm Mortar	Tax Collector

as "the brass." Originally "the brass" was a pleasant joke: but it became derisive as the war failed to develop a fairy-story ending. We can't throw such words out of the language, we can only plug more optimistic synonyms.

b. *Arty* as an abbreviation for artillery.

Arty conjures up a being in smock and beret, not guns and cannoneers.

c. *Armor* for Cavalry.

Armor, a translation of the German Panzer, carries the glamour of the blitzkrieg, but only to the professional soldier. For the recruit, *Armor* focuses attention on the least important part of the tank. The Army gets from this word the additional job of teaching the recruit that *Armor* really means mobility, shock, and firepower. If this seems far-fetched to you, recall the fate of the armored knight. His horse fell to the longbow, and he himself, helpless on the ground in his steel suit, could have died from the knife of a mere goatsherd.

d. *Ground* (often with a small "g") for Army.

In a military sense, there is an inherent lack of mobility and life in the word *Ground*.

e. *Support* as part of the definition of the tactical mission of a combat unit.

Support is a double-edged word. It means "do all that you can for the supported unit," but it can mean to the inexperienced soldier that support is his whole job.

f. *Group* for Regiment.

Group shows field officers that the unit can be broken up to fight in single battalions: Regiment shows the troops that the unit cannot be broken up by the enemy.

g. *Replacement* for reenforcement. Now happily changed.

h. *Caste system* for officer-man relationship.

No comment.

i. Umpteen names for soldier, or the conscript citizen-at-arms.

Both the conscript in battle and the newspaper reader must have a simple word to picture the man who fights it out hand to hand in the mud. In the case of the famous Rangers, a special name solves the problem for a few units. But such a special name almost forces the "ordinary" soldier to define for himself a lower standard of duty. That is, the "ordinary" soldier is encouraged to say to himself, "I'm just a GI; they can't expect me to measure up to those specially selected and trained men." Yet the "ordinary" soldier is the heart of our people; he is the conscript citizen-at-arms.

The word we want is soldier. But perhaps it is already gone from the vocabulary of the American, who insists on the new and novel.

The whole problem of naming military ideas is bound up in the naming of the soldier himself. This lack of a name fathers, for example, such unfortunate figures for the selection of fighters as "scraping the bottom of the manpower barrel."

For the good of both the soldier and the Nation, the atmosphere of "GI" and its sister words must pass.

Although Korea is not a mobile war, Armor officers are gaining much experience.

What Can an Armor Officer Learn in Korea?

by MAJOR JOHN K. BRIER

THE assignment to a ZI or EUCOM armor unit of an Armor officer with Korean combat experience should cause the unit commander to wonder how much and what can Korea teach us? Officers have, in some cases, answered this question with a flat "Nothing—Korea is a special situation. Now you take my experience in World War II. . . ." Other officers are awed by the returnee from Korea—they think he is an authority on all phases of war.

What can an Armor officer learn in Korea while serving in a tank unit?

Combat in Korea requires the employment of all T/O&E authorized allowances. An Armor officer in Korea can acquire knowledge of what his unit is authorized and he can rediscover the unit's capabilities and limitations—the capabilities and limitations of men, of the organizational structure, and of the equipment.

* * *

An officer can learn about leadership in any assignment.

In the "Land of the Morning Calm" he is exposed to every leadership problem that haunts the conscientious soldier's mind. The boredom of the sustained defense tends to create moodiness, restlessness, and meanness in the individual—things which must be controlled with firmness and tact. The firmness and tact must be constantly developed. In Korea the officer must fight an inner battle to keep himself mentally alert, ambitious, and interested in his work and the welfare of his men.

An officer here may well have opportunities to serve in positions normally calling for a rank one or two grades above his actual rank. Thus a man can determine for himself whether or not he has the ability to accept responsibility without hope of any reward (promotions are almost a thing of the past for Armor officers in Korea) other than the satisfaction that comes from a job well done.

The courage and efficiency of the American soldier have been recorded in many histories, but until an officer has seen those characteristics demonstrated in actual combat his loyalty to his men tends to be an automatic duty. In Korea, along the MLR and on patrols, an officer will see acts being performed that awaken within him a full respect and loyalty for his men. Likewise on the MLR and on patrols the officer can, by calm, cool leadership, gain confidence in himself—abolish forever from his mind the haunting question we all hear in training "Am I a combat leader worthy of the name?" The true test—combat—can be made in Korea.

He can learn the havoc wrought by careless personnel management. A policy of treating all men as qualified tankers, regardless of their training and experience, is wasteful and intolerable. Maintenance men, communications men, and solid NCOs are to be coveted and carefully assigned—they don't grow on trees. One can learn how to plug leaks in the pipeline so as to put the right men in the right job.

In Korea the Armor officer can become familiar with the normal reports required from subordinate units. Not only may he become familiar with the techniques of completing the reports, but also he can learn where, when, and why these reports are used, and by whom.

He can study the various systems and standards used in awarding decorations. Over a period of time he can learn to evaluate heroism and the various degrees of bravery and devotion to duty. He can see for himself the advantages gained when exemplary conduct in battle is promptly and properly rewarded. He can learn the techniques involved in obtaining super-quick action on recommendations for decorations.

In Korea the Armor officer must learn to do his best to initiate a sound promotion policy for enlisted men.

* * *

The Korean veteran can develop a keen eye for targets and a keen respect for the capabilities of the enemy to camouflage his positions and move-

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ments. The veteran can become appreciative of the enemy's patience and stealth.

An Armor officer can acquire knowledge of enemy tactics and organization in Korea. The same organization and tactics, unfortunately, may confront him again for a number of years.

He can appreciate the difficulties involved in obtaining intelligence of the enemy—the CCF and NKPA soldiers are not easily taken prisoner, nor do they obligingly carry situation reports in their pockets when they get killed on patrols.

Knowledge of the enemy's capabilities is more important than a guess as to his intentions. This fact can be learned in Korea where the enemy continues to fight during bad weather, when short of supplies, or when some of his losses to his own artillery fire are inevitable. The Armor officer can evaluate the enemy's intelligence—he, whether CCF or NKPA, is far from stupid—and he is obedient.

The Armor officer in Kimland is exposed to opportunities for perfecting his map reading while spotting targets, directing artillery fire, conducting reconnaissance, and or planning actions in front of the MLR.

Commissioned tank leaders can appreciate the value of security and secrecy. They can study enemy reaction to our thrusts—reaction occasionally so well timed that there can be no doubt of the fact that somehow there was a slip—the enemy deduced our plan in advance.

* * *

Do not throw the book out of the window. Study it! Granted that in many places in Korea tanks may not approach the objective from different directions (from the infantry); nor may they follow the infantry and pass through to lead as the two closely approach the objective; nor may they transport the infantry; nor may they advance with the infantry at all. However, the fifth and least desirable method of employment is normally a capability. Our manuals state that tanks in an overwatching role is the least desirable method of employment—but the manuals do *not* state that this method of employment *is undesirable*. In Korea Armor officers can learn to perfect this fifth method of employment.

We are members of a combined arms team. Yet we think, eat and sleep tanks and, with understandable human failing, may sometimes be inclined to look down our noses at the infantry and scorn the effectiveness of artillery. A tour in Korea can teach us valuable basic lessons. The infantry can hold ground much better than armor. Armor without infantry support is not too efficient (the reverse is also true). Artillery can protect armor's flanks; without displacing batteries, it can rapidly shift its devastating fires, to stem the enemy's reinforcing efforts while armor and infantry concentrate on the major effort (assisted by more artillery). In Korea it can be seen that there are times to have tanks lead the attack and then there are other times when another of the five methods of attack should be employed. A short tour with armor while it is in a supporting role can teach Armor officers the capabilities, and weaknesses, of the other arms. It can teach the Armor officer to be a salesman. It can teach him patience and humility.

Some Armor officers serve in straight infantry assignments in Korea—they are fortunate for they can assure themselves of success when, in the future, they command reinforced battalions or combat commands in the armored divisions. An Armor officer must have a working knowledge of infantry.

Korean service can teach Armor officers the value of careful planning and violent execution of armor attacks. Careful planning is forced upon armor in Korea, because our operations are mainly carried out in areas which the enemy has been defending for over a year, and because higher headquarters in Korea are aware of the impact of armor moves on our situation. The Armor officer in Korea can observe where success has come to those armor elements which, once launched into the attack, moved and fired with vigor, determination, and according to a simple and flexible plan. He can absorb the cold facts that timidity, indecision, and plain lack of guts can needlessly cost lives.

In Korea each Armor officer can, and must, learn more about his own branch. In his association with the infantry and artillery the Armor officer is called upon—*at every conceivable level of command*—to be an *expert* advisor on *all* armor matters.

The art of issuing mission type orders is not easily acquired. Yet it must be acquired. Within EUSAK an Armor officer can learn to reach a decision and issue mission type orders. Then he can, and should, learn to allow his subordinates time and room in which to exercise their imagination, initiative, and prerogatives of command, to accomplish the tasks assigned to them. Granted the Korean war situation does, in many cases, permit company commanders to actually do each tank commander's job for him. But Armor officers can and must learn to issue mission type orders and leave them as such. By so doing Armor officers learn patience and tank commanders and other subordinates learn to carry the loads they originally expected to carry. By so doing they learn to keep their minds focused on their primary missions.

By observing tactical operations the Armor officer can learn that the basic subjects (marching, gunnery, and communication) must be stressed over and over again. Ordinary tasks must be accomplished with precision and perfection automatically without recourse to time-consuming thought processes. Success in battle depends more on all individual soldiers doing ordinary work in a proper manner rather than on a few men doing the extraordinary.

An Armor officer in Korea can, and must, learn to train, retrain, and train again every single man in his unit. Rotation (wonderful as it is to the individual) is hard on the team. New teammates must be trained constantly. Old teammates must be trained for more responsible positions. Training must be continuous, and effective without any frills. An Armor officer in Korea can learn to teach the meat of basic subjects without loss of time and without fancy training aids.

* * *

In the sustained defense an Armor officer in Korea can learn to avail himself and his unit of an opportunity to utilize and study the logistical support established within and immediately behind an infantry division. He can see that there are *several* methods of furnishing logistical support to armor working with the infantry. He can learn to appreciate

and overcome an infantry regiment's reluctance to accept the responsibility for furnishing logistical support to those elements of the divisional tank battalion which are in support of a regiment over an extended period of time. Along this same line, the Armor officer can learn to plan and execute simple, flexible logistical plans to ensure adequate support during periods of flux—such as when armor units are being shifted from a reserve role to an active role and vice versa. He can learn to overcome the temptation to become entangled in involved and complicated logistical plans that fit the sustained defense alone—plans which tend to stretch out transportation over unreasonable distances while still under the tank battalion supply platoon leader's control.

He can learn the importance of good work relations with all supporting technical services, especially the ordnance, engineers, and quartermaster. Armor's amazingly low deadline rate in Korea is an indication of the fine support being furnished by ordnance—in particular by the ordnance supply personnel. The presence of a goodly number of tanks, with well fed and equipped crews, well forward where they have excellent fields of fire, is evidence of the capabilities of our engineers and quartermasters. Armor officers in Korea can easily learn how dependent armor is on the supporting technical services and how much those technical services can accomplish.

Automotive

Mountainous terrain is hard on vehicles. In this part of Asia the Armor officer can discover the capabilities—many of which were never dreamed of—and limitations of his vehicles. Weak parts in our vehicles, which require constant care, are all too apparent. The importance of a smooth flow of replacement parts is impressed on the minds of most EUSAK Armor officers. The importance of proper driver training and first echelon maintenance is also self-evident. In Korea there is ample opportunity to become thoroughly versed in field expedients.

Communications

Working closely with the infantry and artillery, and at times the Air Force, can teach the Armor officer in Korea the means of communications available within an infantry division. Enemy mortar and artillery fire cutting wire lines can impress upon Armor officers the requirement for multiple means of communications. With adequate communications we can retain adequate control of both our fire and our movement. But once communication control is lost then the bottom will fall out of the most well laid plans.

The knowledge that an Armor officer can gain concerning tank-infantry teamwork is among the most valuable lessons available in Korea and that teamwork is usually just as efficient, or just as weak, as the tank-infantry communications in effect within the division.

Gunnery

To defeat the enemy thrusts in Korea requires detailed knowledge of the weapons in the hands of armor, infantry, artillery, and the Air Force. Ammunition resupply is a critical problem. Therefore, it follows that the proper weapon must be used on each target. First round hits are essential. The remunerative targets an Armor officer sees in Korea are generally fleeting targets. Once he has seen the infantry and artillery decimate attacking troops with our final protective fires the Armor officer in Korea is bound to learn to appreciate supporting fires. He also learns the types and effectiveness of enemy weapons.

In training replacements the Armor officer in Korea can learn that advanced tank gunnery is most readily absorbed by those tankers who have mastered basic tank gunnery. He can learn the importance of teamwork within the tank crew and the importance of each tanker being able to assume the duties of tank commander, gunner, or loader at a moment's notice.

He can learn the importance of rationing his ammunition—making the best use of each round and each weapon to obtain the maximum number of kills during every shoot.

In Special Assignments

Not all Armor officers in Korea serve with armor units. Yet those officers can learn while in Korea. They are usually in staff positions where they must learn staff work. They can become thoroughly conversant with the principle of completed staff work. They should be able to readily detect the horrible results of half-baked plans. They should absorb some knowledge of the functions of every staff section in the headquarters to which they are assigned—this knowledge comes to the staff officer who seeks the information rather than to the staff officer who allows himself to become boxed in his own little field. That staff work can, and should, be geared to assist the commander in his efforts to help the troops accomplish their mission is readily apparent to the staff officer serving in this combat zone.

An Armor officer not assigned to an armor unit while serving in Korea can still learn many of the lessons outlined in the body of this article if he will open his eyes and ears and get on the road to observe and absorb the contributions of armor in action.

Some Deficiencies

Lest it appear that the Armor officer whose service in Korea dates between June 1951 and the present, knows it all, the following are offered as candid observations. The average Armor officer in Korea learns little about proper camouflage (unexplainable enemy reaction makes the Korean veteran scornful of advice to stay off skylines, for example), map reading, march discipline, or marching. He is usually unfamiliar with the characteristics of good assembly areas and attack positions. He generally knows little about the requirement for dispersion and local security in rear areas. He has little opportunity to practice or learn about firing tank machine guns while moving. He is seldom exposed to the problems of the rapid marrying up of tank-infantry teams, mobile warfare involving more than ten tanks at once, or logistical support in fluid situations.

Summary

The Armor officer with experience in Korean combat has been exposed to war. His knowledge of warfare is perhaps great but certainly not infinite. An understanding of what he knows and what can be learned in Korea, should help Zone of the Interior and EUCOM armor units' plans for capitalizing on that officer's experience.

ARMOR NOTES

Centurion Tank Contract

The United States has placed an order with the British government for Centurion Mark III tanks which will be made available for defense of NATO countries under the U. S. Mutual Security Program, it was announced recently by the Department of Defense.

The contract for Centurions was placed in London by the U. S. Army Ordnance Corps as Off-Shore Procurement (OSP) under the American Mutual Defense Assistance Program.

Under the terms of the contract, the United Kingdom will produce tanks, plus fuel trailers, spare parts, and ammunition at a cost slightly less than $90 million.

The tanks eventually will go to The Netherlands and Denmark for use by armies of those two countries in the joint North Atlantic Treaty defense effort.

The order for Centurion 50-ton heavy tanks, now standard equipment with the British Army in Korea, will involve 107 separate British concerns including Royal Ordnance Factories. Practically all sections of the British engineering industry will be contributing to the completion of the contract.

The United States Congress appropriated $3.128,224,750 for military aid to Europe in FY 53. The bulk of this aid is provided participating countries in the form of American produced equipment, and supplies. The remainder comprises material to be produced abroad and bought with United States aid funds and known as OSP.

Total contracts placed in Western Europe under the FY '52 Off-Shore Procurement Program and other Defense purchases of end items for the use of United States forces in Europe totalled $729 million, of which approximately $75 million was spent in Great Britain.

Under the Off-Shore Procurement Program, contracts placed in the United Kingdom and other European countries have a threefold purpose: 1) supplying arms and equipment for the defense of the NATO countries; 2) building up Western Europe's productive capacity, and 3) bolstering Western European economy.

In a statement issued in London, Brigadier General Daniel F. Callahan, Chief, Military Assistance Advisory Group, United Kingdom, said:

"The Centurion contract is the biggest single American OSP order we have placed to date in any country. The sum involved is larger than the total amount of OSP contracts placed in the United Kingdom under the Off-Shore Procurement Program during FY 1952.

"This example of American aid financing construction of British equipment for other NATO countries is a perfect symbol of the truly united effort we are making for defense of the free world."

New Tank Modification Plant

Plans for construction of a Tank Modification Plant at Newark, Delaware, were announced recently by the Department of the Army.

The new plant, being built at a cost of $3,100,000, will be operated by the Chrysler Corporation and will employ 400 persons. It will become an integral part of the Chrysler Delaware Tank Plant where the Patton 48 is in production. The Army anticipates that it will be in initial operation by April 1, 1953, and in full operation by July 1, 1953.

The Army said the new plant will be used for making final installation of on-vehicle-equipment and any modifications which may be required on all tanks produced in the Delaware Tank Plant. It was also explained that the new tank plant facility will be used to prepare tanks for shipment in such condition as to be ready for immediate use in the field.

Time Saver

Two devices produced almost simultaneously but 6,000 miles apart now make the lengthy task of tightening tank tracks a mere snap for tank crews.

The new method, perfected independently in Germany and at Fort Hood, reduces the job to three minutes. Previously it took five men and a tank retriever three hours.

First to come up with the time-saving idea was Master Sergeant Edward J. Mordush, a 6th Armored Cavalry soldier in Germany. Sgt. Mordush states that all there is to it is, "A sliding T-bar (fitted to a standard wrench) is put through the connector of the track, lifts the track idler adjustment nut; then simply backing up the tank causes the track to fall tightly in place."

Only days after Mordush's method was perfected, Major Eugene O. Allen, 1st Armored Division Maintenance Officer, completed plans for a similar device.

Both inventions take the sag out of tracks much the same way, the 1st Armored Officer's attachment being welded to the wrench.

Greatest advantage of the new method is the saving of manpower and time, especially in field operations, by letting the tank engine supply the leverage for tightening the track.

First Light Tanks to Troops

The initial shipment of T41E1 Walker Bulldog light tanks to go to Army troops left the Lima, Ohio, depot of the Army Ordnance Corps late in December, it was announced by the Department of the Army.

The light, 26-ton tanks, first of the new family of tanks developed by the Army since World War II, were produced at the Cadillac Tank Plant at Cleveland, Ohio, and have been accepted by the Army.

Destination of the first of the tanks to be issued to troops for field use will not be announced.

Several hundred of the Walker Bulldog tanks are awaiting needed modification of the gun sighting system and turret control mechanism. These improvements have been developed by Army Ordnance's Frankford Arsenal, at Philadelphia, and the Cadillac Division of General Motors.

The 26-ton Walker Bulldog is armed with a 76mm high velocity gun, a .30 caliber and a .50 caliber machine gun. Powered by a 500-horsepower air-cooled Ordnance-Continental engine, it has the Allison cross drive transmission, and a speed in excess of 40 miles per hour. Steering is accomplished by a T-bar with hand grips simulating an automobile steering wheel. Its four-man crew includes the commander, gunner, loader, and driver. Its unit cost is set at $135,000.

Uses of the light tank are probing, reconnaissance, and patrol duty, and to knock out any intervening light enemy tank opposition. Its primary role is detection of points of enemy strength and weakness which are reported back to commanders. It has the ability to destroy small enemy units, and meets the modern demand for air transportability.

Tank Production

Many recent newspaper articles have pointed out the cutback and phasing down of tank production.

In the 8th Quarterly Report of the Office of Defense Mobilization to the President the reasons for slowing down are given and are quoted herein. The Department of the Army has released similar information to the press.

"Production of the medium tank, which in dollar terms is the most important combat vehicle in the Army procurement program, has reached a stage which is typical for a wide range of Army items. Designs have been perfected, production facilities are almost completely equipped, and a high rate of output of both the M47 and the newer T48 has been attained. Now, a basic question is presented as to how fast the remaining tanks in the program should be produced.

"To produce quickly the entire quantity of tanks planned in the current program would mean greater immediate strength, but it would raise sooner the problem of maintaining facilities in a stand-by state of readiness after current production goals have been met. A 'stretched-out' schedule, on the other hand, would delay the readiness of our forces but keep a greater number of production lines in operation over a longer period—which means in a greater state of readiness for rapid expansion to all-out production rates if that should become necessary. Continued operation of the production lines also would permit the introduction and testing of improvements in actual production models.

"The Army concluded that most of the medium tank production planned for 1953 should be continued on schedule but that thereafter the previously scheduled production should be stretched out. By mid-1954, the country's tank plants will be operating at only a small fraction of capacity, but the maintenance of going lines would permit rapid expansion if necessary.

"In the past 2½ years, large numbers of a modern light tank—the T41—have also come off the production lines. The development stage on a new heavy tank—the T43—is completed and deliveries of the production model will begin in the next few weeks."

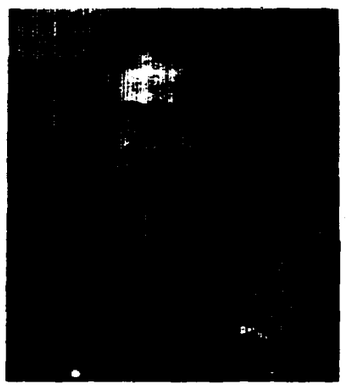
"My congratulations to the Officers and men of Armor, our modern Cavalry, upon the occasion of the 176th birthday of their arm.

"Rich in its heritage, Armor combines the dash of Cavalry, the firepower of Artillery, and the tenacity of Infantry. Its power and mobility make it the perfect striking force.

"The performance of Armor in World War II was magnificent, and today in Korea, despite unfavorable terrain, it is adding to the fine reputation won in the campaigns of Europe and the Pacific.

"Today Seventh Army pauses to salute the 'troopers' who have won the admiration and respect of their comrades-in-arms everywhere."—Lt. Gen. Charles L. Bolte, *Commanding, Seventh Army.*

ARMOR COMMANDERS RETIRE



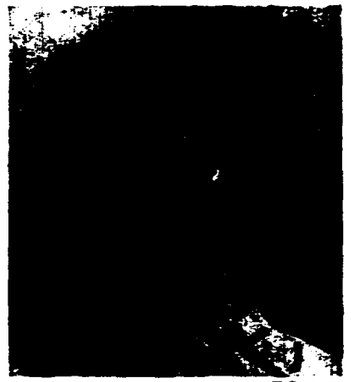
Lt. Gen. Willis D. Crittenberger . . . USMA 1913 . . . career in the mobile arm . . . associated with early development of armor . . . consecutively commanded 2d Armored Brigade; 2d Armored Division; III Armored Corps . . . IV Corps in Italy in WWII . . . CG of First Army on retirement . . . President of U. S. Armor Association for last three years.

Maj. Gen. Orlando Ward . . . USMA 1914 . . . tank brigade CO in 1st Armored Division in 1941 . . . brief tour 8th Armored Division . . . CG 1st Armored Division March 1942 . . . commanded it in combat North Africa . . . CG Tank Destroyer Center 1943 . . . CG 20th Armored Division at Camp Polk 1944 and in combat overseas in the ETO 1944-1945.

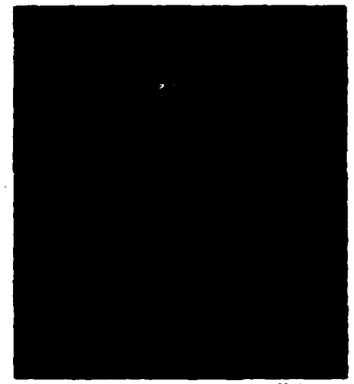
All photos U.S. Army

Maj. Gen. Robert W. Grow . . . National Guard 1915 . . . RA 1916 . . . early career Cavalry . . . Mechanized Force, Ft. Knox, 1931 . . . Knox in 1934 with 1st Cavalry Mechanized . . . G3 2d Armored Division 1940 . . . commanded 34th Armored Regiment, CCB 8th Armored Division, CCA 10th Armored . . . CG 6th Armored Division ETO.

EIGHTH ARMY COMMAND



U.S. Army



U.S. Army

On 31 March 1953, General James A. Van Fleet will retire from the Army after thirty-eight years of exceptionally distinguished commissioned service. He will relinquish his command of the Eighth Army in Korea to Lieutenant General Maxwell D. Taylor, presently serving as Deputy Chief of Staff of the Army. General Taylor will leave shortly for a briefing at General Clark's headquarters in Japan. He will proceed to Korea where he will have an opportunity to visit units at the front prior to General Van Fleet's departure.

HOW WOULD YOU DO IT?

AN ARMORED SCHOOL PRESENTATION — AUTHOR: CAPT E. L. GROSS — ARTIST: M SGT W. M. CONN

SITUATION 1. **You are commander of a recently activated tank company. You know that you must carry a stock of vehicular spare parts for repairing and maintaining vehicles within the unit. Your motor sergeant wants to know the number and kind of spare parts he should stock. What would you do?**

SITUATION 2. **You are a tank platoon leader operating in the field during freezing and thawing weather. Your tanks have been parked for a short period of time. In anticipation of movement, you inspect and prepare your vehicles. In doing so, you discover that the tracks of some vehicles are frozen to the ground. How would you relieve this condition, and what should be done to prevent the condition in future operation?**

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DEPARTMENT OF THE ARMY
SUPPLY CATALOG

ORD 7 SNL G-740

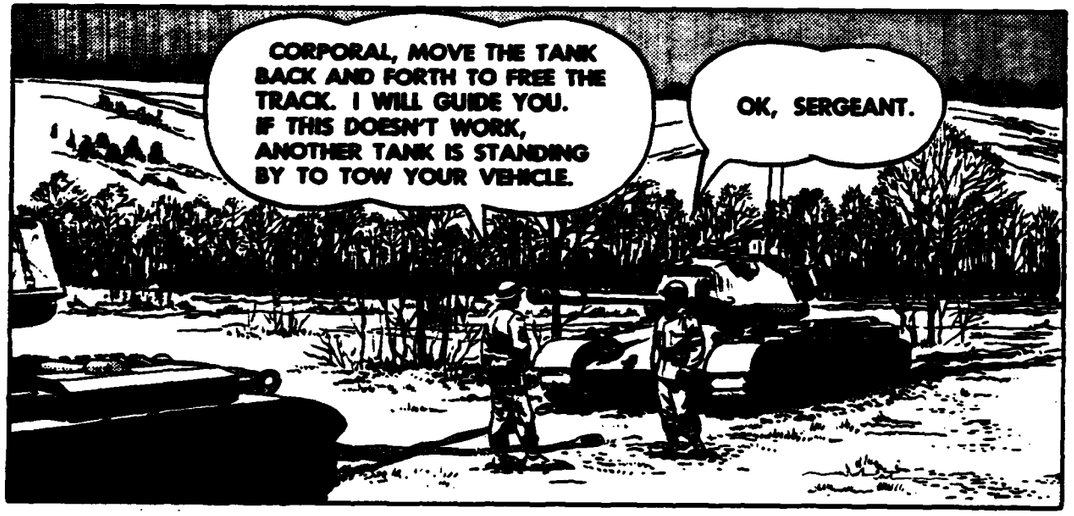
(1) STOCK NO.	(2) FEDERAL ITEM IDENTIFICATION NO.	(3) MFR'S PART NO.	(4) GOVERNMENT PART NO.	(5) DESCRIPTION	(6) UNIT OF ISSUE	(7) QUANTITY PER	(8) ORGANIZATIONAL ALLOWANCES: 1-10	10-20	20-40	40-100	(9) REFERENCE NO.
G740-7373016	.....	EAT-IE2183 WO-648708	7373016	CAP, filler, fuel tank, w/CHAIN, assy.....	ea	1	%	%	1	1	X
G740-7373020	.....	WO-681382	7373020	GASKET, fuel tank cap (rubber).....	ea	1	%	%	1	1	X
G740-7373080	.....	AEC-AF385 WO-688686	7373080	LINE, flex, fuel line to fuel pump.....	ea	1	%	%	%	%	X
G740-7397471	.....	WG-ARTTSC WO-688679	7397471	TRANSMISSION, w/gear shift hand LEVER, assy.	ea	1	.....		%%	%%	X

% The percent symbol (%) indicates additional items not carried by this category of maintenance, but which may be requisitioned when needed for repair.

%% The double percent symbol (%%) indicates items which may be requisitioned and installed by this category of maintenance, when approved by the supporting ordnance officer.

SOLUTION 1. **An Ord 7 SNL Supply Catalog is published for each vehicle, listing organizational vehicular spare parts allowances. If this publication is not issued with the vehicle, it should be requisitioned through normal supply channels.**

DISCUSSION 1. ***Select the organizational allowance column corresponding to the number of vehicles in the company. Opposite each item is the amount authorized for stock or a symbol indicating whether or not the item is authorized for replacement by the unit possessing that number of vehicles. Explanation of symbols is contained in the catalog. Other details pertaining to vehicular spare parts supply are found in Ord 1, Introduction and Index.***



SOLUTION 2. **Rock the vehicles slowly back and forth under their own power. If this procedure does not free the tracks, slowly tow the vehicles to relieve the condition.**

DISCUSSION 2. ***Freezing of vehicles to the ground is not an every day occurrence and usually catches us off guard. If intermittent freezing and thawing weather is anticipated, always park your vehicles in a mat of brush, grass, small logs, gravel or other material to keep the track from having complete or direct contact with the ground. After the track is free, you should make sure that mud or ice adhering to the track does not travel over the top and damage fenders and support rollers. It might be necessary to use an ax or sledge hammer to clear the track.***

A distinguished political scientist carries forward a series on history.

The Holy Roman Empire

by DR. ROGER SHAW

ON a bleak Christmas day in the year 800, mighty Charlemagne was worshipping in St. Peter's at Rome. "Unexpectedly," the Pope—Leo III—set a crown on the monarch's blond head as he knelt in prayer. The congregation acclaimed the deed and hailed this grandson of Charles Martel, victor over the Saracens at Tours, as Carolus Augustus, Emperor of the Romans.

Teutonic Charlemagne, King of the Franks, always asserted that this Roman coronation came as a complete surprise to him. The glamorous title added nothing to his power, it is true, but his prestige was vastly enhanced among his primitive French and German peoples, who entertained vague memories of the vanished grandeur of the Caesars and the glory that was Rome.

And yet this great German, first Emperor, had fought his bitterest conflicts against other Germans, the fiercely heathen Saxons. Charlemagne had inherited this war from his grandfather, Martel, and his father, Pepin the Short. The Saxons clung to their ancient Nordic gods and continued to live the life of Tacitus. Charlemagne destroyed their sacred phallic pillar, the Irminsul, near the river Weser, and pushed eastward to the Elbe. The tides of battle ebbed and flowed, and at one point Charlemagne slaughtered 4,500 Saxon prisoners in a single day. Finally, after victories and reverses, the Franks conquered. Widukind, pagan Saxon leader, submitted to baptism, and the Saxon sachems became feudal vassals of the Frankish King.

The Pope evidently regarded this Christian conquest of the Saxon heathen as a sort of Crusade. In effect, his coronation of Charlemagne as Emperor was a papal benediction and reward. It resulted in the Holy Roman Empire of the German Nation. And it is typical of Germany's unhappy history that the Holy Roman Empire was based indirectly upon the "fratricidal" strife of Frank and Saxon. Afterward, in an Empire of Hitler's making, it was Widukind that was the German hero, and Charlemagne, the deep-dyed villain. And Nazi neo-pagans resurrected neo-Irminsuls, "to repair the damages of Christianity."

The Holy Roman Empire lasted for more than a thousand years—from 800 down to Bonaparte and 1806. As has been stated a hundred times, it was neither "Holy" nor "Roman," but was a loose sort of feudal League of Nations, mostly Germanic. Theoretically, it was a continuation of the Western Empire of ancient Rome, which had been so effectively overrun by the barbarians in the fifth century Charlemagne actually considered himself the successor of Augustus and Marcus Aurelius—and, strangely enough, a thousand years later Napoleon Bonaparte considered himself a Charlemagne.

After 962, the Empire was reorganized by Otto the Great, for Charlemagne's death had resulted in chaos. King of Germany and Holy Roman Emperor became titles held in common, as a rule. Not only Germany, but much of Italy, was included, and in theory the Emperor ruled over all the Christians of western Europe. Some of the Emperors dreamed even of world-wide dominion, and at various periods such lands as Hungary, Poland, Denmark, Jerusalem, and Cyprus were affiliated as imperial vassals.

But the purely Germanic nature of the Empire slowly became clearer with the passage of time. By the close of the thirteenth century, there was little of the imperial authority left in Italy. Strong or pestiferous Italian city-states and the rivalries between Pope and Emperor accounted for this tendency, as the pro-imperial Ghibellines and anti-imperial Guelphs pursued their partisan vendettas up and down the peninsula. Here, gangster warfare was carried out in a really thorough manner, while racketeering became a fine art as the Renaissance dawned paganly.

By the close of the fifteenth century, the Empire lost, too, a Germanic fragment, the Swiss. These doughty mountain men, with their long pikes, had beaten the imperial chivalry at Morgarten in 1315, advancing behind a veritable barrage of hillside boulders which pushed the Emperor's knights into a lake—horses, armor, and all. Thereafter, the Swiss, enthused by their success over outdated feudal cavalry, sold themselves as mercenaries to all comers, and did a nice business at it. Their last stand of note (1792) was to be in defense of Louis XVI, where the heroic Swiss Guardsmen were slaughtered in the bloody tide of the French Revolution.

DR. ROGER SHAW, Professor of International Relations at Trinity College in Hartford, Connecticut, is a regular contributor to ARMOR.

The Dutch provinces were republican, capitalistic, and seafaring in their way of life, and they, too, drifted away from the Empire in politics and economics long before their independence was recognized formally in 1648, after the Thirty Years War. Increasingly they looked toward England, sometimes as friend and sometimes as foe.

The Holy Roman Emperors were elected, as were the Popes for that matter. The primitive German kings had been so chosen by the chief men of the tribes, other freemen concurring, and it had become a fixed habit. Under the Empire the most powerful nobles had secured control of imperial elections, and by the thirteenth century the number of electors was fixed at *seven*. The famous "Golden Bull" of 1356—an Imperial Constitution—gave the vote to the Archbishops of Mainz, Treves, and Cologne along the very Catholic Rhine; to the King of half-German, half-Slavic Bohemia far away to the east; to the Duke of Saxony; to the Count of the Rhenish Palatinate; and to the Margrave of tiny Brandenburg, with its Berlin, up north. We shall hear more of Brandenburg. It was not until 1417 that the Hohenzollern dynasty "arrived" there, to remain till 1918.

The Golden Bull declared that electoral votes were attached to the above seven offices, and *not* to persons, and that lay offices were to descend by right of primogeniture from father to son, or next of kin. The three archbishoprics, of course, were not hereditary. Three centuries later, the Palatinate vote was transferred to Bavaria by an arbitrary action of the Emperor. But the Palatinate was reinstated shortly after as an eighth electorate, and at the close of the seventeenth century, Hanover became the ninth. Since the electors of Hanover were Kings of England after 1714, London, too, helped indirectly to choose the later Emperors!

Bribery and horse-trading were rife in the imperial elections, which were held at Frankfort on the Main. The coronation city was Charlemagne's favorite haven of Aix-la-Chapelle, or Aachen. Some time during his reign, the Emperor was supposed to travel to Rome for an additional papal coronation, but the last time this took place was in 1530 when the famous Charles V—contemporary of Henry VIII of England and Francis I of France—was crowned by Pope Clement VII. The successor-elect of the Holy Roman Emperor received the phoney lesser title of "King of the Romans."

Just as the Empire was a loosely organized League of Nations, largely Germanic, so it was generally held that the Emperor need *not* necessarily be a German prince. The most astounding case of this came in 1257. A drawn election took place, by a divided vote of 4 to 3. Two Emperors were chosen, or claimed they were, and one of these was English (Richard of Cornwall) while the other was a Spaniard (Alfonso of Castile). Needless to say, neither obtained actual power in the Holy Roman dominions.

> "In ground warfare, Armor has grown to a position of importance in the great team of those combat arms which meet the enemy face to face.
>
> "It would be unrealistic to believe that Armor, or any arm or weapon, for that matter, is self-sufficient.
>
> "However, the mobile, armor-protected fire power of tanks, which provides the commander with a means of making a fast-moving decisive blow, with a minimum cost in casualties, dictates that Armor must presently continue to maintain its position of importance on the battlefield." —Lt. Gen. W. D. Crittenberger.

As a matter of fact, although this imperial office remained elective in theory and practice, in effect it became hereditary after the middle of the fifteenth century. For between 1438 and 1806, every Emperor except two belonged to the Austrian house of Hapsburg, which controlled the Bohemian electorate and managed to cajole, buy, or marry itself into the imperial office term after term. The Hapsburgs were indeed vote-getters extraordinary, losing only a couple of elections in nearly four centuries, and these under duress.

The ancient Germans had been democratically inclined, and Charlemagne continued the habit by calling in nobles and freemen for fairly frequent consultation. But the Empire dispensed with these assemblies, and the Emperors generally called on the favored few as they pleased. These feudalists formed the Imperial Diets. Burghers from the cities were added to the electors and great nobles as the German medieval towns grew powerful and rich—towns like Augsburg, Nuremberg, or the Rhenish settlements. By the fourteenth century, the Diet functions were judicial as well as administrative, although the lesser nobility and commons had *no* voice in Diet deliberations. In reality, however, the Imperial Diet was as helpless and ineffective as the League of Nations or U.N. Assembly later on, and equally pretentious.

At the close of the fifteenth century the French invaded Italy, and Emperor Maximilian I attempted to unite the Empire to resist them. His Diet, as usual, proved useless, but it created an Imperial Chamber, a high tribunal to attempt to keep peace within the Empire. It consisted of a president appointed by the Emperor, two vice-presidents, and anywhere from sixteen to fifty associate judges, lawyers and nobles. The members could not be removed from office. It sat as a court of appeal, arbitrated disputes between princes of the Empire, and redressed miscarriages of justice, both high and low. It was due to the work of the Imperial Chamber that Roman law became the uniform code of Germany, and the Chamber continued its sessions at Frankfort, Speyer, and Wetzlar, down to 1806.

Since the Viennese Emperors had little or no authority over the Imperial Chamber, they became jealous of it and attempted to transfer some of its authority to the "Aulic Council," a similar body but confined to Austria. This became a rival to the Chamber, and its twenty-one members were chosen and paid by the Emperors, ensuring their direct control. The Aulic Council sat at Hapsburg Vienna, and at an Emperor's death a new membership was appointed by his successor. Specifically, the Aulic Council guarded zealously the reserved rights of the Emperor: arbitrated between the Emperor and the Germanic princes; and interfered too actively in Italian and Belgian affairs. Six of its members were generally Protestants, and so the spokesmen for religious minorities within

the Empire. Like its rival, the Imperial Chamber, the Aulic Council continued on down to 1806, mismanaging all the campaigns against Bonaparte and courting favor with the Emperor till the last. It was always narrowly "Austrian" in outlook.

In 1805, the Sun of Austerlitz shone brilliantly on Bonaparte in his most famous victory. The battle was fought on December 2, first anniversary of his own imperial coronation. He had captured Vienna, put the Hapsburgs to flight, and overwhelmed the Austrians and Russians with inferior numbers. It gave the Little Corporal "inexpressible delight," as he put it. Also, it meant the *end* of the Holy Roman Empire. By the onerous terms of the Treaty of Pressburg (now Bratislava in Soviet Czechoslovakia), Franz II was forced to renounce the imperial crown. He ceased to be Holy Emperor, although he continued on as Emperor of his hereditary Austian possessions which held together until the close of the First World War.

So perished the Holy Roman Empire of a thousand years. With the end of its Hohenstaufen rulers in the middle of the thirteenth century, its collective strength had waned to such an extent that, by 1648, the individual princes were formally permitted to contract alliances with foreign, and oftentimes *anti*-imperial, powers! Thus, Saxony helped the Swedes against one Emperor in the Thirty Years War, Bavaria aided Louis XIV against another Emperor, while Frederick the Great of Prussia fought long years against an Empress, with whatever allies he could gather together, French at one stage, British at another.

The first Hohenzollern to wax important in this strange Holy Roman Empire was a Burgrave of once beautiful Nuremberg named Frederick. The Emperor Sigismund Luxemburg (who burned John Huss, the reformer) elevated the little Burgrave to the electorship of Brandenburg in 1417. Brandenburg was a sandy wasteland with a tiny capital called "Berlin," full of bears, Slavs, and rebellious feudal nobles to be put down. It was nicknamed the "pounce-box of the Holy Roman Empire." But Frederick had loaned Sigismund money, and this was his reward. He became Frederick I of Brandenburg; and Brandenburg expanded eventually into Prussia, and later (1871) into Prussian Germany.

Frederick did not love his new possession, but with it went an imperial electoral vote and a marked sense of importance. He preferred his native South Germany, although his noble family had had a great deal of friction with the thrifty and independent burghers of Nuremberg at one time or another. Frederick the Great long afterwards judged from his picture that he looked like an "elk-head." He was short, with a round face, and darkly flowing locks, and diplomatic ways.

> "The modern tank, product of research, development, and hard practical experience, promises to be with us for some time.
>
> "Armor in division strength, incorporating all the technological advances which our industrial supremacy can provide, may be counted upon to make a decisive contribution to victory in any major conflict in the foreseeable future.
>
> "It has become an established fact that insofar as ground forces are concerned, Armor, properly supported, is one of the most decisive combat arms the battlefield has ever known."—Lt. Gen. W. D. Crittenberger.

He was a great help to his grateful Emperor, but the Brandenburg Junkers—stiff-necked—did not want him. They preferred the feudal anarchy to which they were accustomed. These rough lordlings called their new elector the "Nuremberg toy," and added that "If it rains Nurembergers for a year, we will still keep our castles!" The Quitzow clan were especially hostile to authority, but strangely enough the then feudal Bismarcks welcomed the new elector and were called by him his "beloved B's." History was to repeat, for though the Quitzows died out, the Bismarcks went on "forever."

There ensued for Frederick years of fighting against the entrenched greed of the Junkers. He knocked down their castles with primitive artillery, which they considered unsportsmanlike, and he lynched them when he got the chance. He had one piece of ordnance called "Lazy Greta" which was especially big. It was so called because it was difficult to move it, and "Lazy Greta" was the "Big Bertha" of the feudal wars of Brandenburg. The Junkers trembled at "her" bellow. Also, they trembled at being broken on the wheel. Nuremberg at that period specialized in tortures, as well as in Albrecht Duerers.

Frederick called himself "God's steward." Having quieted Brandenburg as best he could with his Nuremberg mercenaries and free-companions, guns and gunpowder, he returned to the diplomatic service of Emperor Sigismund where he made himself useful in a variety of ways, financial, military, and advisory. Gradually the Junkers began to come over to Frederick, who used his diplomatic talents by intriguing with the Poles against his imperial benefactor, H.M. Sigismund. The latter, however, raised the Wettin family to electors of neighboring Saxony. This resulted in a feud, for centuries to come, between Wettins and Hohenzollerns, the Wettins holding on in Saxony until 1918.

Frederick was appointed commander-in-chief of the Imperial Army by the Diet, much to Sigismund's disgust, and led the united Germanic forces against the Hussites and Czechs in the long religious wars of this pre-Reformation. The new Brandenburg elector did none too well against the Hussite generals, Ziska and Prokop.

The blind Ziska led fleets of field-guns mounted on swift-moving wagons, which were taught to maneuver in exact formation and constituted primitive tanks in a sort of early mechanized warfare. These frustrated the feudal chivalry sent against them, and defeated the Brandenburgers on more than one occasion. But religious schism weakened the Hussites, and the innate diplomacy of Frederick counseled peace negotiations in which he showed himself more adept than in matters of generalship and tactics. It was only when the imperial forces turned themselves into lumbering, armored field-artillery—Knights as Powder-Monkeys—that the Hussite "tank" teams met with reverses.

Pomeranians and Mecklenburgers

later swarmed into Brandenburg, captured Frederick's cherished artillery, and forced him to retire into South Germany. He made his eldest son, John, his regent. Then he begged Emperor Sigismund for help—electoral Berlin seeking aid of imperial Vienna. The Emperor mediated with the invaders of Brandenburg and saved something for the regent from the debacle, but Frederick remained in the south. On Sigismund's death, he had aspirations for the imperial crown, but these failed to materialize. A Hapsburg was elected instead—Sigismund's son-in-law, Albert—and the long rivalry between Hohenzollerns and Hapsburgs for control of the Empire, and of one another, had an incipient beginning.

Frederick, first Hohenzollern elector of Brandenburg within the Holy Roman Empire, died in 1440 as an ardent Catholic and heretic-hunter. Had he known that his house was to turn ultra-Protestant, it would have surprised him. Nor did he realize what his family was to accomplish in hopeless little Brandenburg, home of bears and Slavs and Junkers with mailed fists.

His dying words were said to be: "You come from Brandenburg, and you do well to leave it and fly away. Who would care to stay in such a land, above all in winter." He was addressing a flight of storks.

The Hohenzollerns came up from Nuremberg. But Nuremberg later was to be reinstated, as Nazi Party political center. Hitlerites, too, were inclined to shun Brandenburg and Brandenburg's drear Berlin (whose very name, of Slavic origin, means "ursine").

Although the first Hohenzollern elector of Brandenburg did not care for his new domain, his House carried on there after him. Its method of subjugation may best be described by the nickname of the second elector, Frederick's son, which was "iron-tooth." The early Hohenzollern bite drew blood, and plenty of it, in the trackless wastes of the north.

Meanwhile, the Hapsburg family, foes of the Hohenzollerns in days to come, had originated in the Swiss canton of Aargau. There stood the old family homestead, the castle of Habichtsburg from which the dynasty derived its noble name. "Habicht" means "hawk."

The year 1273 was a leading date in Hapsburg annals, for in that year Rudolph Hapsburg was elected Holy Roman Emperor. Five years later, Rudolph defeated the Czech Bohemians and forced them to give up Austria. Thenceforth, Austria became the special preserve of the Hapsburgs, and their hereditary possession. Thus we see the Hohenzollerns established in Brandenburg (Prussia-to-be) in 1417, and the Hapsburgs as lords of Austria in 1278.

Rudolph, through an acquisitive marriage and successful baronial wars, had become the most powerful prince in the southwest of Germany. He was considered "brave, wise, and fair-dealing." His election as Emperor was engineered by Pope Gregory X and by the electors of the Rhenish archbishoprics, who respected his integrity and localized fame, but did not consider him powerful enough to restrict their states-rights privileges.

One elector, Ottokar of Bohemia, refused to acknowledge his allegiance to the new Emperor. But the battle of the Marchfeld decided the issue and Ottokar was killed, firmly establishing a Hapsburg in imperial power and in Austria at the same time. Nor was Rudolph the weak and easy-going southlander that the Rhenish archbishops expected. He suppressed robber barons, hanged rebellious nobles, and destroyed three-score castles —"hornets' nests"—in his determination to bring order out of feudal anarchy. The townsmen and lesser nobility appreciated these centralizing efforts, although they resisted the New-dealing imperial taxation with a vim.

Where Rudolph I pointed the way, the Hapsburgs followed. Between 1438 and 1806 they virtually monopolized the Imperatorship, and it was in the last quarter of the fifteenth century that they earned the happy reputation of "marrying instead of fighting." Thus, one wedding acquired the rich Netherlands for a Hapsburg, while another won Spain, with its vast colonial empire and spots of Italy. In 1526, a Hapsburg was elected to the throne of Bohemia and to the throne of Hungary. This laid the foundations for the later Dual Monarchy of Austria-Hungary.

With Hapsburgs ruling from Holland and Peru to Madrid and Vienna, the world's balance of power ceased to exist. The Holy Roman Empire and its widespread affiliates exceeded Ancient Rome in power and prestige. The trifling brood of lofty Habichtsburg had become mightier than the Caesars. France took alarm. On her side was Unity, on that of the Hapsburgs was mere Extent. All through the sixteenth and seventeenth centuries, and into the eighteenth and nineteenth, the Franco-Hapsburg struggle continued with shifting fortunes. Louis XIV of France was a signal storm-center during his long reign of seventy-two years. Bonaparte, who married a Hapsburg, was in a sense their family executioner. Or were they *his*?

The Holy Roman Empire of the German Nation needed a Richelieu, a ruthless centralizer, to curb the feudal vassals and turn them into harmless courtiers. It never found one. Instead of a single "benevolent" despot, as in France, or an aristocratic oligarchy working through a "kept" Parliament, as in England, the Empire became a strange congeries of greater and lesser notables, with the Emperor a figurehead except in his own hereditary Austrian dominions. Feudalism was ended in France really by the seventeenth century. It lingered on in the countless fiefs and courts of the Germanies until after 1870. England had its Scotland, and France its Burgundy. These rebellious particularisms were overcome and amalgamated. But the Holy Roman Empire *never* could digest its vassal yeast-in-ferment, Brandenburg-Prussia.

The official title of the Holy Roman Empire was *Reich*, and that of the Holy Roman Emperor was *Kaiser*. The latter was a derivation of Caesar, the family name of the bald-headed, profligate politician, "Jack" Caesar, who conquered Gaul. So popular did the Caesarian name become that in the first World War there were no less than *six* of them: the Austrian and German Kaisers, the Turkish Kaiser of Constantinople, the British Kaiser of Hindustan, and the Czars of Russia and Bulgaria; not to mention the *Mpret*, or Imperator, of small Albania and the *Shah* (Caesar) of Iran. The Hindu and Bulgar Caesars survived 1914's Armageddon, but not that of 1945.

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THREE BATTLES: ARNAVILLE, ALTUZZO AND SCHMIDT. By Charles B. MacDonald and Sidney T. Mathews. From the series United States Army in World War II. 443 pp. Washington, D. C., Government Printing Office. $4.00.

Reviewed by
NED CALMER

The plodding foot soldier of World War Two in Europe has now received his due. *Three Battles*, produced by the Department of the Army in Washington, pictures the difficulties of small unit leaders and GI's in executing missions set for them by higher headquarters. This is the first small-unit action story in the Army's projected monumental series of 91 volumes. It tells of a river crossing at Arnaville in France, a breakthrough at Monte Altuzzo in Italy, and the battle for Schmidt in Germany. As a war correspondent who saw action in all three of those areas, I found it more fascinating and more exciting than any of the fiction written about the attack on Fortress Europe. Fascinating because it is true; exciting because it uplifts the heart in tribute to the men who fought.

As the Army's chief of Military History points out in his foreword, we deal here with the eternal and terrible problems of warfare—"What do I do next? Where shall I fire? Who is now in charge? Shall I fire? Shall firing expose my position? Shall I wait for orders?." There is no time out in battle, says General Ward. The team must function despite shortages in personnel and equipment. "Above all the human mind must comprehend which unit, for the instant, has the leading role." The men must be trained in achieving the order necessary to overcome the omnipresent confusion on the battlefield.

To illustrate this lesson, Charles B. MacDonald and Sidney T. Mathews

The Authors

Charles B. MacDonald, author of the Arnaville and Schmidt portions of *Three Battles*, served as a rifle company commander in the ETO in World War II—combat experience which led to his book *Company Commander*, published in 1947. He is now engaged in the research and writing of the book *The Siegfried Line* for the Office of the Chief of Military History, Department of the Army.

Dr. Sidney T. Mathews, author of the Monte Altuzzo portion of *Three Battles*, was a combat historian during World War II, serving with the Fifth Army in the Mediterranean area. Author of the study *Santo Maria Infante* published in 1947, he is now engaged in the research and writing of *The Drive on Rome*, one of the Mediterranean sub-series, for the Office of the Chief of Military History.

The Reviewer

Ned Calmer is an experienced newsman whose newscasts have been heard over the Columbia Broadcasting System for the last decade. During the late world war he covered the European Theater for that network, a firsthand observation which inspired his best-seller war novel, *The Strange Land*, published in 1950. He is now a CBS radio correspondent, with headquarters in Rome, Italy.

ARNAVILLE. Infantrymen approach the Moselle for the crossing near Dornot.

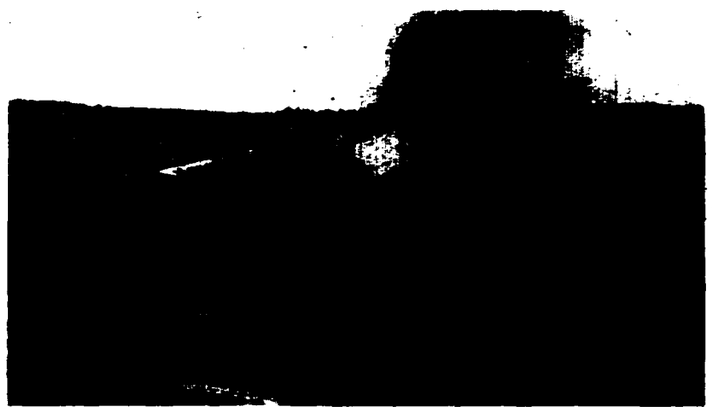
have based their accounts on the combat historians who followed the troops to interview the participants in each day's fighting. Material of this sort from the Pacific theaters existed in abundance, but until now we have not had any such rich sources on the action in Western Europe. You may remember the "American Forces in Action" series, mostly devoted to infantry combat. In the present work the additional purpose is to show the roles of other arms and services so as to clarify the interrelation of small units in the field in a wide variety of tactical situations. As Mr. MacDonald remarks, out of a combination of actions like those chosen for this book—failures as well as successes—the large-scale victories or defeats are compounded. We see now how it all actually happened, except, of course, for the elements of mystery unrecognized even by the men taking part in the battle and perhaps forever closed to our eyes.

The authors have employed a second basic source of material—the official reports and other papers used by the German units opposing the American troops in these actions. They provide an invaluable cross-check on our own accounts and an illuminating analysis of enemy methods and reactions in various situations. But what I found most gripping in all these interviews and documents, American or German, was the human element they betray and the ever-capricious play of fate and chance.

Another outstanding feature of *Three Battles* is the recounting of errors and misunderstandings, always so important in the development of combat situations. The authors don't stop to editorialize on the misakes of commanders, the folly or fear of the men they lead, but they make them glaringly clear. One can imagine how far the Soviet Army would go along these lines in a historical account intended for general reading!

The first of the *Three Battles* takes us back to those fast-moving days when Patton's army was racing across France and the German armies in the West were in full retreat. But by the end of August, Patton had run out of gasoline. His XX Corps bogged down at Verdun. Reconnaissance units reported that the enemy was "panic-stricken," and as soon as enough fuel was on hand the advance resumed. XX Corps staff thought the Germans would keep on falling back until they were behind the Siegfried Line. Consequently virtually no information about the fortifications in the Metz area was given to the fighting units, even as near to Corps as Regiment. But we know now, and this bitter story tells us, that Hitler had no intention of abandoning his Metz-Thionville salient. From here on the history of this battle is one of slogging, despairing struggles, of confusion in communications, lack of coordination among units, failures and tragi-comedies, revolving about the 10th and 11th Infantry Regiments of the 5th Infantry Division and Combat Command B of the 7th Armored Division. Highlighting the somber picture is the heroism of such men as Pfc's Dickey and Lalopa, who killed 22 of the enemy before their isolated position was overwhelmed. The nearest German body was only three yards away. Again and again we hear the calls for air support that were unanswered as the Americans who had crossed the Moselle at Dornot held their bridgehead across the river. Finally came the order to withdraw, after one of the heroic episodes of the campaign in France, but the Dornot bridgehead had probably made possible the later successful crossing at Arnaville, marking the real opening of the battle for Metz, which did not fall, however, until more than two months later.

The second of the *Three Battles* is a chapter in the drive toward the Gothic Line which Marshal Kesselring so skilfully defended in his masterly retreat northward through Italy.



SCHMIDT. A 155mm SP gun supports the troops attempting to take the town.

ALTUZZO. A sample of terrain and fighting that characterized the bitter Italian campaign and is so like war in Korea.

"I'm going to throw you a long forward pass into the Po Valley," General Mark Clark told his infantry commanders, "and I want you to go get it." The blow was launched through rugged Giogo Pass in the Apennines. Though more than a quarter of a million men were involved in this drive, the assault force that actually met the enemy was never larger than two rifle companies at a time, and sometimes only a platoon. This was warfare on the smallest scale. There were moments when an American soldier could reach out and touch the shoulder of an unsuspecting German. It was a maze of mountain trails, thick underbrush, precipitous ascents, treacherous terrain. Peabody Peak—as one pinnacle was nicknamed by survivors of the action there—was one of the bloodiest battlegrounds of the Italian campaign. It was the efforts and the sacrifices of men such as those of the 338th Infantry Regiment of the 8th Infantry Division who fought here that brought about the final triumph of the attack and the cracking of the Gothic Line. But the Italian campaign was far from ended. Months later, in the midst of the cruel winter characteristic of these mountains, American troops were still standing stalled in the Apennines. It would be spring before they crossed the Po.

"Objective: Schmidt" is the third of the *Three Battles* and takes us through the slow-going fighting toward the Roer River after the breaching of the Siegfried Line. Schmidt was an important town, lying as it did on a ridge overlooking the Roer dam system with which the Germans could at any time flood the terrain over which the Americans—in this case the 112th Infantry Regiment of the 28th Infantry Division—would have to advance. This was also the area of the Huertgen Forest, a dreaded name to men who fought there and the scene of some of modern history's most gruelling fighting. It was a Walt Disney wilderness, its picturesque growth providing a field day every day for German artillery, and hundreds of casualties among the American troops in its depths. "Objective: Schmidt" is the longest and most detailed of the stories in the book, and in some ways the least dramatic in nature. But Mr. MacDonald, who is the author of a notable war narrative entitled *Company Commander*, published in 1947, brings the whole wretched episode alive for us—a gamble that failed. Schmidt, in fact, was recaptured by the Germans and remained in their hands until February, 1945. But its story has become a classic in our small-unit military annals. Like the other two battles in this book, it stands as a permanent record for all the men who took part and their comrades of the American Army, and as a permanent memorial to those who did not survive.

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