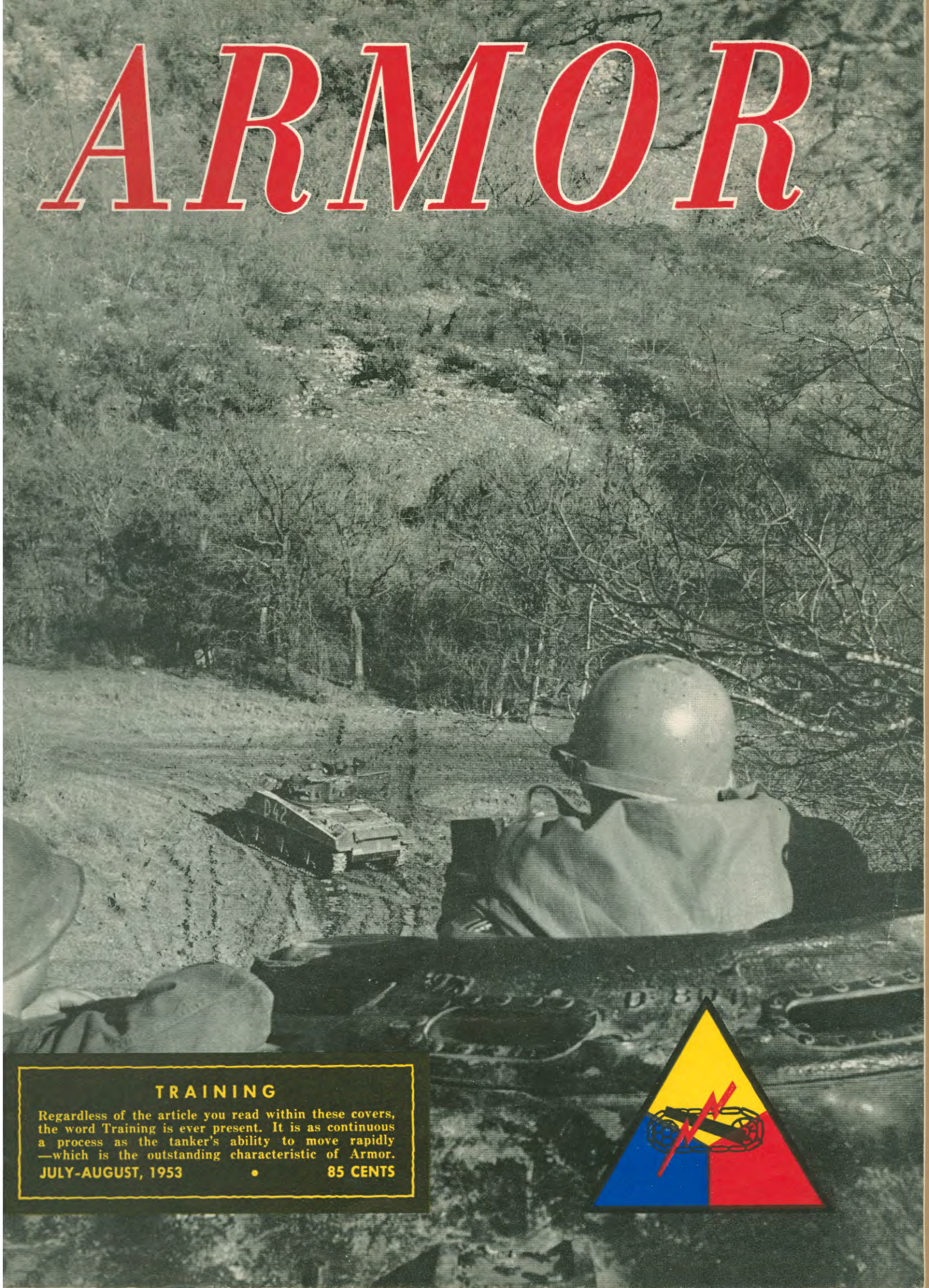
ARMOR



TRAINING

Regardless of the article you read within these covers, the word Training is ever present. It is as continuous a process as the tanker's ability to move rapidly —which is the outstanding characteristic of Armor.

JULY-AUGUST, 1953 • 85 CENTS

ARMOR

The Magazine of Mobile Warfare

Continuation of THE CAVALRY JOURNAL

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CONTENTS

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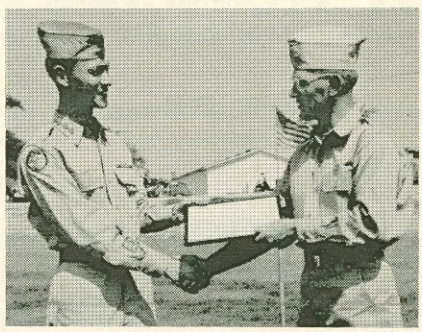
LETTERS to the EDITOR

Under Consideration

Dear Sir:

Inclosed is a picture of the outstanding Armor Graduate at Alabama Polytechnic Institute receiving his award.

We at Alabama Polytechnic Institute think that the present awards presented by the US Armor Association to the outstanding Armor Graduate are a step in the right direction. I would like to see more thought given to rewarding the second year basic and the first year advanced cadets who have done outstanding work in Armor. As you know, the second year cadet begins his branch material work and it is at this time that we really begin to know the cadet and to interest him in a Military Career in Armor.



LEWIS M. STEWART
Major, Armor

Auburn, Alabama

One Reason for Publishing ARMOR

Dear Sir:

As a Tank Sergeant recently returned from Korea, I want to say how interesting ARMOR has become to Non-Coms who like to read instructive articles about our branch. It is not so full of discussion of international policies on a high level that there is little room for lower level combat articles. Instead, ARMOR deals with problems in tactics, training, and maintenance on a platoon level, which are problems in the everyday life of the Non-Com.

Herewith, a Non-Com's congratulation on ARMOR's journal.

HENRY P. BLANTON

New York, N. Y.

• *Thank you! But remember that the material is submitted by you, the reader. What goes in the magazine depends on you. See the RECONNOITERING column in this issue.*—ED.

Local Chapters

Dear Sir:

In the September-October 1952 issue of ARMOR you published a letter where I proposed comment and discussion concerning local chapters of the United States Armor Association.

Since that time a lot of water has gone over the dam.

A local chapter was formed in the Washington area and two meetings were held which, I believe, were highly successful.

At the first meeting in April of this year, we were honored by having speakers present such as General Devers, Lt. General Crittenberger, and Lt. Colonel George Peterson from the Research and Development Section of the Detroit Tank Arsenal.

At our second meeting we were fortunate to have as speakers: Major General R. W. Grow, wartime commander of the 6th Armored Division, and Colonel Harry W. Johnson, head of the Command and Staff Department of The Armored School.

Due to the fact that many Armor officers, or those interested in mobile warfare, assigned in the Washington area, have duties which do not permit them to keep fully abreast of their arm, these meetings have served to bridge the gap in assisting them in furthering professional knowledge in their particular specialty.

The next meeting is planned for September, and many officer changes

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Change of Address: All changes of address should be sent to the Editorial Office in time to arrive at least two weeks in advance of publication date of each issue, which is the 25th day of the odd month of the year: *i.e.*, Jan. 25 for the Jan-Feb issue, Mar. 25 for the Mar-Apr issue, etc.

Rates: See bottom of contents page.

will have taken place in the Washington area. If any officer being assigned in the Washington area would contact me by telephone at JAckson 7-9400, extension 409, I will be glad to add him to our invitation list for future meetings.

I am likewise interested in inquiring as to the possibility of other chapters being formed. For example: Fort Knox, Fort Hood or Camp Irwin, or at any overseas station, particularly in the vicinity of the Second Armored Division, or in the locale of any of our Armored Cavalry Regiments, either abroad or in the States.

It is realized that a chapter is probably more beneficial to an area such as Washington, where Armor officers get together very seldom, due to their divergent Army assignments, but I am firmly convinced that these local chapters, formed on an informal basis similar to the one in Washington, are extremely worthwhile.

C. R. McFADDEN
Captain, Armor

Washington, D. C.

In Appreciation

Dear Sir:

As recipient of the "U S Armor Association Award" for New Mexico Military Institute I want to express my thanks for the fine books, the gratis one-year membership, the certificate, and the honor.

I will remember this occasion as one of the high spots in my life and I will endeavor to live up to this honor in the future years.

JAMES W. ELLIOTT

Amarillo, Texas

● *This letter was received by General Crittenberger, our Association President. It was considered of sufficient importance to bring it to the attention of our readers.*—ED.

Armor vs. Mobility

Dear Sir:

I am interested in the field of Armor as a career. At present, I am a Sophomore at the Alhambra High School, Alhambra, California. Can you tell me the vocational possibilities in armor and the preparation involved.

Inclosed is a sketch of an assault gun, featuring compound-oblique armor on both the front and the side. Used in a tank assault gun team I believe it would be effective. However in this design—it puts armor before mobility.

STANLEY REQUA

San Gabriel, California

● *This sketch, coming from one of our young members, is most interesting. If anybody can assist in supplying information, we will be happy to forward it to him.*—ED.

Mistaken Identity

As OLD BILL adorned the cover during the 1920's we believe we have a case of mistaken identity. However, several old issues have been forwarded for Herr Franz's daughter.—ED.

Dear Sir:

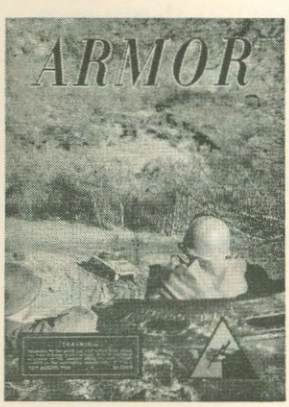
From May 3, 1916 till February 5, 1917 I was attached as a messenger to the volunteer Apache Indian Scout Detachment in Mexico, Lt. James A. Shannon was then commanding the 22 Apaches and the Interpreter. I was a member of Troop "G," 11th Cavalry, and reenlisted after the first world war in the 7th Cavalry at Fort Bliss, Texas. I returned to Germany in 1932.

Either in 1923 or 1924 one of your issues carried the scouts on the front page picture. I don't remember the issue of the journal. The number in question was burned up in my home in Berlin during the attack on that city on June 21, 1944.

I am wondering if it is possible to obtain a copy of that issue. I have a crippled girl 17 years old who was badly hurt during the air raid, and who is corresponding now with some Apache children living on the White River reservation and she would like very much to have one of these pictures of the scouts.

CARL A. FRANZ

Neckartailfingen,
Germany.



THE COVER

This training shot photographed at Fort Hood is representative of multifarious scenes taking place around the globe wherever the U.S. Army is stationed—be it a "hot front" or a "cold front," a stateside station, or one to the North or to the South. Regardless of location the necessity for this training cannot be overemphasized. Its importance in preparing an individual to become a combat tanker should not be overlooked. Ask the man who is one.

While traveling by car to this office recently, a radio announcer made the statement, "And all the chicken does is lay the egg." He then proceeded to go into the various steps from the time of the laying of the egg until it was finally consumed at the breakfast table. It was picked up from the nest by a collector. The next man who handled it dry-cleaned it and put it in a room to cool. Then it was candled, graded and packed, and returned to a cold storage facility. A trucker came by and, for a slight fee, hauled this egg, with many other cases of similar eggs, to a wholesale distributor. Here, samples of the eggs were again graded and candled. Next, the egg was sold to a retail market. Here, the housewife purchased the egg and, several days later, served it to her husband, who actually consumed it for breakfast.

This tale can be likened to that of a person who writes a story, a letter, an essay, or any exposition he desires to sit down and put into words. For all the writer does is write the story—and submit it to an editor for publication. The editor then peruses it, making some editorial marks and, if it is of a military nature, or is written by a member of the armed services, he submits it to the Department of Defense for security review. Here, this material is handled by the various interested staff sections, depending upon the context. After clearance, the editor once again goes over it with a fine tooth comb prior to submitting it to the printing plant where the linotype operator sets it into type. The proofreader and copyholder read it, making corrections of typographical errors, and return it to the linotype operator for resetting. The compositor then inserts the corrected type slugs on the galley of type. The clean proofs are returned to the editor where they are pasted up by a layout man with appropriate pictures; captions, titles, and author's biography are added. It is returned to the printing plant and the corrections and paging-up are made by the compositor, the linotype operator and the proofreader. It is returned to the editor for a second check and then put within the pages of the magazine in its proper sequence. The editor then travels to the printing plant for a final check prior to actual printing.

The article is now printed on large sheets of paper. After the pressman completes his operations, the bindery workers fold the various signatures (printer's term for sections) of the magazine, and the signatures, plus the cover, are collated, trimmed, inserted into envelopes, and sent to the readers throughout the world for their consumption.

Yes, all the chicken did was lay the egg, and all the writer did was write the story. But without either of these originating acts being accomplished we would not have the egg nor would we have the story.

ARMOR is proud of the fact that its material in the past has been of such high caliber, and it is a tribute to all the writers who started with the original idea. For each and every author had a story to tell and, what is more important, he took the time to sit down and write it so that every other Armor officer or person interested in mobile warfare could benefit by his (the author's) experience.

As we have often stated in the past, the purpose of this magazine is to "Disseminate knowledge of the military art and science, with special attention to mobility in ground warfare; to promote the professional improvement of its members; and to preserve and foster the spirit, the tradition and the solidarity of Armor in the Army of the United States."

In keeping with this policy, the Editor, of necessity, must reject some manuscripts he receives because they are untimely, or are controversial in the family circle of the military, or because of possible security violations. A few, having no bearing whatsoever in a military publication, are, of course, rejected completely and without reservation.

The more professional people who take the time to originate a story and submit it for potential publication, the better selection we will have, and the better in quality will be *your* magazine.

Keep them rolling in!

The Editor

THE COMING WAR

A CONCEPT

by COLONEL ROTHWELL H. BROWN

NOBODY in the free nations of the world wants war; least of all the professional soldier who has witnessed at first hand the terrible destruction of war in terms of human lives and property.

However, the professional military man is well aware of the fact that the problems posed by politics and diplomacy and economic factors are frequently beyond the capacity of individual diplomats to solve. The pages of history are bloody with the great succession of wars that have rolled ceaselessly on through the years since the first cave man bashed in the head of a stranger trespassing near his cave entrance. Most professional military men, as much as they abhor war, are inclined to agree with the Bible, "and there shall be wars and rumors of wars and the end is not yet."

There are two conditions which exist in the Soviet Union which make war an imminent danger. One lies in the very nature of the form of government which has been established there. In the first place, the form of government is a complete dictatorship, normally controlled and guided entirely by one person, and always has been controlled and guided by a very small group of absolute dictators in those periods of transition when the one strong man has not been able to seize absolute control. The other facet of the picture lies in the very nature and teachings of Communism itself.

Dictatorship and war, and Communism and war are almost synonymous—or else the pages of history lie.

The presence of either one of these conditions in a country as great in land mass, population and resources as is Russia today could lead eventually to war. Today in Russia both of these conditions are present.

Although every effort must be made to explore all possibilities for peace, the country as a whole, and above all its professional military men, must be constantly alert for war and prepared for an outbreak on a grand scale at any time.

Historical Lessons in Mobility

The horse placed at the disposal

COLONEL ROTHWELL H. BROWN served in the China-Burma-India theater during World War II. He is presently Chief of the Combat Arms Advisory Group, Army Field Forces.

THE ANSWER

ARMOR

of the great strategists of the past an agency for increasing mobility and therefore an agency for waging war over relatively great distances through its capacity for carrying supplies, ammunition and increased caliber of weapons. Gunpowder and its train of weapons eliminated the horse and the gas engine took over through its greater superiority, more lasting endurance, greater flexibility, and increased mobility. The internal combustion engine has increased the scope of war from the mobility of the horse, which was about twenty to fifty miles a day for sustained operations, to a mobility in terms of thousands of miles a day when we consider the airplane and hundreds of miles a day when we consider the tank and other automotive equipment.

If the United States and the other free nations of the world are to continue to exist in freedom, it is essential that they, and their military leaders in particular, have a complete and profound understanding of the full scope that has been made available in the conduct of war through the use of this otherwise peaceful and productive product of man's genius.

World War I and the machine gun indicated beyond any shadow of possible doubt that the horse could no longer provide mobility on the battlefield. There was no great weapon of decision available in the hands of any commander. In order to break the terrible stalemate which existed, two methods were adopted. Initially, both the Germans and the allies attempted to overcome the loss of mobility and the loss of the capability of strategic maneuver by assembling huge quantities of artillery and literally blasting a path through the enemy's defenses. Without a mobile weapon capable of exploitation, even tremendous quantities of artillery could not develop strategic maneuver. The defender was always able to wall off the breach which, due to the nature of artillery, was definitely limited in depth and flexibility.

Faced with a terrible war of attrition, which was slowly bleeding them white, the British finally developed the tank or "armored internal combustion engine." Although this weapon was used too soon, in limited numbers and never up to the full capability inherent in even the very earliest models of tanks, its impact on the Germans' defensive system, through its ability to penetrate further and faster than the breach could be sealed off, eventually led to overcoming the stalemate and to the final destruction of the morale and will of the German Army and the German people to fight.

During the years between World War I and World War II, those military thinkers in all countries who analyzed what had happened in World War I came to the conclusion that the tank once more had restored mobility to the battlefield and had placed in the hands of the tactical commander an offensive weapon with which he could achieve a

decisive and overwhelming victory.

Yet the teachings of these people, their writings and their thoughts were given too little heed in the staffs of military planners throughout the world.

Fuller and Liddell Hart in England wrote very clearly of the true nature of mobility in war and of the decisive characteristics of the armored vehicle in generating mobility. Guderian, in Germany, who read Fuller and Hart, arrived at the same conclusions. In this country, General Adna Chaffee and General Van Voorhis were men of the very greatest vision who saw the necessity of utilizing to the fullest the truly great and outstanding characteristic of armor, its mobility, and its demoralizing effect when used in mass.

The campaigns of World War II are still fresh in everyone's mind and it is perfectly clear that armor, as such, was never used to its full effectiveness throughout the entire war. Guderian's whole concept of war was whittled away by the German general staff, by changing tank models and by production of self-propelled artillery at the personal direction of Hitler. So the great armored army which Guderian saw as the vital weapon of war was never constituted. What Hitler thought was enough "panzers" proved to be far too few for total war. In this country, the death of General Chaffee brought about a more conventional concept in the development of armor and led to its piecemeal utilization throughout the entire war.

Good and capable commanders took over, but since there was no inspired leadership either in Washington or at Fort Knox, armor subsided to a subordinate role. Those who had been inspired by the great vision of General Chaffee, those who had gone up on the heights and had seen what might have been, remained helpless and inarticulate. Today the same lack of understanding and vision paralyzes the development and use of armor—its few outstanding proponents have died, or have almost given up the fight—but the spark, the flame still exists. Given support and direction from above—armor, the integrated fighting team, the weapon of mobility, the weapon of decision, would come to life and become one of the truly great defenders of our country and our way of life. Tanks we have, but armor we do not have. Without armor defeat may lie just around the corner.

The Threat

If an all-out war should come, once again the world will be stunned and hold its breath in panic just as it did when the German mechanized armies first swept through Poland and then a year later swept through France, *in each case completely paralyzing each country in a very few weeks.* There will be one great difference, however, for the Soviets could sweep across Europe with thousands of armored vehicles compared to only hundreds available to Hitler's generals.

There is only one weapon which can possibly hope to cope with the mobility and momentum which could be generated in a mass Soviet armored attack which could be launched at any moment across Europe. This weapon is a superior armored force. Superiority in quantity may not be necessary but we must have superiority in quality and very near equality in quantity. Otherwise, Soviet armor will cast aside everything that opposes it, as a spring freshet, roaring down from the mountains, casts chips, logs and trees upon its banks in its pell-mell rush to the sea.

Unfortunately today we have neither the armored forces in being which will be required to face the might of the U.S.S.R., nor anyone in high position who appears to see the decisive effect that the mobility and momentum of these large masses of Soviet armored forces will have on the course of a possible future war.

In the defensive phase of thinking and planning that has absorbed our attention since World War II, I do not believe that our planners have lost sight of the decisive possibilities of warfare of movement. However, I am positive that they have lost sight of the fact that armor today is the only available weapon which can restore decisive maneuver to the battlefield. Too many of our planners appear to have come to the conclusion that decisive mobility can be restored to the battlefield, first through increasing the mechanization and motorization of the standard infantry division by the inclusion of tanks and additional track and wheeled carriers, and, secondly, by the development of specialized airborne divisions.

From very close observation of the operations of our infantry divisions in Germany and from study and evaluation of the operations of our infantry divisions in Korea, it is clear to me, that the inclusion of three tank companies and one tank battalion in an infantry division has not increased its capacity for decisive maneuver on the battlefield but has only provided the infantry division with an anti-tank weapon.

The infantry division now possesses so many motor vehicles that its actual mobility has been markedly decreased through its complete dependence upon an adequate road net. It cannot operate effectively cross-country. Furthermore, the infantry division has never, to date, been provided with the type of communications which is essential if the division is to be capable of great flexibility and maneuverability.

Our present day infantry division has, to a large extent, lost the inherent mobility of its foot soldiers to traverse all types of terrain, through their dependence upon the transportation of the foot soldier elements of the division in motor transportation. Glaring examples of this have been apparent in every postwar maneuver held in Germany and have been clearly demonstrated time after time in Korea. Only in the Korean operations of Van Fleet do we find the infantry back on their feet.

Our planners, clearly recognizing the necessity for attaining decisive battlefield maneuverability, and of being able to conduct a war of movement, have become bemused and confused with the capabilities of airborne troops to effect the so-called "vertical envelopment" and thus restore decisive mobility to the battlefield.

Furthermore, the theory that air power alone through strategic and tactical bombing can bring an enemy to defeat has certainly been badly battered if not disproved in Korea. In spite of every effort by our Air Force, Communist forces in Korea have built up constantly their personnel strength and have been able to increase their stockpiles of all munitions of war. If this has been possible, in a small, narrow, constricted peninsula, the capability of

air power to inflict mortal damage across the whole land mass controlled by the U.S.S.R. seems highly improbable.

A considerable number of our planners and officers in very high positions who believe in the ultimate success of airborne operations consider that present airborne troops are capable of making deep penetrations, up to almost 1,000 miles, into enemy held territory.

There is, in actuality, no basis in fact upon which such a belief can be held. In the face of Soviet aerial strength it would be practically impossible to deliver airborne troops for any considerable distance into enemy controlled territory. The attrition rate in both material and personnel, if such an operation was tried, would be so ghastly as to preclude any further attempts until such time in the war as we have finally achieved complete air superiority. Such air superiority will not have heen achieved until we have destroyed enemy productive capacity and therefore will have won the war.

But, granting for the sake of argument that airborne forces can be air delivered deep into enemy held territory, such forces cannot hope to achieve any major success on the ground in the face of the tremendous number of armored units, from divisions through armies, which are available to the enemy.

Under present and foreseeable weapons systems, no weapons capable of defeating the tremendous number of Soviet tanks which could and would be thrown against any airborne drop, are presently available to go in with airborne troops. The development of completely suitahle antitank defensive weapons which can be air-dropped so as to be available at the most critical period in any airborne operation appears to he highly improbable.

The use of airborne troops in what might be termed limited objective drops offers some reasonable hopes for success, provided they can be reinforced immediately with strong armored units. Any analysis of airborne drops in the past, and even limited study of the capabilities of airborne troops in the future, will indicate that the link-up must be executed rapidly and violently. This definitely precludes the use of standard infantry divisions and necessitates the use of strong armored forces.

So far our planners talk in terms of air drops which will he reinforced later hy troops advancing over the ground. This theory seems to have the cart before the horse. It appears far more realistic and practical to reinforce armored units which have already seized a critical objective.

Airborne troops are in fact light infantry troops. Except when nsed and reinforced as conventional infantry their staying power is extremely limited. But their great mobility makes them an ideal force to he integrated with the really mobile ground force—armor.

Effectiveness of Antitank Weapons

For every military weapon which has heen developed, there has always been developed a defensive or counter weapon. It has been obvious for years that every country, and every army, has been expending every effort to develop a weapon with which to combat the tank. Such development has varied from the buried mine through the various types of individually fired bazookas, through self-propelled antitank guns and on up to an extremely heavy tank itself. All of these weapons have certain capabilities in destroying individual tanks. All of these weapons have certain capabilities, when properly employed, to slow down an armored attack, but no weapon as yet forseeable for development, is capable of eliminating armor—the integrated fighting team—as the decisive arm on the modern battlefield.

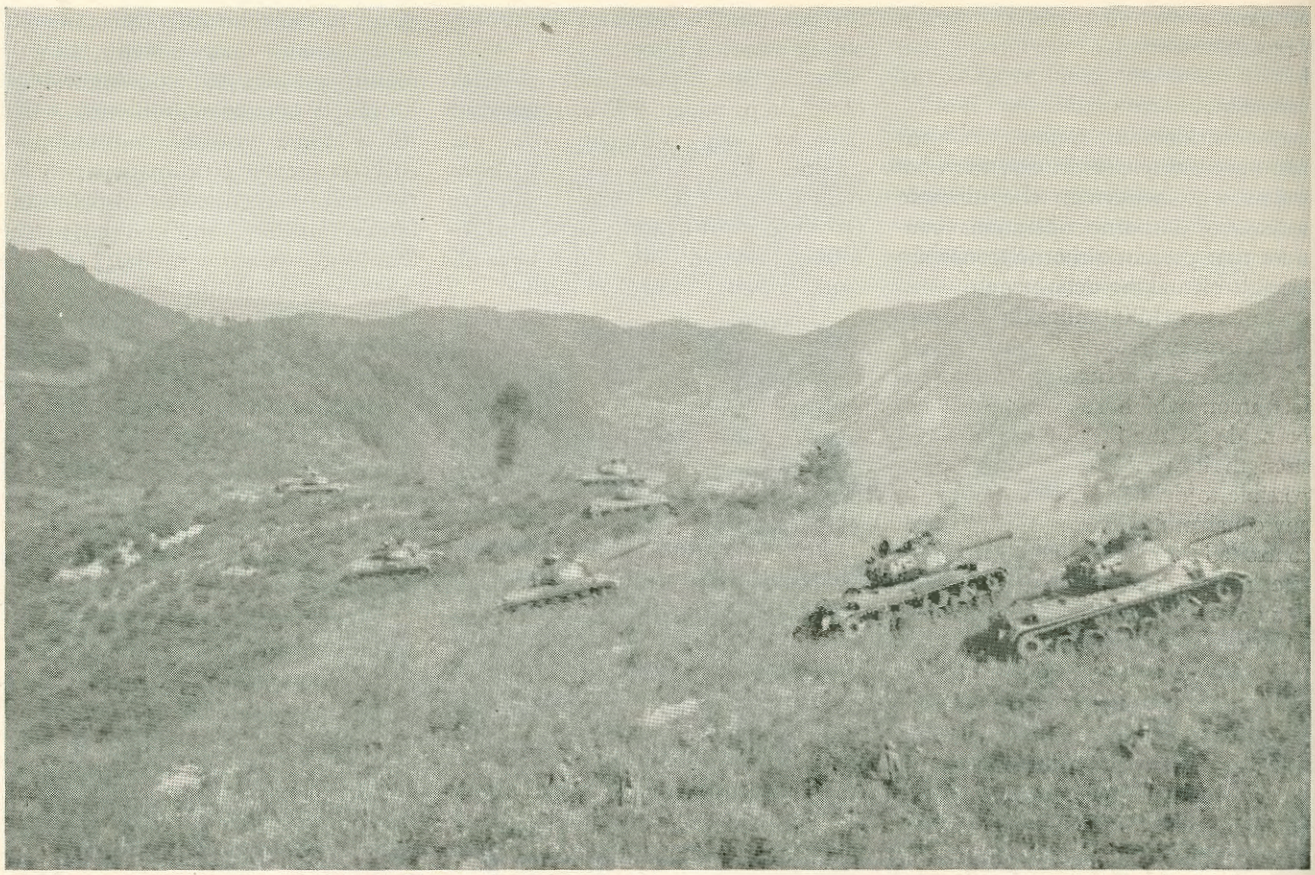
In this country, in our search for a cheap antitank weapon, we went through an entire development cycle in a tank destroyer program which started out with light armored vehicles carrying heavy cannon. Upon the conclusion of this development program, we had gone a full cycle and had found that the tank itself was the best antitank weapon. Today, in the search for an antitank weapon which can provide complete security for infantry elements, we have embarked once again on the light vehicle, big gun development program. Analysis indicates that this program will also end in the conclusion that the tank itself is still the best antitank weapon.

In the face of increased antitank developments, the task of the armored unit becomes more difficult. It will require greater skill and knowledge for proper employment in view of the use of atomic weapons, and undoubtedly far greater coordination will be required hetween armor, airborne infantry, artillery, air, and engineers than was necessary in the past. Armor, in mass, skillfully used in conjunction with airborne infantry, artillery, air, engineers, and atomic weapons, can and will continue to dominate the modern battlefield.

It is a matter of the very gravest concern that the Soviets appear to understand this principle and have developed their entire concept of modern warfare around the mass armored army.

The value of armor as a major arm appears to have been submerged in the concept of using it largely as a supporting arm. The present infantry division now contains approximately half as many tanks as an armored division without possessing the armored division's flexibility of movement, communications and supply. The mobility of the tank in the infantry division is now no greater than that of the individual foot soldier. Likewise the shock action and range are limited to that of the foot soldier. The mobility of the tank in the armored division, the shock action of the mass armored attack, the ability of armor to maintain momentum and to drive deep and keep on going, has likewise been sacrificed and subordinated to the infantry concept.

The dissipation of our armored strength, or perhaps it might be more clearly stated, the dissipation of our tank productive capacity, by parcelling it out in small units to each and every infantry division has made it impossible for ns to support at the same time the major armored forces which are a real basic requirement for the defense of our country, and which should be "in being" upon the outbreak of an actual war. The catastrophe which overcame France less than fifteen years ago is still a vivid memory; yet some of our planners seem to have forgotten that France was defeated even though she possessed far more tanks of a superior design than were available to Hitler. It seems incredihle in the face of such an historical example that we should adopt the same policy.



Tanks in the Infantry division provided it with an antitank weapon rather than increased its capacity for maneuver.

Application of Armored Doctrine to Tank Design

Our present day division of tanks into three classes, based on weight to a large extent, rather than function, has, in my opinion, had more influence npon the development of tanks than has any concept of utilizing tanks for the support of infantry or for their major role in armored forces.

Our present doctrine states quite clearly that we need three types of tanks, a light tank for reconnaissance, a medium tank as the main tank of the armored division and tbe infantry division, and a heavy tank to support medium tanks in both the armored and infantry divisions and at the same time be available as a major antitank weapon.

Since all development work has been limited to tanks within these three characteristics of weight, there has arisen a considerable difference of opinion among those who want tanks to support infantry and among those who want tanks for use in mass armored forces, as to the armor protection and gun caliber which should be carried within each of these three classes of tanks.

As a natural consequence of a desire of all armor people to carry a larger gun and more armor protection, we have now arrived at a point at which our light tank, to all intents and purposes, equals our medium tank of the last war in every characteristic except the one for which it was supposed to be designed, and that is agility and mobility.

Again the medium tank has increased in size and gun power over those we used in World War II, largely because the German 88mm gun was able to effectively penetrate and outshoot our *under gunned* medium tanks. In an effort to produce a better tank gun than the 88mm gun and in an effort to protect our tanks against the 88mm gun, we have developed a medium tank which is to all intents and purposes a heavy tank. In the development of our medium tank, we have not been realistic in assessing the final weight at which our tank would arrive upon completion of the development program.

It is now quite obvious to many of us that in developing our present medium tank we have come up with a tank which is not suitable for its use as the medium tank in the armored division, armored corps, or armored army. On the other hand, I do not helieve that our present medium tank meets the requirements for a medium tank in the infantry division. We have developed a compromise medium tank which is not satisfactory for either role. Such a compromise may be necessary (from a production standpoint only) and it may he that we will have to reevaluate the role of the medium tank in the armored division, particularly in exploitation, based upon the actual characteristics and capabilities of the vehicle which we have had developed. I do not believe that we can blame Ordnance for this in any way. I am convinced, that, with exceptions in accessories, Ordnance has tried its best to build what we have asked for, as set out in our military characteristics.

We have also included within our so-called family of tanks a heavy tank. As our medium tank is a product of our respect for the German 88mm gun, our heavy tank is a

product of our respect for the Joseph Stalin series of Russian tanks.

Our thoughts on the heavy tank have really not crystallized. Our doctrine states that we require a heavy tank capable of defeating any possible development in enemy tanks, but so far we have been entering the cold waters of this development race gingerly. In our design characteristics for the heavy tank we have proposed to build a tank which is impervious to enemy heavy tank fire and which carries a gun capable of defeating any possible enemy tank. Based on these two characteristics, we have very rightly conceded that agility is of lesser importance.

In analyzing the development of our present series of tanks, it is my conclusion that our tank development program has been far more influenced by our original concept of the family of three tanks, and by our respect for the 88mm gun and the Joseph Stalin tanks than it has been by wise analysis of the functional requirements for a tank.

The time is now overdue when we should make a complete restudy of our tank military characteristics and determine if our present concepts are sound and if we should rewrite our military characteristics based upon functional requirements.

If we really need a light tank for reconnaissance and security missions, there should be a complete and thorough understanding of just what "light" means in this case. What is the real, honest, basic foundation on which to develop the light tank? Have we achieved the proper relationship between the gun, armor protection and agility in our present light tank?

In terms of man-hours of labor, strategic materials and cost, there is so little saving between the present light tank and the present medium tank that its inclusion in our armament is certainly worthy of intense study.

I personally believe that a requirement exists for a light tank but I do not believe that any conceivable requirement exists for the light tank which has been recently designed and produced. We need a light tank with a big gun but with less armor, less weight, far greater agility and mobility, and a far greater radius of operating action. Such a tank would provide reconnaissance and security elements with an armored vehicle capable of limited fighting for information and survival and would represent a very marked and important savings over accomplishing this same mission with a medium tank.

The armor might of the armored division, armored corps and armored army must remain with its medium tanks. I believe that we should examine hardheadedly our medium tank program and determine if the present medium tank actually meets the requirements for our armored forces. I feel quite certain that complete analysis of this problem will indicate that presently we do not have a tank which is suitable.

The present types of medium tanks, which were built as a defense against the 88mm gun, and possibly against the Soviet 100mm gun, have become too heavy, too complicated, too expensive and too limited in mobility to properly perform the vital mission of restoring mobility to warfare, nor are they capable of driving deep into the enemy's vitals and of being able to continue to exploit those deep pene-

Static conditions in Korea as shown have done much to affect our thinking regarding Armor's characteristic—Mobility.

trations which are the vital, outstanding capability of a real armored force.

Somewhere along the line, through analysis and study, we must determine the proper relationship between a few heavy, highly armor protected medium tanks and a very considerable number of less heavily armored medium tanks. In other words, we must re-examine our position and determine if we have arrived at a sound and proper balance between quantity and quality in limited quantity.

The present operating range of our series of medium tanks is a source of very deep concern. Even with jettison type gas tanks, I doubt very much if our present medium tanks, under combat conditions, will have an operating radius of 90 miles. This is too limited. In addition, it will impose an almost insuperable resupply problem on all agencies supporting armored units. I am of the opinion that in order to restore basic mobility to the medium tank we must re-examine our position with respect to its weight.

I am opposed to reducing the caliber of the gun carried on the medium gun tank; I am opposed to reducing the velocity of our armor piercing types of ammnnition; I am opposed to reducing the number of rounds of cannon ammunition which can be carried; I am opposed to reducing our range for accurate tank fire below 2,000 yards; I am opposed to reducing the crew below the four now provided in the M48 tank. Furthermore, I am opposed to any attempts to reduce the weight of the tank by minor changes in the silhouette. I am opposed to reducing the size of the turret below that now provided on the M48 tank. I am opposed to eliminating the 360° traverse of the turret for the light and medium tanks.

I am of the opinion that we can expect only minor reductions in fuel consumption in any tanks approximating the weight of our M47 and M48 tanks. More simple, rugged and less expensive power packages can and must be developed, but even optimum development in this line cannot overcome the ratio between weight and fuel consumption. I am convinced that we must restore our long range mobility to the medium tank for the armored division, and that this can only be done by a calculated reduction in the amount of armor protection required, coupled with complete new designs, based on functional requirements.

We need to make a thorough analysis of our armor requirements based upon the capabilities of our tank cannon, our sighting systems, our ability to secure a reasonable percentage of "first round hits," the use of the range finder, our ability to fire accurately at far longer ranges than was possible in the last war, and the destructive quality of our armor defeating ammunition.

We should study the capabilities of Soviet antitank and tank cannon, and determine the point at which only minor additional protection is being secured but where a marked increase in weight is occurring. Nothing is gained by having more armor than is required to protect against the 76mm gun, if at the same time we do not secure protection against an actual Russian gun such as the 88mm or 100mm. If we can fire effectively at ranges from 1,000 to 2,000 yards, do we need to carry armor that will give us protection against hits by Russian cannon at ranges of 300 yards or less?

Somewhere there is a balance between weight or armor protection, and mobility or fuel consumption and logistical supply, which will be the very best balance that can be achieved. I do not believe that we have achieved this point of balance in any of our present types of tanks; we must develop a great mass of data before we can achieve it with certainty.

In view of the above discussion it is quite clear, to me at least, that our present medium tanks do not meet our definite requirements for the medium tank in the armored division, and that they also fail to meet the functional requirements for such a type tank in the infantry division. The more I study the problem, the more I am forced to the conclusion that no *single* tank of the medium class which has been or can be developed will fulfill the functional requirements for a medium tank in these two types of organizations.

It is my considered opinion that at the same time we re-evaluate the design characteristics of a medium tank for the armored division, we should determine once and for all, first is there an actual overriding, overpowering requirement for the inclusion of tanks within the infantry division? I believe that the answer to this will be *yes* and that we must, therefore, secondly determine the military characteristics of the most effective tank possible for inclusion in the infantry division.

In spite of every development in antitank weapons, no single weapon developed solely for its antitank capability is capable of providing effective defense for the infantry. It is quite obvious that the infantry must be provided with an effective antitank weapon, and since the tank has been proven to be the best possible antitank weapon, tanks must be included within the infantry division. The number of tanks to be included should be only those absolutely required in this antitank role. Since this is the case, such a tank can differ materially in its characteristics from the medium tank in the armored division.

The infantry tank, since it will be used in every infantry division, regardless of the type of terrain which that infantry division will be occupying, should have far greater cross-country mobility than the medium tank in the armored division. It should carry the largest caliber gun which can be economically carried on it for the destruction of enemy armor, it should carry a balanced envelope of armor to afford it the maximum protection possible against enemy tanks without seriously limiting its cross-country mobility. Such a tank need not have high road speed, nor need it have a capacity for sustained operation in excess of fifty or sixty miles. Every design characteristic of this tank should be carefully considered for inclusion only if it contributes materially to improve the mobility and gun capability of the tank to support the infantry both defensively and offensively in normal infantry operations.

With respect to the heavy tank, I believe that we should continue to design and produce limited numbers of various types of heavy tanks so that if and when the day arrives when the positive requirement for this type of tank is established, we will have a capability of producing a reasonably suitable heavy tank which has been tested, both for mechanical reliability and for its weapon capabil-

ity. I believe that the production of any great number of heavy tanks at the present time is most undesirable. Any attempt to standardize a heavy tank in the light of present day knowledge will prevent the complete exploration of this entire program.

The heavy tank presents so many engineering problems from the viewpoint of its power package, its suspension system, its gun control system and its overall reliability, that every conceivable design concept should be thoroughly and exhaustively investigated.

Tactical Employment of Armor

Our present tactical doctrine on the employment of the armored division is limited to supporting the World War II type corps. Our present doctrine fails to take advantage of the really great characteristic of armor in mass, the armored corps and the armored army, which is its ability to provide the commander with a weapon of decision through its capability of operating deep into the enemy's defensive area. The limited objective attack in which armor supports the much slower advance of the entire infantry line fails to take advantage of the great mobility of armor and reduces it to a purely supporting, rather than a decisive, role.

Every attempt to increase the mobility of the infantry division has resulted in a weak and ineffective duplication of the tank elements only of the armored division. The infantry elements, the artillery elements, and particularly the communications elements of the infantry division, have never been raised to the mobility level of corresponding elements within the armored division.

Mobility in the armored division does not stem solely from its tanks but stems from the fact that every single element in the armored division has mobility equal to, if not greater than, that of the tanks. Also, the mobility of the armored division is more than just the mobility of its elements; it is psychological, it is ability to think fast, to communicate, to operate quickly, to disperse rapidly, to converge quickly, to move great distances with a minimum of administrative orders, and above all it is ability to maintain momentum. These concepts do not exist to any considerable degree in the present infantry division which is tied to a wire communications net and which thinks in terms of thousands of yards a day, whereas armor thinks of hundreds of miles per day.

Practically every difficulty under which armor operates today stems from the lack of appreciation of the full capabilities of armor. I doubt that the possibility and feasibility of waging an entire war based on a moving pattern of successive objectives in which armor drives deeper and deeper into the enemy's vitals has ever been realized or if it has been studied at all by our planners. The Germans had the germ of the idea in their campaigns against the Soviet Union. The Soviets appear to have expanded on the German concept. But it is my opinion that no country, and no army, has fully and completely explored the vast realm of tactics and strategy which lies just across the threshold of today's appreciation of the capabilities of armor in combat of the future.

We have developed three really mobile forces: armor, the mobile ground force, airborne, the mobile infantry force, and both strategic and tactical air. Somehow or other these three great mobile forces must be welded into an integrated fighting team.

Mass armored forces can move relentlessly over the ground to seize a vital objective. Once the objective has been reached they can be reinforced immediately by our airborne forces, who can consolidate the position and establish the temporary logistic base which can then be supplied through air transportation, protected by tactical air.

When the armored force moves on to the next objective the entire temporary base can be evacuated by air, and the great land lines of communications which defeated Napoleon and Hitler will cease to exist.

All the tools for victory are at hand, and it only needs the spark of genius of a great commander to develop the coordinated use of all of our great weapons. The destructiveness of our atomic weapons, the great mobility and flexibility of our Air Force and airborne forces and the ground mobility of our armored forces could be welded into a mobile fighting machine superior to anything ever conceived of in the past. With armor sweeping ahead, assisted by the destruction by our atomic weapons, with air power supplying protective cover overhead, and close and distant ground support, and delivering supplies and personnel to the great air bases which can be established through the advance of armor, mobility and flexibility in war could be established on a scale almost beyond comprehension.

American Industry

We are still the greatest productive unit in the world. Although there is much discussion as to the limitations of our productive ability, which make it impossible to support some of our proposed armored plans, I doubt that anyone has any real knowledge of the productive capacity of this country if it becomes necessary to completely utilize our great resources in all-out total struggle for survival. Too many of our planners are thinking in the terms of fighting a war while at the same time life will go on as usual for those not actually in the armed services. The destructive capability of the Soviet Union in a possible war of the future would be so great as to preclude any hope that we can fight them with one hand and eat our normal ration of butter and bonbons with the other.

Furthermore, there must be a hard-headed analysis made of our major military requirements. We never can expect to have unlimited quantities of any and every type of military weapon which might be conceived of as serving some useful even though limited purpose in war. If we are willing to concentrate on the design, development and production of those weapons which will really contribute effectively to winning a war, there is no reason to believe our great productive capacity cannot meet our military requirements.

We are a country with the approximate population of one hundred and fifty-eight million people. We are allied with other countries to the extent that the overall population factor is probably somewhere around four hundred to four hundred fifty millions. This is the total population from which we can expect to draw our fighting strength. We are facing an enemy with a capability of drawing upon a population base almost twice the size of ours, and most of

these people are as entirely suitable for military service as are those upon whom we will have to depend.

Yet, in the face of this tremendous disparity in population or manpower resources, we are continuing to build and develop an army based upon the foot soldier. In other words, and in spite of statements to the contrary, we are still trying to develop our military strength based on a body for body basis. With our great manufacturing capacity and our great resources we could not hope to defeat the enemy without using these to the utmost. Since it is obvious that we could never defeat the Soviet Union and China on a body for body hasis, it is absolutely essential that we develop a type of army which will permit us to use our industrial products. The weapon of war which offers the greatest return in the use of our productive capacity is armor. With armored forces completely coordinated with our airborne forces, armored artillery, guided missiles, air power, armored engineers, and our atomic weapons, there is some reasonable degree of hope that we can defeat any enemy, but if we continue to base our military structure upon the foot soldier we could very possibly suffer defeat in a future war and sink into complete abject slavery.

Too much of our effort today is being placed on eliminating mechanical deficiencies which exist in production models of tanks, and far too little effort is being made to increase the overall effectiveness of our armored forces through a thorough analysis of functional requirements.

The lull of tank design and development which followed World War II was succeeded by a panic design and production program upon the outbreak of the Korean War. This had led us into very serious difficulties. If we have learned from this that tank design and development and research must be a continuing project and not a project of "feast and famine," we will have gone far in solving our difficulty. If the necessity of maintaining adequate research and development programs in armor can be clearly delineated to the Congress so that money will be appropriated on a continuing basis, we will at once place our development program on a sound basis.

Armor vs Atomic Warfare

Of all the capabilities of armor which are overlooked today by our planners, the ability of armor to operate against an enemy equipped with atomic weapons, or in exploiting the use of our own atomic weapons, is the most neglected and least understood.

Enough has been developed from the pattern of atomic research to make it quite clear that armor is the only arm which can exist, with any reasonable degree of safety, on the atomic battlefield, particularly in the face of enemy employment of tactical atomic weapons. The ability of armor to disperse, without loss of control and military effectiveness, is so much greater than that of standard infantry units as to need no elaboration. Likewise, the ability of armor to converge rapidly, efficiently and completely ready to fight is an outstanding characteristic. The protection against heat and radiation which is afforded by the armor of the tank, the personnel carrier and armored artillery has been clearly disclosed.

These three major characteristics will permit armor to operate immediately within an area subjected to hostile atomic attack. This will prevent the exploitation by the enemy of the destruction which has probably been rendered to standard infantry units within such an area. Even though infantry has been relatively protected in its foxholes, the atomic attack will probably have completely destroyed all infantry communications and all transportation normally organic to the infantry division within a large radius of operations. Under such conditions the coordinated defense of such an area by infantry appears highly improbable.

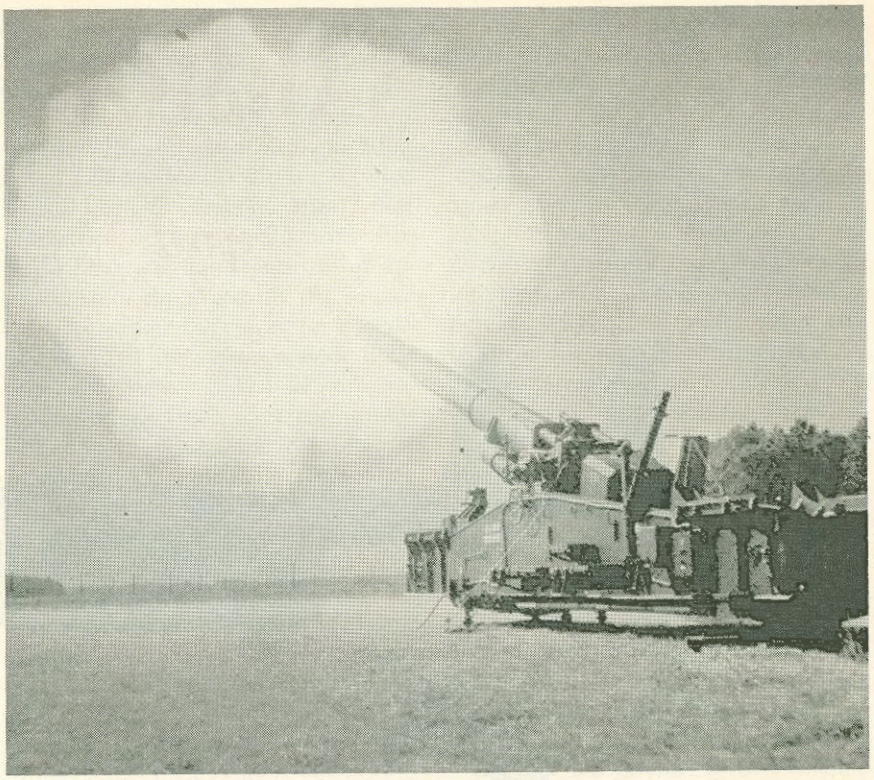
Offensively armor can proceed immediately into an area which we ourselves have subjected to atomic attack and can exploit to the utmost the effects of the atomic weapon. No other element in our armed forces has this capability, yet very rarely do our planners, or those in high position, make any mention of this outstanding capability.

It appears, to a large extent, that we consider the atomic weapon only in its application to conventional operations in which the infantry division and corps will take part. It is essential that an exhaustive and comprehensive study of the relationship between the decisiveness of the atomic weapon and the decisiveness of

The weight of our medium tank has been affected by our WW II experiences.

armor be thoroughly explored. It appears useless and futile to attempt to exploit the terrific destructive power of the atomic weapon with conventional infantry forces.

It is therefore quite obvious that our current, and as far as I know, our projected doctrine on warfare is still living in the past history of World War II. We have not made any progress beyond the concept of using armor in a supporting and completely subordinate role. The use of armor in mass was never attempted in World War II and there is nothing today in our doctrine which indicates its use in this manner in the future. The dead hand of the past is preventing the development of a modern, current, realistic concept of war based upon the atomic weapon, the real capabilities of armor, and a sound doctrine in which armor, artillery, airborne forces and air through the use of atomic weapons are linked together in an unbeatable combination.



Tactical atomic weapons and armor can be the decisive factor on the battlefield.

Any analysis of the capabilities offered by modern means of warfare, always including the atomic weapon which can be either air or artillery delivered, the guided missile with conventional or atomic warhead, and the capabilities of air power in its normal roles, will show conclusively that the decisive role in battle has passed from the foot soldier of the past to armor. There can be no division between these decisive roles, and any attempt to divide the decisive role equally between the foot soldier and armor will cause the entire effort to fall in the middle. It is therefore quite apparent that our primary doctrine must be based upon plans which revolve around armor in mass as the main body of our protective forces.

Under modern conditions the selection of any objective for either strategic or tactical seizure must be based on the capability of armored components of the field army to reach that objective. Neither conventional infantry nor airborne infantry have within themselves the power to seize and hold any strategic or tactical objective in the face of enemy armored, air and atomic developments.

Unfortunately, the development of sound modern doctrine which will take full advantage of the real capabilities of armor especially when properly co-ordinated with airborne forces, and which will permit the fullest exploitation of our undoubted superiority in atomic weapons, and possibly in guided missiles, is lagging or is nonexistent, due to the failure to recognize the full capabilities of armor. Even at Fort Knox, the teaching of armor is restricted to those limited concepts which have officially received the full stamp of approval.

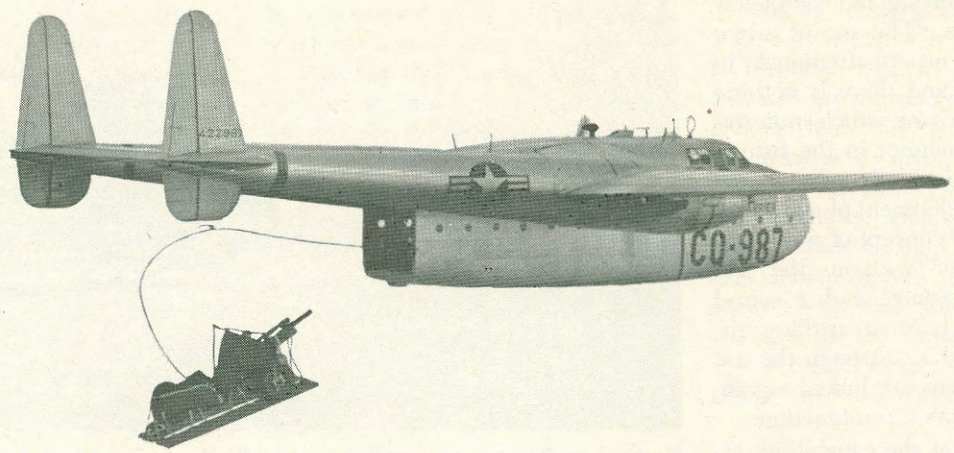
I believe that it is absolutely essential that a study be initiated on the very highest level to determine the effects that our limited population and resources will have on us if war with the Soviet Union, with her far greater resources, ever comes to pass. A factual analysis with decisions based on the facts as developed, is what we are proposing. We must arrive at a sound appreciation of the comparative cost of armored forces, which have some hope of success in combat, as against those organized along conventional lines. I sincerely believe that we can not hope to defeat the full might and power of the U.S.S.R. with our present balance of forces.

A study of our capabilities based upon total and all-out war for survival must be initiated. In the last war, I doubt that we even approached our full productive capacity for war. Since the last war, steel capacity, aluminum capacity, petroleum capacity and electric capacity have all made tremendous increases. In addition, great strides have been made in the utilization of atomic energy as power. Although we may be short in our stockpiles of some highly critical metals, we still have tremendous resources available. By proper maintenance and employment of the Navy we should be able to reduce the flow of strategic materials to potential enemies and assure the receipt of absolutely essential materials for our own use. There is no such thing as almost winning a war—*a war is either won or it is lost.* If we do not want to face the total destruction of not only our country but our civilization, it is high time we determine the maximum effort that can be exerted for the preservation of our way of life, and the proper balance of military forces which will be required.

Armor alone cannot bring victory, but mass armored forces properly organized, employed and supported by air borne forces, artillery, engineers, tactical and strategic air and all the other arms and services can be the hub around which an invincible force can be deployed.

ARMOR

and



AIRBORNE

by CAPTAIN JOHN C. BURNEY, JR.

KNOWING that our enemy in a third World War will be numerically superior in both manpower and equipment, our leaders are striving to equip our armed forces with the most modern and effective weapons. It is our dnty to employ these weapons as efficiently as possible. This means that each weapon must be placed where it can be used most effectively. We cannot afford to invest heavily in superior equipment and then fail to take maximum advantage of its capabilities.

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The 140 medium tanks in the two tank battalions of the airhorne division are not placed where maximum use can be made of the tanks' offensive power. Light mobile antitank vehicles should replace these tanks and the tank battalions thus released be placed in armored divisions or assigned to corps, army, or armored cavalry groups as separate tank battalions.

The organization of the airborne division has become obsolete. The division was assigned tank battalions before concentrated efforts were made to develop lightweight full-tracked vehicles and guns. There was no mobile antitank weapon which could accompany airborne troops into an airhead in the assault pbase. However, a different situation exists today. Considerable progress has been made toward the development of light, mobile antitank vehicles, one of the earliest of which was the 105mm Recoilless Gun mounted on the Bren Gun Carrier. An effective antitank weapon capable of being delivered by parachute and assault aircraft is within our grasp.

The vehicle envisioned as being the most suitable substitute for the airborne division's tanks would weigh between 15,000 and 18,000 pounds and would bave ¼- to ½-inch armor plate. It would be full-tracked and highly mobile with a ground pressure of approximately three pounds per

square inch. Main armament would be a 105mm recoilless rifle or a weapon of at least equal effectiveness. Such a vehicle would not only be used as an antitank weapon but would also possess limited offensive capabilities and be employed accordingly.

It is not intended that a light antitank vehicle be standardized for use only by airborne units. The weapon would have Army-wide application, the degree of which would depend upon the performance of the most satisfactory model developed. For example, it could well replace the tanks in the tank company of the infantry regiment. Vehicles of this type have already been developed. Early standardization of a satisfactory replacement for the tanks of the airborne division is possible and warrants immediate modernization of our present organization.

There are sound arguments for and against the reorganization of armor in the airborne division, but a thorough investigation and impartial evaluation of the advantages and disadvantages will prove that the present T/O&E is outmoded and inefficient.

With the equipment now assigned, the airborne division's best antitank defense is not available when it is most needed. The two organic tank battalions in the airborne division provide the primary protection against enemy armor, which constitutes the greatest threat to troops in an airhead. At present, there is no means by which the division's tanks can he delivered in an airborne assault. Tbus, at the time when airborne troops have the greatest need for armor, they are denied the use of their organic tank battalions until ground link-up is effected.

Airborne units could, however, have their primary antitank defense at the most critical moment—during reorganization after landing when they are particularly vulnerable to attacks by enemy armor. Loads weighing as much as 18,000 pounds can be dropped by our standard troop carrier aircraft, the C-119. A lightly armored, full-tracked vehicle mounting a 105mm recoilless gun would fall within this weight classification. Now that the development of heavy-drop techniques and lightweight vehicles and weapons have combined to make possible effective antitank protection for airborne troops at all times, the organization of the airborne division must be altered accordingly.

Replacing tanks with a lighter and smaller vehicle would result in additional advantages to airborne units. A full-tracked weapon with armor protection against small arms fire could have a ground pressure of approximately three pounds per square inch as compared to eleven for a medium tank. This means greater flotation and increased trafficability, allowing infantrymen more continuous fire support. The tank maintenance problem, with which the average airborne officer is not trained to cope, would be considerably reduced by the use of recoilless guns and less complex vehicles. Training problems would he simplified for the airborne infantry commander. Eliminating the tremendous gasoline consumption of the M48 would alleviate supply difficulties. Reduction of these problems would allow commanders of airborne units to concentrate more fully on the employment of their units.

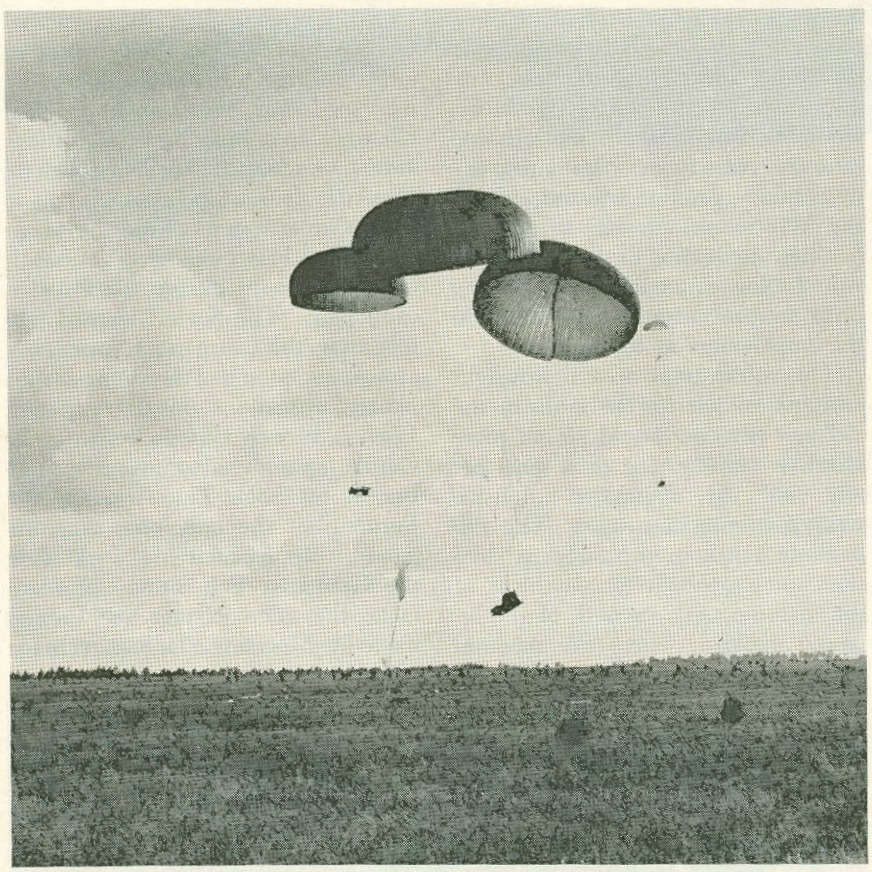
The substitution of a lightweight antitank vehicle for the tanks of the airborne division would permit more effective employment of a very potent and very expensive offensive weapon, the medium tank. The 140 medium tanks in the airborne division are equivalent to two-thirds of the medium tank strength of the armored division, where the medium tank is the basic weapon. Releasing these tanks would permit employment in mass, preferably as part of armored divisions.

The brief history of the tank has repeatedly substantiated the fact that armor must be employed in mass to take the maximum advantage of its offensive capahilities. One of the finest examples of this is the German defeat of France in 1940, when the Wehrmacht, with 2200 armored vehicles employed in mass, defeated the French who dispersed too many of their 4000 armored vehicles among their infantry divisions. General Heinz Guderian was the principal German proponent of the grouping of tanks in large formations. It was he who sped from Sedan to the English Channel and, held back by Hitler's orders, watched the British evacuate Dunkirk. It was Guderian who made the 240-mile sweep behind the Maginot line and later encircled thousands of Soviet troops during the Russian campaigns. The Soviets learned rapidly from the Germans, formed tank armies, and soon had the Wehrmacht's panzer formations on the run. In 1934, a French captain, Charles de Gaulle, strongly advocated these tactics in his book *The Army of the Future*, but the only ones who apparently appreciated his work were the Germans. We cannot afford to make the same mistake the French made by dispersing a large percentage

This artillery piece being loaded will provide limited antitank defense.

of our tanks among units in which they cannot make full use of their mobility and shock action.

An equally compelling reason for the removal of tanks from the airborne division lies in the obvious advantage of their employment in the armored division with supporting arms of equal mobility. These tanks would not be tied to the speed of the foot soldier but could be "married up" with armored infantry, who can stay with tanks when an opportunity to exploit success suddenly appears. In addition, armored infantry has



Special parachutes are utilized to assist in the drop of heavy equipment.

protection against small arms fire, further increasing the capabilities of the tank-armored infantry team. Tanks should be supported by armored artillery rather than the towed artillery of the airborne division if continuous support is desired, for only armored artillery can properly support the advance of tanks in fluid, fast moving situations. Tanks should have the support of service units that are trained and equipped to provide for the many needs of armored units, such as the engineer, signal, and quartermaster units of the armored division. Only when employed in a team, each unit of which is fully equipped to support one another, are tanks being utilized to their maximum advantage.

A very important and often vital consideration is the fact that tank battalions relieved from airborne divisions and placed in armored divisions or designated as separate tank battalions could then be employed by commanders of combat commands, armored divisions, and armored cavalry groups whose specialty is armor. These men have been trained in the use of armor, have had experience in tank battalions, and have a greater understanding of tank warfare. Certainly any tank battalion will be far more effective when working under senior commanders who fully appreciate both the capabilities and limitations of armor. Woe to the officer who underestimates the maintenance requirements of his tanks or overestimates the ability of his armor to negotiate difficult terrain. And how many opportunities for success will be lost by those who fail to realize the effectiveness of the tank's firepower and mobility! We must exploit our every advantage in the specialized Army of today and place as many tanks as possible under leaders trained in mobile warfare.

In addition, the concentration of tanks in larger units permits their employment in more appropriate terrain and against more profitable objectives. In any large combat zone, some divisions must operate in poor "tank conntry." Tanks assigned to these divisions would also be employed in poor terrain. On the other hand, if this armor were massed, it could all be committed in the most suitable terrain, where the tanks could achieve greater success with fewer losses. Some objectives can be taken most efficiently with infantry and others with armor. Armor of the infantry and airborne divisions would often be used against objectives inconsistent with the tank's capabilities. Massed, this same armor could attack the enemy where he is most vulnerable to this weapon. One doesn't use a screwdriver to pound a nail and a hammer to drive a screw. Likewise, we must employ an essential tool of today's Army, the tank, with a thorough understanding of its capabilities and limitations.

A leading argument against the replacement of the tanks of the airborne division is that the division will fight in a conventional ground combat role a majority of the time and will often need armor in both the offense and defense. This is true, and the division *can* have armor when needed. But rather than give the division 140 organic tanks, let us keep our organization as flexible as possible and attach tanks from separate tank battalions to the airborne division as needed. When tanks are required, the corps commander could determine the number to be attached on the terrain, situation, and the needs of other divisions. Flexibility thus acquired would result in more efficient use of armor. Those who insist that the tanks should remain an organic part of the airborne division still fail to satisfy that division's requirement for antitank protection during airborue operations.

Another consideration is that current doctrine emphasizes the fact that airborne troops, as specialists, should be withdrawn from contact as soon as their place can be taken by non-

airborne troops. Perhaps in the next war airborne nnits may not be employed so often as conventional infantry as many people expect.

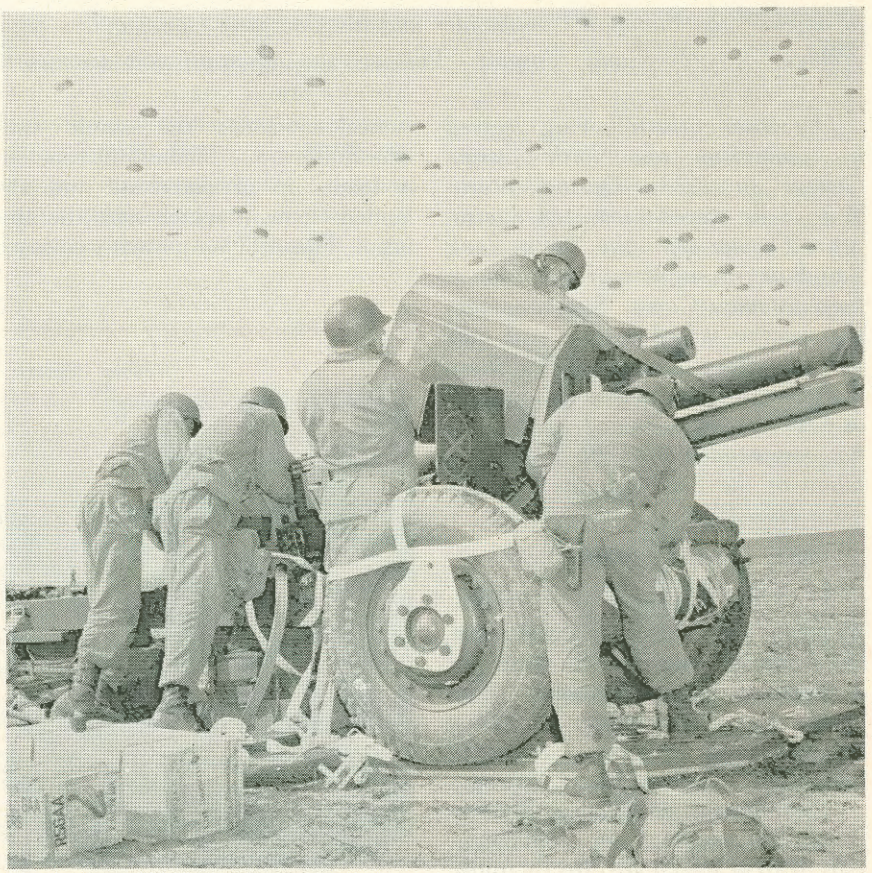
Those who object to the reorganization of the airborne division as proposed herein will then argue that cooperation and coordination between infantry (and artillery) and attached armor would be less effective than that achieved with organic tank battalions. Commanding officers of organic units, through continued training and operations, come to know each other's individual capabilities and limitations and establish SOP's which facilitate close cooperation. This, too, is very true and very desirable; but is it as strong an argument against the removal of the tanks from the airborne division as those set forth advocating the change? The argument is further weakened by the fact that a close understanding hetween individual tank and infantry units can be achieved by habitual attachment of the same units and a thorough training program emphasizing the tank-infantry team.

Another argument against the substitution of a lightly armored antitank vehicle, probably mounting a recoilless 105mm gnn, for the tanks of the airborne division lies in the obvious disadvantage of pitting snch vehicles against enemy tanks. It is certainly trne that the most potent weapon against an enemy tank is another tank. Light, mobile antitank vehicles with relatively short ranges and poor armor protection are not as capable as tanks at seeking and destroying enemy armor. Also, such a weapon is primarily an antitank vehicle and, as such, does not possess the versatility and offensive capahilities of the tank. However, some effective antitank weapon must he made available for use during airborne assaults. We must substitute the best antitank vehicle which can be delivered by parachute for the medium tank of the airborne division and make the airborne division airborne. As emphasized above, tanks can always be attached as required to increase the offensive power of airborne units.

To keep step with our rapid progress in the development of guns and vehicles, still another change should be effected in the airborne division. The primary antitank weapon of the reconnaissance company, the M20 75mm Rifle (Recoilless) mounted in the ¼-ton truck, should be replaced by the same vehicle designated to replace the tanks. The relative ineffectiveness of the M20 Rifle mounted in the ¼-ton truck has already been proved in combat, in Korea. We have better antitank weapons; one of them should be snbstituted for the present T/O&E weapon.

The M24 Light Tank was eliminated from the airborne division because it could not accompany airborne units in airborne operations. At one time, the 75mm Recoilless Rifle on the ¼-ton truck was the best antitank weapon which could be delivered by parachute. However, times have changed. Better antitank vehicles of the same weight class are availahle. Great strides have been made in the parachute delivery of heavy items of equipment. We must put teeth in the primary reconnaissance and security unit of the airborne division, give it an effective antitank gun, increase its mobility, give it increased armored protection commensurate with air drop capabilities, and keep pace with developments in guns, vehicles, and heavy drop.

To create the armored corps as urged in recent articles in this magazine by prominent leaders in mobile warfare, it is essential that we economize in our past overgenerous assignment of tanks. There should he no organic armor in units where maximum advantage cannot be taken of the tank's offensive capabilities. Tbe airborne division is the most ohvions organization in the above classification, so let us start there. Organize those tanks into armored divisions or separate tank battalions for assignment to corps, armies, and armored cavalry groups and substitute for them a vehicle which airborne troops can use to greater advantage; and airhorne units, armored units, and the Army as a whole will greatly benefit. The parachutist in an airborne operation will have the antitank protection he requires, more tanks will operate in mass with supporting arms of equal mobility, and the Army will be making the most effective use of one of its most decisive weapons, the medium tank.



As paratroopers float to earth, a team removes 105mm howitzer from its harness.

Sum & Substance

A regular feature in ARMOR, where you may express your views in approximately 500 choice words—the effective medium between the letter and the article. This section is open to all on any subject within the bounds of propriety. Name and address must accompany all submissions. Name will be withheld upon request. No pseudonyms.

Within the Airborne Division, there are two medium tank battalions, both of which are under division control. At the present time there is no practical method for airlifting the medium tank. Thus the tank battalions become a part of the "landtail." However the necessity for the immediate breakthrough of these battalions to support the Airborne personnel after a drop cannot be overemphasized. For the various roles that these tankers assume, ARMOR has called on the 44th Tank Battalion, 82d Airborne Division. In addition to their roles during the attack, counterattack or defense, the Battalion Commander and his Company Commanders reiterate, time and again, the ever present problem of supply and resupply. Further, the armor-infantry teamwork is once again proven.—THE EDITOR.

The writer of the following received his commission from North Georgia College in 1933. During World War II he served in the Mediterranean Theater with the 757th Tank Battalion, in support of the French Expeditionary Corps. Subsequent to the war he served a three-year tour with the Joint Brazil-United States Military Mission in Rio de Janeiro, as Chief of the Armored section. He has commanded the 44th Tank Battalion of the 82d Airborne Division since July 1952.

The basic principles of armor employment in an airborne division are the same as those used for armor in a standard infantry division. The problem in the airborne division is not how to use the armor, but how to keep it available for use.

The armor of an airborne division consists of two medium tank battalions, both of which are directly under division control. There are no Regimental Tank Companies, and there are no tanks in the Division Reconnaissance Company. The reasons for these differences from the standard infantry division become apparent when we stop to consider the fact that there is, at the present time, no practical method of airlifting the medium tank. The largest available carrier, the C-124, will lift only one light tank. Therefore, the armor of the airborne division, though organic, is not air transportable.

Primarily for the same reason, when planning an airborne operation, the division is divided into two tactical echelons: "the assault" and "the follow-up." The assault echelon is made up of parachute and air landed elements which seize the airhead. This echelon normally consists of three regimental combat teams, the division reserve and division troops. The follow-up echelon is that portion of the division, less administrative units, which is not initially used in the assault. It joins the assault echelon as soon as possible by land, air or water.

All photos U.S. Army

Lt. Col. A. L. Cochran

Discounting an amphibious operation, and remembering that the two tank battalions are not air transportable, it becomes obvious that if the units in the airhead are to have armor support, a land link-up must be effected. The follow-up echelon, consisting of the two tank battalions, plus any tactical elements of the division not air transported into the airhead, may be termed the "landtail" of the airborne division.

The present concept of a normal link-up type airborne operation is as follows: The air assault elements of the division are marshalled at several airfields, usually a hundred miles or so behind friendly lines. Concurrently, the landtail goes into an assembly area close behind our front lines, and prepares for the link-up operation. On D-day the assault elements are dropped on the objective deep in the enemy rear and secure the airhead. It is extremely unlikely that the armored landtail will make the link-up drive alone. Normally it will be attached to a larger ground link-up force such as an armored division or a standard infantry division. This will depend on many factors such as friendly forces available, enemy situation, distance to be travelled to the airhead, etc. Let us assume that in a given situation, the airborne division's landtail is designated to spearhead the larger link-up force. The two tank battalions should be reinforced with sufficient infantry, engineers, and artillery to make a balanced force. A solution would be one infantry battalion, one engineer company, and the medium battalion of airborne division artillery. Tactical air support is essential. The senior tank commander should command the task force.

The attack and penetration of the

enemy lines by the link-up must begin simultaneously with, or shortly after, the airborne elements drop on their objective. In order to effect the breakthrough, the closest possible coordination with friendly front line units is essential. The fullest support of their available fire power should be secured to soften up the point selected for penetration.

Once the enemy line has been penetrated, the armored link-up force will enter into what resembles the exploitation phase of an armored operation. The difference is that the primary mission is to join the airborne division in the airhead as quickly as possible, and destruction of the enemy is secondary. For this reason, the task force commander should be assigned an axis of advance which permits him to by-pass enemy resistance encountered.

Upon approaching the airhead area, the need for early recognition and communication with the assault elements in the airhead perimeter is vital. There is nothing more embarrassing than a meeting of two friendly forces, each of which thinks the other is the enemy. This is where careful prior planning and coordination pays off. Let us consider several of the methods available for effecting the joining of the two forces.

A liaison party from the armored task force should jump with the assault elements into the airhead. The mission of this party is to help coordinate the approach and entry of the task force into the airhead area.

Light aircraft should be used to the maximum. One or more such aircraft from the assault elements should be designated to contact the L-19's of the approaching task force.

A system for challenge and reply by the use of pyrotechnics should be previously arranged.

No-fire lines should be established for both the elements in the airhead and the approaching link-up force. Neither side would shoot past their line unless specifically requested by the other.

What happens to the two tank battalions once the link-up has been completed? Within an hour or so after the link-up, one would normally find the following situation: One battalion would split up with a tank company attached to each of the three regimental combat teams. The other tank battalion would be held in division reserve. Thus we find the armor distributed in the same manner as the standard infantry division with its three regimental tank companies and the division tank battalion.

The armor of the airborne division, once the link-up is completed, adheres to the normal principles of employment of tank companies and tank battalions.

LT. COL. ARCHIE L. COCHRAN

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The writer of the following served in the Pacific during World War II. He is a Quartermaster Officer on a two-year troop duty tour with Armor. He has commanded Headquarters and Service Company of the 44th Tank Battalion since January 1953.

Modern warfare, which exploits the characteristics of armor—firepower, shock action and mobility—to the fullest, requires that today's armor leaders possess considerable knowledge of supply.

1st Lt. R. H. Shuford

Logistical support of highly mobile tank battalions organic to an airborne division is a problem of major importance which necessitates detailed planning to effect maximum coordination at all levels. The logistical maxim "THE IMPETUS OF SUPPLY IS FROM THE REAR," is especially true in the tank battalions of the airborne division.

Armor columns, spearheading the penetration to link up with infantry elements expanding the airhead well in advance of front line positions, frequently create a large gap between themselves and their combat and field trains. This situation demands that prior planning concerning supplies focus around the five classes of supply and necessary transportation of the basic loads.

The Headquarters, Headquarters and Service Company of the Tank Battalion with its organic supply platoon furnishes the means for accomplishing the function of supply. Composed of 29—2½ ton trucks, 1—¾ ton truck and 1—¼ ton truck, the supply platoon provides the necessary transportation to effect supply action for forward fighting elements. Normally commanded by a Lieutenant, the supply platoon is divided into three sections: an ammunition section, a POL section and a ration section. This division facilitates control and expedites the handling of the three major classes of supply.

Class I items, rations and water, are supplied to front line tankers, in a fast moving situation, during the early hours of darkness hy a link-up of kitchen trucks with tank crews at a pre-arranged location. For the initial phase of the link-up the Small Detachment 5 in 1 Rations are suited especially to provide an adequately balanced diet for a short period of time. A three day reserve of "5 in 1" issued to tank crews in the assembly areas prior to the jump-off will generally take care of emergency situations such as individual tanks cut off due to the tactical situation. The Operational "B," field rations, are brought forward in kitchen trucks to give crewmen at least one hot meal per day when the tactical situation permits.

Water may be issued on a can-for-can exchange basis using the two water cans on the M-47 tank as original cans, or O V M cans may be filled directly from the water trailer which is brought into the forward area with the kitchen trucks.

Class II, items of T O & E allowance, and Class IV, items for which

no prescribed allowance has been determined, present no problem in the tank battalion. Resupply is accomplished by the company by making out requisitions which are forwarded to battalion and from battalion to division for supply action.

Class III items, petroleum, oils and lubricants, are supplied directly to tanks by fuel trucks of the supply platoon located in the combat trains area which move forward and are met by company or platoon guides and directed to the tanks. Refueling of tanks from five gallon cans is time consuming and requires considerable physical effort. There are no automatic fuel dispensing trucks organic to the tank battalion. The entire basic load of gasoline is carried in five gallon cans transported in the trucks of the supply platoon.

Class V, ammunition, is supplied initially in the assembly area and resupply is accomplished by using a transportation order. Refueling and the supply of ammunition are achieved concurrently by supply platoon personnel.

Maximum coordination, reliable communications and detailed planning are the required essentials deemed necessary to achieve prompt supply action within the tank battalion of the airborne division.

1st Lt. Richard H. Shuford

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The writer of the following graduated from The Armored School OCS in February 1946. From 1946 to 1949 he served with the United States Constabulary in Germany. Following a stateside assignment with the 3rd Armored Cavalry Regiment (L) he was transferred to Korea where he served as Platoon Leader and Company Executive Officer with the Reconnaissance Company of the 25th Infantry Division. He has commanded A Company, 44th Tank Battalion since November 1952.

The one phase in particular where armor has proved its worth is the link-up phase of an airborne operation. It is during the link-up that armor literally "comes to the front." While the infantry, artillery, engineers, etc., can be transported to the vicinity of the objective by aircraft and delivered by parachute, there are no means at the present time, of transporting and delivering a medium or heavy tank by aircraft. A definite need for a strong, mobile force exists, however, and this need is filled by the two tank battalions organic to the airborne division. Detailed prior planning, speed of execution, and facility of communication are vital in the link-up phase of an airborne operation.

Capt. W. H. Harr

After careful planning, the Airborne Infantry Regiments with their supporting artillery, engineers, etc., are dropped in the vicinity of the division objective. At a pre-designated time the two tank battalions, which have been assembled close to the front lines, move out and either penetrate the enemy's line of defense or envelop his flanks. In a large operation the tank battalions are close on the heels of an attacking infantry division or a comparable force and break through exploiting any gains.

When the penetration or envelopment is completed, the primary mission of the tank battalions is to join forces with the airborne units. Here speed is important. As a result, much enemy resistance is by-passed. With the main line of resistance behind them, the tank battalions can usually plan on a headlong dash for the airhead and the completion of their mission. It must be remembered, however, that the Airborne Infantry Regiments are behind the enemy's lines and all troops are considered hostile until definitely proved otherwise.

Since the armored elements are racing toward the airhead, it is necessary for the liaison officer who has accompanied the airborne units to establish contact with the tank unit commanders. As the armored units approach, the liaison officer contacts the tank battalions by use of voice radio and directs the units to an assembly area where they will receive further orders.

Once the link-up has been completed the armor will be used as needed, either to ward off any enemy counter-attack or to aid the airborne elements in their drive to the final objective. In either instance, one of the battalions may be directed to attach one company to each of the three Airborne Infantry Regiments, leaving the other battalion to operate as a unit.

From this point on, the airborne division is comparable to the standard infantry division and continues its mission in much the same manner. There is one difference, however. Resupply of the airborne division is continued by air drops until the main supply route can be secured.

Armor, in supporting an airborne operation, as in any type of armor operation, must be fully cognizant of three factors: prior planning, speed, and communication. Without all three of these the operation may not succeed.

Capt. William H. Harr

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The writer of the following entered the Army in 1942. At the completion of OCS in the same year he was assigned to the 11th Armored Division. Upon being recalled to active duty in 1950 he served in Korea with the 25th "Tropic Lightning" Division. He returned to the United States in 1952 and was assigned to the 44th Tank Battalion of the 82d Airborne Divi-

At the objective we move into a sustained defense because of the preponderance of dismounted elements in the airborne regiment. The mobile defense does not afford the protection of the terrain, individual shelter, and other defensive works as does the sustained defense.

Although the regiment habitually uses the sustained defense, it is possible for the tanks to go into a mobile defense forward of the regiment doing a general outpost mission in front of the main line of resistance.

Like any other armor unit, this company will utilize its mobility and shock action to the limit, depending upon the existing situation. These missions will include furnishing direct fire support to the main line of resistance, adding strength to the counterattack, providing depth to the antitank protection and acting as a covering force.

This cannot be held as a general rule, because no set rule can be made for the employment of armor when used with an airborne division.

Armor in the airborne division is used in defense in practically the same way armor is employed with the standard infantry division. Armor can protect the infantry against the enemy's individual and crew-served weapons, and, of course, the best defense against a tank is a tank.

CAPT. EDWARD H. SWAN

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The writer of the following returned to the United States in November 1952 after serving a year in Korea as company commander in the 89th Tank Battalion of the 25th Infantry Division. Subsequently he assumed command of the 25th Reconnaissance Company of the same division. He is a qualified parachutist, completing jump training in 1945. He has been the Company Commander of C Company, 44th Tank Battalion, since February 1953.

The attack, nsing the armor attached to the airborne division, is essentially the same as it is in any other type of armor-infantry attack with one exception. That variation is the problem of supply during the attack.

After the initial link-up is made of the airborne and ground units, the headaches of the armor company commander commence. The company commander is confronted daily with the problem of supply for his unit while it is deep within the enemy lines.

All of the supplies during this phase of the operation—ranging from rations to wedge bolts—must be air dropped by the supporting Air Force.

The airborne operation does have more support from the Air Force than the non-airborne unit does. Balancing this added support, there is the lack of support from the heavy weapons organic to the regular Infantry Division.

An airplane can carry only so much weight, so the airborne unit is put in short supply of heavy supporting weapons until the ground trains can be brought to them. To offset this shortage, the company commander must depend on the added aggressiveness and spirit of such an organization.

Capt. H. L. Kaplan

During the attack on a common objective, which starts after the tanks have penetrated to the infantry positions, the tankers and the infantry must maintain the utmost in coordination.

In the attack, the tank may be assigned to a regiment, a battalion or a company. On the other hand, it may be broken down into platoons and the platoons "farmed out" according to the mission. If this is the case, the job of company commander becomes more difficult because of the lack of control he has over his company.

Prior to launching the actual attack, the G4 plans for the various drop zones to be set up for resupply of gas, oil, parts, etc. It is the business of the company commander to know exactly where these drop zones are, and the alternate positions that may he used. At the same time the company commander must know the casualty evacuation plan, because casualties in an operation such as this must, by necessity, be air-lifted out.

Because of the character of this type of attack and the problems of complete supply and maintenance of the tanks, the attack must be a limited objective with time available to resupply and reorganize before launching the next attack.

During the attack, the tank-infantry team must work closely together to afford mutual protection and support. This protection is even more necessary in this type of operation because of heing so deep behind the enemy lines.

Communication during the attack is primarily by voice radio. With the new family of radios the close coordination between the tankers and the infantrymen can be effected much better.

Although the basic tank-infantry tactics in the attack are the same in the airborne division as they are in the standard infantry division, there are four problems or points that must be taken into consideration by commanders before they can be sure of a successful attack. They are:

Supply problems—the need of air dropping all supplies.

Complete coordination between the tanks and the infantry.

Both the tankers and the infantry must be more aggressive in order to insure success in the attack.

Commanders must have prior plans made in case of an enemy counterattack or encirclement by the enemy.

CAPT. HAROLD L. KAPLAN

ARMOR AT THE CROSSROADS

by LIEUTENANT COLONEL ROBERT B. RIGG

RIGHT now certain of our specialized military schools have problems in which the student is given a battlefield objective, and then he is asked, "what would you use to destroy this objective—an armored division, or an atomic weapon?" Destruction of the enemy at the objective, or denying the objective to the enemy is the object of this map exercise, but plain dollar cost is often the key to the "school" solution, which is to use the atomic weapon. An armored division costs not only millions of 52 cent dollars, but manpower besides. Atomic shells or bombs are not cheap either—but we have reached the age and era when Armor is considered by some to be a luxury on the battlefield.

Armor is in serious competition with atomic weapons. The equations are drawn, and the dollar sign is plainly regarded as *the key* in some solutions of the future. U.S. Armor is at the very crossroads of its existence. The fallacy of cost comparison in a school problem like this is that once exploded the particular atomic weapon or shell is money completely expended. However, once projected into action, an armored division even with heavy losses is not completely dissipated, and it is generally capable of future action and follow-up. Nevertheless, the atomic specialists stand pat on their dollar comparison cliché—and they are selling it! This is healthy competition for Armor, hut the heat of competition shouldn't warp our military objectivity and perspective.

In some minds, our arm has become so "expensive" that a dangerous circumstance is being bred whereby U.S. Armor may decline forever in terms of proper strength and realistic combat perspective.

At The Armored School in 1949, I listened to a dissertation that predicted a possible total of 60 Armored Divisions in the event of total mobilization. I regarded this as wishful thinking on the part of armored enthusiasts, for at that time the *Pentagon Planners* (probably) were thinking more in terms of 3.5 rocket launchers than in tanks. Ever since then I believe there are growing indications that any future armored forces (in mobilization) would be less than our World War II total of 16 armored divisions.

It is most timely to examine the future of our Armor in the light of these factors: the official Washington viewpoint; the Moscow directed masses of tanks; and the atomic influence (friendly and hostile).

Armor needs leadership—in Washington!

General George S. Patton raised hell on the battlefield. It is grimly unfortunate that he couldn't have lived longer, for among many other contributions he might have accomplished the same thing in Washington—on behalf of Armor. Recently, Armor has lacked high-ranking leadership in Washington where significant decisions affecting future combat successes (or defeats) have been fought out. This is not to pick a fight with atoms or infantrymen, but one must acknowledge that Armor men have apparently been almost a voiceless minority in the Capital where decisions affecting the nation's future have been made.

One by one, our highest ranking tank leaders have been retired since 1946. General Alven C. Gillem, General Ernest N. Harmon, General Jacob L. Devers, General Willis D. Crittenberger and others have been retired in these succeeding years. Armor needs leadership in the important acts of the successive Washington scenes in that important playlet of *"How to Win in Any Possible or Potential Future War."*

It is axiomatic that among our real tank leaders, none have ever been idolatrous to the false concept of "preserve for us thy arm of Armor so that we professionals may advance and be promoted." Our generals, beginning with General Chaffee, fought for concepts, budgets, designs and specifications to successfully meet the national goal of success in war, when and where war had to be waged. Today, the voice of our tank leaders should be listened to with considered weight. We may lack organization in higher military circles with which to properly project our ideas born of sincerity and professional knowledge. However, it is incumbent upon today's leaders of Armor to justly point up the need for more tank forces. There may be deaf ears, but Armor's leaders owe it to their nation to express with courage their studied concepts.

The fight for a slice of the dollar budget is rough. We in Armor have been too complacent to date, too content to concede, too inclined to acknowledge our equipment is costly; and to do nothing about argnment for more of it when the cold statistics of Korea's hot war acknowledge that, for all the excellence of air and naval supremacy, the mud-soaked and dust-ridden ground forces pay the final and bloody price for the gains in war. Korea's battleground is restricted; tomorrow's can be open and unlimited.

What we need is some plain reckoning in military factors. The capture of objectives and defeat of an enemy cannot be reckoned entirely on a budget slide rule!

Armored officers seek no fight with fellow service members, but we have reached the point wherein we feel our arguments should be listened to

LIEUTENANT COLONEL ROBERT B. RIGG, presently on duty in Europe with the Seventh Army, commands the First Battalion, Sixth Armored Cavalry Regiment. He is the author of *Red China's Fighting Hordes.*

with considered weight—in the interests of our nation's defense. General Paul M. Robinett has recently presented the nation with some sound logic in this magazine. Armor needs more voice in the Pentagon.

Armor and Atoms: I have seen tanks subjected to atomic bomb blasts in certain tests. For security reasons I must drop the subject there, except to say this: I would like to see some of the classification on those tests reduced to where the men in armored battalions, like my own, can be better instructed and trained in the hazards, risks and safety factors of being in tanks near atom blasts. Ours is the arm most capable (because of its speed and armor protection) of exploiting through radiation-ridden and demoralized areas of atomic blast. Furthermore, armored units with their heavy concentration of threatening fire power, are likely targets for enemy application of atomic weapons. Our enlisted men need to know better the effects of such weapons on tank crews so as to imbue our own crews with proper confidence. For reasons many officers in lower echelons do not understand, information of this sort is not getting down to the man who will be the first to need to know it.

Who is going to defeat Moscow's masses—if?

When you are situated, as some of us are, within an hour's ride from the Iron Curtain in Europe, you give this matter considerable thought and attention especially since your mission is to command a battalion, a regiment, a company, or a tank. The problem of how to defeat Moscow's masses of tanks, infantry and self-propelled guns, is one you concentrate on and discuss. We expect to be outnumbered; we would expect to engage and defeat six tanks each to our one, and by better gunnery and new fire control instruments come out on top. Our training is predicated on the matter of taking on superior numbers. However, outnumbered by five is one equation; outnumbered 25 to 1 is another one entirely. From tank crews to infantrymen and artillerymen, there is fine confidence in the Seventh Army in Germany today. But, against the potential of our enemies, the need for more matériel in the form of armored divisions on our side is strikingly obvious. It is not enough to stem an armored enemy horde with bazookas and bare flesh. To defeat it you have to wade rapidly into the mass and cut it up. That is Armor's mission but you need divisions of tanks to do it. The pitting of bare flesh and bare chests (however brave) against communist armor is not in keeping with either American ideas of national strength or U.S. industrial and technological progress. The Soviets went through their "Molotov Cocktail" stage wherein individual men took on German tanks; but note the conspicuous emergence of Soviet tank and SP masses (to meet enemy tanks) in World War II. The Soviets, the greater butchers of their flesh, could have well expanded their hordes of hero tank-hunters but the experienced military leaders matched steel with steel. The United States may be a reservoir of heroes, but we lack the population to expend these men lavishly. Furthermore, Americans deserve to fight with modern weapons and not just relatively primitive, short range, and heroic types. Moscow's masses are not only multiplied humans on foot and horseback—they are multiples of men-manned machines. We who might have to defeat them should at least have the matériel to make us efficient on a *multiplied basis.*

Hostile and Friendly Atoms: Several inches of hard steel give men better protection and self-confidence against atoms and their radiation than does the infantryman's wool shirt. When the living stir, rise, and emerge from the chaos of an atomic blast, they will say their frank prayers and give thanks to some mode of earth-given or man-made protection; and among those in the branches of infantry, artillery and armor it will be the latter who can not only move their limbs but *move fire power*—and with more speed, rapidity, and violence than any of the other much valued arms.

Armor is at the crossroads of its future existence in appropriate power. Our nation in war must balance between success and failure on the proper proportion of the various arms. Armor has not only the weight, but the speed and violence to multiply its weight.

Chief of CMD

Major General James Clyde Fry, Chief of the Career Management Division, Department of the Army, graduated from the United States Military Academy in 1922. He was commissioned a Second Lieutenant in Infantry. During World War II he commanded the 350th Regiment of the 88th Division. While serving with the 350th Infantry, he received the Distinguished Service Cross. Later he was made Assistant Division Commander of the 88th Infantry Division in Italy. Following several Army Field Forces and Department of the Army Assignments, he was appointed Deputy U. S. High Commissioner in Austria. General Fry was transferred to the Far Eastern Command in Korea where he was Commanding General of the 2d Infantry Division until May of this year when he returned to the United States for his present assignment.

The message from the Chief of the Career Management Division was addressed to the Editor of ARMOR, but it is deemed important enough that it should be directed to all Armor officers and is so headed. Comments regarding the future publication of articles from the Chief of the Career Management Division have been expressed editorially on Pages 30 and 31 in this magazine—THE EDITOR.

A Message from the Chief of CMD

To All Armor Officers:

I have recently been given the responsibility as Chief of the Career Management Division and appreciate the opportunity you have offered to use your magazine as a medium for contacting Armor officers Army-wide. I believe this will be helpful to the Armor Branch in implementing assignment policies and of value to all Armor officers by giving them a knowledge of our responsibilities and our procedures.

During the greater part of the last four years, I have served in Europe and in Korea. In these assignments I have frequently heard combat officers remark that the chiefs of the technical and administrative services evidenced greater concern and exercised greater consideration for their officers than did the Career Management Division for the combat officers. Without attempting to explain or refute such testimony and without intended implication of those who have gone before me, I want to assure all officers that this office represents the head of the military fraternity to which they belong. We are intensely interested in the welfare and the progressive, advantageous assignment of each individual officer and within the limits imposed by military requirements our policy is to comply as accurately as possible with the requests of individual officers.

As I have evaluated individual reactions to Department of the Army assignment procedures, it has frequently been evident that a substantial number of officers fail to appreciate the fact that the Career Management Division is the appropriate agency for officers of the combat arms to address requests for consideration and recommendations for improved procedure. The Signal or other technical officer knows that such a letter to his Chief will receive a quick and considerate answer. The combat arms officer will receive equally expeditious consideration from communications to the Cbief of his Branch, Career Management Division, or merely to the Chief, Career Management Division. I especially solicit comments and recommendations from general officers and senior field officers who have noted what appeared to be ill-considered and improper assignments.

This is not intended to be a lengthy and detailed explanation of the Department of the Army career program. However, I feel it will be helpful to overall understanding of the broad assignment pattern if I mention the fact that our primary mission during this era of quasi-peace is, as always, to fit officers to the essential jobs necessary to keep the elements that make up the Army in a high state of combat readiness. Our Career Management goal is to rotate officers through different assignments to give them on-the-job practical training. In this latter mission our objective is to develop to the utmost the inherent abilities, aptitudes, skills and accumulated knowledge so that the maximum number of officers may eventually reach their ultimate potential, to their betterment and for the good of our Army and Nation.

When conflicts between our Career Management Program and the combat requirements of the Army occur, Career Management assignments must of necessity he interrupted. As a matter of fact, the hasic concept of Career Management was that the program was intended to apply solely to the peacetime development of officers and this fact needs more thorough recognition. In addition, there are a multitude of conflicts that arise concerning the assignment of officers even though we endeavor to resolve all problems by the application of orderly and carefully developed policies designed to give equitable treatment to everyone. There are no mysteries or secrets about such policies and it shall be my aim to eventually publish detailed information concerning methods of selecting officers for overseas assignment, procedures for selecting officers to attend military schools, and in general to answer the questions that are uppermost in officers' minds. I would like to assure all officers that I realize fully that each assignment is of intense importance to the individual selected to perform the special duty requirement. There are good assignments and there are others that offer no particular professional advantages or other attraction. All assignments must be filled, and the individual who has a satisfying assignment this year should realize that he is moving into that category eligible to receive a less desirable assignment on his next change of station.

I hope that in each future issue of your magazine you will permit the Career Management Division to use your periodical to further acquaint officers with our methods of operation, and to supply other information of broad interest.

J. C. Fry
Major General, USA
Chief, Career Management Division

THE TOP COMMAND IN EUROPE

Many changes have occurred since this pictorial spread was published in the May-June, 1952 issue of ARMOR, pointing up the top military command structure in Europe. Numerous requests have been received by this magazine to repeat the pictorial feature. With only one key person still in the same position, compared with a year ago, it is time for another look. We will venture to say that by the time this is read there will be further changes. This capability to rotate key personnel clearly demonstrates the depth in top command leaders available within the United States Army. The mission of the United States Forces in Europe has not changed; nor has the importance of that area diminished. It is still a vitally important station in the cold war and the United State forces still form an important link within NATO—ready for whatever exigency might arise. In addition to showing the top command down to and including division level, we would like to expand even further but space does not permit.—THE EDITOR.

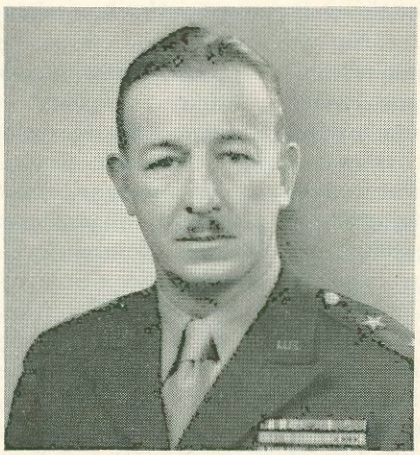
In the next issue we will have another look at the top command in the Far East.

U.S. Army Photos

SHAPE COMMANDER

Gen. Alfred M. Gruenther
Supreme Commander, Allied Powers

SEPARATE COMMAND COMMANDERS



Lt. Gen. William H. Arnold
CG, U.S. Forces Austria

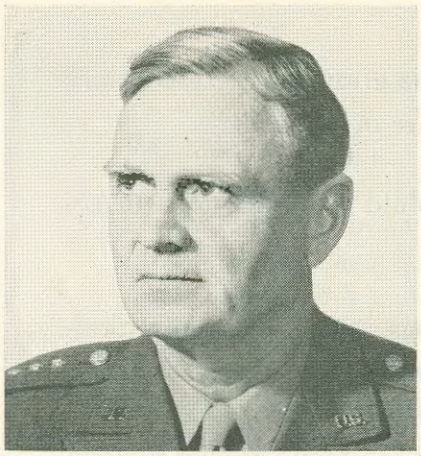
Maj. Gen. Bernice M. McFayden
CG, TRUST, Trieste U.S. Troops

THE DIVISION COMMANDERS

Maj. Gen. C. T. Lanham
CG, 1st Infantry Division

Maj. Gen. L. L. Doan
CG, 2d Armored Division

EUROPEAN COMMAND



Gen. Thomas T. Handy
Deputy Commander in Chief, EUCOM

USAREUR

Lt. Gen. Charles L. Bolte
CG, United States Army, Europe

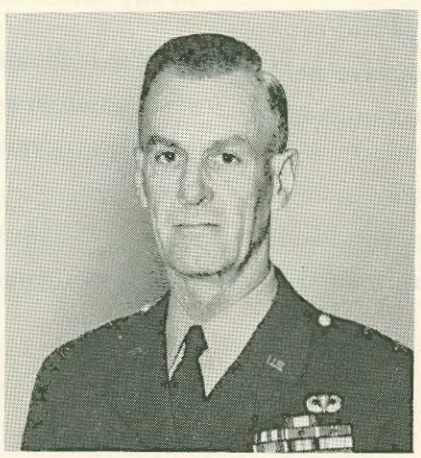
COM Z USAREUR

Maj. Gen. Lemuel Mathewson
CG, USAREUR Communications Zone

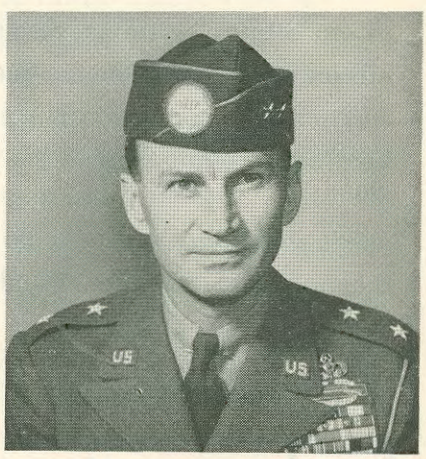
SEVENTH ARMY

Lt. Gen. William M. Hoge
Commanding General, Seventh Army

THE CORPS COMMANDERS



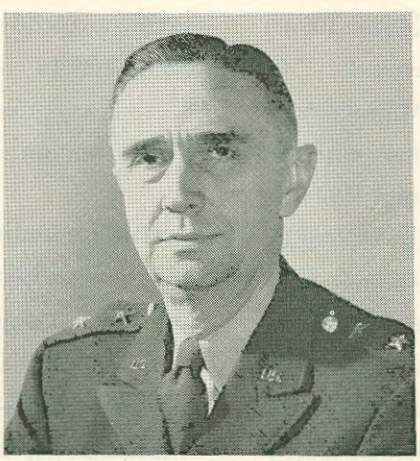
Maj. Gen. Ira P. Swift
Commanding General V Corps



Maj. Gen. James M. Gavin
Commanding General, VII Corps

THE DIVISION COMMANDERS

Maj. Gen. Joseph H. Harper
CG, 4th Infantry Division



Maj. Gen. Cortlandt Van R. Schuyler
CG, 28th Infantry Division

Maj. Gen. Charles K. Gailey, Jr.
CG, 43d Infantry Division

Combat Effectiveness

ARMOR has frequently advocated the full utilization by the Army of all developments in the technological sphere to strengthen the combat effectiveness of our ground forces.

Because of our nation's outstanding position in industry, including design and manufacture, it is on this technological level that the advantages are ours, where we should plan to meet any potential enemy rather than try to match him man for man with mass manpower armies.

It is obvious that we should make the most of our country's national resources and capabilities, particularly in the automotive field, and in the sphere of aviation, electronics, and kindred developments.

We should give our men on the battlefield the most modern weapons and equipment to assure them of the greatest hope for victory and the best chance of survival.

This is, and should be, THE AMERICAN WAY.

For these reasons, ARMOR enthusiastically joins in the accolade accorded the outgoing Chief of Staff, General J. Lawton Collins, for his insistence that an atomic ground weapon be developed for tactical employment. The recently tested 280mm atomic cannon can well be expected to play an important role in any future combat on the ground.

Of added interest, and again for the reasons stated above, are recent forecasts which indicate technological developments as follows:

A new tank-destroyer (called the Ontos)

An Innovation

Elsewhere on these pages (page 27 to be exact) you will find an open letter to all Armor officers from Major General J. C. Fry, the Chief of the Career Management Division, Department of the Army, wherein he asks that space be allowed him for the regular contribution of articles to ARMOR with respect to various career management activities of concern to all combat arms officers.

It is believed that allowing General Fry such an opportunity would do much to answer the various questions that all officers have concerning their next assignments—possible school opportunities—openings for special assignments—and diverse questions which they might otherwise have.

This is not intended to be an elucidation of Department of the Army policy concerning officer assignments. The primary purpose is to have an outlet for information concerning each and every member of one of the combat arms, pertaining to his professional military career.

New antiaircraft vehicle with multi-mounted machine guns

Modified light tank

New 60-foot tank bridge, transported and emplaced by tank

Modified battlefield radar for detection of hostile infiltrations

Another type shell for the 280mm atomic cannon providing increased range

Long range IFF extending the range for identification of hostile aircraft

Noiseless outboard motor for quiet approach in tactical areas

Gun to replace present 155mm gun

Howitzers to replace 105mm and 155mm howitzers

General J. Lawton Collins, Chief of Staff—Leader in the development of a tactical ground atomic weapon

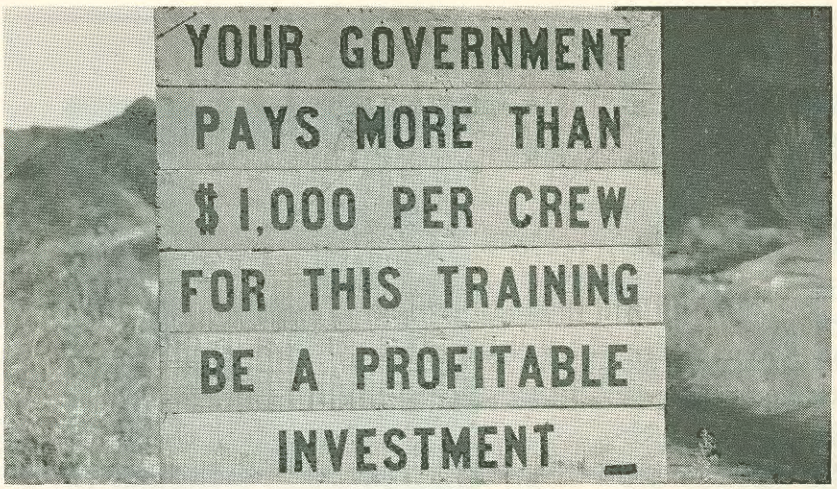
The above forecasts, which were reflected from testimony recently aired in Congress, might be interpreted as indicating the direction of our thinking and planning in Army circles. Once again, ARMOR emphasizes that all Americans, particularly those young men who must bear the brunt of any future fighting, welcome these indications that our Army must be technologically minded, trained and equipped.

In the next (September-October) issue of ARMOR, the subject will be: *Military Schooling of the Army Officer.* It is believed that articles of this nature will serve you in the field suitably.

General Fry recommends that if you have any personal problem you get in touch with your Branch Career Management Section in order to obtain the authoritative answer. Likewise, he invites senior officers to write to him directly. In these days of "quasi-peace" many unusual problems do arise from time to time. All officers are assured of a quick and considerate answer.

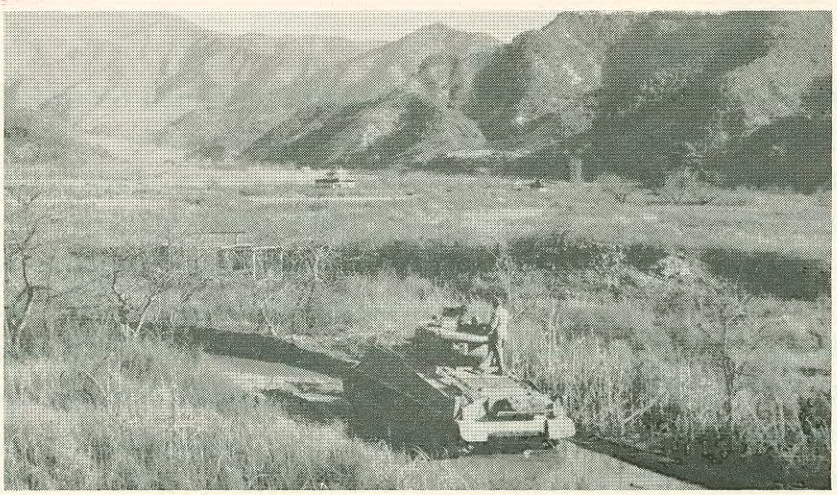
To further acquaint officers with the methods of operation of the Career Management Division, and to supply other information of broad interest, is a mission ARMOR is proud to bring to its readers through the Chief of CMD.

Any comments by Armor officers, or other members of the combat arms will be appreciated.

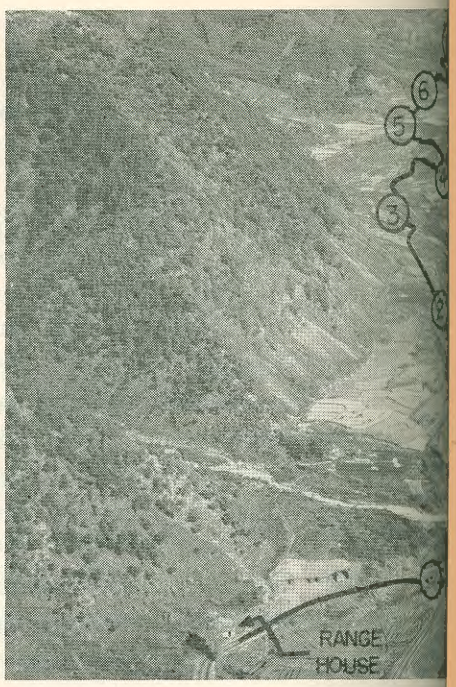


One of numerous signs used to remind the tankers that training is expensive.

The tank moves to hull defilade and prepares to fire HE at antitank position.



Moving into the hills, tankers cover suspected enemy areas with blanket fire.



The eight stations, each of which present

TRAINING TA

Training is continuous! To prove training area which is in operation in Commander, "the purpose of the trai duty as an individual and to work to

Various tests are given each tank

First, march tests are given upon pany. These tests include the warni of tank commanders, rate of march, conduct of tactical marches.

Upon arrival in their bivouac are area are checked. On the four subse and inspections. On the first day, th dividual crew members are given the tenance tests. On the second day, th training which is followed by instru sive emplacement as presently emplo the crew test area where it particip lowed by a period of instruction in maintenance and technical inspectio

The tank crew proficiency cours tion, consists of a platoon problem. I a valley and establish a security out which presents a different situation along to their final objective. Upon tacts the nearest tank commander, re To solve this, the tank commander mu position.

There is no substitute for trainin

to the crew and must be solved.

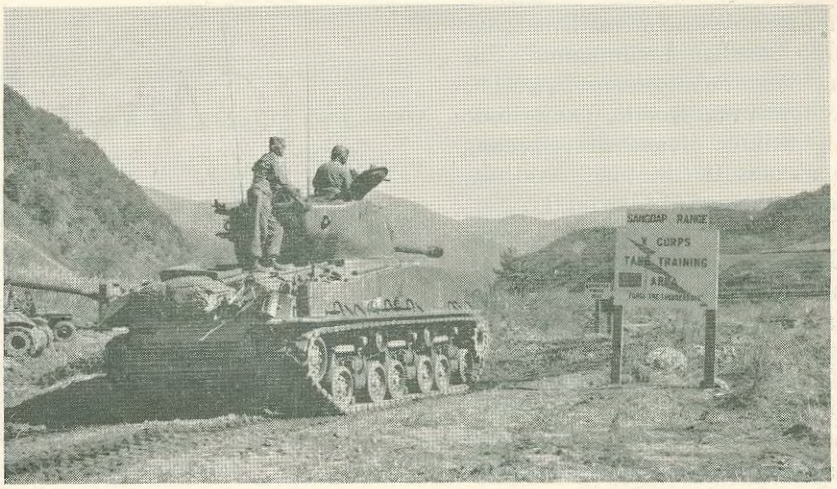
IN KOREA

resented is the X Corps' tank
General I. D. White, X Corps
e your ability to perform your

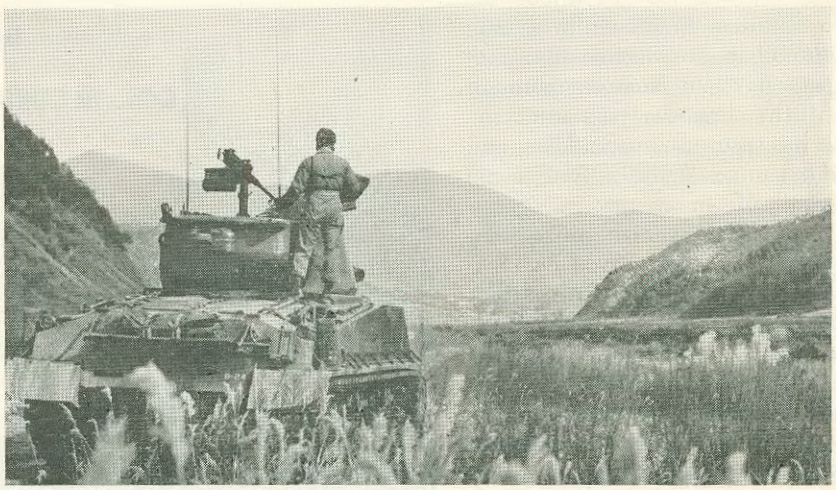
e area.
s of the training area of a com-
time of arrival at IP, alertness
l other matters related to the

ersonnel and appearance of the
n participates in various tests
Matériel Test Area where in-
nd communications and main-
miniature range for sub-caliber
of an individual tank defen-
ird day, the platoon travels to
oficiency course. This is fol-
vation. On the fourth day,
nance and signal teams.
ortant part of the entire opera-
n is required to move through
led into eight stations, each of
each tank crew as they move
he infantry patrol leader con-
hilate a large group of enemy.
tillery so as not to disclose his

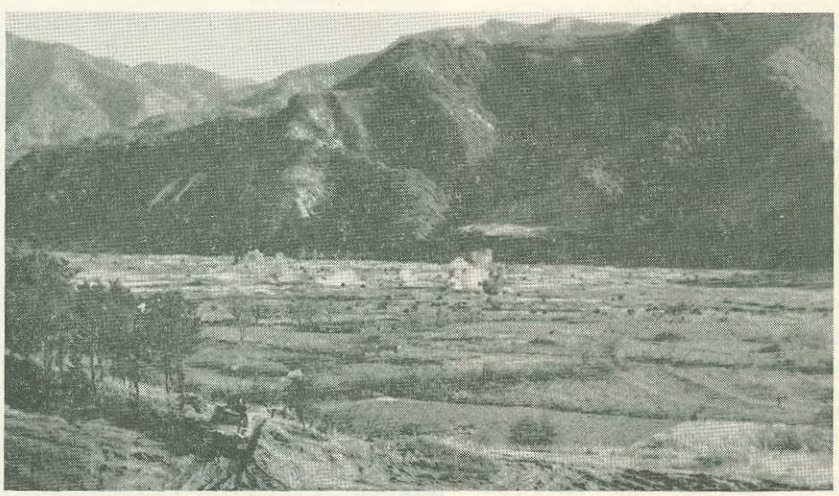
—Capt. Robert E. Drake



The test officer stays on rear deck as tank commander drops into the hatch.



The tank moves forward as the Bow Gunner engages an enemy Bazooka team.



Tank commander adjusts artillery fire while gunner prepares his range card.

KASSERINE IN REVERSE

by

COL. MAURICE E. KAISER

COMPANY commanders of the 76th Tank Battalion, 11th Airborne Division, were assembled in a small room adjoining battalion headquarters. The men talked among themselves. The only light came from a glaring bulb in the ceiling. There was a feeling of tenseness in the air. Suddenly, someone shouted: "TEN-SHUN!"

The battalion commander and his staff officers strode into the room. All eyes followed the battalion commander as he walked directly to the situation map on the wall.

"At ease," he said. He then pinned an overlay on the map, turned, glanced briefly about the room and said: "Gentlemen, I have attack orders from division."

He indicated to a wall map with a pointer. "Our objective is AIREDALE. We will initially support the 511th Infantry Regiment in seizing the shoulders of Macdonald Pass." He paused. "We then pass through the 511th, clear the pass after the 511th has secured the shoulders, and move out to seize AIREDALE, some seven miles from the pass in Aggressor's rear. We organize and defend this objective until relieved by Division order. I have been advised that close air support will be available both to support the 511th's effort and our attack on AIREDALE."

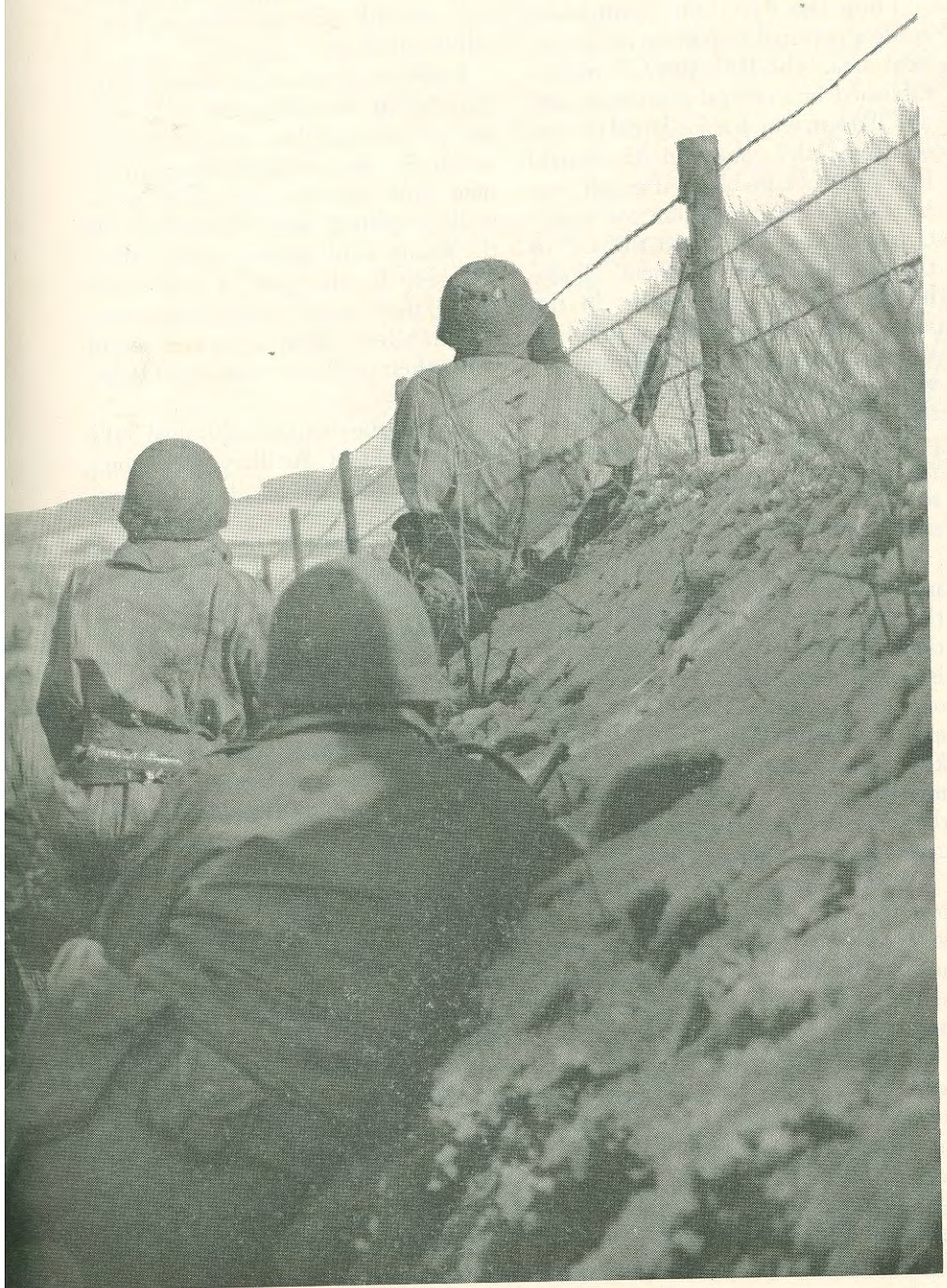
To this simple yet concise statement, the battalion commander added: "While I am completing my plan of attack, the S2 will give you the general situation." The battalion commander left the room.

"United States forces have been driving westward after a successful crossing of the Colorado River and are continuing the offensive with the mission of driving Aggressor forces out of friendly territory which they have invaded for the second time," the S2 reported. "Our Army has reached a line as shown on the overlay. Its mission is to continue the drive northwestward capturing and securing the communication center at

All Photos U. S. Army

COLONEL MAURICE E. KAISER served as G3 and Deputy Chief of Staff of the XIII Corps in Europe during World War II. Subsequently he was assigned to the Far East which included duty with the Marshall Mediation Board and Far Eastern Command Headquarters. He opened the Armored Combat Training Center at Camp Irwin, California, in May, 1951, and has held the posts of Commanding Officer and Deputy Commander since that time.

This battalion problem is the culmination of the six weeks' training given to the various tank battalions ordered to Camp Irwin, California. The two-day battalion exercise includes an attack, seizure, organization, and defense of an objective deep in enemy territory. In addition to air support, furnished by the Tactical Air Command, all supporting arms are played in to the exercise to lend realism in simulating battle conditions.



SEARLES, the chemical plant at TRONA and tungsten mines in the ARGUS Mountains. The area must be cleared in zone to the Sierra Nevada Range," he continued.

"Corps has seized a line extending from the Calico Mountains to the Avawatz Mountains with the 11th Airborne Division securing the Tiefort Mountains—Bicycle Lake Area. The strength of the Aggressor forces has been reduced by the severity of fighting since our forces launched their offensive. The enemy is weak in armor but has utilized what he has to the utmost, shifting it from area to area behind good defensive cover. He is strong in antitank weapons. The terrain favors the enemy in his defense.

"Reports indicate that the Aggressor Second Army has been beefed up by several divisions, all of which have seen service in this particular campaign. However, since earlier fighting was contained west of the mountain area, none of these units are acquainted with the desert country in which we are operating. Indications are that while resistance is stiff, morale is showing signs of deterioration.

"Divisional units facing our Army that have been identified are the 15th and 87th Rifle Divisions, 11th Mechanized Division, 15th Airborne Division, 10th Cavalry Division and the 5th and 17th Artillery Divisions. Latest reports from Corps Headquarters indicate that elements of the 11th Mechanized are on our division's front.

"Enemy positions to the front are reported to have been hastily organized but could contain minefields, road blocks, tactical wire, and demolitions. Our air has located and identified some of these measures as shown on the overlay."

After the S2's briefing, other details of the warning order were issued by various staff officers. At the conclusion of the session, the individual company commanders departed to make their respective ground reconnaissance of the attack area in the zone of the 511th Infantry Regiment.

Meanwhile, the battalion commander had started work on his plan of attack. This was based on a map study and aerial reconnaissance of the area prior to the issuance of the warning order. He also conferred with the commander of his attached infan-

try battalion, securing recommendations for employment in reinforcing the 76th Tank Battalion. Plans were made with the division artillery liaison officer and the attached engineer platoon commander for their proper support.

Just three hours after tank company commanders had begun their ground reconnaissance of the attack area, up to the 511th's front lines, they reported back to the battalion CO.

Attack orders were issued, thoroughly briefing each company commander on his respective part in the battalion's scheme of maneuver. This included the mission of tanks and infantry, time of attack, time of departure, direction and axis of attack, zones of action, initial formations, the objectives, prepared artillery fire plan, planned air strikes and marking of targets, plan for reorganization on the objectives, control plan, location of the aid station, and other logistical and administrative details.

After receiving the general plan of attack, tank company commanders went back to their company areas for similar briefings among platoon and tank commanders. There they worked out their respective attack plans and then reported back to battalion headquarters. When the entire plan was completed, the battalion commander reported back to division headquarters. Meanwhile his S3, together with the artillery liaison officer, went to the infantry regimental command post where he arranged for passage through the 511th's lines. He also examined the regiment's plans for continuing the attack once the 76th had cleared the pass en route to AIREDALE. The S3 also outlined the battalion fire plan to the regimental commander. Together with the artillery liaison officer, he requested that artillery and other weapons in support of the regiment be prepared to provide reinforcing fires.

When the division commander had approved the 76th Battalion's plan of attack, the stage was set for action. One factor, which must be explained at this point, enters into the picture. The 76th Tank Battalion had no reconnaissance platoon, due to shortage of equipment and personnel. Thus, the battalion trains had to provide their own protection during the planned re-supply operations on AIREDALE after dark.

At exactly 0700 hours on October 27th, the 76th moved out of its administrative assembly area. An administrative march was made in formation YOKE, consisting of the entire battalion in a column of companies. The attached infantry followed in trucks.

As it moved into the tactical assembly area, the battalion (two companies of M47's and one of M46's) went into a perimeter formation so positioned that the leading companies could move out first into attack position. Charlie and Baker companies were to he the attacking units, with Able Company (M46's) in support.

Then the battalion commander made a personal inspection of the tactical area. The Battalion CP was established in a central position as was an OP from which a good field of view of the 511th's zone and Macdonald Pass was obtainable. After all was in readiness, the battalion commander then went directly to the CP of the 511th Infantry Regiment. There he checked on any changes in the attack plan as approved by the division commander after coordination with the 511th's CO. He learned that the 511th's front lines had been pushed back about 200 yards by strong Aggressor action and that the sector to be attacked had to be assaulted immediately.

He rejoined his company commanders and staff, orienting them on the last minute changes in the situation. At the end of the briefing, he issued the order to move out, pointing out on the ground the routes and axis he wished the companies to use, key terrain features and possible enemy strong point. He further directed that the leading companies would cross the designated ID at 0900.

After receiving these orders, company commanders hurriedly returned to their units in the assembly area, assembled platoon leaders and tank commanders and issued their own last minute instructions.

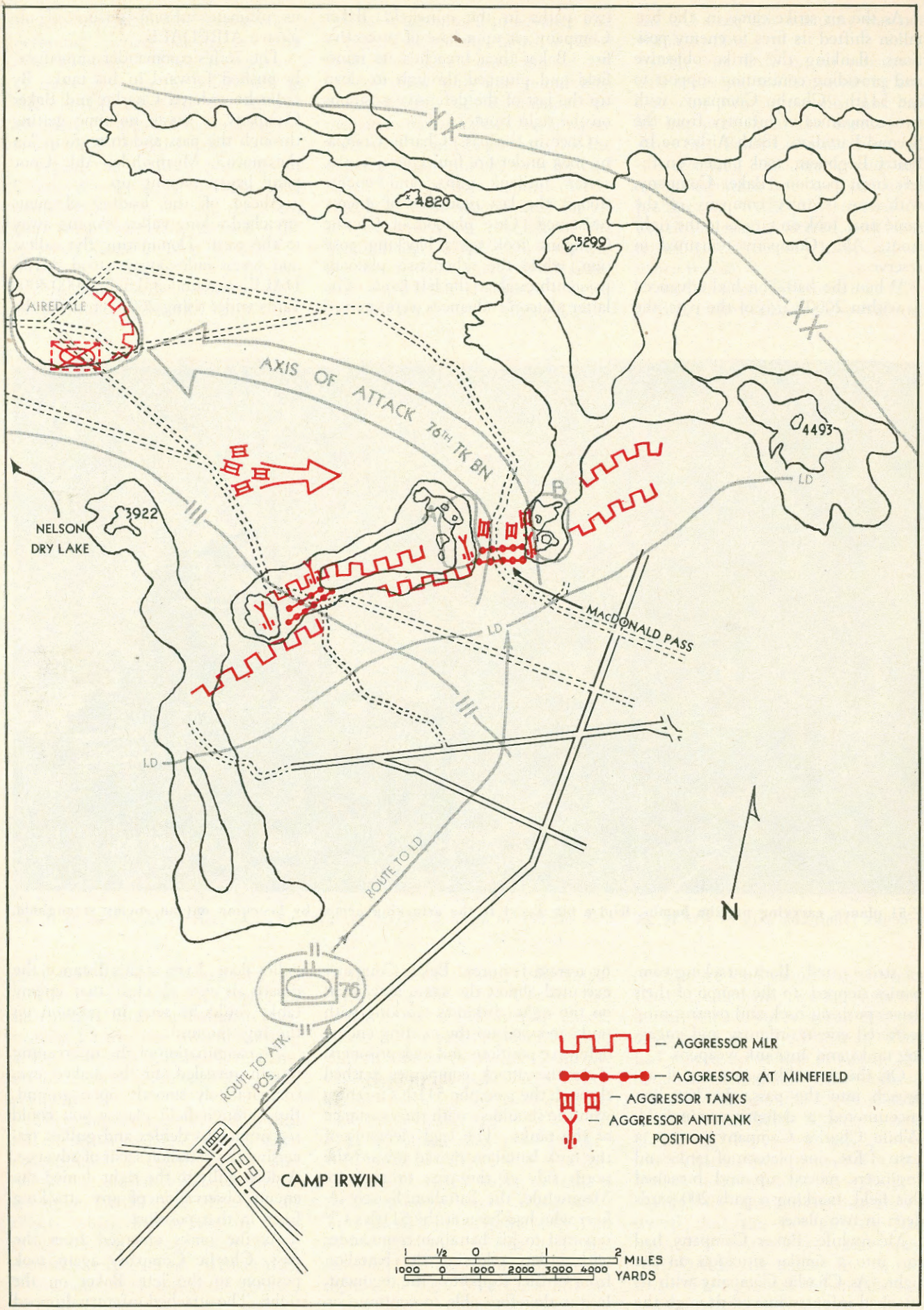
Charlie Company moved out to the left, with two platoons forward, echeloned to the left, and one back. Baker Company took position on line with Charlie, to the right, with the same platoon formations except that leading platoons were echeloned right. Able Company followed about 1500 yards to the rear in company wedge.

The terrain toward Macdonald Pass, though open, was filled with gullies and boulders which afforded a variety of cover for a tactical movement. The pass itself was about 2000 yards wide. A wide, boulder-filled gully extended at a right angle, making the terrain inaccessible to either friendly or enemy tanks. In the middle of the pass were impassable rocks in which it was assumed there were enemy antitank weapons and infantry. To the right and left of these rocks, aerial reconnaissance had revealed enemy tanks and infantry positions. The pass was surrounded by high peaks which might conceal enemy antitank gun positions and certainly infantry.

However, it must be brought out that despite the difficulties of terrain and its defendability, the enemy was nearly 50 per cent understrength in men and vehicles. But they were well-disciplined, battle-tested and had the ability to reorganize quickly after reverses. In the past, it had been found that enemy subordinate unit commanders often attacked even when their positions were about to be overrun.

Just as the battalion jumped off, the 89th Field Artillery Battalion, 11th Airborne Division, began laying down a concentration of 105mm fire on the shoulders of the pass. One platoon of 4.2-inch mortars began to lob shells on the pass, hitting targets in the mouth and on the shoulders. As the advance progressed, the 105's also hit the reverse slopes of the shoulders. These concentrations lasted about five minutes and were shifted so as to smother the area.

As the 76th, with three companies of supporting infantry, moved forward, it encountered enemy infantry several hundred yards from the pass. When the forward elements of the battalion were within 4000 yards of Macdonald Pass, the Tactical Air Control Party informed the battalion commander that the air strike which had been requested earlier by the 511th Infantry, had arrived. Tanks fired white phosphorus to indicate the strike objective in the pass to be hit with napalm and rockets. Artillery smoke shells were used to mark objectives on the shoulders for the strike.


XX
4820
5299
AIREDALE
AXIS OF ATTACK 76TH TK BN
4493
LD
3922
NELSON
DRY LAKE
MACDONALD PASS
LD
LD
ROUTE TO LD
N
76
ROUTE TO ATK. POS.
CAMP IRWIN
— AGGRESSOR MLR
— AGGRESSOR AT MINEFIELD
— AGGRESSOR TANKS
— AGGRESSOR ANTITANK POSITIONS
1 1/2 0 1 2 MILES
1000 0 1000 2000 3000 4000 YARDS

As the air strike came in, the battalion shifted its fires to enemy positions, flanking the strike objective and providing continuing support to the 511th. Charlie Company, with two companies of infantry from the Second Battalion, 188th Airborne Infantry Regiment, took targets on the left front portion. Baker Company, with one infantry company of the same unit, took on targets to the right front. Able Company remained in reserve.

When the battalion had advanced to within 2000 yards of the pass, the air strike lifted. Both attacking companies stepped up the tempo of their drive, pushing back and overrunning scattered enemy infantry and engaging tanks and antitank weapons.

On the most likely avenue of approach into the pass, the battalion encountered a defensive minefield. While Charlie Company set up a base of fire, one platoon of tanks and engineers moved up and breached this field, marking a path 200 yards deep in two places.

Meanwhile, Baker Company had run into a similar situation on the right. As Charlie Company with its attached infantry moved through the two paths in the minefield, Baker Company set up a base of protective fire. Baker then breached its minefield and plunged through to clean up the last of the defensive positions on the right front.

Once in the pass, Charlie Company took under fire four enemy tanks, seven antitank guns, and enemy troops, the last remnants of enemy resistance. One platoon of Charlie Company took up a blocking position, while the other two platoons passed through to the left flank. The latter platoon's advances were covered by terrain features. Baker Company executed almost the same movement on the right. Infantry working with tanks mopped up the existing enemy defensive positions and took prisoners.

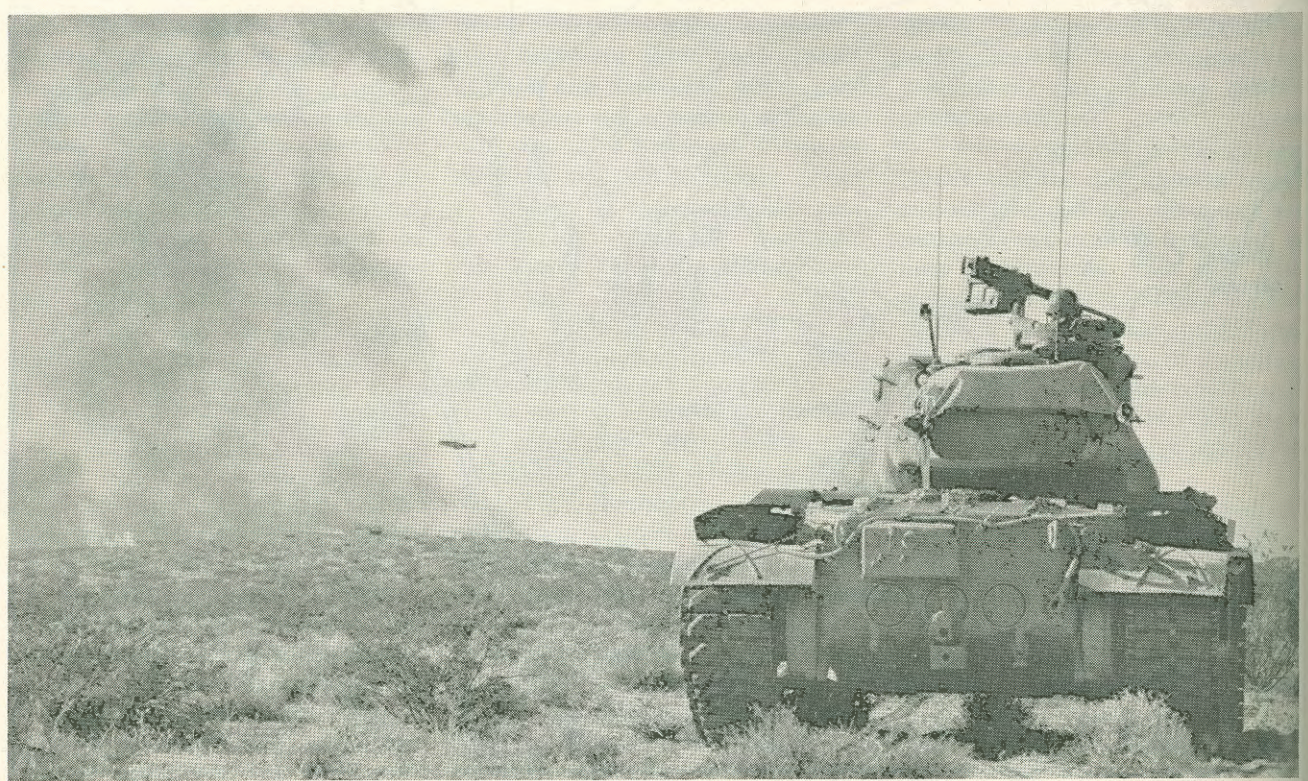
As the attack companies pushed through the pass, the 511th's infantry won the shoulders with the assistance of the tanks. The lead elements of the tank battalion moved toward the north side of the pass to regroup. Meanwhile, the battalion liaison officer who had been at the 511th's CP reported to his battalion commander with orders releasing the battalion from further support of the regiment. It was therefore able to continue on its ultimate mission—seizure of objective AIREDALE.

The 76th's commander immediately pushed forward in his tank. By radio he ordered Charlie and Baker Company to waste no time getting through the pass and to regroup "on the move." Meanwhile, Able Company began moving up.

Ahead of the leading elements stretched a long valley, sloping away to the west. Dominating the valley, and seven miles away, stood AIREDALE, a rounded knoll, 3000-4000 yards wide, rising 200 feet above the valley floor. Even at this distance, the desert air was so clear that enemy tanks could be seen in position on the high ground.

An examination of the intervening terrain revealed, to the naked eye, comparatively smooth, open ground. But through field glasses you could see numerous defiles and gullies traversing the battalion's axis of advance. A deep gully to the right denied the enemy observation of any attacking force in that position.

As the tanks emerged from the pass, Charlie Company again took position to the left, Baker on the right. The attached infantry dropped



F-51 planes, carrying napalm bombs, lend a big assist to the attacking armor by knocking out an enemy stronghold.

ack to be picked up by their armored ersonnel carriers coming up with ble Company. Their orders were remain on the battalion axis to IREDALE following the support mpany until called forward for the tack on AIREDALE itself.

When the leading platoons of barlie Company were about 1000 rds west of the pass, on the south nk, an L-19 aircraft attached to the ttalion from division observed a rmation of enemy armor approxiately 5000 yards southwest from e pass moving toward Charlie Company. Quickly the pilot reported this Charlie Company's CO who in rn relayed it to the battalion comander. Charlie was ordered to swing the southwest and attack this eney force, if need be with the entire mpany.

The company then moved toward e enemy in wedge, despite a heavy ncentration of enemy artillery and ortar fire, evidently called in by the emy on AIREDALE. Friendly arllery, which had moved up, was lled for, and immediately began unterbattery fires on AIREDALE. his noticeably lessened the enemy's re and its effect.

Charlie continued to advance and engaged the enemy tanks at 2000 yards, immediately knocking out several of them with first round hits. However, the 76th commander immediately realized that Charlie Company soon would be too busy for the moment to continue the swift forward thrust he desired to capture AIREDALE. He then committed his reserve company on the left of the battalion axis. Charlie Company was directed to move in rear of Able Company, once it had eliminated the enemy with which it was engaged.

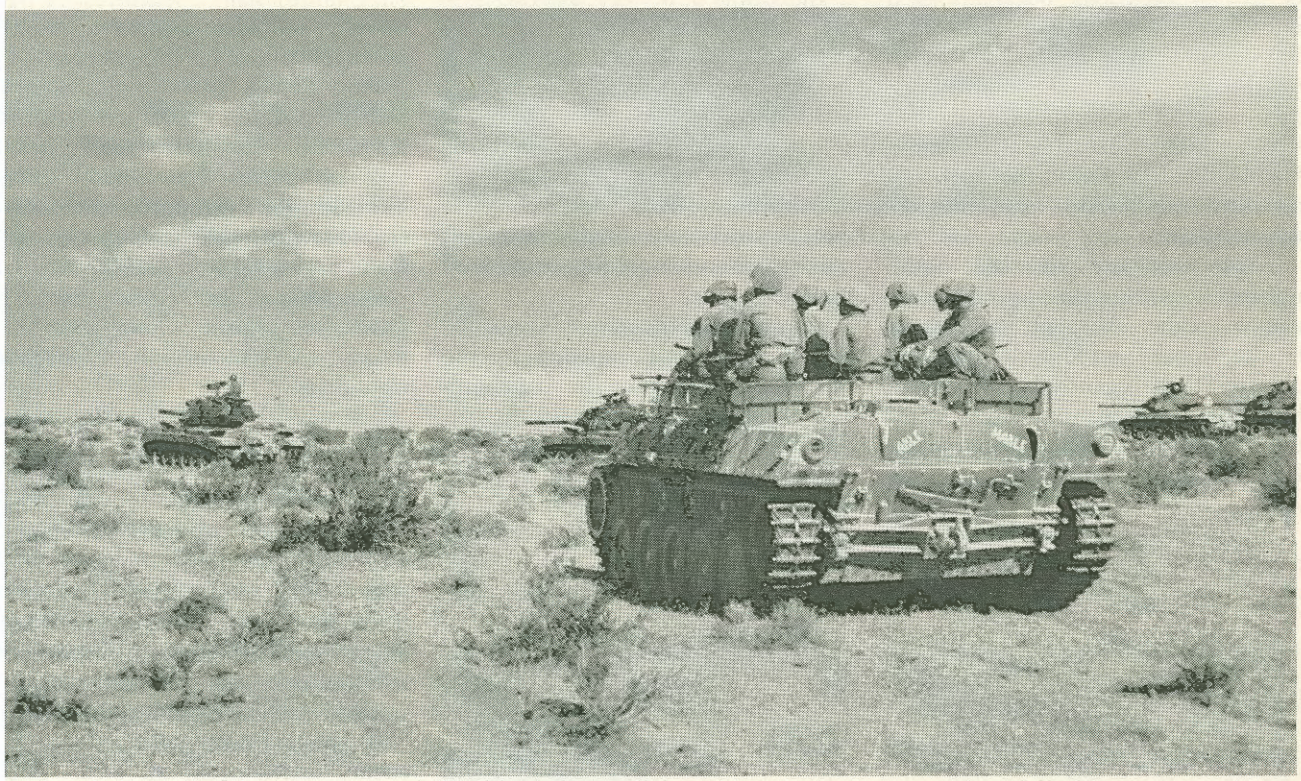
Able moved through Macdonald Pass, using the route Charlie had used. It proceeded directly ahead, taking up the rapid advance needed, and on line with Baker Company, which had had to make a wide wheeling movement to the west as it debouched from the pass.

As the attack advanced to within 5000 yards of AIREDALE, the battalion CO ordered Baker to make a wide enveloping sweep to the right. This placed it in the gully, with Able on his left flank and the steep, impassable Granite Mountains on his right. The L-19 pilot constantly reported Baker's progress to the battalion CO since this company was not visible to him.

Able met little or no resistance, only occasional artillery or mortar fire, since our own supporting guns had all but neutralized the enemy's indirect fire. Baker Company, bowever, was receiving considerable tank and antitank gunfire from well concealed positions on AIREDALE, in addition to encountering scattered tank-killer teams. Baker's steadily hampered advance was slow.

As Able Company closed on AIREDALE, enemy tanks were spotted and engaged at long range. Meanwhile, Charlie Company, having knocked out all enemy forces it had engaged on coming out of Macdonald Pass, had moved up in rear of Able. The battalion commander now ordered Charlie to swing to the left in defilade around Able. With Able as a base of fire in the center, this pincers made a double envelopment of AIREDALE, with Baker on the right.

When the battalion commander observed that the two pincers had reached a point 2000 yards from AIREDALE, he called for an air strike. He described the specific targets on AIREDALE and marked the



n M-39 personnel carrier, carrying infantry troops, follows behind the attacking M-47's to give additional support.

area with HE and smoke to identify it to the incoming fighter-bombers.

As the air strike progressed, the entire battalion continued to work up to AIREDALE. Baker Company had the advantage of being in complete defilade position, not under the enemy's observation.

The air strike ended when the tank battalion was within 1500 yards of AIREDALE. Tanks firing their 90mm's, .50 and .30 caliber machine guns roared forward in a mass assault, while division artillery pounded AIREDALE and its reverse slopes. This withering fire, plus the effect of the air strike, all but eliminated enemy resistance. When the battalion advance was within 700 yards of the objective, the infantry dismounted from personnel carriers and took positions with Able and Charlie Companies. In mass, the battalion assaulted AIREDALE as friendly artillery lifted.

Baker Company advanced to the northwest, cutting off any chance of enemy escape. Able, no longer able to fire, moved rapidly through the objective and organized the far side for defensive measures. Charlie hit the southwest, clearing and organizing that portion and tying in with Able.

After cutting off the enemy's escape, Baker came around the back of the crest, organizing its sector on the right with one platoon, the other two being used for mobile support.

Once AIREDALE was secured, the battalion commander reported by radio to division headquarters. He then made a personal inspection of defensive positions, called in his company commanders to give them additional instructions, and ordered reconnaissance patrols forward to make a limited pursuit. These patrols consisted of a squad of infantry and a section of tanks. Their mission was to locate the enemy, his route of march, possible attack positions, and to capture prisoners.

Individual tanks were instructed to take up normal battalion defensive measures with infantry in front. Both the infantry and tanks were told to select the best fields of fire and check security for the night. When the recon parties had returned, tanks on the northern sector of the objective were instructed to make out their range cards and check fire them for all weapons.

Meanwhile, leaders were dispatched through the MSR, opened by the 511th Infantry along the battalion's axis of advance, to bring up the battalion CP group and supply trains.

During the entire attack, friendly infantry continued to fight forward in the high ground north and south of the battalion's axis. As evening drew near, elements of this force were occupying positions a thousand yards to the rear and to the right and left of AIREDALE.

Shortly after nightfall, as the field trains were moving up, Aggressor stragglers attacked the trains with small arms fire and attempted to infiltrate the battalion area. They were beaten off, however, and the trains came through.

While the battalion was being resupplied in sections, Major Dundas, the battalion CO, issued his orders for defense against counterattack. Plan RED, for a frontal attack, called for Able to hold with Baker moving on Charlie's flank (southwest of perimeter) and take position on Able's left flank to fire on the enemy.

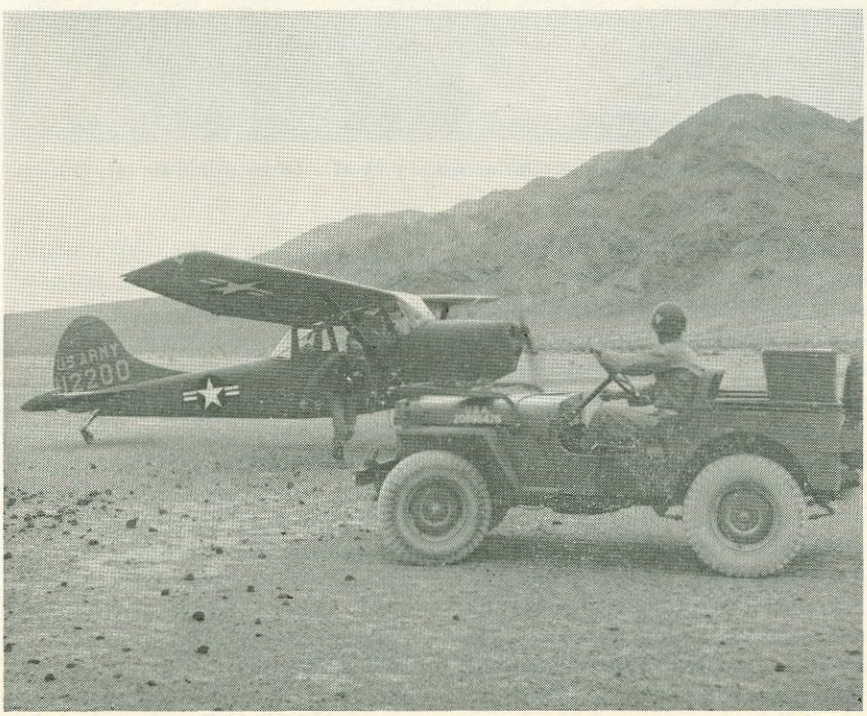
Plan BLUE, for a frontal attack, called for Able to hold and Baker to move two platoons to the right to take up a cross-fire position. Plan WHITE, for a right attack, had Baker hold with Able moving two platoons to the right to take up a cross-fire position. Plan GREEN, for a left attack, had Charlie holding with Able moving two platoons left to Charlie's right flank.

Shortly after these instructions were given, an enemy attack comprised of a platoon of tanks and two platoons of infantry hit from the northwest. Able company repulsed it after a ten-minute fire fight. No further enemy action occurred during the night except die-hard individual Aggressors continuing to infiltrate the battalion area, trying to blow up tanks and kill individual unwary soldiers.

In the morning at first light, the enemy struck again in force. They consisted of two companies of enemy tank-snpported infantry. Counteratack plan RED was used. Charlie Company met and engaged the enemy. Baker committed one platoon in a single envelopment on Charlie's left flank. The attack was repulsed as quickly as it began.

This last action marked the end of the battalion problem at the Armored Combat Training Center, Camp Irwin, California.

The foregoing problem constitutes the climax of the 6-8-week battalion training program at the ACTC. It is carried throngh from beginning to end under conditions as near to combat as the Army can make them. From the time the battalion commander gets his orders from division head-

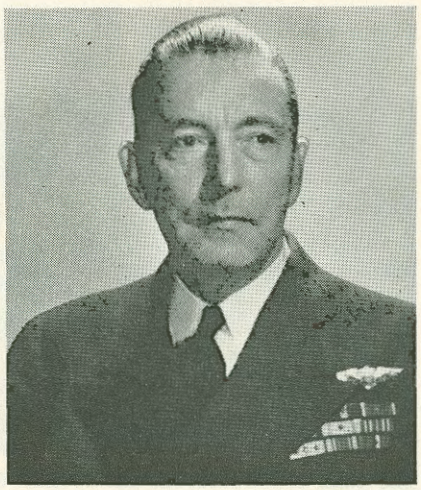


Battalion commander returns from a survey of the front in an L-19 light plane.

THE NEW JOINT CHIEFS OF STAFF

During the hot summer months while most people are thinking about taking a vacation, four of our top-notch senior commanders are readying themselves for assuming the positions of the Joint Chiefs of Staff. Shown herein are the ones selected by the President to replace the outgoing team composed of Generals Bradley, Collins, Vandenberg, and Admiral Fechteler. Much speculation concerning the reorganization plan has been published. This was put into operation by President Eisenhower in an Executive Order which became effective on 1 July 1953. The complete impact of this plan cannot be determined at this time. ARMOR is endeavoring to obtain the authentic story and will publish it at an early date.

CHAIRMAN



U. S. Navy

Admiral Arthur William Radford, 57-year-old Commander-in-Chief of the Pacific Fleet, will replace General Omar N. Bradley as Chairman of the Joint Chiefs of Staff. A graduate of the Naval Academy, class of 1916, he had four years of sea duty, then was assigned to Pensacola, studied flying, and has been a leading exponent of Naval Air recognition ever since. During World War II, he directed the Navy's Air operations in Washington; later he commanded two fast carrier groups in the Pacific, serving under Admirals Halsey and Spruance. For this latter service he received two Distinguished Service Medals. Admiral Radford was selected upon the personal recommendation of Secretary of Defense Wilson.

ARMY

U.S. Army

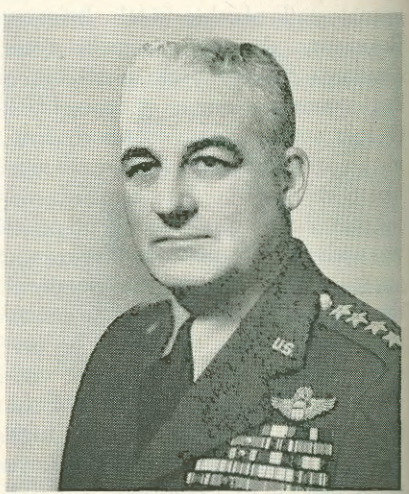
General Matthew Bunker Ridgway, 58 years old, Supreme Allied Commander, Europe, will replace General Collins as Army Chief of Staff. Graduating from West Point in 1917, he was commissioned in the Infantry. During World War II he distinguished himself with the 82d Airborne Division; later commanded the XVIII Airborne Corps. Subsequently he commanded the Eighth Army in Korea, then succeeded General MacArthur in Tokyo, and finally replaced General Eisenhower, as SHAPE Commander.

NAVY

U. S. Navy

Admiral Robert Bostwick Carney, 58 years old, Commander in Chief, Allied Forces, Southern Europe, replaces Admiral W. M. Fechteler as Chief of Naval Operations. A classmate of Admiral Radford at the Naval Academy, he was cited as a destroyer officer in World War I. During World War II, he was decorated twice while commanding a cruiser in the Solomons. Later he became Chief of Staff to Admiral Halsey. In 1951 General Eisenhower named him as Southern European Forces Commander at Naples, Italy.

AIR FORCE



U.S. Air Force

General Nathan Farragut Twining, 55 year old, Vice Chief of Staff of the U. S. Air Force, replaces General Hoyt S. Vandenberg as Chief of Staff of the Air Force. He graduated from West Point in 1918 and was commissioned in the Infantry. Transferring to the Air Force in the 1920's, he was Wartime Commander of the 13th and 20th Air Forces in the Pacific and the 15th Air Force in Europe. Subsequently he headed up the Air Matériel and Alaska Commands prior to his assignment as Vice Chief of Staff of the Air Force.

Pros and cons of military history will be debated forever, but the necessity for study by those in the military art can never be disputed. Herein a wartime commander and historian speaks out on its value. This article will preface a forthcoming revision to the "Guide to the Study and Writing of American Military History."

MILITARY HISTORY

by BRIGADIER GENERAL PAUL M. ROBINETT

History in Military Education

THE value of history in military education has always been recognized in the United States Army as in most armies. It has been at the very base of instruction in service schools since their inception. In this, the American Army has followed the advice of such great captains as Frederick the Great and Napoleon who have stressed the value of history in military instruction. One statement bearing upon the question, made by Napoleon, shows clearly the importance he attached to history: ". . . the knowledge of the higher arts of war is not acquired except by experience and the study of history of wars and the battles of great captains."[1] Marshal Wavell, on the other hand, holds that the study of psychology and leadership is of greater importance to a military man than the study of operations, contending that Napoleon's military success can be attributed to his knowledge of psychology rather than to his study of rules and strategy.[2] But Le Bon, who was not a military man, has condemned histories on general principle, observing that "they are fanciful accounts of ill-observed facts accompanied by explanations the result of reflection" and that the writing "of such books is a most absolute waste of time."[3] In spite of Wavell's preference for biographical works and books of fiction and Le Bon's aversion to history, which is not without value as a challenge to historians, it must be concluded that the study of past wars is fundamental to preparation for the next.

Every individual in the military service, from the basic private to the Chief of Staff of the Army, will find a knowledge of military history and especially of American military history valuable in the solution of problems, both in peace and in war. This is true because current military problems cannot be solved without an understanding of the past in which they are rooted or, as carved in stone at the entrance to the National Archives, "What is past is prologue." In other words, we must be rooted in the past to understand the present that we may project ourselves into the future.

Military History in the Development of Esprit de Corps

A knowledge of miliary history can play a vital role in the development of *esprit de corps* in the Army. But as Fortescue, the eminent British military historian, has said, "without knowledge of military history men are really unconscious of the existence of that most wonderful of moral forces . . . and it is not a thing of which anyone can afford to be ignorant."[4] In line with Fortescue's warning the United States Army has called upon military history in many ways.[5] In the Education and Information program, the soldiers are informed of past heroic deeds and accomplishments of individuals and units and are furnished *The Soldier's Guide*, containing historical material. Army posts are generally named for widely known military men; buildings and streets for others or for military organizations. Colors and standards are decorated with streamers carrying the names of battles or campaigns in which the unit has honorably participated. For many years *Retreat* has included the strains of music inspired under the "rockets' red glare." In many units mounts and vehicles have borne the names of distinguished soldiers of the past. These things can be turned to advantage by those who will take the trouble to weld the deeds and records of the past to the task in hand. If successfully accomplished the Army-in-being comes to live and function in the best traditions of the past.

Military History and Mutual Respect in the Armed Forces

A comprehensive knowledge of military history will facilitate mutual respect and understanding in the armed forces; the broad problems of the higher commanders will be more readily comprehended by subordinates; and the complex human, ma-

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terial, and physical problems of the soldier and of the small-unit commanders better appreciated by superiors.

Military History and Leadership

Military history and the biographies and memoirs of military men of all ranks constitute the best source material for the study of military leadership. Even though there is a paucity of good biographies and memoirs, particularly in the lower echelons, this material is the best available for an understanding of character, of the characteristics of men, of good and bad leadership, and of the influence of eminent personalities upon events. The studies dealing with the fighting men should be read with the realization that bad soldiers tend to leave many documents hehind them, while good soldiers leave only the briefest sort of records or merely a name. For this reason even so-called "factual studies" of the fighting men are usually heavily loaded on the seamy side of life. If the study is to be profitable, the student must analyze, evaluate, and judge the qualities of both fighting men and leaders, with due regard to the circumstances and conditions under which they worked. But as Wilkinson has said, "This jndgment must never degenerate into mere negative criticism. . . ."[6] It should enable the thoughtful student to determine and to identify in others the desirable traits of soldiers or of leaders in both staff and command positions. This study should enable a military man to become a practical psychologist, but should not lead him to become pedantic or academic. As Clausewitz has pointed out, a commander "need not be a close observer of men, a sharp dissector of human character, but he must know the character, the feelings, the habits, the pecnliar faults and inclinations of those whom he is to command."[7]

To he of maximum value in teaching military leadership, history must be factual and frank. Histories written during the lives of the actors or too near their era are generally tinged with partisanship, colored by self-interested flattery, and influenced by the selective treatment of source material. Histories written too long after the time of the participants are frequently fictional or sentimental. Neither type of history is satisfactory for teaching leadership. History cannot, therefore, serve as an entirely satisfactory hasis for instruction in leadership until it is written in such a manner that it portrays the participants, their merits and deficiencies, their temperaments, doubts, and ambitions, their Janus faces, their tensions and contrasts, and their physical and mental conditions.[8] When it becomes possible to write of public men as one would write of property, the greatest value to be derived from military history probably will be its influence on the development, training, and selection of honorable, skilled military leaders. Such writing cannot be done in official histories written contemporaneously with events. It is an appropriate field for the independent historian who writes after passions and partisianship have been stilled hy time.

Military History in Instruction and Training

Military history is the very foundation of our knowledge of tactics and strategy. It is also the foundation on which the theoretical and practical training of troops and the development of training directives is hased. It gives life to the bare bones of facts and regulations. An instructor who is not grounded in military history appropriate to the level of his instruction is dry and pedantic and will accomplish no great results. On the other hand, one who not only knows the principles but who also can illustrate them by historical examples, giving facts concerning troops, commanders, weapons, supply, communications, terrain, and weather, can give life to his instruction and make it useful. This is just as true in troop training as in formal instruction in military schools. Above all else, however, military history gives an interesting and deep insight into the minds and hearts of military men, into tactical and strategical methods, procedures, and principles, and into the relation between war, politics, economy, philosophy, geography, and the mentality of nations and races.[9]

If military history is to serve as a basis of instruction and training it must be factual and objective. Propagandistic history or censored history is extremely dangerous and should not be used as the basis of instruction in military schools or in training. Such history is not history at all. It can provide no sound lessons or basis of intellectual and professional training. It leads to false conclusions. And it fosters one of the worst evils in professional military thinking—self-deception.

If military history is to be of greatest value in instruction and training it must be more than a logical, factual record or account of events. After the facts have been synthesized into an effective record there is a final step in the project—the analysis of the facts and the formulation of conclusions based on that analysis. This last step can he taken only by one who is both well-grounded in historiography and professionally qualified to deal with the military organization and the operations recorded. In dealing with these subjects at the higher levels the analyst must have a knowledge of national policy, of the higher organization for war, of military geography, of strategy and grand tactics, of logistics and techniques of the combined arms, and of weapons. At the lower levels of military organization and operations the analyst must have a knowledge of troop psychology, of weapons, of terrain, of weather and climate, and of tactics, logistics, and techniques of the comhined arms.

Military History and Changes in Tactics and Techniques

One of the most important lessons a military student can learn from history is the necessity of quickly recognizing the changes in tactics and techniques which are indicated during the course of a war, and especially during the meeting engagement. It is at these times that secret weapons and differences in tactics and techniques show up most clearly and require immediate adjnstment to conditions on the battlefield. History teaches that commanders must react quickly to the new conditions and at the same time transmit information to higher commanders concerning the circumstances and occurrences on the battlefield which indicate a need for changes in equipment, tactics, and techniques.

The study of the initial phases of military operations deserves special attention. These are periods that mark the introduction of new weapons, new tactics, or inexperienced troops; that involve a sudden shift in type of ter-

rain, in defensive arrangements, in weather, or in seasonal conditions. It is during these periods that faulty organization, inadequate or impractical training, inefficient weapons, failure of leadership and communications, inadequate logistical support, faulty coordination of the various arms, unforeseen effect of weather and terrain, rumors, and many other factors, some almost intangible, create a state of confusion which should challenge every military student. Knowledge gained through a study of the initial phases of past operations will pay untold dividends to those who may be involved later in similar situations.

Learning from Experience and the Experience of Others

A military student should not allow personal experience on the battlefield to limit his point of view but should add to it the experiences of others.[10] Conclusions and principles, based on a single, personal experience or an inadequate preparation in military history, are very dangerous. Ardant du Picq, a profound student of combat, has expressed the matter in another way. In a questionnaire submitted to contemporaries he said, "Whoever has seen, turns to a method based on his knowledge, his personal experience as a soldier. But experience is long and life is short. The experiences of each cannot therefore be completed except by those of others."[11] In short, a careful study of objective military history with an open mind and with the determination of learning from the experiences of others will be of great benefit to any military student.

The principles of strategy have been evolved from an analytical study of many wars. They are, therefore, based on a great many experiences of the past and are immutable. "Consequently, the Army extends its analytical interest to the dust-buried accounts of wars long past as well as to those still reeking with the scent of battle"[12] with the object of the search dictating the field for its pursuit.

In the field of tactics and techniques, doctrine based on personal experience or the experience of others is apt to lead to error, for, as General MacArthur has said, "In every age these [tactics] are decisively influenced by the characteristics of weapons currently available and by the means at hand for maneuvering, supplying, and controlling combat forces."[13] Leadership, organization, communications, training, morale, terrain, weather and climate conditions, and the enemy will also differ as well as many other things. Peacetime tactical doctrine, therefore, can be determined only by a process of reasoning, by studying experiences of others in the most recent wars, and by experimentation. When doctrine has been subjected to test in actual battle it should be quickly readjusted to conform to reality and kept in step with conditions during the entire course of operations.

Military History and Learning from the Vanquished

Upon the conclusion of a war the victors decide how they should organize and equip for the future. They base their conclusions on their own experience, which, no matter how great, is limited. It might be said that the victors reorganize on the basis of considerable self-esteem, attributing their success to better organization, equipment, training and leadership, while the vanquished reorganize on the basis of considerable humility, analyzing events and determining and eliminating weaknesses, with the intention of defeating the recent enemy. Military progress is therefore slow among the victors because conceit and complacency too often have the upper hand. The vanquished, however, looking further ahead, build new organization and new equipment. This lesson should be carefully heeded by the United States: having won all the wars in which it has engaged it is in a certain degree of danger because history reveals that military victory has frequently contained the seeds of weakness, deficiencies in coordination, training, discipline and leadership, inefficiencies in organization and logistical arrangements, inadequacies of intelligence, and shortcomings of equipment and supply.

The most convincing lessons can be learned from defeats. But it is infinitely best to learn from the defeats of others. It is, therefore, advantageous to study and analyze the records of the vanquished. The student of military history should give careful consideration to the writings of the leaders of defeated nations who have been allowed to express themselves unhampered by censorship. Frequently, much more can be learned from them than from the leaders of victorious nations, who are apt to pass over the unfavorable matters and leave the impression that few mistakes were made. The veil of censorship usually continues in victorious nations where the proprieties are at least insisted upon and military regulations and discipline are at hand to enforce them.

Military History in Preparation for the Higher Direction of Military Affairs

The American Revolution was but the prelude to the era of peoples' wars, the wild and desperate struggles that have grown in intensity and destructiveness down to the present time. As Marshal Foch has said: ". . . they were to set themselves the goal, not a dynastic interest, not of the conquest or possession of a province, but the defense or the propagation of philosophical ideas in the first place, next of principles of independence, of unity, of immaterial advantages of various kinds. Lastly they staked upon the issue the interests and fortune of every individual private. Hence the rising of passions, that is, elements of force, hitherto in the main unused."[14]

In the United States, the direction of the armed forces is vested in the civilian Chief of State or President, and the policy matters in the Congress. The Executive and the Congress are elected to office and have rarely been trained or soundly experienced in military affairs. The President must of necessity coordinate the vast executive agencies of the government in both peace and war. He must understand the various agencies, the contributions they can make to the national security, as well as their requirements. He must also be capable of convincing the policy-making body or Congress of the necessity for these requirements. At the same time he must be capable of decentralizing the execution of tasks to subordinates.

As General Maurice has pointed out, much of the difficulty in the relations between statesman and soldier has arisen in the past because of a misconception of what is meant by the conduct of war.[15] Too many mili-

tary men have thought of it as the direction of the armed forces in actual operations. Today, however, it implies the direction of the entire power and resources of the nation in pursuit of national objectives and their coordination with those of allies. This is certainly beyond the responsibility of the highest ranking military commanders even though they are intimately concerned in them because of their bearing upon the preparation and organization of the nation for war. On the civilian side the statesmen are generally even less prepared for their role in a national emergency because the civilian educational system has long ignored the study of war but has left it almost completely to the initiative of those who aspire to high government positions.

The soundest preparation for an understanding of the delicate relationship of statesman and soldier and of their mutual problems in the conduct of military affairs in peace and war can be made by studying history —particularly American history of the periods preceding, during, and following national emergencies. Unfortunately, future statesmen are rarely sure of their place in sufficient time to make the necessary preparation, and the problems of war are rarely taught in civilian colleges or universities even though the methods of dealing with war should be understood by all intelligent men and women of America. Personnel of the armed forces are in much better position to foresee their future roles in war than these unknown ones who will some day be their superiors. They should, therefore, conscientiously prepare themselves for the supporting roles of advisers to the paramount civilian authorities and of instructors to the American people. Both roles will require great moral courage if the public interests are to be best served. An improperly prepared individual or a base flatterer may rise to the position of chief adviser on the basis of personality and lead his superiors and the country to ruin. The bloody pages of history are replete with examples of this kind.

Today, every element of national strength—ideological, spiritual, psychological, political, financial, economic, technological, and military—are involved in war and in the preparation for war. Even worse, imperialistic communism has made conflict a continuing and continuous activity among the people in every land in the world. The very name *war* has become too restrictive. *Universal conflict* better describes the relations of man to man, of people to people, and of state to state in the shrunken world of the twentieth century.

Now, less than ever before, can responsible military leaders ignore the broad fields of knowledge involved in this modern concept of *universal conflict*. Accordingly, military leaders who are responsible for advice on strategy must be versed in the broader aspects of all of these matters and must bring to their task a balanced judgment capable of giving to each the correct value it deserves in solving the great problems that arise in this rapidly changing world.

Above everything else, however, American military leaders must have a knowledge of their own land and its people and of its military history. Without this fundamental knowledge decisions will sooner or later transcend the practical and realistic. This could only result in a national catastrophe.

Military History in the Education of the American People

The military student can render an important service to the United States by making clear to the people and their representatives in Congress the bases, causes, and characteristics of war, the principles underlying the conduct of alliances, the coordination of domestic, foreign, and military policy, and the conditions governing the conduct of operations and the men who fight them. In doing so, as Burchardt has pointed out, the history of our country, threatened with the same pitfalls that have engulfed other nations in the past, should be considered in parallel with that of others and in relation to world history and its laws—a part of a greater whole.[16] This will require not only an understanding of the histories of existing nations but of those, once powerful, but now gone forever. The importance of the subject and the profound lack of understanding of war by the people and their representatives, not entirely attributable to indifference, should spur the patriotic military man to undertake the unpopular and unprofitable role of instructor to the masses and to their political leaders.

The role of instructor to the people is, however, a difficult and thankless one. Many of the thinkers who attempted it have lacked objectivity and in their zeal have adopted propagandistic techniques. But even the best have been accused of warmongering by their opponents when in fact the latter were planting the seeds of war.

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[1]Napoleon, *Mémoires écrits à Sainte-Hélène,* ed. Gaspard Gourgand (London, 1823), II, p. 51.

[2]Field Marshal Earl Wavell, *The Good Soldier* (London, 1948), pp. 20-21.

[3]Le Bon, *The Crowd* (London, 1921), p. 54.

[4]J. W. Fortescue, *A Military History* (Cambridge, 1914), p. 39.

[5]DA Cir 100, "Military History Indoctrination Plan," 1952.

[6]Spencer Wilkinson, *The Brain of the Army* (Westminster, 1895), pp. 164-67.

[7]General Karl von Clausewitz, *On War,* trans. Col. J. J. Graham (London, 1940), I, p. 116.

[8]MS B-295 (Blumentritt), pp. 7-9. Applied Studies Br, OCMH. This study on the writing of military history was formerly written in 1946 by General der Infanterie Guenther Blumentritt, formerly chief of staff of the German Commander in Chief, West.

[9]*Ibid.*

[10]Friedrich von Bernhardi, *On War of To-Day* (London, 1912), pp. 44-46.

[11]Ardant du Picq, *Battle Studies,* trans. Col. John N. Greely (Harrisburg, 1947), p. 8.

[12]General Douglas MacArthur, *Annual Report of the Chief of Staff for the Fiscal Year ending June 30, 1935,* p. 72.

[13]*Ibid.*

[14]Ferdinand Foch, *The Principles of War,* trans. Hilaire Belloc (New York, 1920), p. 30.

[15]Maj. Gen. Frederick Maurice, *Governments and War* (London, 1926), pp. 112-28.

[16]Jacob Burchardt, *Force and Freedom* (New York, 1943), pp. 89-90.

FROM THESE PAGES

65 Years Ago

Well informed Russian officers maintain that an army possessing a large number of mounted men capable of being nsed as infantry has great advantages over that army that does not have them; and that any cavalry without them is unsuited for the requirements of modern warfare. While in no way neglecting the training of their cavalry, as such, they go farther, and, using the horse as a means of rapid locomotion only, deliver the trooper at the required place in the shortest time, there to cope with infantry on its own ground, with its own weapons, and in a kind of combat learned from it. After the combat the horse again comes into use to bear the trooper, if victorious, in pursuit; if defeated, to a place of safety.

The aim of the Russians is to make the cavalry feel its own independence and its ability to take care of itself under any and all circumstances. With this view they are taught to throw up temporary earthworks and to charge with the bayonet. But little value is placed on the revolver; on foot the trooper's weapon is the rifle; on horseback, the saber.

To show that all this fighting on foot and general service as infantry has not caused a deterioration in the cavalryman, I will mention one fact only, viz: that, in their drills, sections and squadrons practice in charging against one another, passing through one another's ranks. If they are not good cavalrymen this manoeuvre will show it; for the good seat, quick eye, and thorough command of the horse—all requisites of good cavalry —are necessary to a completion without accident of this movement.

The Russian Regular Cavalry
1st Lt. E. A. Ellis

50 Years Ago

As one would suspect, the cavalry is the favorite arm of the Kaiser, who is a soldier born and bred, looks and plays his part, and it was a sight of a lifetime to see him leading his cavalry corps. The first general charge was made in successive lines of brigades, after the horse batteries with the cavalry had shaken the right wing of the enemy. The first rush of about one and one half miles was over a grassy, rolling country; then came some floundering in cultivated fields and several spills into the ditch of a formidable railway embankment. Their double rank formation made the few messes worse. But the squadron leading was fine, and the successive lines of hussars, cuirassiers, dragoons and uhlans swept over these rough stretches and swooped down on the infantry, which had rallied by small units. The fine leading showed again as the squadron scattered through, coming together again like flocks of birds. The guns came next, and after a whole division of infantry and 128 guns in position had been ridden over, the Kaiser sounded halt and assembly.

Notes on the German Maneuvers
Lt. Frank R. McCoy

25 Years Ago

The question of organization of motorized army units (Divisions or Brigades) occupies constantly the military circles of all governments.

There is no doubt that the technics will succeed within measurable space of time in creating motorized units which will be sufficiently mobile to be suitable for combat, and can, therefore, be well used for special purposes. It is unqnestionable also that there will be only a small number of such units. Motorization of the whole army, even in countries with high industry, best system of roads, abundant supply of fuel and oil and money, is an utopia for many years, probably forever.

Motorized and Cavalry Divisions
Colonel Mauriz Wiktorin
Austrian Army

10 Years Ago

In 1934, a remarkable treatise on mechanized warfare was published in Germany by a former Anstrian Artillery General, Ritter von Eimannsberger, under the title of, "The Tank War." It made a great impression on both German and Russian military circles and, to a certain extent, considerably influenced the development of mechanized doctrine. Eimannsberger's influence, however, was more organizational than tactical. His tables of organization for panzer division no doubt played a considerable role in the final makeup of these divisions which emerged on Poland in 1939. With a few deviations, their elements bore a striking resemblance to Eimannsberger's blueprints.

He also laid the groundwork for the modern antitank defense, although, naturally, at that time the concept of antitank defense was purely along artillery lines. The possibility of fighting tanks with close combat weapons was not even considered. The Spanish Civil War brought the first pioneer efforts in this field.

On the other hand, the tactical views presented by Eimannsberger were unanimously rejected by the German tank experts. He failed completely to grasp the most important principle underlying the blitzkrieg tactics, which is a battle, or rather, a series of battles, on a narrow front, each one devised so that the full weight of the armor could be concentrated against a weak spot in the enemy's defense and just as quickly changed to another spot if the resistance at the original point of thrust proved to be unexpectedly strong. Fluidity and flexibility in a tactical sense, combined with the idea of encircling the enemy by means of two or more converging attacks, can be called the essence of the blitzkrieg.

Tanks in Night Combat
Nicholas Corotneff

SOMEWHERE BETWEEN YESTERDAY AND TOMORROW

by MAJOR LAMAR McFADDEN PROSSER

OVER every battle there hovers an atmosphere of uncertainty. The multitndinous complex factors of time, weather and terrain about which we can never be sure; the inevitable conflicting reports; the time lag between the action itself and the reports to the commander; all these combine to obscure the true facts. This obscurity has often been called the *Fog of War*.

But there is also obscurity in much that we do in the intervals of peace. Exaggerated newspaper reports contribute to this uncertainty; highly colored and opinionated claims prompted by branch patriotism sometimes cloud the issues; strict and vitally necessary security restrictions have the unfortunate effect of withholding the light of truth; and so, the *Fog of Peace* swirls about us and we grope towards the future in a twilight of apprehensive speculation.

Struggling to keep in contact, we guide on the opinions of the man ahead, as the soldier on patrol guides on the white tape marking the helmet in front. Now and then some blinding flare of misinterpreted half-truths bursts before us to confuse us with grotesque shadows, but at intervals a flicker of brilliant reason stabs through the murky darkness and silhouettes for a moment the dim shape of the future. And where are we now? —somewhere between yesterday and tomorrow.

The path ahead for the ground forces has been marked out by many able leaders, all of whom agree that the trend of our developments and the strategic situation of the Free World point toward the need for developing greater mobility in the ground forces. That we may lack the degree of mobility required was strongly suggested by our former NATO Commander, General Matthew B. Ridgway. In a statement to the press in Paris, 29 September 1952, General Ridgway said, "If we are jumped tomorrow or next week, or in the coming months, we will have to fight a defensive, delaying action and use to the maximum the mohility we have on sea and in the air. We do not have a mobile land reserve. We will fight with what we have on the ground. We do not have an adequate covering force—adequate mobile reserves to back them up, nor adequate logistical support for either one. If we are assailed tomorrow we are going to have a very bad time and take some severe and punishing blows." This is a sobering thought and it has not received the consideration it deserves. Less than a decade after winning a great war with an army conceded to be the most mobile military force of all time we are warned that we now lack this essential characteristic in our defense forces. Why?

We must all concede that we are not now as strong in numbers of fighting nnits as we were at the end of the war. We might even go so far as to admit that the expense of maintaining mechanized forces in peacetime has forced the army to accept a smaller number of completely mobile divisions than is desirable. But the real cause of our present difficulty is the fact that postwar developments have so accelerated the pace of war and so greatly altered our traditional concepts that we have not yet caught up organizationally. The power of contemporary weapons calls for greater dispersion on the ground, and this wider separation of units and individuals in turn demands increased mobility of the component parts of the fighting force.

Just so far, the road ahead is well defined. Bnt as we consider means of achieving this additional mobility, the path disappears again into the *Fog of Peace*. We must sift and analyze, weigh and compare many divergent views.

The advocates of airborne warfare, for instance, tell us that the "aerial operations of possihle future wars will he like nothing previously experienced." Whole armies are to be transported and maintained by air. There will be no targets invulnerable to airborne attack. Any point on the globe of sufficient strategic value can, it is said, he seized by airborne armies. We are said to he relieved from the necessity for slow, painful, expensive overland attacks. Instead, we will move directly to the assault on targets of stategic importance; flying over the defenses, we hit at the nerve centers of production and the hrains of the enemy government.

Is this the trend of warfare in our times? Many recent peace developments seem to bear out the aerial theories. The accomplishment of the Berlin Airlift in which we and our allies kept a city of millions supplied with every necessity and some luxuries for a period of months would seem to show that the scope of the airborne theory is not an exaggeration. However, we must consider

MAJOR LAMAR McFADDEN PROSSER, Armor, is Unit Instructor of the 149th Medium Tank Battalion, California National Guard, Salinas, Calif.

Dissipation of strength, be it Infantry by piecemeal attack or Armor by parcelling it out in Battalion and Company packages, is a danger to our Defense effort. A re-examination of our past, a look at the present, and a glimpse into the future may serve us well.

what the result might have been if this operation had been opposed by jet interceptors, by antiaircraft units firing guided missiles, by counter-bombing of the crowded airfields, by atomic bombing of the supply bases and by an active and mobile enemy on the ground. No one who saw that bridge of planes from Frankfort to Berlin (the Germans called it the "Air Bridge") could help but be inspired, and no one who saw it could help but doubt that it would be possible in war.

Up to the present moment, no airborne force has ever been launched into combat under conditions where we did not have nearly absolute control of the air. The airborne forces have never yet had to fight in the air before reaching their target areas. If they are incapable of doing so, it must follow that airborne operations are not practicable until the attacker controls the skies. It may be said that we could always seize temporary control of certain selected airways in order to deliver the airborne and air-transported force to its target. But there is the problem of sustaining it. How are we to supply it with food, ammunition and replacements? Any serious failure of the resupply plan of an airborne force can only mean its eventual destruction for, like a city under siege, when supplies are exhausted it can no longer fight.

Airborne organizations depend largely upon fighter aircraft for anti-tank defense and for support missions which would be handled by the artillery in a traditional ground force. It is unlikely that this much needed close air support would be possible until the enemy fighter defenses were at least partially neutralized.

Unlike traditional infantry, the airborne trooper cannot count on the accurate fires of Corps and Army Artillery. He is not yet backed up by air-transported tanks. Once on the ground, he is no more mobile than the traditional infantry. In fact, he is less so, because he carries with him only a few jeeps and 2½-ton trucks for his towed guns.

The airborne soldier is entirely dependent upon his brothers-in-arms whose feet are firmly planted on the ground. He cannot exist indefinitely on his own.

There has been only one airborne campaign in history wherein all other branches were excluded—the German seizure of the island of Crete. In this action the German paratroopers were supported only by the *Luftwaffe,* and there was to be no link-up with other forces. They dropped, seized and held an island, after which they were supplied by the German navy. When the navy could no longer operate in the adjacent waters, the force had to be withdrawn. In spite of vastly improved airborne means, it is likely that airborne operations in the future will remain *special* operations and that they will be conducted in conjunction with overland attacks. The most striking example of this type of battle was Field Marshal Montgomery's plan to seize the crossings over the waterways of Northern Holland in depth by airborne forces and to push through with armored units to link up the resulting chain of airheads—Operation Market Garden. It was described by General Bradley as, "the most imaginative operation of the entire war." It failed because the weather prevented close tactical air support and made the resupply limited and inaccurate. Though it failed, it was sound in conception because it exploited the capabilities of both airborne infantry and armor—each separately and both in combination.

Our airborne forces held in strategic reserve are an important element in our national defense owing to the speed with which they can be shifted to any threatened theater of operations. Once there, however, they must fight on the ground, and on the ground it is overland mobility that counts. This, the present airborne division does not possess.

Aside from its immobility, once committed, there is at least one other fatal weakness: the airborne division has no adequate antitank defense. General Gavin testifies to the effectiveness of tanks against an airborne force. He says, "Airborne troops are at a great disadvantage in open country fighting against armor," and again, "Armored units are particularly valuable against airborne troops." The General then mentions the new bazooka and concludes that it has made "tanks in their present form as extinct as the elephants of Goma and the heavily armored Knights of Agincourt." In justice to General Gavin, it must be noted that all these remarks were made before Korea—before the "bazooka shaped-charge" advocates had met their great disappointment. For when the new bazooka was rushed to Korea with a great enthusiastic fanfare in the press, it was found that though the size of the projectile had been increased, it was still a weapon of very close range and inaccurate. The North Korean

force of approximately 200 tanks (4 battalions) was not stopped by the new bazooka nor by rocket-equipped planes. The Red drive finally petered out through lack of replacements and was stopped by M-26 and M-46 tanks rushed from the States—proof that armor has not yet reached its Agincourt.

The combination of these two fundamental weaknesses, a lack of battle mobility and a lack of an adequate defense against armor, compels us to limit our airborne plans to objectives which can be brought within reach of ground forces in a predictable and limited space of time. If we are searching for the new mobility, we will have to seek it elsewhere, for even through the *Fog of Peace* we can see that airborne forces lack it. While they possess almost unlimited *strategic* mobility, they lack battle mobility.

But what of the traditional infantry division? Can "motorized" infantry achieve the requisite mobility to operate effectively against a well equipped enemy? For the answer to this question we must study carefully the effectiveness of the division in World War II. One startling fact becomes evident as we review the major operations of the last war: No American Division (with the exception of the troops caught at Pearl Harbor) was committed to action in any battle during which the enemy was predominant in the air. In North Africa, in Italy, in the island-hopping campaigns of the Pacific, and finally in Europe in 1944, the enemy's dwindling tactical air force was used almost exclusively in aerial battles against the invasion of the enemy's home country by our strategic bombers. We did not suffer as did the French and English armies which were decimated by the close cooperation of the *Luftwaffe* and the *Panzer* forces in 1939-40. American troops never really experienced effective air-ground resistance. This was due to several factors. A German overemphasis on heavy bombers during the Battle of Britain resulted in insufficient fighter-bombers in the later stages of the war. Attrition during the first four years of the war linked with disrupted production began to be felt. As the Allied bombing offenses accelerated, the few fighter craft available concentrated on the defense of cities and other strategic targets, with the result that our land campaigns met little effective resistance from the air.

We were consequently able to use organizations and tactics which were actually already obsolete and we permitted ourselves to develop some bad habits—which have been carried over into our present organizations and tactics. Had the enemy's tactical air force been brought to bear against our ground operations, a great many of our most successful moves would have proved impossible. Not just the logistical improvisations of the famous Red Ball Express but the usual, SOP type, movements of our motorized divisions would have been affected. It will, no doubt, come as a shock to some that only one in three of our wartime divisions was motorized. Still, we were free to utilize fully the excellent road net that existed and to shift divisions—even on occasions armies—with little fear of interruption from the air. This condition did not exist while the Germans had an air force. It will not exist at the beginning of World War III.

The present infantry division is not a mobile organization, yet the bulk of our army is infantry. The individual foot soldier in the infantry division is overloaded. As General S. L. A. Marshall has observed, "The soldier cannot be a fighter and a pack animal at one and the same time any more than a field piece can be a gun and a supply vehicle combined." Certainly a machine could be used to relieve him of much of his combat load. Somehow, regardless of the fact that the machines exist and that the infantry has them, "the machine has so far failed to reduce by a single pound the load a soldier is required to carry in war."

But fundamentally it is the organization itself which is the limiting factor. I am not referring to the refrigeration units, the mobile showers, the special service clubs and the like, which are dragged across continents; because these can be and are stripped away when the situation demands. What *I do* point to as restrictive factors are the regimental tank companies, and the tank battalion which are simply an embarrassment to the infantry division. I dare assert that even the infantry element of the division is now too large. There are too many men in the infantry regiments and it is this bulk—this sheer overweight—which destroys its mobility.

The division began to grow to its present corpulent size in World War I, when, for the first time, armies found it necessary to tie their flanks to insurmountable continental barriers. The race to the sea and the resulting unbroken lines from the Alps to the Atlantic came about because the mobile capabilities provided by truck and train made it possible to shift great bodies of troops rapidly and thereby to flank any opposing force. To seal their flanks both the Allied and the German commanders found it necessary to extend to the limit of the geography. Bulk became necessary to fill those long trenches and, though they were generally unsuccessful, massed attacks were the order of the day.

Mechanization came about between the wars. This increased mobility still forced commanders to fill the space between geographical barriers but there was now the additional capability of penetration because the deadly machine gun and heavy artillery barrages were largely overcome by armor. The infantry division was consequently augmented by the addition of antitank units, the attachment of GHQ tank battalions and the like. After the last war the division absorbed all these units and there is now a need to reconsider the larger strategic situation to determine the usefulness of all this mass.

Atomic weapons have now reached such a point of development that a penetration is possible at any place. We cannot now hope to block a continuous front across Europe. There is little need now to establish an unbroken line, if by the use of atomic weapons that line can be penetrated at will.

What we must now strive for is controlled-dispersion. Mobility has come back into warfare and battles of the future will be battles of maneuver. We must maintain contact with the enemy because by becoming closely engaged, we make it difficult for the enemy to use his most destructive tactical weapons, without destroying his own troops. In so doing we must not become so heavily concentrated as to offer a tempting target ourselves. And all the while we must remain mobile in order to react quick-

ly to any move and to exploit our own use of the atomic weapons.

The infantry division as it is now organized is incapable of this sort of employment. The mobile capabilities of our enemy brought about the present massive division. The mass destructive contemporary weapons will bring about mobility. The pendulum swings and tactics and organizations must change to fit technological developments. Instead of continuous fronts and unbroken lines which are no longer effective, we will develop a cellular defense and even maintain dispersion in the attack. Battles will be won by the maneuvering of small task forces or combat teams, each too small to be a suitable atomic target, yet powerful enough in terms of firepower and speed to strike swift, powerful blows at the enemy's dispersed forces, or to force the enemy to concentrate so that our own mass destructive armaments can be profitably employed. Penetrations made by the use of these new weapons must be exploited quickly if we are to squeeze the fullest advantage out of the surprise and disorganization they will create. Men on foot move too slowly for such missions. Mounted on trucks, they are confined mainly to the roads, which will probably be badly torn up and partially blocked by destroyed bridges and debris caused by the new weapons' blast effect. To exploit fully the breach we have made, we must be able to move rapidly cross-country in dispersed formations while carrying with us long-range weapons capable of covering the intervening spaces. It is illogical to expect our infantry division as it is now organized and equipped to carry out missions such as these.

Can we utilize airborne troops to exploit atomic explosions? We certainly can and probably will, but the weakness of the airborne trooper once he is on the ground will also force us to employ other ground troops for his protection.

If neither the traditional infantry nor airborne forces, as presently organized, are completely adaptable to warfare in our day, is armor any more so? Let us try to be objective in the examination of our own branch. Let us try to find the truth and not simply a justification.

The greatest value of armor today is, paradoxically, not armor at all, but its mobility and its flexibility. True, the armor provides an excellent shield against the blast and radiation of the fission weapons, and this relative immunity must not be overlooked. But essentially, it is the ability to move dispersed and still concentrate its fire that makes armor the arm of decision and the weapon of the future. If it has become useless—even impossible—to establish continuous fronts across the face of a continent, then we must rely upon our ability to move quickly overland and simultaneously to concentrate *firepower* without physically concentrating our troops. This is a function which can only be performed by mounted forces. Armor appears to be more adaptable than any of the other branches of the Army to fight the fluid battles of the Atomic Age.

But even armor is not yet ready to take the lead in working out the techniques of tomorrow. It is not ready because at this moment it is still splintered and scattered in pigmy-packets throughout the other forces. It is much closer to yesterday than to tomorrow.

In order to he prepared in advance for the type of warfare we know to be possible now, armor needs a laboratory—a military laboratory in which to test the new against the old. We have several installations and numerous boards constantly testing and improving our equipment. We have no facilities for testing tactics. The armor of the U. S. Army is, for the most part, scattered throughout the infantry divisions. We have only two real armored divisions. The remainder, armored in name only, are training infantry replacements!

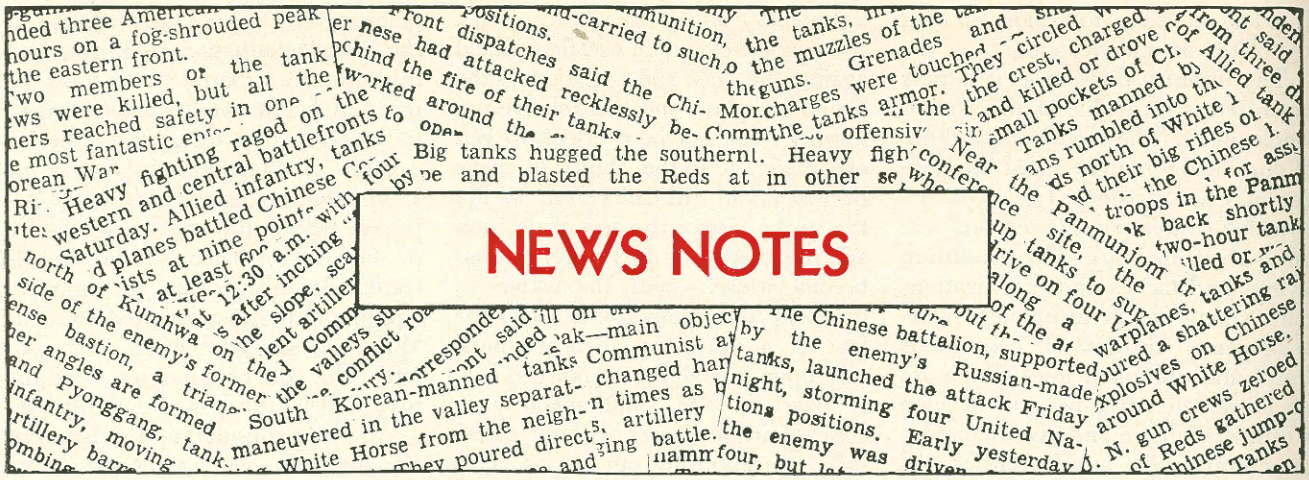
The subordination of armor has come about because we were lost in the *Fog of Peace* somewhere between yesterday and tomorrow. When newspapers told us that tanks were as obsolete as the bicycle-built-for-two, too many of us believed them. We lost our most outstanding and most successful armored leader after the war. Today, no officer of sufficient stature has taken his place as an advocate of armor. We have rightly become cost conscious in the last eight years, but we seem to have become so conscious of cost that we have not yet begun to adjust our forces to the technical and scientific developments of our day. We have been forced to narrow our planning and restrict our thinking to the peculiar situation in Korea, and this infantry-airborne trend must be reversed before we become engaged in a continental war, for neither is capable of effective employment in 1953, and we might easily be defeated before the weakness of the present lack of balance could be corrected. It takes years to organize, equip, and train an armored division. Who can say how many years are left? The cost of a failure to adjust may well be the loss of our freedom.

Another consideration: the continuous fronts we maintained in the past, flanks neatly tied into mountains or oceans, made it possible for us to establish a main supply route over the existing roads and to resupply our mobile forces by using wheeled vehicles Now that our scientific weapons make it possible to pierce those continuous lines at will, these makeshift supply vehicles and inflexible supply routes are not adequate. Only ground forces flexibly organized, mounted in vehicles which provide complete battle mobility, and supplied by vehicles capable of operating cross country for prolonged periods, can successfully exploit the great power of contemporary weapons. Forces so organized and so equipped can absorb the destruction of fission weapons and maneuver to block the enemy's follow-up, denying him the advantage he has gained by their use. Only such a force could effectively exploit our own use of these weapons, moving quickly through the area of the explosion and striking deep in the enemy rear.

These changes will come about eventually because necessity will force them. If we wait until the possibilities are demonstrated for us by our enemies, learning may be painful and correction impossible.

The *Fog of Peace* is no mere figure of speech. It is a very real and dangerous weather which always prevails between yesterday and tomorrow. It has cost us lives and money in the past even though we were fortunate enough to have other countries fight the opening battles while we learned. Tomorrow we will likely be the priority target for any aggressor.

It's time we re-examine the battles of yesterday and prepare for those of tomorrow.



NEWS NOTES

More Land for Hood

Approval of the acquisition of 54,000 acres to be added to the Fort Hood reservation has been given by a subcommittee of the Senate Armed Forces Committee, it was recently announced.

This is the final action to release the funds approved last year which will permit the Engineers of Fort Worth District to proceed with the acquisition of the needed land. Expansion of the sprawling Central Texas post is essential to the training of the 1st Armored Division. The increased range and fire power in the newest model armored and infantry weapons with which the 1st Armored Division is equipped demand increased firing ranges, and consequently, greater impact areas.

Lieutenant General Bruce C. Clarke, now commanding I Corps in Korea, was the first to prompt the expansion of Fort Hood. Commander of the 1st Armored from its reactivation in 1951 until he was succeeded by General Doan in April, 1953, General Clarke prepared plans for the new firing ranges. The House approved the action last November.

In addition to affording longer firing ranges and larger impact areas for the 90mm and giant 120mm tank guns, the post's extended boundaries will allow 1st Armored soldiers to practice stream crossings and participate in other water training when Belton Lake is filled.

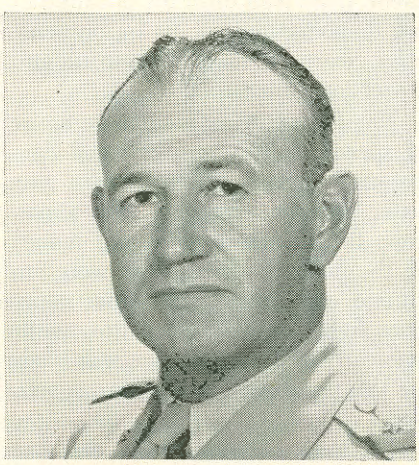
The additional land will also mean greater flexibility in the training for the men of Fort Hood on both a Combat Command and Division basis.

As anticipated, approval of the reservation's expansion was announced after an executive session of the Senate Armed Forces subcommittee recently. A letter from Secretary of the Army Robert Stevens urging favorable action was read to the subcommittee during a morning session. Until that time the detailed contents of the letter were not released.

The Army Secretary's request was a direct effort to speed up acceptance of the proposal and initiation of expansion plans.

Fort Hood is the only training site in the United States at this time where an armored division has adequate facilities to carry out its training mission, and with the additional area this post becomes the largest permanent armored post in the world.

STATESIDE



Lt. Gen. I. D. White
To Commanding General, Second Army

Armored Personnel Carrier—Battle Tested

A recent news release from Korea reveals that the M75, Armored Personnel Carrier (formerly identified as the T18) was used for the first time in battle.

The Army lifted secrecy recently on how it evacuated United States Seventh Division soldiers safely in daylight along a perilous dirt road winding south from abandoned Porkchop Hill under heavy Communist shelling.

A division of Chinese artillery had the road zeroed in and it was considered a virtual highway of death.

The full-tracked vehicles, sheathed and roofed with tough armor plate, brought back the wounded and sound soldiers, and some of the dead.

They rumbled up to the hill's remaining defenders in daylight, under direct view and fire from the Communists.

Mortar shells, artillery rounds, machine gun and rifle bullets pounded the carriers. Only one was seriously damaged.

The carriers backed up to caves and bunkers to load on the Americans. They returned with Engineer teams that blasted bunkers and caves before the Chinese could occupy them. A carrier holds about 25 men, but the number employed in the operation is security information.

Maj. Gen. Arthur Trudeau, commander of the Seventh, said:

"This action proved without doubt the tremendous value of the T18 armored personnel carrier."

11th Armored Division Association Meets

The Eleventh Armored Division Association will hold its annual convention and reunion in New York City on August 14th and 15th at the Roosevelt Hotel. Details may be obtained by writing Mr. Kenneth W. Hanlon, 118 Thorne Street, Jersey City, N. J.

Noted Historian Passes Away

Dr. Douglas Southall Freeman, outstanding scholar of the Confederacy, and Pulitzer Prize winner, passed away on June 13th at the age of 67. The famous author, editor and educator will be missed by many Armor officers who were looking forward to reading more biographical material on George Washington. Among the best sellers here at ARMOR were his famous books *Lee's Lieutenants*. He served our nation well.

More Effective Ammunition

A secret metal powder process developed during World War II is currently aiding the effectiveness of 90mm ammunition and saving tons of strategic materials.

Mr. A. J. Langhammer, President of Chrysler Corporation's Amplex Division, disclosed recently, with approval of the U. S. Army Ordnance Corps, that Oilite iron rotating bands are being used on 90mm shells now being produced.

Two of these rotating bands are on each shell and the rifling inside the gun barrel digs into them to give the projectile the spin necessary for range, accuracy and stability in flight. Without bands the shell would either tumble in flight or range would be short and not accurate.

Rotating bands must be made of a soft metal, Mr. Langhammer said, in order not to damage the interior of the gun barrel. Originally, these bands were made of copper and gilding metal, but during World War II, Amplex engineers in cooperation with Ordnance developed a superior iron metal powder rotating band.

The powder metallurgy committee of the American Ordnance Association has been active in research and development work pertaining to the band, as well as in subsequent assembly work.

The metal powder bands, like most other Oilite parts, are porous and soak up lubricant which, under heat or pressure, oozes out to oil the gun barrel interior.

Mr. Langhammer, a pioneer in the development of powder metallurgy, said special care and control of manufacturing process must be exercised in the production of the 90mm rotating bands.

He explained that in processing rotating bands for just 1,000,000 of the 90mm shells, approximately 460,000 pounds of copper are saved and made available for other urgent needs.

Other savings result, he said, because the Iron Oilite rotating bands require no machining operation, which is characteristic of tube-formed bands. The Oilite band is formed to exact dimensions in a special press and is a precision product.

Special iron powder is poured in precise amounts into a large band-forming press. After forming, the parts are placed in a heat treating furnace which fuses the metal particles together. The bands are then immersed in a lubricant which is sponged up by the porous metal. Under pressure, friction or heat the lubricant comes out to ease any friction points within the gun barrel.

Editor of Combat Forces Journal Dies

Colonel Joseph I. Greene, Editor-General Manager of the *Combat Forces Journal*, recently passed away from a heart attack.

Colonel Greene had been Editor of the *Infantry Journal* since 1940, and the *Combat Forces Journal* since it commenced publication in July, 1950.

Colonel Greene graduated from West Point, class of 1923. He retired from active Army duty in 1946.

British Reveal New Tank-Killer Gun

The British Army exhibited its new 120mm recoilless antitank gun recently and said it was capable of stopping the largest existing tank.

The gun weighs almost one ton, about one third less than the 17-pounder it will replace. It resembles a large bazooka and can be towed behind almost any vehicle or handled by hand.

Skysweeper to Undergo Army Troop Tests

Troop tests of the Army's new 75mm Skysweeper, large caliber automatic antiaircraft artillery weapon reported in the March-April issue of ARMOR, have commenced at Camp Roberts, California, the Department of the Army announced recently.

The tests, which will continue for an indefinite period, are expected to provide practical information concerning the weapon's performance under actual field conditions, maintenance and logistical data, and tactical employment. They will be conducted under supervision of the Chief of Army Field Forces.

Troops participating in the tests will be instructed in the Skysweeper's operation and capabilities, and will undergo training in all phases pertinent to it, including firing.

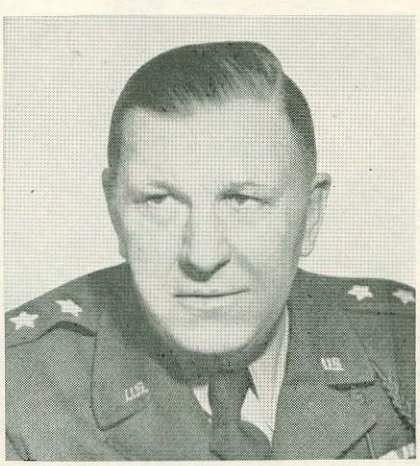
New British C-in-C for Middle East

General Sir Cameron Nicholson succeeds General Sir Brian Robertson as Commander-in-Chief of the Middle East Command, which is, geographically speaking, the largest of the British overseas commands.

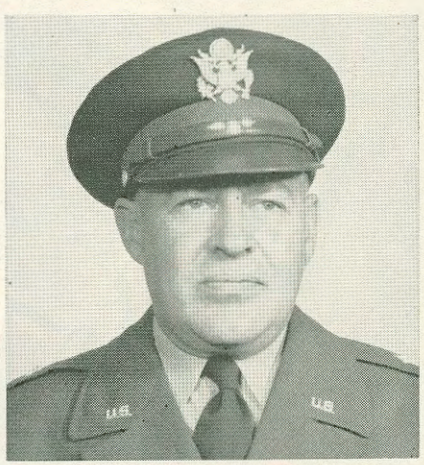
General Nicholson gained fame in North Africa as an Armored Commander. He was the British Commander at Thala where he received the bar to the British D.S.O. for driving the Germans back after they had fanned out through Kasserine Pass. Later he gained fame as a Division Commander in Burma. Since the war he has served in the War Office and more recently as Commander-in-Chief of the Western Command in West Africa.

TOP COMMAND CHANGES

General John R. Hodge
To Retirement



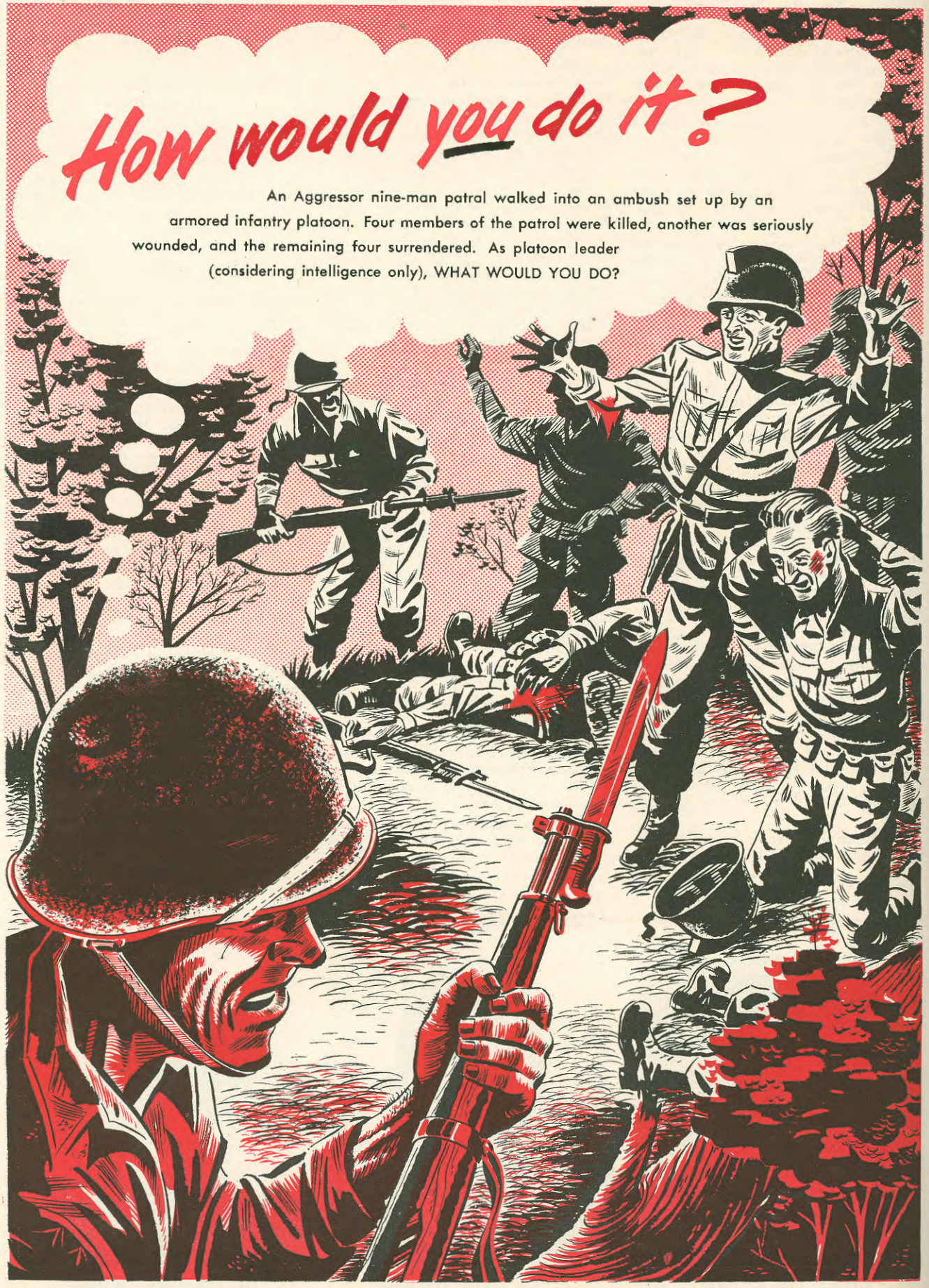
Lt. Gen. John E. Dahlquist
To Chief, Army Field Forces



Maj. Gen. George W. Read
To Army Field Forces

How would you do it?

An Aggressor nine-man patrol walked into an ambush set up by an armored infantry platoon. Four members of the patrol were killed, another was seriously wounded, and the remaining four surrendered. As platoon leader (considering intelligence only), WHAT WOULD YOU DO?



AN ARMORED SCHOOL PRESENTATION

AUTHOR CWO H.A.McDOWELL

ILLUSTRATED BY PVT. A.P. ZOELLICK

"How would you do it?" solutions

SITUATION NR 1

Apply the "Five S" principles at once. They are: Search, Segregate, Silence, Speed of evacuation, and Safeguard.

1 **Searching** the prisoners relieves them of concealed weapons and also of any documents which may be of value to our intelligence. The dead are searched for documents, too; all documents are evacuated regardless of your opinion of their military importance.

2 **Segregate** the able prisoners into three groups—the lieutenant, the corporal, and the two privates. This prevents ranking members from exerting disciplinary influence over other members, coaching them on what to say, and warning them of their rights under the provisions of the Geneva Convention. The wounded prisoner is segregated from the nonwounded (or walking wounded) and evacuated through medical channels, but his capture must be reported through intelligence channels.

3 **Silence** is enforced between the prisoners and a state of discipline is maintained which is at least as high as that to which they have been accustomed.

4 **Speed of evacuation** is of great importance for the following reasons:
a. The prisoners are suffering to a varying degree from shock as a result of their capture and, therefore, are more vulnerable to early interrogation.
b. The quicker the prisoners are processed to the rear, the less their chances of escape. It also relieves front-line troops of the responsibility of caring for them.
c. Rapid evacuation and interrogation results in speedy access to tactical information, which tends to decrease in value rapidly.

5 **Safeguarding** the prisoners offers insurance that this potential source of information is available when it is needed. It also prevents escape and reduces the prisoners' ability to rejoin hostile forces to fight again.

The "Five S" principles are applied as soon as practicable after capture and throughout the evacuation process. At the first opportunity after capture, each prisoner is tagged, giving the date, time, capturing unit, and the circumstances of the capture. The documents removed from the prisoners normally are evacuated with the prisoners, and in the custody of the guard.

SITUATION NR 2

Realizing that this article of clothing is new, and that it might be special protective clothing, you obtain all possible information about the circumstances of the find from Pvt. Doe, impressing upon him that you are dissatisfied with his failure to report his discovery immediately. You then take it to the company commander with information as to where, when, and under what circumstances it was found. Furthermore, you might suggest that if this item has intelligence value, that fact should be made known to all members of the company, serving to alert them in locating additional items of equipment.

1 An article of clothing or equipment which is new or of a different type from that which normally is encountered is of vital intelligence interest. This item might indicate the enemy is preparing to use CBR, which would be of immediate tactical value. Later, technical intelligence personnel will make a full study of the reported item and the resulting intelligence will be disseminated.

2 Rarely does the individual soldier see the results of intelligence effort. If this find has intelligence meaning, it could be used as a teaching point to impress upon each soldier that he is the most valuable intelligence agency available to the Army.

THE ROMMEL PAPERS

THE ROMMEL PAPERS. Edited by B. H. Liddell Hart. 545 pp. with Illustrations. Harcourt Brace and Company, New York, N. Y. $6.00.

Reviewed by
Maj. Gen. Orlando Ward

Rommel was not only a great soldier, but an able writer. Intending to write his memoirs, when time permitted, he took advantage of every opportunity to dictate memoranda and to prepare a manuscript as the events in his campaigns unfolded.

Through the eyes of this competent soldier, an armored commander in the thick of it, we see the collapse of the French armies, as his division, one of the spearheads, thrust from the Rhine to Cherbourg.

We see his crossing of the Meuse, the battles around Arras and Lille, the crossing of the Somme, the Somme-Aisne breakthrough, and the capture of Cherbourg.

We accompany him to Africa and feel the ebb and flow of battle in his graphic description of the intimate participation of a leader who had no douht the ability, but certainly the courage and the luck of being where he should have been in the critical stages of battle. We see him in victory and defeat, always the mobile-minded soldier.

After Tunisia we follow his part in Italy in 1943, written from his records by his son.

Then comes his part in the preparation for the invasion, the cross channel attack, and the breakout at St. Lo, written most ably by his associate, General Fritz Bayerlein.

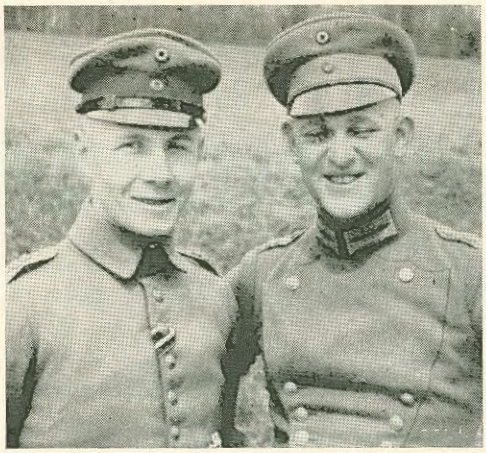
The Editor

Liddell Hart, an internationally famous military analyst, has been a military correspondent for several leading English periodicals, and military editor of the Encyclopaedia Britannica. His books include: *Through the Fog of War, The German Generals Talk,* and *The Other Side of the Hill.*

The Subject

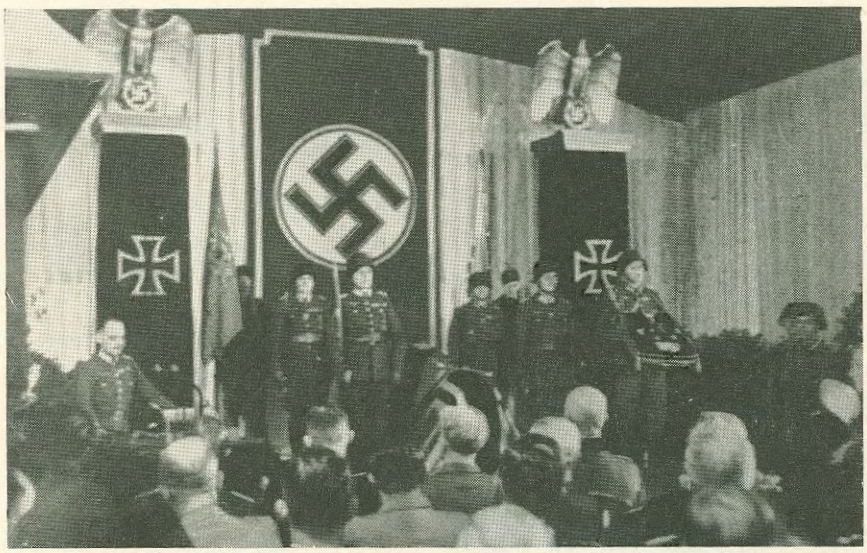
The Reviewer

Major General Orlando Ward, 1914 graduate of West Point, commanded the First Armored Division during combat in North Africa. Subsequently he commanded the 20th Armored Division in the ETO. Prior to his retirement, he was Chief of the Historical Division, Department of the Army.



Rommel (left) in WW I, with a friend.

At home, just prior to his death.



von Rundstedt announces Rommel's death and reads the funeral oration.

Frau Rommel and her son, Manfred, attend the funeral rites for the Desert Fox.

Finally comes the tragic end, written by Rommel's son, Manfred, and last, in summary, Rommel's reflections on military leadership and Africa in retrospect.

The result of the translation by Paul Findlay makes for clear understanding. Scattered through the whole book are appropriate extracts from letters to his wife, "Lu," throwing still more light on the character of the man, which otherwise would have heen lost to the reader.

The editor, Liddell Hart, has acted as a most efficient analytical agent in providing appropriate background, comments and corrections throughout the text. He is correct in his opinion that "No commander in history has written an account of his campaign to match the vividness and value of Rommel's."

Some readers have the hahit of nnderlining passages in books which particularly appeal to them. The following quotes from *The Rommel Papers* are some of those that are of sufficient interest to he underlined:*

"Prejudice against innovation is a typical characteristic of an Officer Corps which has grown up in a well-tried and proven system. Thus it was that the Prussian Army was defeated hy Napoleon. This attitude was also evident during this war, in German as well as British officer circles, where, with their minds fixed on complicated theories, people lost the ability to come to terms with reality. A military doctrine had been worked out to the last detail and it was now regarded as the summit of all military wisdom. The only military thinking which was acceptable was that which followed their standardised rules. Everything outside the rules was regarded as a gamble; if it succeeded then it was the result of luck and accident. This attitude of mind creates fixed preconceived ideas, the consequences of which are incalculahle."[1]

"However praiseworthy it may be to uphold tradition in the field of soldierly ethics, it is to be resisted in the field of military command."[2]

"The hest form of 'welfare' for the troops is first-class training, for this saves unnecessary casualties."[3]

"This reverse took us completely hy surprise."[4]

"The peril of the hour moved the British to tremendous exertions, just

VON RUNDSTEDT

by

GUENTHER BLUMENTRITT

Here, neither a glorification nor a vindication, is the story of one of the dominant military figures of Germany by his Chief of Staff. Posing the question, "Why did the Army succumb to Hitler's influence?" the author shows the underlying psychological struggle between the old and the new elements. Aloof from politics, von Rundstedt finds himself under orders from a Supreme Commander such as no General Staff had ever encountered.

The inside facts of the battle for Europe are disclosed—the command to "hold back" before Dunkirk; von Rundstedt's criticism of the regime; his removal from command and reinstatement; private thoughts on the orders he receives; the political intrigue following Rommel's appointment to command the Western Beaches, which undermined the entire German defence system on the eve of invasion!

$3.50

other reviews. No soldier should, and no true soldier will fail to read *The Rommel Papers* after reading Hart's introduction. It should be read, then re-read, and then read again. In connection with contemporary judgment on the ability of commanders, Liddell Hart comments, substantially, that *history has a habit of correcting the superficial judgments that temporarily keep company with victory*. His comment on Rommel's section on "Rules of Desert Warfare" is most comprehensive:

"'The Rules of Desert Warfare' is a masterly piece of military thinking, while the whole narrative is sprinkled with sage reflections, often with a fresh turn—about concentration in time rather than in space; about the effect of speed in outweighing numbers; about flexibility as a means to surprise; about the security provided by audacity; about the stultifying conventions of the 'quartermaster' mind; about creating new standards and not submitting to norms; about the value of indirect rather than direct reply to the enemy's moves; about the way that air inferiority requires a radical revision of the rules of ground operations; about the unwisdom of indiscriminate reprisals and folly of brutality; about the basic inexpediency of unprincipled expediency."

Other quotations from the introduction are:

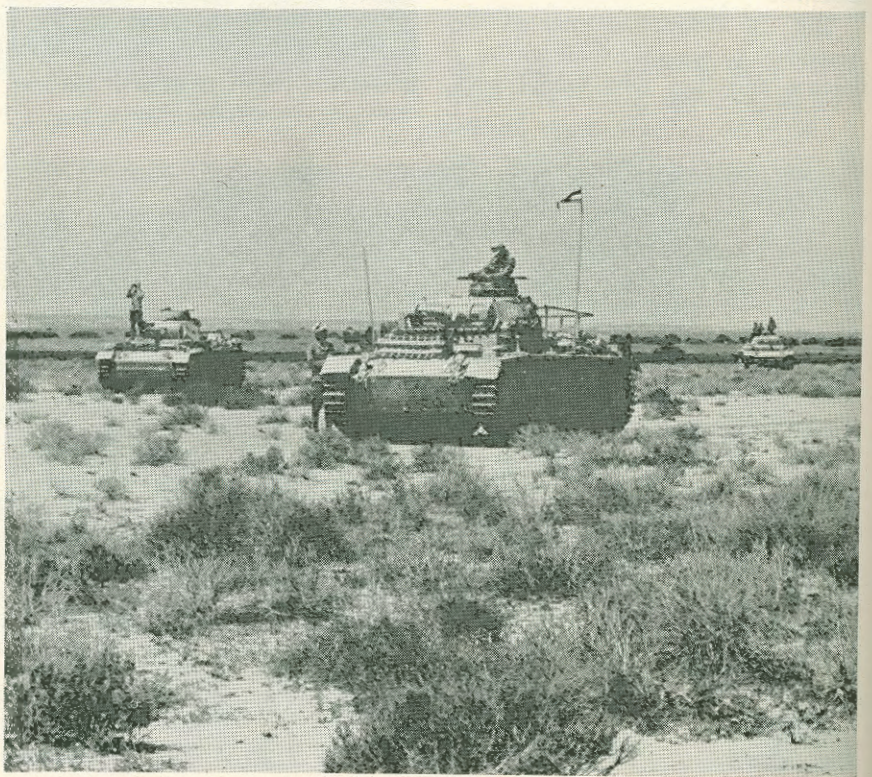
"The outstanding feature of Rommel's numerous successes is that they were achieved with inferiority of resources and without any command of the air.

"Save for his many narrow escapes from death, or capture in battle, he owed less to luck than many commanders who have attained fame."

"In the history of war great ideas have been less numerous than great generals, but have had a more far-reaching effect.

"All the great captains possessed in high degree this faculty of grasping instantly the picture of the ground and the situation; of relating one to the other and the part to the whole. Rommel most clearly had this faculty."

Here and there throughout the Rommel Papers some light is thrown on the destruction of enemy tanks. This should provide a means for testing the oft-repeated slogan, "The best tank destroyer is a tank." The question in my mind has always been, "Whose tank?" Can we economically always afford to have a tank that will be the best tank destroyer?



Tanks of the Afrika Korps advancing in Libya after the capture of El Brega.

Here the Allies met and defeated the cream of the crop of the German Army.

The Papers throw light on questions concerning civilian control of operations. The book should be on the "must" reading list for all members of the Congressional Armed Services Committees, from here on out. It should he read by Presidents, Prime Ministers, and Dictators.

In conclusion I see in *The Rommel Papers* illustration after illustration of his ability to use with great skill and effect the means placed at his disposal. I also see that he possessed outstanding ability to capitalize on the weakness as well as the strength of the enemy, at the same time being an advocate of maintaining "the decency in the soldier code."

I feel that in our system of training in the schools, as well as in the field, not enough variety is introduced into the forces representing the enemy, on matters pertaining to equipment, training, strength, and characteristics. Certainly you fight differently against an enemy who does not seem to mind if he is surrounded, and fights on, as against one who gives up and surrenders or withdraws when you appear in his rear. Certainly it is costly to stick to main highways and advance on each defended village by way of the main roads, and lose men and equipment the same way in each attempt. Yes, *The Rommel Papers* is not only worth reading, but it is interesting reading. The book should be used extensively in the Branch Schools, the Service War Colleges and the National War College. They will find therein matters pertaining to tactics, strategy, and politics. For those who have finished their formal education, and are involved in responsible positions in the government, both military and political, a study of this book might warn against repetition of mistakes, and make for fewer errors in the future.

*All footnotes refer to page references in *The Rommel Papers*.
[1]P. 203. [2]P. 204. [3]P. 226. [4]P. 249. [5]P. 244. [6]P. 288. [7]P. 292. [8]P. 362. [9]P. 398. [10]P. 406. [11]P. 451. [12]P. 517. [13]P. 518. [14]P. 519.

I WAS A CAPTIVE IN KOREA

A British correspondent describes his three years as a prisoner of the Reds, with all the suffering and humiliation that thousands must still endure.

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THE

Hell on Wheels

Spearhead

Breakthrough

"V"

Super Sixth

Lucky Seventh

Thundering Herd

Phantom

Tiger

Thunderbolt

Hellcat

Liberators

The Sixteenth

The Twentieth

In his full
nor censures
vivid picture

by S. L. A. M

Represented hereon are the sixteen Armored Divisions which were formed and saw action during World War II. ARMOR salutes the deeds of the men comprising these fine outfits. But, in addition, we must not overlook the heroic actions of all separate tank battalions, including our Marine brothers in arms, who contributed so greatly in bringing the war to a successful conclusion. Nor must we overlook those units which are still gallantly fighting on Korean soil.

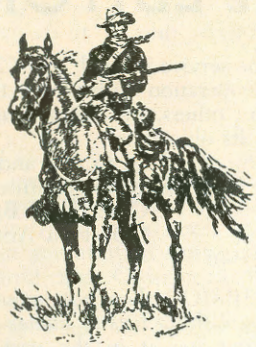
During the relatively brief history of Armor . . . with its fire power, shock action and mobility, these tankers have written many pages of history. They engaged the enemy under every climatic condition conceivable, and engraved upon the minds of friend and foe alike that . . . Armor is the Arm of Decision.

lf-Propelled AAA in Korea

f-propelled AAA units are proving ir worth in Korea. In addition to illing their primary mission—iaircraft Defense—they contribute atly to the support of the Infantry he seizing of key ground objectives.

(See page 20)

Y-JUNE, 1953 • 85 CENTS



ARMOR

The Magazine of Mobile Warfare

Continuation of THE CAVALRY JOURNAL

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CONTENTS

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LETTERS to the EDITOR

Any Suggestions?

Dear Sir:

Many thanks for your prompt reply to my request for a subscription to your publication. I have read and reread and greatly enjoyed the January-February issue, and trust that future issues will be as informative and useful as this.

One thing bothers me—being far too unfamiliar with US military matters, I find myself often confused by US military terminology, which appears to be rather different from our own—FOs not FOOs, tank companies and platoons rather than squadrons and troops, and so on. Could you suggest any general publication, which is available to non-US personnel, and which might help to clear up this basic difference in definition?

A. A. Lomas
Capt RCAC(RF)
King's College School
Windsor, Nova Scotia

Welcome, to the 19th Group

Dear Sir:

When you spot an outstanding Armor officer, nine times out of ten you'll find on checking, that among other things he is a regular reader of his branch magazine. Most every senior Armor officer I have talked with on this point agrees.

That's why, when the 510th, 322nd, and 141st Tank Battalions (three fine outfits, by the way) were attached to the 19th Armored Cavalry Group, we sent out a call to see how many new subscribers and renewals we could get.

I am delighted to forward you the enclosed list of 33 names, together with a total of $156.75 covering their subscriptions.

If space permits, I hope you can publish their names and join me in saluting these gentlemen for (1) their professional interest in and appreciation of a fine service journal; and (2) the spirit of cooperation with which they, like so many others, are supporting ARMOR and its objectives.

Our greetings to you and your staff, and best wishes for continued success.

Col. C. E. Brown
CO, 19th Armd Cav Gp
APO 46

● *ARMOR does not make a practice of publishing lists of names of subscribers nor has it in the past recognized outfits who send in bulk orders. Don't think we don't appreciate the order because we do! Many outfits have subscribed 100% and they have gone unheralded. However, we do want to recognize the 19th Group and welcome them into our midst. We are going to call on them in the very near future for material and in return offer them any assistance that this office can provide.* —Ed.

Errorrrrrrr!

Several letters and phone calls were received since publication of the March-April issue pointing up some errors. Summing them all up they read like this.

Dear Sir:

Your March-April issue is fine but —on page 15 the word is ARMOR not "AMOR." The lower right hand photo on page 41 is not an M4. On page 60 the caption states "Shermans." They are light tanks! On page 66 the photo is a Flak 41, not a 40! On page 73 you show a picture of Hitler viewing destruction by Allied air raids. This is not so, the picture shows a wrecked train in Poland taken in 1939.

● *We blushingly admit our shortcomings and realize that we are not infallible. We will try to do better. The letters and phone calls ranged from all ranks including the wife of one Captain of Armor. We appreciate your*

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Rates: See bottom of contents page.

interest and are happy to note that you are interested enough to help us improve. After all it is your magazine! —ED.

Core of the Matter

Dear Sir:

In the "Core of the Matter" (March-April issue, pp. 40-41) Army Ordnance appears to be trying to pat itself on the back over an ammunition story—which actually should cause Ordnance to hide its head in shame.

Brig. Gen. Paul M. Seleen, C.G. of the Detroit Ordnance District, is quoted as having recently revealed the story of how a "top secret" request from General Eisenhower "led to the almost immediate delivery of a revolutionary new antitank shell that stopped the German Tiger tanks at St. Lo." The Ordnance story is quoted as saying that on "D-plus 30" the "Allied spearhead was being seriously slowed by new Nazi tanks with incredibly thick and impenetrable armor shielding"; and that tbe "Supreme Commander pointed out that an antitank shell which could penetrate this armor would prevent the slowing down or even the stopping of the Allied invasion."

"Army Ordnance," the article goes on to say, "had been developing a new shell, but no such shell was ready for use on Friday, July 7th, 1944." But Ordnance rushed through their "new shell"—and on 13 July, 1944, Aberdeen Proving Ground is said to have announced: "The answer to the German Tigers has been found . . ."—a shell with a super-hard tungsten-carbide core.

The alarming truth of the matter is that Army Ordnance was amazingly dilatory in developing and delivering an ammunition item they themselves now admit to have been a very critical one.

This "revolutionary" ammunition was actually standardized by the German Army in 1940. It was available for the German invasion of Russia over four years before General Eisenhower put in a frantic request for it to his Ordnance.

Rommel had it to fight the British with in the Western Desert in 1941. From Rommel, British and American intelligence had samples of this ammunition—and plenty of first-hand experience with its effectiveness—years before lack of it caused us trouble in Normandy.

It's significant that our then friends, the Russians, didn't take years—as we did—to learn their antitank ammo lesson. After they'd experienced this German "AP 40" shot—and this ammo is solid shot, not "shell"—during the summer of 1941, they barreled through on it. From early 1942 on, it became their principal antitank round.

And incidentally, those weren't Tigers which were making trouble for the Allies then. They were the much lighter 50-ton Panthers. Just why Army Ordnance had failed to furnish the Army with projectiles to stop these tanks—which were first used in 1943 on the Russian front, and about which the Reds had told us all—is a major question.

GARRETT UNDERHILL
Washington, D. C.

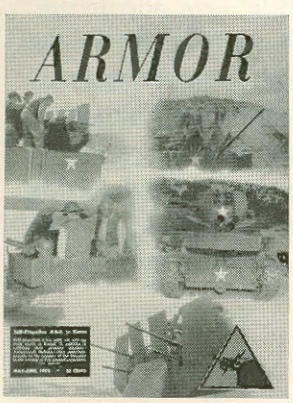
An Assist to Our Ally

I enclose a check for one year's foreign subscription to ARMOR. I should be grateful if you would please arrange to forward your journal to:—

Michael K. Shaw, Esquire
83 Worple Road, Wimbledon
London SW 19,
England

Michael Shaw is a young, enthusiastic, Territorial Army Reserve Officer, serving in one of the armored regiments of the British Territorial Army stationed near London. He has expressed a keen interest in the type of information which your journal contains, and I feel that it will be beneficial both to his standard of efficiency, and to that of his men, if I can see to it that he gets ARMOR regularly.

JOHN P. CODY
Wing Commander RAF
Norfolk, Virginia



THE COVER

Mobility is not limited to tanks! Self-propelled antiaircraft artillery units, with their full tracks, are a part of the mobile team. Despite static conditions in Korea these units are proving their worth in support of Infantry and are ready to perform their primary mission —AA defense against high-speed, low-flying, enemy aircraft A glimpse at the cover will show members of AAA units performing some of their many tasks. ARMOR salutes them for their contribution to the ground force team.

Upon assuming the chair of editor of ARMOR magazine, in addition to being appointed Secretary-Treasurer of the U. S. Armor Association, a fuller realization of the great task, coupled with tremendous responsibilities, hits home. Likewise, admiration for those who have preceded is bound to flow, and emulation of those who have been outstanding is a goal that only by holding this chair will one fully appreciate.

While on a normal Army assignment, the chain of command is used, but here every member and every subscriber is the commanding officer. To fulfill the desires of both categories is the wish of the editor. At times —an impossible task!

An appraisal of the immediate past extolling Major William Gardner Bell, Editor No. 26, is most fitting and proper.

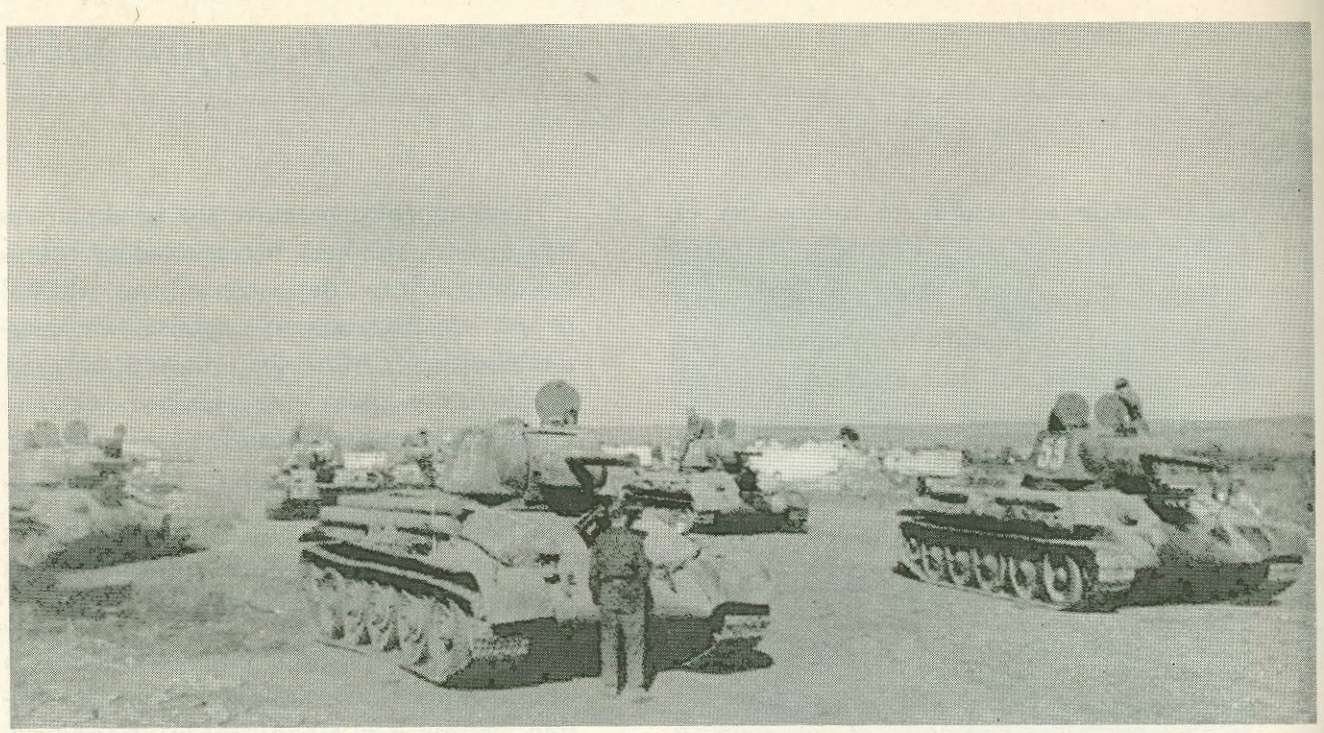
Assuming the editorship on the 20th of May, 1950, he lost no time in redesigning the magazine, adopting the new title ARMOR in harmony with the Army Organization Act of 1950. The format was revised from cover to cover. He established many new features such as *Sum & Substance, Reconnoitering, How Would You Do It?* and *Magazine Roundup,* and obtained outstanding book reviewers. All of this was accomplished prior to the next issue—two months hence.

Upon this solid base our magazine has continued to grow, and today it presents his successor with a real challenge to continue its present high standards. High standards herein denote class "A" professional levels, from both the military standpoint and the journalistic view. One need only mention the fact that for the past two years *The*

American Institute of Graphic Arts has seen fit to award the Association a Certificate of Merit for outstanding journalistic endeavors.

The standards attained militarily rest greatly upon the shoulders of the reader; for it is he who gratuitously contributes the material for publication. But its worthiness to be published, its timeliness, its appropriateness, its reader appeal, rest solely upon the decision of the editor.

A perusal of back issues will justify the accolade that Major Bell has unreservedly contributed greatly to improving the standards of the magazine. In addition, paid up memberships have more than tripled during his incumbency, and the present trend is on the upswing. Prospects are excellent and this



THE RUSSIAN THREAT

by LIEUTENANT GENERAL SIR GIFFARD MARTEL

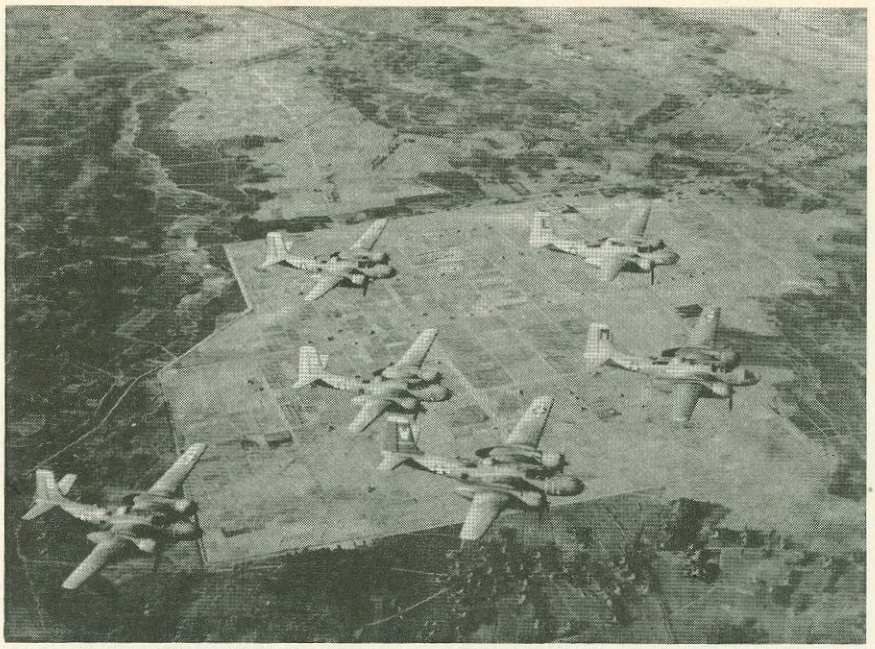
IF a third World War should break out it will presumably start with a fight for air superiority over Europe and Great Britain. Europe is the key to the situation but Great Britain is the base from which most of the Western forces will have to operate and it will be very vital to gain and keep air superiority over that country.

The Fight for Air Superiority

At present the Russian Aircraft are ahead of the Western machines in some respects and their numbers are very great. These matters are being rectified but the early stages of the Air warfare will be a very anxious time. The last thing that we must do is to introduce any feeling of complacency on our side, but at the same time there is one aspect which may give us a little comfort. This is over the question of administration. With large air forces operating from many different parts of the country the administrative problems are very serious. The Russian has little natural capacity in this direction. I saw this illustrated in many ways during the last year of the war when I was in Russia. On one occasion when I saw a large stock of spare parts for tanks, at a railway centre, I asked where they were being sent and was told the name of their destination. I was very surprised and said to the Russian officer: "But surely you know that there are no tanks in that area; they are all in this other direction." He replied that he knew this but he would still obey his orders and send them to the place that had been named. The reason for this was perfectly clear. If he had used his initiative and sent the spares to the right place it would have been of the greatest help to the armoured forces and no more would have been said. But if for some unforeseen reason it had turned out to be the wrong place he would certainly have been liquidated for disobeying orders.

This total lack of initiative which Communism imposes on the forces is a severe handicap and results in bad administration. This is, of course, only one instance of what happens. The handicap extends in many other directions and I feel sure that this will have a harmful effect on the fighting capacity of all the Russian forces including their air forces.

Then the Russians must still be behind us technically. Right up to the end of the war there was practically no radar or flying on a beam. Although I flew a great deal over Russia I could never get the pilot to take me anywhere unless he was sure he was able to see the ground, and



Air superiority—both strategically and tactically—is always a prime requisite.

was rushed into production while it still had some unreliable features. The only suitable engine which we could have obtained was the Rolls Royce hut Air Force priority prevented us from having this engine till a much later date. The Ministry of Supply were slow in rectifying the unreliable features of the Crusader but eventually this was done and it became the Cromwell which was a splendid cruiser tank.

The great delay caused hy the prewar financial restrictions was also reflected in the size of our tank guns. The Germans built their first 2000 tanks with a 37mm gun. We used a 2 pr in our early tanks which was slightly larger than the German 37mm and we prepared a 6 pr gun as the next step but due to our late start it was a long time before it could be introduced.

The Second World War

In the early stages of the Second World War the Germans swept all before them. Poland was defeated in a few weeks and France in a month. This was achieved hy the use of highly mobile forces equipped with light and medium tanks. Much the same success was achieved by the Germans against the Russians in 1941. They did not bring up any heavy tanks. There was no necessity to do so for there was no position warfare at that stage. In the early days in North Africa we used our heavy tank Matilda in position warfare and the Crusader in the mobile role and this policy worked splendidly.

In the USA great interest had been taken between the wars in armoured warfare and both the Lee and Grant machines proved to be splendid cruiser tanks for the mobile role. They were well ahead of the Britisb cruisers at the start of the war and the USA generously gave our armoured divisions in North Africa a considerable numher of these tanks at a time when they were urgently needed in America for training.

As the war progressed there was naturally far less opportunity for mobile warfare, and there was no warfare of this type in Tunisia or Italy. It also became clear that heavy position warfare would be the role in the early stages if we landed in Normandy. The urgent necessity was therefore heavy tanks and not cruisers. The Germans appreciated this very quickly and they changed almost their whole production effort into huilding heavy tanks. Even the Panther cruiser tank became practically a heavy tank. In our country we should have maintained our sound policy of the two types but we should have pressed for more effort being put into the heavy tanks. Indeed the necessity for the next step after the Churchill had been apparent for some time and we had been pressing for this from H.Q. Armoured Forces. In the USA pilot models of heavier tanks were constructed but production was kept almost entirely to the Sherman tank which was an improved model of the Lee and Grant cruiser tanks and proved to be a great success.

The Dual Purpose Tank

It was early in 1943 when I had just gone to Russia that we (the British) dropped our sound policy and a demand was made that we should have a dual purpose tank that would fill both roles. No attempt was made to push ahead with the next model of the heavy tank though several designs had been prepared. It would have been comparatively easy to have produced a number of these new heavy tanks but it would clearly take a long time to produce a dual purpose tank even if that was what we wanted. Mr. Duncan Sandys who was at the Ministry of Supply made a great effort to save the situation but these attempts were not supported and when we landed on the Normandy beaches we had good cruiser tanks but our heavy tanks were quite out of date and practically useless. As regards the dual purpose tank, not even the first model has yet been made.

We all know what happened as a result of this change of policy. Our tanks were blown off the battlefield in Normandy. I could do nothing of course to influence the decision while I was in Russia. This was a very unfortunate but clear instance of the harm that is done when one departs from a sound principle. Three tanks of the dual purpose type which was named the Centurion were completed just before the conclusion of the war in Europe. It is a beautifully built tank and very reliahle but it is of course bound to suffer from being a dual purpose machine. If it had the necessary armour and gun power to take on the latest heavy tanks which it might have to meet it could not possibly have the necessary mobility for the mohile role.

Unfortunately it is always difficult to reverse a decision when it has once been taken in a great concern like the Army. We remained with this decision for a dual purpose tank

for five years. Fortunately a change has now been made. We are to have a heavy tank for the heavy role as well as the more mobile tank needed in the Armoured division. So far as it goes this is a return to our sound policy but it is very unfortunate that we have lost all these years in the development of this policy. I may not be up to date but I believe that opinion among the armoured forces in the USA is swinging round to this necessity of having these two types of tank for the mobile and the slower but harder hitting role.

The Risk of Russian Aggression

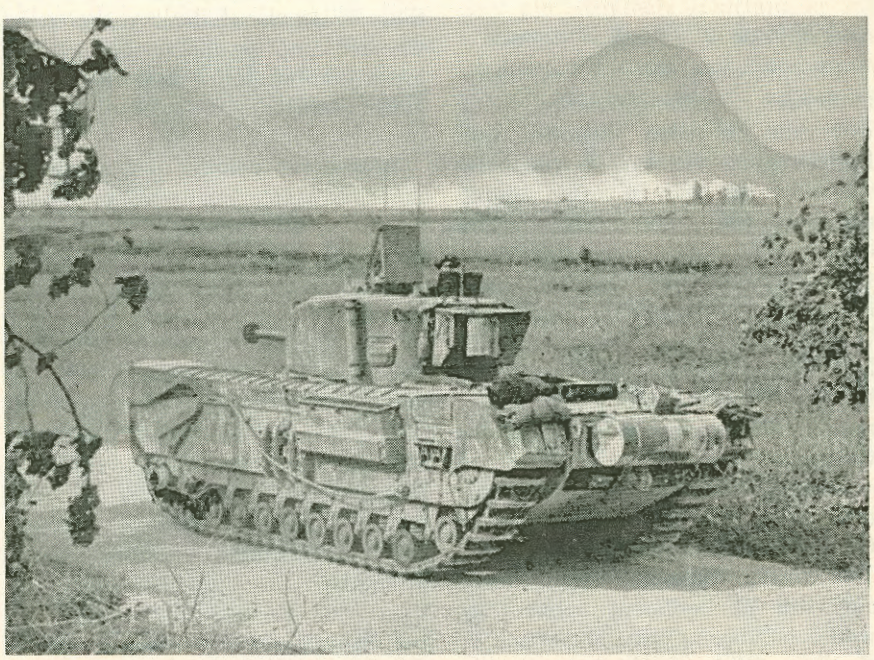
After the war it soon became apparent that there would be trouhle with Russia and that we might have to establish a system of defence against possible Russian aggression in Europe. Field Marshal Montgomery was anxious to establish strong infantry defences for this purpose. He is a great master of position warfare. It was however obvious that if we were deployed across Europe for this type of fighting we would be outnumbered by some 3 to 1 by tbe Russian forces and the Russian is very good at position warfare. Under such conditions our chance of success would have been very small. These proposals really ignored the main lessons of the war which had shown that linear defence was dead. Unfortunately these proposals were put in motion and most of the war time armoured divisions were demobilised while considerable strength was retained in infantry divisions. The exact opposite was what we required. This matter has now at last been rectified but it has caused us great delays and loss of efficiency.

It is now generally agreed that the Western nations must establish a number of firm bases on our side of the iron curtain. Based on these the Western nations must have some 25 armoured divisions and another 25 infantry divisions are needed to hold the bases. In the armoured divisions mobility must have top priority. It replaces the numerical strength of the Russian masses. The Russians made it very clear to me that they are terrified of a repetition of that form of warfare which they encountered when the highly trained Panzer and mechanised forces advanced against them in comparatively small strength in 1941 and caused them terrible casualties. We will not however be able to repeat these great and classic victories unless the forces which we use have the same type of mobility as that possessed by the similar German forces in the early stages of the war. They must be able to move rapidly between enemy columns or round their flanks or to attack the rear, and they must he prepared to spend a week behind the enemy lines.

For this purpose the tank used in the armoured division must have at least the same mobility as the Sherman, Cromwell or Comet tanks which were used as cruiser tanks during the war. It must have a cross-country speed of about 30 miles an hour and must be capable of going at least 160 miles on the petrol that it carries. For this role no very heavy armour is called for, as the whole policy for these mobile forces is to avoid meeting enemy strength and to use their mobility to attack the enemy wherever he is weak. The armour might even be slightly less than that which we used in our cruiser tanks during the Second World War. Having settled the questions of mobility and armour we now come to the vital matter of the gun. There must he no question of trying to carry a gun in our cruiser tank which will take on the enemy heavy tanks. Our armoured divisions must use their mobility to avoid meeting enemy heavy tanks and they could certainly hy-pass the heavy Stalin tanks and then carry out their task. In our deep and decisive advance into Germany from the Normandy hridge head neither the British nor the USA armoured forces ever engaged any German heavy tanks at all. These tanks did not possess anything like the necessary mohility to intervene in the advance of our mobile forces. The gun used in our cruiser tanks must be a dual purpose gun firing both H.E. and A.P. and must be the hest possible gun that can be mounted in this tank without loss of mohility. The penetrative power of this gun is very important but this does not depend entirely on the calihre. The French already have a 75mm gun with greater penetration than the Russian 85mm gun and a gun of this nature is what is needed. Our cruisers must of course he a match for any enemy cruiser tank and we pressed for this continually during the war.

The Heavy Tanks

We must now turn to the heavier role of position warfare. Just as we have to he a match for the enemy in the cruiser role, so we must have heavy tanks that can deal with those of the enemy. Both in attack and defence it is essential that the enemy shall have the call on these heavy



The Churchill, developed by the British, was valuable in support of Infantry.

tanks in position warfare. Although we are counting on our mobile forces to disrupt the enemy we must be able to defend the firm hases from which they operate. At other times our infantry will have to capture and hold important positions to act as pivots for the mobile forces. Heavy tanks are essential in both these roles.

Air Support

In each stage of these operations air support is quite essential. In fact it would be impossible to launch these operations without air support and a fair measure of air superiority. Without a continuous system of air reconnaissance the Armoured forces could not operate at all and this reconnaissance is dependent on a certain measure of air superiority. Tactical air forces must also be available to operate in cooperation with the armoured divisions. Dive bombers firing rockets at enemy tanks may be decisive and bombing may be equally effective against anti tank weapons. Then again the normal enemy forces may be held up or delayed by aerial bombardment to enable the armoured divisions to pass round behind them and to attack them with the element of surprise. Driving off enemy reconnaissance planes to prevent them from observing the movements of our armoured forces is another important task for the tactical air forces working with armoured divisions.

Criticisms of These Proposals

The proposals which I have made have been criticized in the following ways. It has been suggested that Hitler's great victories in the early stages of the war by using highly mobile warfare, could not he repeated today. The critics argue that these successes were only rendered possible by the fact that the Panzer forces were engaging an enemy who had lost his morale and that the action by these German forces was in reality the pursuit of a defeated enemy. This was partly true in the case of the advance against France in 1940 but it is in no way true as regards the German advance into Russia in 1941. The Russian forces were well trained and full of confidence that they would be able to resist the attack of the Panzer forces. The German success was in no way due to lack of morale on the part of the enemy.

The American M4 proved to be the workhorse of the war; it was a huge success.

By their success in the early stages of the war the Panzer forces showed us how to revive the great value of highly mobile warfare which had played such a vital part in so many great campaigns in history. This was the first stage in this revival, and depended mainly on the use of light tanks. The second stage which we would use today depends on having equally mobile armoured divisions but using cruiser tanks instead of light tanks. When used in this way there is not the slightest reason why we should not be able to repeat those great victories if we had the forces and if the Russians advanced against us.

It may he thought that as Russia now has a great many armoured divisions it will no longer be possible for us to carry out the mobile role which we have suggested. It must however he appreciated that most of the Russian armoured divisions have very few mechanised infantry and artillery units for the support of tanks. Russia is terribly short of mechanical transport. She is very handicapped in this way in mobile warfare. When the Western Nations have raised some 25 infantry and 25 armoured divisions which are standing at full strength in Europe, I do not believe, after my discussions with the Russians, that they would ever dare to advance against us.

If we are to succeed we must however be whole hearted about this new policy. There are those who say that the armoured division must be capable of breaking through defences and then carrying out the mobile role. This is part of the old and false policy. Then there are those who would slow down the armoured division by including some heavy tanks in the division. We will never succeed unless we place mobility as the first priority for the armoured division. The Centurion tank will have many uses but it is in no way the ideal tank for the mobile role. The length of the "tail" behind an armoured division with Centurion tanks is at present quite frightful and precludes any real mohile warfare. The position is still worse if we add heavy tanks.

I gave these views to the Russians when I visited them in 1936 and in 1944 when they were our allies and they have kept to this policy to this day. The French have always followed this policy and I think the USA is moving in this direction. Surely we ought now to follow this line whole heartedly and allow no more deviationists to upset our sound policy. These views have the support of many officers with long and varied experience in armoured warfare and who have proved to be right throughout this period.

From the early days of North Africa, tankers have been drilled in the principles of Mobility —Shock Action—and Firepower. However, the topography of Korea has caused them new obstacles. Although limited in Mobility, they still have maintained their Shock Action and Firepower. Scaling mountains with tanks isn't in the books, but methods to accomplish this are related in . . . .

KOREA'S RIDGE RUNNING TANKERS

by FIRST LIEUTENANT WILLARD A. COLTON

IN North Africa and France our tankers learned the latest word in tank tactics—sweeping end-around plays that raised mile-high dust clouds; deep-thrusting breakthroughs that cut straight for the enemy's heartland; gigantic pincer movements that trapped whole divisions.

In the Pacific the tankers learned how to dash ashore on island beachheads and fight their way across the sand; how to hack their way inch by inch through the jungle; how to attack concrete bunkers with flamethrowers.

But in Korea the tankers have learned a new lesson: How to climb ridges and fight from mountaintops.

Tankers first took to the hills in force in the Mundung-ni Valley in December, 1951, when the 31st Infantry Regiment launched a bunker-husting operation. The Japanese had always built hunkers on the lower slopes of hills, where they could get good grazing fire across the valley floor. But the Chinese Reds build their hunkers at the military crest and on the ridgetops; they are dug into rock, with log-and-dirt walls three feet thick. Tanks can't hit them effectively from the valley.

So the commander of the 31st decided to put his tanks where they could fire right into the enemy's teeth. In three days the 13th Engineer Combat Battalion slashed a road up the rear slope of Hill 605—about 1,000 feet straight up. Then four tanks were moved into position on top of the hill. The platoon leader spotted them where they could cover a battalion front, and dug them in so only the turrets were visible. Within a week fifteen Chinese bunkers had been knocked out. Bunker-building by the Chinese on their forward slopes came to an abrupt halt.

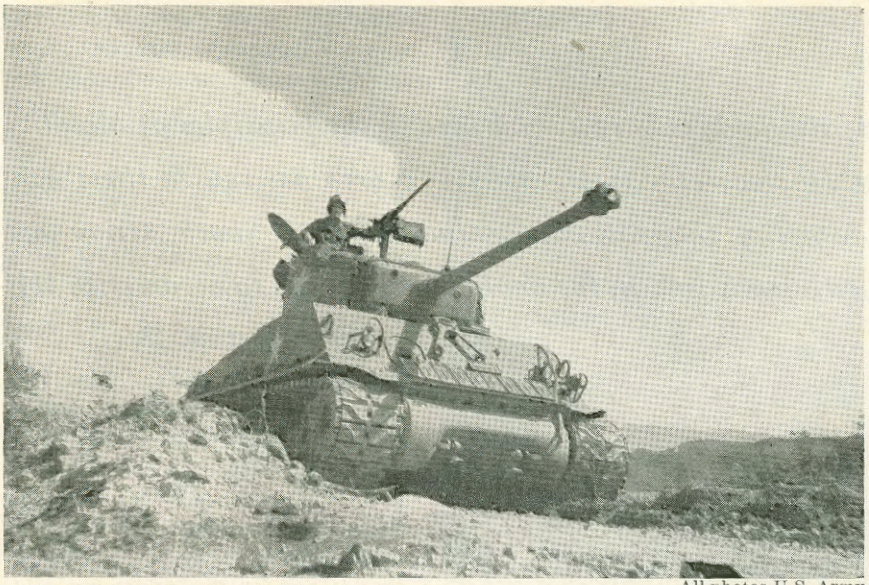
In the months that followed, tankers all along the front inched and winched their way to the ridgetops and the enemy found himself methodically blasted out of his hilltop strongpoints. At Mundung-ni, on Heartbreak Ridge, north of Kumhwa, wherever an old-line tanker would look at the high rock ridges and shudder, tankers are now facing the enemy on hills only a few hundred yards apart—across some of the narrowest, deepest valleys that have ever been fought through. At Kalbak-kumi, north of Inje, tanks at one time were dug in less than 200 yards from the nearest enemy position, and in some sectors our tanks are on the same ridges as the Chinese.

Retaliatory fires by the Chinese have been highly unsuccessful. They can't get close enough with recoilless weapons to inflict any damage, and they are extremely reluctant to use artillery for fear of betraying their positions. Further, any mortarman will tell you how difficult it is to lay a mortar round on the crest of a razorback ridge. Twenty yards one way or the other and the round explodes harmlessly far down the side of the hill.

One Communist did get in a lucky round, however. The 61mm shell whoomed smack down the turret of a 31st Tank Company Sherman. The crew members had just finished firing and had crawled out of the tank. Nobody was hurt, but the tank went back for major repairs.

The ridge-running tankers must cope with problems besides enemy mortars—problems that have no solutions in the book. More than one tank, attempting to negotiate a steep hillside, has gotten away from its

FIRST LIEUTENANT WILLARD A. COLTON, presently a reservist and a newspaperman, served in Korea as PIO of the 31st Infantry Regiment during the fall and winter of 1951-52.



All photos U.S. Army

Although not most desirable, tankers use crestline positions to their advantage.

driver and slid hundreds of feet down the hill in a shower of rocks and dirt. Tankers have learned the hard way how easily an M-4 will slip its tracks if you try to navigate a slope any way but head-on.

One company lost a tank over the forward slope. The driverless M-4 plunged headlong into a Chinese outpost at the foot of the hill. The Reds poured out of their bunker and dashed frantically for their own lines. The tank rolled several times and plowed into a rice paddy, a total wreck. Seconds later the enemy opened up with mortars, automatic weapons and even artillery. They apparently thought a full-scale attack was in progress.

And men of another tank company perched their Shermans on a ledge so narrow that the ponderous vehicles slid ten yards back down the reverse slope every time the 76s were fired.

To help their *Easy-Eight M-4s* claw their way up the mountain trails, tankers put center guides from M-46 Patton tracks upside down on the M-4 tracks. Spaced about five blocks apart, or six or seven to each track, the center guides become four-inch grousers that help the tanks climb onto lofty crags like monstrous mountain goats.

A tough problem is ammunition supply. Ammunition can be trucked up by weapons carriers in good weather, but trucks are useless on icy or muddy trails. The little Weasel, with its high flotation and low gear ratios, was found to be the ideal ammunition carrier. It can lug 30 to 40 rounds of 76mm, in fiber cases, up the steepest roads. It must be handled carefully, for rocks damage its tracks easily, but it has proven very satisfactory.

The ammunition problem is heightened by the fact that the high-climbing tanks are constantly in exposed positions. They can't maneuver around on the craggy hilltops, and their first round betrays their position to the enemy. As a result they have to make it too hot for the Reds to bring up their low-slung 75mm antitank gun.

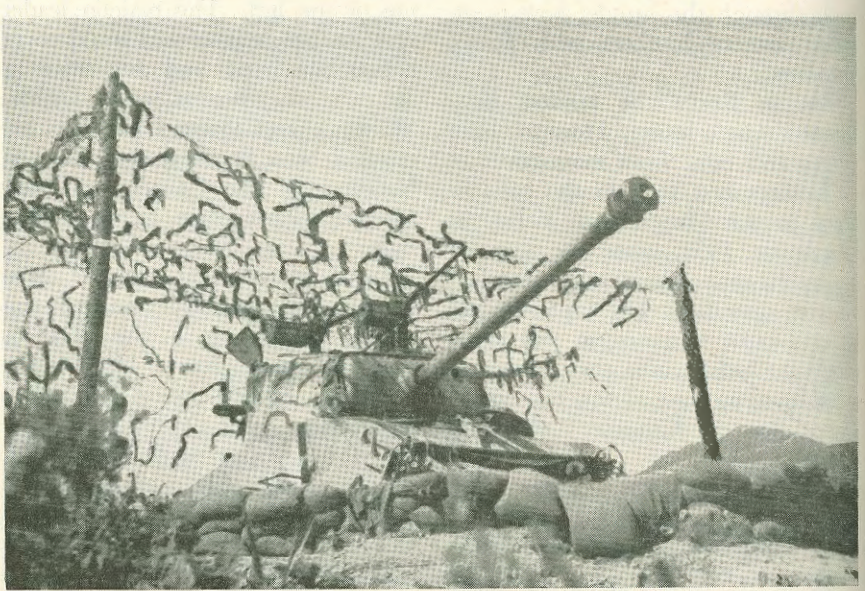
"If you use enough ammunition they won't have a chance to fire back," said the commander of the 31st Tank Company. "But if you run short they start sneaking up those 75mm antitank guns."

Concrete fuses, originally designed for use against Hitler's Siegfried Line, are much desired by the tankers. Their additional penetration is ideal for bunker busting.

In this type of operation we never fire indirect over here. It is always direct fire. You know all the hours we spent at Fort Knox learning how to use aiming circles? We've thrown the aiming circles away over here. You've got to get up high and shoot right down their throats.

The favorite weapon of the ridge-top tankers is the heavy-hitting and long-reaching .50 caliber machine gun. One tank of the company mounts twin fifties, one feeding from the left and one from the right. The same tank sports a fifty for a bow gun. This additional punch enables the tank to reach across the valleys with power and accuracy never possible with the thirties. Extra .50 caliber ammunition is carried in racks welded of reinforcing rods to the outside of the tank.

For tactical purposes regimental tanks are placed under operational control of the battalions. They are spread across the battalion front as much as possible, one or two to a company. But often the old, and still sound, rules of dispersion have to be flouted, for only one hill or finger will offer proper fields of fire across a battalion front. Then two, three or



Well sandbagged positions serve to protect the personnel from enemy infantry.

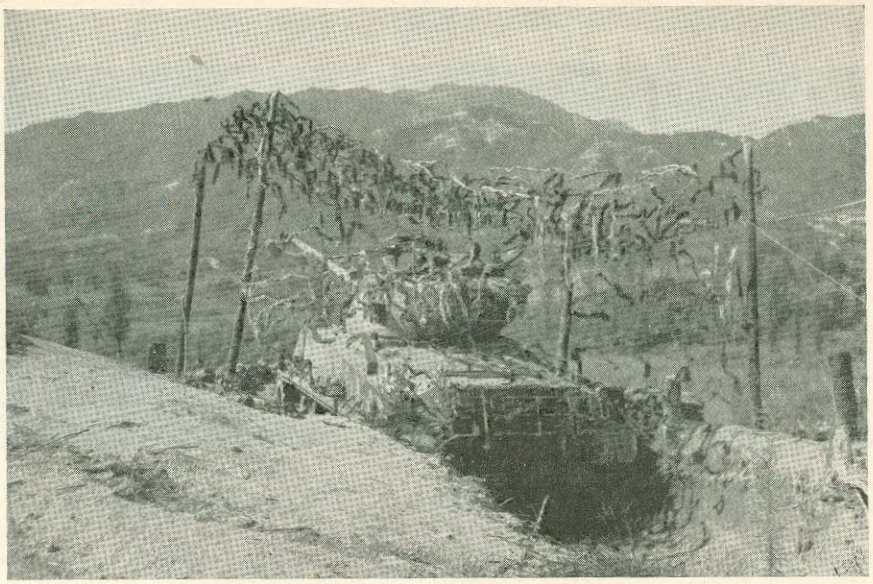
even four tanks must be spotted within a few yards of each other.

However, hilltop tactics do not necessarily call for close-in infantry protection. In fact the infantrymen normally are some distance from the tanks, because tank fire draws a lot of retaliatory mortar fire. The tanks can protect themselves against infiltration. With approaches to their positions wired and mined, the tankers figure they can cover each other with machine-gun fire and call in VT to hreak up any enemy raid.

In most positions the tanks could pull off their lofty roosts in a hurry if a pullout were ordered. But some of the routes up the mountains are so treacherous that tanks are swapped and left in position when one tank outfit relieves another on line. The tankers gather up their personal gear, trudge down the hill, and pick up another tank in the reserve area.

In at least one location the only route of withdrawal lay for many days through enemy territory. After a tank was winched to the top of a steep knoll on a friendly outpost, the rains came. When the deluge finally ceased, the tankers found themselves high and dry with a sheer drop-off behind them. Until a new road could be cut, their only way out was down the forward slope and through a Communist outpost.

Another rough problem for tankers in Korea is supporting infantry patrols. Forced to keep on the narrow roads through the rice paddies, the tanks find it next to impossible to get in close enough for pinpoint support—especially since the infantrymen are usually operating far up toward the crest of the enemy ridge.

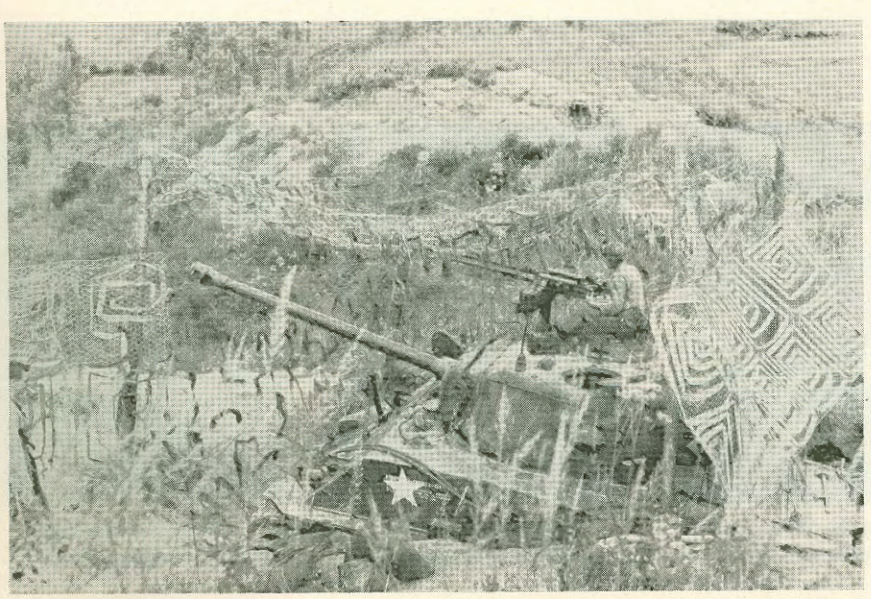


Fields of fire from ridges are plentiful in the support of Infantry patrols.

The best solution for the tankers is to hold fast; they can support most patrols without budging off their ridgetops. Since most patrols operate within sight of the MLR, the tanks can give solid overhead support all the way to the objective. Firing on known targets at known ranges, the tanks can give the kind of support seldom possible when both tanks and infantry are operating forward of their own MLR. Pouring 76mm and .50 caliber fire directly into the Red bunkers, the tankers can walk the infantrymen up to within 25 or 30 yards of the enemy.

While Korea's ridge-running tankers are able to use hilltop rather than hull-down positions, they realize this practice cannot be considered normal. In Korea, the enemy uses practically no armor or flat trajectory weapons in forward positions. As a result, tankers can select positions from which they can best support the infantry with their high explosive and machine-gun fire. Such a practice against an enemy strong in armor would prove extremely costly. Likewise the principle of tank infantry employment is still sound. While certain positions in Korea may be held with tanks alone, this cannot he considered as doctrine. The use of tanks in this manner shows the extreme versatility of the weapon and its ability to fight in almost any type of terrain, and under almost any condition. The principles of tank infantry employment enunciated in the current field manuals are still considered to be sound. What the tankers in Korea are doing is writing additional chapters to those manuals.

Perched atop sheer cliffs and crawling along the jagged peaks of razorhack ridges, our tankers in Korea have dispelled for all time the notion that they are creatures of the open plains. Never again, perhaps, will this peculiar combination of factors occur: Extremely rugged terrain, a static front, and an enemy who builds bunkers on ridgetops. But if it does, you can rest assured that our tankers know how to take to the hills!



Twin fifty millimeter machine guns give added punch and firepower when needed.

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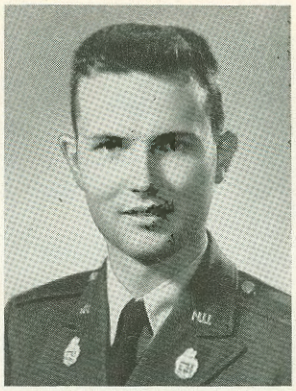
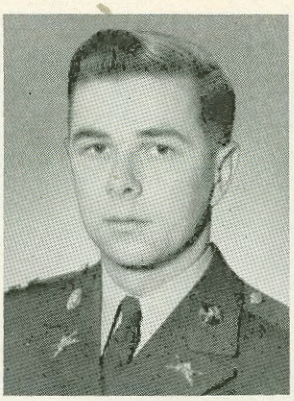


Thomas West Wilson Atwood
Norwich University



Richard J. Casey
Massachusetts University

Harry A. Johnston, II
Virginia Military Institute

The United States Armor Association . . .

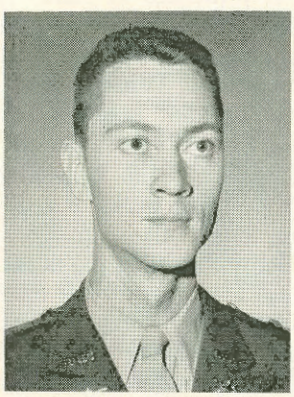
Salutes outstanding Senior

In the year 1952, the United States Armor Association inaugurated the policy of presenting certificates to the Outstanding Senior Cadet in the Armor Reserve Officers Training Corps at the fifteen institutions where an Armor course is in operation.

In 1953 this recognition of achievement is to be continued. But, in addition to receiving the engraved scroll, the Council has approved the awarding of a year's membership in the Armor Association plus a package of three books authored by three outstanding exponents of Mobile Warfare. These books are: "War As I Knew It" by General George S. Patton, Jr., "Panzer Leader" by Heinz Guderian, and "Preparation for Leadership in America" by Brigadier General Paul M. Robinett.

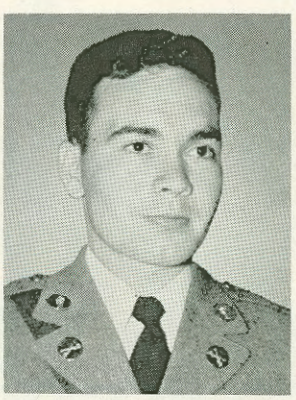
It is believed that presentation of these awards will be an added incentive to future students in the Armor ROTC. Further, the books will serve as an excellent start to a professional military library for this year's recipients.

These fifteen institutions are well scattered throughout the United States, and Armor Officers are assigned to each institution to instruct in Armor subjects as well as to assist in those basic subjects as required leading to a Reserve Commission in

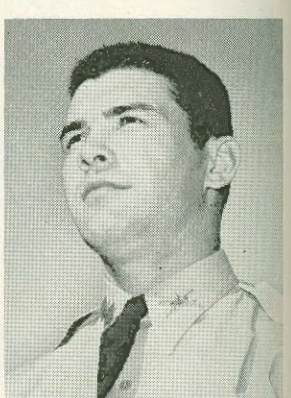


Alvin T. Wilson
Alabama Poly. Institute

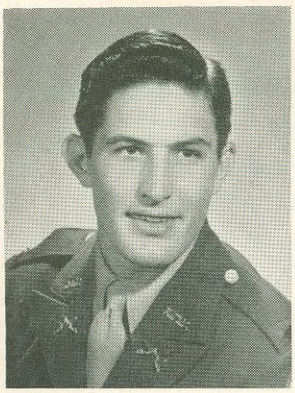
Robert W. McQuarrie
University of Georgia



James G. Campbell
Clemson College

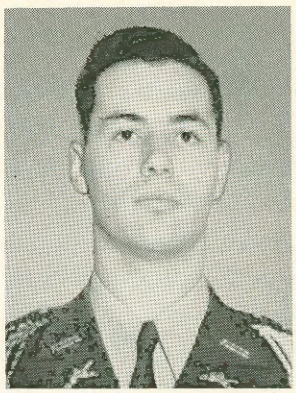


R. Frank Donaldson
Furman University

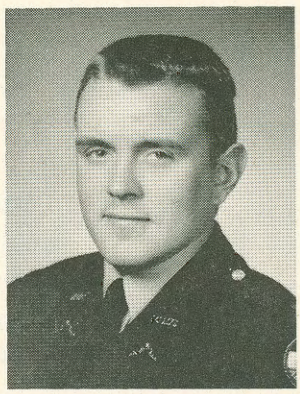


Don M. Stotser
Middle Tennessee State

Clifton J. Daugherty
The Ohio State University



Donald C. Potter
University of Illinois



Donald L. Smith
Michigan State College

1953 ARMOR ROTC Cadets

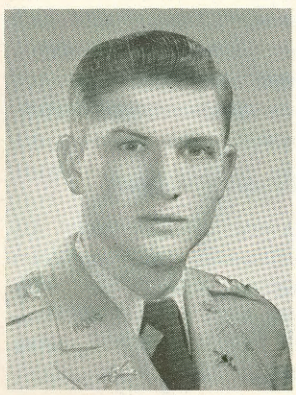
Armor. The work being accomplished by these officers is of outstanding value not only to Armor but to the Army, and appropriate recognition is due them.

The Distinguished Military Graduates whose pictures you see on these pages are tendered appointments as Second Lieutenants of Armor in the Regular Army upon graduation from their respective schools. These men are this year's fifteen recipients of the U. S. Armor Association awards.

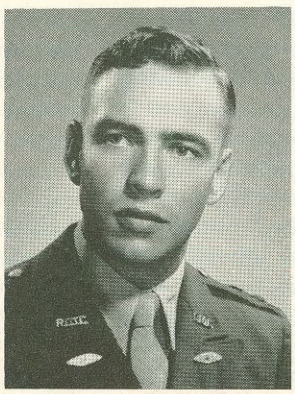
The engraved scrolls, properly inscribed by the President and the Secretary, the books, and the gratis membership blanks have been forwarded to the Armor Instructors at the various schools, to be awarded to the individuals at appropriate ceremonies, befitting the occasion as determined by each institution.

ARMOR salutes these gentlemen for their outstanding achievement and welcomes them into the branch of Mobile Warfare.

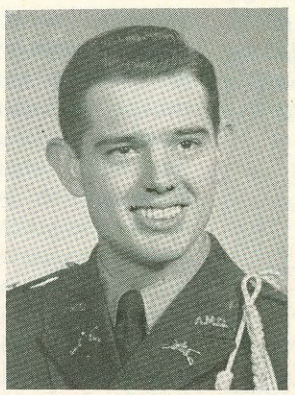
It is only proper that the Instructors, as representatives of the Army and Armor, be included in the praises being handed out for their contribution to the service. Best wishes for their continued success in the molding of the characters of these young men accompany this tribute and the assurance that we are standing by to assist them in any way possible. . . .



J. W. Elliott
New Mexico Institute



Allan J. Stanton
University of Arizona



Joe C. Wallace
Texas A & M

William R. Green
Oklahoma Military Academy

THOUGHTS ON ARMOR

by LOTHAR CHRISTIAN

ONE can easily understand why, from a sense of responsibility, Army planners and field commanders usually shy from the experimental and doggedly hold to the proven. However, aside from the many classical examples in the history of war, World War II especially shows the value of new ideas and the disastrous consequences that resulted from thought stagnation on the part of both Allied and Axis powers. Probably the most striking example one may present is the development and use made of armor in World War I.

In this article an attempt will be made to draw conclusions which are based both on what I experienced in combat and on what I have read and studied since the end of the war in accessible military literature. I hope that my article will contribute something to a discussion worthy of being carried on with the greatest feeling and passion, a discussion which must not neglect what is best for the organization and training of a new army.

Importance of Armor in the Future

One frequently hears the argument that the tank has been superseded by antitank weapons, the day of decisive armored breakthroughs having passed. In answer to this, the first counterargument is the well-known, although often contested, statement that every new war begins where the preceding one ended. Early events in Korea have again substantiated this statement. World War II, however, ended with such proof of the importance of armor that every unit commander who even thought of carrying out a limited objective attack without armored forces or of conducting a successful defense without an armored reserve would have been ridiculed. Indeed, one would not be amiss in designating World War II as an *armored* war, characterized by far-reaching thrusts and counterthrusts of armored forces, during which periods of position warfare were solely intervals caused by the exhaustion of the armored forces of one or the other side. Naturally, it is not my intention to minimize the role played by aviation and the nonarmored ground forces, especially the infantry, but during all crucial phases of World War II armor *carried the ball* for both friend and foe. One can safely predict that, in spite of more effective antitank weapons, resulting in a corresponding drop in armor's potentialities, the next major war will break out with a massed armored thrust, especially if in Europe.

Even if a defensive zone could be established in which antitank weapons were so strong that every yard of ground from the North Sea to the Adriatic could be covered with fields of fire in greatest depth and every position manned at a moment's notice, the enemy would, in conjunction with airborne landings, attempt a breakthrough at a weak point. How else could he attempt to do so than with armored forces! The last war taught us that an armored breakthrough attempt, properly prepared and executed, was usually successful. Once enemy armor has obtained freedom of maneuver, how can one stop and annihilate it other than by armored counterattacks against the flanks and rear! And how can one launch a counteroffensive except with armored forces! One does not throw away rifles and machine guns just because the enemy is wearing bulletproof nylon vests.

Antitank Weapons

During World War II—and even more so during the postwar years—antitank weapons achieved full recognition. With what types of antitank weapons will future armored forces have to contend.

First, mines are an effective means of defense. There is no disputing this fact. A classical example of the effectiveness of mines is the ill-fated

★Reprinted from the January issue of *Die Wehrwissenschaftliche Rundschau*, with the kind permission of the editor. Translated by Lt. Col. M. C. Helfers, USA, Ret., Office of Military History, Department of the Army.

LOTHAR CHRISTIAN, a Major in the German Army, served on Gen. Guderian's staff during the time that Guderian had over-all control of German armored troops and their training. He was also a member of the German General Staff.

It has often been stated that every new war commences where the preceding one ended. Keeping this in mind the author predicts, without minimizing the roles of the other arms, services or branches, that should war break out in Europe it will consist of a massed armored thrust. He further assumes that, regardless of new developments in antitank weapons, Armor will continue to dominate ground action if the effect of the enemy aircraft is taken into consideration in the development of Armor.

Operation ZITADELLE of 1943, in which the still-effective German armored forces were, against the advice of armored experts, led to their doom in Russian mine fields. Nevertheless, mines can seldom prevent armored breakthroughs. At best they can only slightly delay armored movements. The reasons for this are self-evident. To set up mine fields is a time-consuming process. In a war of movement there usually is sufficient time only for laying mines across roads. Moreover, gaps must always be left open, both in front of and immediately in the rear of the main line of resistance. These gaps can seldom be closed in time.

On the other hand, the development and use of mines seems to have been particularly neglected in the past. It is quite conceivable that mines might be developed in the future which, under various disguises, could be dropped by the thousands from the air to form improvised mine fields. These mines might be so constructed that after a few hours or days they are automatically neutralized, so that friendly forces can safely cross the mine fields during a subsequent counterattack. Even though today this idea may appear uneconomical to the technical expert, it might well materialize tomorrow.

Secondly, in the field of antitank guns, progress has continued in the development of recoilless rifles and rocket launchers (Panzerfaust, bazooka, and others).

A distinction must be made between the tank destroyer, namely the self-propelled antitank gun, and the towed or portable antitank weapon. As its name indicates, the tank destroyer can get the better of a tank only by means of its greater mobility and maneuverability, since the caliber and range of the tank's gun are no longer inferior to that of the tank destroyer. The last war brought out that mobility and maneuverability were more important than armament and thickness of armor, even though the emphasis on the former should not be exaggerated. The development of the tank therefore leans in the same direction as that of the self-propelled antitank gun, and it does not look as though in the foreseeable future either of these two similar weapons will achieve superiority. Towed antitank guns have been effective but can be looked upon as an auxiliary weapon. Because of lack of mobility, they are bound to disappear from equipment of a modern army.

Of great importance is the development of recoilless rifles and rocket launchers. If it ever becomes possible to fire these weapons at greater range with the accuracy of an ordinary towed gun and to provide them with maximum mobility, the tank may very well be opposed by a formidable antidote which, because of its simplicity of construction, lends itself to mass production. Too little is known of foreign developments along this line to permit a German to pass judgment. It is a fact though that not only the weapon but also the steadfastness of the crew will be of decisive importance. This latter is an unknown factor which in the imponderable equation of tank versus antitank weapon must be written down in favor of the tank.

Thirdly, if armored forces are to be successful they must have air supremacy on their side. This was clearly demonstrated in World War II. On air supremacy depends whether or not armored operations can be conducted in the traditional manner along the main arteries of communication. On air supremacy depend rate of march and supply, shifting and assembling of forces, choice of terrain, and timing of an attack (day or night), depth of penetration and momentum of attack. Without air supremacy the blitzkrieg campaigns of 1939-42 would have been impossible; without air supremacy the German armored forces were doomed in Africa, Italy, and in France after the invasion.

Aside from the opponent's tanks, the air arm is presently the only deadly enemy of armor. The logical conclusion which must be drawn from this fact for the development and the tactics of armor will be discussed in Part 3 of this article.

Fourth, the question of using atomic weapons for tactical purposes remains to be clarified. American communiques indicate that the desired objective in this has not yet been

reached. In the first instance it is specifically questionable if it would be practicable to substitute atomic for the present infantry and artillery ammunition for tactical purposes.

One can say without contradiction that no weapon has as yet been invented or developed which will definitely prevent armor from winning tactical and strategic victories. Neither has any weapon or tactic been developed as yet which could replace armor in its role of "modern cavalry," let alone one that could outdo armor in this role. The "Army with Wings" must in reality be an "*armored* army with wings" if it is supposed to fulfill its ground mission. Otherwise it will be fighting against hopeless odds when it is engaged by hostile armored reserves.

One may therefore predict that for the immediate future armor will continue to dominate ground action if the effect of the air arm on ground operations receives proper and timely recognition and is taken into consideration in the development of armor.

An attempt will be made to draw the necessary conclusions from what has been stated above.

The Organization and Command of a Modern Armored Force

During the last war not a single armored division existed which properly bore the name "armored." None exists today. Actually all armored divisions which have been organized to date were technically only a partial solution of this matter for they were really only motorized infantry divisions with tank nuclei. Operations that corresponded to the proper mission of an armored force could be executed only if at least one infantry battalion mounted on armored vehicles, one artillery battalion and one antitank battalion, both with self-propelled guns, were available and these elements were organized into a combat team.

A significant weakness, which in the German Army was partially attributed to the limited armament production, existed and exists even today in all foreign armies: It is the practice of combining track-laying and wheeled vehicles—two vehicular types whose speed and tactical employment differ considerably. During World War II this practice led to incidents and accidents which, though inevitable, were nonetheless nonsensical. Occasionally command cars, even trucks, happened to form the advance guard or reconnaissance detachment, and the wheeled serials of an armored division were engaged in pursuing the enemy along roads and highways far ahead of the armored elements. At another time armored units would drive cross country far ahead of the armored infantry elements following on foot. This occurred whenever the track-laying vehicles did not adjust their rate of advance to that of the foot soldiers, which in turn was in violation of every tactical principle.

It was only because of their better weapons and equipment, their extensive integrating infantry with tanks, and their *esprit de corps* at all levels that these so-called armored divisions proved superior to ordinary infantry divisions. Especially in pursuit of defeated enemy forces did they perform as they should have done at all times.

During the first years of World War II the German over-all superiority and tactical expedients were instrumental in compensating for this weakness. In the Russian theater with its few highways, however, and toward the end of the war, when the Allied air superiority in the West was on the increase, the road-bound and unarmored wheeled vehicles slowed down the pace of the armored divisions. In Russia the poor roads and the continuous attacks to which columns moving along highways were subjected by partisan and regular forces repeatedly separated the track-laying from the wheeled elements of the armored divisions. Again and again the armored elements that had driven far ahead had to stop and turn about to clear their supply routes or transport wounded to the rear on their own reconnaissance cars. Every soldier who fought in the Russian theater will remember this system!

The question of air superiority also deserves searching consideration. If one assumes that both opponents have air forces of equal striking power, one may say that normal movements and regular supply traffic along roads cannot be assured by day or night. Nor will this situation be improved by attaching more antiaircraft units to the divisions. Unavoidable halts along the roads will result in the piling up of vehicles at defiles, road junctions, bridges, and inhabited localities. This will repeatedly offer remunerative targets for air attacks, even from the highest altitude. If the enemy obtains air superiority, his air arm can almost completely interdict any traffic on roads.

In view of these facts and the deficiencies in the tactical field mentioned previously, one arrives at the following conclusion:

Armored formations (armored divisions, armored corps, etc.) must be equipped exclusively with armored self-propelled track-laying vehicles. This pertains to reconnaissance as well as to supply vehicles and ambulances. In this manner the armored unit will not be restricted to roads and will be invulnerable to both air and ground attacks (flank attacks, cutting off of supply routes, partisan raids, etc.). Moreover, the armored formation will be a tactical unit which can launch an attack with a powerful punch.

For the planner of an operation, this will mean that armored thrusts will no longer be bound to roads and highways, but can be directed toward the objective across any terrain that is most favorable from a tactical standpoint. To discuss the tactical and logistical problems involved in such operations would go beyond the scope of this article. However, these problems have already been solved in a practical way in North Africa and Southern Russia, and the solutions can be adapted to differing conditions in other theaters of operation.

It is commonly accepted that protection against air attacks demands extensive distribution of antiaircraft guns on self-propelled mounts. As to armor's cooperation with tactical air support units, on which the success or failure of armored operations depends, the procedure that should be adopted needs clarification. The system introduced by the Wehrmacht, consisting of two parallel organizations that complemented one another and cooperated via the Luftwaffe liaison officer, was flexible, but often was not capable of dealing with sudden changes in the situation. Jurisdictional conflicts, air attacks on German ground troops, faulty communications, and delays in support missions, occurred only too often. To eliminate this problem the armored commander, in stating his point of view, must

formulate a demand which will no doubt be criticized by all members of the air force: The commander of an armored force must have control over his own tactical air support, just as the commander of a naval force controls his own tactical air based on carriers. Control over his own tactical air support will guarantee the commander of an armored force adequate battle reconnaissance to his front and flanks, giving him a real weapon of opportunity, and providing him with essential air cover. The speed of modern planes will allow the establishment of airfields at sufficient distance from the battle area, while guaranteeing the timely commitment of air support. This arrangement presupposes that the commander of an armored force will be trained not only in ground but also in air support tactics. In addition, the commander of his air support unit will act as advisor. It is self-evident that the strategic air force will continue to exist as an independent arm at the disposal of the theater and top-level commanders.

Since these added responsibilities will place a heavier burden on the commander of such a combined force, ways must be found to simplify his other duties. This can be achieved above all by excluding all non-combat elements from his force, streamlining the organizational structure, reducing the size of his force, and simplifying the supply system. These organizational simplifications are also necessary to adapt armored forces to future operations that will probably take place at an even faster pace and over wider areas than in the past.

There are various means of accomplishing the above:

By reducing the combat strength of the armored infantry elements, that is, by eliminating some of the riflemen who are usually little more than "cannon fodder" or replacements during an attack.

By assembling the supply elements within supply companies at battalion or regimental level, thus saving manpower and vehicles while simplifying supply.

By reducing the number of armored support units within the armored division; for example, by reducing armored infantry to one regiment, armored artillery to one battalion, and as a last resort by dropping the antitank guns, etc., in favor of having a tank nucleus of at least 300 vehicles.

By organizing artillery divisions, independent assault gun and antitank regiments, etc., for commitment at points of main effort.

By employing armored divisions exclusively within the framework of armored corps. Armored divisions should no longer be committed individually, even less as armored combat teams, emergency reserves, or as isolated stays supporting an infantry front.

These suggestions are far from new. The German Army was unable to introduce these measures because of increasing personnel and material difficulties toward the end of the war. However, one need but take a look at the organization of the Soviet armored forces, as they existed at the end of the war and no doubt exist today, to realize to what extent and with how much speed the Soviets learned from their experience in World War II.

A Soviet mechanized army consists of two armored and one or two mechanized divisions. Directly subordinate to such an army are: one antiaircraft division, one artillery brigade, one rocket launcher, one engineer, and one signal regiment, a reserve force of regimental or battalion strength, and rear area service units. No corps headquarters are "sandwiched" in; on the other hand, the army compares in strength with German corps. The armored divisions consist of two tank regiments, one motorized rifle, one mortar, and one antiaircraft regiment, one artillery, one rocket launcher, one armored reconnaissance, one signal, and one engineer battalion, as well as service units. In addition to the antiaircraft regiment, each of the other regiments has also a flak company.

The high proportion of antiaircraft units shows that the Soviet High Command is air-attack conscious and has attempted to protect its units accordingly. The Germans had occasion to observe the rigid concentration of all service and supply units for the purpose of increasing striking power.

Noteworthy is the meager proportion of artillery in favor of infantry heavy weapons (one mortar regiment and one rocket launcher battalion) and the concentration of fire power in the artillery corps, antiaircraft division, antitank gun brigade, etc.

From this brief outline of Russian Army organization can be recognized the tactical principles according to which the Soviet High Command intends to fight. We Germans fully realized the validity of these principles but were unable to put theory into practice. The Russian principles may be summerized as follows:

To organize comparatively small but very homogeneous and powerful armored units with the main emphasis on tank strength. (The Russian armored division with about 10,000 men in contrast to the roughly 20,000 men of the former German armored division, with practically twice as many tanks! This organization guarantees maximum flexibility.)

To concentrate and mass all tanks and guns to make the main effort at the decisive point.

To keep a tight rein on all units, especially the artillery and antitank guns, by subordinating the latter directly to the army commanders, thereby relieving commanders from division on down of this responsibility.

Observe the principles of mass and economy of force! In short: "Boot 'em, don't spatter 'em!"*

During World War II it became customary in the German Army—primarily because Hitler dispensed with the older and experienced commanders and general staff officers—to command as little as possible and to delegate responsibility as far down as possible. This led to young company and battalion commanders, some of them twenty-two or twenty-three years old, commanding combat groups that consisted of a great variety of auxiliary weapons which they could not master technically and tactically. Wholesale scattering of forces and many errors in leadership were the usual result, especially since the company commander was also responsible for the supply of ammunition, fuel, and rations.

The armored unit of the future must he a rapidly moving "porcupine," able to negotiate all terrain, to attack with the speed of lightning, and, if necessary, to disappear cross country with equal speed—a force which is both capable of protecting itself in all directions, even from above, by means of reconnaissance and fire power and of operating independently over wide areas.

*This is Constantine Fitzgibbon's translation of Guderian's "Klotzen, nicht Kleckern!" (General Heinz Guderian, *Panzer Leader*, p. 106.)

Sum & Substance

A regular feature in ARMOR, where you may express your views in approximately 500 choice words—the effective medium between the letter and the article. This section is open to all on any subject within the bounds of propriety. Name and address must accompany all submissions. Name will be withheld upon request. No pseudonyms.

As has been stated on many occasions the art of mobile warfare ensconces many elements. It isn't limited to Armor alone. There are Self-propelled Artillery units, Mounted Infantry units, Armored Engineers, etc. For an appraisal of the Antiaircraft Artillery, ARMOR has turned to the 3d Antiaircraft Artillery Automatic Weapons Battalion (self-propelled) stationed in Korea. As the name implies the primary mission of this type of Antiaircraft unit is to provide antiaircraft defense against high speed enemy aircraft. However, the static conditions in Korea have taxed the American ingenuity once again. The Battalion Commander and Company Commanders of the 3d Battalion speak out on direct support of Infantry units with their antiaircraft weapons. It is well to note the emphasis they place on preventive maintenance which is covered elsewhere in these pages by the Commanding General of The Armored Center. The maintenance is stressed even though we are in a relatively static position in Korea.—THE EDITOR.

The writer of the following has eighteen years of commissioned service in Antiaircraft Artillery. During World War II he served as a gunnery officer on an Army transport in the Pacific, later with an AA unit in Europe. Subsequent to the war he organized the 74th Constabulary Squadron. After a tour of duty as a National Guard Instructor he was assigned to Korea and has commanded the 3d AAA AW Battalion (SP) since May 1952.

When I took command of the 3d AAA AW Battalion (SP), I realized that once again I was confronted with the same thing that has proved to be one of my major problems throughout eighteen years of Army experience, all of which has been as an officer in some type of antiaircraft work. This same problem, I encountered in the tropical heat of Panama, severe winters of Europe, and the salt air of the Pacific while I was gunnery officer on a USAT. I knew that here in Korea I would again direct twenty-five per cent of my attention to the problem of *maintenance.*

Our big job here has been to give direct and close support to the Infantry in their ground movements. This necessitated a lot of moving around to different positions on the MLR so that we could fire. It is logical that if the engines that move a self-propelled weapon cannot get the weapon where it is needed, the weapon is useless. The actual firing of an AAA weapon is simple compared to the complications of keeping not only the weapon, but its means of mobility, in operating condition.

There are two big obstacles that we have faced: timely supply of spare parts, and obtaining personnel sufficiently trained in their MOS jobs. The supply problem can be accredited

All Photos U. S. Army

Lt. Col. Moomaw

to the distance that parts must come from the factories to the front. In most cases it's not *specific* items we need, but *more* of everything. There was one exception to this that I remember very clearly. From July of 1952 to January of 1953 we needed a battery charger. This is a simple piece of machinery that you can find in every garage and gas station in the states, but something that six thousand miles of transportation kept us from having. At times we were almost to the point of being unoperational. In a self-propelled outfit where about 127 vehicles are operated, requiring 400 storage batteries, a battery charger is a critical item. During that period it was practically impossible to get new batteries. At the present time we need simple items such as fan belts for our 2½ ton trucks, but the battery shortage was perhaps the most critical shortage of any item we have had.

Concerning the trained personnel problem, rotation has been the prime headache. We get new men, most of them fresh from basic training, and by the time they become efficient in their jobs, they go home on rotation. This is true with officers as well as enlisted men. If we could get officers and men who *know* their MOS jobs, our problem of staying ready to shoot would be very much simplified.

With the stable MLR we've had so far, the tactical employment of the battalion has been pretty well cut and dried. Our primary mission is to defend the division against enemy aircraft, but our secondary mission, to support the ground movements of the Infantry, has constituted all of the shooting.

Each of our tracks has direct communications with the Artillery liaison officer at the Infantry battalion. Our fire is requested by the Artillery forward observer, with the Infantry through the liaison officer, and ad-

justed by the forward observer. This direct dealing with the Infantry cuts down on the delay that would be caused if all fire missions had to go through our battalion operations. Those doughboys love to see our weapons roll up to a cut-a-way or revetment on the MLR . . . and they love the sound of our 40mms and 50 calibers going over their heads. A few 40s on a bunker or machine gun emplacement will drive the enemy out, then we can mow them down with our quad fifties.

My relations with the Infantry have been very pleasant. They have always been ready to feed and supply the squads that are attached to them. They have been very obliging with their gasoline and POL. In turn, we give them the kind of close support that they want, the kind that no other type outfit can give, and they appreciate it!

The supply of food and clothing in Korea has been superior. There has not been one time since I took command of the battalion that we were wanting for essential items of Quartermaster issue. They have done a marvelous job.

As a result of excellent Engineer support, my men are protected on the MLR by sandbagged bunkers. Accessible roads to most sectors of the line reduce the problem of getting their supplies to them.

I believe that the Army in Korea today has reached an almost desired peak in military discipline and training. I know we have here in the 3d AAA AW Bn. I feel confident that if the enemy makes an offensive push employing his tactical aircraft we will be ready for him. We have a sizable stockpile of ammunition, and we're ready to use it where it's needed, be it in support of the Infantry on the ground, or against Red MIGs.

LT. COL OTHA MOOMAW

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The writer of the following served as an enlisted man during World War II. He was wounded in 1944 in Northern France. Receiving his commission at Utah State University in 1949, he presently commands A Battery, of the 3d AAA AW Battalion (SP) in Korea.

I was lucky when I took over A Battery. It was functioning beautifully, and it can be most reassuring to know you are stepping into a well-ordered spot. As a platoon commander an officer learns his two weapons, the 40mm cannon and .50 caliber machine gun. He becomes familiar with the M16, M19 and M39. As a battery executive he knows tactics, supply and communications and then too, he picks up a fair share of paper work. However, he doesn't know what a headache is until he attempts to put all these together and run a battery in the field.

Take maintenance. In this so-called stale-war, where movement is no longer the order of the day, maintenance would seem no longer a problem. It isn't so. It isn't so because

Lt. Giertsen

a commander of a self-propelled unit cannot—save at the risk of disaster—afford to neglect his vehicles. He has to depend on his vehicles to get his weapons to where they are needed. Further, he must rely on his vehicles to remove his weapons and crews to safety when they are endangered. He must bear in mind that the war could change overnight from a static situation to a very fluid one. With a fast moving war suddenly on, he would hardly have time to look to his maintenance. He would have to utilize all available time pursuing his defensive or offensive role. Although the role his battery will play is usually delegated him by the infantry commander, in the final analysis, it is *his* battery. Its success will be measured by the manner in which he keeps it supplied, trained and supervised. Bearing in mind that his weapons have been mounted on movable platforms for a purpose, and that without that mobility they lose a great part of their efficiency and potential, he cannot help but feel that that mobility is something to be safeguarded at any expense short of actual neglect of his weapons when not engaged in his mission.

Aside from mohility, there is yet another factor which makes you aware of the necessity for constant, exacting maintenance. With the four batteries of the battalion supporting an entire division plus assigned units such as the Division Artillery, Light Aviation Section (in the AAA role), each battery is called upon to extend itself over an almost unbelievable amount of territory. Supplies and ammunition must be transported by either the M39 (armored utility vehicle) or by jeep, and vehicles must rely on roads. In one situation the bumpy, dusty road which leads from one extreme of the battery's zone of responsibility to the other, it is about *seven miles*. From the Battery Command Post to either end of the battery line it is over four miles of the most rutted, winding, hilly roads that ever caused a battery commander nightmares.

Each day creates new employment for the vehicles. There are chow runs, supplies to he delivered, ammunition to be restocked, gasoline and oil to be replenished. There are mail runs, inspectio ntrips, and trips for a score of incidental reasons. Seldom a day goes by when some vehicle is not moved back for checks, adjustments or tactical reasons.

For all of its stagnant characteristics, the Korean fighting offers the self-propelled battery commander real tactical challenges. It is a slow-grinding school of hard knocks in which he learns his maintenance at the expense of many headaches. He discovers, for instance, that when an M19 simply cannot generate the power required to negotiate a certain hill in low-low, and when no amount of turning the air blue with colorful English has served to get it up there, there is but one thing left to do—back it up in reverse.

More than one B.C. has become a road construction engineer on short notice. If the situation calls for a

track to fire on some specific target, and the only position from which that fire may be delivered is inaccessible, does he chuck the whole thing with a "nice try, old chap"? Hardly—He finds himself a tankdozer and makes a road to the position. It is a happy commander who sees his track negotiate a difficult, makeshift road without throwing a track or becoming "high-centered" (the vehicle's belly lifted on a high spot while the treads grind helplessly in the air).

The gasoline and oil consumption is another major headache for the self-propelled battery commander. With an M19 getting perhaps one mile per gallon over the stubborn terrain, and an M16 squeezing to get two to three, he isn't exactly wallowing in spare gasoline. He must learn—and practice religiously—fuel conservation. However, he finds the necessary gas, and gets his tracks where they can deliver the fire the infantry wants. Somehow he manages to keep all his vehicles running, and somehow—despite the headaches and heartburn the job causes him—he knows he wouldn't trade jobs with anyone else!

1ST LT. ROLF GIERTSEN

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The writer of the following served as an enlisted man in Europe during World War II, participating in campaigns from Africa to and including the Battle of the Bulge. Receiving his commission from Officers Candidate School in 1949 he presently commands B Battery of the 3rd AAA AW Battalion (SP) in Korea.

Tactically speaking, the problems of the Automatic Weapons Self-Propelled Battery Commander in the ground role are the same which cause the Infantry Commander to pull his hair. What affects the one necessarily affects the other, for their jobs are one and the same: to insure that the infantry gets to its objective, executes its mission, and returns, with a minimum of effort, time and casualties.

The battery commander's mission, to support the infantry with his fire, is simple in theory. In practice, however, it is quite a different matter. To

Capt. Mattas

begin with, there is the small but necessary business of deciding how to support the foot soldier. There is the matter of what type of fire would be best, and from where that fire can best be delivered. The latter point in turn gives rise to other problems: Will the terrain offer adequate protection to the gunners and their weapon? Is it readily accessible? Can it be resupplied quickly? Can it be resupplied in quantity? Can it be resupplied under fire? Is there an adequate route of withdrawal in case the position becomes untenable? These questions the battery commander must ask himself before he is ready to commit his men and equipment. They are, of course, questions which the infantry commander must also ask himself. However, the AW Self-Propelled commander, in considering his final decision, must think not only in terms of his men, but in terms of those whom he is to support. The decision he finally reaches may well put his hair on end. I know one B.C. who sent one of his M-16s into position in a bare, flat field in the Kumwha area, nearly 300 yards ahead of the closest infantry. It was a difficult decision to reach, but which had to be made if the infantrymen were to receive the support they needed. The half-track stayed out for three days, protected only by a handful of infantry during the night. It was pasted by mortars, artillery and small arms fire, but in turn it cleaned house with a respectable number of Chinese citizens, and returned with a full crew. It's just one of those cases where the job is remembered by another grey hair on the B.C.'s head.

It is also a case which should forcibly bring to the attention of all potential AW (SP) battery commanders a most important lesson; a lesson which, if not learned from observation, may one day be learned at the expense of lives and equipment—*his own men's lives and his equipment!* Yet the lesson is simple. It can be summed up in only four words: *Train your squad leaders.*

In Korea—where the distance between two tracks is often measured in thousands of yards; where a single weapon may find itself atop a bare hill, cut off and forced to fight with the infantry as the enemy calls the shots—there will be times when the success or failure of a mission will hinge upon the judgment of the squad leader in charge of the track; when the lives of uncounted infantrymen—to say nothing of the track's crew—may depend on the actions of a single noncommissioned officer, alone for the first time, without means of communicating with his superiors, and with less hope of relief. If you have trained him as you should, chances are he'll live to have you pin a medal on him. If you have not—you can blame *yourself* not him, for the men that died.

I say that your squad leader is the key man in your organization. He is the man who can tell you that the left gun barrel on his M-19 is worn. He knows that the second gear on his M-16 is going bad, that his track can't be moved into its alternate position except in reverse and that kicking the left front tire twice will start the motor. But it isn't enough that he knows how to make decisions—he must *get used* to making decisions. In the close-support-of-the-infantry concept as played in Korea, the M-19 or M-16 is no longer a component of a large, smoothly coordinated team—it *is* the team. In the fast moving ground situation the squad leader is no longer a minor commander dedicated to a subordinate role. In that moment when troops are moving and clashing scant yards before his weapons, when artillery and mortars have severed his communications, his line-of-sight radio is useless and he is handed a fire mission—he is *the* commander. What he does with the terrifying power of his quad-fifties

his twin forty millimeter guns, well spell victory or defeat for people whom he has been told upport. There is the real test of battery commander. By the ac- s of the leader of one track he know what kind of job he, the ., has done.

There are many ways in which self-propelled automatic weapons assist the infantry. One frequent- mployed trick is to "walk" a patrol ie. Often, when a patrol turns k, it discovers that a force has owed it or has laid an ambush ig the route it must take. In such s, the patrol leader may call for valk home." The supporting weap- will then place their fires either front or behind or even literally in the patrol with their fires. In manner the AA units will con- ie to follow the men, maintaining same relative position until the ol is out of danger. Another use the AAA AW weapons is to against bunkers and crew-served pons. The M-19 with its twin , capable of delivering 220 rounds minute, is particularly suited for se pin-point targets where shock- power is needed. The M-16, on the other hand, is particularly good against exposed troops or lightly armored vehicles. Because of its rapid traverse and elevation, the quad-mount atop the M-16 is capable of shifting fire with incredible speed. Amazingly enough, however, it is for its tremendous volume of dispersal of fire, rather than for its maneuverability, that the quad-mount is liked in Korea. Anyone with the slightest conception of a beaten zone can appreciate the job of area sweeping *four* such zones. In one 40-day period of routine activity along a relatively quiet front, recently, our quads and forties were credited with the following: five machine gun nests, twenty-five hunkers damaged, one propaganda unit silenced, eighteen enemy killed and forty wounded. It was like high-powered sniping.

The skeptics who once laughed at the thought of close support of the infantry by AAA AW Self-Propelled Weapons might feel just the least bit foolish at seeing those very weapons performing their near-miracles of fire-support from positions tankers in their five-inch hulls might hestitate to take. The crews in their scantily protected tubs slug it out with the enemy, giving double everything they take. Personally, I would like to see more and heavier armor on those tracks for the protection of the men, I would like to see a longer burning tracer—say one that went to 7200 instead of the 3500-4200 yards we now get. There are a lot of things I would like to see, but I like very much what I see now.

CAPT. JOHN A. MATTAS

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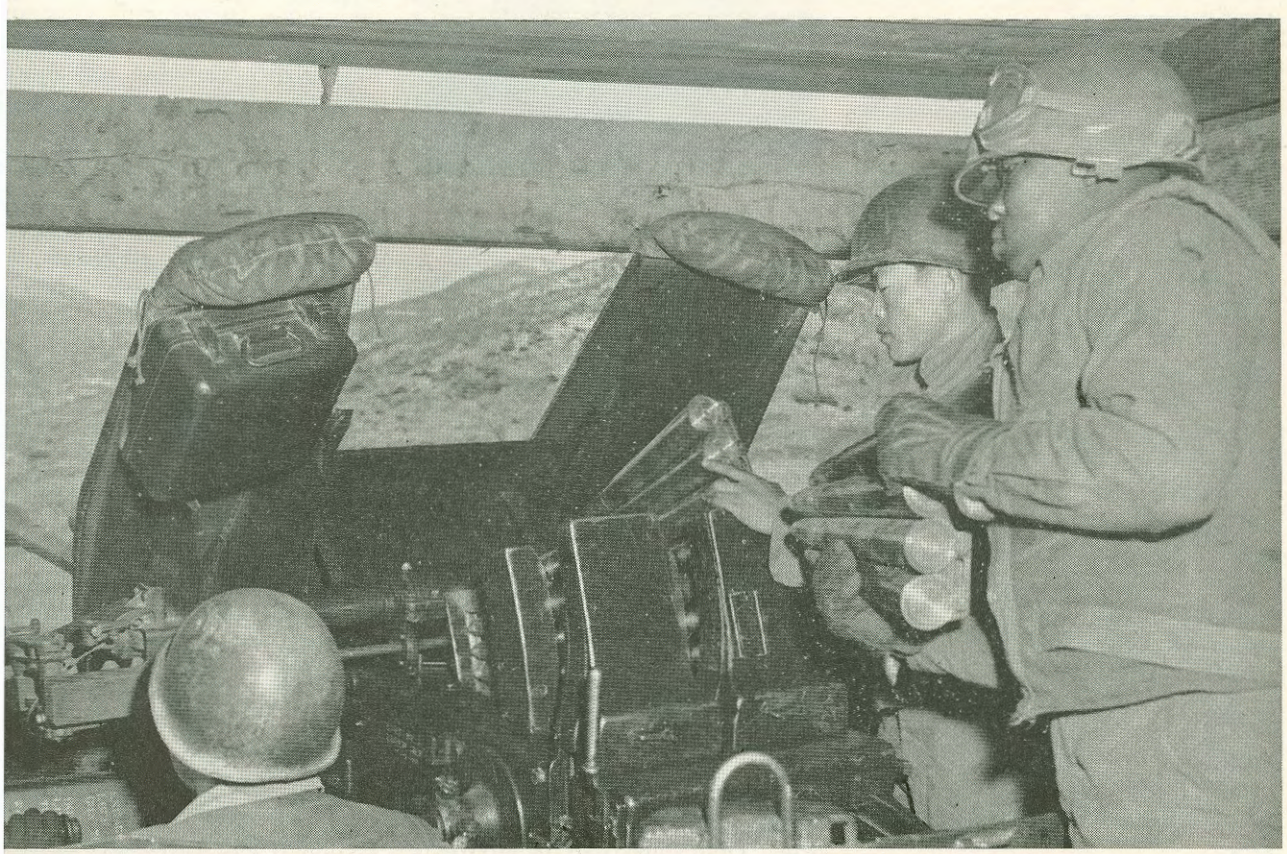
The writer of the following received his commission from Virginia Polytechnic Institute in 1939. During World War II he served in Europe, participating in the invasion of Normandy. He presently commands C Battery of the 3rd AAA AW Battalion (SP) in Korea.

No single fact—save perhaps the terrifying spectacle of its firepower—strikes an observer so forcibly when first witnessing the weapons of the AAA AW Self-Propelled battery in action as does the sudden realization that these vehicles, so capable of destruction, are themselves so suscepti-



composite United Nations Automatic weapons crew load up to fire against the enemy line in support of the Infantry.

ble to being completely destroyed.

For weapons which may be called upon to deliver direct fire from positions in full view of the enemy, neither the M-16 half-track, nor the M-19 full-track are adequately armored. Their sides, and the "tubs" in which the guns are set, are of a mere ¼ to ½ inch armor plating, and have no overhead protection at all.

The truth is that up to now they have been considered only as mobile, gun-bearing platforms, with little thought given to how the men who serve them will be protected from enemy ground fire. Both the M-16 and the M-19 were designed for AAA defense against fast flying aircraft. Their thin skins were considered adequate against bomb fragments which they are. They were *not* designed for the close support role which they are presently playing in Korea. Obviously, then, though their armament may be magnificiently suited for that close support role, their armor is certainly not. Certain measures and field iunovations have been found necessary for their protection and that of their crews. These for the most part have been born right in the field, mothered by experience and fathered by the aggressive spirit of the crews and their commanders.

The first and most inevitahle, of course, was digging in. Whenever time and terrain permit, the vehicles are backed into a revetment—preferably on high, commanding ground —with only the gun tub visible above ground. From such a position both the M-19 with its quad forty millimeter guns, and the M-16 with its fifty caliber qnadruple gun mount, can deliver fire around a full 360 degrees. In cases where enemy mortar and artillery fire is likely to be heavy, the position is covered with logs and earth, converting it into a huge bunker which remains open to the rear, but permits only the guns to be exposed to the enemy's line of fire. Such bunkers have proven capable of withstanding virtually any amount of anything the enemy may fire. Should it become necessary to employ a wider field of fire or should the enemy threaten from the air, there is always an alternate position which has no overhead obstruction. Thus, the crew is ready for any situation which may arise.

For tracks operating in the open, additional protection may be in the form of the broader, heavier shields which are hinged to the sides of the M-55 gun-mount. These can be made quickly and easily with available facilities in the battalion motor pool. The protection, both physical and psychological, which they give the gunners is beyond evaluation.

Each crewman is also afforded some measure of protection from fragments by the helmet and armor vest he wears. The vest might well be considered part of the vehicle's armament, for every man is required and trained to wear it in any area forward of battalion headquarters.

Thus, with such simple precautions, it is possible for field commanders to overcome the lack of armor which once made the M-19 and M-16

Capt. Magill

"rolling coffins." Today, the number of casualties caused by enemy return fire, either direct or indirect, can be said to be truly small. Damage to the vehicles is negligible, and is almost invariably caused when the vehicle is caught in the open.

Turning from armor to armament, most automatic weapons battery commanders feel that the guns are perfectly suited for the concept of close support of the infantry. The quadruple fifties, with their tremendous "spraying" effect, can blanket large areas inflicting heavy casualties on masses of troops. The rule which says they should be used in ranges from 50 to 1000 yards is not generally broken, hut it is sometimes badly bent. Their range may be anywhere from 25 to 4000 yards. The job may be repelling an attack at close quarters or delivering harassing fire into an enemy staging area. They'll do both jobs—and do them well. Normally, one tracer in five is used, and most fire adjustment is done by tracer.

The forties are perfect for direct fire where "punch" is required. Ammunition supply is adequate for both weapons. Each vehicle constantly maintains a basic load. One thing most battery commanders in this battalion would like to have is a longer tracer. The present 3500 yard tracer burnout point is all right, and at this relatively high altitude the Mk 2 tracers, finding less resistance, will generally cover 4000 to 4200 yards before burning out. However, having had an opportunity to fire the British Mk 27 tracer, with its 7200 yard burnout point, most of the battery officers agree that it is just what we need. The added yardage could well boost the weapon's efficiency anywhere from 35 to 50 percent, by allowing the gunners longer observation.

Normal targets for these forties are hunkers, crew-served weapons and concentrations. One battery, on Kelly Hill last September, played a cat and mouse game with a group of Chinese. It was noticed that each time planes started a run the Chinese would disappear into a trench and run across a ridge, under cover, and outo Cavite Hill. When the planes had completed their mission, they would simply run into the trench and across to Kelly again, where they were ready to meet our advancing troops. The last time they tried it, we pounded the trench to pieces with HE shells. When they tried to get up Kelly again, they had to expose themselves and we simply blew them to pieces. More than fifteen of them were knocked sprawlling down the hill.

This is not unusual. It is what the infantry expects us to do—and we oblige them as often as we can. The result of it is that the doughboys have to rely heavily upon us and they respect the capabilities of the AAA automatic weapons battery in the close support role. It is a support to which they are entitled, and which we intend to give them as often, as accurately and as speedily as we can.

CAPT. WALTER B. MAGILL

The writer of the following served as a commissioned bombardier navigator in the Air Force during World War II. He instructed American and Chinese cadets at Carlsbad, New Mexico. Transferring to the Anti-aircraft Artillery after the war, he presently commands D Battery of the 3rd AAA AW Battalion (SP) in Korea.

Dog Battery, as part of the 3d AAA AW (SP) Battalion, has a lot of history to uphold. Since the invasion of Southern France, it has been a part of the 3d Division almost continuously. The battalion landed on Beaches Red and Yellow, giving its parent organization antiaircraft protection. Together, the two 3ds made history in World War II.

Now, a new conflict finds it supporting the Rock of the Marne once again. But this time, the support is of a different nature—radically different. Since our landing at Wonson, in November 1950, we have come to learn the meaning of "surface mission" and "close support of the infantry." Those words were merely half-tried theories before Korea came along.

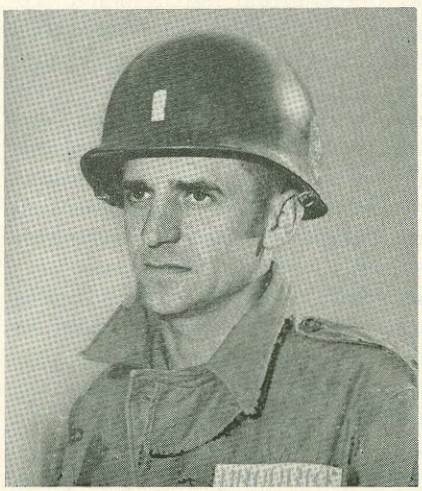
Initially we had come prepared for air defense role. A scarcity of enemy aircraft plus an over-abundance of enemy infantry soon changed the mission, and with it, many former concepts, plans, and procedures of operation.

One of the first things we had to learn was the degree of adaptability of our antiaircraft weapons, the dual forty millimeter guns and quadruple fifty caliber machine guns, to the then almost untested close support role. In the initial stages of the war, at Chin Hung-Ni and Huksuri; in support of Task Force Dog, whose mission it was to relieve the pressure on the Marines at the Chosin Reservoir along the withdrawal route and around Pusan, the guns proved their worth.

But the guns were not the only ones on trial. The vehicles which hear the guns were put to difficult tests. Many said the vehicles would not bear up under the constant movement; that parts would fail; that their armor was too light to permit them to slug it out against ground forces. But where the machine is hard put, the knowledge and determination of the man behind it must find its way into the picture. Thus, gunners became armorers, drivers became mechanics, and mechanics became inventors, and the machines kept going.

Today the ground support concept is safe. Ways have heen found to give the doughboys better, quicker and closer support. Additional uses have been found for the guns. Selection of targets has been brought nearer to perfection. All in all, constant examination of experience and its application to practice has seen a drastic curtailment of friendly casualties, while those of the enemy soar. But the problems are not over.

The problems of today are no longer peculiar to the concept; they



Lt. O'Rourke

are peculiar to the sort of war we face in Korea today. They are, for the most part, problems of supply, administration, and training.

Fuel is one of these. In the rugged Korean terrain of steep mountains and eternally hilly countryside, an M19, with its twin 120hp Cadillac engines, does well to travel one mile on one gallon of high grade gasoline per engine. If an M16 can go 2.5 to 3 miles to each gallon it is doing well.

While on the subject of vehicles, let me say that a lack of experienced mechanics, not spare parts, more often causes vehicles to be deadlines. There are schools, in and out of Korea, to which a man may be sent for mechanical training. However, there are few experienced men who can help the novice make the difficult transition from hook learning to practical application. This problem has been partially combatted by holding frequent maintenance classes for drivers in the battalion motor pool. In these classes, first echelon work is stressed, with an eye towards *preventing* breakdowns. But *why* such a shortage of trained men? The answer is simple and can be given in one word: *Rotation*. It is the same problem whether with drivers, mechanics, armorers or gunners. It takes so many months to train a man to do his job well. Then he is ready to lead. When he has learned to lead, he is ready to teach. Unfortunately —for the commander, at least—by that time he is also ready to rotate home. The outfit must settle for another rookie, and the process is ready to start again.

No, I am *not* against rotation. Nobody who has to serve in Korea is against rotation. I don't know *what* the answer is—and I don't believe, that at the present time anyone else does, either.

One partial remedy, born of experience, has been to have a short-timer "little brother" a new man through the job. For example, a man who is destined to become a driver of an M19 will probably first serve an apprenticeship in the assistant driver's spot.

The same situation exists with officers. Battery grade officers with antiaircraft automatic weapons experience are hard to come by. Many gun-trained officers in key positions within the battalion have had to learn the automatic weapons and tactics as they went along.

Recently there has been a marked increase of school-trained AAA AW (Self-Propelled) officers, most of them recent graduates of the school at Fort Bliss. They come fresh, with new ideas, and are a most welcome sight. These are some of the problems which will probably be encountered by officers coming to command platoons, batteries or battalions of Automatic Weapons in (SP) in Korea.

Are they worth the trouble? Well, ask the guy who gives us the missions. Ask the infantryman. I think his answer will be a big, loud "Yes —they're worth it!"

Personally I think they are, too.

1st Lt. John Michael O'Rourke

Command Responsibility for PM—HOW?

by MAJOR GENERAL JOHN H. COLLIER

WHEN General Heinz Guderian first suggested to the German General Staff that mechanized equipment be employed in a combat role he was sharply rebuked. It was then the common belief of the German General Staff that motorized elements were only of value in a service support role, hauling beans, flour and forage to combat troops. But that was 1924.

Twenty-nine years, including a first rate war and a not-to-be-sneezed-at police action, have taught us that without the combat use of mechanized equipment, military operations today have no hope for success. You and I know that combat is not done entirely by machines, important as they are, even though our so-called advanced thinkers of the comic books continue to speak of push button warfare. Should that technological dream ever come true, I can assure you that a horde of technicians will be kept very busy doing preventive maintenance to keep the push button working.

But to return to the mundane present, we all recognize that our vast array of military machinery is of little value unless it is kept operating effectively—and that requires PM—plenty of preventive maintenance that must be stressed at every echelon of command.

Last year it was my pleasure to sponsor a class such as yours here at Aberdeen. My remarks at that time were directed to what I consider to be the key to effective preventive maintenance—command responsibility. Today I am more firmly convinced than ever that good preventive maintenance can only be had when every commander, from Corporal through General recognizes that he has the prime responsibility for preventive maintenance within his command. The very fact that each of you has left your busy everyday tasks to concentrate for a few days on the importance of PM convinces me that you sincerely believe preventive maintenance is your responsibility. Therefore, I have decided to expand on my remarks of a year ago and attempt to answer a question that I frequently hear, "How can I discharge my responsibility for preventive maintenance?"

My answer to that question will be a framework only. That framework will be filled in by the course you are now beginning.

As Commandant of the Armored School, I would set a very poor example here at the Ordnance School if I did not follow the well-known pedagogical precept that you will see so well demonstrated in your course here, that is, for a speaker to tell what he is going to say, say what he has to say, and then tell what he has said. And I might add that I shall also attempt to be guided by that famed ecclesiastical advice to a young clergyman—that few souls are saved after the first twenty minutes.

I intend to stress seven simple actions that commanders can take to insure effective PM. They are:

1. Use the chain of command.
2. Require effective status reports that show the results of completed staff action—not fire alarm reports that require time consuming investigation before command action can be taken.
3. Don't let subordinate commanders pass the buck to technicians.
4. Insist that training and PM go hand-in-hand.
5. Encourage initiative and enthusiasm for PM by every echelon.
6. Require that *all* command and staff visits practice the principle of instructor-inspector service of which you will hear so much.
7. Finally, take effective, timely command action to include such things as providing or requesting technical help if required, condemnation for the incompetent, or, of course, praiseworthy recognition where deserved.

Now let us consider these points.

First, the chain of command is the only effective means to build and hold together good preventive maintenance. Far too frequently I have observed junior officers and NCO's who appear utterly ignorant of what is meant by the chain of command. Some of this ignorance has come about because of concepts that were allowed to develop during World War II when experienced leaders found themselves with green troops and green junior leaders. The easy way out of the dilemma at that time seemed to be over-centralized control from the top. Battalion and regimental commanders found themselves directing minor administrative details that should have been taken care of by company commanders. Perhaps

MAJOR GENERAL J. H. COLLIER, the Commanding General of The Armored Center and Commandant of The Armored School, Fort Knox, Kentucky, has been intimately connected with Armor since 1941. This article is based on his recent address at The Ordnance School, Aberdeen Proving Ground, Maryland.

remember company commanders
o never learned to supervise a
ply room or operate a mess be-
se they knew the Colonel would
it. That attitude of passing the
k up permeated all levels of
mmand until now we find Cor-
als and Sergeants who look on
ir stripes solely as a mark of in-
ased pay and privilege. Few know
m as a badge of increased responsi-
ity. By our every action, you and
nust eradicate these ill founded
ncepts and restore the inspired
ling of responsibility in our non-
ns and junior officers. See that
y recognize that the prestige of
dership goes *only* to those who
ow that responsibility is the first
ality of leadership.

That deep sense of responsibility,
upled with initiative, form the lines
the chain of command. The neces-
y for assuming and carrying out
sponsibilities goes all the way up
d all the way down the chain of
mmand. A company commander
no by-passes his platoon leader by
aling directly with squad or sec-
on leaders, or crew or tank com-
anders, violates not only the princi-
e of the chain of command, but he
es an injustice to the platoon lead-
. If this is done because the pla-
on leader is incompetent, let's re-
ve him. Only by the full use of
e chain of command can any mili-
ry activity be assured of success.
his principle is not confined to the
ilitary, it is used in all successful
ndertakings involving groups of
ople, civilian or military. It is just
great an obligation that one's sub-
linates be required to know and
ume their responsibilities and
ry them out as it is to know, as-
ne and carry out one's own re-
nsibilities.

My second point—require mean-
ful equipment status reports that
licate clearly the *need for* and
ent of corrective action. Reports
ning to you that half the radios
out; that meals can't be prepared
ause the stoves don't work; or
t men are falling out of a march
umn with sore feet due to poorly
ng or worn out shoes, tell you
y one thing—that a crisis has de-
ped. To take action, you as a
mander must find out *what* went
ng, and *why; how* the trouble
be corrected; *who* is taking ef-

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The Commander uses a PA system to instruct trainees in crew PM at Fort Knox.

fective action, and *when* it will be completed. Getting the answers to these questions is a difficult and time-consuming job that increases in complexity as you rise to higher command and staff levels. Until these simple questions can be answered your hands are tied and you as a commander or staff officer cannot take effective action. Make it SOP that deadline and critical status reports give all the facts required for corrective action. Speaking of reports, it might be well at this time to set straight a widely held misconception. Maintenance and supply reports should not be mere paper work or red tape. Such reports should be based on the need to transmit facts to the person who must know them. Facts can be transmitted orally in many cases. When written reports are required, they must be devised to show necessary essentials with a minimum of administrative effort. Paradoxical as it may seem, I must here warn you to beware of PM—the initials this time meaning *pencil maintenance*. That is the enemy of real preventive maintenance. Preventive maintenance is hard work with equipment, tools and supplies. It is not fancy paper work embellished with meaningless red tape.

Commanders and staff officers who require substantiated reports of maintenance and supply difficulties will stop some of the so-called *snow jobs* that are frequently thrown at senior visitors. As you know, many officers and men seem to be obsessed with an overwhelming desire to tell *something* to staff visitors, even though their comments are based on vague rumor. Perhaps I can best illustrate my point by recalling an incident that occurred only two or three years ago when I was with the U. S. Constabulary in Germany. During a large scale maneuver a senior General officer came upon some tanks out of action along a road. As the story later was reconstructed, it appears that one of the noncoms with the tanks reported that the failure of fan belts had put the tanks out of action. That's when the Sergeant should have shut up. But no, he volunteered the information that fan belts were critically short throughout the theater and many units had deadlined tanks as a result.

This one unconfirmed report led to frantic action at all levels of command. Commanders and staff officers were rushed, ill prepared, to conferences without knowing the subject for discussion. Priority telegraphic requests demanded *blitz* reports of deadlined tanks and stockage of the required fan belts. Special *red ball* requisitioning procedures were prescribed. Arrangements were made to air lift fan belts.

When the hassle had been under way for nearly two weeks it was learned that nearly 3,000 fan belts were on hand in a nearby depot and most units had some on hand, although the outfit with the deadlined tanks had neglected to determine their requirements or requisition the fan belts.

What can we learn from this little story? That unconfirmed fire alarm reports result in untold expense in time and money to dig down to the real facts.

Previously I stated that my talk would be only a framework upon

which commanders could build effectively the body of their responsibility for PM. At this time I would like to illustrate my point by going into a little detail on the subject of deadline reports. That subject has received far too much of the *broad brush* treatment already and it needs some careful examination.

As I have already mentioned, the mere paper work will accomplish nothing. It should be used as an administrative tool to get the maximum equipment in operation. To do that requires that each echelon process the report promptly and hand-carry it to the next higher commander. Normally, the completed report, showing that all possible action has been completed at company and battalion level, should reach the supporting technical service within two workdays. There it can be processed and action taken to remove every possible item from deadline and the following day presented to the commander for his information. Thus, equipped with facts, he can apply pressure where it is needed.

My third point—Don't allow specialists and technicians to become whipping boys for commanders delinquent in maintenance. I cannot stress this too strongly. It is closely related to my earlier remarks about the chain of command. Squad, platoon and company commanders are the foundation of maintenance. Their attitude and actions can result in success or failure. It is the job of senior commanders to develop the proper attitude within their commands by pinning down maintenance responsibility to commanders—not technicians. A squad leader is fully responsible for the condition of his vehicles, weapons and radios. This responsibility cannot be cast off on Armorers, Motor or Communication Sergeants.

You will hear of subordinates who attempt to dodge this responsibility with the plea that the maintenance of equipment is beyond their technical knowledge. Squash that bunk when you hear it. Organizational maintenance manuals clearly describe the work to be done. Commanders must be taught that they, and they alone, must insure that lubricants are applied properly and tires correctly inflated. It is not essential that they be able to pump tires or use a grease gun. But it is essential that they know that their subordinates have performed their tasks properly.

My fourth point—PM is military training and goes hand-in-hand with other military training. The goal of all training is success in battle, so demand that they go hand-in-hand. In every phase of a training program that requires the use of equipment, insist that maintenance of that equipment—and sufficient time to do it—are *musts*.

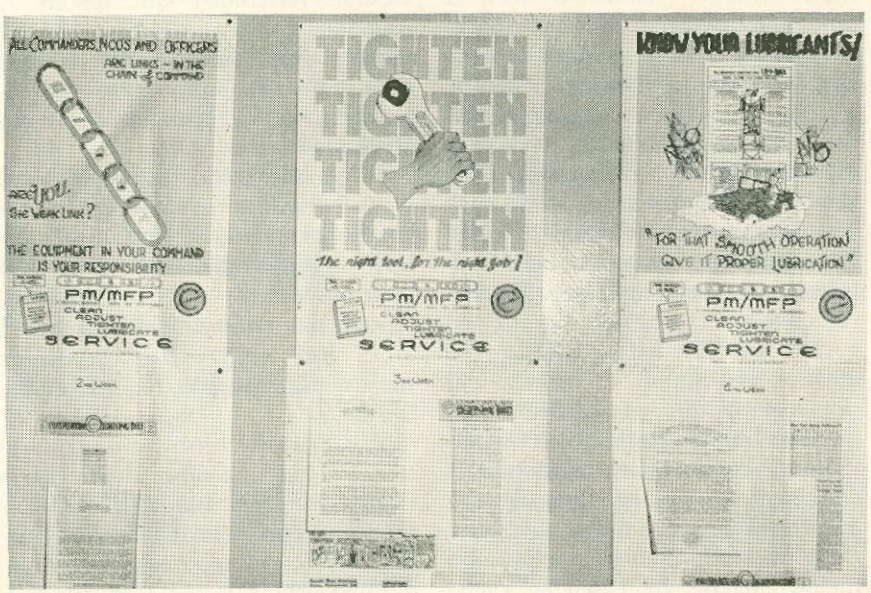
Far too frequently many of us think of maintenance as being concerned primarily with major items of ordnance equipment. This is only natural as a large percentage of our defense dollars are invested in such equipment. However, we should all emphasize that the principles of maintenance apply with equal force to all types of military supplies and equipment, and, I might add, that PM must apply to items obtained from every source and entrusted to the care of a command.

For instance, in an administrative activity or training program, where only individual items of clothing are used, it is the duty of squad and platoon leaders to see that such items are properly cared for. Shoes must be cleaned and polished, wool clothing air dried and brushed, cotton and webbing washed and dried. Perhaps you are thinking, "Doesn't he know that soldiers buy and pay for such items with their monetary clothing allowance? Why should we concern ourselves with PM on such items of insignificant values?"

My answer is—regardless of who owns them—all are products of our nation's resources and her industrial economy. We, as a nation, cannot afford to again waste such critical resources or the industrial capacity needed to produce them. It is no secret that the raw materials for these three cited examples: leather, wool and cotton, have been on the list of critical items required in the event of mobilization. Finally, they are not of insignificant value. Only one pair of wasted shoes per soldier in an Army of a million and a half, equals $10,800,000 at $7.20 per pair. Even insignificant web belts at 45¢ each amount to $675,000, if every man allows one to rot from sweat and dampness. These amazing sums loom large when considered in the light of your withholding tax and mine.

Preventive maintenance training in the care of all Government equipment is the first step in real supply economy. All training programs must include PM. Training of specialists and technicians in maintenance must convey the idea of getting the most from the least by repair and reclamation.

My fifth point—encourage your subordinates to *sell* PM at the squad and platoon level and try to instill the spirit of pride in equipment, once so prevalent in our Army. One effective means employed by the Third Armored Division at the Armored Center is the sponsorship of inter-unit competition, wherein the tank crews demonstrating the least demand



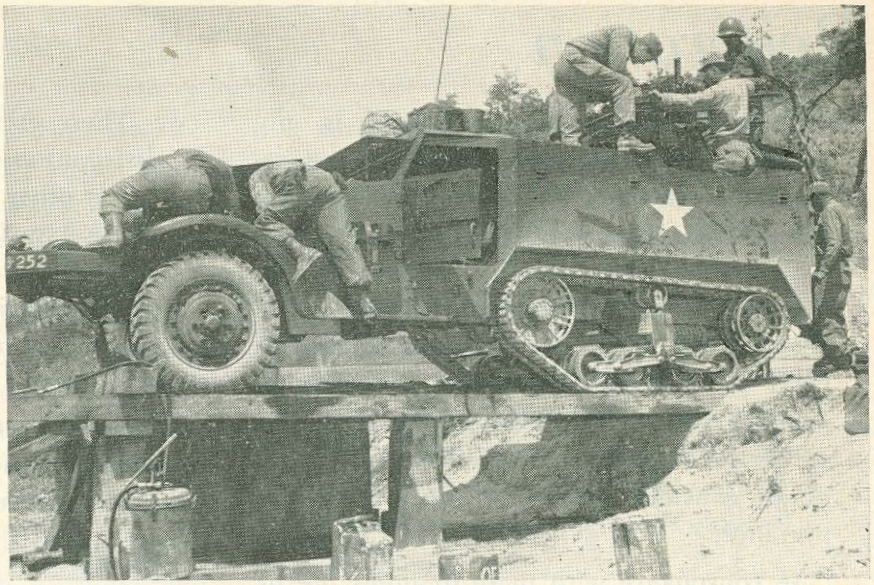
U.S. Army

Displays serve to emphasize basic points in a command wide training program.

for higher echelon repairs and parts are recognized by the award of a distinctive pennant to be flown from the antenna mast. Real leadership can again develop the old competitive spirit of *bucking for orderly*.

Perhaps the very best way to develop initiative and enthusiasm for PM is for the commander to set the example. His evident personal interest soon becomes contagious. I would like to give you an example of this point from my own experience. I cited this same example last year. I had the good fortune to command a tank battalion and later a tank regiment in the Second Armored Divisiou when General Willis D. Crittenberger was in command. He understood this principle and made full use of it. The division had published very adequate directives to implement a sound PM program, but it was evident that the units were not attaining the prescribed standards. There was a lot of the other type of PM going on. I refer to *pencil maintenance*. His solution was to schedule frequent personal visits to the motor parks during the PM periods. Gentlemen, I commanded a tank battalion when these visits started and I can assure you that my interest in the PM program increased enormously and quickly. Not surprisingly, my company commanders also became very much interested quickly. The chain of command started to function. To me, this was the example *par excellence* of *putting on the heat*. Life may not have been very pleasant iu the motor pool during his visits, but it certainly was not dull.

It might be well at this time to digress and consider some factors of good fortune in the care of our great quantities of mechanized equipment. That is, comparative good fortune. If you've got troubles, think of the other fellow. For instance, uncle Joe's boys aren't having the easiest sailing in maintenance these days. In a recent edition, *Time* magazine quotes a satellite premier as blaming a production shortage on an "anti-machine attitude" on the part of the workers. *Radio Sofia* concluded that "a barharic attitude towards machines was too prevalent." An Iron Curtain Communist journal reports that the maintenance of machinery was so poor that pieces of farm equipment were found "left in such condition that wheat began to grow in them."



U.S. Army

Essential teamwork is shown by crew as they perform PM during a lull in Korea.

Ponder these consoling thoughts the next time you note the ex-ribbon clerk struggling with the intricacies of a wrench or grease gun. All American soldiers are most certainly not born mechanics, but our people have a native knowledge far above that of any other people in the world. Thank God for it, and, by ingenuity and leadership, develop it.

My sixth point—The instructor-inspector service concept should not be confined to technical service personnel. All command and staff visits and inspections should have as their goal the training of personnel in *what* standards are desired and *how* they can be attained. Most Americans are anxious, yes, even eager, to do what is required, if they only know and understand what is expected. Insure that they do. There are ways to handle the occasional Bolshevik who bows his neck.

My seventh point—If your job, now or later, is that of a commander or on the staff of a commander, always remember that PM is a command responsibility. We all realize the need for capable specialists. Yet qualified Armorers, Supply and Motor Sergeants, Mechanics and other essential technicians are not always to be found in every unit. They must be trained within the unit. Here, the technical services can give you much help when you are stuck. I have found that requests for such assistance are freely granted wherever and whenever possible.

When maintenance problems arise that require outside assistance, ask for it. If technical channel requests fail to bear fruit promptly, go through command channels. Your commander expects to he kept informed and wants to give help when it is needed.

On those unpleasant occasions when subordinate commanders fail to appreciate and fully exercise their responsibility for PM, do the unpleasant things necessary. You will be surprised at the far reaching salutary effect attained by the condemnation or relief of an incompetent commander. Such actions are taken in confidence, but the news seems to spread where it is needed.

Contrariwise, see that praiseworthy accomplishment is noted—and be as public as you want with well deserved commendations.

As we consider these seven points, let us ask—Why preventive maintenance? Wars are fought with men —mobility—firepower. To win, all three must be in prime fighting shape. Our training is devoted to that end. Preventive maintenance puts more mobility and firepower on the fighting line where it is needed, instead of on the deadline. Preventive maintenance is applied supply economy and practical cost consciousness in these days when every pound of metal in our resources and the output of every industrial facility must be made truly effective. Preventive maintenance is a command responsibility. It is *your* responsibility.

Reiteration

With the change in editorship, it is only proper that a statement of policy be reaffirmed regarding The United States Armor Association. This policy, in general is a reiteration of those policies as laid down by this Association, the oldest of the Ground Arms Associations, during its colorful sixty-eight years of existence. However, one must remember the old Army maxim that repetition serves to emphasize and drive home those points considered to be of the greatest importance.

In consonance with these thoughts, let us restate the objective as set forth in the constitution and by-laws of the United States Armor Association:

> The aims and purposes of this Association are to disseminate knowledge of the military art and sciences, with special attention to mobility in ground warfare; to promote the professional improvement of its members; and to preserve and foster the spirit, the traditions and the solidarity of Armor in the Army of the United States.
>
> There shall be no capital stock, and no distribution of profits to any officer, member or other person, but the entire income of the Association from all sources shall be applied and used in the conduct of its activities and in furtherance of its object as set forth above.

This Association has perennially advocated cooperation and teamwork, and has contributed substantially to the Army team.

As industry made this great country of ours more machine-minded, Armor went through the transitional stages concurrently, from animal to machine, from horse to horsepower. Armor thus evolved as an integrated arm and, as such, appropriately represents mobility and mobile warfare.

Mobile warfare and its concepts are American in character. America leads the field in technological processes. To capitalize on these characteristics may spell the difference between defeat and success. To scorn them is sheer folly.

New Book Savings

Effective when this is read is a new Book Department discount schedule which means increased savings to users of our book service. The scale on all standard disconnt publisher items ordered through the Association will be as follows: 5% on orders from $1.00 to $5.00. 10% on orders from $5.01 to $10.00. 15% on orders from $10.01 up.

To determine the amount to be paid when ordering books, you should take the total prices of the books as advertised and then subtract the allowed discount.

In company with this, will be a continuation of the prepaid postage provision on shipment of books when payment accompanies your order.

The feature of special house ads which bring you the widest intelligence of worthwhile books in the service journal field will continue.

This new program is inspired by several reasons. First of all, there is the increased volume of Book Department business. This allows greater publisher orders at higher discount. Secondly, a substantial and sustained increase in Association membership and magazine subscription has made possible a limited stocking of worthwhile books, which means larger publisher orders and, once again, greater discounts. And thirdly, this is in line with the function of the Book Department—a subsidiary activity of the Association which is designed as a service to you rather than as a profit medium solely.

In connection with the above, once again it is emphasized that, although only professional material is treated through the pages of ARMOR, the Book Department can suppy you with any book in the English language that is in print and available. Use of the Book Department works both ways. You help yourself and the Association when you order.

Disseminating military knowledge of all arms to our professional soldiers is our aim. To emphasize mobility in ground warfare is our purpose. In so doing we promote the professional improvement in our members. For example, from typical pages within this issue, one may note among others, articles of historical significance; an article on self-propelled antiaircraft artillery; an article on discipline and morale; an article on preventive maintenance; and a feature book review of an appropriate book by a well known book reviewer. Within these pages, when recommendations for changes are made they are offered constructively for the good of our Country, our Army, our Branch.

This Association is a non-profit making organization, and all monies received are invested within the covers of each issue of the magazine. Thus, any monetary profit is shared with the reader. One need only review the magazine over the past several years to note its growth in quality and quantity. In view of the fact that all material is submitted voluntarily, and published on a gratis basis, this further enhances the prestige of the magazine and is a tribute to those who willingly give their time in the furtherance of the military art and science of war.

In promoting professional interest in our branch and in mobile warfare, we maintain that *only* the branch Association can accomplish this. Branch Associations, dating back to the conception of The U. S. Cavalry Association in 1885, have served as a repository for all ranks to present their views and share their findings.

However, an Army-wide military organization to operate in the general area above existing organizations with membership open to all military personnel, irrespective of branch, rank, or existing organization, *is* advocated by this Association. This type organization would serve to *supplement* existing organizations in a further contribution to inner unification of the Army and as a medium for transmitting the Army view to the sister services working for the defense of our great nation.

To the Great Beyond

When the last issue of ARMOR was put to sleep—in printing jargon this denotes when the editor turns his final proofs over to the printer —we were not aware of the passing away of one of our former editors. Lieutenant Colonel Matthew Forney Steele died at his home in Fargo, South Dakota on 25 February 1953 at the age of nearly 92.

Colonel Steele graduated from the United States Military Academy in 1883. His first service was in the Dakota Territory where as a junior officer at Fort Lincoln and Fort Reno he engaged in numerous skirmishes with the Indians. Following this service, he participated in the battle of San Juan Hill during the Spanish-American War, for which action he was awarded the Silver Star. Colonel Steele served as editor of ARMOR, at that time under the name of *The Cavalry Journal,* during 1904-1905. He served an extended tour of duty as instructor of tactics at the Command and General Staff School, Fort Leavenworth, Kansas.

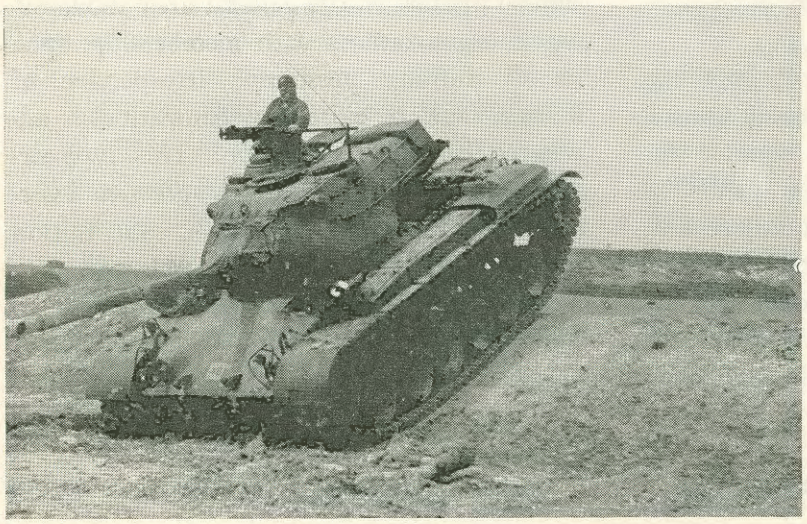
Later, his Leavenworth lectures were compiled into a a two-volume classic entitled "American Campaigns." These volumes have been used as textbooks at many military institutions the world over, and are still a best seller here at ARMOR. It is rare to find a professional military library that does not contain a set of Steele's "American Campaigns."

His last tour of duty was as Military Attaché at Moscow. Retiring in 1912, he was recalled to active duty during World War I to serve as Professor of Military Science and Tactics at North Dakota State College.

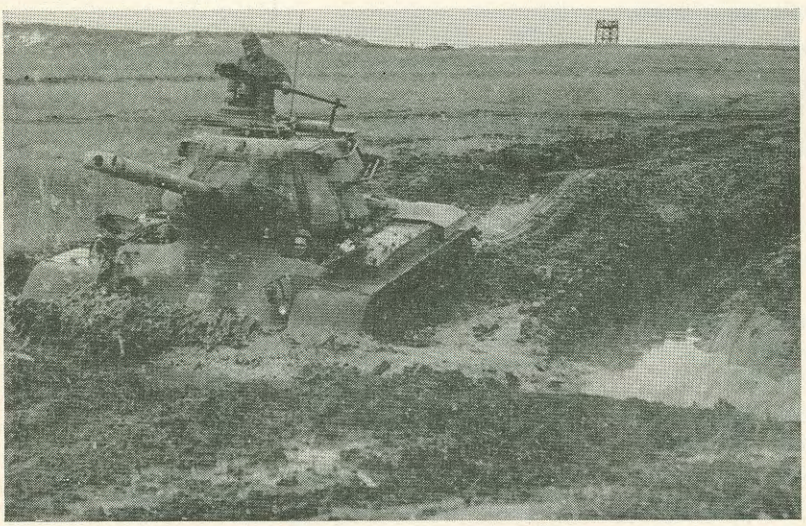
After his retirement, Colonel Steele was a prominent citizen in the civic affairs of Fargo and was held in great esteem by the townspeople.

Colonel Steele's contributions to the military art and sciences will never be forgotten.

Dust and rocks fly as the driver of an M4A3 negotiates a difficult curve.



A slight incline on foot becomes a major obstacle for the new tank driver.



Sinking in to its fenders, the tank engines prove ability to push forward.

With radio the instructor corrects errors at

TANK DRI

The 1st Armored Division at Fort H
world, including Korea and Germany,
the basic principles of a tanker's traini
taught that their presence in the enem
does not soon recover—his lines of com
his front line will crumple.

However, student tankers at Hood
are in a position to speed across the co
most of the many obstacles they will fa
mud, bad roads, no roads and road blo

There are three phases of tank drivi
approximately 100 yards long, to famil
various operations controls. The secon
straight-away driving, teaches the tanke
to "cowboy" a 48-ton tank around a cu
throw a track in the process. As with
Tankers are taught to gauge curves an
their tank.

Divided into four sections, the th
bouncing. It consists of a barrel obst
piles.

The backing stalls, dug out of dirt
into position with as little jockeying a
sort is of great tactical value when a
avoid enemy fire. The uneven log obs
his tank over bumps and ditches. Logs
tank to rock and lurch. The last pile
course where the driver learns how to

Directing all classes from an eleva
has a complete view of all tanks and is
assigned to each tank to lend aid and

Photos U.S. Army

hills are attempted as the driver improves.

TRAINING

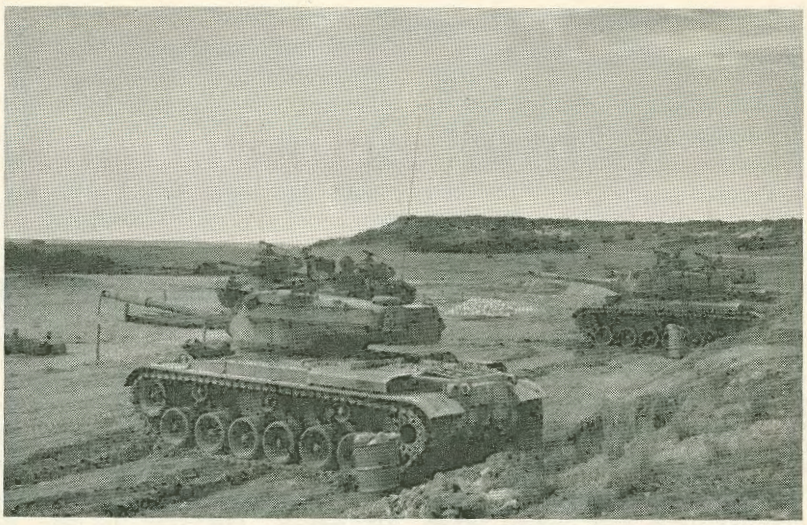
tankers for duty in all parts of the
power and shock action—these are
maximum shock action, tankers are
eates havoc from which the enemy
rupted, it is only a short time before

bstacles are many before the tanks
bstacle course prepares tankers for
mance of their duties—water, hills,

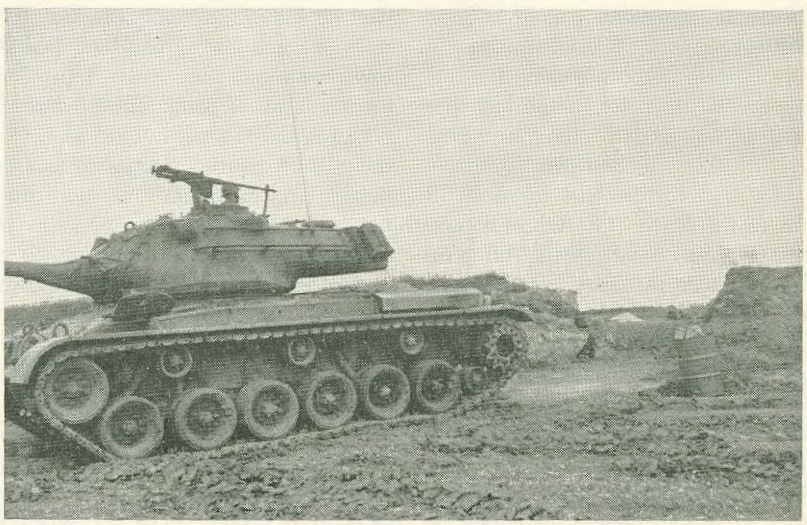
hase consists of straight, flat lanes,
with normal tank driving and the
mile tank trail which, in addition to
te hills and curves. It is easy enough
louds of dust. It is equally easy to
e is a right way and a wrong way.
a manner which will not disable

course is the tanker's baptism of
s, an uneven log obstacle and log

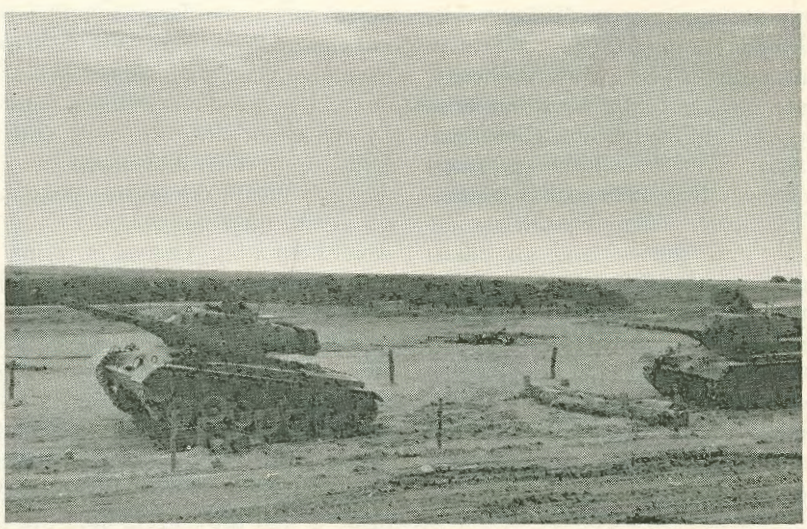
ractice in moving a tank quickly
Reverse movement drill of this
r scoot rapidly for camouflage or
o test the tanker's ability to guide
y at distances of 10 feet, cause the
the fourth section of the obstacle
igh barriers.
ooking the course, the instructor
ontact. An assistant instructor is
rivers.



Teamwork is essential in parking as the commander gives instructions.



With inches to spare on either side, the commander communicates by radio.



Log obstacles teach the driver greater maneuverability over high barriers.

Introspection, now and then, mirrors our shortcomings.

Trials and Tribulations of the NCO's

by MASTER SERGEANT JAMES D. MERRILL

SINCE I was a green recruit some ten years ago, I have heard enlisted men talk of the *old army* and I have never quite understood what they meant when they used that term. To the retired sergeant who still enjoys joining a bull-session now and then, it may mean the Army of Occupation in China, 1910. To another it may mean the Army prior to the last war (Circa 1930) and to some it means the Army that invaded North Africa, Italy, and France. But to each it seems to recall the time when a noncommissioned officer considered himself an *Officer* in every sense of the word and the implication is that NCO's today are not as good as they once were. This, I will not believe.

Most of the arguments boil down to the fact that a sergeant had some *authority* in those days. I don't claim that many noncoms in the Army today exercise the power or exert the influence they could, but I have found that a good soldier is usually given as much responsibility as he will take. And here is my main point: you can't separate authority, power, and prestige from responsibility and dependability. Let's face it; many of those who are the most concerned about their lack of authority are the very ones who shirk responsibility and run to find an officer whenever a decision has to be made. If we want our authority and prestige restored, we will have to be ready, willing, and able to accept responsibility and to get the job done.

Back in the days when the sergeants ran the army, any noncommissioned officer could have done a pretty fair job of running his platoon. Every NCO knew the basic individual weapons of his branch of the service. He knew his men, too, and he led them because he was a better soldier. Sure the Army was simpler then and there was less for a man to learn and remember. But the fact remains that the Army has grown and become more complex while the NCO has stood still. We have to be smarter, know more, work harder and carry more responsibility now, in order to be as good as the old Sarge was and unless we do expand to fit this bigger job, some officer will have to step in and do our work for us. We are flunkies only because we are willing to be flunkies, or unwilling to put out the effort to become qualified in our jobs. We have let officers take over jobs we should handle because we couldn't or wouldn't take them on ourselves. Most of us fail because we are afraid to try! We have stopped taking *home-work* to the barracks and burning the midnight oil. We no longer have the same professional pride in our ability to do a soldier's job—to live a soldier's life, to be a soldier. Until we develop it again we are not going to regain our former respected place in our profession. Griping won't help a bit. Instead of trying to help ourselves we still blame the Army, the system or the officers.

With all due respect, the officers are partially to blame for the situation. Instead of encouraging a man who uses his initiative they sometimes ignore him, or worse, suppress him. Another charge that can be made is that the officers have put up with mediocrity so long we have all begun to lower our standards. And too often, as soon as a man begins to show a little interest and enthusiasm he packs his duffle bag for OCS. But after all the talking is done and the buck has been passed as far up the line as possible, we still have to admit that nobody can make a leader of us without a little help on our own part. In the long run, only we, the NCO's of the Army, can rebuild the noncommissioned officers corps and make it a professional corps capable and worthy of the name.

Let's take an honest look at ourselves. If we can diagnose the disease, we'll be able to find a cure.

One type of NCO who takes all and gives nothing is quite familiar to us. The *homesteader* of the Army is not only useless to himself but he is mainly responsible for spreading the attitude that the Army is just a job like any other. A man who feels like that may make a good clerk but he is no soldier. Not until he decides and realizes that the Army is a way of life, his way of life, is he of much real use to the Army. I like the story about the General who was inspecting an outfit and stopped to chew one of the soldiers about the condition of his men and equipment. "Sir," replied the old soldier, "I have been through eight campaigns and fought in twenty battles!" The General nodded. He pointed to one of the pack-mules and remarked, "yes, but so has that animal and you see he is still an ass." Not everyone who has a serial number is a soldier.

Another familiar type is the NCO who has come up too fast. Of course, no one can blame a guy for taking his promotions as they come along, but what happens when the man gets more stripes than he can handle is certainly not good for the man or the Army. If there were some provisions for temporary promotions so

MASTER SERGEANT JAMES D. MERRILL is Sergeant instructor with the 149th Medium Tank Battalion, California National Guard, Salinas, California.

that a man would carry the stripes only as long as he carried the job, it would help. As it is, the man who is promoted too fast can do one of two things. He can buckle down, study on his own and make up for the knowledge he should have picked up in each intermediate grade or he can glide along, apologizing for the rest of his time for the information he just never bothered to dig up.

In almost every discussion of this sort the Doolittle Board and its democratic approach is brought up and kicked around as if the Democratic Army the board endorsed was a new idea. It is not. It has been tried before in the US Army and it didn't work then, either. Both sides had elections of officers during the Civil War and both sides found out that popularity wasn't enough to qualify a man for military leadership. Even the Russians have given up the idea because it was unworkable. It is fast dying out and so, probably, the less said about it the better. However, the idea has contributed to the attitude that a man has more rights than duties.

Well, those are the symptoms. Now for the cure.

In comparing our present setup with the *old army* we ought to recognize, in the beginning, that the quality of our enlisted men has improved. I don't mean that our men are any braver than Sergeant York, but the younger generation—the current crop of recruits—is man for man a better educated, more iutelligent man than in the past. He may be a little less rugged, not quite as rough and ready but he has a brain and he thinks. The old sergeant would find that he couldn't lead the soldier of today hy blasting him with a stream of abusive vulgarity. Today's soldier doesn't cower and he can't be hluffed or bullied. The old sergeant's solution for a reluctant soldier was to invite him out behind the latrine. All you'd prove by that today is that you can lick him. Your right to *lead* him rests on other things.

Mainly, it depends on knowing more about the job at hand than he does; to be able to detail strip the basic weapons; to know where a tank will go and, more important, how to get it there; to know how and when to adjust a track; and to be capable of more than first echelon maintenance of the engine and the gun. These things are elementary, daily duties. To really know his job, an NCO must go way beyond all this. Of course, he should be able to drive better and shoot better, but he must do more. He ought to be able to adjust artillery fire and to know what he can reasonably expect of a doughboy. He ought to know where to expect mines and have some idea what to do about them, including disarmament, if necessary. He should understand how a company really functions; what he can count on in the way of help from the communications sergeant, the company maintenance section, the supply sergeant. He should know the johs of all these others well enough to understand their problems and not expect things that they can't deliver. Sure it's a large order. An NCO has a large responsibility. And where he fails, his platoon leader usually steps in to *take over*. When that happens a few times, the NCO loses the respect of his men and confidence in himself; thus discipline deteriorates.

Real discipline is just the result of good leadership. We NCO's have all the laws, regulations, and customs of the service behind us, so we can force the soldier to obey even if we can't make him like it. The regulations really operate to protect the weak leader and only the weakest leader will rely on them alone, to get the job done. In the first place, no set of regulations will ever be made that will fit every situation. That is why we cannot have pat solutions and ready answers for every little problem. Men follow out of respect and confidence in the ability of the leader. It's necessary for the NCO to have the authority to force ohedience but a good one will seldom have to use it. His men will want to follow him because he is right and because they helieve in his honesty and hecause his approval, or his scorn, really matters to them. They know, instinctively, that he is all these things that others pretend to he and they try to emulate him. When you find your men copying little things you do, mannerisms, expressions, and the like, they are paying the finest compliment to your leadership which is possible. They are following.

You can learn a lot more about a man by watching him work when things are not going very well than in a situation where everything is clicking perfectly. If he complains about the officers or the system; if he blames his men, equipment, or lack of authority; if he gets mad and adds to the confusion; don't trust him. The whole Army is set up to help an NCO do his job. Behind every regulation, every rule, and every order there is a common sense reason. By the time a man has spent some time in the service, he should have confidence enough in the system to believe that this is so, and loyalty to the Army at large should keep him from uselessly criticizing it or allowing his men to do so out of ignorance. "Any fool can criticize—most fools do." There are many glaring errors. After all, the Army is just a very large group of average human heings any one of whom can and does make mistakes. It's easy to make fun of what we don't understand but we should all realize that respect for the Army and pride in soldiering can be destroyed by blaming everything that goes wrong on "the Army."

"But what cau I do?" you ask. You can improve yourself until you're competent, efficient, and professional in your present assignment. The effect will be to improve your unit because competition will see to it that others match your ability. Throw a marble in a pond and watch the ripples. The marble is nothing, in itself, but it sure stirs up the stagnant waters.

Maybe I don't measure up to all I've said here. But these are the grounds on which I must be prepared to meet my men. These are the things on which I'm willing to he judged by my superiors. These are my obligations to the nation and to the Army. I'm not trying to unionize the NCO's but until we all begin to see that we do have responsibilities—until we start to live up to the traditionally high standards in our profession—until we start policing ourselves—we have no right to gripe because they don't give us more authority. The energy has to come from the bottom up. Coffee doesn't perk until you light the flame. It's high time we strike the match. Only we, the NCO's can do it.

How Red Arms Stack Up*

DON'T get the idea that they are a bunch of peasants. They may turn out junk by our standards, but it's effective junk."

That's the way one officer of the Ordnance Corps' industrial intelligence branch last week described the Soviet workers who are turning out Russia's military equipment. His remark was based on studies of armament that has been captured in Korea and returned to the U. S.

The military's attempts to snag Russia's gear have been catch-as-catch-can. The stuff is not easy to get. So far, the Army has fared best, having captured an assortment of small arms, artillery and tanks. Coming in second best, the Air Force has copped at least 2 MIG-15s, the jet fighters that are said in some respects to have topped our own over Korea.

Basic Principles

The gist of the studies is that Russian production is efficient, if not fancy. You must first understand two obvious, simple principles that underlie the design of Russian equipment, before its production methods make any sense: (1) Most of Russia's gear is designed and engineered for a short service life in combat; and (2) the Soviets leave out components that give safety and comfort to the men who operate the equipment.

To an American this sounds ruthless and shortsighted. But to a Russian it's just plain realistic thinking. The Russians figure that the life expectancy of battle equipment is short, at best. So they turn out a lot of fairly durable equipment rather than concentrating their efforts in making a few models that are technically perfect.

The Russians, for example, figure that a tank gun has a short service life in combat. So the gun barrel of a Russian tank is rated for only about 20 rounds of ammunition. The gun may be used more than that, but it will lose accuracy. The Russian designer, however, is happy. He's saved high-grade steel for more critical uses.

In Mufti

Another example is Russia's T-34 tank, a model of Soviet engineering. It's a flop. But on the battlefield, it's something to be reckoned with. In World War II, the Germans who fought against it gave it a top rating; and in the early days of Korea it took the offensive—for a short time.

It's a mistake to brush off Russian equipment just because it is inferior by U. S. standards. While the Soviets skimp on safety trappings and other refinements, they put fine work and materials into the places where it counts—and where it shows up in the performance of the equipment.

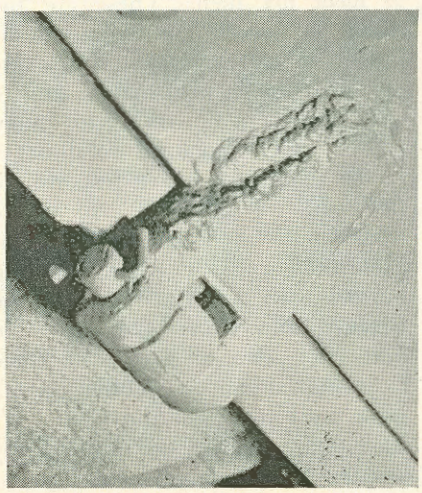
Slapdash Assembly

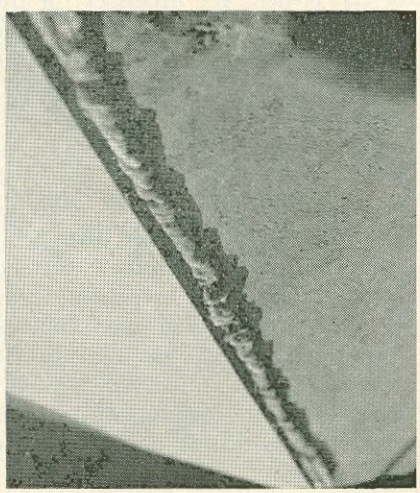
This apparent lack of consistency in quality and standardization shows up in the study of one T-34, now a museum piece at the Aberdeen Proving Grounds of the Ordnance Corps. U. S. experts saw it as evidence of Russia's dispersed, varied industry: One plant produces machine-made parts, another makes them by hand. Many subassemblies of the tank would be rejected before they reached a U. S. assembly line. The Russians put them together, anyway, usually with slapdash workmanship. But vitally important parts—say the ones for aiming the cannon—are handled with tender, loving care.

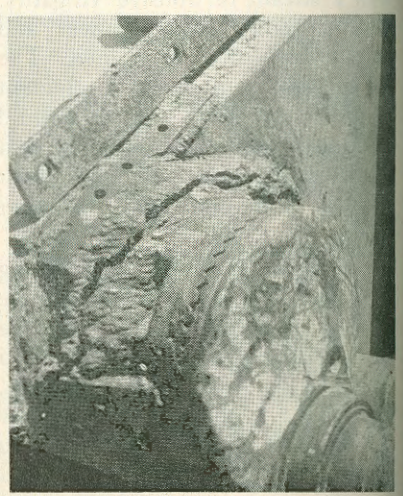
Specifically, the welding jobs on

*Reprinted with special permission from *Business Week*. Photos by H. C. Phelps, Eastern Editor of *Welding Engineer*.

The first four photos show crude welding without proper treatment. Hinges are welded in a slapdash manner. The weldment in the second view results from high silicon content, as is crack in bell housing in photo 3. Seams are some-







the T-34 typify Russian quality control (if it has such a system). All the armor plate is welded by hand. The joints of a weldment frequently are poorly fitted. Secondary fittings —brackets and supports—are quite haphazardly welded. Cracks in the armor plate—the results of poor steelmaking or foundry methods—are patched up afterwards. But gears that raise and lower the gun have welding matching the best in U. S. plants.

One reason for the poor quality of Russia's welding is the steel used. The armor plate and turret castings of the T-34 have a high content of silicon, an element used in alloying steel. In the U. S., welding engineers hold their silicon content to about 1% to get good weldments. Russia's steel goes as high as 2%, and often results in internal stresses and cracks after the welding operation.

$64 Question

Actually, the metallurgical methods of the Russians keep U. S. experts guessing. The Soviets, apparently, haven't a well regulated system for adapting metals to production. Or, more likely, fabricators use what steel they have on hand, tapping a supply that varies in quantity and selection. They use brass in some products where brass really isn't necessary. The shaped-charges of their armor-piercing bazookas, by contrast, use ordinary iron instead of copper, which the U. S. believes is a must for this kind of projectile.

In the main, though, the Soviet metallurgists rarely go wrong with the material that counts. They use titanium, a relatively new metal, as a stabilizer in the stainless steels that go into their jet turbine engines for fighters. Their armor plate for tanks, for the most part, matches U. S. requirements. Steelmakers don't skimp on the hard-to-get alloys such as manganese, molybdenum, and chromium, if that would mean sacrificing the hardness of the armor plate.

Cause and Effect

It's obvious that the poor equipment coming off the production line isn't due to lack of know-how. Back of the inconsistencies in its quality and design is the fact that Russia's supply of skilled workers is spread pretty thin. The sudden and tremendous buildup of Russia's economy has not allowed the Soviets enough time for turning peasants into topnotch craftsmen and workers. Russia's capacity since 1941 has increased faster than its program for training production men.

To offset this problem, Russia has made good use of its engineering personnel. Soviet engineers have learned to supplement skilled craftsmen with unskilled labor in producing weapons. So a tank comes off a Russian production line looking like a hybrid of a limousine and a jalopy.

No "Firsts"

If the Russians have developed any radically new production methods, they haven't yet showed up in captured equipment. One of the first to appear would certainly be press forgings in airplanes. After World War II, the Russians hauled off a lion's share of big German presses: four forging presses, two extrusion presses, and the designs and some parts for one giant forging press. Since then, Russia has probably developed and expanded a press program similar to that of the U. S.

But no forgings have been found in the planes captured in Korea. In fact, the MIG-15 uses a high number of stamped parts, many more than the U. S. uses for a similar kind of plane. So you can make two guesses about Russia's press program: It is still bogged down in the development stage, or the output is going into bigger planes such as bombers, which haven't been used in Korea.

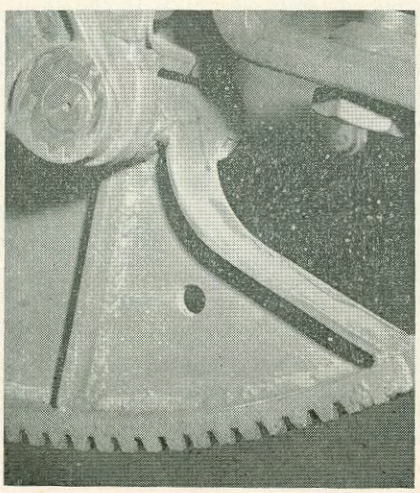
The makeup of the captured planes throws light on another angle of Soviet planning. By using more small parts in a plane than we would, the Russians can farm work out to small plants and to job shops where they can be either hand- or machine-made. That eliminates the need for making most parts in large aircraft factories.

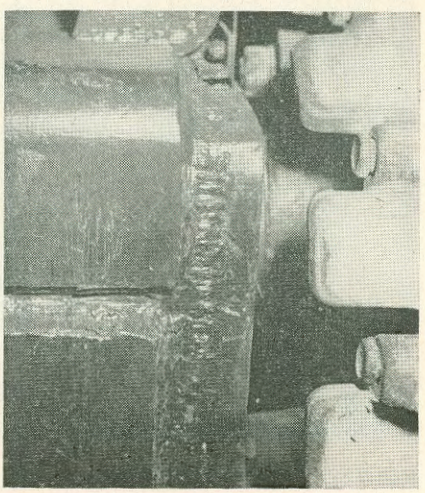
Double Standard?

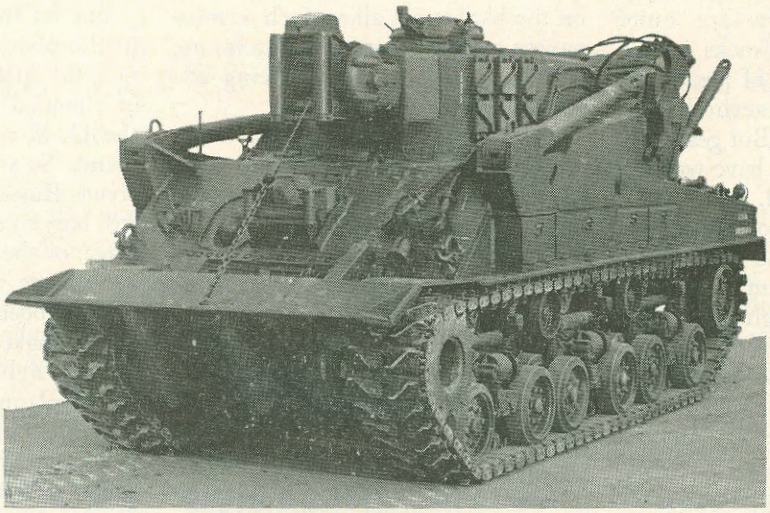
The baling-wire methods of the Russians have the experts stumped in still another way. There's a big question as to whether Russia is using a double standard in its production of war goods. It might be making the "junk" for export to the satellite countries and putting a Cadillac finish to equipment slated for its own consumption and stockpile.

Most industry people who are familiar with Soviet methods reject the idea of a double standard. They think that Russia is involved in manpower and supply problems, which would complicate its planning with two different grades in quality.

times welded over and over again, as in photo 4. Topnotch welding is used in critical places, as for example the gear for a gun aimer shown in photo 5 and the exposed joint of armor shown in photo 6. Results—greater Red plant productivity.







THE T74 RECOVERY VEHICLE

WHERE a medium tank's price tag ten years ago was about $50,000, today's Patton 48, the 50-ton medium tank, costs American taxpayers about $200,000 each. Four times more expensive today, but many times more lethal on the field of battle, nevertheless these vehicles can and do become battle casualties under certain conditions —and nearly a quarter of a million dollars is at the mercy of the enemy.

Ever since the Army first made tanks, Army Ordnance Field Service personnel reasoned that if a tank was designed to destroy a tank, then a tank-like wrecker could be designed to rescue a damaged tank and prevent capture or destruction by the enemy.

As a result of an idea by Mr. E. W. Holt, Senior Tank Automotive Engineer of the Army Ordnance Field Service, outmoded World War II tanks, instead of being relegated to the scrap pile, are now being put to work as recovery vehicles by means of a relatively inexpensive redesign program.

Less than a year ago, the Office, Chief of Ordnance requested the Philadelphia Ordnance District to explore the possibility of engineering this dream into a practical reality. The York Regional Office asked Bowen-McLaughlin-York, Inc., a York, Pa. firm specializing in rebuild of Ordnance combat vehicles, to undertake this work. This was a tough order, since it meant converting the battle weary World War II M4A3 Sherman medium tank into a modernized super-efficient *work-horse*, that could rescue our newer and larger tanks under combat conditions.

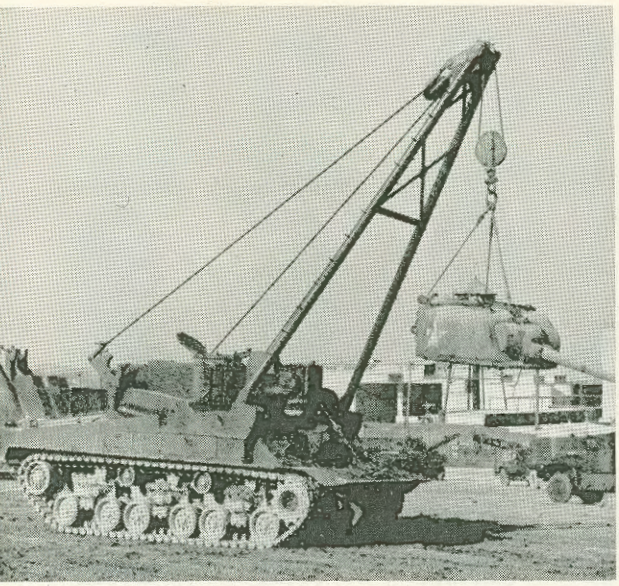
The York firm investigated all types of commercial units in existence in the heavy construction field, the B-M-Y engineers sharpened their pencils and came up with the answer that the job could he done, *and* at a very moderate cost. In May 1952, the first pilot model, designated as the T74 Recovery Vehicle, was placed on order with Bowen-McLaughlin-York, Inc., and delivery made to Army Field Forces in July 1952. Based upon the results of rigorous tests by the Army at Ft. Knox, Ky. a second pilot, incorporating all changes desired hy armor personnel, was built and shipped to Aberdeen Proving Ground for further shakedown tests, in December, 1952.

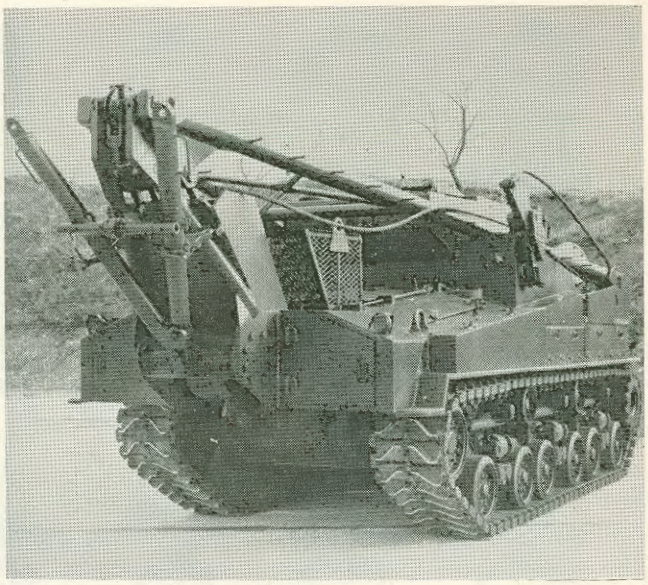
The prime contract for quantity production of the new T74 Recovery Vehicles was awarded to the Bowen-McLaughlin-York Company. The firm immediately placed sub-contracts with over 300 suppliers.

The new *tank-wrecker* is a streamlined giant weighing nearly 50 tons, specifically engineered to support the newest and latest model medium tanks currently being produced for the Army. It costs nearly $200,000 to build each of these new fighting tanks, whereas the T74, salvaged from the scrap pile, costs less than one third of that amount to produce.

When combat tanks are severely damaged by enemy land mines or shell fire, or become hopelessly mired down in torn-up battlefields, the call for the recovery vehicle is immediate and urgent. The T74 is capable of towing damaged tanks cross country as well as hoisting and winching a tank out of mud and deep ditches, or flipping upright an overturned tank.

Huge winches, hydraulically operated, provide hoisting capacity sufficient to pick up all but the heaviest of the new tanks. A wholly new conception of transmitting power to



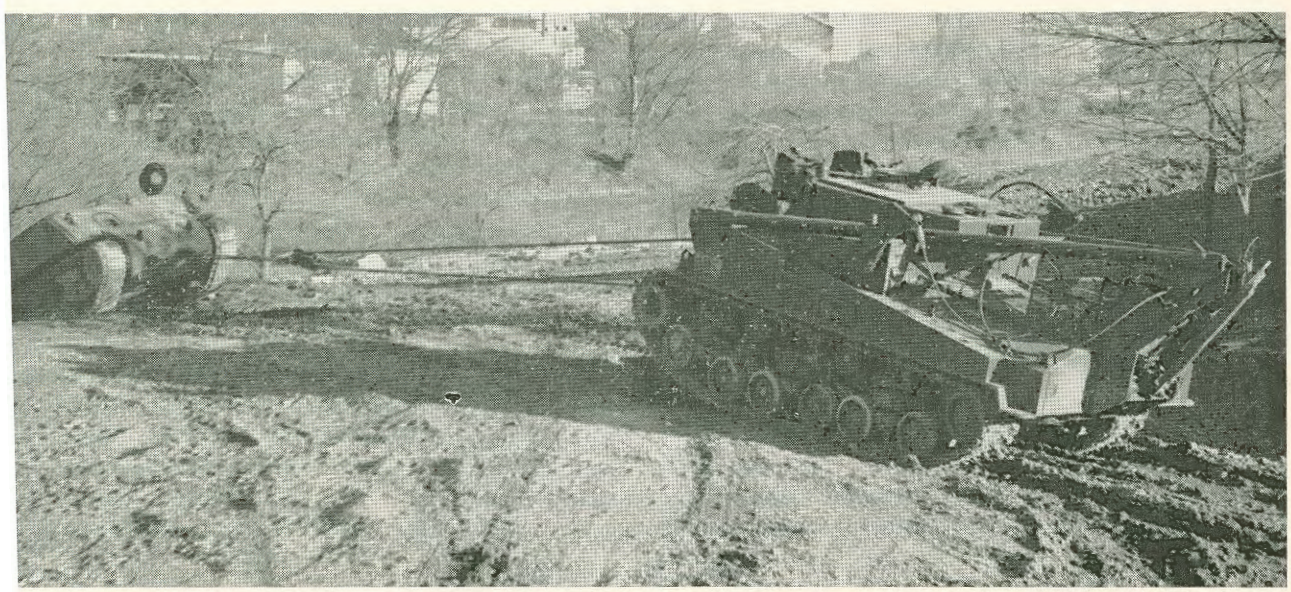


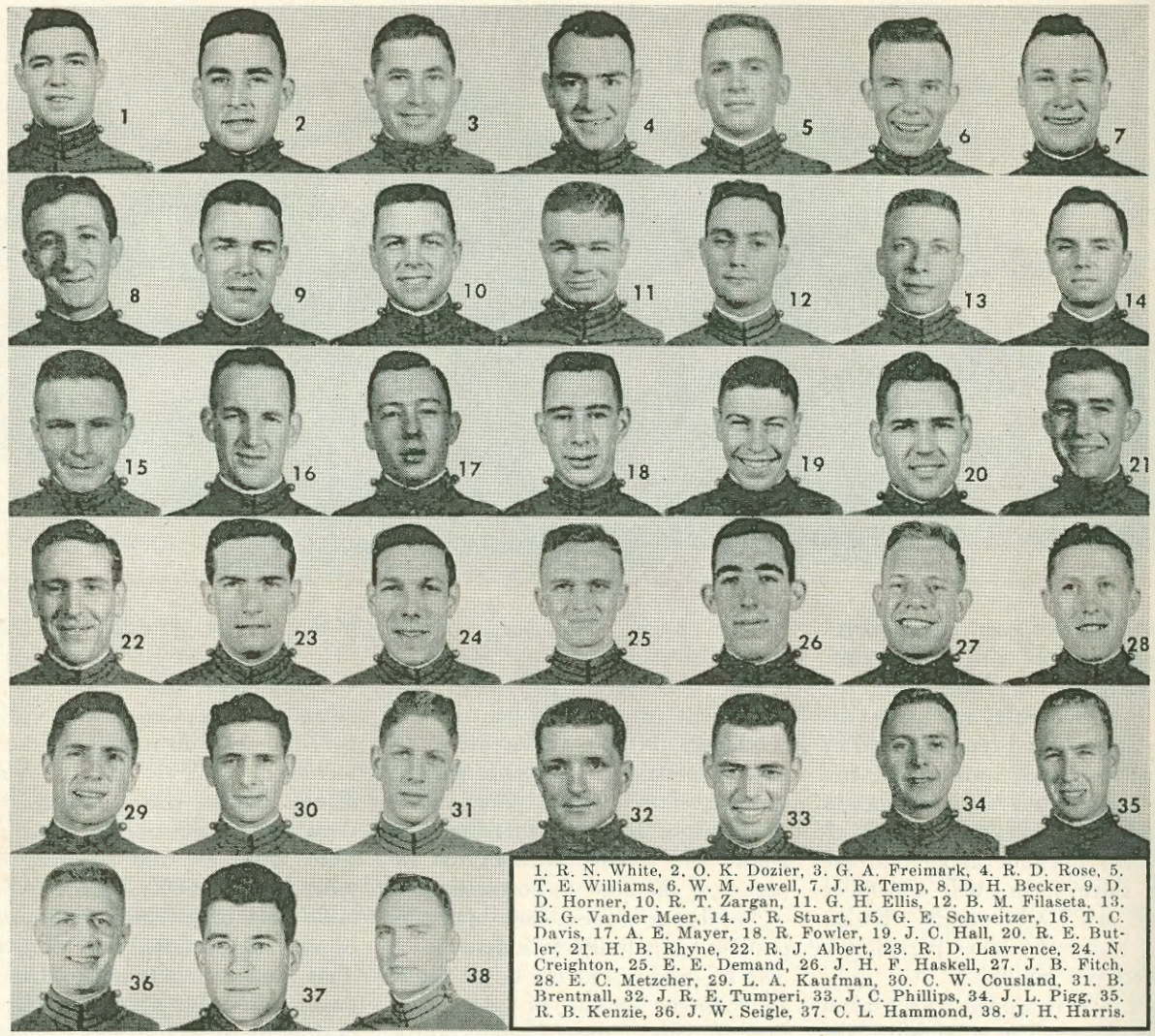
ese winches has been incorporated. ecision controls and high safety ctors have been engineered into the 74. The hydraulic system is the harged, pressurized type operated by lot control valves, transmitting full rque at infinitely variable speeds. or example, less than one pound ef- rt by the operator applied to the ntrol valve lever, will control a ie pull of 85,000 pounds, whether e line travels 6 inches per minute 50 feet per minute.

The T74 is equipped with a front ade so designed as to stabilize the hicle for extremely heavy lifting and/or towing. The design of the spade also permits its use as a bull-dozer. This feature permits the improvement of terrain when adverse conditions prevail at the site of recovery operation. The spade may be stowed, released and adjusted to desired height for all operations from within the vehicle, without the exposure of the crew to hostile fire.

The boom is raised into operating position by hydraulic cylinders, which may be used to provide a *live* boom, allowing the spotting of heavy loads fore and aft with precision control, when actual movement of the vehicle is not actually desirable.

In 1951 and 1952, Bowen-McLaughlin-York, Inc., made a cash refund to the Government of $1,400,000, saved in rebuilding the first increment of 1300 World War II Tanks. Tanks, rebuilt on this order, were used in the initial campaign in Korea, and are still shooting there today. Over 5000 World War II tanks have been rebuilt and modified by this firm in the last four years. This concern is also engaged in producing the monogyro-stabilizer for tank guns, as well as other engineering projects for the Army.





1. R. N. White, 2. O. K. Dozier, 3. G. A. Freimark, 4. R. D. Rose, 5. T. E. Williams, 6. W. M. Jewell, 7. J. R. Temp, 8. D. H. Becker, 9. D. D. Horner, 10. R. T. Zargan, 11. G. H. Ellis, 12. B. M. Filaseta, 13. R. G. Vander Meer, 14. J. R. Stuart, 15. G. E. Schweitzer, 16. T. C. Davis, 17. A. E. Mayer, 18. R. Fowler, 19. J. C. Hall, 20. R. E. Butler, 21. H. B. Rhyne, 22. R. J. Albert, 23. R. D. Lawrence, 24. N. Creighton, 25. E. E. Demand, 26. J. H. F. Haskell, 27. J. B. Fitch, 28. E. C. Metzcher, 29. L. A. Kaufman, 30. C. W. Cousland, 31. B. Brentnall, 32. J. R. E. Tumperi, 33. J. C. Phillips, 34. J. L. Pigg, 35. R. B. Kenzie, 36. J. W. Seigle, 37. C. L. Hammond, 38. J. H. Harris.

UNITED STATES MILITARY ACADEMY: CLASS OF 1953 ARMOR GRADUATES

The 1953 graduating class from the United States Military Academy contains 513 cadets. Of these graduating cadets, 38 have chosen Armor as their branch. This is the maximum quota allotted to Armor, based proportionately, for the graduating class at the Military Academy. First classmen make their choices on the basis of class standing, so far as the respective openings go.

The 38 allotted spaces for Armor—the arm of decision—were snapped up by the cadets ranking above 227 within their class. Never before in the history of the Academy have the Armor openings been filled by cadets with as high an academic standing as the class of 1953.

Enthusiasm for Armor is at an all-time high among the cadets, and it is expected that the openings in Armor will continue to go to the cadets ranking in the upper half of their class.

These mobile-minded cadets have been instilled in the spirit of the offensive, and all are looking forward to their branch school, where they will learn more about the branch that is decisive in battle.

Lt. Colonel James F. Hollingsworth is the Senior Armor Instructor and also Chief of Armor at the Military Academy. Captain Simon S. Marks is his assistant. These two officers present or direct all training given to the cadets in Armor.

Each of the Armor cadets received a personal letter of congratulations from Lt. General Willis D. Crittenberger, President of the U. S. Armor Association, on behalf of the membership. Many have applied for full active membership in the Association upon graduation and being commissioned.

Hitler, Versailles and St. Germain

by DR. ROGER SHAW

ON November 13, 1918, the Hapsburgs abdicated the Austrian throne at Vienna —to which they had come in 1278, under Rudolph I. At that time Rudolph Hapsburg had worsted the Czechs, or Bohemians. Now, after well over six centuries, Karl Hapsburg—great-nephew of Franz Joseph —was through. He had died in exile at Madeira by 1922, though his Italianate Empress Zita, and his son Otto, were to carry on monarchist propaganda activities from Belgium. Meanwhile, the Czechs were once again on top, with ample Allied support obtained by their statesmen, Doctors Masaryk and Benes.

The Austrian House of Representatives, or rather its German-speaking members, took over things in the general revolutionary confusion, and declared for a Republic. Won over by Woodrow Wilson's maxim of racial self-determination, they named their country "Germanaustria," and added that "Germanaustria is a component part of the German Republic." Austrian delegates went to Germany, and were welcomed there as brothers come home. The Austrian provincial diets republicanized themselves simultaneously; and from Vienna, in all directions, non-Germanic Austrians (ex-Austrians now) were packing their bags and going home.

At the end of the war there had been 2,300,000 Austro-Hungarian troops at the various fronts in Italy, Russia, France, the Balkans, Asia Minor. Including the "youngster" class of 1920, there were half a million indifferent reserves. Roughly 1,300,000 men were on the Italian front, which was more popular than the others because Italians were "easier," and also because they were generally disliked by all the varied Hapsburg races. Perhaps 400,000 men were in Russia. The Austrian army still possessed nearly 6,000 guns, and enough horses for 4,000 cavalry at least. The tired polyglot fieldgrays streamed off homeward in a dozen directions, taking with them what wornout equipment they could. Their retreat was covered by the hero "Andreas Hofers" of the Hapsburg army: the formations of *Kaiserjaeger* and *Kaiserschuetzen*.

Austria was in a state of complete destitution by the close of Armageddon, and things tended to become worse in 1919 and 1920. Only the credits from a forgiving America (granted largely in kind) kept the starving Viennese alive, for the long drawn-out Allied war blockade had sapped the strength of the city populace, and reduced them to an almost incredible degradation. The Quakers and Herbert Hoover deserved the laurels, Hoover specializing on children, and the Society of Friends on the capital city in general. "Hapsburgs are turning into prostitutes, and prostitutes into Hapsburgs" was a jest of the day, and a grim one. Across the new boundary line in Czechoslovakia, old Germanic towns like Bruenn became Brno, and Karlsbad, Karlovy Vary! There were brand-new, independent regimes functioning at Laibach, Sarajevo, Triest, Cracow, and Lemberg, as well as in Hungarian Budapest and Bohemian Prague.

On Novemher 3, 1918, the Italians granted Austria an Armistice based on harsh military terms. But this was only the beginning of the days of reckoning for the "Austrian" World War. For the Allies, America honorably excepted, announced among themselves that Wilson's famous Fourteen Points did *not* apply to defeated Austria. Even Wilson did not stick to his guns under Allied pressure, agreeing to give some Slovenes and 300,000 Germanic Tyrolese to Italy, and 3½ million other German Austrians to the Czechs. Austria was to receive only two-thirds of the Germanic population of the extinct Hapsburg Empire, for Italy must have the strategic Brenner Pass, and Czechoslovakia the Sudeten mountain frontier and the rich industrial districts. As to Union, in the Wilsonian manner, between Germany and Austria, it was forbidden.

In May, 1919, the Austrian peace delegation went to Paris, where the Germans were also ahout to hear their doom pronounced. The Austrians wrangled and protested on the very grounds supposedly sponsored by the Allies: self-determination and the Fourteen Points. They fought hard to save the Germans of Bohemia from the Czechs, hut to no avail. Only Wilson would listen to them, and he was under the spell of the persuasive Czechoslovak Dr. Masaryk. (Shakespeare mentions a mythical seacoast for landlocked Bohemia, and if the Czechs could have found one on the map, *any* map, they would certainly have obtained it from the Allies.)

The Treaty between Austria and the Allies was signed, unwillingly, at St. Germain-en-Laye, a Paris suburb, on September 10, 1919. The following July it went into force, amid endless complications which were still being heard from, nearly twenty years later. The territorial boundaries were arranged: Bohemia and Moravia to the Czechs, Galicia to the Poles, Triest and South Tyrol to Italy, Slovenes and Dalmatians to Jugoslavia, and other lesser losses. The Hungarians seceded, and they themselves lost territories to all those around them. The Hapsburgs had ruled over 260,000 square miles of Austria-

DOCTOR ROGER SHAW, a regular contributor to Armor, is Professor of Internationl Relations at Trinity College, Hartford, Connecticut. Author of a number of books, he is widely known as a lecturer, journalist, and educator.

Hungary, with 50 million people. The postwar Austrian republic contained 30,000 square miles, and 6 million inhabitants. Riches to rags.

In 1920 a popular referendum was held in the Klagenfort basin region, between Austria and Jugoslavia, which voted in favor of Austria in due course. The Germanic province of Burgenland, with 300,000 people, the Allies transferred from Hungary to Austria as "compensation" for the German-speaking millions given to Czechoslovakia. The Hungarians objected violently, and here a minor war resulted.

The Austrian army was limited to 30,000 long-service professionals, "in" for at least twelve years, with twenty-year officers to lead them. The importation of arms and munitions was forbidden, as were gas, tanks, big guns, aircraft, and armored cars, or "any similar machines suitable for use in war." Flame-throwers were outlawed. There were to be only three field-pieces for every thousand men. Even the number of police was curtailed by the victorious Allies. Furthermore, penalties were provided "for the trial before Allied military tribunals of Austrian offenders against the laws and customs of war," but this was never enforced.

Austria lost its navy and entire commercial fleet, and was sentenced to pay war reparations to an indeterminate total. Although its people were very hungry, they were compelled to hand over a large part of their available livestock. The Treaty terms were so stringent, in fact, that by 1922 Austria placed its finances under control of the League of Nations, or in other words went into receivership. But most important of all, by Article 88 of St. Germain:

"The independence of Austria is inalienable otherwise than with the consent of the Council of the League of Nations. Consequently, Austria undertakes in the absence of the consent of the said Council to abstain from any act which might, directly or indirectly, or by any means whatever, compromise her independence, particularly, and until her admission to membership of the League of Nations, by participation in the affairs of another power." This little paragraph most effectively put an end to any idea of immediate Austro-German union.

By Article 80 of the Versailles Treaty, between Germany and the Allies, there was amplification of the Treaty of St. Germain:

"Germany acknowledges and will respect strictly the independence of Austria, within the frontiers which may be fixed in a treaty between that state and the principal Allied and Associated powers; she agrees that this independence shall be inalienable, except with the consent of the Council of the League of Nations." Just as little postwar Austria was a miniature Germany in every respect, so St. Germain was a miniature Versailles, except that Versailles cost Germany only 27,000 square miles and 7 million people. And although Germany was ten times as populous as Austria after Armageddon, the German army was limited to only about three times that of the Austrian: 100,000 men bound by similar organizational restrictions.

The one and only foreign war of the little Austrian republic of 1919 was with the aggressive postwar regency (or monarchy without a monarch) of Hungary, now reduced to a population of 9 million by the Treaty of Trianon. The Hungarians were bitterly opposed to ceding their Germanic Burgenland to Austria at the behest of the Allies, although it had originally been Austrian, and was mortgaged to Hungary in the Seventeenth Century. Its land was ninety per cent productive, and it had minerals to supplement its teeming agriculture.

St. Germain, this time a kindly saint, gave Burgenland (or "West Hungary," as some called it) to the Austrians, in toto. Budapest should have handed over the province to Vienna in August, 1921; but instead, the Hungarians organized a fierce nationalistic propaganda against the deal, and sent swarms of heavy-armed irregulars into the disputed border district, whose bucolic inhabitants gaped with sheer amazement. Austrian state-troopers rushed in to take possession of Burgenland, and a series of clashes and petty battles resulted all along the line.

The Allied mission in charge of the territorial transfer was completely bewildered, and appealed home to its respective governments while the Austrians and Hungarians skirmished and bushwhacked. England was inclined to side with Vienna, while ever anti-Austrian Italy supported Budapest. Finally, Austria and Hungary signed a protocol at Venice, under Italian influence, which gave back Burgenland's capital, Oedenburg or Sopron, to Hungary after a referendum. Austria protested the vote as "terrorist," but the Allies accepted the manipulated verdict. So the Austrians annexed Burgenland minus Oedenburg, and made Eisenstadt (population, 5,000) capital of the province in its stead.

Meanwhile, the Prussian Monster had taken a loss. It was the first setback he had ever really suffered, save for six temporary years during the Napoleonic era. But this time he gave, and gave without stint. The French took back Germanic Alsace-Lorraine, with its iron mines and strategic points for driving westward. The Poles, now reunited, received Posen, West Prussia, Upper Silesia, and Danzig in all but name. Belgium got Eupen and Malmedy on the frontier; Denmark a zone of Schleswig-Holstein; Luxemburg left the German customs-union. To wild and woolly little Lithuania went Memel on the Baltic, and Czechoslovakia garnered a corner bit. The rich Saar coal-basin was placed under League of Nations tutelage.

The German colonies were divided among England, France, Japan, Belgium, and the British dominions, but not Italy, which screamed to the four winds that it had been cheated. The German navy and merchant-marine were confiscated; the left bank of the Rhine was occupied by Allied soldiers; the Prussian Monster was disarmed, and his disarmament was scrutinized by Allied agents. His war reparations were set at an "astronomical" figure never to be paid in full, and he was forced to acknowledge his "war-guilt," whatever it was. Like Dr. Frankenstein, in the legend, he was tired, and starved, and bled white by fighting and paying; but unlike old Dr. Frankenstein, the Prussian Monster had the will to survive and to stage a comeback. He had always had a peculiar faculty for absorption through the centuries: French Huguenots, Dutchmen, assorted Slavs and Wends, Balts, etc., etc. Now, he swallowed many thousands of East-Jews from Warsaw and

Bucharest, Prague and Lemberg, who flocked into Germany to speculate and barter sometimes and to wax rich, much to the anger of the traditionally respected and "worthy" oldtime Germanic Jews of Frankfort and Berlin. But the accommodating Prussian Monster was also assimilating an Austrian immigrant named Hitler.

This Hitler did not like the new "Jewish" German republic, but he was no monarchist when on either side of the Austro-German frontier. To him, the erstwhile royal families of Germany and Austria were just so many "Cohenzollerns" and "Mishapsburgs." He dedicated his life, for what it was worth, to fighting the Versailles peace settlement (or *Versailles Diktat*), and with it, that of St. Germain. He later went even further than Bismarck in the prussianizing of the Germanies, wiping out states-rights and historical sectionalism after 1933, substituting some 47 "gaus" or prefectures as administrative districts, on completely revised lines, and personally appointing nearly half a hundred *Gauleiters* (or viceroys) to rule over them: the Bavarian Goering for Prussia proper, old Epp for Bavaria, an especially tough bruiser for radical Saxony, savage Heines for Breslau, Roehm (from Bolivia) for the militia, Goebbels for Greater Berlin, Julius Streicher for Nuremberg, and so it went. General Franz Epp, also Bavarian, was a veteran African colonial campaigner, rare among Germans.

Goering, Rudolph Hess, out of Egypt, Walter Darré, from the Argentine, Erard Milch, Dr. Robert Ley, Ace-star Udet, were former war flyers in the Hitler entourage. Many of these Nazis were, in fact, born Bavarians, but all of them made excellent "Prussians." Some of them, wars or no wars, liked the English; none of them liked the French, the Hapsburgs, or the then (1919) newly arriving East-Jews. They were restless characters, postwar figures out of Erich Remarque or Scott Fitzgerald, akin to England's contemporary "Black-and-Tans." Horst Wessel, one of their hero-martyrs and latterday saints, was supposed (by his bitter communist enemies) to have played a piano in a house of ill-fame, but the same has been remarked of certain New Dealers. Wessel wrote the sinister-celebrated Nazi hymn: *"Die Fahne Hoch."* And in 1952, as Soviet East Germany organized a so-called Red Wehrmacht said to aim at totalling hundreds of thousands of men, the song—significantly—was revived, though Horst and Hitler slept.

In the spring of 1919, Bavaria actually went Bolshevik, despite its Catholic conservatism. Hitler, demohilized after the war, was living then in Munich, and had a first-hand view of a red regime in action. He did not like it. In fact he disliked it so much that the whole episode, and its backwash, were instrumental in bringing him to supreme power.

The German troops were streaming home from the front, discontented and ripe for mischief. Every sort of conflicting political theory was wafted about in the air, to the utter confusion of tired, untutored brains. The "moderate" socialists gathered in the Loewenbran, while the socialist radicals laid their plans in the famous Hofbrau, afterward so popular with Princeton students. Communists consorted in the Spatenbrau, and anarchists in the Pschorr. Here were hatched all sorts of beery plots; "these places each had their contingent of young men trying their hands at saving the world, and of elderly admirers who were shocked and delighted with the audacity of the young." Every speaker of each viewpoint was duly applauded.

The most influential man in postwar Munich was Dr. Kurt Eisner from Berlin, a bearded Jewish patriarch, and the former editor of the socialist *Vorwaerts*. He enjoyed political disturbances, had been in prison, and like other Berliners, pronounced his G's as Y's. Brilliantly intellectual, he was humanitarian and idealistic, and *not* as radical as many of his contemporaries. His sarcastic wit was devastating, his eyes were feverish burning coals, and his hair he wore long. He looked like a cartoon of a professional agitator.

Eisner became Bavaria's "uncrowned king," head of the local Soviet of "Workers, Soldiers, and Peasants," and later Premier. Although a Prussian himself, the radical leader began to intrigue against the supremacy of Berlin, became altogether too friendly with the victorious Allies, and stressed his pacifist record in the desperately fought war just over. Referring to Eisner, someone remarked that Bavaria was "prussianized even in its *anti*-Prussianism."

Hitler, back from the trenches and down and out at this time, "despised the soldiers' spokesmen. The loudest of them was a common sailor, Rudolph Egelhofer, sentenced to death for mutiny by a court-martial just before the end of the war. If the 1918 revolution had been one day late, Egelhofer would have heen a dead man. But the rebellious soldiers were just in time to save him and there he was in Munich, boasting of his record as a traitor."

Hungary went red for a time in the spring of 1919, and this increased the determination of the radicals in Munich. Kurt Eisner was murdered by a young Bavarian aristocrat named Count Tony Arco-Vally, whom many considered crazy, but the Bavarian leftists still demanded a Soviet dictatorship like that of Bela Kun in Budapest. They even shouted for a break with Berlin and the "pigprusses." Bavaria became officially a Soviet state, in nominal alliance both with Soviet Russia and red Hungary. Everywhere in Munich, crimson posters howled at the hewildered citizens, and told them to love one another and be quick about it! The 30,000 unemployed cheered for the new order.

Mutineer Egelhofer became commander-in-chief of the Soviet military forces of Bavaria. He demanded that all citizens turn in their privately owned weapons within twelve hours under penalty of death. Prussian troops began to enter Bavaria from the north, heeding the agonized cries of the Munich "moderates." The conservative peasants began to boycott the chaotic Bavarian capital, which needed rural foodstuffs badly. Their priests denounced the Soviet regime as "atheist" and "antichristly." The Bavarian reds, with the able Eisner gone, needed a real leader and there was none. Berlin, by this time, was really angry.

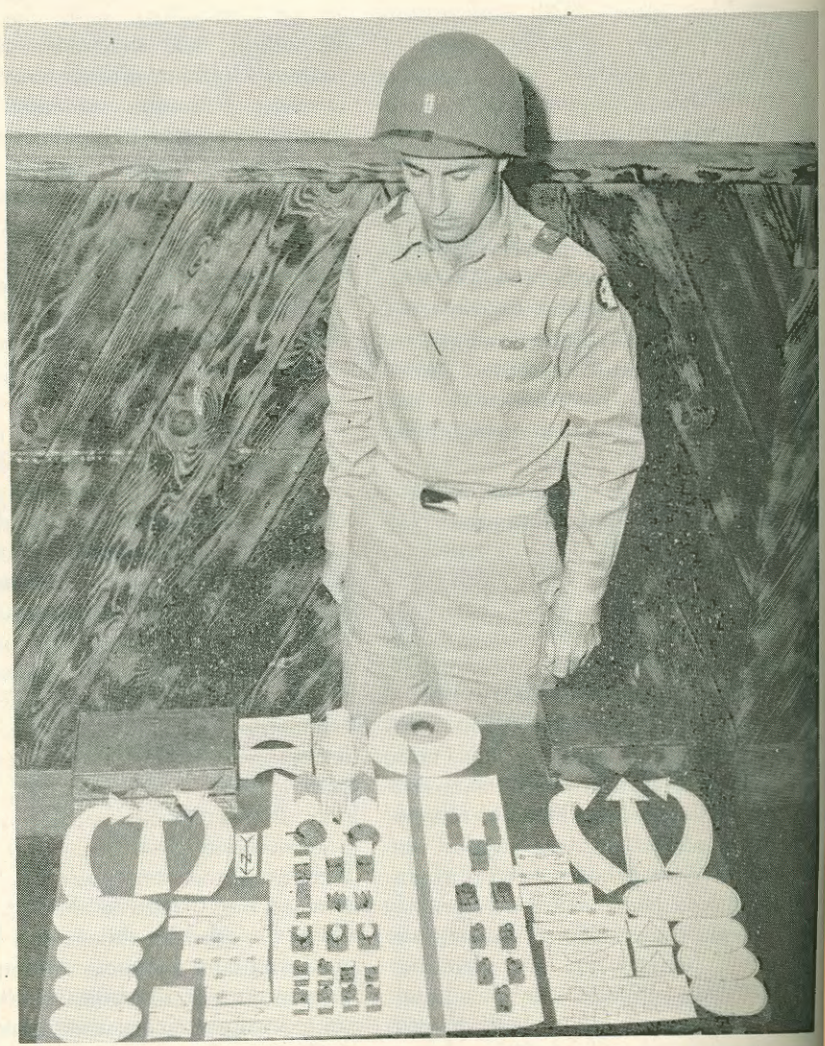
The Central Executive Committee of the Soviet Munich consisted of fifteen flustered members, then thirty of them, and later *three*. They socialized banks and industries but in one little skirmish Hitler seems to have routed a trio of reds with a revolver. By this time, the Prussians

had reached evil Dachau, ten miles outside of Munich, where the improvised red soldiers of Egelhofer went to fight them. Women intervened like the Sabine ladies of antiquity, and many of the busy red troopers were commuting between Munich and the "front." Ernest Toller, noted pacifist and playwriter, took command of the little Soviet army and abolished military "orders," substituting instead military "requests." He wrangled with the Prussians, and tried to persuade them to go away. But the men from Berlin could not see it that way.

Toward the close of April, 1919, the invaders advanced on Soviet Munich, surrounded it, and brought on a minor Reign of Terror in the capital, where frightened reds slaughtered the moderates. A final dictatorship of the red army was proclaimed, and some of the more determined radicals raised barricades in the streets "in the best Parisian revolutionary manner." But such last minute efforts proved fruitless, the Soviet defense collapsed completely, and the hard-bitten Forty-First Sharpshooters took over things. "Adolf Hitler, still unknown and a human zero, stood around and watched the march, wondering what the morrow would portend."

Kurt Eisner and the Jews were blamed for the untidy red experiment. Hitler obtained a position as political lecturer to the victorious Forty-First. Old-fashioned nationalism took the place of Bolshevik radicalism. "Marx was thrown off his marble pedestal, and once more Nietzsche was in vogue." An observer declared that the communists and anarchists now were fallen angels, and that their life was hell. Patriotism swelled in every Bavarian breast, "Prussian" patriotism, not the localized variety sponsored by Dr. Kurt Eisner and his group; and Munich became the home of the Nazi movement, which was founded in the same wild year as Versailles, St. Germain, and Kurt Eisner: *1919*.

Hitler became the seventh charter member of the Nazi party, which then had 7½ marks in its treasury. To the Allies, Germany owed $33,000,000,000. The few paltry marks were to outcancel the billions of dollars, and within 20 years were to cost the world a pretty *additional* penny!



A Platoon Leader of the 45th Reconnaissance Squadron presents his ideas on an old training aid. The sand table, an old Army standby has always proven that . . .

ONE PICTURE IS WORTH 10,000 WORDS

by FIRST LIEUTENANT RICHARD T. O'BRIEN

The Lieutenant is given a mission—Erect a portable sand table to be used for instructing tactics classes directly on the ground where the problem is to be conducted. Here is one solution which might help you to improve your quality of instruction.

Fill a ¼-ton trailer with approximately twelve inches of sand and haul it to whatever training area you are to use for conducting small unit tactical problems.

The accessories can be constructed from material within the company. The vehicles, houses, factories, and pillboxes are all made from scraps of wood. The signs and symbols were cut out of manila folders. The roads are shown by white engineer tape and the streams are strips of blue cardboard. The bridges are carved out of GI soap. Trees and grass are made by using the local foliage in the area where the problem is located.

In the top photo the platoon sergeant is briefing his squad leaders. It took him about twenty minutes to set up his problem. The sand table terrain is a miniature laid out to portray the actual terrain in the immediate vicinity where the application phase of the problem will be conducted. Notice that the terrain includes ridges, woods, streams, bridges, roads, and buildings. The attack arrow in the lower left hand corner indicates the direction of attack against the enemy positions.

In the lower photo the author looks over the accessories for the ¼-ton trailer sand table. They can be carried easily in two cigar boxes. The friendly vehicles and symbols are to the reader's right of the engineer tape. The symbols are white. The miscellaneous items and enemy vehicles and symbols shown to the right of the tape, can be carried in one box. The enemy vehicles have white tops, the symbols are painted red. The accessories estimated for one ¼-ton trailer sand table to be used by one platoon or less are listed.

Friendly vehicles and symbols:

3 squad area symbols
1 platoon area symbol
3 directional attack arrows
2 entrenchment symbols
2 OP symbols
1 platoon CP symbol
2 minefield symbols
1 rocket launcher symbol
2 machine gun symbols
1 accessory box
vehicles for 1 platoon

Enemy vehicles and symbols:

5 ¼-ton trucks
2 command cars
3 tanks
1 mortar ¼-ton vehicle
2 anti-tank guns
1 half track
2 trucks
2 pillboxes
2 rocket launcher symbols
2 machine gun symbols
2 minefield symbols
2 entrenchment symbols
2 OP symbols
3 squad area symbols
1 platoon area symbol
3 attack directions arrows
1 accessory box

Miscellaneous Items:

2 houses
1 factory
1 piece foil for lakes
20 pieces 1" x 6" blue cardboard strips for streams
2 bridges
1 directional marker
1 roll engineer tape, for roads

CONCLUSION

by CAPTAIN RICHARD D. TRUE

FORDABILITY

Here is the second and concluding article on the selection of sites and fording techniques for tanks and organic vehicles in a battalion fordability school

SINCE there is no assurance that a ford with all the qualities of a good ford will be found, many crossings will be made on poor but passable fords. The manner in which the fording is conducted makes a substantial difference in the efficiency of the ford and proper driving may make the difference between success or failure. Wet banks and muddy, soft bottoms are chronic problems. Water depth may be a problem for a portion of the platoon and not for the rest.

There are various ways of overcoming the difficulties to be encountered in fording. Since traffic on the stream bottom may cut it up, causing a lot of soft mud to be formed, the lightest vehicles should cross first. It may be possible to cross on a broad front, so that all vehicles do not use the same track. Crossing the tanks at one place, and the wheels at another, is also a possibility in preserving the life of a ford. Getting a tank across and towing the others or *daisy-chaining* three or four ¼-ton vehicles and towing them in a train are methods of helping the wheels through deep water. It is expeditious, if a ford is doubtful, to attach a cable to the towing hooks of a vehicle *before* it enters, making recovery of a vehicle much easier, should it bog down or drown out.

The ¼-ton truck will take the least depth of water of the vehicles in the reconnaissance platoon. The figure *30 inches* has been listed in the technical manual, and this is based on slow careful movement of the vehicle through the water, without excessive fan spray, with crankcase and oil filler valves closed. Going over this depth to an absolute maximum of 36 inches may be undertaken with the fan belt off, to eliminate the throwing of spray into the air intake, and drowning the engine. Always enter a ford in *low-low* gear, with 4-wheel drive engaged, and the fording knob on the dash pulled out, regardless of the anticipated depth of the water. Ruts or holes in the bottom can plunge a vehicle in deeper than was expected and care must be taken to avoid damage to the engine. Go in over the bank slowly, and drive not over four miles an hour in the water, less if there is much current, to avoid forming a bow wave. Keep a steady application of power, and do not spin the wheels, or they will dig down in a soft bottom. If necessary turn so as to approach the far bank at right angles. As the climb up the far bank begins, slowly add power, but try not to spin the wheels. If there is room, do not follow the track of preceding vehicles but pick a path that has not yet been rutted. Once clear of the ford, move on away from the bank, to avoid holding up the following vehicle.

The half-track can traverse only slightly more water than the ¼-ton, the manual listing 32 inches. This vehicle can also exceed the 32-inch depth by disconnecting the fan to avoid spray. Absolute maximum depth is 43 inches. The performance of the half-track in soft mud leaves much to be desired and it should be regarded as the least capable vehicle in fording the platoon. Driving the half-track into and out of the ford is accomplished in the same manner as the ¼-ton truck. If exit from the ford is over a steep bank, overlooked in selection of fords, especially along streams which are marginal as to fordable depths, backing the half-track across so that the tracks climb the bank first is an aid, for if the tracks spin while on the soft bottom the half-track will immediately bog down. Crossing the half-track in the same place as the ¼-ton crossings, after they have crossed, is the best method. Do not have the half-track follow tanks; the bottom will be cut up too badly for the track to make it if it is not of a good firm gravel.

Light tanks and medium tanks have approximately the same fording capabilities, except that the engines of the M-47, T-18, T-41, and M-32 are less sensitive to immersion than those of the M-24 light. Tanks can get in and out over banks which completely stop wheeled vehicles and their four-foot fording depth capability is more than will be needed in crossing the vast majority of streams.

Entry can be made over very steep hanks, six to eight feet high, but a lower, more sloping bank is needed for exit. Creeping speeds are required. Entry must he made as slowly as possible or a considerable bow wave will be generated, filling the driver's compartment with water unless buttoned down. In making entry over a steep bank, the drop into the water is eased if a clump of small trees growing on the bank is pushed

over by the tank into the stream. The bank, if steep and high, will cave while the trees are being toppled, lowering the tank gently into the stream. Approach the bank at right angles to avoid tipping or canting of the tank, unless the slope is gentle. This is especially important in the M-24, as the air intakes are at the outside rear of the hull and canting the tank while in the water may cause one engine to drown out.

In making exit from a ford in water nearing four feet in depth over steep banks, additional precautions should be observed. Add sufficient power as the tank begins to rise up the bank to assure exit on the first try. A lot of water will be carried up the bank by a tank, making the bank slippery. In this, steel track is superior to rubber, since it digs in and gets under the superficially wet bank surface better. If the bank is qnite steep and the tank cannot make it up, there are two courses of action open. The tank can be backed down and a crossing tried at a different place, or a turn can be made and the tank run up or down stream until an exit can be made, if the bottom is solid enough.

At this point another danger arises. If an M-24 tank is clawing its way up a very steep bank and is allowed to slip back into deep water, tail first, there is great danger that the air intakes will be submerged, killing the engines. This danger does not exist in the M-47, T-41, T-18, or M-32, as their air intakes are located well forward.

The 2½-ton truck is capable of fording as great a depth as any other vehicle in the hattalion. However, due to the heavy weight of the loaded truck and the frequency with which the 2½ must tow trailers, it is not usually an easy vehicle to ford. The present truck does not have good flotation in the soft stream beds and will hog down readily. In order to get the 2½-ton truck through, a low, shelving hank is a necessity on the exit side of the ford. In low range this truck is quite powerful and will spin the wheels if sudden or too much power is applied. This will cause the truck to dig in deeply and must be avoided. Driving methods for entering the ford with the 2½ and leaving the ford are the same as for other wheeled vehicles. The height of the fan is an advantage on this truck, as it clears all but the deepest of fords.

The ¾-ton truck fords very similarly to the ¼-ton except that it will pass greater depths. Trucks which have winches are assisted greatly in getting through difficult fords. Crossing a tank first and using it as a holdfast for the cable is a handy expedient.

I discovered that, having written a rather extensive paper on the subject of ford selection and fording, I was well prepared to give the classroom work which followed. Where a manuscript such as this will not be written for most instruction, when you are feeling your way along in a subject with which you are not familiar this type of preparation is indispensable. I found too that having had a couple of college courses in Geology was a great help.

Of course, while writing the foregoing, preparations were going on toward the presentation of the demonstration part of the school. I had been assigned a reconnaissance platoon from Baker company, and the platoon leader was my assistant for the course. Initially I went through the steps of selecting a ford site, using all the methods discussed above. I was further limited in making my selection in that it had to be within a few miles of the home station in order to be able to move the students to the location and still have plenty of daylight to carry out this demonstration. Finding a ford which would show up the various capabilities and limitations of all the vehicles in the battalion was a rather large order in the beginning and I was pressed to find a suitable location. I finally found just what I was looking for, while on an aerial reconnaissance flight. It was within 4 miles of the Battalion's home station, accessible by road, had a good existing ford and a wooden footbridge nearby. Also, by fortunate coincidence, the ford appeared on the sets of aerial photographs which I had on hand for training purposes.

After making the tentative selection, it was necessary to ohtain trespass rights to the land and then to test the location with some vehicles to prove that the ford would do what we wanted. At first we weren't sure in our own minds just what the end product of our demonstration would look like and it took a good deal of trial and error to firm up our scenario. The platoon leader, Lt. Reed, took his platoon and vehicles to the location time after time. We tried plan after plan until, slowly, the picture began to build up into what looked like a suitable demonstration. In all, some twelve piecemeal trials were held until we were ready to go into the rehearsal stage.

Of course we learned a lot about fording from these preliminary efforts. We were beset with cold, snowy weather and fog, and worst of all, the river level fluctuated rapidly from day to day. Before long our whole lives seemed to revolve around that first look at the water level each morning. We had vehicles bogged down, drowned out, hung up on hanks and otherwise *hors de combat*. But the experience and thought-provoking failures paid off in the end, for we did work out a most suitable demonstration.

Since we were attempting to show the capabilities of various vehicles under a variety of conditions, our demonstration was strung along several hundred yards of river bank, each locality chosen for a specific vehicle. We determined exact locations, to the inch, for spotting our vehicles prior to the arrival of the troops. We provided stand-by reserve vehicles in case of a last minute mechanical failure. A tank retriever and wrecker, ambulance, radio vehicle, and puhlic address system were hrought out. We had rehearsal, rehearsal and rehearsal. By our deadline day, a month from the starting day, we knew we were ready.

On the big day, our snake-pit classroom was packed with officers and NCO's of the Regiment and from other organizations which had heen invited to send representatives. I conducted the three-hour conference, following lesson plans prepared from the instructor's manuscript. I was able to employ as training aids: the chart I had prepared, maps and air photos which were handed to the students to use in practical work exercises in ford selections, and a balopticon. A blackhoard and chalk were ready and used to illustrate impromptu talking points as well as previously planned and prepared sketches. It was gratifying to note that the students were able, during

the practical work, to pick out very logical ford site possibilities both from the 1:50,000 maps and from the air photos. However, it is significant that while the places they chose were definite probabilities, no one was sure of his choice until he had made a ground check. We had the opportunity to do this when we went out for the demonstration because of the close proximity of those places chosen on the map to our actual site.

After lunch, a convoy was formed up and the student body moved to the demonstration site. We had directional signs along the way to aid any stragglers, and radio contact was maintained with the home station. At the ford, signs numbering the sites were staked out, and by using the PA system, control of the spectators was easy. (Incidentally, a good battalion draftsman is a great asset in anything like this, for neat artistic signs do a tremendous amount in dressing up your demonstration.) I did not contemplate the use of bleachers because of the distances involved and I thought it better if the spectators could move right down to the river bank to get a good look at the vehicle crossings. This proved right in this case but I was on thin ice in making this decision for a crowd of this size, approximately 150 persons, can be awkward to control. I believe that the signs were my greatest help, plus the fact that we timed the successive stages of the demonstration to a pace that kept something moving all the time and everyone was interested. There was a minimum of milling around.

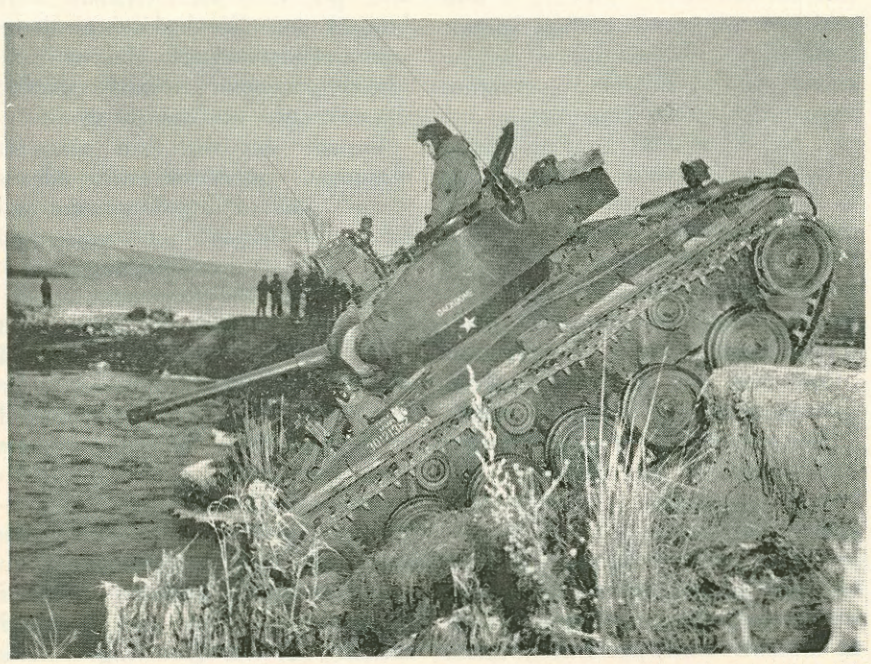
Our vehicle crews were ready, standing at stations by their vehicles, confident and keyed up at finally arriving at the wet run. They were a capable and enthusiastic group of men on that day. The Signal Corps sent two photographers at our request and did a thorough coverage of the entire demonstration. We had previously planned to take 35mm movies of the demonstration for use in future classes, but the camera froze up in the cold weather.

The platoon leader and his sergeant directed each vehicle through its test. The first was the 2½-ton truck which we put in the ford from a high, steep bank. He crossed through surprisingly deep water and attempted to run out the same bank. It proved too high and too muddy so he chose a more suitable place and came out under full power. We did not have the truck loaded for this demonstration nor did we have a trailer, but the running commentary which I conducted brought this to the attention of the class and they were able to predict the added effect of these loads.

Next, at a different location, the ¼-ton truck was run through at considerable depth, but drowned out from the effects of the fan throwing water into the air intake. We had a cable attached to his towing hook and a retrieving ¾-ton ready to take him out right away. Then another ¼-ton, with the fan belt removed, ran through the same place with no difficulty whatever.

On the heels of the ¼-ton, our ¾-ton truck made a run through the same place. This was an existing ford and quite passable to any but the first ¼-ton truck, and offered low, sloping banks on both sides and a good gravel bottom. On the return trip the ¾-ton did not come out the easy place but turned downstream a little and showed the effects of a steeper, and muddy, soft bank. He did not make it out and had to back away from the bank. Here we had a bit of unrehearsed demonstration, for the driver missed his turn by about a foot and dropped into a deep spot in the river, which we knew about but had previously avoided. He went in until his fan threw water over the engine and poured it out over the fenders, but although the engine sputtered a few times it kept running and the truck made it out.

The half-track was poised and ready atop a four foot, nearly vertical bank from which he was to drive into about a foot of water. The bottom at this point was fairly solid, but our experience had been that if, as the rear end of the track was going over the bank, he bogged down on the little pile of mud just at the water line, then he had to be dragged out. Knowing this, the driver gunned the track just as the rear end settled, and he went on into and across with no further trouble. Coming back, up the same bank proved impossible going forward. The tracks spinning in the gravel and mud bottom threatened to dig the vehicle down until a tank retriever would be needed to get him out. The front roller, instead of lifting the front end, was simply pushed into the soft bank and the track was helpless. Reversing and getting out before it was too late, the half-track was then taken up the same bank in reverse. Because of that soft spot at the water line it was necessary to hit the bank fairly hard in order to have sufficient momentum to carry the rear end of the



Steeper banks can be used to enter the water as demonstrated by this M24 tank.

vehicle high enough up the bank to give the tracks a footing on firm ground. A man in the rear of the half-track directed the driver, who is nearly blind in backing a half-track. We considered this a very successful portion of the demonstration.

Immediately following this, the group was moved to site four where they saw the M-24 light tank waiting across the river from them. The tank was sitting on a bank about five feet high and very steep. This particular point was on the outside of a slight curve and typified the sharp-rimmed bank being eroded at the water line, with the characteristic pile of mud resulting from sloughing off of the bank. The water was 3½ feet deep at the entry point. Easing over the bank, the steel track holding well, the tank was put in gently and crossed. On the near bank there was a good deal of cut up mud, the result of our many trial runs, and the driver had to hit it just right to make it out on the first try, which he did. He then moved into the background for the next part of his demonstration. It was important to have him move far enough away that his engine noise did not interfere with the talk. The tank then crossed at the same point.

We had this tank completely drown its engine while attempting this during a rehearsal. He had run the front end up the bank, lowering the tail just at the deepest part of the stream, and got water into the air intakes. The result was that the tank rested in the stream for over two hours until we could get a retriever. Of course the hull flooded in this length of time and we had to quickly remove the ammunition to prevent damaging it. This got some men wet in the icy water and pointed up a lack of prior planning. In our demonstration we had anticipated all these troubles and didn't have them.

I had the tank commander hold his tank in position just short of drowning the engines and showed the class the danger that existed in going on, and then sent the tank back and out at a better place. He made one final, complete crossing at site five, entering over a steep bank into four feet of water and coming out on a grassy bank on the opposite side.

The value of a fordability school is proved by actual fording operations in Korea.

Our M-47 from the tank company had about the same task, initially, as the M-24, except that it entered over a higher, steeper bank into about four feet of water. He came out the same muddy place and recrossed to the opposite high bank. Of course he could not climb the bank but he proved that while he put the front end well up the bank, with the engine compartment in the deep part of the river he had no trouble with the engine taking in water. Turning downstream in the river, the M-47 cruised until he found a spot to make an exit attempt which also was unsuccessful, as rehearsed, because of rutting by previous tank crossings. He finally made it out further down, putting on a fine demonstration of cautious driving through several feet of water and maneuvering on the river bottom. The M-47 handled beautifully and came out with a great surge of power and much splashing of water.

The driver had gotten wet in the initial entry into the river, since he could not hold the tank for as slow a passage down the steep bank as the light tank had made, and a considerable bow wave swept over the hatch which was open. However the ambulance was standing by with heaters running and warm blankets ready and the driver was immediately put in it and stripped of his wet clothing. We had no casualties and no cases of exposure sickness during the entire preparation and demonstration.

In evaluating this demonstration, I was well satisfied with the way it ran and from the comments which have been passed to me since, they have indicated that it fixed in the minds of the students a graphic picture of the fording capabilities of the reconnaissance platoon and other vehicles in the battalion. This, of course, was my mission and I feel that the school was successful and the mission was accomplished.

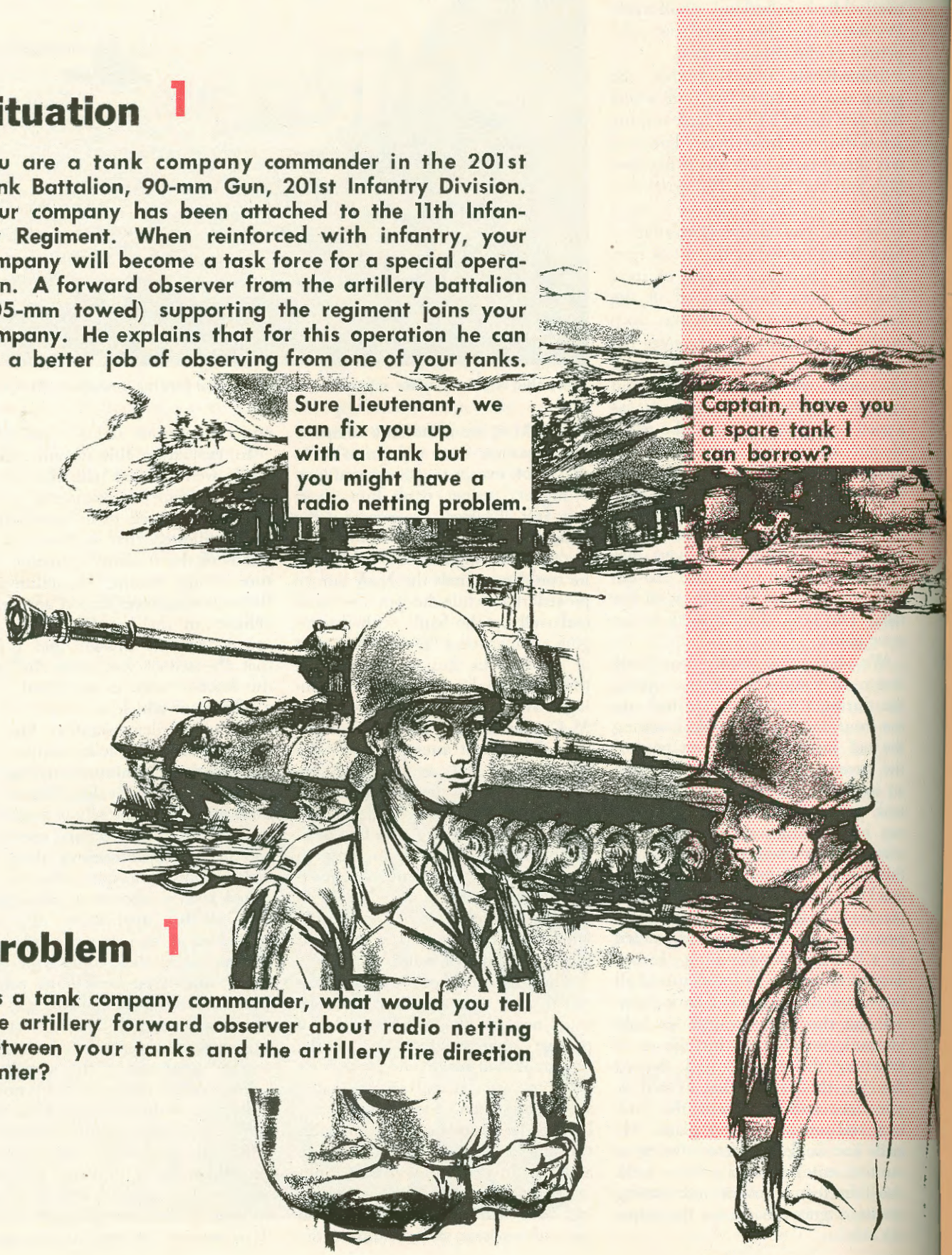
The work which went into preparation of the demonstration, literally days and days of practice and rehearsal, for the 75 minute final show, paid off in training value. The troops came away from the school confident in their ability to select and use fords and in the capabilities of their vehicles. This is a spirit vital to armored leaders who must use aggressive, skillful application of their *know-how* if they are to exploit to the maximum their units' vital mobility, and this *know-how* comes from training. Present plans call for inclusion in platoon training of fording exercises, to be based on the material presented at the school.

This realistic and practical training is the type of thing that distinguishes a first class fighting outfit and while I did the spadework and received recognition for it, the real compensation will go to the battalion which is closer to complete accomplishment of its mission—Success in Combat.

HOW WOULD YOU DO IT?

situation 1

You are a tank company commander in the 201st Tank Battalion, 90-mm Gun, 201st Infantry Division. Your company has been attached to the 11th Infantry Regiment. When reinforced with infantry, your company will become a task force for a special operation. A forward observer from the artillery battalion (105-mm towed) supporting the regiment joins your company. He explains that for this operation he can do a better job of observing from one of your tanks.

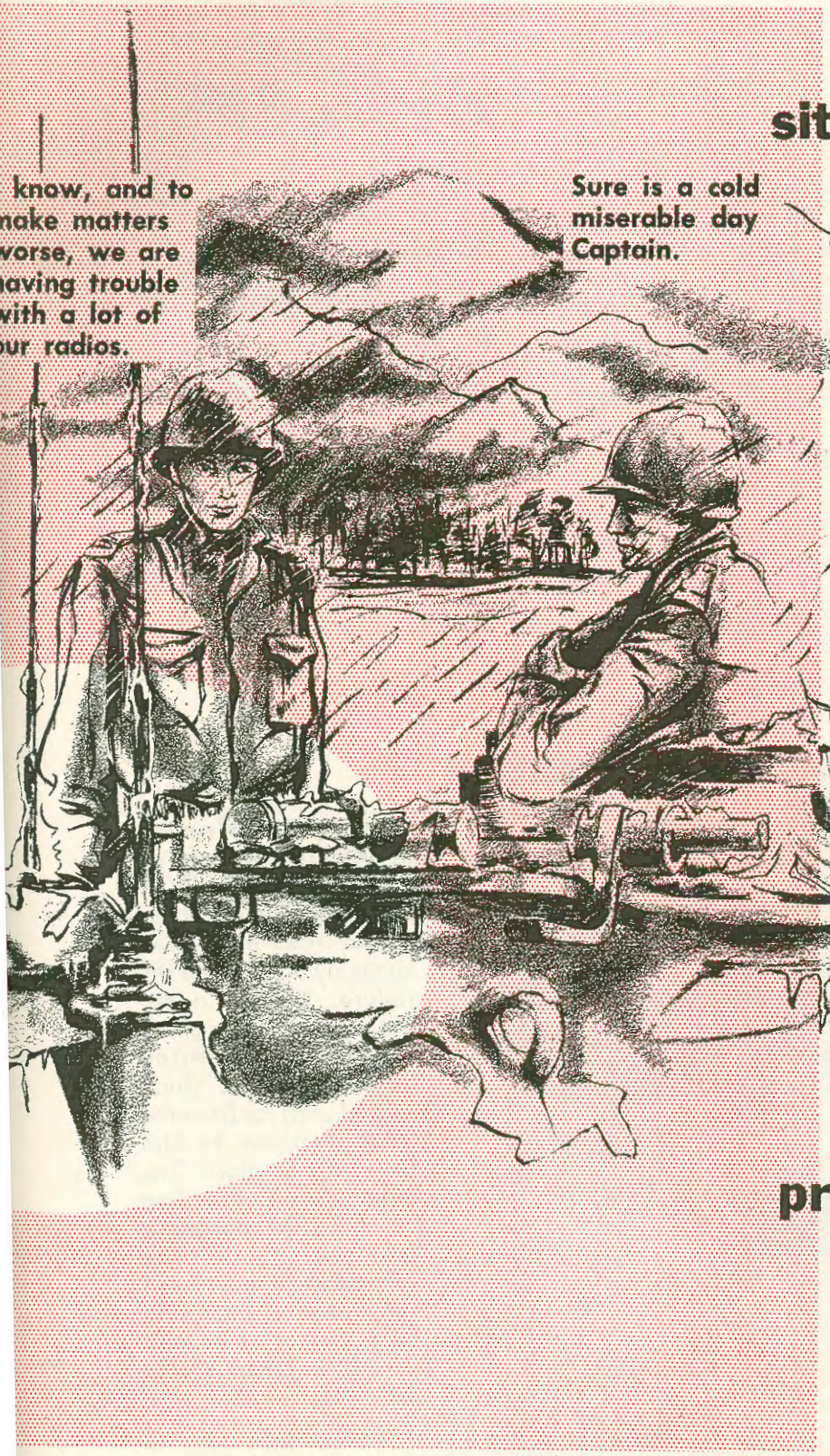


problem 1

As a tank company commander, what would you tell the artillery forward observer about radio netting between your tanks and the artillery fire direction center?

AN ARMORED SCHOOL PRESENTATION

author Major E. Kobbe
artist Pvt. H. A. Reade



situation 2

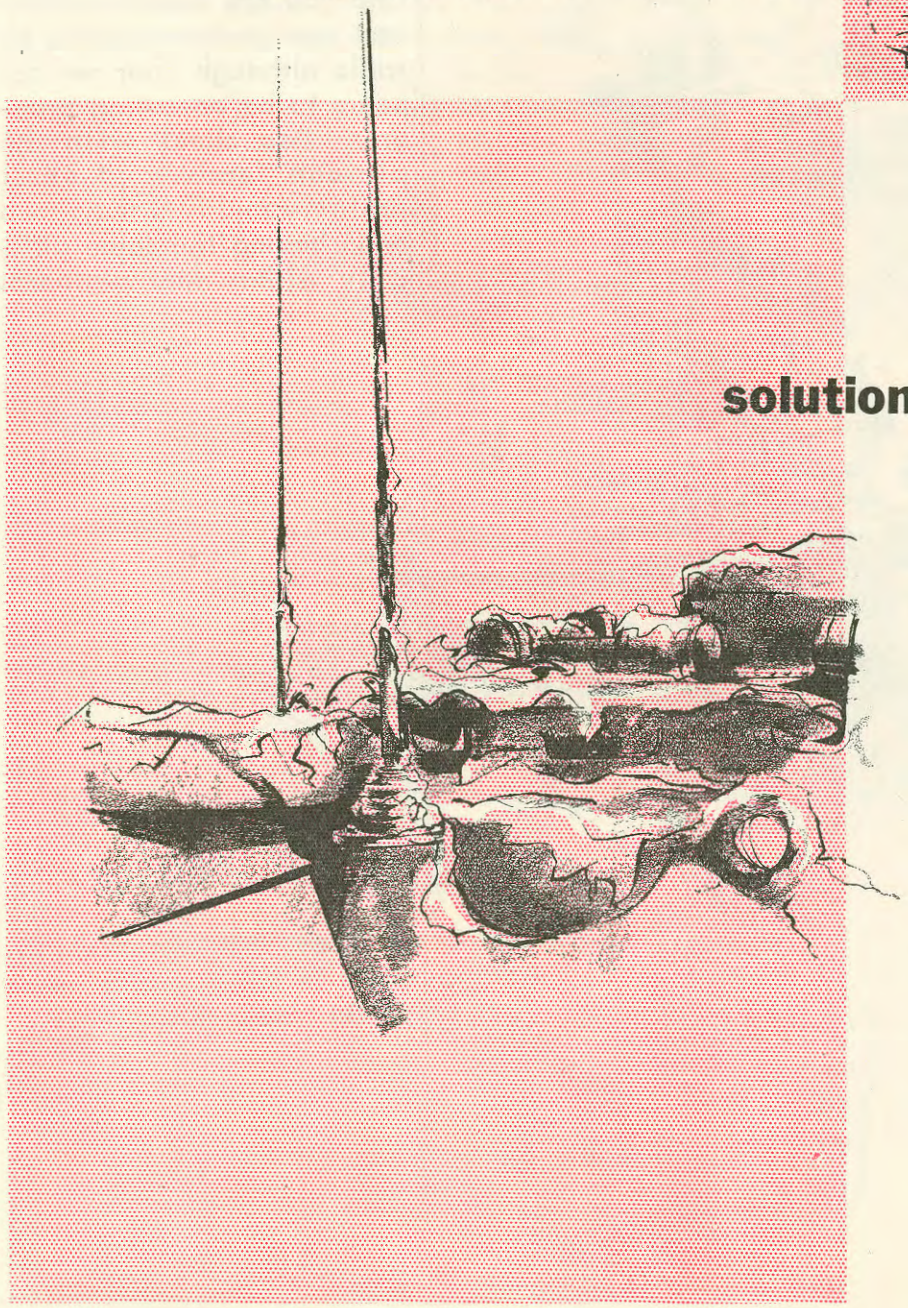
You are a tank company commander. Your company is now experiencing the season's first day of freezing weather. It has been raining and snowing intermittently. In a short space of time you find you are unable to contact your platoon leaders by radio although your set appears to be operating properly. You check with the platoon leaders at their positions and find they have been having the same difficulty within their platoons.

problem 2

Look at this illustration. What is the probable cause of the radio difficulties?

solution 1

You should tell the forward observer that tank radios in the infantry division will not net with the forward observer's artillery battalion radios except on ten overlap channels. The artillery battalion fire direction must be operating on one of these overlap channels in order to communicate with the forward observer in your tank.



solution 2

Large numbers of radios, in one organization, do not fail mechanically at one time. Some outside factor that happened suddenly has caused the failure. You are right—the weather! You check the antenna mounting bases and find them coated with ice from the mast sections to the turret armor plate. The antennas are grounding out over the porcelain insulator. Your tank commanders must keep the antenna mounting bases free of ice as long as the weather is cold and wet.

35 Years Ago

"A brigade marched one day from Beauvais to Gisors, took part in the capture of that place and returned to Beauvais in the afternoon, 38 miles; the next day it moved to Gournay and back, 31 miles; the fourth day it moved to Bretevil, where some squadrons made several charges, and it then returned to Beauvais in the afternoon, 38 miles.

"But how seldom we dared to demand such efforts. How many times we lost contact with the enemy. Why was he allowed to fall back upon Paris? Why did not swarms from our mass of cavalry envelope him and cut the railways in his rear? Why did we not scout thoroughly during the winter?

"Had our leaders felt capable of covering 30 to 60 miles a day with sufficient masses, could the armies that were to deliver Paris have sprung from the earth and heen upon us before we suspected their existence?

"Icy roads! We have them at home; why have we not learned to move upon them? SEYDLITZ himself would have been helpless with cavalry horses that could not move on ice.

"A few brigades who had learned this accomplishment did, however, scout on the ice and the others might have done as much."

German Ideas on Cavalry
2ND LT. FRED'K S. FOLTZ

50 Years Ago

The success was due to the celerity of our movements, causing surprise, and never for a moment letting up after the enemy were on the run, in spite of good defensive positions which, if they had been held by a small and determined force, would have seriously delayed the command. They learned to have a deadly fear of the quick moving cavalry, always on their heels, giving them no time to rest. In this campaign, as no flanker could be used, and the command marched in column of two's, Colonel Hayes directed, when an attack was made on one flank, all men on that flank should pass their reins to the man on the inner side, then dismount and form line toward the enemy either on the flank, or form line to the front, if the attack was from the front. It required but a few seconds to have a well established line for attack. If it was necessary to reinforce it, half of the other troopers would link horses, and soon give a good supporting force. Our drill regulations were modified to suit the peculiar conditions.

The Cavalry in Southern Luzon
COL. J. A. AUGUR

25 Years Ago

The Combat Power of Cavalry! How little understood by the people of the country and by even the majority of military men. When we speak of infantry or artillery we have a very definite idea in mind of the functions and even the power of these arms in battle. But few people indeed, unless they are not only students of the military art but experienced, progressive cavalrymen who have handled the two elements—fire and maneuver—of modern cavalry—understand or fully appreciate the true value of this cavalry. . . .

Cavalry—the one swiftly moving ground force which can negotiate any form of terrain—increases in value as it makes use of its principal assets by utilizing mechanized units of equal and greater mobility.

Cavalry now has many forms of its three types of action—dismounted, mounted and combined action. When restricted solely to maneuver elements, combat strength was dissipated by sacrificing maneuver power for fire power. One of the best ways to defeat maneuver elements is to pin them to the ground and, conversely, fire elements can best be defeated while they are moving. By adding fire elements to cavalry the maneuver elements are freed to make full use of the great power of maneuver.

The value of cavalry in reconnaissance and counter-reconnaissance is acknowledged, but its value as a fighting force in war is not fully understood. Fire and movement is the gospel of infantry and, though mounted cavalry may occasionally attack without fire, fire support is the basis of all attacks. Fire, Speed and Surprise is a good attack gospel for cavalry; for every moment's delay in the slow moving dismounted attack increases the loss of life and gives the enemy time to counter the attack. Adequate fire support is required by both infantry and cavalry.

Cavalry Combat Packs
LT. COL ALBERT E. PHILLIPS

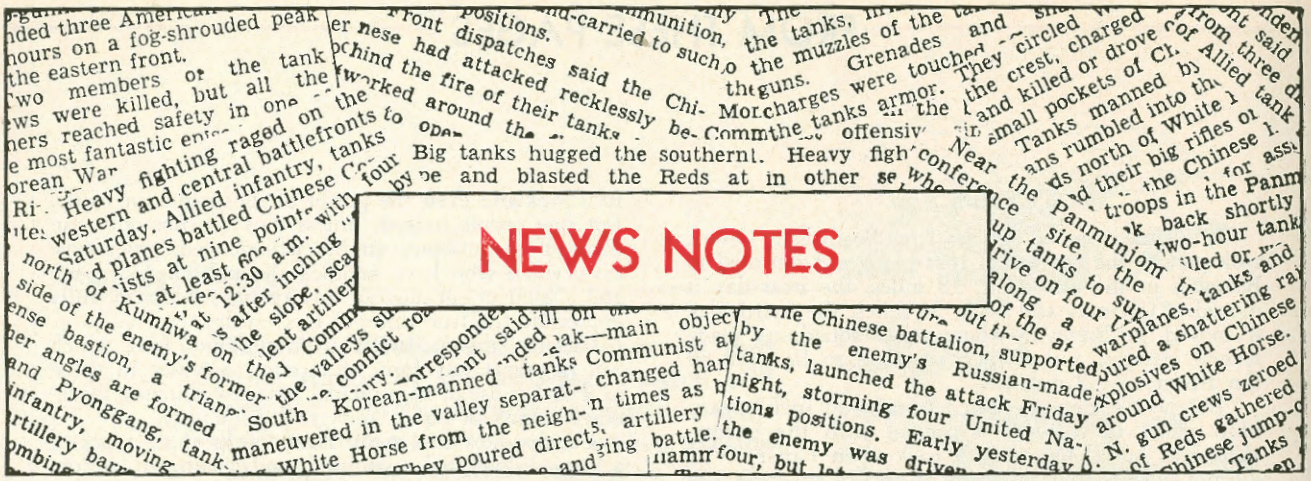
10 Years Ago

In engagements of a maneuvering character, the mobility of cavalry must be exploited fully with a view to striking surprise blows at the most vulnerable spots. For instance, it always brings good results, after breaking off the battle suddenly in one sector, to regroup the cavalry under the cover of darkness in an area eight to ten miles away, and then strike quickly an unexpected blow on the enemy's flank from a new direction.

Experience shows that the main forces of large cavalry formations should not become entangled in long drawn out engagements in the same sector, as this paralyzes its mobile power and dooms it to tactically passive actions.

Security in general, and antiaircraft defense in particular, is of especial importance for cavalry. Its most dangerous enemy is hostile aviation, especially in an open country. Cavalry must be trained in the use of every possible method of concealment, and should be able to disperse quickly. When the enemy's aviation attacks cavalry on the march, all means of fire power, antiaircraft guns, antitank rifles and rifles must be used fully.

Employment of Cavalry in Battle
COL. GEN. O. GORODOUIKOV
Red Army



NEWS NOTES

Reserve and Guard Units to Train at Hood

Maj. Gen. L. L. Doan, CG of Fort Hood and the First Armored Division, recently announced that Fort Hood will be host to three National Guard and two Organized Reserve divisions this summer. These civilian components will be quartered at North Fort Hood for their two-week training period.

The 90th Infantry Division and the 112th Armored Cavalry Regiment (Texas National Guard) will lead off, arriving at North Fort Hood on May 31. The 49th Armored Division (Texas National Guard), the 36th Infantry Division (Texas National Guard), the 75th Infantry Division and the 45th Infantry Division (Oklahoma National Guard) will follow at two-week intervals.

Initial Washington Chapter Meeting—A Huge Success

The meeting in April, the first, of Officers interested in Mobile warfare, located in the Washington area was a huge success. Highlighted by short speeches by General Devers and General Crittenberger and a most informative talk by Lt. Col. George Peterson, Chief of Research and Development from the Detroit Tank Arsenal, plans were made for a second meeting to be held in June. Col. Peterson spoke on "Current Trends in Tank Research and Development."

The next meeting is scheduled for 4 June 53 to be held in the Rose Room of the Naval Gun Factory. Maj. Gen. R. W. Grow will be the principal speaker. Details can be obtained by contacting Captain C. R. McFadden, Jackson 7-9400, extension 409.

Patton Memorial Stamp

The Postmaster General has announced that a memorial stamp honoring General George S. Patton, Jr. will be issued some time this year. The date of issuance has not yet been determined. Sponsor of this memorial stamp issuance is the World War Tank Corps Association.

Mathew Brady Honored

Mathew B. Brady, famed Civil War photographer and the first American to prove the military value of photography, was honored recently by both the military and his profession at ceremonies at Carswell Air Force Base, Fort Worth, Texas.

A Convair RB-36 reconnaissance long-range bomber of the Strategic Air Command was christened "Mathew B. Brady" and officials of the National Press Photographers Association participated in the ceremonies.

Covering General Irvin McDowell's Army of the Potomac, Brady and his assistant manned two photo darkroom wagons. The two-horse wagons, also equipped with chemicals, negative plates and cameras, were nicknamed "Whatizzits" by the Federal troops.

Ninety-one years ago, during the Peninsular campaign (May, 1862) of the Civil War, Brady recorded for posterity the first experiment in aerial reconnaissance, Professor T. S. C. Lowe, first air chief, ascended in a balloon over Mechanicsville, Virginia, and reported troop movements of the Confederates around Richmond to General G. B. McClellan, Union Commander.

When Brady photographed the airborne balloon, Confederate rifle and artillery fire opened on Lowe—the first "ack-ack" experienced by an American combat aviator.

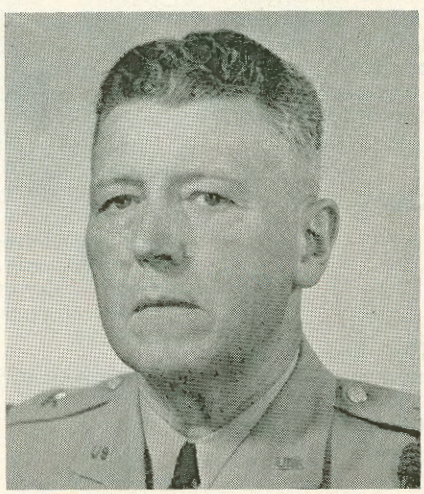
In 1951, a Convair RB-36 flew a non-stop mission for 51 hours and 20 minutes without refueling. It is equipped with 14 cameras and powered by 10 engines, 6 conventional and 4 jets. Like the B-36 atomic bomber, it has the greatest fire power of any known bomber yet developed, 16 20-millimeter cannon. One of the 14 cameras aboard the 45,000 horsepowered RB-36 was a 42-inch focal length lens.

Brady, who spent over $100,000 photographing the Civil War, died penniless in New York City January 16, 1895. He was 73 years old. He was buried in the Congressional Cemetery at Washington, D. C.

OCS For National Guard

In a move to increase development of officer personnel for the National Guard, a special Officer Candidate

TOP COMMAND CHANGE



Maj. Gen. Bruce C. Clarke
To Commanding General, I Corps

Maj. Gen. L. L. Doan
To CG, 1st Armored Division

School Course will be conducted this summer at Fort Riley, Kansas, it was recently announced by the Department of Defense.

The ten-week course will be offered at the Army General School at Fort Riley for specially selected noncommissioned officers and warrant officers from National Guard units in all the States, Hawaii, Alaska, Puerto Rico and the District of Columbia.

The purpose of the special summer officer candidate course, according to Major General Earl T. Ricks, Acting Chief of the National Guard Bureau, is to provide a means for qualified Guardsmen, who are unable to attend Regular Army OCS courses because of educational or occupational commitments, to obtain officer candidate training.

Graduates of the course will be awarded certificates of eligibility for appointment as second lieutenants to fill vacancies in National Guard units in the combat arms and services as they occur.

Smoother Tank Operation

A new, sturdier and longer-lived shock absorber, which already has brought smoother, steadier riding to railway cars, has been adopted by the U. S. Army Ordnance Department for its new Patton 48 tank.

The tank shock absorber, or snubber as it is called, is a unit originally designed and developed by Chrysler Corporation engineers for the Chrysler-Design railroad freight car truck, adapted for mounting on tanks. It resembles the familiar tubular shock absorber used on most automobiles, although it is completely different in

Driving home the pin connecting the snubber—results a smoother ride.

principle of operation and, of course, much larger in size.

The tank or railway car snubber depends upon friction of a brake lining type of material, pressing against the inside surfaces of its steel tube, to provide a constant snubbing action. This does away with the greater complication of hydraulic shock absorbers and the problem, when used in railway or tank service, of their varying rates of snubbing action. The success of the snubber was attested when the U. S. Navy recently put into service 880 special boxcars for carrying ammunition and fragile cargo at passenger train speeds. All of these cars were equipped with Chrysler-Design trucks and snubbers.

"The characteristics which have made the snubber so successful under the severe test of railroad service attracted the attention of the Ordnance Development group and the Army Ordnance people with whom it works in the design of tanks. These engineers were looking for a solution to the problem of failure in tank service of hydraulic shock absorbers, and they found it in our railway truck snubber, which they adapted for installation on the Patton 48 tank."

Mr. C. C. Utz, chief engineer, ordnance, of the Chrysler Engineering Division, who heads the Ordnance Development Department, said that the new snubber provides greater stability for the tank.

"In a tank, which is essentially an armored, mobile firing platform for a gun," Mr. Utz pointed out, "a stable firing platform is important. The new snubber reduces the pitch of the tank under gun firing recoil to a greater extent than any hydraulic type. This insures greater accuracy and requires less re-aiming of the gun during firing."

Mr. R. N. Janeway, head of the Dynamics Research Department of the Engineering Division, which developed the snubber, pointed out that shock absorbers do not actually absorb shock. That, he said, is the function of the springs of the vehicle.

"The shock absorber or snubber converts the energy absorbed by the springs into heat," he explained, "and this heat is then gotten rid of by dissipating it into the air."

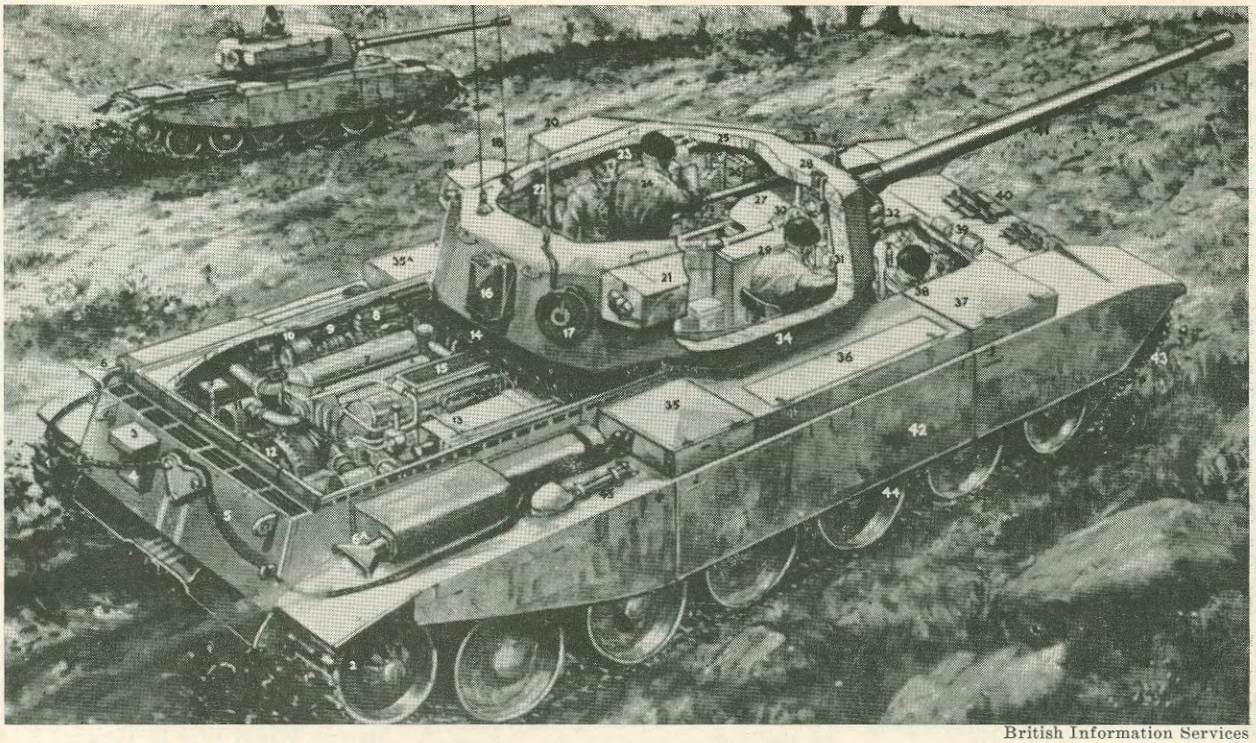
Some idea of the work the new tank snubbers do in converting the energy in the springs into heat can be realized by a simple comparison.

"For instance," Mr. Janeway stated, "operating under maximum capacity conditions, and making 60 up-and-down cycles a minute, the snubbers of a large tank could change spring energy into enough heat in one minute to raise two and a half gallons of water from 70 degrees to the boiling point."

The longer life of the snubbers is demonstrated, Chrysler ordnance engineers point out, by the fact that tanks equipped with them normally go at least 2000 miles without maintenance. Ordnance experts consider 2000 miles of trouble-free field operation in a tank exceptional performance. Hydraulic units, on the other hand, under the severe requirements of tank service, frequently have to be replaced after only 300 to 400 miles of operation.

TO RETIREMENT

On April 30, 1953, Lieutenant General Edward Hale Brooks retired from the Army. Receiving the Distinguished Service Cross in World War I, two Distinguished Service Medals, two Legion of Merit Awards and two Silver Stars in World War II, General Brooks leaves behind him a most colorful and outstanding military career. He received a Bachelor of Science degree from Norwich University in 1916. General Brooks was commissioned in the Cavalry in 1917, fought in three major engagements during World War I, later served in the Army of Occupation. Transferring to the Artillery in 1920, he served with various Artillery units until 1932 when he attended the Command and General Staff School. Upon graduation he was assigned as Professor of Military Science and Tactics at Harvard University. He attended the War College in 1936, after which he was assigned as an instructor at Fort Leavenworth. In 1941 he became Artillery Officer of the Armored Force at Fort Knox and was instrumental in the development of mobile Field Artillery in support of Armor. After commanding the 11th Armored Division, he was assigned to the 2d Armored Division in Europe. The following October, General Brooks assumed command of the VI Corps. Following the war he was assigned to the Fourth Service Command, later as Deputy Commander of the Third Army. Subsequent to a tour of duty in the Antilles, which included Commanding General of the U.S. Army in the Caribbean, he became Director of Personnel and Administration of the Department of the Army. After reorganization of the Army headquarters he was assigned as Commanding General of the Second Army which post he held at the time of his retirement. General Brooks has been quite active in the affairs of the United States Arm Association. He is presently an honorary Vice-President of the Association.



British Information Services

THE CENTURION

Details of the Centurion were recently released by the British Information Services.

The unique feature of the 52-ton tank is its stabilizer. This consists of two electric-magnetic servo-mechanisms which operate both vertically and horizontally and keep the 20-pounder gun and 7.92mm Besa machine gun—the two co-axially mounted in its turret—trained on the target despite irregularities of terrain. This is done by means of rate measuring gyroscopes. Described by the British as the only tank now in production equipped with a stabilizer, the Centurion can fire accurately and quickly.

The ability of the Centurion to fire without slowing down means that in tank-versus-tank warfare it possesses a great advantage. Aimed, rapid and very accurate fire can be returned to any attack instantaneously, while the heavy armor protecting the Centurion has been proved able to withstand even 85mm gunfire, the standard weapon of the Russian T-34 tank.

Another factor in the Centurion's popularity, according to the British report, is its price of around $2,800 a ton, which is unmatched by any other tank now in production. This, combined with its other advantages, has brought orders from several overseas countries. Britain is producing Centurions for the Dutch and Danish armies under a $90 million U.S. *offshore* contract. The Canadians and Australians have ordered Centurions for their armored forces in Germany and Korea.

It will climb gradients of 35 degrees, and is often jocularly called "the Alpine tank." It can travel approximately 3,100 miles before overhaul. The armor is hand-welded. The Centurion has a Rolls-Royce Merlin engine which develops 635 brake horsepower.

Key to Drawing

1 & 1A Tracks.
2 Driving Sprocket.
3 Small first aid box.
4 Infantry telephone.
5 Towing ropes.
6 & 6A Exhaust pipes.
7 Engine.
8 Charging set.
9 Dynamo.
10 Fan.
11 Air cleaner.
12 Gearbox, clutch, etc.
13 Right-hand fuel tank.
14 Cover plates.
15 Oil cooler.
16 Water container.
17 Cable reel.
18 Three whip aerials.
19 Box with turret cover, lifting jack, etc.
20 Box with camouflage net.
21 Box with net groundsheets.
22 Ammunition for 20-pounder gun.
23 Loader.
24 Tank Commander.
25 Head-lamp.
26 Machine gun ammunition.
27 Gun breech.
28 Periscope.
29 Gunner.
30 Elevation control.
31 Power traverse.
32 Smoke grenade discharger.
33 Besa machine gun.
34 Turret armor.
35 Box with portable cooker, etc.
35A Box for rations.
36 Box for spares, tools and tent.
37 Box for tools.
38 Driver.
39 Driver's periscopes.
40 Spare track links.
41 20-pounder guns.
42 Wings or skirting plates.
43 Front idler sprocket.
44 Bogie wheels.
45 Shovels, etc.

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THE RIVER AND THE GAUNTLET

THE RIVER AND THE GAUNTLET. By S. L. A. Marshall. 385 pp. William Morrow & Company, New York, N. Y. $5.00.

Reviewed by
MARGUERITE HIGGINS

Brigadier General S. L. A. Marshall has produced the best portrait of our time of what war against the Reds is factually like at the squad, platoon, battalion, regiment and division levels.

His book *The River and the Gauntlet* describes the Eighth Army's retreat in 1950 before the Chinese Communist assault. It reconstructs the major engagements of those who bore the brunt of the battle in terms of the true experiences of the individual soldiers involved. So this book answers with magnificent authenticity the question of many Americans: "What was it really like over there in Korea?"

It is an important question because it reflects the desire to bridge the gap between those on the side lines and those who have stood the test of battle. If only for the sake of knowing the worth of the enemy we are up against, it is good that this gap should be bridged.

The author has clearly aimed his book for those with special interests in the art of war and soldiering. Because of the number of abbreviations and technical terms, it would probably not sustain the interest of the average layman all the way through. Even so, to any average citizen, be it advertising executive or wife and mother, I'd recommend reading into *The River and the Gauntlet* if they are in the slightest interested in a grasp of the phenomenon that affects so much of their lives—war in the mid-twentieth century.

Any combat correspondent worth his dispatches knows that the emotions of war—the fear, the inexplicable bursts of courage, the recklessness born of super tension, etc.—can be comprehended only by being on the scene. But combat correspondents know equally well that the best descriptive stories are obtained by piecing together, after the battle, the ebb and flow as told by the soldiers involved. For during the actual course of battle—if it's a rough one—the correspondent, like the soldier, passes most of his time with his nose to the dust, dodging bullets. Being engaged in keeping his head down, his perspective is limited. The only way he can be sure of what the other fellow did is by asking him—when time and circumstance permit.

One is impressed by the amount of detailed questioning and hunting up of records that has obviously gone into this book. But the real satisfac-

The Author

S. L. A. Marshall served as chief Historian for the ETO during World War II and is presently a consultant for the Operations Research Office at Johns Hopkins University. He was Infantry Operations Analyst for the Eighth Army in Korea at the time of the Chinese attack described in this, his latest, book. He is Military Editor of *The Detroit News*.

The Reviewer

Marguerite Higgins, author of *War in Korea*, is foreign correspondent for the *New York Herald Tribune*. A Pulitzer Prize winner, she recently launched a new series of well timed articles on the cold war which are appearing in more than fifty newspapers throughout the world. Landing with the Marines at Inchon she covered all aspects of the fighting.

tion is that the detail is fashioned so as to give drive to the narrative. The author does not delve into the emotions of the men he describes except as represented by their actual comments. He doesn't need to. The hour by hour account of the fate of squads, platoons, battalions in peril of extinction builds its own terrible suspense. There is no spuriousness here. One watches the corporal and lieutenant, sergeant and colonel make their human judgments in awful realization that the sudden death or miraculous escape that follows is happening to one of our own.

Marshall poses some value judgments with which this correspondent disagrees. The entire question of the merits or demerits of starting the controversial Eighth Army offensive to the Yalu is inextricably tied into the question of the Free World's knowledge of Chinese Communist intentions. If the Chinese stayed out, the offensive was a sure thing. If they came in only halfheartedly, it still was a good risk. No one—and particularly not General Douglas MacArthur—would have ordered the offensive if it had been known that the Chinese armies were to come in full scale and that furthermore our capacity for retaliation by air and sea would be limited, thus giving the enemy double advantage.

(Washington did not prohibit MacArthur's right of retaliation until the Chinese Communist intervention was a *fait accompli*. MacArthur learned of Washington's attitude when his order to blow up the Yalu bridges was countermanded.)

Marshall seems to blame General MacArthur for not knowing the Communist intentions. But Communist intentions are decided in Peking and Moscow, and none of the leaders of the Free World including President Truman knew whether the Chinese armies in Manchuria were being readied as defensive warning or an assault group.

A graphic spectacle of the Free World's chronic inability to guess Communist intentions is being afforded currently by high level speculation as to what the so-called Malenkov peace offensive really means. It is a rueful tribute to the Russians that President Eisenhower tacitly admits in public speeches that he knows nothing more about what the Kremlin is up to than does any reader of Moscow's communiques.

And as great a man as is General MacArthur, it seems unfair in the case of the events of Fall 1950 to expect a field commander to know more than our highest governmental authorities in Washington, including incidentally, the Central Intelligence Agency, which was sure the Chinese would stay conveniently home.

"It was but one incident among hundreds, each having its own special torment."

But fortunately, in this reviewer's opinion, General Marshall's critique of top level military policy is only incidental. He documents beautifully his main purpose described as follows in the opening chapters: "The explanation of how the Eighth Army was deceived by its enemy is hardly separable from the story of its reaction to the unexpected situation. . . . All Americans had some share in the mistakes which precipitated the winter battle with the Chinese. On the other hand it fell to but a few of our countrymen to redeem with the sweat, courage and lives the situation thus made. The story lies in whether they did meanly or nobly."

General Marshall is admirably equipped to tell this story. He is a noted writer on military affairs. His impressive background includes the post of Chief Historian for the European Theater of Operations during World War II. At the time of the historic Chinese Communist intervention in Korea, the author was infantry operations analyst.

The blurb on the hook jacket says "General Marshall has developed a unique method of battle reporting . . . his technique is hased on exhaustive interviews of participants in battle from infantry squad to general."

In this reader's opinion the most compelling passage—and the one intended as the climax—was the description of the ordeal of the Second Infantry Division as it sought to escape through the Kunuri pass. The exit began without our top leadership realizing that the Chinese had infiltrated rearward. The result was that the convoys were not combat loaded and thus not prepared for the battle in the trap so carefully and devastatingly prepared by the enemy.

For stark honest reporting of both the "mean and noble," consider this passage describing the arrival of Major General Lawrence B. Keiser, division commander, at the pass: "General Keiser had been phenomenally lucky in his jeep run through the greater part of the gauntlet (the pass). After leaving his command post in the bivouac area at about 1:30 p.m. he doubled along the stalled part of the division column almost without stopping and got to the final ridge at about 3:15 p.m. This placed him in the pass approximately twenty

British Tanks moving into Seoul to take up new positions in late December 1950.

minutes after the column bad wedged there. He personally witnessed the atrophy of our troops who had closed in just prior to his arrival.

"The dead lay in the ditches and sprawled across the roadway. Most of the living—even those still unwounded—were in such a state of shock that they responded to nothing, saw nothing, seemingly heard nothing. The Chinese fire beat like hail among the rocks and against tbe vehicles. But the soldiers neither cried out nor sought better cover. Their facial expressions remained set, appearing almost masklike because of the heavy coating of dust and the distortion from the dropping of the jaws. They were saying nothing and doing nothing except that a few shuffled about aimlessly seeming to reel in their tracks. General Keiser walked among them moving from group to group barking questions trying to startle them back to conscionsness. 'Who's in command here?' 'Who are you?' 'Can any of you do anything?' He got not a single response. . . .

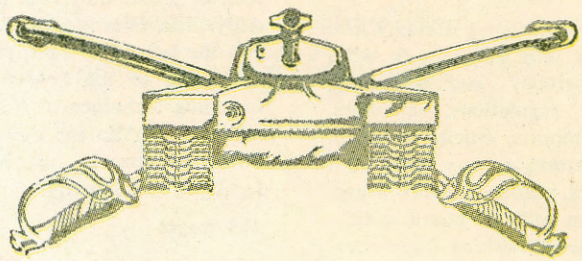
"One thing made his heart leap up. A sergeant from the 9th Infantry had taken an 81mm mortar from a ¾ ton truck, set it up in the middle of the roadway and was now singlehandedly firing the piece on line of sight against the Chinese positions atop the south ridge. It was the only fire Keiser saw being delivered by an American. But he saw a few other self-possessed individuals most of whom were trying to help the wounded."

There you have it. The "mean and the noble." The truth.

One of the refreshing rings of honesty in this book as distinguished from the war novels is the lack of the grand gesture, consciously made and consciously noted. As anyone who has been near war can testify, there is no time for histrionics because the sheer urgency of the crises provides no audience. The very unreality of war is the casualness of death: when a young soldier rushes on the spur of the moment to rescue a wounded buddy and is instantly killed himself there is not even time to bow to this noble moment of heroism gone wrong. There are instead the more pressing problems of killing or evading the enemy before he gets you.

In reporting, in coherent human detail, the Eighth Army's retreat before the Yalu, General Marshall has discharged for history and for the present record some of this country's obligation to make known the courage and judgment of those who did nobly. By telling the truth about our failings General Marshall has given us the chance to profit from the mistakes of those who too often by force of overwhelming circumstance, lack of training rather than individual lack, fell into the category of those who did not measure up.

Choice of profession . . . A difficult decision! Upon completion of a formal education, be it school, college, or university, one again may decide to specialize. Once this is determined there should be no turning back, no vacillating of purpose. As a future commander in the Army, the student of the military art must decide on the branch of service which he feels he is best qualified in to better serve his country and himself



Regardless of choice, regardless of branch, whether arm or service, all mold to form the greatest team on earth. If the military student leans toward the mobile-mindedness of some of our past greats such as Wesley Merritt, John Pershing, or George Patton, then his position is the one that denotes *mobility—firepower—shock action and decision* . . . Armor—the Arm of Decision