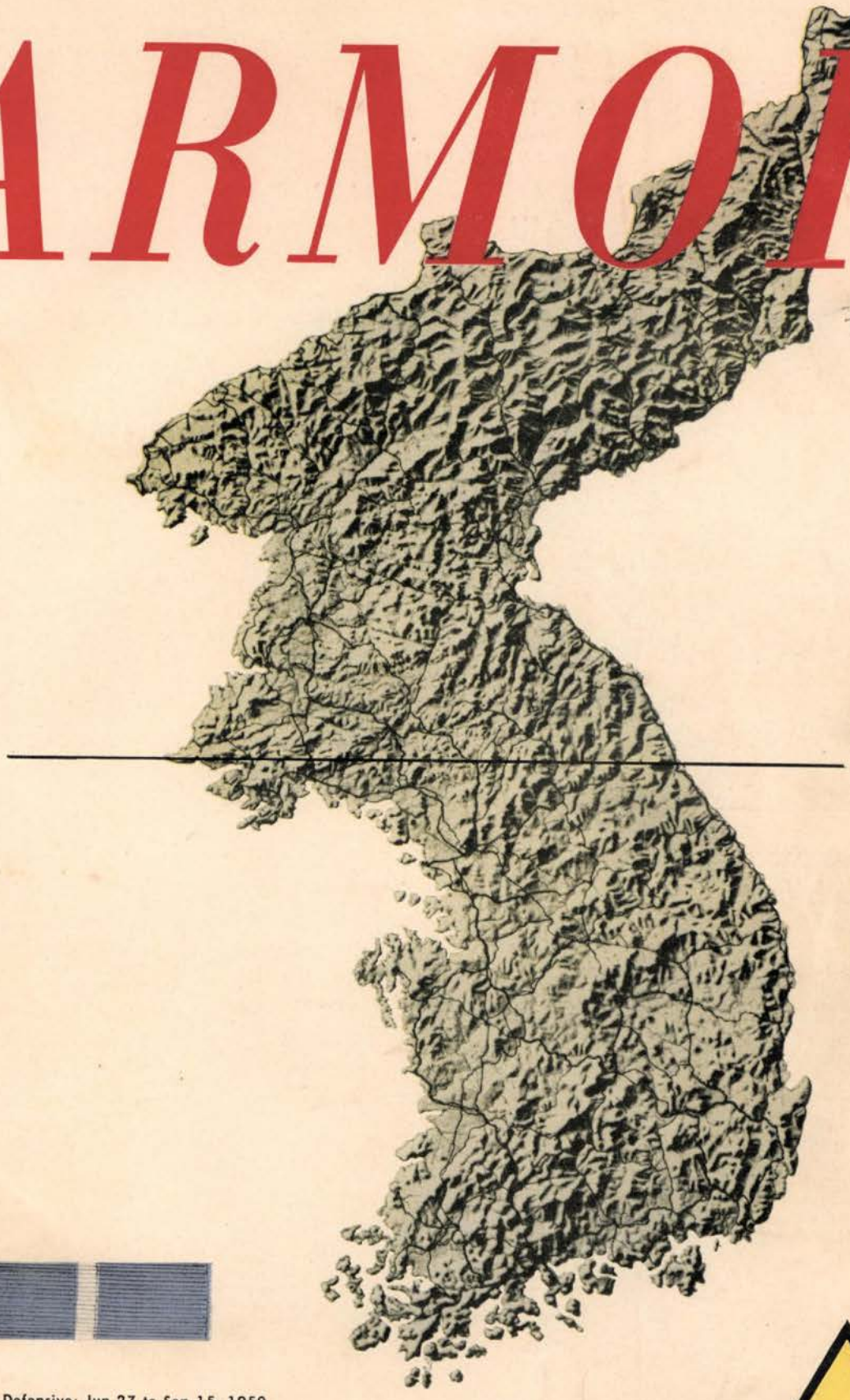
ARMOR



- United Nations Defensive: Jun 27 to Sep 15, 1950
- United Nations Offensive: Sep 16 to Nov 2, 1950
- Communist China Forces Intervention: Nov 3, 1950 to Jan 24, 1951
- First United Nations Counteroffensive: Jan 25 to Apr 21, 1951
- Communist China Forces Spring Offensive: Apr 22 to (date to be set)

JULY-AUGUST, 1951

KOREA

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ARMOR

Continuation of THE CAVALRY JOURNAL

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CIRCULATION
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BOOK DEPARTMENT
Mildred F. Puterbaugh

ASSISTANTS TO THE EDITOR
M Sgt. J. William Joseph
Sgt. John A. MacDonald

Volume LX JULY-AUGUST, 1951 No. 4

CONTENTS

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LETTERS to the EDITOR

On Jumping To Tanks

Dear Sir:

I was discouraged by the reprint "Don't Jump to Tanks" in your May-June issue (from *Combat Forces Journal*). If this nation does jump to tanks it will be the first time in history that any democratic nation has backed a really comprehensive tank program.

In his article, Colonel Kintner proposes a network of antitank weapons of various types, forgetting that these unarmored weapons can be easily immobilized by enemy artillery using proximity fuses. He also emphasizes that those antitank weapons of the rocket type, "in contrast to the tank," could not be used against us if captured by any future enemy. Going on, the author states that the more expensive self-propelled artillery is less susceptible to capture "because of their high mobility." Does Colonel Kintner believe the tank to be horse drawn?

The author does not state what we would do with these mountains of antitank weapons when we go over to the offensive after being attacked. He does theorize on the possibility of using these weapons in airborne operations, yet he admits that the airborne division with its preponderance of these same weapons meets its "greatest single hazard" in the tank.

To Colonel Kintner the tank apparently can only be used effectively as an offensive weapon, "an ideal tool for an aggressor." Yet give an antitank gun armor protection, a traverse of 360 degrees, and you have a tank, a weapon which "can be kept in reserve to meet major threats as they develop" or, in sufficient numbers, can "make it unprofitable for (enemy) tanks to forage alone." Where is there today an antitank weapon capable of taking the offensive when its purely defensive role is completed? There is only one such weapon in today's armies and that is the tank!

So let's take another look and then jump *to* tanks. Let's give Armor a chance to show what it can do with its new family of tanks. Maybe this country can show the world what can be done with a true "armored" division.

James F. McGillvray
Sgt., Illinois National Guard
Chicago, Ill.

Dear Sir:

I would like to take emphatic issue with Colonel Kintner's article "Don't Jump to Tanks" in the May-June issue.

The whole thing seemed pretty well represented by his bald statement (in reference to American armored advances in France and Germany)—"Finally, opposing infantrymen did not possess bazookas or weapons firing shaped-charge shells."

How Colonel Kintner could have served in the ETO and never noticed, let alone fallen over, one of the several varieties of *Panzerfaust* is really hard to savvy. They were produced in quantity and used often and with great effect, though German soldiers were said to dislike the weapon because of its blast. At any rate, it was a one-round type of recoilless weapon with a shaped-charge projectile.

Also, the Germans soon produced their own version of the bazooka, after capturing some of ours in North Africa. It was a big, clumsy—but potent—88mm job, which could drill through the turret armor of an M4 tank. One version of this weapon was furnished with a modified breechblock and mounted on a light

Panzerfausts in the ETO.

carriage, thus developing into a low-slung AT gun. (Had, if my memory is correct, a name like "Poppet"—meaning a little doll.)

Finally, the Germans had a shaped-charge, magnetic, AT grenade which they used in Italy against Allied armor. I have seen only pictures of it, but the panzerfaust and the bazooka were used repeatedly against the unit with which I served (CCB, 8th Armored Division) and accounted for several of our tanks.

These weapons were backed up by some mighty effective AT guns—50mm, 75 and 76mm, and 88mm—and they still couldn't stop our armor. Colonel Kintner ought to dust off his memory.

Major John R. Elting
Armed Forces Information School
Ft. Slocum, New York

Personnel Carrier Background

Dear Sir:

I was interested to see the cover and picture story on the new personnel carrier, the T18E2, in the May-June issue.

In the period 1943-44, while I was Director of the Tactics Department of the Armored School, I had occasion to discuss with Colonel William B. Kern, Inspector of Training in the department, the development of an armored personnel carrier. Colonel Kern had commanded a battalion of the 6th Armored Infantry, First Armored Division, in Tunisia, and knew by bitter experience the pressing need for a vehicle providing overhead cover for armored infantry.

Colonel Kern brought me a drawing of his conception of such a vehicle. We discussed it and sent it on to higher headquarters for consideration. In due course the T44 was developed, which resembled in every detail the vehicle conceived by Colonel Kern. The T18 appears to be a close relative of the T44.

I thought that this story of what is probably the origin of this vehicle might be of interest to you.

Colonel C. P. Summerall, Jr.
PMS&T, Harvard University
Cambridge, Mass.

It's Immaterial

Dear Sir:

May I take this opportunity to tell you how valuable ARMOR is to me and to the many Armor officers in the Far East Command. It is the only medium through which we can keep abreast of new thought and developments in Armor.

There are many Armor officers over here and few Armor duty spaces. Considering the wide variety of duty assignments, we almost feel that we're Branch Immaterial . . . at least the FEC has illustrated that we can do anything from operating a Port of Embarkation to what have you.

Continued success with a fine magazine.

Major Carroll McFalls, Jr.
Sendai, Japan

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Rates: See bottom of contents page.

Does It Work Today?

Dear Sir:

During World War II tankers used several layers of sandbags on the front deck of the tanks to stop bazookas. I am wondering if the tankers in Korea today are doing this? The absorption quality of sandbags was well known in the 2nd Armored Division in Europe. I can personally testify to the effectiveness of this means of protection, for it saved my entire crew on one occasion.

ETO tankers sometimes carried a sixth man in the left turret hatch whose full-time job was to fire the .50 cal. machine gun at ground targets. This worked wonders against the enemy infantry, and was useful in starting fires and in giving flank protection, as well as providing quicker antiaircraft fire. Is this feasible today?

We also carried logs on the sides of the tanks for additional protection against bazookas. They were often helpful as road mats. Are the tankers in Korea doing this today?

PHILIP C. PENDLETON
Ex-Lieutenant-Tanker
Sacramento, Calif.

● *Since ARMOR rides the turret in many a tank across the entire front in Korea, we defer to them as knows. A reading of several articles in this issue will bring out some of the facts along this line. Col. Pickett covers the Korea end, Lt. Middleton the ZI.*—ED.

Plain Talk

Dear Sir:

I am tired of fighting the PX lines for one of the several copies of your magazine which find their way to our installation, so here is my subscription.

It's a good plain-talk magazine; please keep it that way.

LT. H. C. RICHARDSON
7845 Ordnance Maintenance Group
APO 154

● *Amen!*—ED.

Bringing the Story Home

Dear Sir:

The January-February issue of your magazine contained a picture, on the inside front cover, of three Americans interrogating captured Red Koreans. It shows an American sergeant on the left with a carbine on his shoulder.

This sergeant happens to be my son and I am wondering if I could purchase an 8 x 10 glossy print from you.

Such a picture will be greatly appreciated by Mrs. Baker and myself.

Thank you in advance.

WILLIAM L. BAKER
Holyoke, Mass.

Sgt. Baker and group.

● *A copy of this excellent Marine Corps Photo, taken by Combat Photographer Corporal L. B. Snyder, has gone to Mr. and Mrs. Baker with ARMOR'S compliments. An interesting follow-up letter tell us that Sgt. First Class William Baker has been joined in Korea by his younger brother, Private Robert L. Baker. By a strange series of moves Bob wound up in a tank unit, to undergo a period of pre-front-line training under —you guessed it—his brother, who gave up rotation to train new men arriving at his outfit. Both brothers are with the 2nd Infantry Division armor.*—ED.

Short Or Over?

Dear Sir:

In reference to the problem presented in the May-June issue titled "How Would You Do It?" . . . In Situation 1, you have taken under fire a platoon of enemy infantry who are dug in at a distance of 1200 yards.

You give as your fire command—GUNNER, HE, DELAY—lay your gun on target line with the tank commander's power traverse handle, then—TROOPS, 1200, FIRE.

I believe that your projectile would burst 200 yards beyond the dug-in enemy platoon. My theory is that your shell struck the ground at 1200 yards and then ricocheted approximately 200 yards to become an air burst with no effect on the enemy. I think it would have been necessary to follow up with the command—OVER, DROP 200, FIRE.

My command would have been—GUNNER, HE, DELAY—the laying of, the gun and—TROOPS, 1000, FIRE. As I see it that would cause a burst over the dug-in infantry, showering them with shrapnel and causing a "first round kill." I would appreciate being corrected if I am wrong.

SERGEANT CARL R. MAYNARD
Tank Co, 2 Bn,
6th Armored Cav. Regt.
APO 225

● *ARMOR passed this interesting comment of Sergeant Maynard along to Lt. Col. J. C. Noel of the Weapons Department, The Armored School, author of the problem under discussion. His comment follows.*—ED.

Dear Sir:

Sergeant Maynard's query is well taken and is one which comes up rather frequently here at The Armored School.

The M51A5 fuse used on HE ammunition is equipped with a delay element of .05 seconds. When the fuse is set on delay it is actuated on impact. The high velocity and flat trajectory of the projectile cause the shell to ricochet into the air and the .05 seconds delay allows the shell to travel approximately 20 to 40 feet before bursting. This gives the air burst desired, and showers fragments down into the dug-in enemy troops. No consideration is given to this short added flight time when announcing the range to the target, since we must, at present, rely on the tank commander's ability to estimate correctly the range to a target, and also the range to a target is commanded to the nearest 100 yards in the initial fire command.

Future tanks will be equipped with range finders which will give us accurate ranges to targets, in which case the distance the shell travels after the first point of impact will have to be considered.

LT. COL. J. C. NOEL
Weapons Department
The Armored School
Fort Knox, Ky.

THE COVER

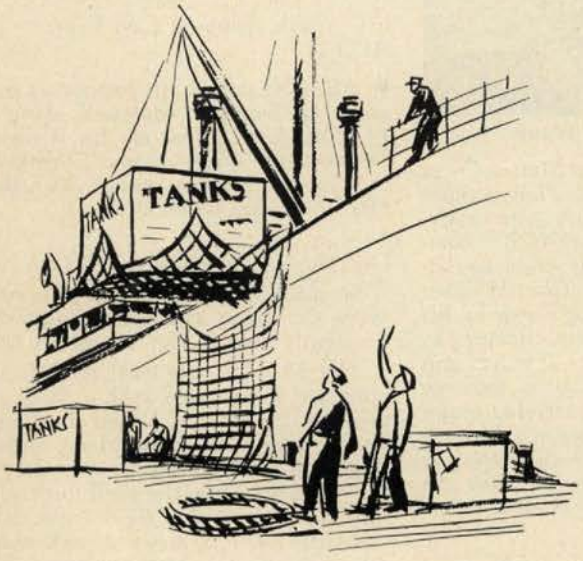
Department of the Army has designated five campaigns within the territorial limits of Korea and adjacent waters, participation, as always, to be indicated by the wearing of a bronze battle star on the Korean Service Ribbon. The limiting date of the last campaign may be set by the critical negotiations going on as ARMOR goes to press. But whether the outcome is cease-fire, or a resumption of hostilities, the moment is a milestone in war. Thus ARMOR's cover.

reconnoitering

Trench warfare and the machine gun were in a fair way of producing a stalemate when the World War I Allies came up with a new armored monster designed to break the deadlock.

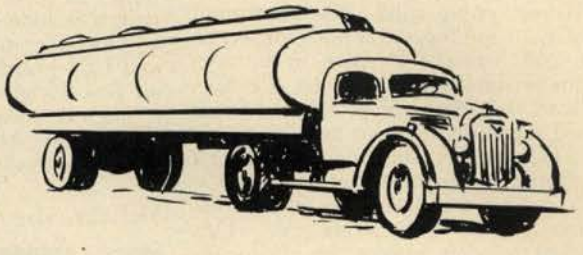
In an effort to conceal the thunder, these weapons were crated in England and shipped to the Continent bearing the stencil "TANKS." The wily individual who conceived the deception probably had no idea that the name would stick, any more than he realized what he was letting a lot of people in for.

Now, several wars later, we're all messed up over just what we're going to call ourselves (although there are others not so burdened along those lines).



Letters have come along regularly since the passage of the Army Organization Act of 1950—which made Armor the continuation of the Cavalry—asking what we should now call ourselves. Are we armormen? Are we troopers? Are we tankers?

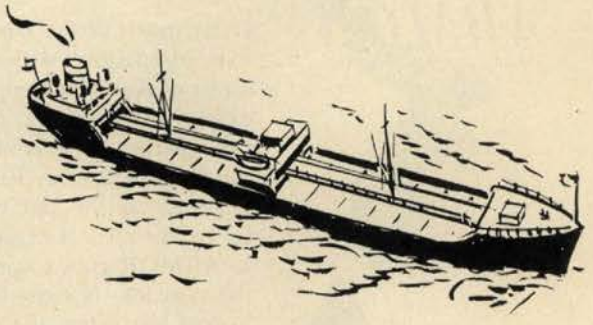
In the formal sense, it may be said that members of an arm normally assume the name of their branch. Thus cavalrymen, infantrymen, artillerymen, etc. Therefore, this title armormen isn't so bad; perhaps it is the lack of usage and familiarity that makes it seem strange.



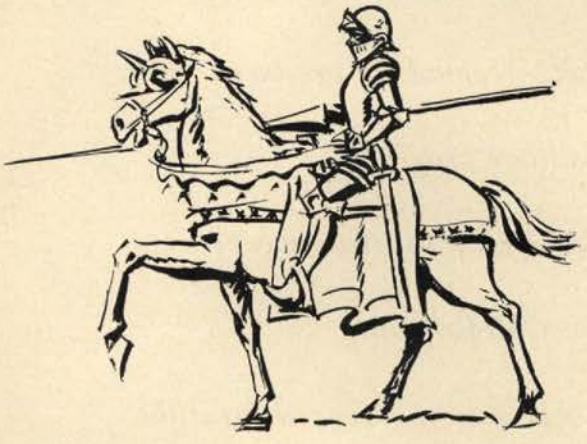
The term "trooper" has always been identified with the horse soldier. It is still in use in the 1st Cavalry Regiment, the constabulary units, and reconnaissance units. In view of their organization its use is a little farfetched. It isn't a term that lends itself to the armored division or the tank battalion.

In these latter units the term "tanker" is an accepted usage, general since World War II. Perhaps suitable as far as it goes, it applies best to the personnel who are actually a part of tank crews. It doesn't lend itself to usage by the armored infantryman or artilleryman or engineer or the many others.

The morale and *esprit* value of a trade name should not be overlooked. It is a welding influence from which stems the pride of distinction. Since the acquisition of a name may be the result of such a strange circumstance as that surrounding the plan



to confuse the German Command in World War I and attain surprise with a new weapon, we might do well to exhaustively study any changes made



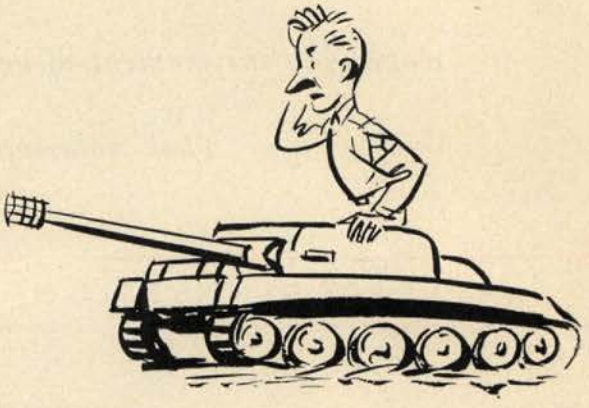
along the line, carrying all angles to their logical projection to see the results.

Time and usage are major factors in this sort of thing. Since change is bound to come, we might do well in our formative period to search for a trade name that will identify our *role* rather than a means of transportation or a characteristic of protection.

We've had our headaches in the grammar line. You may have seen our note in a prior issue informing you that when we speak of armor we are speaking of the general subject and equipment; when we put a cap on it, Armor, we're speaking of our branch of the service; and when we put it all in caps, ARMOR, we're referring to this magazine. We'd be happy to have each branch member serve a tour of one day on the editorial desk to straighten out the widespread confusion that results from this.

To our way of thinking there is one word that translates the whole business into its proper context. That word is *mobility*. Our business is mobile warfare and it's here that we should look for our designation, one which describes our mission in the military picture rather than our changing means for carrying it out.

It's pretty early in the day right now, and we're in a formative stage as the result of a major change. We might well select the usable identification for our branch members and put it into practice where usage and time can get a shot at hardening it up. It would substitute a good solid single term for



several now in use. The benefit to our professional area would be great.

Of course, we're all soldiers. That's our primary designation. But our specialty is important in the ground warfare picture, and those of us who are responsible for carrying it out are sufficiently proud of it to want a trade-mark that identifies us as experts in the field.

Perhaps you'll have some ideas on how to tag permanently the specialist in mobility, fire power and shock.

The Editor

A Tank Isn't Born OVERNIGHT

by BRIGADIER GENERAL D. J. CRAWFORD

Modern warfare's tools of mobility—so essential to success on the battlefield—cannot be produced on a moment's notice. Only a sustained peacetime program will insure the availability of superior weapons of mobility at the moment of need. The Chief of our Tank-Automotive Center sets the record straight.

RESEARCH • DESIGN • APPROPRIATIONS • DEVELOPMENT

A Patton at work in Korea. A modification of the Pershing, its development began during World War II, a long period.

OUT of the welter of news and views coming from the scene of fighting in Korea—at least in the early days—one gained the impression that the public's lack of understanding of tanks extends even to some individuals, if not echelons, of our fighting forces. On the one hand, there was the illogical cry that the Korean Reds' T-34 tank was a monster that was extremely difficult to kill, while, on the other, our own tanks were too often called ineffective. There seemed to be a feeling, judging by some comments in the press, that the whole situation might be changed overnight if the Army so willed it.

It is not my desire to discuss such impressions as the first of these which, fortunately, are fleeting in most instances. Time and a better understanding of the enemy and his ways, together with our own new weapons, have given the Allies in Korea a general superiority. However, the actual delivery of some of these weapons to our men in Korea, in what appeared to be jig time, has served further to foster the illusion that a weapon can

Brig. Gen. D. J. Crawford, Chief of the Tank-Automotive Center, Detroit.

be obtained from scratch in a very short time. Hence, a discussion is in order on the belief that a tank, or any weapon, can be obtained "overnight."

A need for a new tank—one of a different weight, maneuverability, or firepower—makes itself known during actual fighting; it may be noted during Armored Force maneuvers; or it may show up as a natural member of a planned group. In any case, the requirement for the proposed new tank is set by the user. The user also determines acceptability of major changes to existing designs. For example, when a radial Diesel engine was ordered in a quantity of Sherman tanks during the war, the using arms vetoed the idea. The using arms wished to limit the supply problem to one grade of gasoline only.

Requirements differ with different concepts. During the war, the Germans, who were never faced with our problem of long-distance and overwater shipping of tanks, concentrated more weight and power into their Tigers and Panthers. As a result, these were slow, roving pillboxes, while our armor was used for exploitation. The Tiger or Panther, having a cruising range of but 2½ to 3 hours, often chose a point of vantage, and endeavored to deny a whole area to Allied armor. Our tanks, evading such "emplacements," thrust deeply and fast into the enemy's rear and chewed up his supply and communications.

TESTING • TOOLING • PROCUREMENT • PRODUCTION

The designers are important men. L to R: William J. Brown, Joseph Proske and W. E. Preston, designers of the T41 tank.

In the event of a breakthrough, a single filling of gasoline would carry one of our tanks at 25 miles an hour far into enemy territory without refueling.

When a requirement is laid down, there are many things to consider before too much of the job is committed to paper. (We are talking of fairly normal times rather than wartime pressure.) It will take time for engineers and Ordance Committee members to meet, discuss, and decide precisely what conditions are to be met in the final design. The mission of the proposed tank and its general characteristics are made known fairly early, but there are an infinite number of details to run the procurement job into many months.

Let us digress long enough to see what happens in this regard for some other weapons. The standard M1 rifle, commonly called the Garand, was adopted as standard in 1936. Yet the first acknowledged desire for such a semi-automatic (or self-loading) rifle was expressed in 1901 by the (then) Ordnance Department's initiation of the search for one. Mortars took years to grow out of the original "trench mortar" concept of the first World War into the efficient weapons of today for pinpointing targets with effective fire. Yet the mortar is reasonably uncomplicated. The first two recoilless rifles, those of 57mm and 75mm size, were both developed within the space of about a year and a half, but this was under stress of war and many of the rules in the book had to be sidestepped.

A tank is infinitely more complex than any one of these, yet most of its components may be considered adaptations of commercial products. Even so, the manufacturing drawings for a tank actually come fairly late in the tank construction program. They will total something like 40,000 separate drawings, and it is best that basic problems be resolved before they are made.

Engineers' conceptions called "layouts" are made up first to give all concerned an idea of what the tank will look like from all angles. These layouts will also disclose facts as to placement of the engine, the weight and angles of armor, possible operating stability, and the like.

The engineers must make these layouts fairly accurate in all basic dimensions for they will be used in the construction of a scale model of the tank. At this point, the user has a chance to study the scale model and make known his thoughts on the merits of the design and to indicate where he would like changes to be made. He may want a wider tread on each track. Slope of turret armor may be too steep or too flat. Any one of a thousand things might need revising to meet the detailed requirements of the user. Usually, it is possible to make these changes without difficulty or undue delay, but is should be noted here that these are the problems, necessary and vital, that stretch out the time-lapse between the statement of a requirement and the delivery of the first tank.

A Patton receives its tracks on the assembly line at the Detroit Tank Arsenal.

Actually, this consideration of the layouts may take a year, or even longer, depending upon the number of changes required and the number of people to be satisfied. The Engineer Corps must be satisfied that neither the weight nor the width is too great for their ponton bridges. The Signal Corps must have adequate provision for installation of the tank's radio.

In one of the Sherman models during the past war, Ordnance decided to stow the tank's ammunition in a chemical. This "wet stowage" was intended to eliminate or at least reduce the danger of the tank's own ammunition exploding in case of an enemy hit, the most serious hazard of tank warfare. However, since fewer shells could be carried in this manner, the armored forces decided they'd prefer the greater ammunition supply even with the greater danger.

Following study of the scale model, a finalized layout is made, and more details are then worked out. One of the most important of these is the matter of the engine. What should be its horsepower, and how much space within the hull should be allotted to it? Careful engineering studies must be made before these and other pertinent questions can be answered satisfactorily.

Nowadays, the question of the type of engine does not bother us. The engine will be an air-cooled one of the same type as that in the M46 and the one in the T41, but perhaps of a horsepower different from either of these.

In the latter days of the war, Ordnance conceived the now-familiar family of standard engine cylinders from which any type and size of air-cooled gasoline engine could be "assembled." Continental Motors finished off that design job under contract before the M46, the General Patton, was announced in November 1948, this tank being the first to have one of the new engines. The present plan is to use the same type in all our future tanks. It is, incidentally, scheduled for use in all our tactical vehicles, either of the combat or transport variety.

That engine is symbolic of the newer philosophy of tank design, procurement, and use. Formerly, the components of a tank in a given

weight range were, in a sense, stacked up and a hull and tracks built around them. The result generally was that the tank was not so tightly integrated as a fighting machine as are those built under the present scheme. Our engineers, in a sense, now rough out the hull and then fit into it known components with well-proven characteristics.

The fairly hard and fast limitations of silhouette and weight, coupled with the specified high power, speed, and maneuverability, call for design that approaches perfection. Yet with all the refinements that result from this practice, an eye must be, and definitely is, kept turned to the factory; for that tank may have to be manufactured in mass production at short notice. The design and the materials called for must fit plant practice; or at least should do so with a minimum of conversion from commercial operations.

Another extremely important point governing the design at this stage is the need for crew space. In our American concept, as compared with that of some others, we think a great deal about crew comfort. We know that this makes for better morale, a thing which often determines whether a soldier is going to be a good one or a bad one, a healthy one or a casualty. We know, too, that it will lessen fatigue and permit crew members to continue fighting effectively for a much longer time than can some foreign tankers.

Some people have called us gadgeteers for the attention we give to our tankers' convenience in this and other things we do for him. It does mean adding various types of devices. It means larger hulls. The low silhouette isn't quite as low as we would like it. And other details must have an added something here, a changed dimension there. But being Americans, no one of us wishes to limit the freedom and comfort of a fellow American more than is absolutely necessary, even in a fighting tank.

The finalized layout is put on the drafting board and the component specialists add their parts: transmission, tracks, engines, turret and turret equipment, and the like. Then a full scale wood mock-up is built to see how well the parts fit together. Then come the full manufacturing drawings to the total of about 40,000! The uninitiated might now remark, "Well, that's that!" But there is still a great deal more to be done before a production tank emerges from a factory.

Even on the drawings, many thousands of man-hours must be spent by special checkers tediously examining every detail and making sure that it will fit properly wherever it is to go, that its fillets and drilled holes and tolerances and all other facts about it have been correctly indicated. The drawings are then released for manufacturing.

At this stage only a pilot model is manufactured. This will be shipped to Aberdeen Proving Ground for thorough testing. It will be put through grueling runs, over rough courses, through mud baths and water baths; and all the while a careful record is kept of the functioning of components. If there are any flaws, these tests will show them up. If there are components not quite up to the mission of the tank as originally conceived, it is here that their inadequacy is most likely to be discovered.

If these proving ground tests are essentially satisfactory, the pilot tank is sent on to Fort Knox for testing by the using arms. These new tests are no less tough than those at Aberdeen, and when they are completed the tank may either be accepted for standardization and manufacture or be returned for further study and modification. In any case, some changes will have to be made; and during the entire life of that model there will be a continual study and improvement of components.

The Shermans were modified as to gun, hull, and engines a number of times during process of wartime manufacture. One of the key developments, however, was the widening of the tracks. The wider design was necessary because of the lowlands through which our armies were fighting in Europe, and up to that time our tanks had been notoriously narrow tracked. But the new design could not be installed on the older Shermans, so Chrysler engineers designed a sort of track overshoe of steel, called a grouser, to be fitted to these older Shermans, thus reducing their ground pressure per square inch by 30 per cent.

All this work of research and design, manufacture and testing of a pilot model, revamping and improving, goes on continuously. It leads to such universally adaptable components as the engines I've mentioned before, and versatile and tough cross-drive transmission, the wobble-stick control, and other basic developments. It enables us, when funds are not available for production of an entirely new design, to work out a happy compromise as we did in the Patton. That powerful adaptation of the Pershing has performed in superior fashion in Korea.

Most of the work on tanks, as well as on other military vehicles, is done

Everything is built around the gun. The 90mm assembly goes into a Patton.

A completed M46 goes through testing at Detroit prior to shipment to the user.

at the unique Ordnance Tank-Automotive Center in Detroit. This one organization is a commodity Center concerned with the planning, developing, engineering, procuring, manufacturing, and maintaining of all combat and tactical vehicles. The work of two automotive branches in the Office of the Chief of Ordnance is closely coordinated with the work of the Center, though Washington is *more* concerned with the larger phases of planning and the budgeting of funds. It is there that basic plans are made in consultation with higher authority, the using services, and various boards and committees.

Congress will be asked for funds to procure a quantity of the new tanks as judged by the needs of the army for training and for use. Into these requests go definitive estimates of costs to cover not only manufacture of the tank but also, in many cases, certain tooling up and even plant construction. Allotments to commercial corporations to cover such incidentals are not gifts, of course, but are advances which are taken care of in later reckonings. In working for the finest combat vehicle possible for our troops, we realize that we must also be thrifty, and we are.

Our budget estimates always take the long-range view. They are begun at least a year ahead, and considerable work is necessary to put them in shape for presentation to Congress. They must be realistic in every respect, for it is the duty of the services to see that everything will serve the best interests of the country, that every estimate reflects as nearly as possible the wishes of the Nation.

Since tanks are fairly expensive items and we had quite a few left over from the last war, we have had no postwar building of new tanks until the new light-gun tank, T41E1, went into production in Cleveland in the Spring. Prior to that, we modified the Pershing into the Patton as noted before and, while this did not give us a new tank, the result was almost the same as though it had done so.

Construction of the Patton enabled us, at a minimum of expense and in a very much shorter time than we would have taken otherwise, to tool up production lines, to adapt important components and give commercial manufacturers mass production experience with them, to assemble many of our best postwar ideas into one item so that they might be appraised under tough proofing tests. As it turned out, Korean trouble made that conversion job a very opportune one indeed.

At this time it would appear that there will be a continuous program of tank construction for a number of years to come. The using services and Ordnance have prepared for that contingency by planning a balanced family of combat vehicles topped off by a light-gun tank, a medium-gun tank, and a heavy-gun tank. In actual tonnage, these will probably be somewhat lighter than the light, medium, and heavy tank concepts of but a few years ago. At any rate, the weight of armor, which accounts for so much of that tonnage, will be the least of our considerations, with firepower coming first and maneuverability second. The accent will be on the gun.

It is a truism that the fellow who gets in the first hit probably wins the bout. We aim to get in the first *round* hit; and I use the word "aim" in a dual sense. It is the aim of the Ordnance tank developers and experts to assure that the tanker has the best equipment science and industry can provide to make *his* aim accurate and deadly.

The payoff at hand. M46A1 Pattons ready for shipment to using units and . . . !!

There is no truth to the rumor that we expect to make a light tank, presumably an airborne one, that can defeat even the heaviest armor any prospective enemy might throw against us. All we try to do is to make the best tanks we know how to make in the categories the using arms lay down for us.

We do feel that, eventually, our very close approach to perfection, which takes so much time and adds so much to the complexity of our tanks, will repay us in good measure. It is our firm belief that we may yet create that tank, of something less than heavy-gun size, which will make the behemoths of the battlefield obsolete. At present, this is not just a gleam in the eye of a tank engineer, but rather a matter of enthusiastic diagramming and exclaiming and "if"-ing. When or whether we will achieve this bright goal, however, is not among the predictions I feel qualified to make.

We are making good progress in all our tank work, from design to procurement and delivery. But we don't do it overnight, as I think this discussion should show. We can't just make up our minds that we need a new tank in Korea, or in some other battlefield that might open up, and have that tank in a matter of months. The T41E1 tank, for example, was the result of several years of direct study and represents, indirectly, the accumulated experience of many years.

We don't make tanks overnight, nor can we make anything else in the large category of ordnance on any sort of short-range basis. If the Nation is to have adequate national defense—and I am convinced that the determination to do so is very real at this time—arms production should level out to a balanced continuous program of development and production. This should be accepted as the inevitable consequence of the greatness and power and democracy of our country. For a long time, there is likely to be some nation or group of nations to covet what we have earned by our brain and brawn, and it is up to us to see that the Nation is strong enough to deter the troublemakers.

It is a question now whether we prefer to make the arms to keep out of war or to let that war come and perhaps lose civilization. To Americans, the answer is easy.

BRIG. GEN. LAWRENCE K. LADUE

Brig. Gen. L. K. Ladue (1945)

Brig. Gen. Lawrence K. Ladue, Deputy Commander of X Corps and a member of the Executive Council of the U. S. Armor Association, died in Korea on May 23d of a heart attack.

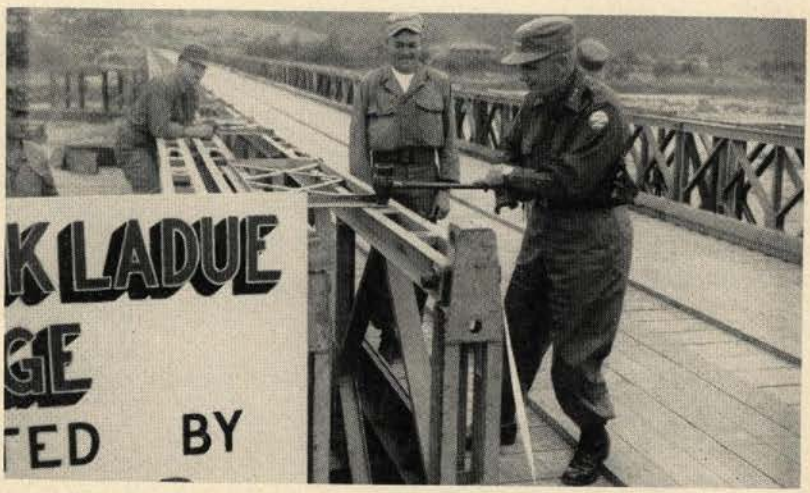
A graduate of West Point, Class of 1924, General Ladue had served on the staff of the Joint Chiefs of Staff from 1948 to February of this year, when he left for the Far East Command.

In 1943 he served as Chief of Staff of III Armored Corps and in 1944-45 he was Chief of Staff of IV Corps in the Italian Campaign. A brigadier general in 1945-1946, he reverted to his rank of colonel in 1946. He was promoted posthumously to brigadier general, and awarded the Distinguished Service Medal for his achievements as Deputy Commander of X Corps in Korea.

Continuing his lively professional interest in ARMOR, General Ladue wrote the editor from the field a few days before his death. Some excerpts herewith:

The role of armor here, in my experience, has been twofold; that is, support of infantry patrols, and in the secondary role of artillery support. I know the latter is not especially popular at Knox [the Armored School], but in this type of country we cannot afford to let the guns on the tanks remain idle . . . they do very well in reinforcing the artillery fires and have a good long reach, which is valuable. . . .

The old M4 tank has been very faithful here and the majority of tank commanders with whom I have talked feel that its width and light weight make it very acceptable for use on the small roads. It has held its own with all the tanks and SPs used by the enemy thus far. . . .



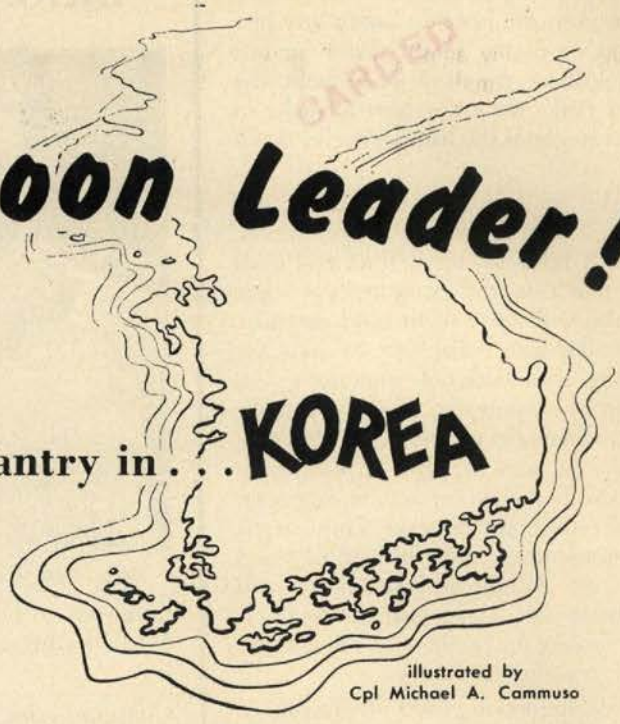
U.S. Army

Lt. Gen. Edward M. Almond, C. G. of X Corps, tightens the last bolt on the Brig. Gen. L. K. Ladue Bridge, longest Bailey Bridge in Korea, honoring the late Deputy Commander.

the Tank Platoon Leader!

One Junior Leader's Experience with the Infantry in . . . KOREA

by
2d Lt Robert S. Keller



illustrated by
Cpl Michael A. Cammuso

The following was originally a letter that came to ARMOR via the author's father, Lt Col. Ellis O. Keller, and The Armored School. We feel the information contained therein to be especially valuable because it was not intended for publication and represents a junior leader's sincere approval of Armor doctrine as set forth throughout this publication. Some liberties have been taken with the original to provide continuity and fit it for illustration. The sum and substance, however, are substantially those of 2d Lt Robert S. Keller's original letter.

The action below begins after Lt Keller's tank platoon was assigned to an infantry battalion of the 3d Infantry Division. What follows is best for the way it quickly summarizes the limitations and capabilities of a tank platoon operating successfully with an infantry battalion.

Wednesday, the first day my platoon was assigned to the infantry battalion, we sat around doing nothing. Thursday started off like Wednesday; we were told to sit where we were. I was pretty dissatisfied. Then the battalion exec rushed over and told me to give A Company right flank fire-support. This was better than nothing; but a river separated us from A Company, and the river had 150-foot cliffs on both sides: our fire-support was at longer range than we wanted it to be, and not too much use.

Then they told me to cease fire while they moved up, but their progress was slow. I told them I'd look for a way across the river and took off. We finally found a goat path down one bank and up the other and made the crossing fast. Close in, we pushed A Company through to their objective in no time at all, climbed the objective (an "impossible task;" their division air observers refused to believe it) and put direct fire on the final objective. A Company walked in a parade front up to their final objective, and the battalion CO looked happy, though a little startled.

The infantry seems to have a dim view of Armor, mostly because its travel is limited by the succession of high, razor-back hills—and because it hasn't been used in close combinations. But trying will get it a lot of places that might seem impossible; it will follow a goat path, ford a river, and go up an objective. You often have to get out of your tank and make a foot recon-

naissance to see where your tanks will go. Armor is aggressive; you have to keep moving, and you have to keep off the roads. And when you can't climb hills you have to find another way.

Friday, for example, we went on to the next A Company objective in the same way we had Wednesday. But this time we couldn't get out, for the hills and mountains were too steep. So we went further into the enemy lines, spraying everything with machine gun fire, and cut back out through another sector. Saturday we were to meet C Company at a road-river crossing, and my radio to the infantry was out. Figuring I had arrived too late, I went on to catch them. But we got too far for them to be ahead of us, so we pulled into a valley and cleared it of what enemy we could find.

Two hours later, after we had cleared the valley, C Company caught up to us. We were sitting at the front of their final objective—which they took at a route step.

As a result of those three days, the 1st Battalion is extremely pleased. Our work together has been a practical example of what the book teaches about combined-arms cooperation. The 1st Battalion is not only far in front of the unit on both flanks, but is even farther ahead of its own schedule. Heretofore they forgot almost completely about the attached tank unit; now they are beginning to get some real respect for Armor—including sending me messages when the radio is out and treating me as a tactical armor adviser, which is probably the best compliment the Infantry can pay Armor.

The company is top-notch. All officers except one are white, and the rest are Negro troops with a small smattering of Puerto Ricans. My platoon is extremely dependable and hard working; they've got guts, experience, know-how, and discipline. If they fail, it will be because of poor leadership. They have earned a well-deserved rest, which we are now getting. My only dissatisfaction is that one tank is in Ordnance for a couple of days and one en route to Japan for a major overhauling. But the beer, which they've managed somehow to keep cool, and which I ordinarily don't like, tastes like nectar. There's a lot of satisfaction in successful combined-arms

operation. I admit I've been lucky at the beginning; the weather has been dry and the opposition light. But I can go to sleep feeling that if I am ever forced to say that a potential assigned mission is not practicable the Infantry will take my word, and we can work something out.

ARMY FIELD FORCES BOARD 2 TESTS TANK CREW EFFICIENCY

Members of the Army Field Forces Board at Ft. Knox, Ky., are analyzing and evaluating data obtained during a recent three-week field test at Ft. Campbell, Ky., set up to determine the relative efficiency of four-man and five-man tank crews. The tests were made by two platoons from the 141st Tank Battalion under Capt. Richard G. Miller, a company commander.

The project, which may have a far-reaching effect on the future use of armor, was conducted for Army Field Forces Board No. 2, the Armored Center, Fort Knox. Observers from the Board carefully recorded data concerning maintenance capabilities and physical endurance of the respective sized crews.

One platoon furnished four-man tank crews, and the other five-man tank crews. Using the new M46 General Patton tanks, the different sized crews operated side by side in the field under simulated combat conditions. All of the tanks were operated a minimum of five hours per day. Final results of the test will be determined by Army Field Forces Headquarters at Fort Monroe, Va.

TANKS IN DEFENSE:

by LIEUTENANT COLONEL GEORGE B. PICKETT, JR.

TO most people on April 23, 1951, Kapyong was just another of a series of desolated little villages in far off Korea. However, to the UN forces in Korea, it became, in the two days from April 23-25, the symbol of the courage and fighting spirit of the American tanker. Kapyong itself consists of two bypasses, a pile of destroyed native huts, and the shells of four stone buildings. If you drove through there, nothing unusual would appear to you unless you were a tanker. If you were a tanker, you'd see a sight seldom seen in Korea—good tank terrain! Kapyong sits on the Pukhan River about 12 miles west of Chunchon and 40 miles northeast of Seoul. This Seoul-Chunchon road was an MSR for IX Corps units during April 1951. Opening north of Kapyong is a big (for Korea) wide valley in which two tank companies can maneuver cross country. This valley runs north to the little crossroads village of Cheryong-ni where it branches into a northwest and northeast branch. These branches are narrower than the main valley. Only one company can be deployed at a time across the branch valleys which extend about three miles northeast and northwest from Cheryong-ni.

Elements of IX Corps were attacking north toward an objective south of Kumwha when the Communists began their offensive in the IX Corps zone in the evening of April 21.

On the evening of the 23rd, the 6th Republic of Korea (ROK) Division, the left unit of IX Corps, came under heavy enemy attack. The division fell back at eight o'clock, but even before that hour, enemy elements were in the rear of the division. By ten, the division was withdrawing. At eleven, it attempted unsuccessfully to reorganize in the vicinity of Sangnamjong.

During the afternoon and evening of the 23rd, Company A, 72nd Tank Battalion (3rd Platoon) and the Royal Australian Rifles (RAR) Battalion of 27th British Commonwealth Brigade moved into positions north of Cheryong-ni, in order to cover the withdrawal of the 6th ROK Division. At nine P.M. elements of the 6th ROK Division began a withdrawal south through the positions held by A Co., 72nd Tank Battalion and the RAR Battalion. Leading elements of attacking Red forces were in contact with the rearmost withdrawing elements of the 6th ROK Division.

Dispositions

Lt. Kenneth W. Koch, the tank company commander, had placed his platoons so that the 4th Platoon was in an outpost position on the only north-south road in the area. The first platoon, Lt. Miller commanding, was in position on a high ground area flanking this road on the west, and south of the 4th Platoon blocking position. The RAR Battalion was deployed on the ridge on the east flank of the road. The 2nd Platoon and Lt. Koch's command tank were deployed at a crossroad to the south of the other tank positions where the north-south road joined a northwest-southeast road. The latter road was being used by elements of the 6th ROK Division as an avenue of withdrawal.

The first Red patrol hit and was destroyed by the 4th Platoon at its blocking positions at nine o'clock. Two hours later large numbers of enemy heavily attacked the friendly positions. One force struck directly at the 4th Platoon. The platoon leader was mortally wounded. He died almost immediately, but not before issuing the order to his platoon to make a fighting withdrawal to previously prepared alternate positions with the 2nd Platoon. Three other tank commanders were also seriously wounded in the attack which enveloped the 4th platoon. However, the platoon withdrew successfully to the alternate positions.

Concurrently with the attack on the 4th platoon, other elements of the advancing Reds circled around the hill mass on the west of the road. They by-passed the 1st Platoon which could not locate the enemy below because of the lack of any kind of natural or artificial light. This attacking force swept around the hill mass and swung again to the east to strike at the 2nd platoon positions, which were soon surrounded and infiltrated. The enemy then swept on to overrun the RAR Battalion CP that was located well to the rear of the 2nd Platoon position.

However, under orders from the company commander, all tanks except those of the 4th Platoon remained in their positions. During the initial stages of this fight at the 2nd Platoon position, tanks from the withdrawing 4th Platoon appeared on the scene, moving south from their former outpost position. The company commander dismounted from his tank, moved under extremely heavy enemy fire to reach the leading tank of the 4th Platoon, to determine the status of its personnel. Upon learning of the heavy casualties in the platoon, he ordered all the wounded and dead, which included four of the five tank commanders, loaded on three of the tanks, and ordered the tanks to run the enemy force and return the wounded to the company trains area for treatment. He also instructed the ranking NCO in this group to obtain replacement crews from the company headquarters personnel and return immediately to the scene of battle.

Hot Action

The company commander then placed the remaining two tanks of the platoon into position with the 2nd platoon and then, still under heavy enemy fire, returned to his command tank and continued to direct the action of his company. At one time the enemy succeeded in setting up a machine gun emplacement between the command tank and that of the 2nd platoon leader. This gun was reduced by tank fire. The Chinese attempted to mount the tanks and destroy them

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Lt. Col. George B. Pickett, Jr. served with the 11th Armored Division in Europe in World War II. He left an assignment as a member of the Tactics Department of the Infantry School a year ago to head for Korea and his present post as Armor Officer of IX Corps.

with grenades and satchel charges, but were destroyed by fire from adjacent tanks. One tank received a direct hit with a 3.5 rocket launcher that killed the loader and mortally wounded the tank commander. However, the position of the tanks was so encircled by this time that it was impossible to evacuate either of these two men or any of the less seriously wounded. The fighting continued with unabated fury until daylight.

At dawn the Reds began to withdraw. As they attempted to pull back along the west of the hill mass around which they had attacked the night before, the 1st Platoon opened fire. This placed the enemy force in a crossfire from sixteen tanks for, by this time, the three tanks of the 4th Platoon had returned to the 2nd Platoon positions after fighting back up the entire length of the route. This crossfire into the withdrawing enemy continued until all targets were either destroyed or dispersed. It was later determined that more than five hundred enemy were killed in this action.

At this time the tanks, then dangerously low on ammunition, were ordered by the commander of the 27th Brigade to withdraw. The RAR Battalion was also ordered to withdraw but the enemy was still surrounding its position, preventing this.

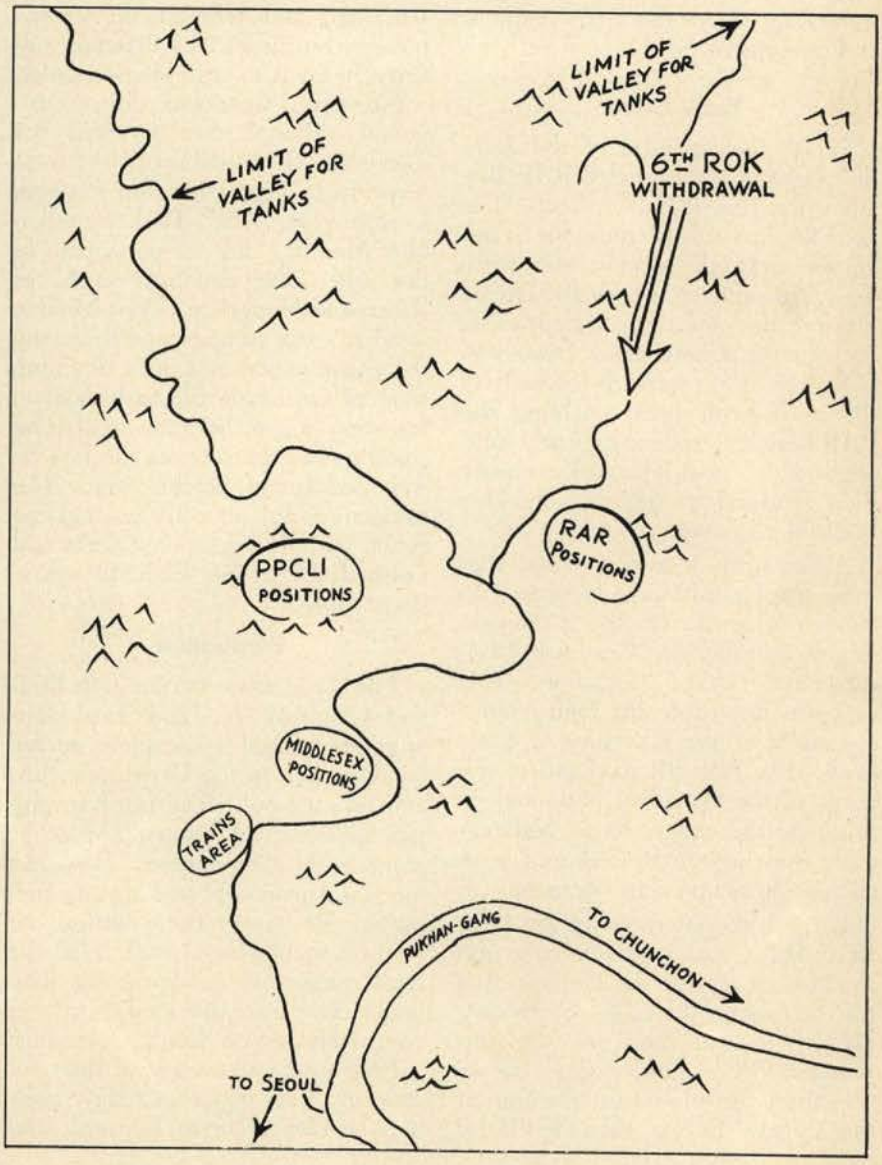
Lt. Koch led his company to the trains area. This withdrawal was conducted under automatic weapons and mortar fire from enemy positions which had been established on the high ground flanking the road leading south to Kapyong. At the company trains area the tanks were refueled and resupplied with ammunition.

Lt. Koch was informed that approximately fifty friendly vehicles belonging to the 2nd Chemical Mortar Battalion and Company B, 74th Engineer Battalion had been abandoned in an area immediately south of the company's previous positions. Organizing volunteer drivers and "shotgun" riders from Company B of the 74th, Lt. Koch had them mount the tanks and advanced north to the area where the vehicles were located. On arrival he deployed his company in a semicircle to cover the manning and evacuation of the abandoned vehicles. The tank company then escorted the vehicles back to friendly lines.

As the company was returning with the retrieved vehicles, Lt. Col. Furge-

KAPYONG . . .

A battered little village in Korea and some good tank terrain form the background for a story of American tankers in support of British, Canadian, Australian and Republic of Korea foot troops—an example of United Nations teamwork that represents the spirit behind the forces fighting for freedom.



son, Commanding Officer of the Australian Battalion, stopped Lt. Miller of the 1st Platoon and asked him to take ammunition up to cut-off units of the RAR. Col. Furgeson, riding as loader in Lt. Miller's tank, directed them up to the surrounded positions. There Lt. Miller picked up Australian wounded and placed them in and on the tanks. The tank crewmen got onto the rear decks of the tanks both to make room for the wounded inside the tanks and also to help hold the wounded on the outside while the tanks descended from the hills. The wounded were returned to safety. The platoon then returned to the cut-off RAR positions, delivered more ammunition, and brought out more wounded. Sixteen wounded Australians were evacuated during this action. Two tank crewmen were wounded during this phase of the action by the heavy fire placed on the tanks as they moved back and forth from Kapyong to the RAR positions at Cheryong-ni.

Tank Cover

Shortly before noon of the 24th, the plight of the encircled RAR Battalion was reported to Lt. Koch. The battalion had still been unable to disengage from the enemy and withdraw. In order to relieve the enemy pressure the tank company advanced back to the Cheryong-ni crossroads. Covering forces were dispatched up the north-south road, enabling the RAR Battalion to disengage and initiate its withdrawal. The tank company then returned to its assembly area north of Kapyong.

About noon it was apparent that some relief would have to be sent to another element of the Commonwealth Brigade, the Canadian Princess Pats (PPCLI) Battalion. This unit was located on the high ground southwest of the Cheryong-ni crossroads. The NW-SE road ran to the north of the Canadian positions. At this time the enemy forces had partially overrun the PPCLI and were exerting heavy pressure on them.

Early in the afternoon of the 24th, Koch led a tank counterattack into the area in rear of the Chinese Red force attacking the PPCLI. Moving directly to the north of the surrounded PPCLI, under heavy enemy fire, the tanks placed intense fire on the enemy forces, then withdrew south. Again at daylight on the 25th the company commander led two more tank counterattacks into the same area, each time directing heavy machine gun and tank cannon fire on the enemy, causing him to divert his effort. These counterattacks, coupled with the gallant action of the PPCLI Battalion in placing continuous fire on the enemy and calling for artillery on their own positions, subsequently resulted in a lessening of enemy pressure and finally in an enemy withdrawal. The tank company returned to its assembly area north of Kapyong at about noon. The enemy made no further offensive efforts in the Cheryong-ni area that day.

During the Cheryong-ni-Kapyong action on 23-25 April 1951, Company A, 72nd Tank Battalion (– 3rd platoon) killed more than eight hundred Reds, recovered approximately fifty abandoned UN vehicles, covered the withdrawal of the surrounded RAR Battalion, and relieved the enemy pressure on the PPCLI Battalion sufficiently for it to withdraw on order.

No tanks were lost during this period although two received 3.5 rocket hits. Personnel casualties were surprisingly light. The 3rd Platoon, Company A, 72nd Tank Battalion (Lt. Monroe) did not participate in the action but remained in Corps Reserve at Hongchon. Poor Monroe was like a fish on a hot griddle during the entire period and did everything short of creating a riot to be sent to Kapyong to join the company; but he could not be spared from the task he was performing at the time. The company (-3rd platoon) entered the action with 16 operational tanks and finished the action with 14 operational tanks.

Evaluation

The stand made by the 27th BCB and Company A, 72nd Tank Battalion prevented a complete enemy breakthrough in the Corps zone. Enemy pressure exerted against Kapyong was greater than against any other point in the Corps sector. However, the stand made above Kapyong prevented the enemy from cutting the vital Chunchon-Seoul road. Had the Reds succeeded in doing so, they might have used this road for a successful advance on Seoul.

Prior to the movement of the tank company from its Corps reserve position at Hongchon to Kapyong, the company commander made an aerial reconnaissance of the entire sector of anticipated employment. One of the company officers and the IX Corps Armor Officer made a detailed tactical, terrain and trafficability reconnaissance of the area on April 16. These officers provided the company commander and the G-3 of IX Corps with marked maps showing assembly areas, objectives, firing positions, routes, and tank capacities of the valley areas. Prior to the enemy attack, the tank company commander had further reconnaissance conducted by his small unit leaders.

Poor Tank Hunting

During the close-in night fighting, it was mandatory that commanders' hatches be kept open in order for the tank commander to have better vision of enemy tank hunters. It was also evident that a tank commander with an open hatch is better able to locate enemy tank hunters during daylight. For this reason tank losses to enemy tank hunters were negligible.

Tanks were employed both in close support of the RAR battle position, utilizing tank gun and machine gun fire, and in counterattack roles. The forays behind the PPCLI positions were effective counterattacks that disrupted the enemy advance and relieved pressure on the friendly infantry forces. The size of the tank unit in the counterattack may be as small as a platoon, yet still launch an effective counterattack.

The initial action of the 4th Platoon was that of a combat outpost. Ordinarily, tanks on combat outpost are employed to support infantry, but in this engagement the tanks alone were a combat outpost.

Mutual confidence between tanks and infantry is essential in any combined arms action. The teamwork between the tank company and the RAR Battalion was outstanding. As the operations progressed, the RAR platoons looked for "their" tanks by the large red numbers on the turret. The individual infantrymen were not satisfied with just any tanks but wanted the crews with whom they had been operating.

A tank is not a weapon capable of continuous action but must have a protected area in which it can be maintained and serviced when refueling and resupply of ammunition are necessary. The resolute defense by

the RAR, PPCLI, and Middlesex Battalions contributed materially to the effectiveness of the tank actions by providing a firm base from which tank attacks could sally and behind which they could withdraw to resupply.

The terrain of the Kapyong valley system was ideally suited for tank counterattacks. The prior reconnaissance, terrain estimates, and trafficability studies materially contributed to the success of each counterattack, since the platoon leaders were familiar with the routes, objectives, and possible enemy concentration areas. This prior information enabled the tanks to advance rapidly to known areas and to avoid adverse terrain and areas of poor trafficability.

The effectiveness of tanks against infantry in the open was demonstrated. The relative ineffectiveness of the rocket launcher in open terrain against a coordinated tank effort was readily apparent. Although two tanks were hit by rockets and casualties sustained, the rocket launchers available to the enemy were ineffective in protecting his personnel and preventing him from suffering staggering losses. This action clearly indicates that the rocket launcher is merely a supplemental antitank weapon and can not be regarded as the primary weapon of an antitank defensive system. One enemy tank would have been able to inflict greater losses on the friendly tanks than all of his rocket launcher and tank hunter teams were able to accomplish.

There is no substitute in battle for good leadership. Much of the success of this operation is directly attributable to the aggressive determination and outstanding leadership of the company commander and his platoon leaders.

Lessons Learned

1. Tanks should normally be included in the combat outpost when terrain permits. They may serve as the entire combat outpost; however, they must be screened by dismounted personnel at night.

2. Fewer tanks are lost to tank hunter teams when tank commanders fight with their hatches open than when "buttoned up." This does not apply to the driver.

3. A tank commander is more effective when he fights his crew than when he spends a large part of the action firing the turret-mounted cal. .50 machine gun. The turret gun is advantageous when tanks are giving overhead fire support to advancing infantry, not in primarily tank actions.

4. Tank unit leaders command by means of their radio net and movement of their tank. A dismounted tank platoon leader is relatively ineffective in attempting to run around the battlefield to direct his tanks.

5. Mutual confidence between tanks and infantry is essential to the success of all operations.

6. Tanks employed on the MLR are very effective against enemy personnel in the open.

7. Rocket launchers are relatively ineffective against properly supported tank attacks in open terrain. They are effective against tanks operating in close terrain, defiles, woods, and built-up areas. When operating in such areas, tanks should be adequately supported by infantry.

8. The Reds attack principally at night. In the early light of morning, those enemy forces in the rear areas, during this operation apparently were still in their assembly or reserve positions, and not deployed. By attacking as soon as there was sufficient light, the tanks obtained surprise.

Summary

It has already been pointed out in several articles covering fighting in Korea that terrain has been the limiting factor relative to tank employment. However, in those areas where tanks can be employed, even if only a platoon can deploy up a small valley, tanks have spelled "SUCCESS" and casualties have been low. Success can also be obtained on the defensive by selecting a favorable tank "killing ground" and chopping up the enemy when he attempts to cross that area. Kapyong was such a "killing ground." It halted the Red advance in that sector.

AWARD OF THE MEDAL OF HONOR

President Truman recently presented the Medal of Honor to four Army infantrymen. In a White House ceremony on July 5th, attended by top dignitaries of the Defense Department, the medals were awarded for conspicuous gallantry in action to *(left to right)* Captain Raymond Harvey, Pasadena, Cal.; Captain Lewis L. Millett, Haverhill, Mass.; Master Sergeant Stanley T. Adams, Olathe, Kans.; and Sergeant Einar H. Ingman, Tomahawk, Wisc.

WE'VE COME A LONG WAY . . . . .

TO UNITED NATIONS FORCES

The military situation in Korea enters a new phase with the cease-fire negotiations which are going forward as this magazine is printing. ARMOR marks the milestone with its cover, which is dedicated to all United Nations participants in the bitter fight against aggression.

The blue and white of the Korean Service Ribbon, with its bronze battle stars representing five designated campaigns to date, is a symbol of courage, sacrifice, cooperation and accomplishment. It is something to be worn with pride.

Troops of fourteen nations have been fighting side by side in the U.N. forces. They have set a precedent in international cooperation, pointing the way toward the often discussed international police force to keep peace throughout the world.

The increase in the destructive power of the weapons of war, along with the perfection of the means and the shortening of the time for delivering them, have emphasized the need for preparedness in order to survive in the world today.

In other days, preparedness could be considered in the long range view, and the proper national enthusiasm for it was forthcoming after an overt act of war by an enemy. But that convenient lag no longer exists. Preparedness now demands peacetime sustenance, not wartime spurts.

Mobility in modern war requires substantial tools, which in turn require specialists in their employment and operation. The production of the tools and the training of the users are matters of time. A tank or a tank crewman, for example, cannot be produced on a moment's notice, any more than can an airplane or pilot.

The first requirement where mobility is concerned is nothing more than a recognition for its need. The rest follows. The fact that time is a key element is obvious: any subject involving research, design, development, appropriations, tooling, testing, procurement, production, doctrine, organization and training is bound to be time consuming.

Our mobility in the future, therefore, depends upon our establishment of the requirement for it and the appropriations to put it into effect. In other words, we must have a sustained and imaginative tank program, in peacetime as well as in periods of war.

Prior to Korea our tank program was long suffering. Our requirements for mobility were submerged under a lot of talk about new defensive weapons. The cost of one tank looked better to some in the form of a carload of bazookas.

A dribble of tanks was coming from an assembly line at the Detroit Arsenal, and the emphasis, by virtue of shortage of funds, was on modification of World War II models. The long range planning was on paper. There was no active program to produce new models and put them in the field with an organization to try them out.

In a left-handed way we can be thankful for those spearheading T-34 tanks that paced the aggressors into South Korea something more than a year ago. They caught us with our mobility down. They caused us to build it back up.

. . . . WE HAVE A LONG WAY TO GO

The armor story over the course of the first year in Korea begins with those T-34s and carries along to the first U. S. tanks to reach the battlefield, the M24 lights, shipped in from their occupation mission in Japan, where they were as easy on the road system as they proved to be against the Red tanks. Then the M4s, the M26s and the M46s began to arrive on the scene. Tank combat got under way.

Today the story of UN armor might be summed up in one phrase—*across the board!* Tanks are a part of the backbone of UN forces.

We have a core of battle-trained armor personnel spreading out through the training structure, imparting the first-hand knowledge that counts. Our seasoned army has developed the combined arms teamwork that makes an effective force. The strides in tank-infantry cooperation and know-how have been tremendous. The infantrymen who have fought with armor, or had bitter experience against the armor of the enemy, have a new sense of its value and its use.

That long suffering tank program is not feeling so much pain. Appropriations have been made. New models of tanks in all weight classes are in the works. Orders have been placed, industry is geared, plants are operating or building, production lines are rolling. The new T41 light tank began to roll off the assembly line in March, a full three months ahead of schedule.

When Korea broke, we had one understrength regular armored division. Today that division is up to strength and is arriving in Europe to become a part of the North Atlantic forces. Another armored division has been activated and is well into its training program. Smaller armor units have been brought along.

We should not overlook the fact that the opposition put in against us a second string, in a minor league game. It gave us the time to whip our team into shape. What we must do is groom our first string team for the major leagues.

An anniversary, a peace bid and negotiations provide us with a moment to review events and draw some conclusions. We've come a long way. But it's no time to stop. We have a long way to go.

IN OTHER YEARS

The first anniversary of the Korean war was also the 75th anniversary of the Battle of the Little Big Horn. General George Armstrong Custer and a portion of the 7th Cavalry Regiment, which he commanded, were wiped out by an overwhelming force of Sioux Indians on June 25, 1876.

The 7th Cavalry Regiment is a part of the United Nations forces in Korea today. A wounded veteran of the regiment was guest of honor at the anniversary ceremonies held on that earlier battlefield of the Garry Owens, near Hardin, Montana.

Organized along other lines today, the 7th was a mobile unit of General Terry's command in the Campaign of 1876. It had its difficulties against some of the top mobile forces of that day.

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.

One of our most potent ground organizations is the Armored Cavalry Regiment. A flexible, powerful unit with tremendous firepower, it is designed to take on missions which would be unprofitable for either an armored or an infantry division—missions such as pursuit and exploitation, flank protection, screening of gaps, security of overrun areas, and reconnaissance. The famous 3d Cavalry is now organized into that type of regiment. In the roundup presented here, ARMOR opens its pages to a group of top noncommissioned officers of the 3d Armored Cavalry Regiment, sits in on their discussion of some of the intimate phases of unit operation with suggestions for improvement.—THE EDITOR.

The writer of the following served with the 3d Armored Division during World War II. In the postwar period he has acquired five years of experience as a motor sergeant, the greater part of it with the U. S. Constabulary in Germany. He is now Motor Sergeant of the 1st Battalion, 3d Armored Cavalry Regiment.

An armored cavalry regiment has a great number of vehicles, of many types. Maintenance at company level is thus very important. Being on the using end with these vehicles, many maintenance problems turn up that indicate structural changes.

For example, in the M39 personnel carrier, one of the problems of maintenance results from the location of the carburetor too close to the floor of the engine compartment. During wet weather, water collects on the floor of the compartment, is sucked up by the carburetor, and results in faulty engine operation. Higher mounting or adequate drain holes would correct this. An expedient might be the removal of several compartment bolts for drain holes.

The ignition system on this vehicle is a source of trouble. If only *one* spark plug becomes deficient, it is necessary to remove the entire engine to replace it. And as spark plug testers are not authorized under current T/O&E it is difficult to locate faulty plugs. Redesign here would save time and expense, and in combat time is essential.

The M24 light tank has its maintenance difficulties. The fuel filter is too small in diameter for the amount of gas it must clean. After a few hours of operation, especially in the field with servicing by gas cans, the filter becomes clogged, shutting off carburetor supply. An expedient is to mount a fuel filter from a 2½-ton GMC truck, in the center of the engine compartment, running fuel lines through it. It will then be possible to operate for a full day without trouble.

Again the ignition system on the M24 causes maintenance difficulty. The distributor is mounted at the front of the engine, making it hard to check, remove or maintain. Mounting at the rear would solve this. There are other things such as corroding and rusting of the distributor; the constant burning up of ignition points; and a requirement that maintenance be performed on the distributor only after 50 operating hours. Fuel and ignition systems are the major factors in armored vehicle operation. Faulty operation becomes a definite combat hazard to men and vehicles.

Sfc Yakesch

The generator drive shaft bearings constantly become unserviceable. This is perhaps due to the use of factory-packed bearings which prevent lubrication on the company level. Another deficiency in this connection is the location of only two lubrication points on the shaft universals at the slip joints. Additional points to allow lubrication of the journal as a whole, would extend the serviceability of the unit and would save both time and money used in the frequent correction of this deficiency.

The power plant of the M24 light tank is too small for the job required. If one engine with more horsepower, perhaps 550 hp, were used, the maintenance would be cut in half over that now required to service both engines. Another advantage of a one-engine assembly would be the absence of the tedious job of synchronizing the transmissions of the present two engines so as to enable them to shift evenly and together.

Lastly, something on the M4 medium tank and its modification as found in the armored cavalry regiment. This armored vehicle, while comparatively easy to maintain, does not appear to have sufficient horsepower during combat operations. Its power plant develops only 400 hp at 2,400 rpm which is not adequate in rough terrain. As modified in the M4A3, the power has been increased to 500 hp at 2,600 rpm which is a great improvement over the earlier model; nevertheless, if increased still further to, say 850 hp, then the vehicle would have adequate power to move in all types of terrain. However, a few maintenance needs may be

found on this model, particularly regarding the cooling system and the breaking of fan belts. The former must be checked constantly to see that the radiator core is kept free from dirt and other foreign matter and the radiator throat gasket must be always in serviceable condition, to cut down on evaporation and loss of cooling liquid.

To extend the life of the fan belt, a little water pump grease applied to the belt will allow the belt to slip when shifting from a higher to a lower gear thereby preventing the belt from snapping. The correct belt adjustment will also extend the serviceability of this equipment.

If the above deficiencies are corrected in later model vehicles, the efficiency of both maintenance and vehicle operation will be increased vastly. Information reaching the field indicates this is being done.

SFC FRANK YAKESCH

The writer of the following has been in Communications work during most of his service. He received his first specialized training at the Enlisted Communications School at Fort Benning, later attending the Communications Chiefs course at Fort Riley. He served 29 months overseas during World War II with the 29th Infantry Regiment and the 42d Infantry Division and wears the Combat Infantry Badge for participation in the Northern France and Ardennes campaigns. He is now Communications Chief of the 3d Armored Cavalry Regiment.

Air-ground support and communications are essential to an armored cavalry regiment in carrying out its mission. I appreciated a recent opportunity to see this aspect of the communications picture.

In a period of training at A. P. Hill Reservation in Virginia, our regiment was joined by a tactical air unit from Langley Air Force Base. A program was worked out through which actual air strikes were joined with our unit training program.

Our units submitted air requests through the Regimental S-3 Air, where they were ruled upon and, if approved, were plotted on the operations map. Pilots at Langley were briefed each evening for the missions of the following day.

We set up an AN/ARC-3 in our Command Post to contact the planes and verify their orbiting points. Upon reaching these points, a Tactical Air Control Party, assigned to the unit requesting the mission, took over, directing the planes to the target with its AN/ARC-3 set, mounted in a ¼-ton truck.

On several occasions we had two such units in the field, with their TACP, requesting missions. Planes completing a mission were returned to orbiting points to receive assignment to another target. Missions were set up requesting ground alerts, and a time check was run to see how quickly air could hit the target. From receipt of mission, through Air S-3, to J.O.C., briefing of pilots, and a 150-mile flight to the target, one mission was run in 47 minutes.

On one battalion problem the TACP received an air strike call from one of the companies. The TACP was unable to reach its control location in time, so the company commander, using his SC508, relayed through another 508 to the TACP, who in turn directed the planes to the target. This is one of the communication difficulties often encountered. New type radios and procedures are eliminating problems.

All officers and NCOs should be as familiar as possible with air support and air-ground communications. If it is understood, and is used, it works!

M SGT NATHANIEL GAGE CHASE, JR.

M Sgt Chase

The writer of the following entered the service in 1941. He served 17 months overseas in the ETO during World War II. Returning to the States he re-enlisted and was assigned to the 785th Tank Battalion at Fort Knox. In 1948 he joined the 3d Armored Cavalry Regiment, and is now Sergeant Major of the 3d Battalion.

A reconnaissance battalion organic to an armored cavalry regiment is strictly a tactical unit. Its mission is to provide security, reconnaissance and light combat for the unit to which assigned. Normally this can be accomplished without reinforcements. Needless to say, it is organized with the necessary equipment, weapons and vehicles to enable it to accomplish its missions.

In spite of the fact that the battalion is tactical and not administrative, there is still a certain amount of administration that is necessary and essential in accomplishing the mission of training, descipline and preparing personnel for combat. This is accomplished by the various units of assignment, through supervision and coordination of the headquarters staff, officer and enlisted, seeking at all times effectively to produce with the least amount of personnel, and effort, the maximum toward attainment of the mission.

Not having been in combat with the battalion, I'm unable to write on such operations. As for our present status, which is training for combat effectiveness, our sole purpose is to become efficient in our specialties for combat duty when and where necessary. Too much emphasis can not be

M Sgt Moore

placed upon the training of the battalion.

Every soldier must be training toward the peak of combat readiness as a specialist in his particular field, preparing himself for greater responsibilities.

In the training program a great amount of responsibility falls upon the noncommissioned officer. There is an old adage that the noncommissioned officer corps is the backbone of the army. The difference between a good and a fair organization lies in its leaders. Noncommissioned officers must be respected leaders. As in the case of all leaders, military or civilian, there must be certain traits or qualities that are essential if he's to accept the responsibility and authority necessary to perform his duty. Loyalty, dependability, versatility, intelligence, initiative and enthusiasm are but a few. Through example and counsel the NCO must set a high standard of soldierly conduct and military discipline; the type of discipline required of all individuals is developed through training and education to the end that order, steadfastness, resolution, and effective combat readiness are insured. It has been proven that a well trained soldier with proper leadership is a contented soldier who presents few disciplinary problems.

The battalion requires alert, active soldiers in carrying out its mission. It is an organization to catch the imagination.

M. Sgt Earl R. Moore.

The writer of the following has had considerable experience in the field of communications even before coming into the service. Prior to his enlistment last year he worked for Southwestern Bell Telephone Company of Missouri as a "trouble shooter," and as a sideline he operated his own amateur radio station at his home in St. Louis. He is now assigned with the 3d Armored Cavalry Regiment's 1st Battalion as Chief Intermediate Speed Radio Operator.

As a tactical unit capable of operating in the role of a separate fighting force, when the occasion so demands, it is necessary that the armored reconnaissance battalion have a well organized communications network. Being extremely mobile, radio plays an important role in the successful performance of an assigned mission, but without an adequate radio network, deployment of forces on both the battalion and company level would be haphazard if not impossible. Tactical air and combined arms teamwork further complicate the job, making mandatory the most dependable communications possible so that they may be efficiently utilized when employed with tactical ground forces. Thus as a central link in an important chain, it is of prime importance that the communications network at battalion level operate in the most efficient and effective manner possible.

Of no little importance in this regard is the personnel used. In many lines of work unqualified personnel may, with a little on-the-job training, become qualified to the extent that they may be efficiently utilized.

This, however, is not the case in the communications field. It is true that all personnel concerned with radio operation must be given company level instructions regarding the operation, care, and handling of equipment; but the more specialized jobs of communications chief, radio repairman, radio-telegraph operator, etc., require not only extensive training but also experience. If each man in the communications section is thoroughly familiar with the equipment and with the job expected of him, then the smooth and efficient operation of the unit when in action can be assured. But this does not mean that the repairman and only the repairman may be held responsible for the proper functioning of communications equipment. Preventive maintenance by the operators themselves, with constant NCO and officer supervision, will prevent many unnecessary breakdowns, and will save communications personnel valuable time.

Sgt Zohner

In this regard, time is a handicap to the communications section of an armored reconnaissance battalion due to the shortage of trained repair personnel at battalion level, and due to the excessive amount of time required to have equipment returned from signal repair. To bring about a higher standard of communications and to prevent radio equipment from being inoperative for long periods of time, an enlarged radio repair section for each battalion should be provided. As a mobile unit, authorized to perform not only 1st and 2d echelon, but also to include 3d echelon radio maintenance and with an increased number of trained repairmen and equipment, the communications section could readily improve serviceability of radios in the field, and rapidly put back into operation equipment now useless for long periods of time.

Teamwork, so important to the success of any job, is of special importance in communications. Not only must all members of the communications section work as a team in their own specialized job, but the job of cooperation should be a continuous one from higher headquarters down to individual tank crews. As cogs in a wheel, each section concerned must pull its load. Whether working together with the motor sergeant for the installation of equipment in his vehicles, or whether with the supply sergeant when supplies are needed, only with cooperation and teamwork can the job be accomplished.

In the battalion communications system there must be adequately trained personnel who like, or who can easily become adjusted to, specialized work of this nature. Not to be overlooked are proper maintenance, care, and handling of equipment—particularly first echelon, so as to prevent breakdowns and to facilitate the job of the repairman. And lastly, close cooperation between all sections will aid in the development of a communications system which will afford the maximum possible efficiency and success to the unit in the field.

Sgt Robert R. Zohner

The writer of the following served in Europe during World War II with the 79th and 29th Infantry Divisions, in the Normandy, Northern France, Central Europe, Ardennes and Rhineland campaigns. He has been trained as a reconnaissance leader and radar operator. A member of the 3d Armored Cavalry Regiment since 1946, for the past two years he has been Regimental Operations Sergeant.

I believe that every combat arm noncommissioned officer should be allowed to spend some part of his Army career in the S-3 section to observe its operation. At the end of this period, I'm sure that he would have a different concept of the workings of a regiment.

The S-3 in an armored cavalry regiment must have a thorough knowledge of Armor tactics, organization and administrative procedure within the Regiment; of the missions of the regiment, its capabilities, and the limitations of all of its units and their weapons.

It is in the S-3 section, whether in garrison, on maneuvers or in actual combat, that all plans and operations are conceived and actually put into effect. The S-3 has the duty and responsibility to plan, coordinate, and supervise the tactical organization, training, and combat operations of the unit. In addition to this, it must work in close harmony with S-1 on allocations of personnel to units, to facilitate the accomplishment of assigned missions, or as pertains to movements and selection of personnel for Service schools.

While in garrison everyone "turns to" in the preparation of training directives and training programs to insure that the regiment turns out a soldier competent with his weapons, mentally conditioned to take his place alongside other "Brave Riflemen," and fully qualified to achieve the ultimate goal—"Success in Battle." However, this is only a minor portion of the work load and time must be devoted to operating schools, preparing training records and reports, conducting training inspections and supervising training tests. The seemingly never-ending stream of commitments come pouring in, and we find ourselves preparing to train civilian components in addition to our own troops. About the time the nation has a holiday, everyone takes the day off—everyone, that is, but the 3d Cavalry—and the S-3 section finds itself supervising the preparation of vehicles and men and grinding out March Orders to move the troopers to such distant places as Cleveland, Chicago and numerous other places to "strut their stuff" before the civilian populace.

Maneuver time comes (as it does every year) and S-3 finds once again that it is right in the thick of things preparing operation orders and overlays. In the field, it's "business as usual," as it makes a continuous study of the tactical situation as affected by enemy locations, casualties, status of supply and equipment, and, in conjunction with S-2, terrain and weather analysis. All data is carefully gathered and recorded on the situation map, and the war map, for the study of the Regimental Commander to aid him in the issuance of subsequent orders to organic and attached unit commanders. When the situation changes, unit commanders are called in to be briefed and at this time the S-3 has to be prepared to acquaint everyone in the briefest time possible with the overall picture, and to transmit orders orally to be followed by an overlay-type order. All this must be dutifully recorded in the unit journal for future planning and operations. Others may take a "break," but in S-3, it's strictly a 24-hour day, with everyone double-timing in order to accomplish the duties arising in that period.

Also within the scope of the S-3 duties are included the supervision of the I & E Section, the coordination with the communications officer on plans for communications within the regiment and attached units, and the additional job of directing a training aids section. To really get the "big-picture" contact "Sugar-Thu-ree," or better still, come around and see us —we're operating any time!

M Sgt Stanley R. Marlette

M Sgt Marlette

The writer of the following enlisted in the Army in 1930. During his career he has had ample experience as a platoon sergeant and first sergeant, and he has nearly seven years' experience as a sergeant major at battalion and regimental levels. Now Regimental Sergeant Major of the 3d Armored Cavalry Regiment, his service with that unit dates back to World War II in Europe.

Military administration is the management and operation of all military matters not included in tactics and strategy. Administration includes supply, evacuation, sanitation, quartering, personnel management, maintenance, transportation, martial law, military government, censorship, etc.

Here, I will attempt to cover only the broader aspects of administration, as they concern the S-1 Section in an armored cavalry regiment.

There are two levels of administration in the regiment—company and regimental. (The three battalions are not administrative—they are strictly a tactical unit organized to facilitate discipline, training, and combat operations as an organic unit of the regiment.)

The S-1 Section is charged with

M Sgt Messer

personnel management as its primary objective, which includes personnel records and reports, personnel accounting, army publications, replacements, military justice, burials, personal effects, morale, mail service, leaves of absence, promotions, recreation, awards, and decorations.

Besides this, S-1 publishes and promulgates to the command all orders, directives, and informative matters with the exception of operation and combat orders.

An office of record of all matters that originate within the command, S-1 maintains and keeps posted an up-to-date file of all AR's, SR's, as well as Department of the Army Circulars, Bulletins, General Orders, Training Circulars, and all directives issued from a higher headquarters.

Here, briefly, is a breakdown of the personnel we have to accomplish this job, per the T/O&E:

1 Major—Adjutant
1 M Sgt—Sgt Major
1 Cpl —Stenographer
1 Cpl —Clerk, Hq
1 Pfc —Clerk, Hq

However, from our experience, we find the day much too short to do this job with the present T/O authorization. Listed below is what we actually have in addition to the T/O&E:

1 1st Lt—Asst Adjutant
1 Sgt —Courts & Boards
1 Sgt —Adm Asst to the Sgt Major
1 —Clerk-Typist
1 —Mimeograph Operator

Even with this addition, we find that, in garrison, we are just barely able to keep up with our "paper work." We also believe this is the minimum number that can do the job efficiently. In addition to this personnel, the Message Center Section from the Communication Platoon is under S-1 control jointly with the Regimental Communications Officer (the latter is responsible for its training). The Personnel Section, consisting of one officer, one warrant officer, and 26 EM, is also under the direct control of the S-1 Section.

As this is written the regiment is preparing to move to North Carolina to take part in the Southern Pine exercise. Although a certain amount of garrison administration will continue, this will also be a good opportunity for practice in field operations.

M Sgt Eugene Messer.

The writer of the following has a long record of service overseas. He has forty-seven months to his credit, most of which time was devoted to the 63d Infantry Division and the U. S. Constabulary in Europe, and wears the Bronze Star Medal and the Combat Infantry Badge. As preparatory training for his present assignment as a battalion intelligence sergeant with the 3d Armored Cavalry Regiment, he attended the Enlisted Intelligence School at Fort Riley, Kansas.

The gathering of information from which conclusive military intelligence can be produced is the primary mission of the S-2 section of the armored cavalry regiment in time of war.

The staff components responsible for the sifting and indexing of the information most vital to regimental and corps commanders are the battalion and regimental S-2 sections.

When an armored cavalry regiment is committed to action in the battle area it may be utilized in several roles. Indications are that in one role, employed as a body, the regiment might well function as a "poor man's combat command." When committed piecemeal, with each battalion operating separately under three different divisions, the regiment then assumes still another role. Such decentralization would, in all probability, lead to an operation requiring the regiment to occupy a huge expanse of frontage with many miles separating battalions. Truly, the intelligence effort under the circumstances would be a vast enterprise.

The regimental S-2 section consists of one major and one master sergeant, no more, no less. Similarly, the three battalion S-2 sections consist of one captain and one master sergeant. That gives the regiment a total of only four officers and four EM, an aggregate of eight highly trained soldiers to perform the task of answering the essential elements of information.

Sfc Schwartz

In many units it is SOP to allow S-2 sections to share an operations clerk with the S-3 section. The S-3 section, however, is always a veritable hive of paper activity requiring the maximum of each and every clerk under its jurisdiction.

Taking for granted that S-2 will seldom have the services of this clerk, let us examine the duties of the two individuals who are responsible for the efficiency of the intelligence section.

The officer is constantly at the beck and call of the commander, and the higher echelon. He must be available to prepare and present the enemy situation to the commander at any moment. He must advise, suggest, and generally guide the entire planning effort of the unit, based on his knowledge of the enemy strength, disposition, movement and capabilities.

The sergeant who is the armored intelligence chief, has the gigantic task of keeping the enemy situation map, preparing intelligence summaries and periodic reports, sending many messages in writing by voice-radio, and briefing patrol personnel. In addition, he handles prisoners for his section chief, conducts a prisoner separation and search center, and coordinates the efforts of attached CIC personnel. In the absence of the Order of Battle, Interrogation of PW's, and Aerial Photo Interpretation Detachments, he must also keep an OB record and map, arrange for a tactical examination of prisoners utilizing organic linguists, and conduct the regimental or battalion A.P.I. Center.

A major need in the armored cavalry regiment is one additional clerk in each of the four intelligence sections; the MOS should be 2736 as opposed to the master sergeant's 1736, Armored Reconnaissance Intelligence Chief. This individual should be trained at an *Armored* Intelligence School. This addition of only four clerks will considerably aid the armored cavalry regiment in accomplishing its intelligence mission.

Sfc William D. Schwartz.

Austerlitz and Jena

by DR. ROGER SHAW

PRELUDE

"Napoleon: The First and Last, by the Wrath of Heaven Emperor of the Jacobins, Protector of the Confederation of Rogues, Mediator of the Hellish League, Grand Cross of the Legion of Horror, Commander in Chief of the Legions left at Moscow, Smolensk, Leipzig, etc. Head Runner of Runaways, Mock High Priest of the Sanhedrim, Mock Prophet of Mussulmen, Mock Pillar of the Christian Faith, Inventor of the Syrian Method of disposing of his own Sick by Sleeping Draughts, or of captured Enemies by the Bayonet; First Grave-Digger for burying alive; Chief Gaoler of the Holy Father and of the King of Spain, Destroyer of Crowns, and Manufacturer of Counts, Dukes, Princes, and Kings; Chief Douanier of the Continental System, Head Butcher of the Parisian and Toulonese Massacres, Murderer of Hofer, Palm, Wright, nay, of his own Prince, the noble and virtuous Duke of Enghien, and of a thousand others; Kidnapper of Ambassadors, High Admiral of the Invasion Praams, Cup-Bearer of the Jaffa Poison, Arch-Chancellor of Waste-Paper Treaties, Arch-Treasurer of the Plunder of the World, the sanguinary Coxcomb, Assassin, and Incendiary . . ."—contemporary (1814) German satire.

THE French revolution produced not only new ways and conceptions in economics and politics. It produced, as well, new military forms.

The old regular army of the Bourbon Kings had been similar to those of England, Prussia, Austria, and the rest. It belonged to the monarch, and *not* to the people. It was made up of long-service volunteers, not of conscripts serving for short periods. And it drilled rigidly in long thin lines like those of Frederick the Great, fighting formally as if on parade. It contained contingents of Swiss, Germans, and Irish, and was "royal" instead of national. Its officers were inefficient sprigs of the old nobility who regarded the royal army as their special preserve. It had enjoyed great prestige under Louis XIV, and such generals as Turenne, Vauban, Saxe, or Montcalm. By and large, it was better than the English army, but not as good as the Prussian. And the revolution made it quite out of date.

A large part of the nobility and officer caste emigrated with the revolution, and fought and plotted against the republic. New, plebeian officers had to be created, and the tradition of the marshal's baton in the private's knapsack originated. This was to bear full fruit in the rise of Bonaparte and his high generals, who were anything but aristocratic, and prided themselves on their humble beginnings. A few of the old monarchist officers served the republic "one and indivisible," but they were very few. Such marked men often were supervised by spies. Old Rochambeau, victor at Yorktown, at first fought for the revolution. Later on, he was nearly guillotined.

The French revolutionary army represented the nation, and not the King. In fact, it *was* the nation and so considered itself. It prided itself upon its democracy. Socially, officers and men were equals, and flogging and torture of the rank and file, as they existed in the other armies of the period including the American, did not exist. The animating spirit of the French revolutionaries was fanatical patriotism rather than strict discipline, and they were exceedingly numerous, whereas the various regular royal armies opposing them (as has been seen) were comparatively few in numbers. In short, the new French army was everything that the Prussian and Austrian regulars were not, and vice versa.

The great military change came the year after Valmy. The French republic found itself at war with a large portion of Europe, and determined men seized control of the new national helm. The red terror was launched at home to put down dissension. Louis XVI, and later Marie Antoinette, were executed. Liberals as well as reactionaries were feeling the keen edge of the great dropping knife. The net result was the famous military law of 1793: that of conscription. It was to revolutionize warfare, and to change it from an orderly eight-

Dr. Roger Shaw, journalist, editor, author, lecturer and educator, is Professor of International Relations at Trinity College, Hartford, Connecticut, and Governor of the Mayflower Society for that state. Author of a number of books in the fields of political science and history, he has also contributed widely to European and American magazines. For additional background on Dr. Shaw, see page 64.

eenth-century duel to a twentieth-century mass massacre. In the first World War, some 36 million men were reported as killed, wounded, or captured. At Malplaquet, in 1709, England was horrified at the loss of 600 killed.

The author of conscription in revolutionary France was Lazare Carnot, who had Marguerite for a middle-name. He was an expert mathematician and engineer, and a convinced republican. His distinguished clan were to become the Adams family of France, honest, versatile, and intelligent.

In 1793, Carnot was 40 years old. By his administration of the war, he raised nearly a million conscripts, put fourteen armies into the field, procured adequate supplies for them by hook or crook, and earned the title of Organizer of Victory. And between 1793 and 1800 France lost 700,000 men—roughly 100,000 per year. Bonaparte said afterward that he could afford to lose 30,000 men per month. Such numbers fairly swamped the tiny professional "teams" of the monarchs, as did the novel tactics employed by the conscripts. These tactics drove the orthodox royal generals of other countries almost crazy.

The French republicans used a "perpendicular" attack, instead of the long thin lines of Frederick the Great and his school. The French were much too ill-trained to maneuver in thin-line rigid formation, so they would charge pell-mell in column, without deploying. Their large numbers made them indifferent to loss of life, and their mass momentum would break the thin lines of the highly drilled professionals facing against them. Clouds of light skirmishers preceded the French columns, their function being to probe the enemy's thin lines. Where the skirmishers found weak spots, the columns drove home by sheer weight of numbers.

The skirmishers themselves were a holdover from the Americas. French officers had studied Indian warfare and the methods of the Yankee and Canadian pioneers. They brought such irregular ways back to Europe with them, and Carnot and Bonaparte found them most useful for shielding the somewhat uncertain masses of the conscript columns. Even the rigidly "thin-line" English began to adopt some skirmishers, a number of them former Tories evicted from New York. (The Royal Americans are still in the British army.)

The French had excellent artillery. The royal regulars had scattered their guns aimlessly among the infantry, but the republicans concentrated their cannon in big groups. These were artillery brigades directly under the commanding general's control, who could direct their massed fire at any given point. The field guns were brought up to within 400 yards of the enemy line, where they blasted the long, thin opposing formations out of musket range. Sometimes the skirmishers, well in advance, would guide this improved artillery fire. The guns would then blow a passage for the heavy columns of attack. They used grapeshot and canister for this gesture.

All this was new to the Austrians, who were groomed on the Frederician or Prussian model, and the result was an endless series of defeats in Italy and Germany. Austria lost Belgium and Italian Lombardy to the French radicals, but received the defunct republic of Venice as a consolation. She was defeated at Marengo and Hohenlinden by Bonaparte and Moreau. In 1801 came four years of peace. Then, alas for Austria and the Empire, came Austerlitz.

That same year Nelson had overwhelmed the French navy at Trafalgar with twenty-seven ships to thirty-three. He lost no vessels, though he lost his one-eyed, one-armed life. An encouraged Austria was blundering about in the war. By forced marches Bonaparte rushed east, captured half of an Austrian army at Ulm in Bavaria, and took Vienna, sacred city of the Hapsburgs.

(At Ulm Bonaparte acted like a Trojan Horse. He surrounded the place, living off the countryside in the rapacious French revolutionary manner. Then he agreed to a three-week armistice. During the armistice individual Frenchmen would wander into Ulm "peacefully." Once in, these

Napoleon and his staff on the field during the battle of Austerlitz. From an old French print

young visitors showed surprisingly bad manners and began to riot with the good-natured Austrian garrison. Bonaparte then pushed in more men to "restore" order and "protect" the inhabitants of the town. These men of peace overpowered the Austrian guards at the city gates and so compelled General Mack to surrender unconditionally. It was the strangest victory of Bonaparte's career, and showed the usual state of Austrian and Holy Roman inefficiency. The "rude" French conscripts captured 23,000 Austrian professionals. When poor Mack went home, he was jailed for two years. Bonaparte might well have bailed him out.)

A Russian army was joined with the Austrians ninety miles northeast of Vienna, with the Autocrat of All the Russias and the Holy Roman Emperor both attendant in person. Bonaparte had 70,000 men and the Allies had 84,000. The Allies were anxious to cut the French line of retreat back to Vienna, and acted accordingly. Here again the Austrians blundered, for the real French line of retreat was to Pilsen, the Bohemian beer center, and thence to the Danube. The result of all this was the battle of Austerlitz.

Davout's French III Corps arrived just in time for the battle, having covered the ninety miles in two days and two nights of marching. It was something of a record in those days before motorization and mechanization. The Russian allies of Emperor Franz attempted a flank march against the French right, within striking disance of the French center. "That army is my own," said Bonaparte in delight, and he acted accordingly. He advanced his center, wheeled to the right, catching the Russians off guard, and drove many of them over a frozen lake. Against the lake the French directed their artillery fire, broke great gaps in the ice, and drowned thousands of fugitives. Deprived of Russian support, the Austrians were beaten on the French left, with a loss of 133 guns. Bonaparte lost 6,000 men, and the Allied loss was nearly 30,000. The Sun of Austerlitz, shining down brilliantly on the Corsican Ogre, became proverbial.

Before daybreak the next morning the Emperor's Prince Liechtenstein hastened to Bonaparte to propose an armistice. The result was the fateful Treaty of Pressburg, then the capital of Hungary. The battle of Austerlitz had been fought on December 2, 1805, and the Pressburg peace was concluded on December 26, the day after a blue Christmas for the Hapsburgs. It was the end of a long cycle.

At Pressburg, Austria relinquished her loyal Tyrolian province to Bavaria, and surrendered Venice to the Napoleonic Kingdom of Italy. But these territorial losses, while irksome, were minor matters compared to what was to come. For the Holy Roman Empire, hoary with age, was dissolved, and there was erected in its place the Napoleonic Confederation of the Rhine, formed in 1806. Franz II, last of the Holy Roman Emperors, was left out in the cold, renounced his famous title, and was thenceforth known merely as the Emperor of Austria, with the troublesome Kingdom of Hungary in tow.

Under the new dispensation the Electors of Bavaria, Württemberg, and Saxony became Kings, which thrilled them beyond measure. At last they were following the Brandenburg example of 1701. Sixteen German princes were charter members of the Rhine Confederation, deserting the Holy Roman Empire and allying themselves with the French. Their capital was Frankfort, and their Prince-Primate was a man named Dalberg. They promised to furnish an army of 60,000 for the French wars, and Bonaparte became their Protector. Within two years the Confederation contained some 15 million Germans, with an army of 120,000 men. Most of these Confederation troops went to Russia with Bonaparte in 1812, and it was the Russian debacle that broke up the artificial creation. But Bonaparte at least had reduced the total number of German states from approximately 300 to 39.

Prince-Primate Karl Theodore Dalberg, head of the Confederation under Bonaparte, was of an ancient German family. He had been a Holy Roman functionary as archbishop of Mainz, which had the electoral vote. A patron of arts and letters, he was thoroughly enlightened and a friend of Goethe and Schiller, who approved of him. He got on well with the Corsican, adhered to the basic reforms of the French revolution, which were spreading to Germany, but retired into a studious private life after the Napoleonic crash of 1814. He died three years later. His Confederation of the Rhine was, in reality, a more efficient sort of Holy Roman Empire, without Austria and Prussia, and under the influence of France. Politically the Confederation was inclined to be liberal, rather than feudal.

Most of the time between Valmy and Austerlitz, Prussia had remained sullenly neutral, seeking to play off

The Tank

Conceived in the blazing heat of the steel mills,
Nurtured by the flaming liquid that flows
From the kettles of open hearths and furnaces;
Born to a hydraulic press's blows.
Shaped in infancy by tireless workers
Wielding rivet gun, hammer, and crane;
Through adolescence taught mechanized battle,
Mobility and firepower; through sun, wind, and rain,
Young manhood was spent in travel
By railroad, ship, and armored van,
Reached maturity on the field of conflict
Responding to orders given by man.
Middle years were spent in combat;
Old age comes and with it pain
Caused by projectiles tearing out vitals,
Conceived in fire . . . died in flame!
Returned as scrap metal to the old homeplace,
The wheel has turned just one full span,
And like the Phoenix from its ashes,
There arises another to fight again.

—Major Carroll McFalls, Jr.

Bonaparte and the Holy Roman Empire against one another in the ancient manner of the Great Elector. In 1805 the Hohenzollerns left the Hapsburgs to their fate—and to the cost of Prussia.

But in the Austro-French war of 1805, Prussian neutrality had been violated as Marshal Bernadotte rushed French troops across Hohenzollern territory en route for the siege of Ulm. Furthermore, the French victory of Austerlitz and the destruction of the Holy Roman Empire alarmed the Prussians, but alarmed them much too late. With Austria down and out, and the Russians far away, Prussia was forced to face the ire of Bonaparte without effective allies.

The Prussian war party was very active, and very overconfident. The tradition of Frederick the Great still was strong. Lovely Queen Louise, wife of Frederick William III, stirred up the fighting spirit of the country. "Arrayed in the plumed helmet and uniform of her regiment of dragoon guards, she daily displayed her beautiful figure on horseback at their head in the avenue Unter den Linden: her head was covered by a helmet of polished steel, above which waved a magnificent plume, her cuirass glittered with gold and silver, while a tunic of silver cloth completed her costume and fell to her feet, which were shod in red boots with gold spurs. This dress heightened the charms of the beautiful Queen and the enthusiasm was universal, but in the Prussian Guards and officers of that distinguished corps it rose to a pitch approaching to frenzy, while the theaters nightly resounded, amid thunders of applause, with patriotic war songs. Cooler heads saw little ground for confidence." But the fiery Junkers whetted their swords on the front steps of the French Ambassador in Berlin.

The Prussian army totalled 240,000 men, long-term professionals under blueblood officers. It was old-fashioned in every respect, adhering religiously to its success-formula of the Seven Years War. But Frederick the Great was missing, and the times were out of joint. Old Brunswick, who had been beaten at Valmy fourteen years before, still was in command. It was, in a sense, the last stand of the formal eighteenth-century army against the novel revolutionary one. It was Bonaparte versus the ghost of Frederick, although the resourceful Frederick would certainly have modernized his forces, had he been alive.

The showdown came in twin battles, at Jena and Auerstadt. The actions were contested in what is now Thuringia, in Central Germany, twelve miles apart. What actually happened was that Bonaparte, with his main army, engaged the Prussian rear guard at Jena while Marshal Davout (with only his III Corps of Austerlitz fame) fought the main Prussian army at Auerstadt. To Davout goes the credit for French victory.

He deployed more rapidly than the Prussians, although outnumbered more than two to one, and kept them busy until news of Bonaparte's triumph at Jena reached the ears of the Prussian commander. At this juncture the Prussians moved away, leaving Davout in possession of the field. So badly equipped were the Hohenzollern regulars that most of them lacked overcoats, while many were hungry, for they were not allowed to live off the country in the French revolutionary manner. Vast loads of baggage obstructed their retreat from the battlefields. Nor were the Prussian people greatly perturbed. After all, it was the King's army, not their own. They even turned "his" wounded regulars out of their houses to make room for the victorious French.

As for the old Duke of Brunswick, he died of injuries sustained at Auerstadt. Said Bonaparte to a Prussian emissary: "Well, sir, your women wished for war: behold the result. You ought to govern your families better." Berlin and the Prussian fortresses fell soon after, and the realm of the Hohenzollerns crashed like a house of cards. Bonaparte's only worry was the Hohenzollern family ghost, the White Lady, who was supposed to have harassed him by night with a grim, supernal persistency. He toyed with the relics of Frederick the Great at Potsdam.

Jena was the darkest day in the history of the Prussian army, and Prussians have never quite lived it down. At Prenzlau, Prince Hohenlohe surrendered the celebrated Prussian Guards in their antiquated high mitre-caps and eagles: 16,000 men, six regiments of cavalry, forty-five standards, sixty-four guns. It was, to the Junker mind, as if U. S. marines had capitulated en masse to the Nicaraguans.

Bonaparte had always disliked Prussia, and considered obliterating it from the map entirely. As it was, he lopped away half the Kingdom, giving Westphalia to the Confederation of the Rhine, while he turned the newly acquired Polish areas of Prussia into the "independent" Dukedom of Warsaw, a feeble effort to re-create Poland. The Prussian army was limited to 43,000 men, and Prussia became a third-rate power, if a power at all.

At this point of deepest humiliation, Prussia adopted the military system which was to be the secret of her future success. She followed the lead of revolutionary France and inaugurated conscription; but whereas the French draft was a wartime affair, the Prussian draft functioned also in time of peace. For Prussian patriots realized that Bonaparte could never be defeated by 43,000 professionals. Hence large batches of the Prussian youth were run through short periods of service, never more than 43,000 under arms at a time. In this way an extensive trained reserve was built up for future contingencies, without violating the harsh terms of the enforced Napoleonic peace. Prussia became so wedded to universal training that after the Napoleonic wars she alone retained the system. France was to drop it gladly under the pacific Bourbon restoration.

Thus the Prussian army, like the French, became a national instead of a royal affair. It turned less formal and more flexible, and after 1806 it went through the military metamorphosis that the French army had undergone in 1793. Patriotism increased by leaps and bounds, and although this novel sentiment was used against the French, it had been learned from the French by way of conscription. It was a French-type Prussian army under Bluecher that beat the French at Waterloo. The old-style Frederician professional army, with its rigid thin lines, died at Jena. In 1919 the Allies attempted to revive this type of army for Germany: 100,000 professionals to serve twelve years apiece, with twenty-year officers. But Hitler, in 1935, amid national acclaim, returned to conscription.

Gerhard Scharnhorst deserved much of the credit for Prussian reorganization. Born in Hanover, he

Napoleon observes the action at the battle of Jena. From an old French print

entered the Prussian service five years before Jena. After Jena he headed the Prussian War Department and fought the Junker conservatives tooth and nail. He formulated the system of conscription and the reserves, abolished flogging, forbade the enlistment of foreigners, and introduced promotion according to merit. Nationalism and military democracy were his watchwords. This founding father died of wounds received in the 1813 campaign against Bonaparte, just as his new machine was beginning to function effectively.

Scharnhorst's associate in this work was August William Gneisenau, who had served with the Hessians in the American revolution. Three years before the French revolution he entered the Prussian army as a lieutenant, and subsequently fought at Jena. He became chief of engineers, and after the Prussian collapse threw himself into the work of reorganization. Bonaparte especially disliked him because of his patriotic activities, and he took a prominent part in the war of 1813 which led to the Corsican's downfall. He led the pursuit after Waterloo, and was raised to field-marshal in 1825, surviving his partner, Scharnhorst, by eighteen years.

An important third of the Prussian reorganizers after Jena was Baron Heinrich Stein from Nassau. He was a statesman rather than a soldier, and above all a reformer. It was his function to effect in the civil field what Scharnhorst and Gneisenau were achieving in the military sphere. "Seeing that, from a military point of view, Prussia was powerless, Stein set about developing her internal resources by a series of reforms, the principal of which were the abolition of serfdom; subjection of the nobles to manorial imposts; promotion of the state service by merit alone; and the establishment of a modern municipal system." He was hated by the conservatives, but he was paving the way for German unity. He was driven from Prussia in 1808 and went to Russia, where he became a trusted adviser to the Czar. He returned to Germany in the 1813 campaign, and survived till 1831.

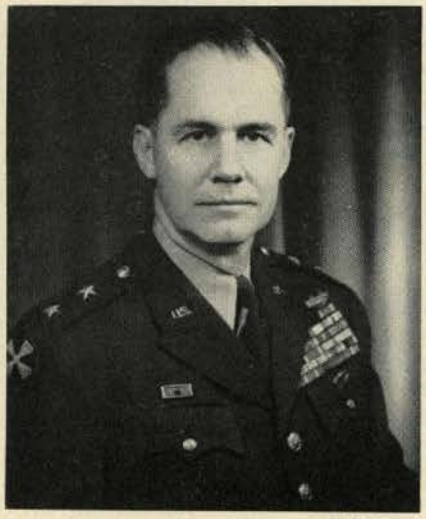
"When Stein met Madame de Stael (famed literary lady), these two choleric natures were so overwhelmed by their common cordial hatred of Napoleon that Arndt (the poet) saw them at tables and on divans, poking and ramming against each other in their excitement." Once Stein wrote a five-line letter to Gneisenau: "What are you doing in England, when Russians and French are maneuvering in Germany? I beg you ernestly, come! Farewell, and come!" Gneisenau came. So did Waterloo, and final victory for Prussia's Big Three. Unhappy Austria, recent keystone of the defunct Holy Roman Empire, had no men like them.

Instead, her Emperor Franz (after another defeat by Bonaparte in 1809) married off his daughter to the Corsican. It was the old Austrian custom of wedding instead of fighting or progressing. But Marie Louise, the great-niece of Marie Antoinette, could not do the work of a Stein or Scharnhorst. Austria joined Prussia, as well as the lesser German states from the Confederation of the Rhine, in the War of Liberation which followed Bonaparte's defeat in Russian snows. (At the decisive battle of Leipzig in 1813 the Saxon army, 35,000 strong, changed sides on the bloody third day.)

So much for the battles of Austerlitz and Jena. The first of them terminated the age-old Germanic setup, and pointed the way straight to Bismarck and Hitler. It limited the Hapsburgs to their hereditary possessions, and destroyed their unquestioned primacy among the royal houses of the world. No longer were the Franzes and Josephs and Maxes and Leopolds to be Holy and Roman.

The second battle ended the traditional military methods of Frederick the Great and the eighteenth century, and ushered in the modern Prussia, with a revamped army, civil service, and point of view. Prussia, in fighting the French revolution, had become thoroughly infected with it. Austria, via Marie Louise, had merely tried to marry it.

SOME NOTES . . . . . .



U.S. Army

Maj. Gen. Clovis E. Byers, Vice-President of the U. S. Armor Association, who departs his post as Deputy G-1 to take over command of X Corps in Korea, replacing Lt. Gen. Almond, who becomes Commandant, the War College.

Twenty thousand British Commonwealth soldiers are being banded together to form the First Commonwealth Division, United Nations Forces. The division is likely to include five infantry battalions from Britain, with one tank regiment and an artillery regiment. Major General George Cassels will command.

* * *

Camp Irwin, California, has been reactivated as a firing area for tank units and antiaircraft artillery, it was recently announced by the Army.

Initially some 1500 troops will be stationed there. An advance party of the 16th Armored Group at Camp Cooke recently visited the new camp and did some of the necessary preparatory work.

A number of the leading automotive manufacturers are producing equipment for ultimate use by the Armor Branch of the Army. The picture looks something like this: Chrysler Corporation will produce medium and heavy tanks at its Newark, Delaware plant, shown elsewhere on this page. It will make tank engines in another plant in New Orleans. General Motors will turn out armor through a number of its subsidiaries. Cadillac Division is already at work producing the new light tank at its Cleveland plant. Buick will turn out transmissions and Oldsmobile tank guns, while the Fisher Body subsidiary will produce heavy tanks. At Ford the Tank Division will build mediums in the Livonia, Michigan plant and engines and parts at Dearborn. Continental Motors continues to turn out light and heavy tank engines at Muskegon, Michigan.

* * *

It was recently reported that Britain, Canada and the United States have agreed to standardize something more than 400 army items. Foremost among these is the new T41 light tank. Some of the standardized equipment items include also fuels, lubricants and electric system voltages.

* * *

The 1st Armored Division at Fort Hood, Texas, has organized a Provisional Ranger Company which will be an integral part of the division. Including a complement of 6 officers and 144 men, it will be composed of volunteers meeting certain specifications, and the company will be used as an instructional base in the teaching of combat tactics and techniques to personnel of the entire division.

* * *

At the annual meeting of the U. S. Armor Association early in the year, one of the major topics of discussion

Chrysler Corporation

The new Chrysler tank plant now under construction at Newark, Delaware, where the world's most modern medium and heavy tanks will be produced for the Army and Armor.

. . . . . ON ARMOR

naturally was the record of operations by armor in the fighting in Korea. As a means of expressing the recognition by tankers around the world of the gallant actions of their comrades in Korea, a telegram of confidence and pride was dispatched by the Association to each of the Commanding Officers of Armor units, for transmittal to the entire command.

More recently, the Armor Association presented the Commanding Officer of each separate tank battalion in the Army with a set of the new Armor insignia. In acknowledging the presentation by letter to the President of the Association, several comments came to light which are of general interest:

". . . I firmly believe that the tanks have contributed immeasurably to our success over here [in Korea]. In the case of this battalion's attachment to an ROK unit, I am confident that it has made the difference between a fair and a good division."

LT. COL. DUFF GREEN, JR.
73rd Heavy Tank Battalion

". . . I believe that the design of the new insignia has the wholehearted support of every member of my command and that it will contribute to the traditional high morale of this unit."

LT. COL. ELBRIDGE L. BRUBAKER
72nd Tank Battalion

". . . ARMOR is read minutely by all members of this unit and a great deal of discussion takes place over the articles. We all look forward to each issue with high interest. Many points of training [in this unit] are based on principles stated so clearly throughout various issues."

LT. COL. JAMES A. ZIMMERMAN
628th Tank Battalion

Wide World

U. S. personnel inspect a new Russian made 57mm antitank gun recently captured in Korea, on the western front. It is said to be capable of penetrating 5½ inches of armor.

U.S. Army

Maj. Gen. John H. Collier who is returning from Germany for assignment in the Office of the Chief, Army Field Forces where he will assume the post of Inspector of Armor succeeding Brig. Gen. Riley Ennis, who has gone to FEC.

The Eisenhower Trophy was recently awarded to the 41st Reconnaissance Company, 41st Infantry Division, Washington (State) National Guard for outstanding performance. Members of the unit, with headquarters at Bremerton, were commended by Major General Fleming, Chief of the National Guard Bureau, for achievements during the year in "recruiting, maintenance of strength, attendance at armory drills, and many aspects required to attain the rating necessary to win the trophy."

* * *

A report released recently in Tokyo by the headquarters of the Far East Air Force, covering 330 consecutive days of combat operations in Korea, shows a total of 1,675 tanks destroyed or damaged by the Air Force.

FRANCE TURNS OUT NEW LINE OF ARMOR

Since the end of World War II we have spoken in terms of "the Big Three armor-producing nations" in our discussions of military strength around the world. Our consideration may now be revised to "Big Four" as France joins the United States, Great Britain and Russia in the important field of ground mobility with a complete new line of original armor. The new weapons include two new tanks, self-propelled artillery, an armored car and an armored personnel carrier. Significant of an imaginative doctrine and a full appreciation of mobility, this new equipment carries France a long step forward into the world military picture, and is of great importance to the North Atlantic Treaty forces.

Photos by S.C.A. and Wide World

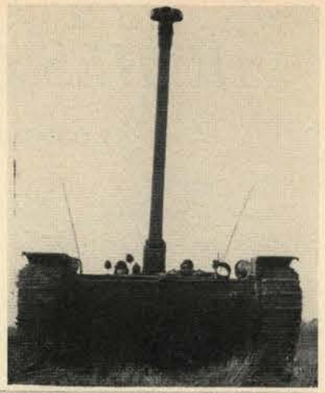
All weights in metric tons

New Heavy Tank

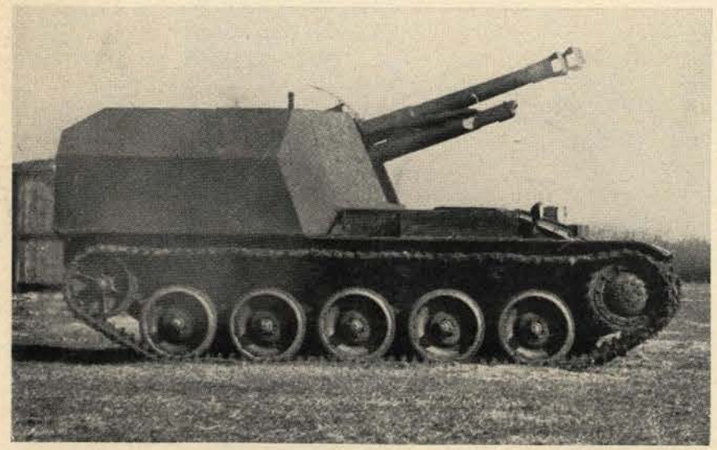
The new French heavy tank weighs 50 tons. It has a crew of four, and can mount a 100 or 122mm gun. Its 1,000 hp engine allows a maximum speed of 30 mph.

The new French armored reconnaissance car, made by the Panhard Motor Car Company, is versatile over all kinds of terrain. It weighs 12 tons and mounts a 75mm gun in a 360° turret. Crew is four and vehicle has a driver at each end, can be driven in either direction.

New Light Tank

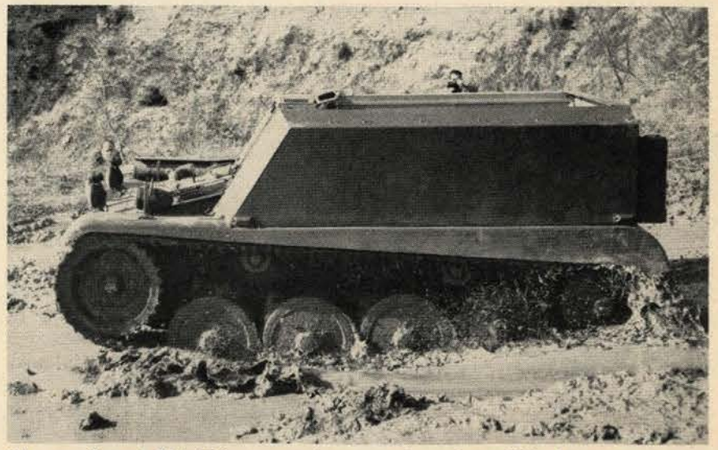


Variously described as a gun platform or tank destroyer, the new French light tank weighs 13 tons; crew 4; 75mm gun; 250 hp engine; height 6½'; speed, fast!



The new 105mm self-propelled howitzer. France has also developed a 155mm SP.

The Panhard's front and rear wheels are tired, while the two sets of center wheels are tractor type and retractable for road use. The car has a speed in excess of fifty mph.



The new French Hotchkiss armored personnel carrier weighs 4 tons, carries six.

ARMIES OF ARMOR

by COLONEL LOUIS B. ELY

The article presented here comprises a chapter in Colonel Ely's book, The Red Army Today, *and appears with the kind permission of the Military Service Publishing Company, Harrisburg, Pennsylvania, who have just released a second edition, including the latest material.*

AUTHOR'S NOTE. *Contacts with former Soviet officers who are now seeking a new life in the free Western world have been very stimulating. I regret that the reader could not be present to share these experiences. Many refugee officers had had combat service with tank units and talked freely and sometimes enthusiastically about armor in the Soviet Army. In keeping with the method of presentation used [in other chapters] a hypothetical spokesman, a composite of many armored officers, is introduced to state the facts which have been developed. We now present Colonel Aaron Orshinski.*

COLONEL ORSHINSKI:

YOU may be surprised that I left the Soviet Army, when you find how much I admire it. It was the fault of the Party, not the Army. I stood very near the top in the examination for a school I wished to attend, but I was passed over because I am Jewish. If the senior officers had their way, such matters would be governed by efficiency. I bear no grudge against the armored forces, but I know that there is no future for anyone of my name in the Red Army. But after fifteen years with Soviet armor I can tell you a great deal about it.

You may have noticed that in September 1950 Marshal Semyon I. Bogdanov, one of our tank experts, declared that Soviet tanks were the best in the world. This was not idle bragging or propaganda; the marshal has matched his armor against the Germans and if I know him right he has followed the reports of Soviet military observers in Korea on your American tanks. However, by our standards, the Korean conflict was a very, very small war. Let me tell you about an army that visualizes armor on a large scale basis.

The Soviet High Command was the first to work out the tactics for tank brigades, divisions and even corps. However, this was as far as it went until the mid-part of World War II. At the outbreak of the conflict our armor consisted of a little over seventy-five tank brigades and two tank divisions plus independent regiments. I can see now that we did not then have a true grasp of armored potentialities. Our armor was simply organized with a view toward achieving tactical objectives. Germany, on the other hand, had organized its armor into army size units and sought to gain strategical objectives by the technique of blitzkrieg.

Early in the war we made the big mistake of committing our tanks in a piecemeal fashion. Soviet armored units were spread more or less evenly along the front, and the High Command had no real armored reserves in the form of units. We sustained huge tank losses as a result, but we also built up tank units very rapidly. By the time the snows fell in 1941 we had created a number of new tank brigades. However, we still did not have the true formula, and our commanders were proving that they had much to learn about the organization and employment of large armored units. But the rehabilitation, and reorganization of armor continued in 1942 when we improved our brigade with a better balance of infantry and other arms. We then organized these brigades into tank corps, which consisted of three brigades of medium tanks (each of about 65 tanks), one rifle brigade, plus artillery and antiaircraft groups and necessary supporting services. In all, the corps had about 210 tanks, 96 pieces of artillery, 28 antiaircraft guns, and 24 antitank guns. Self-propelled weapons were added in increasing numbers as the war progressed, thus eliminating some of the less mobile artillery pieces. Throughout the first two years of combat there was a constant search for the correct proportion of infantry to be organically placed with the armored units. The solution was more or less reached in the design of two types of corps. The mechanized corps was made infantry-heavy and very mobile. The tank corps was designed to be armor-heavy. Today's mechanized division and tank division are very much the same as the wartime corps, and I feel that designating them as divisions is much more appropriate considering their tank strength in relation to what I know about yours.

Beginning with the Battle of Stalingrad, Soviet armor appeared on the battlefield in large masses. By 1943 the commanders on all levels were beginning to understand the effective use of large armored units, although one must admit that at Kursk we initially sacrificed armored mobility to concentrate on armored firepower. However, in the counteroffensive against Kharkov and Orel our tanks attacked admirably in close cooperation with the infantry and broke through enemy fortified positions. Once inside the enemy lines our armor became exploitation conscious and ranged too far away from its supporting infantry. Here was a weakness that the enemy often capitalized on later, and we had to pay a heavy price in tank losses for it. The Germans got in the habit of letting our tanks go deep, once they had penetrated; then they hit them hard at the very time the Soviet tanks were without the immediate support of infantry. We learned what was wrong, but due to our shortage of trucks with which to motorize additional infantry formations, we had to let the tanks pace more on the infantry. This gradually developed into a pronounced tendency on the part of Soviet armor to slow up once in deep, to wait for the

Sovfoto

riflemen to catch up. Today this is reflected in our doctrine. Neither the tank nor the mechanized division has as much organic infantry as your armored divisions.

You ask why do we have two types of armored divisions? Our unit organization is based on lengthy combat experience. There were successive enemy fortified lines which we had to break through, and they were exceedingly hard to crack. Thus, we developed the tank corps (now a division) to assist the infantry units to punch through. Such tank units were usually well spent when they had completed these missions, and in addition, the subsequent objectives to be taken often required an armored unit with more organic infantry. It was here that the mechanized corps was poured into the breach as the exploitation force. However, the tank and the mechanized divisions of today are designed to complement each other just as you form the much smaller combat commands; they are used in combination, and one cannot separate their roles too much. Since World War II Soviet strategists have found the mechanized division most to their liking.

In the great offensives of 1944-45 Soviet armor found better going, for the front was breaking and there were many places where the terrain was defensively not well organized by the enemy, and our armor could punch through. Here the great armored armies had independence of action. For example, in January 1945, Marshal Zhukov's fifteen armored corps slashed through enemy positions on the Vistula and drove westward 190 miles in twelve days.

During the 1930's when the Germans were doing all their boasting about what they were going to do, our Soviet designers were studying tank construction seriously. They produced the T-34, the best medium tank in existence in the world, even today. Those T-34s in Korea were mostly old used tanks, but they did very well tank versus tank. I will concede your aircraft was very damaging against those Soviet made vehicles, but firing eight rockets at one tank is a pretty expensive way of combating armor. Can you afford to do this against the Soviet Union's *thousands* of tanks?

At the time the T-34 was designed, it was far ahead of any tank possessed by anyone else; in fact, it was better than any tank anyone else built during the entire war, including the Panther V of the Germans or the American Sherman or Pershing. Your American Pattons are better than your Pershings, but—do you have very many of either?

The Soviet designers got speed, armor protection, mobility on the road or across country, and hitting power —all of these top qualities—by very simple means. It is true that some of the early ideas on chassis construction came from an American named Christie after the Americans had turned him down, but Christie had to sacrifice armor protection to get speed. We achieved fast travel by putting in a sufficiently powerful engine, at first an airplane engine and later a diesel of our own design. (The engine compartment can safely be kept warm in winter by placing a lantern or a little stove in it.) Both our medium and heavy tanks use diesel fuel, which is important on the battlefield because it keeps down the fire hazards. The smallness of the hull makes for light weight, so our T-34 is fairly fast even up the hills. Russion designers placed the armor on the front at angles which made penetration by high velocity projectiles more than twice as difficult as vertical armor. It is no wonder that this tank is tough. They made the tracks wide (which was more practicable on account of the narrow hull) so it would travel well in the Russian mud.

Finally, they mounted a high velocity three-inch field gun on the tank so that it far outgunned anything else in the world at that time. The best German tank in the early part of the war, you remember, was the Panther IV which had a short three-inch low velocity weapon on it. The Americans and British were using 37mm guns in those days, and most of the German tanks were no better. Because the T-34 was so good it remained our standard tank throughout the war, and still is our standard today. The only change we made during the war was to mount an 85mm antiaircraft gun on it, in place of the smaller field gun. That became necessary when the Germans increased the armor protection of their tanks.

The only drawback at the time the Nazis crossed the Soviet border in 1941 was that the tank was not quite ready. But we pushed the factories, and pushed them hard. In a little over three months, the new tanks began to arrive at the front, driven directly from the factories.

But in spite of the appearance of the T-34 and in spite of the great loss of German armor in the disaster at Moscow, the Nazis undoubtedly felt that they could master the tank problem. Within the limits of their vision, this feeling was somewhat justified. For the Germans had up their sleeves a developed model of a tank far better than the Panzer IV, and now that the war in the east was grimly serious, they worked as never before. As you know, the German is a marvel at organizing production. Within a year he was turning out his new tank, the Panzer V, in great quantity. He may have realized that this vehicle was not quite as good as the Soviet T-34, but he probably believed that quantity

would compensate for any slight differences in quality. He had another lesson to learn in the harsh school of war. For we, also, were turning out tanks in quantity. It would be well for all nations to realize that our tank production equalled that of the Americans, and since 1945 far exceeds that of the United States.

After the crippling German defeat at Stalingrad, the German generals could see little hope of defeating us. But with past glories in his mind, Hitler in the spring of 1943 again required them to attack. Doubtless he used his intuition, and probably his courage was bolstered by the reports of masses of Panzer V's his statistical officers were able to place before his eyes. Then, too, the German designers had by that time gone beyond the idea of a medium tank, and had developed a heavy one. The Tiger was rolling off the assembly lines.

Planned Breakthrough

With their numerous Panthers and Tigers, the Germans planned a double breakthrough of a large sector, to be followed by the surrounding and liquidation of our forces between the two gaps. Very logically, a large salient was chosen for the offensive, a particularly vulnerable-looking portion of our line which looped westward for a distance of some seventy miles on a two-hundred mile front. At the center of the base of this bulge was the city of Kursk. The two sides of our salient were to be crushed in at the base, the two breakthrough forces meeting at the city.

For this battle the Germans concentrated a total of thirty-eight divisions, seventeen of which were armored. This was a greater number of armored divisions than they had used for the overthrow of the entire British and French armies in 1940; and the tanks were far superior to those they had at that time. They began their preparations in March of 1943. Their D-day, after several postponements, was finally set at July 5.

Our intelligence kept us well informed of German intentions. Our GHQ had been planning an offensive for us, but as the time and place and nature of the projected German operations became known, they saw our opportunity. Their mad dictator, we felt, would drive them forward to achieve a breakthrough, force them to commit all their reserves. Our high command had vast confidence in the ability of the troops at Kursk to hold with very little reinforcement; our big reserves would be elsewhere, preparing for our own counteroffensive. After their attack was crushed, our turn would come and they would have nothing with which to counter us.

One of the reasons our leaders had so much confidence in the troops would have been obvious to anyone who visited them during those days of preparation. They dug. It is difficult for a Westerner to imagine how hard Russian soldiers can work. At the points of expected attack, line after line of trenches, bunkers, pillboxes, and gun emplacements were built. Thousands of mines were set. Every town was fortified. The outer part of the salient was almost stripped of troops to help dig and man these trenches.

You may wonder what all this has to do with armor, but you will soon understand. Our tactics teach that the infantry and artillery hold the enemy; our armor is used most sparingly for that mission. Its part in the team play is to counterattack just as the enemy is about to complete his breakthrough, when he is disorganized and weak. I had command of one unit in a tank corps at that time. Together with many other tank troops, we were poised and ready to strike on orders of the high command when they judged that the German armor was about to penetrate. But in spite of this great accumulation of armor around Kursk, the high command had masses held behind other fronts to lash out after the Germans had used up all their reserves. They trusted their troops at Kursk.

Tiger Fright

In some of our armored units there was some worry about the German Tiger tanks; "Tiger fright" we called it. I forbade the mention of the word "Tiger" in my unit except for instructional purposes. If it was German, I maintained we could defeat it. Every tank crew was taught that if its vehicle was destroyed and they survived, they were to fight as infantry. *Go forward* by track or foot was our motto!

On July 5, after a very brief artillery preparation, the German fascists launched their attack. On the north, twenty divisions struck. Singly and by units a large portion of our tanks had been dug into the ground to reinforce our antitank defense. Here the Germans paid heavily in armor after they got through our forward lines. In spite of the fact that they had included many Tiger units in this force, it made little headway, and within ten days had been driven back to its original positions.

A Thousand Tanks

Although there had been hard fighting on the northern side of the salient, the battle at the southern flanks was even more serious. On a narrow sector, a thousand German tanks crashed into our position. On the first day they penetrated two to three miles, but with very heavy losses. One means of fighting the German Tigers worked well in this sector. More numerous by far than our dug-in tanks, were our antitank guns. By keeping quiet and well concealed until the enemy tanks were close, they were very effective. Our infantry held most stubbornly, protecting the antitank guns and separating the German infantry from their tanks. Our massed artillery fire took a heavy toll. The Nazis threw more troops into the fight; they struggled forward desperately and by the fifth day had driven a narrow salient into the Russian defenses to a depth of twenty-five miles. The situation was becoming serious. Although their salient was narrow, it was tipped by masses of armor. We opened an armored counterattack against their right flank, forcing them to detach part of their tanks to meet it. Thus weakened, the German main attack was halted.

The Germans now turned the point of their spearhead to the northeast, hoping thus to advance and to protect their flank at the same time. They succeeded in probing deeper into our defenses, creating a very dangerous situation. But our high command had been using its reserve armor sparingly, and had two complete armored divisions in central reserve near Kursk. To these were added all other possible armored units that could be freed from other parts of the battlefield, and on July 12 they were hurled at the Germans. There ensued a battle in which 1500 tanks, German and Soviet, fought one of the fiercest tank battles of all time. The enemy armor was crippled, it was staggering. This was the turning point of the battle,

for the enemy had counted on his tanks to win the battle for him, but now there were few of them remaining. Our armor had suffered also, but we still had our firm infantry, our antitank guns, and our masses of artillery. With no help from other parts of the front, we forced the Germans back to their original positions.

What happened to the redoubtable German Tigers on which the enemy had so heavily counted? In the first place, as I mentioned, we dug in a number of our tanks. In other words, since they could not carry enough armor for protection against the superior 88's carried by the Tigers, we let the Russian earth furnish the additional protection. This is usually practicable only when the probable route of advance of enemy tanks is known. We also had some heavy tanks at that time, although not many. We are not proud of the heavy KV tank although for its day it wasn't too bad. It had a 76mm gun at first. The KV-2 had a 152mm gun which was powerful enough to contend with the Tiger. And it did, very successfully.

Lessons for the Student

This battle provides many lessons for the military student. Since it was the last great defensive battle fought in the war against the Germans it is studied thoroughly in Russian military schools. From the over-all viewpoint, however, one of the primary lessons is industrial.

In this battle the Germans had thrown in all the armor which their then great manufacturing capacity could provide, concentrating a large proportion of it against this salient of ours, but in vain. The Soviet Army had the necessary armor present for the decisive answer, a massed counterattack at the critical time and place. Thus did we show them and all the world that our industry can not only design an excellent tank, but can also produce it in large numbers. For you must realize that a great part of our armor was held elsewhere for the general counteroffensive, and that we had had to expend a vast number of tanks in battle during the preceding winter. And, although German production at that time was still rising and would continue to rise until near the close of the war, the course of the armored fighting during the remainder of the struggle indicated that Soviet production of armor apparently at least kept pace with theirs. It is possible that the Soviet Army had as much armor in action against the Germans in the last two years of the war as the Germans had against the Soviet Army and the Western allies combined. Our production of all types of armored vehicles was that of a major industrial power, reaching 30,000 per year after 1943.

Tanks Instead of Infantry

The enemy's chief defect in the battle of Kursk was that he made his tank forces the principal arm, instead of the infantry. Our Soviet idea, on the other hand, is that in a serious fight the armor's job is primarily to assist the infantry. This is particularly true in deep penetrations of enemy systems of fortifications, such as the Germans attempted at Kursk. We believe, also, that in addition to the armored units attached to the infantry, there should be large armored forces available to the attacker, held intact and fresh behind the prospective gap, to drive through and exploit when the infantry-artillery-accompanying tank team has accomplished its breakthrough mission. Obviously, considerable amounts of armor are necessary for these tactics.

Today we have not only a number of armored armies, but also have many separate tank regiments. All of the many new-type rifle divisions have organic armored regiments.

Tanks in close support of infantry precede the leading elements by several hundred yards. They are particularly necessary when the infantry heavy machine guns and mortars are on the move after the infantry has taken the first line of trenches. They remain necessary even after the second line of trenches is passed, because then, in addition to the infantry's difficulty in keeping its heavy weapons moving, the accuracy and coordination of our artillery fire falls off significantly.

The tanks of the second echelon of infantry follow the first echelon by a few hundred yards, supporting the first echelon tanks and supplementing their fire. The second echelon tanks also help their own infantry in mopping up and taking out strong points which have been by-passed by the assault. When the infantry of the second echelon goes into line, its tanks join the first echelon tanks out in front.

In woods, the tanks advance 50 to 100 yards behind the infantry.

An important factor peculiar to the Red Army during the war assisted us in avoiding the use of excessive tanks in direct conjunction with the infantry in the breaking through of deeply fortified zones. I refer to the Soviet masses of artillery whose preparation fires smash the enemy's foremost and best-manned lines. A major defect of the Germans at Kursk was lack of artillery and lack of sufficient ammunition for a thorough artillery preparation. Also, their salient was too narrow for masses of artillery to displace into it. They tried to fight a blitzkrieg by outmoded methods, and they failed miserably.

We believe that a fine heavy tank is one of the best instruments with which to fight enemy armor, and we now have a splendid one, the Joseph Stalin-3. You probably have seen pictures of it in the Moscow parades—a huge dome-turreted tank. Merely by examining these photographs you may see the wide tracks and relatively narrow hull I spoke of as characteristic of the T-34. The tracks are even wider, in proportion, than those of the smaller tank. In spite of its heavy armor it is designed so that it will not bog down in soft ground.

Entirely new in tank design, are two conspicuous departures in armor arrangement. The front of the hull is prow shaped. A projectile hitting this prow with a frontal shot will have to drive through more armor, if it is to penetrate, than it would if the armor were placed like that of the T-34. The technicians call this compound obliquity. This arrangement, together with very substantial thickness of armor, makes its front much tougher than that of the German Tiger.

The JS-3

The turret of this tank is perhaps even more remarkable than the front of the hull. Never before has a turret appeared on a standard tank with a shape like this. Its turtle back design affords great protection against today's high velocity antitank guns, with a substantial saving in weight. By varying the thickness of the armor with the angle presented at the surface, the upper and middle parts of the turret can be brought to a weight-saving thinness, and nevertheless provide the same protection against high velocity antitank guns as the thick, weight-

consuming lower part. It is a masterpiece of steel casting.

The gun on this tank is not new, it is simply the high velocity 122mm field gun which has been used successfully in other fighting vehicles, including our old heavy tank. I believe it is by far the largest and most powerful gun in any standard tank in the world today.

This tank is ideal for support of T-34's, moving along just behind them to knock out enemy tanks at long range before they can come in contact with the mediums. It can duel with antitank guns very effectively also, its 50-pound shell killing enemy gun crews, while its thick front armor protects against the antitank gun. It is also well known to be valuable in breakthroughs, when a tank helping the infantry must remain in the midst of the enemy, subject to fire of all kinds from all directions. For support of tanks or infantry the JS-3 tank is a very powerful instrument of battle.

But in spite of the fact that we did not have the Stalin until the last of the war, we had the upper hand in armor after the Germans lost so heavily at Kursk, and also had to divert considerable armor to the West.

There are continuing experiments with new tank designs, for the Soviets seek to improve armored matériel. I have heard that work is being done on an airborne type tank. You have seen mention of those midget tanks the Soviets have in Germany. Well, they may be an airborne variety. We used to carry the T-70 tank by slinging it under an airplane fuselage but that was mainly experimental. Today the schools stress the particularly good historical examples of tank fighting and hold them up for emulation and inspiration, especially if they involve the use of initiative. One example concerns a case in which a tank unit, with no infantry present, has to take a defensive position, as happened to General Iakobovsky near Kiev in 1944. His troops dug in their tanks and camouflaged them well. A part of the German 25th Panzer Division attacked, and suffered great loss due to surprise. They were able to do little harm to the dug-in Red Army tanks. Of course, this solution would not do as well if the enemy has infantry to support his tanks.

Another type of example (less prominent in school instruction) concerns the mistakes of the high commanders. Four wartime armored corps (equal to present armored divisions) were sent against Von Manstein's left flank, fairly well to his rear, in the eastern Ukraine area in the winter of 1942-43, shortly after the Stalingrad disaster. The mass of armor from this direction surprised the Germans for they had only two divisions on 130 miles of front. Yet these tank units stopped in front of those two German tank divisions. Very possibly they had been assigned the ground they reached as a terrain objective instead of the enemy force. At any rate, a great opportunity was lost.

Although the Soviet Army is well qualified in night combat, it is no better than any other at tank combat in the darkness, and perhaps is not as good as some. We tried night attack with massed tanks west of Kharkov in August of 1943, where our Fifth Armored Army was trying to encircle that city. The flashes of our firing gave enough light for the Nazis to hit a few tanks, which burst into flames, illuminating the remainder. Suddenly the German tanks charged in among us and there were duels at gun-barrel length. Due to the surprise, and the lack of initiative of our tank soldiers in unexpected situations, the Germans won the battle. We lost eighty tanks in the attack.

Tank Losses Too High

Our tank losses in World War II were far too high in a great many cases, because the fine qualities of our tanks were not matched by the ability of our individual drivers, who often drove their vehicles too slowly and chose only the higher ground.

In theory, a T-34 meeting a Tiger should withdraw, move rapidly around the flank of the Tiger tank, and fire into the thinner parts of its armor on the side of the tank. But in practice the tank gets lost, or the tank commander is not permitted to leave his formation, or he achieves a flanking position only to find that the Tiger has turned to meet him face to face.

In dueling with an antitank gun, the agility of the T-34 tank should give this tank a very marked advantage over the adversary. The tank should be difficult to hit, and be able to dart quickly from one spot to another, fire, disappear, and fire again from another direction until the antitank gun is destroyed. But usually it did not work out that way. In a battle near Tula one of our T-34's, careening around the battlefield, came to a near stop to cross a bad ditch. Only then did it discover, just ten yards away, a German artillery gun. It swung its turret and fired. The German gunner, confused by the charging tank, had only at that moment gotten his gun laid on the tank. He fired. Both the gun and the tank were demolished. But many a tank was disabled without getting a gun in the process.

Russia's heavy tank, the JS-3.

By much discipline, our drivers are trained not to go too fast, but this sometimes results in their driving too slow. We also require that they usually halt to fire, as otherwise ammunition is wasted. The result often is that they halt in the wrong places. Between slowness and halts we lost many tanks.

For some reason, the ability to use the terrain on the battlefield, which our soldiers and officers have to a high degree under most circumstances, does not seem to apply when they are shut up in tanks. They like to drive where the going is good, and such ground, as a rule, is on the hilltops or in the open fields. Our losses were unnecessarily high also because of this tendency. Additional peacetime training has seen to the correction of these deficiencies.

Because they kept too close together, our tanks also presented a too-favorable target to the enemy. This is partly due to the fact that we could not afford a radio in every tank, so the drivers had to be near enough to the platoon commander at all times to be able to conform to his movements. As we get more radios and stress the point over a long enough period of training we will be able to disperse better on the battlefield.

Junior Officer Trouble

Our final difficulty lies in our junior commanders. As you know, we have a high state of discipline in the Soviet State, and especially in the Army. When, therefore, a tank unit is directed to attack in a certain direction, all tanks go in that direction with very little deviation. This often insures that a considerable number of tanks arrive at the prescribed objective, but it is very expensive, and sometimes the attack is defeated because there are so few tanks left when the objective is reached. I understand the Germans have said that our biggest armored attacks resemble a charge of Cossacks, and probably that was true on many occasions. Russian officers are being trained as fast as possible to make their attacks more in accordance with the immediate situation and less in literal accordance with orders.

During the first two years of the war our tanks were frequently bunched in the open even when assembling before an attack. In the battles southeast of Stalingrad, when

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A Russian T-34 teamed with Red soldiers passing a knocked-out German tank.

Malinovsky intercepted Manstein's attempt at relief of Paulus, matters were particularly bad. Many a valley in which Soviet Army tanks were being assembled for action became littered with wrecks from air attack. The Germans called these valleys tank graveyards. As late as the attack on Kharkov, in August of 1943, the German airplanes crippled a major tank attack before it got started. There was very little of that trouble, however, in the latter part of the war.

We are still trying to improve our maintenance system and train more and better mechanics. As you know, when a tank breaks down within sight of an enemy gun, tank or artillery observation post, it is promptly destroyed. If the tanks are in poor operating condition serious losses from this cause will occur. We adopted a system during World War II whereby engines, transmissions, and other assemblies were replaced instead of repaired, but until the war was nearly ended we had trouble getting the assemblies. We increased the number of mechanics per unit time after time. As they gained experience, some became excellent at improvising repairs. Until the last we had to cannibalize, however. Needless to say, the schools are working hard to train tank maintenance men. We are also working to improve the quality of metal and workmanship in the machinery of the tank. Our tanks require twice as frequent checking and lubrication as the Western vehicles.

From all these causes, we were losing tanks nearly as fast as we could make them, and losing crews so fast that there were seldom many experienced tankmen alive for long periods. We found, incidentally, that the women soldiers assigned to us sometimes made very able and courageous members of our tank crews. There was even one man-and-wife crew—imagine, a tank for a home! Late in the war, when attacks occurred only at long intervals, we got ahead in tanks and crews.

Although the Soviet Army of today has by no means overcome its difficulties, it has so many thousand tanks that it can afford to fight its battles in the same way as in World War II—by weight of numbers. It has tens of thousands of postwar tanks, and tens of thousands of T-34's remaining from the war. Even if the factories were destroyed tomorrow, Russia would have enough tanks for years of combat. Thus, it can easily afford to give away large quantities of armored vehicles to satellite nations like Korea, Poland, Bulgaria, Hungary, and Rumania.

By their physical ability to perform hard labor, Soviet troops built log roads through swamps which permitted surprise armored attacks on the enemy. Soviet soldiers made him realize that forests and swamps are not the obstacle to Red tanks that they are to armored forces of other armies. The Red Army man can dig in tanks very rapidly. And finally, his instinct for camouflage, combined with his resourcefulness, training, and discipline, qualify him highly in setting up tactical traps. Even on the offensive we use this scheme, setting our traps on the flanks to inflict losses on counterattackers. Probably the simplest of these traps was the type used by one of our regiments just east of Warsaw in 1944. At the time we were

preparing for an offensive, and it was desired to reduce the enemy's tank strength before the attack. The regimental commander worked out a scheme and trained his men in it briefly. Two tanks and a tank destroyer would form a team. The two tanks would be hidden near the front line in the general region where enemy tanks were believed to be concealed, with a destroyer hidden between them. The destroyer would then move forward, fire on places enemy tanks were thought to be and, if the enemy replied, would withdraw. The German tanks would come out after the apparently lone gun, passing the hidden Russian tanks. One of the Red tanks would fire into the rear of the panzers; the latter would turn their guns on him, and at that moment the tank hidden on the other flank would fire. According to the account, by setting up a number of these traps, the German tank strength in that section was seriously reduced.

You may have seen an article written by a Colonel Paramonov in the Soviet *Armored Forces Journal,* in which he advocates ambushes during mobile defense, during breakthroughs, in preparing for an attack, after breaking through, during the pursuit (both daylight and dark), in an unexpected meeting with the enemy, in defending a bridgehead, and in covering a withdrawal. Another writer in that journal told of a whole regiment of heavy tanks being used as an ambush, with a company of medium tanks for bait. In a two-hour battle the attacking Germans lost 35 tanks. I remember also an article in which the writer gave principles and examples of ambushes in mountainous terrain. These articles were designed to stimulate thinking along lines which utilize some of the most valuable skills and instincts of the Russian people.

By the close of the war, our tank forces became highly skillful in exploiting the opportunity to drive corridors through the enemy back areas. Here is a passage from the history of the Soviet armored forces which is very popular with armored officers—

"The town of Elbing, on the Baltic Coast, was at peace; that is, about as much at peace as a town could be on the continent of Europe in 1945. Out of reach of the Anglo-American air raids, the little East Prussian town was too unimportant for the rare strategic bombing missions of our own air force. Movies were running, restaurants were serving dinner. The battle line, when last reported, was some seventy miles to the east. True, in Poland, well to the south, the Russians were attacking powerfully, in a generally westward direction. However, the Elbingers felt protected, since the town was surrounded by powerful fortifications.

"Suddenly, a heart-stopping crash and din sounded in the streets. Tearing through everything in their way, shooting in all directions, Red Army tanks were spreading death and destruction. They soon disappeared out of town to the eastward.

"This violence, by a comparatively small group of tanks, was a tiny incident in a gigantic, many-pronged offensive. A number of army groups, some 300 Soviet divisions, had assailed the German Army simultaneously from the Baltic Sea to Hungary. Armored spearheads

Route of Volski's dash to Baltic Sea.

flashed out in many directions. The Germans, with 150 divisions on this front, were receiving their next to the last major blow from the Red Army.

"Marshal Rokossovsky, now commanding the Second White Russian Army Group, was given the job of breaking through in north central Poland. He was then to move rapidly north to the Baltic, pinning the German armies of East Prussia against the Sea.

"On almost exactly the same ground, some thirty years before, the Czarist armies had tried almost exactly the same maneuver. But, although the plan was much the same now as then, the result was vastly different. For the 1945 battle, we had weapons and experience greatly lacking in 1914. The only similarity between Samsonov's Army in 1914 and Rokossovsky's force was in vastness of numbers. Samsonov, with nearly a million men, moving north from west Poland, finally succeeded in losing his entire army, after which he went off into the woods and shot himself. Rokossovsky encircled half a million Germans and eliminated them from the war."[1]

Marshal Rokossovsky, of course, lives in great honor; he is a man to keep your eyes on.[2] But I must continue with the history of the Red Army tanks.

"In all five army groups, very elaborate preparations had been made. One of Rokossovsky's provisions was to conserve his armor during the breakthrough. He was short of tanks. He had only five armored corps. (Konev, farther south, had fifteen.) They were still a hundred and fifty airline miles from the Baltic. Rokossovsky concentrated all his armor under the command of Colonel General Volski, at the decisive point. Considering the waning strength of the Germans, he was sound in his decision to leave most of his front armorless.

"The German belt of fortifications at the point of breakthrough was some fifteen miles deep.

"General Volski of course commanded both the breakthrough armor and the encircling spearhead, as this had now become standard practice. Volski himself now divided the armor into the two usual echelons. The breakthrough armor was to help the infantry create the gap. Just before the breakout, according to the plan, the exploitation armor would be brought in, the two would make the breakout together, and be reunited under Volski for the exploitation. The action was carried out as planned. The breakthrough armor reached the final rear belt of German fortifications in fair condition. Although their system of fortifications was elaborate, the Germans at this time were distinctly short in strength to man them.

"Four days of fighting were required for the penetration. Then Volski's armored army sped north fifty miles and attacked and overcame the Prussian border fortifications. At the town of Eylau, according to Volski, one of his units fought a particularly creditable battle. Eylau was very small but heavily fortified, its defenses including an antitank ditch nearly eight feet deep. The tanks of this unit surrounded the town rapidly on a late afternoon, and during the night prepared for assault. Early the next morning, pouring in cannon fire from all directions, they took the town.

"Resuming his rapid movement northward, Volski approached the sea near Elbing a week after the breakout. The Russian spearhead now promptly threw its weight northeastward, to widen its hold on the coast, bypassing the town. It was at this time that Major Luz, finding himself west of Elbing when he was

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[1]This is a typical exaggeration by Soviet historians. Samsonov lost a total of about 110,000 men. Rokossovsky did encircle an undisclosed number of Germans, but did not eliminate them until the end of the war when they surrendered because of the armistice. This entire Soviet passage shows an unfair and falsified comparison between an inexperienced Czarist army and a seasoned Soviet army.

[2]Marshal Rokossovsky is now Minister of Defense for Poland—loaned by the Soviets to Poland.

supposed to be to the east, took a chance on the lack of alertness of the garrison of the forts and dashed through both the fortifications and the town to his objective twelve miles up the coast.

"Volski was followed closely by motorized infantry and artillery, and promptly behind this group came the main body of Rokossovsky's forces, widening the corridor and blocking the attempts of the Germans to break their way out of East Prussia. These German forces were ultimately annihilated."

General Volski,[3] in his account of this campaign, draws certain conclusions as to the conduct of armored forces performing encircling missions behind the enemy's lines. They have very much the tone of the American General Patton. They emphasize, "Keep going," yet neither Volski nor Patton overlooked the requirements of supply or the need for coordination between various combat arms. I will quote General Volski's conclusions.

"What can be learned from the operations of armored units and groups in the encircling of enemy groups in East Prussia? What deductions can be made? Without pretense at being able to fully answer these questions, let us examine some of the deductions. First of all arises the question of the role of tank and mechanized groups in battle for towns and thickly populated areas. Battle experiences have shown that one cannot demand that tanks developing a breakthrough should fight for towns, capture and hold them without the aid of other branches of the service.

"The task of armored troops is to surround towns, cut enemy communications, capture bridges, viaducts and other important installations. In this way, tanks prepare and lighten the capture of towns, strongholds, etc. For the surrounding and capture of towns, special mobile units, consisting of tanks and motorized infantry, must be either detailed or created within the armored formations. Such units can follow the tanks (which break through, surround and bypass towns and strongholds) and 'take them over.' This will allow tanks to continue their advance without interruption and pursue the enemy.

"Operations in East Prussia have shown that motorized infantry should be attached to tank formations operating in the enemy's rear. It is obvious that ordinary infantry cannot follow quickly enough the rapidly advancing armor. Therefore motorized transport must be provided for troops needed for cooperation with the tanks.

"During rapid advances it is possible that small enemy pockets remain in our rear, especially in wooded country. In view of this, small armored detachments must be detailed to guard important points on our communication and supply lines. Such detachments may consist of one tank, two armored carriers and a small number of submachine gunners. In conditions described above, the security of lines of communication is of major importance.

"A few words concerning the battle tactics of armored columns operating in the enemy rear. Their formations depend on enemy actions and must therefore be pliable and dynamic. They should not move in the same formation from start to finish. It is a question of knowing how to regroup one's tanks during an engagement and without stopping the advance; how to choose the most advantageous spot for delivering the main blow. By this we mean not only the direction of a pliable and competent maneuver of tanks, but the use by the commander of all combined forces at his disposal, especially artillery.

"The same mobility and freedom of maneuvering is necessary in the timely bringing up of reserves. At times, depending on circumstances, reserves need not follow the line of advance of the main forces, but are directed to advance in a direction where the enemy is least prepared for an encounter with tanks. Thus the tanks of the reserve column might find a weak spot in the enemy defenses, break through and get out in front of tanks of the first line of advance. In this case the reserve becomes the forward echelon and the tanks of the forward echelon become the reserve. A commander must always have a reserve; without it, fighting is impossible. The size of the reserve depends on circumstances, forces at one's disposal, etc., but in any case, an armored corps commander should have at least a battalion, and a brigade commander not less than a company.[4]

"Now the question of cooperation between armor and self-propelled artillery. Tanks remain the basic force delivering the blow; self-propelled guns support them by increasing their volume of fire. This must be the governing factor when planning a combined action.

"During engagements in East Prussia, tank commanders were better able to cooperate with the Air Force. This was achieved by having attached (to tank commanders) officers who directed aircraft to the targets.

"In conclusion here are a few points of great importance to the success of an engagement. The advance must not be interrupted, therefore tanks must push forward night and day. This was accomplished by our tanks in their operation in East Prussia. They halted only at first light for refueling and maintenance. To achieve this, well organized supply lines are essential, providing uninterrupted flow of supplies of motor fuel, oil, other supplies and spare parts. Reconnaissance must not be interrupted even for a single hour. During the short halts for refueling and repairs, reconnaissance units continued to harass the enemy, did not lose contact and did not allow him to establish himself in previously prepared positions. Operating at such speed, our tanks literally penetrated towns on the heels of the enemy, without giving him time to blow up bridges, viaducts, etc., and thus slow down our advance."

Sovfoto

Marshal Konstantin Rokossovsky.

Thus General Volski makes his experiences known, to help Red officers digest the lessons of the last war. But one of the primary concerns of all Soviet officers, especially in the armored force, is to instill initiative into junior leaders. When this has been done one of the greatest weaknesses will have to be remedied. For this reason, while strongly stressing the principle that armor by-passes fortified resistance, Volski places equal emphasis on the initiative displayed by the commander who attacked the fortified position of Eylau with his tanks during the drive to the sea.

By Volski's rule, a fortified place astride the line of advance is by-passed not only by the tanks, but also necessarily by such supply vehicles as are required to accompany them to assure that the exploiting force will continue to function until the supply road behind it is fully open.

But in this case Eylau was flanked on both sides by swamps and woods extending a very considerable distance in both directions; even the necessary few vehicles for temporary supply of the spearhead could not have gone around the position. The commander, realizing this and also knowing that the armored push to the coast must by all means continue rapidly, changed the rules on his own initiative and took the town by armored assault.

Our tank or mechanized army of

[3]Colonel General (of Tank Troops) Volski died on 27 February 1946.

[4]Since this was written, armored corps have become divisions and brigades have become regiments.

today was developed as a result of wartime experiences such as Volski's. It is a fast, hard-hitting team of tanks, motorized infantry, and artillery. The armored army which operated southwest of Stalingrad to prevent its relief in December of 1942 was clumsily handled, and the three arms were not well integrated, most of the infantry being in rifle divisions and the tanks in tank brigades. Now there is enough infantry in the mechanized divisions that generally no infantry divisions are needed with this type army.

We have enough combat power in our present peacetime mechanized divisions alone to defeat all of the active divisions in the world outside of the Soviet Army.

Red armor beat the Germans badly in the last war, but Soviet military officials are by no means satisfied with it. They are working hard to create better tanks and to train better drivers, mechanics, and officers than those in the force which beat the Germans.

The mechanized division, because of its better balance of infantry to armor, is today the Soviet Army's most flexible and favorite type division. It is designed for use with the tank division which is armor-heavy. Here you have two large "combat commands" as you call them, but the Soviet, unlike the U. S. Army, begins to build its armor from divisions upwards.

ARMOR'S INTERIM BRIDGE

by *MAJOR JOHN W. BARNES*

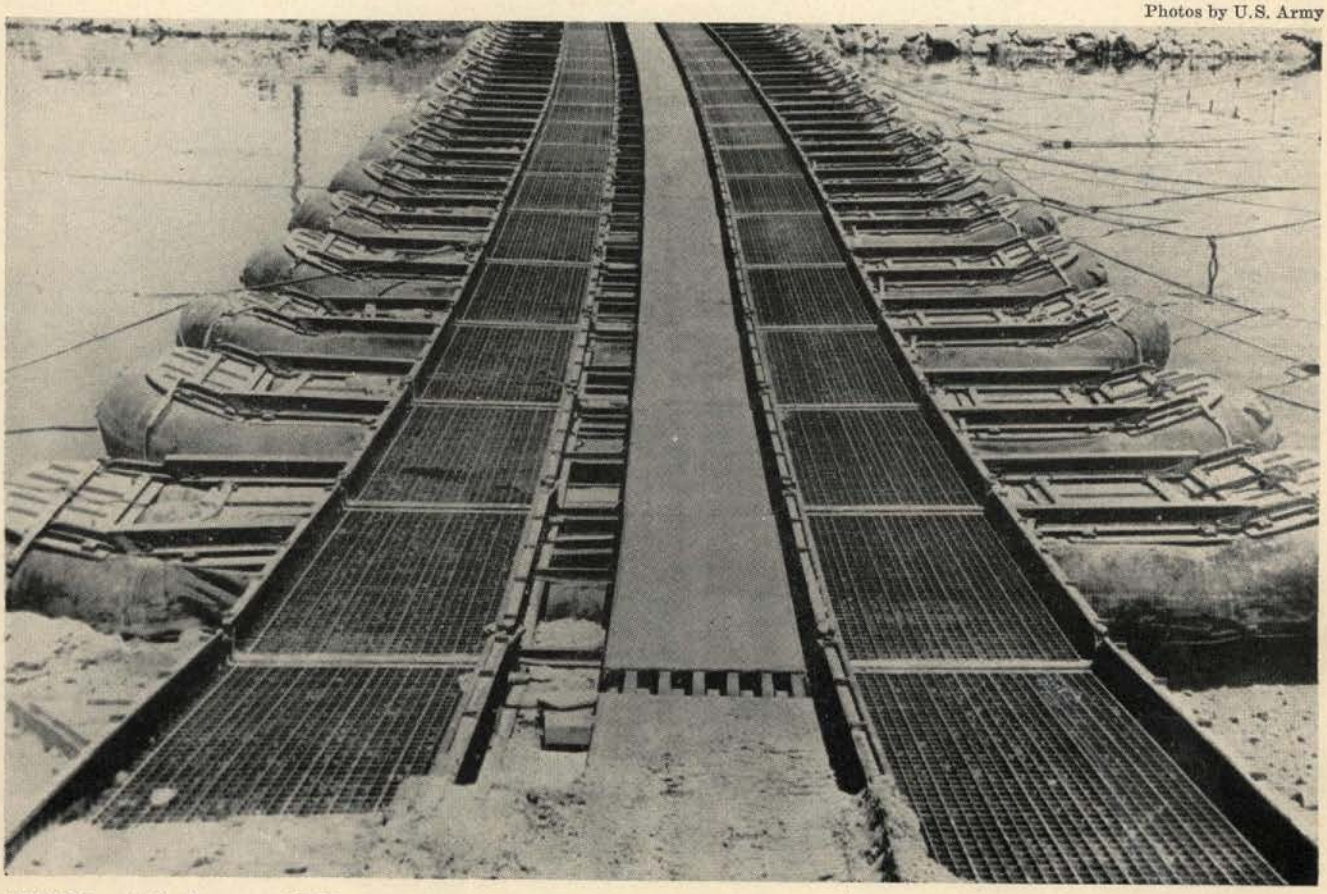
UNTIL the Division Tactical Bridge, now under development, is standardized and issued to troops, the Widened Steel Treadway Bridge will be the standard bridge for the armored division.

This treadway bridge is a modified version of the M2 Treadway Bridge with which armor operated in World War II. Modifications of the M2 Bridge were necessitated when the M26 tank appeared on the scene of battle. This tank, with its greater distance between tracks, could not cross the M2 Bridge unless the steel treads were spread apart. Spreading the steel treads farther apart then prevented wheeled vehicles from crossing, since the clearance between steel treads was wider than the distance between wheels of wheeled vehicles.

In order to solve the problem of providing a bridge which would accommodate all types of vehicles, the M4A2 Bridge was hastily adopted as the tactical bridge during the closing stages of World War II. This bridge was a compromise between the M4 Rigid Ponton Bridge (aluminum deck on rigid pontons) and the M2 Treadway Bridge (steel treads on 18-ton pneumatic floats). The M4A2 Bridge consisted of a smooth deck of aluminum balk supported by 18-ton pneumatic floats. Each float is compartmented so that enemy fire will deflate only one of several compartments at a time.

Until the summer of 1950, the M4A2 Bridge remained as the tactical bridge for the armored division. However, during the time between the close of World War II and 1950, much was being done at the Engineer Research and Development Laboratories in the field of prefabricated bridging. Although the M4A2 Bridge looked very pretty and was easy for drivers to guide their vehicles across, it was a much more difficult bridge to construct than the old M2 Treadway Bridge, from the standpoint of labor and time consumed. Hence, even though new concepts of bridging were evolving from the drawing boards and in the laboratories, a requirement was established by Army Field Forces for an interim bridge with the ease-of-construction characteristics of the M2 Treadway Bridge and the capabiliy of carrying all types of vehicles found in the armored division.

Photos by U.S. Army



The requirement was filled by the Widened Steel Treadway Bridge which made its debut in 1944 as a field modification of M2 Steel Treadway Bridge and was classified as Standard in 1950. All the major components of the M2 Bridge were retained: treads, pneumatic floats, saddles, and trestles. The steel treads were spaced farther apart with longer spacer bars between them. And on the spacer bars is now supported a standard plywood tread from the infantry support bridge. So, the Widened Steel Treadway Bridge can accommodate all types of vehicles; ¼-ton trucks by using the plywood tread and the nearest steel tread; other wheeled vehicles, by using the plywood tread and the steel tread farthest from it; and tanks, by using both steel treads.

So much for the history and manner of crossing the interim Widened Steel Treadway Bridge. Now, let's get technical—at least to the point of finding out the capabilities and limitations of the one thing that can keep armor rolling over very sudden and complete voids in an otherwise very fine road net. Nothing can stop the forward momentum of the lead tank, or the column behind it, better than the prospects of a flight off a high abutment into a body of clear, cool water. And the only remedy, barring jet propulsion or sky hooks, is a bridge.

The Widened Steel Treadway Bridge comes in a complete set containing 288 feet of floating bridge and four trestles. Each of the two bridge platoons of the armored engineer battalion's bridge company has one floating bridge set, so the bridging capabilities of the armored division are just double those of the bridge platoon, discussed in detail below.

The bridge platoon is organized into a platoon headquarters, two fixed sections, and one float section. Platoon headquarters has only two vehicles, a ¼-ton truck and a weapons carrier.

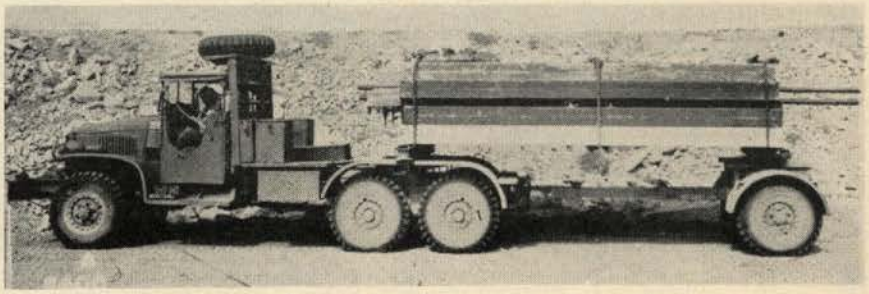
Each fixed section has three bridge trucks and a bolster truck. Each bridge truck carries 24 feet of bridge, and the bolster truck carries two trestle assemblies. Thus, in the fixed section, there is 72 feet of bridging which can be used in constructing bridges in multiples of 12 feet in length. The maximum gap that can be crossed by the Widened Steel Treadway Bridge without intermediate supports is 34 feet for normal armored division loads. Therefore, for gaps greater than 34 feet in length, intermediate supports are necessary. The two trestle assemblies carried on the bolster truck provide this additional support, and their use makes possible the construction of a bridge that will support armored division loads throughout the full length of bridge that is organic to the fixed section of the bridge platoon.

The four-float raft ferrying a 35-ton tank.

The fixed section is normally part of the engineer support that the commander of a reinforced battalion can expect for attack missions. This section of four vehicles gives him the capability of maintaining the momentum of his column in spite of short gaps encountered that require bridging. Normally, since the bridge trucks are rather cumbersome and the bolster truck is difficult to maneuver in and out of tight spots, it is advisable for two of the bridge trucks to march in the attacking column with other supporting engineer elements near the battalion command group. The third bridge truck and the bolster truck should remain with the battalion combat trains. However, in situations where the roads are narrow and restricted, and where bridging is anticipated, all the bridging equipment should march close to the head of the column where obstacles appear. In this manner, unnecessary delays involved in requiring the fixed section to double the entire battalion column on poor roads (not infrequently an almost impossible task) can be avoided.

Together, the two fixed sections of

Engineer Bridge Truck carrying a float load.



Engineer Bolster Truck carrying a trestle load.

the bridge platoon have 144 feet of bridge carried on six bridge trucks, plus four trestle assemblies carried two to a bolster truck. The float section of the platoon also has six bridge trucks which carry a total of 144 feet of bridge, making a total for the platoon of 288 feet of fixed steel treadway bridge equipment. The remaining six bridge trucks of the float section carry all the floating bridge equipment: 24 floats and all accessories necessary to support in water the 288 feet of fixed bridge (the steel and plywood treads becoming the superstructure of the floating bridge).

In addition to the bridging equipment, the bridge platoon also has in its float section 21 assault boats (nested upside down, seven to each of three trailers towed by 2½-ton trucks), eight outboard motors, and a power utility boat. The outboard motors, mounted on assault boats, and the power utility boat are used primarily in ferrying operations. Rafts can be constructed with the equipment in the float section, a maximum of four six-float rafts (the proper size for medium tanks) being possible. These rafts are, in reality, short sections of floating bridge, and they can be connected together so as to provide a floating bridge when the situation permits heavy bridge construction without high risk of losing the equipment through enemy action.

The bridge platoon, along with one armored engineer company, normally provides engineer support for a committed combat command in the attack or exploitation. It is usually attached to the combat command and, less detachments providing support to lead reinforced battalions, normally marches with the combat command trains, except when bridging operations are anticipated and the road net is restricted. When these conditions prevail, the bridge platoon should march with the armored engineer company (which usually is near the combat command command group).

The Widened Steel Treadway Bridge is an excellent bridge. It is able to carry all normal loads of the armored division, and can be constructed easily and quickly by properly trained armored engineers. Under ideal conditions, the floating bridge can be constructed at the rate of 100 feet per hour plus an additional hour for work on the approaches.

JUGOSLAV ARMOR

Much interest has centered on the Jugoslav Army in recent months. That country's apparent partial orientation away from the East and to the west, as a result of political events, has military significance, especially in view of her reported 30-division Army.

Armor appears to have had little attention in Jugoslavia prior to World War II. According to the book "Tanks and Armored Vehicles," the Army used a number of light tanks, probably 1938 vehicles from the Czech Skoda works. This was a three-man tank of about four tons, armed with a 47mm gun and one machine gun. Those not destroyed in combat probably were captured by the Germans.

As World War II progressed, the Jugoslav Army organized several small tank units. In the Winter of 1943-44, a number of men were sent to North Africa to attend a tank course set up by the Allies. From Africa the Jugoslav personnel were sent to Italy, where they were joined by a number of internees and wounded who were being treated in Allied hospitals.

Jugoslavia's First Tank Brigade was formed on July 16, 1944. The unit was equipped with American light tanks. All of the personnel who had trained in Italy were in the brigade. It was prepared to join with units of the VIII Shock Dalmatian Corps to take part in operations, from liberated islands along the Jugoslav Adriatic coast, against the mainland occupied by the Germans.

The First Tank Brigade became a part of the VIII Corps, and later of IV Army, with which it took part in the operations leading up to the final liberation of the home country. Such names as Sibenik, Knin, Mostar, Bihac, and Gospic are among the high points along its path of combat.

The final operation carried the brigade into the Trieste area at the head of the Adriatic, to meet Allied forces driving up the Italian peninsula.

In the postwar period, with its orientation toward the East, Jugoslav Army tank units were equipped with Russian tanks. The T34 is their major vehicle today. Jugoslav Army Chief of Staff Col. Gen. Popovic has recently been in the U. S. in connection with the purchase of military supplies for Marshal Tito's forces.

When the Eighth Army broke out of the Pusan perimeter to drive the Communist forces back up the Korean peninsula the newspaper reports were full of mention of Task Force Dolvin Here is a firsthand account of effective team operations by a field correspondent whose by-line has identified some top reporting on the war in Korea

Catching the Enemy Off Guard

by JOSEPH M. QUINN

U.S. Army

SOMEWHERE IN KOREA

WHEN the desperate North Korean Communists launched their final thrust to drive the battered but still fighting United Nations Army into the sea last September 1, the 89th Tank Battalion was spread over a 40-mile front, supporting various infantry regiments in their defensive positions.

The battalion was only a month old, its cadre of 10 officers and 149 enlisted men having been flown to Korea from Fort Hood on July 31. Its commander, Lieutenant Colonel Welburn G. Dolvin, a World War II paratrooper and author of the Army Field Manual on Tank-Infantry tactics, had flown in from the Command and General Staff School.

For six hectic days the tanks fought the enemy, convoyed supplies, evacuated wounded, were commandeered for one strange mission after another. And when the first siege was over, tank platoons and companies were so intermixed it took two days to get each crew back where it belonged.

On September 23 the battalion was at Masan, attached to the 25th Infantry Division, when orders were received for Eighth Army's massive drive out of the Pusan bridgehead. The 25th was ordered to attack aggressively northwest, capture Chinju, and be prepared to attack north and northwest with unlimited objectives. The 89th was directed to form a tank-in-infantry team that would cross the Namgang river near Chinju, move north in a column of teams along the Songni-Umyongni axis and be prepared to by-pass another task force and push north and northwest toward Hamyang, Namwon, Chonju and Kunsan.

"Task Force Dolvin" consisted of Companies A and B of the 89th, Companies B and C of the 35th Infantry Regiment, 1st Platoon of Company A of the 65th Engineer Construction Battalion, 2nd Platoon of the Heavy Mortar Company of the 35th, the 89th's Medical Detachment and trains.

The attack started on September 25. The task force reached the Namgang by mid-afternoon but the river had to be forded where the water was so deep all wheeled vehicles had to be towed across. By evening its attack order was changed, so that the unit was to proceed west and southwest of Chinju and lead the attack the following morning.

"We stuck to the basic principles of the tank-infantry team from the outset," Colonel Dolvin said. "One infantry company was married to a tank company. The tank company commander was in charge, with the infantry company commander as his assistant."

Doughboys were riding the back decks of the tanks when the force moved out of Chinju at 6 A.M. The lead M-26 hit a mine after charging only 4000 yards. An engineer mine detector team of three men, riding the third tank, quickly removed 11 mines from the road and the column pushed on. Another 1000 yards farther on a second tank was disabled by a mine and a third tank caught fire from faulty wiring. The mines were crudely fashioned but powerful enough for the two that exploded to seriously wound three of the ten crew members involved. A third mine field was detected before the tanks rolled into it. Engineers attempting to clear it were fired upon and the task force engaged in its first fire fight of the operation, routing a reinforced enemy platoon.

Joseph M. Quinn is a War Correspondent in Korea for United Press and a Reserve Major in the 13th Armored Division (ORC). During World War II he served in the Central Pacific Theater with the 4th Armored Group and the 766th Tank Battalion.

As the task force started entering Hajonni about 1 P.M. heavy automatic weapons and mortar fire spit at it from a ridge on the right flank. The infantrymen dismounted and advanced up the slopes of the hill with the tanks and chemical mortars providing direct fire support. The air control party supporting the task force called in fighter and bomber strikes when the enemy opposition was estimated at a battalion reinforced with artillery. Seven hours later the ridge was cleared and the column pushed forward again.

Task force liaison aircraft, overhead throughout the push, reported a bridge three miles north of Hajonni intact and F-80's kept surveillance over it during daylight hours. But soon after darkness fell the enemy destroyed it.

The blown bridge was by-passed during the night, the column being subjected to small arms fire and infiltration throughout the operation.

On the morning of September 27, Team Able passed through Team Baker and, repeatedly catching the enemy off guard, delivered one sledgehammer blow after another as it chopped up a series of communists caught on the road to Oesongni. Another mine field on the outskirts of the village disabled a tank. Nineteen buried mines were dug up by engineers working under fire, and nearly 200 additional mines and eight truck loads of ammunition were found alongside the road. By then the task force was attacking too swiftly for the enemy to even fall into prepared positions. A breakthrough seemed imminent and the division commander, who had joined the task force, ordered the tank-infantry team to exploit its advantage. Sporadic small arms and mortar fire from an estimated 600 enemy by-passed in the mountainous terrain raked the column as it sped through Tangsongmyon and Sandhonmyon toward Panggongni.

Near Panggongni the column halted for the night, with all-round security posted, while the engineers constructed a by-pass where another bridge was blown.

Four unmanned enemy 45mm antitank guns were found in positions along the last three miles of the route of advance and the entire area indicated the swift striking task force had forced the Reds to abandon another hastily improvised defensive sector.

The enemy was still being caught off guard deep in his own territory.

Team Baker led the attack at dawn on September 28. The task force again moved in high speed, by-passed another blown bridge near Paekanon-

ni, and linked up with the 23rd Infantry near Hamyang.

Liaison aircraft flashed a warning that the enemy was trying to demolish a bridge in the town. A tank-infantry team, charging into Communists preparing demolitions, captured the bridge intact and enabled the column to move on at an average speed of 20 miles per hour for the rest of the afternoon.

"That afternoon can best be described as rapid in movement and violent in execution," according to Major Leon F. Morand, S-3. "Time after time we caught and destroyed groups of 300 to 400 fleeing Reds."

The column moved through Kuryongni and Unbong and out of the "tableland" east of Namwon, troubled only by what to do with its mounting toll of prisoners. They were finally left for a motorized infantry battalion following the task force. At Namwon the task force linked up with the 24th Infantry about 11 P.M.

As soon as the vehicles were refueled and reloaded with ammunition, Task Force Dolvin shot out of Namwon toward Sanchonni. The entire route was through mountains honeycombed with defensive positions. The road was excellent. The moon was obscured by overcast for the first hour and a half but after that it was smooth rolling. In Sanchonni two quarter-ton Russian-made trucks drove unexpectedly into the path of the column and were immediately destroyed by tank fire. By 6 A.M. on September 29 the column was in Chonju, which the 38th Infantry had entered from the east several hours earlier. There the weary tankers and doughboys had their first hot meal since they charged out of the bridgehead.

U.S. Army

Tankers of Company A, 89th Tank Battalion, firing on Red positions.

At Chonju Colonel Dolvin was told his final objective for this phase of the operation would be Iri instead of Kunsan. At 9 A.M. the push toward Iri started.

Upon reaching Samny-i, the task force was attacked by an enemy force of about 300 dug in on a hill to the left. The tanks, aided by an air strike, soon neutralized the position. But while the column was fighting, orders were received to push through Iri to the Kum River. By nightfall Dolvin's men had occupied a strategic crossroads in Yongon just short of the river, and bivouacked for the first night since it had left Chinju.

By 3 P.M. on September 30, the Kum River line secured, Task Force Dolvin was dissolved and its attached units reverted to their parent organizations.

"The success of our operation showed what teamwork can do," Dolvin told his men. "The tanks alone could not have done the job. Neither could the infantry do it alone. And the tanks and infantry together would have been able to accomplish nothing without the support of the engineers who labored night and day constructing by-passes and sweeping mine fields.

"The support of the 4.2 mortars was instrumental in overcoming pockets of stubborn enemy resistance. The role of the liaison aircraft can not be praised highly enough.

"All these elements made up Task Force Dolvin and all of them contributed materially to the success of the operation."

Communication with higher headquarters—or rather the lack of it—was the weakest link in an otherwise powerful team, Colonel Dolvin said. The short range of the radio sets carried by the task force and the masks presented by various terrain features along the route of advance made direct radio contact with division headquarters impossible. Liaison aircraft was used to fill the gap in some instances.

U.S. Army

One of the 89th's M4A3 tanks, disabled by a mine, is repaired by mechanics.

FROM THESE PAGES

60 Years Ago

The people of the United States are fortunate both in their form of government and in their geographical situation; the former guarantees the security of life, liberty, property and an opportunity for the highest individual development of the citizen, whilst the latter secures them from the fears, alarms, expense of preparation and constant readiness for foreign war.

Since the days of Morgarten certain political rights of the individual citizen have been recognized in all civilized governments, and nations can no longer be driven to war at the will or upon the caprice of their princes.

International communications and commerce have multiplied as the arts and sciences have advanced; disputes are sure to arise, and whilst the human disposition remains as it is, war is inevitable. If a nation wishes to be respected, it must maintain an army; and in case of war, if it hopes for success, this army should be officered by intelligent, highly educated men, devoted to their profession, and animated by the highest patriotism.

Our country is not threatened by powerful or warlike neighbors, hence we are saved from that ruinous competition in armaments which is so oppressive to the industries of Europe. But for the security of the nation we must keep a small standing army to serve as a nucleus for the great volunteer forces upon which we depend in time of war. For purposes of interior police, to keep up military traditions and instruction in the latest phases of the art of war among our people, there should be at least one soldier to every 2,000 inhabitants. The organization of this army and the regulations governing it should be capable of indefinite expansion, without friction; the organization of the cavalry, infantry and artillery should be of a nature most adaptable to the character of our new levies, in order that the volunteer may not be hampered in his individuality more than is necessary for the cohesion of the mass. The cavalry, infantry and artillery are the real fighting divisions or services of all armies. Each has a special mission peculiar to itself and a skillful combination of these three elements upon the same field, so that each can employ its utmost powers to the greatest advantage, tests the abilities of the great commander . . .

The Proper Employment of Cavalry in War

CAPTAIN A. E. WOOD.

40 Years Ago

. . . Armies are created and given an organization so as to be able to fight when war comes. If at the critical moment they fail, then evils exist calling for remedy. It should be remembered, however, that while improvement and progress require change, change does not necessarily mean progress.

In our service I should say that the paramount evil is the inability of our army to pass from a peace to a war footing without practically destroying, for a time, the efficiency of the whole fighting machine. Either we must keep our units practically at war strength, or a reserve of both *personnel* and *matériel* must be maintained so that a change from a peace to a war footing can be made with a minimum of disturbance. A fifty per cent increase of untrained men is fatal so far as immediate military operations are concerned, and no change of organization will help matters so long as we adhere to this pernicious principle.

If we really are to improve the condition of our military establishment, we must consider many questions not ordinarily regarded as affecting the organization of units as small as a regiment. So intimately related are the subjects of organization and tactics, we are accustomed to say that the former grows out of and is dependent upon the latter. This is in a great measure true, but there are many other questions that have a bearing and about which military men differ. In the end, therefore, when our organization leaves the hands of the law-makers, we shall find it to be more or less of a compromise and not wholly satisfactory to any one . . .

Reorganization

LT. COL. D. H. BOUGHTON.

25 Years Ago

This number of the *Cavalry Journal* appears on the fiftieth anniversary of the battle of the Little Big Horn, sometimes referred to as the Custer Massacre and as Custer's Last Fight. It was for this reason that the publication in this number of Colonel Graham's fine article, "The Story of the Little Big Horn," was deemed particularly appropriate. The value of the article is much enhanced by the interesting introduction written by General Charles King, who as Captain Charles King, has entertained many thousand readers with his stories of Army life in the early days on the western plains.

As stated in the April *Cavalry Journal*, this anniversary is being commemorated by elaborate exercises on the battle field on June 24, 25, and 26. Thirteen officers and 220 men of the Seventh Cavalry have been sent from Fort Bliss, and they have been joined by some 3,000 Sioux, Cheyenne, and Crow Indians. All will participate in ceremonies depicting renewal of the peace pledge between all Indian wars, which will be placed in the national cemetery at the scene of the battle. The Sioux and the Crows, traditional enemies, will through their selected representatives, smoke the pipe of peace for the first time within the period of Indian lore or tradition.

It is hoped that the example set on this occasion by the survivors of the battle and the descendants of the foemen who met on that bloody field, will be followed by all others interested in that tragic event to the end that the bitter fifty year old controversy as to the responsibility for the debacle may, at least so far as the public prints are concerned, be terminated forever. In view of the magnitude of the disaster and the many unusual circumstances connected with the battle, it is but natural that those taking sides should feel very strongly about the question. Nothing, however, can possibly be gained by further discussion of a controversial nature.

The Little Big Horn

EDITORIAL.

TANK COMBAT BRIEFS . . .

Tanks in the Counterattack

At 0630 on the morning of April 23, a message was received by the 73d Heavy Tank Battalion positioned just south of the Imjin River (POINT **A**) that the enemy had broken through in company strength in the sector of the 12th Republic of Korea (ROK) Regiment, and that 1000 enemy troops and some pack animals were following 2000 meters farther to the north.

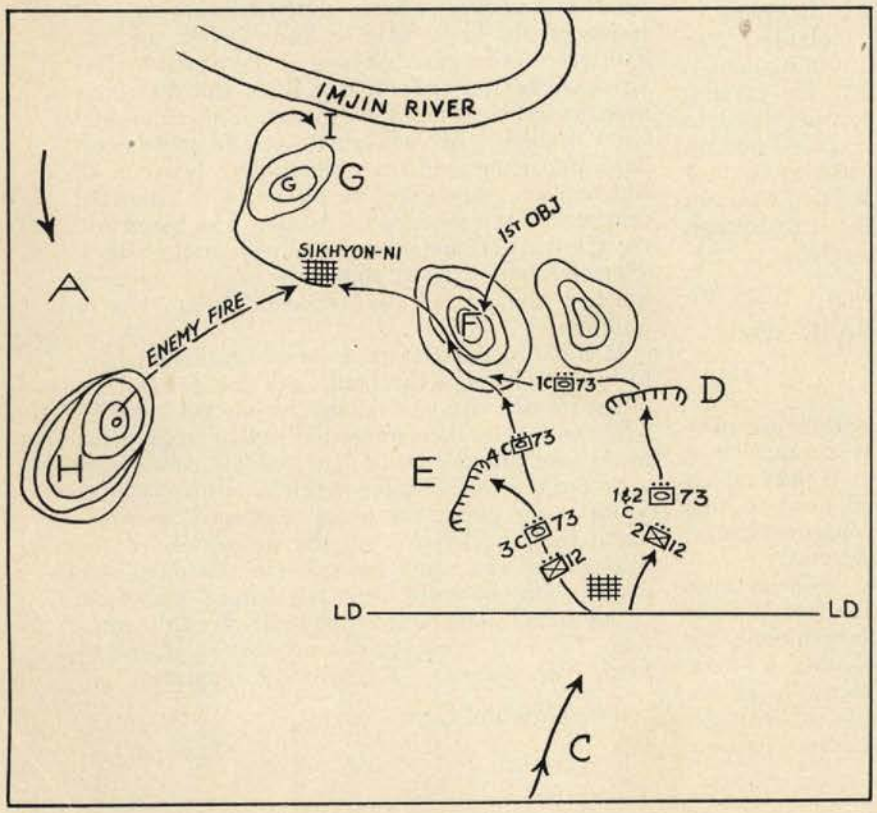
At 1100, Company C was ordered to support the 2nd Battalion of the 12th ROK Regiment in a counterattack north from the vicinity of POINT **B**. The mission of the counterattacking force was to inflict maximum casualties on the enemy and to bring back information on enemy strength and dispositions.

Company C departed from the battalion assembly area at 1215 and arrived at the forward assembly area in the vicinity of POINT **C** at 1410. Here the company commander received the attack order from the 2nd Battalion, and last minute coordination and preparations for the mission were completed.

The infantrymen rode the tanks to the line of departure (LD). At 1455 the 1st and 2nd Platoons of Company C, with two platoons of infantry in support, crossed the LD and went into blocking positions at POINT **D**. At the same time, the 3rd Platoon, with one platoon of infantry in support, crossed the LD and went into a blocking position at POINT **E**.

At 1500, the 4th Platoon of Company C, the company commander's tank, the forward observer's tank, and two companies of infantry crossed the LD. Shortly thereafter the main body of infantry crossed the LD and began its advance toward the first objective, the high ground in the vicinity of POINT **F**. Immediately it came under heavy small arms and light mortar fire.

The 1st Platoon was called up from blocking position **D** and went into position to place direct fire on the objective. The infantry, aided by the tank fire from the two platoons, secured the objective at 1630.



After the objective was seized, the two tank platoons advanced to the town of Sikhyon, which they secured at 1730, despite heavy small arms and automatic weapons fire from the hill at POINT **G** and the high ground near POINT **H**.

While the tanks advanced on Sikhyon, the infantry was being held up in its advance on **G** by the heavy fire there and from the high ground to the west. The 1st and 4th Platoons pushed northwest up the road from the town with the mission of outflanking the enemy on Hill **G**. When the two platoons, advancing under heavy enemy small arms fire, reached a position near POINT **I**, the tanks took the enemy troops on the reverse slope of **G** under fire. As the tanks opened fire, the enemy, disorganized by the heavy volume of accurate fire, left their position and began to fall back to the north.

The tanks pursued the withdrawing enemy troops, continuing to inflict heavy casualties with their intense volume of fire.

At 1900, the company commander received orders to begin withdrawing at 1915, and to support the withdrawal of the infantry until they reached the assembly area.

Results of the day's operations were 500 enemy killed and 12 machine guns destroyed. Friendly casualties were three men wounded.

This counterattack should have started four hours earlier, and should have been of regimental strength, supported by the entire battalion of tanks, instead of a battalion supported by a company of tanks. The delay in starting the counterattack was due to the normal confusion and the difficulty of fixing the enemy under the circumstances of an initial assault by such hordes of humanity. Had the attack started sooner, casualties inflicted on the enemy would have been even greater.

. . . Combined Arms Teamwork

Tanks in a Rescue Role

Company C of the 73rd Heavy Tank Battalion departed from the battalion assembly area at 0600 hours on April 25, arriving at the 12th ROK Regiment area at 0815. There, the company commander was given the details of an attack order issued for the purpose of rescuing a British unit which had been surrounded.

The 2nd and 3rd Platoons were placed in support of the attack of the 2nd Battalion: the 1st Platoon was to set up a blocking position at POINT **A**, and the 4th Platoon was kept in reserve.

By 0845 the three platoons which had been committed were in contact with the enemy. The attack by the 2nd and 3rd Platoons went well, and by 1300 they had secured their first objective, the high ground in the vicinity of POINT **B**. Here they made contact with some three dozen British soldiers of the Gloucester Regiment, 29th Brigade, isolated for three days from their unit.

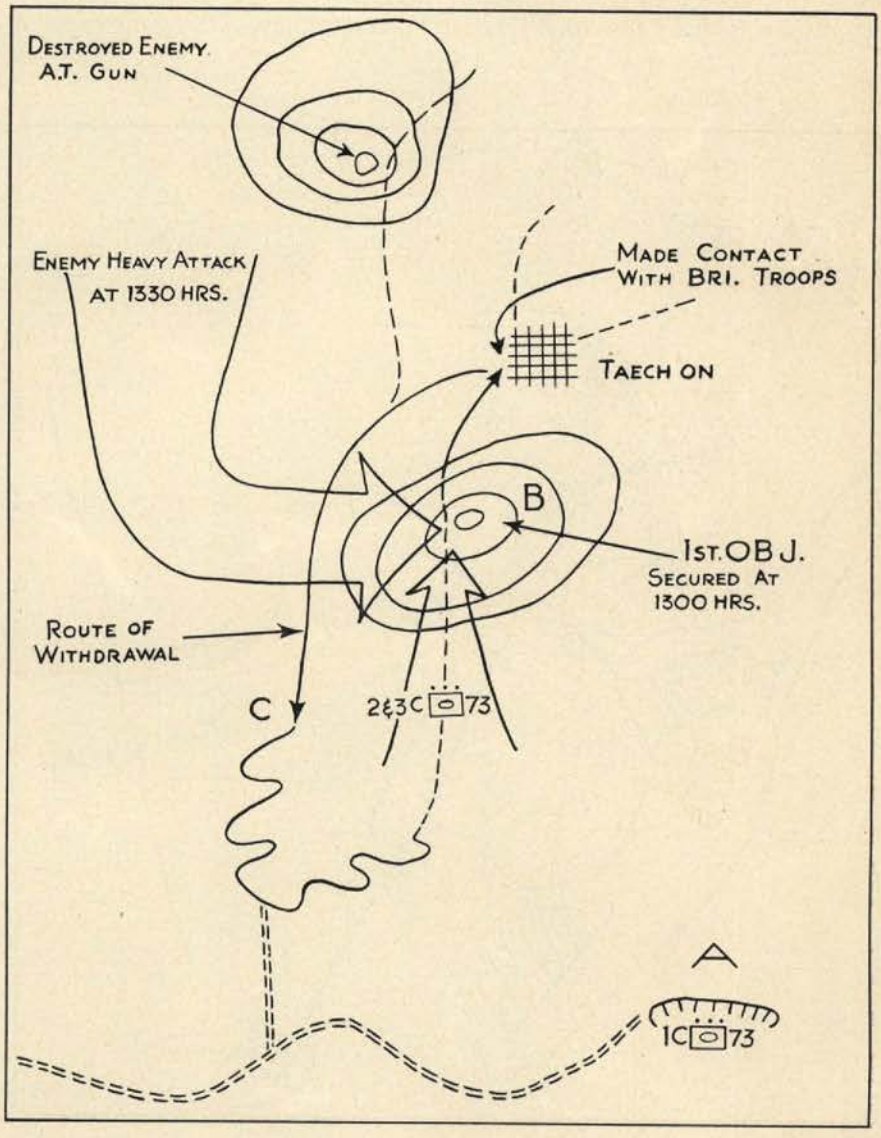
With the tanks acting as physical cover for the foot soldiers against heavy enemy fire, a withdrawal to friendly positions was begun. At 1330 a strong enemy counterattack from the west drove off friendly infantry holding the high ground to the rear of the tanks. The tank company commander reconnoitered for an alternate route of withdrawal, picking up the Commanding Officer of the ROK 2nd Battalion and the battalion's KMAG advisor.

When it was learned that the friendly infantry was not going to counterattack, the remaining tanks of the 2nd and 3rd Platoons were ordered to fight their way out. As heavy fire was being received, some of the wounded British soldiers were taken inside the tanks and the remainder mounted on the rear decks.

The two tank platoons fought their way back through enemy positions, while the gunners placed a heavy volume of machine gun fire to the right and left of the road. By 1400 all of the tanks had returned to the 2nd ROK Battalion position, where a blocking position was established at POINT **C**.

At 1530 the infantry began to withdraw as the tanks provided covering fire. After the infantry had withdrawn to new positions, Company C returned to the battalion assembly area, including the 1st Platoon, which, in a blocking position at POINT **A**, had made contact at 0800 that morning and had engaged the enemy with fire in view of the fact that the enemy infantry had made no effort to close in on the tanks and the unfavorable terrain prevented the tanks from closing on the enemy.

Results of this day of action were 572 casualties to the enemy. Ten machine guns and two antitank guns were destroyed. Friendly casualties were five men from Company C slightly wounded. 43 British soldiers of the Gloucester Battalion were brought back to friendly lines.



Tanks from Defense to Counterattack

On the night of April 28-29, the 1st, 2nd and 4th Platoons, Company B, 73rd Heavy Tank Battalion, were in defensive positions on line along the MLR of the 11th ROK Regiment. At approximately 0245, April 29, an estimated enemy division attacked the 11th Regiment positions.

The enemy made five strong attacks against the positions of the 11th Regiment, all of which were repulsed with very heavy enemy casualties. They did, however, drive in the OPLR of the 11th Regiment, and secured Hill 136, and the high ground to the right and left of the road in that vicinity.

At 0400, the 3rd Platoon, which had been in reserve at the company assembly area, was moved to the positions of the other platoons to support them. At 0530, Company B reported that all enemy activity had ceased except for some light contact on the left flank. At 0715 the 4th Platoon pulled back to the company assembly area to resupply, and at 0830 returned to relieve the 1st Platoon in position. After effecting resupply, the 1st Platoon relieved the 2nd Platoon at 1130 and the latter went to the rear to resupply. At 1700, the 4th Platoon returned to the company assembly area for the night.

Meanwhile, Company C, at 0500 hours on April 29, was given the mission of supporting one company of the 12th ROK Regiment in an attack to drive the enemy off Hill 136, and the high ground in the vicinity, and of restoring the OPLR of the 11th ROK Regiment.

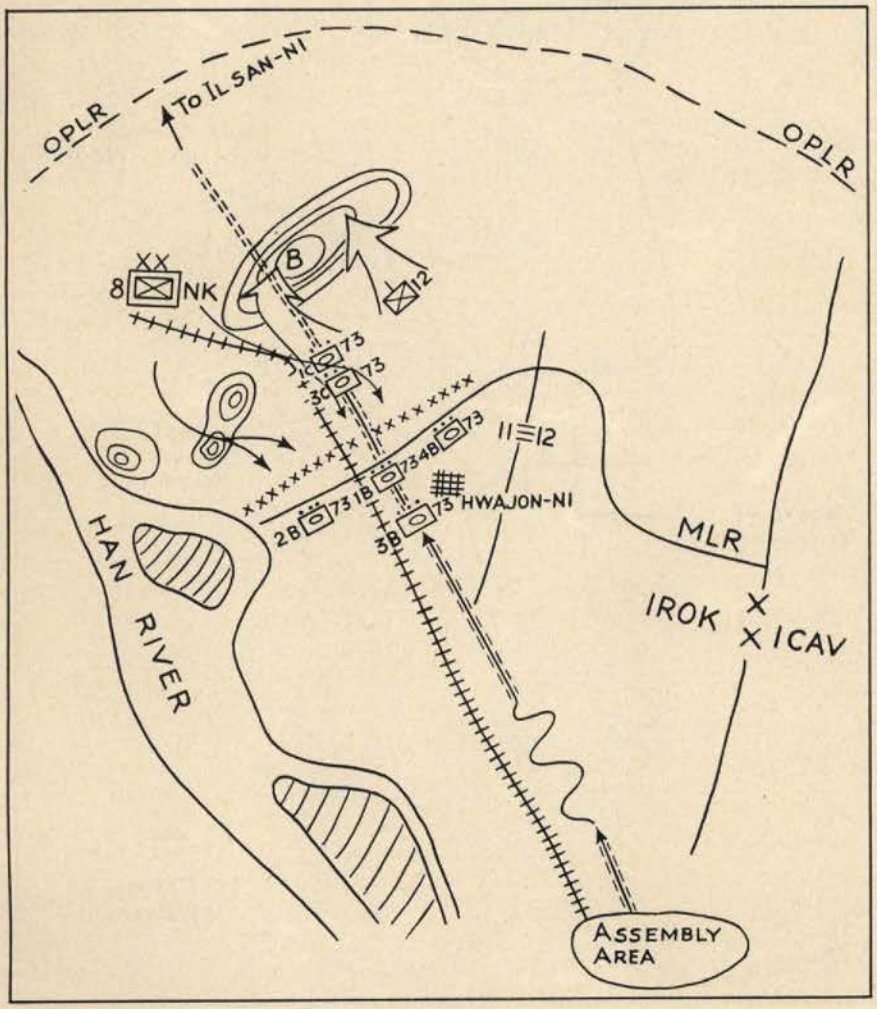
A heavy fog covered the area during the early morning hours of April 29, delaying the jump-off until 0800. The 1st and 3d Platoons crossed the line of departure (LD) and attacked northwest up the road, with the 1st Platoon leading. The infantry moved along the high ground to the right of the road, while the tanks fired on the high ground to the left to assist the infantry attack on that position.

At noon the infantry passed through the tanks to attack Hill 136. At one o'clock two additional companies of the 12th ROK Regiment were committed in the attack, which continued through the afternoon.

The 3d Platoon, running low on ammunition, was relieved from its position by the 4th at 1530, and returned to the rear to resupply. The 4th Platoon continued to fire from its positions along the road in support of the attacking infantry, and at 1900, having expended all of its ammunition, it withdrew for resupply.

At 1730 the 1st Platoon relieved the 2nd in its blocking position, and remained there during the night.

Results of the day's operation were 1241 enemy killed, 170 wounded, three prisoners; and eight machine guns, three mortars, two antitank guns, and one bazooka destroyed. Friendly casualties were 4 wounded.



Discussion

The enemy dead before the Company B positions were collected and counted by the infantry, the next day, and piled about four deep in a ditch. The infantry then placed machine guns to cover the area, and in the next two nights, when the enemy came to retrieve the dead, the pile was added to considerably. The ditch was closed on the third day, to become a burying ground. Subsequent interrogation revealed that the Chinese had informed the I NK Corps that Seoul had been in their hands for two days and that they (the NKs) could walk into the city at any time.

AUTHENTIC SOURCES FOR THESE BRIEFS

The actions described on these pages are based on reports in Combat Bulletins issued by the Headquarters of I Corps, and were made available by Colonel Thomas D. Gillis, Armor Officer of the Corps.—EDITOR.

Let's Keep the Bow Gunner

by LIEUTENANT CASILEAR MIDDLETON

In tank development, where one characteristic competes with another, the eye is bound to fall upon the crew as a place for chopping down and saving space for some other purpose. The axe is descending upon the bow gunner; our author has some good reasons for keeping him.

THE bow gunner, despite opinions to the contrary, should remain as a member of the tank crew. His primary weapon, the bow machine gun, is an essential item of tank armament in the light of past experience and supposition as to armored operations in the future. If it was ever found that a bow gunner occupied valuable interior stowage space in the tanks of World War II while providing little effective additional fire power to show for it, it is solely a reflection upon the command which failed to utilize a valuable asset.

The hue and cry for additional internal stowage space, culminating in some well-intended space engineering on the part of the designers, has eliminated the bow gunner as a member of the "family of tankers." Tankers who will be trained to man the new "family of tanks," presently in the embryo stage of development, should give careful consideration to this loss of an immediate relative.

The need for additional stowage space is acknowledged. Every soldier understands and appreciates fully the pressing need for an abundance of ammunition and fuel. Certainly the high velocity, heavy caliber main armament of the modern tank requires a larger fixed- or separate-loading round, which is difficult to handle and to store in quantity. There remains a problem! Where is the line to be drawn? Should we sacrifice a vital crew member and his weapon in favor of a relatively restricted stowage space? Should so much emphasis be placed on developing such a highly technical and supposedly faultless integrated firing system that all sight of the bow gunner, and the great tactical value he represents, is lost? Perhaps this article will serve to answer some of those questions, or at least help to draw some answers from the person or persons concerned in this "emasculation" of the tank.

The ability of a tank to place a soldier *on the ground*, and yet retain its capacity to move, maneuver and fire, without restriction, is extremely desirable.

There have been many instances in which a dismounted crew member has meant the difference between success and failure. Here are a few:

1. Route reconnaissance over dubious terrain
2. Inspection of road-blocks, bridges, and craters
3. Interrogation of dismounted troops and noncombatants
4. Outposting of tactical elements of armored columns at the halt
5. Preparing ambushes, erecting camouflage, and manning hasty defensive positions
6. Providing immediate replacement for any casualty among the operating crew members of the tank

Lt. Casilear Middleton served in the Marine Corps from 1937 to 1941. From 1941 to 1945 he was a Reconnaissance Officer with the 1st Royal Dragoons and the Royal Canadian Dragoons, British Eighth and Canadian First Armies. In 1948 he reenlisted in the U. S. Army and served as an enlisted instructor at the Armored School at Fort Knox until his commissioning in 1950. He now commands Company A, 3rd Armored Cavalry Regiment.

To properly evaluate the possibilities of the bow gunner's employment, one must simply remember that there are presently *five* in each tank platoon. Better than half a squad! This being the case, a tank company should be able to dismount a very formidable force while retaining its vaunted mobility and the greatest proportion of its fire power.

Past practice and experience indicate that infantry elements will sometimes be unavailable for employment in sudden emergencies. To cope with this possibility, tank units will often be required, through necessity, to put their shoulders to tasks which are not normally associated with the role of armor. Armored advance guard elements, committed in the breakthrough, the exploitation, and the pursuit, will be confronted with demands that they achieve full offensive momentum, and maintain it! Unit commanders, in order to comply, will have to place tankers *on the ground* as protection against enemy infantry and their new and ingenious antitank weapons (weapons which make for equality between the infantryman and the tank minus infantry protection).

There is a school of thought which advocates that when a platoon of tanks operates tactically, supporting tanks can satisfactorily cover the lead vehicle and its dismounted crew member in a situation requiring this arrangement. It has been said that perhaps *any* crew member, even the commander, could dismount from the leading tank, leaving the fighting capacity of the entire platoon intact. This may well be true, but the writer

feels that this could be carried out successfully in very few actual situations. It will be remembered that the leading tank is the "feeler," and is the most logical agency to sense the enemy's disposition and intention. The tank commander of the lead vehicle is the main link between the enemy's reaction to armor and the friendly actions carried out to deal with it. Thus we can ill afford to have him neglect this important duty in order to plod or prod about. Supporting tanks would often be masked by each other when in column, and masked by terrain when operating in wedge or echelon through close country. The lead tank, in order to achieve its mission, must have its commander at the radio and in complete control of the situation as it unfolds. Here is where the bow gunner would come in.

Too Essential

It is impractical to consider the dismounting of either the tank commander or the cannoneer, in view of the individual responsibility of these key crew members. The tank commander especially is responsible for the proper interpretation and the correct dissemination of all information as well as for the operation of his tank tactically in answer to any sudden enemy threat or obvious weakness. It is imperative that he remain in his cupola and in complete control of his tank as well as of the tactical situation.

Again, perhaps the cannoneer could be dismounted, but who would reload?

Unnecessary movement in the turret basket should be avoided when battle is joined, as each member of the crew has a definite task. He must work swiftly within small confines. The interior design of the new tanks is extremely restricted—even more so than those presently in use by the Army.

Heavy ammunition and equipment require sturdy men. There is doubt that a corps of mighty midgets will arise in time of war to man the new tanks and replace the present run of Armor personnel. If we *must* cope with restricted space conditions, we should strive to improve our lot by requesting features on the order of escape and casualty evacuation.

The inclusion of a bow gunner's hatch in the forward part of the hull would be an auxiliary escape exit, providing that the turret was traversed in the proper direction. In new designs, the driver's hatch is an alternate exit in case the top of the tank is swept by small arms fire.

A bow gunner's hatch would increase the chances of escape. While on this subject, perhaps experiments in developing an improved escape hatch in the bottom of the new tanks might be beneficial. Certainly a larger port in the floor of the hull would be a fine means of discarding combat residue. At the present time, spent cases are ejected through pistol ports in the turret or up through the tank commander's cupola. This is a poor arrangement. The tank commander should never be disturbed during his observing and sensing procedures.

Perhaps the German MK V Panther incorporated a development worthy of comment. The sharp slope of the rear plate of the turret required a small miracle in the field of space engineering in order to place the tank radio in a suitable position. This was remedied simply by moving the set down between the driver and the bow gunner. The control panel faced toward the bow gunner and changed his MOS to gunner-radio operator. Actually, the Panther was not the first tank to make this switch. In converting the guns of the German MK IV mediums from the short 75mm to the high velocity gun, the radio was moved to allow recoil space. The only disadvantage was the necessity for mounting the radio antenna on the hull instead of the turret. The tube of the main armament often came in contact with the radio mast, making transmission difficult for short periods of time during combat.

Small Arms Fire Potential

Small arms fire potential is a big reason in favor of retaining the bow gunner. "Blister" machine guns were considered for our new tanks, designed for inside loading and firing. They have been eliminated in production models as expensive and technically unsound. Without them, the only other weapon capable of firing a mission, independent of the main armament, is the dual-purpose .50 caliber machine gun atop the turret which, at the present time, can only be operated by the cannoneer or the tank commander. The tank com-

mander has other things to do related to the main armament. No matter how many coaxially mounted weapons are added to the main armament, firing is restricted. There is a crying need for a bow gun able to fire along the route of advance when the big tube is traversed to a flank mission, as is often the case. The verges of the road and cover along the route of advance *must* be covered by machine gun fire! It is here that the danger of rocket-launcher attacks prevails. These targets appear and disappear all too quickly. A bow gunner becomes a vital asset here.

Perhaps single or twin machine guns might be mounted in such a manner that the driver could fire them, but the mechanism required to elevate, depress or traverse them would be difficult to install, difficult to operate, and would be bulky and intricate. *Fixed* machine guns would fire only in the direction in which the tank was traveling. Should the driver change direction to take on a specific target, the movement might impede the sighting operations of the gunner manipulating the main armament.

There are many reasons for including the bow gunner and his weapon in the design for modern tanks other than the fact that it will throw off the logistical perfection of the "10-in-1" ration! Those facts are the result of actual combat experience and not idle dreams set down as a point of argument. A bow gunner is essential in tank and armored car operations. It *was* the case in North Africa, in Sicily, in Italy, and in Northwest Europe. It *is* the case in Korea. It *will be* the case in the future.

As It Was Said in Shakespeare's Day

Immediate action—"If it were done when 'tis done, then 'twere well it were done quickly." Macbeth, Act iv, scene 1.

Answer by indorsement—"Answer, thou dead elm, answer." II Henry IV, act ii, scene 4.

Concur—"This gentle and unforced accord, sits smiling to my heart." Hamlet, Act i, scene 2.

Concur—"At last, though long, our jarring notes agree." The Taming of the Shrew, Act iv, scene 2.

Unsatisfactory—"The work ish given over . . . By my hand, I swear, and my father's soul, the work ish ill done." Henry V, Act iii, scene 2.

Punishment is directed—"Give him chastisement for this abuse." I Henry IV, Act iv, scene 1.

Reprimand (chewing out type)—"Captain! thou abominable damned cheater, art thou not ashamed to be called captain? An captains were of my mind, they would truncheon you out, for taking their names upon you before you have earned them. You a captain!, you slave, for what? for tearing a poor whore's ruff in a bawdy house? He a captain? hang him, rogue! He lives upon mouldy stewed prunes and dried cakes. A captain! God's light, these villains will make the word as odious as the word 'occupy'*; which was an excellent good word before it was ill sorted: therefore captains has need to look to it." II Henry IV, act ii, scene iv.

Paper work—"There is enough written upon this earth to stir a mutiny in the mildest thoughts and arm the minds of infants to exclaim." Titus Andronicus, act iv, scene i.

*Makes this one also a handy reference to an unpopular overseas assignment.

—Major Charles R. Cawthon.

HOW WOULD YOU DO IT?

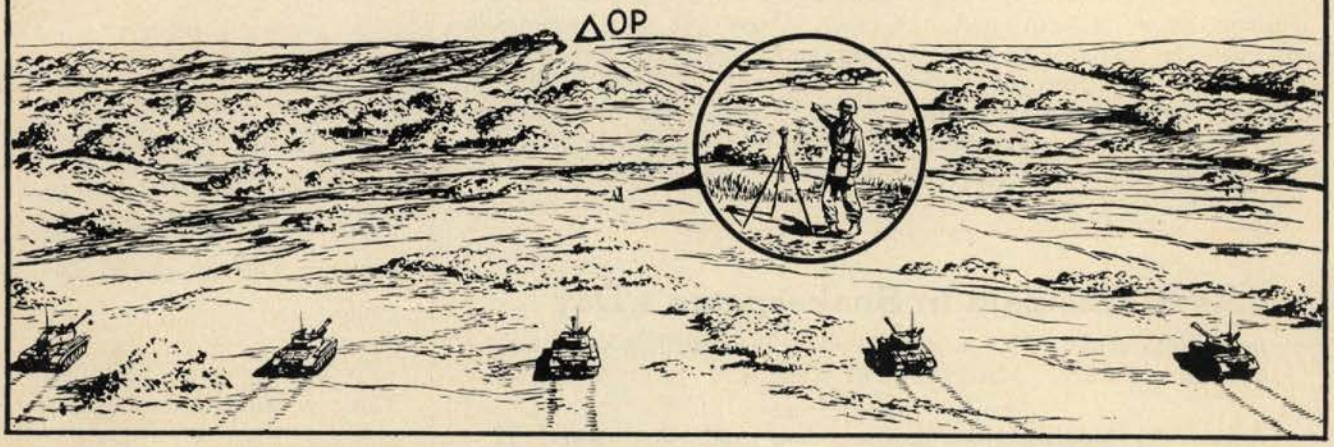
Gunnery Technique

AN ARMORED SCHOOL PRESENTATION

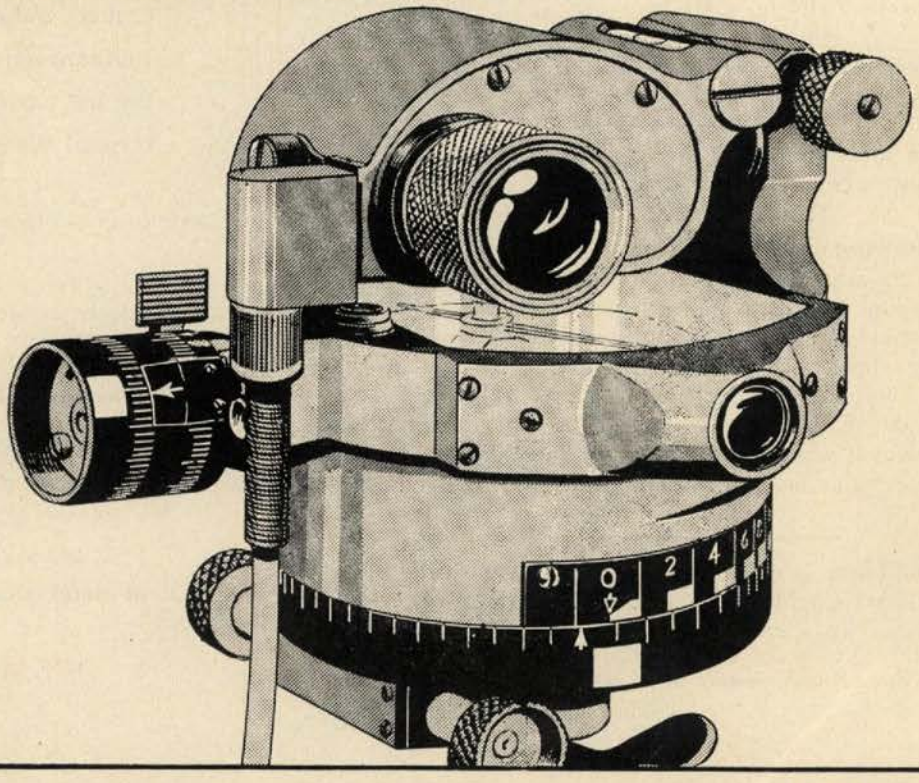
AUTHOR: LT COL J. C. NOEL, JR.

ARTIST: M SGT CONN

SITUATION: Unable to find suitable direct fire positions from which to support the attack of Company B (–), 1st Medium Tank Bn, the 3d platoon, from position in defilade, is to neutralize enemy positions in the wooded area some 3000 yards away. The platoon leader establishes an observation post on the high ground in front of the platoon's position from which he can control the firing. He orders the platoon sergeant to lay the platoon parallel by use of the aiming circle on a Y-azimuth of 1700 mils and to determine the minimum elevation for the platoon in order to fire and clear the hill mask.



REQUIREMENT NR 1: The platoon sergeant sets up his aiming circle approximately 80 yards in front of the tank. To orient the aiming circle on a Y-azimuth of 1700 mils, if the declination constant of the instrument in 16 mils, what would his procedure be, and what reading should he set on the azimuth and micrometer scales?



DISCUSSION

Situations arise under exceptional conditions when it is desirable for tanks to fire at the enemy from a position in defilade. Since the gunner and tank commander cannot see the target from such a position, indirect laying must be employed; this is not firing as artillery. Because of the flat trajectory, high muzzle velocity, small bursting radius of tank projectiles, and the excessive wear on the tube, this is an abnormal mission. Indirect laying requires a greater expenditure of time and ammunition; therefore, special provisions must be made for maintaining the tank's basic ammunition load. Indirect laying from a position in full defilade should never be employed when the mission can be better accomplished with direct laying. To bring out the technique, however, this situation is presented.

REQUIREMENT NR 1:- To orient an aiming circle on a given Y-azimuth, the operator subtracts the announced Y-azimuth from the declination constant (adding 6400 mils if necessary), sets the result on the azimuth and micrometer scales and centers the magnetic needle by use of the lower motion. The 0-3200 line of the instrument is then pointing along the desired azimuth. In this case 6416 minus 1700 equals 4716, the reading set on the azimuth and micrometer scales of the aiming circle. To determine the deflection for each tank the platoon sergeant using the upper motion, lays on the telescope of each tank, and reads the lower azimuth scale and the micrometer scale.

REQUIREMENT NR 2: At the platoon sergeant's command each gunner traverses his turret, with firing switch in "off" position, until the vertical line of his telescope sight is on the vertical support tube of the aiming circle. He then zeros his azimuth indicator. When the deflection is announced for each tank, the gunner traverses in the direction indicated by the aiming circle operator until the pointer of the azimuth indicator indicates on the azimuth and micrometer scales the announced deflection. For the number three tank the gunner traverses to the right (direction of fire is right of tank-aiming circle line) until his azimuth pointer is between the 0 and 3100 on the azimuth scale, and the micrometer pointer is at 28 on the micrometer scale. When the gun is pointed in the correct direction, the azimuth indicator is again zeroed. For obvious safety reasons the loader would not load until just before firing. To engage new targets the observer at the observation post merely commands deflection shifts and range changes as used in direct fire procedure.

REQUIREMENT NR 3. In firing tanks from a defiladed position it is necessary to determine the minimum elevation. Tanks will never be permitted to fire below minimum elevation. To determine the minimum elevation:

a. Determine the site to the mask by sighting along the bottom of the bore, and elevate the tube until the line of sight clears the mask. Measure the elevation of the tube with the gunner's quadrant. In this case it is 5 mils.

b. Determine the range from gun to the mask. From the firing table take the elevation for that range and add it to the site to the mask (elevation for 800 yards is 5.2 mils).

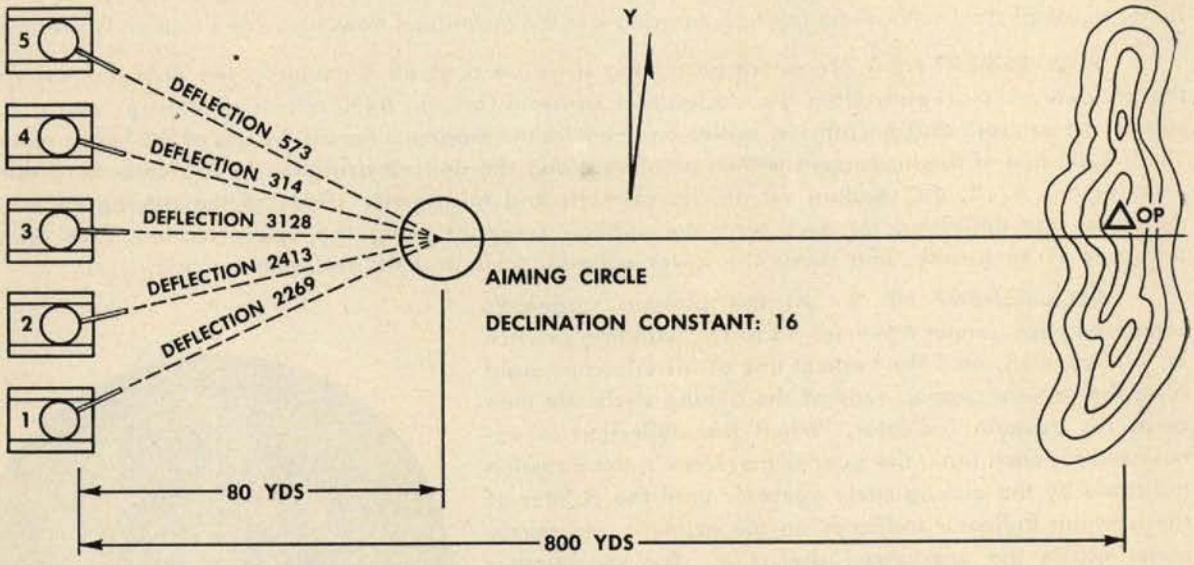
c. Add two "C"s for the caliber of gun (value of "C" for the 90-mm gun is 1).

d. When the mask is occupied or is to be occupied by friendly troops, add the angle subtended by 5 yards at the range to the mask. (5 divided by .8 equals 6.25 or 6.3 mils).

e. The sum is the minimum elevation. If the sum is fractional, use the next higher whole mil (5 plus 5.2 plus 2 plus 6.3 equals 18.5 or 19 mils minimum elevation).

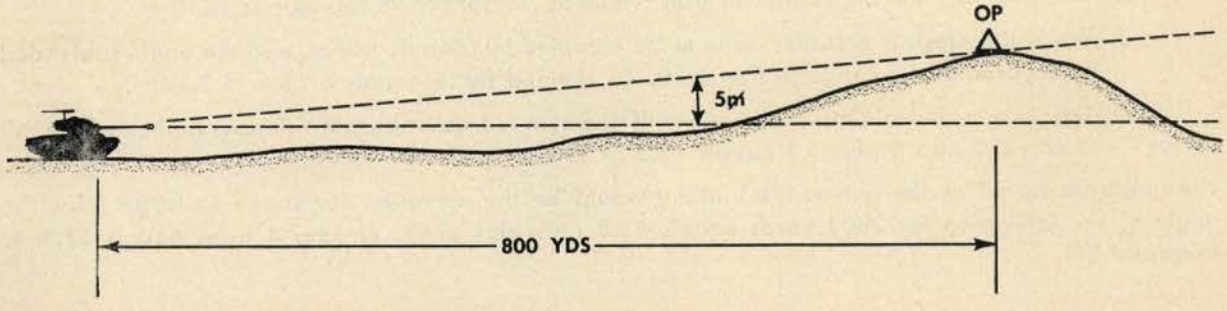
The quadrant set off on the gun to fire initially would be the elevation for range to target plus the angle of site (elevation for 3000 yards equals 23.8 mils plus angle of site, 4 mils, equals 27.8 or quadrant 28).

REQUIREMENT NR 2: The platoon sergeant, having oriented his instrument, commands: PLATOON, HE, AIMING POINT THIS INSTRUMENT, DEFLECTION NUMBER ONE 2269, DEFLECTION NUMBER TWO 2413, DEFLECTION NUMBER THREE 3128, DEFLECTION NUMBER FOUR 314, DEFLECTION NUMBER FIVE 573, (He points in the general direction of fire as each deflection is announced.) ANTITANK, 3000 UP 4, (target is 4 mils above gun position) REPORT WHEN READY. As the gunner of the number three tank, how would you carry out this command ?



REQUIREMENT NR 3: As the gunner of the number three tank, what would be the minimum elevation at which you can safely fire if the range from your tank to the mask is 800 yards and the site to the mask is 5 mils ? What quadrant would you set off on the gun to fire initially ?

FT 90-F-1 (Abr)	
SHELL HE M71	MV, 2700FS
Range	Elevation
600	3.8
700	4.5
800	5.2
900	5.9
3000	23.8



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TITO AND JUGOSLAVIA: A RENT IN THE IRON CURTAIN

BALKAN CAESAR; TITO VS. STALIN. By Leigh White. New York; Charles Scribner's Sons. 245 pp. $2.75.

Reviewed by M. S. HANDLER

Mr. Leigh White, a former foreign correspondent in Europe, tries in this book to present an authoritative work on the rise to power of Premier Marshal Tito and his subsequent struggle with the Soviet leaders. The result is a hodgepodge of fact and fiction, interpretation and misinterpretation, citations from provable and unprovable texts.

All this is accomplished with a reckless abandon in order to prove a thesis dear to the author's heart. The thesis

(Continued on page 60)

The Subject

Jugoslav Information Service
Marshal Tito

TITO AND GOLIATH. By Hamilton Fish Armstrong. New York; The Macmillan Company. 312 pp. $3.50.

Reviewed by M. S. HANDLER

Mr. Hamilton Fish Armstrong, the distinguished editor of *Foreign Affairs,* has produced a study of the struggle between the Jugoslav and Soviet leaders which will be read with great interest and profit by serious students of contemporary events.

The author, who possesses a sense of history, a respect for facts and a fine judgment, has dealt with a difficult problem in clear, analytical terms. It will be some time before a better book is written on the subject.

(Continued on page 61)

The Author

Erich Hartmann

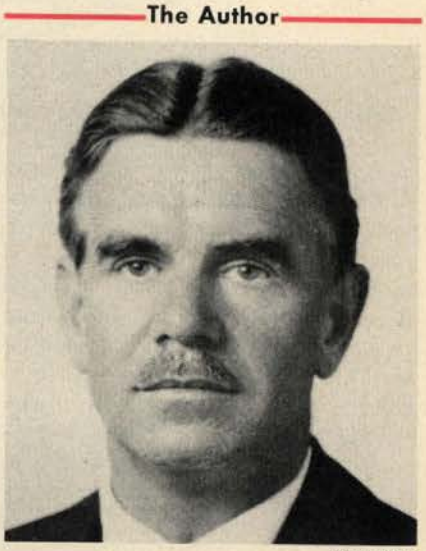
Leigh White served a tour of duty during the war as Moscow correspondent for the Chicago *Daily News*. Since that time he has been a roving correspondent in Eastern Europe, analyzing developments in that area. He is author of *The Long Balkan Night* (1944) and has contributed regularly to *The Saturday Evening Post* and a number of popular magazines.

The Reviewer

The New York Times

M. S. Handler is an experienced reporter who covered many of the key news sources at home and abroad for INS and UP during the 1930s. In recent years he has been a staff member of *The New York Times*, and its Chief Correspondent for the Balkans since 1948, posted in Belgrade. He is an outstanding authority on this important area.

The Author



Macmillan

Hamilton Fish Armstrong, distinguished Editor of *Foreign Affairs*, had his first Balkan experience as Military Attache in Belgrade in 1918-19. Later he was a special correspondent on Eastern Europe for the *New York Evening Post*. He has served in many State Department capacities and is author of many books having impact on our foreign policy.

(Continued from page 59)

is that Tito is a treacherous knave, that Winston Churchill, Fitzroy Maclean, William Deakin, General Bradley, Hamilton Fish Armstrong, Dean Acheson, John Haggerty, the late President Roosevelt, all were too naive for words in dealing with the Jugoslav situation.

Mr. White rejects evidence with the simple assertion that it is not true or that he does not believe it. He accepts evidence which supports his thesis without any attempt at critical evaluation. Mr. White is very consistent. He accepts only that which he wants to believe.

The author also has a highly developed imagination. For example, on page 18 he relates that after his release from Sremska Mitrovica prison in 1933 "Tito obtained a false passport with which he promptly journeyed to Moscow. He stopped off at Kumrovetz en route to see his aged mother for the last time. His father had died in 1918 and his mother would be dead before he returned to Jugoslavia. But Tito's main reason for visiting Kumrovetz was not to celebrate a family reunion. It was to gather up and destroy all the photographs, letters and other documents pertaining to Yosip Broz that he could find."

It may be inferred from this that Mr. White was at Kumrovetz and either saw the future Premier destroy the documents or that he was personally told about it afterwards by the Jugoslav leader or his mother. Was that so? Or is Mr. White simply filling in the gaps to make a good story? Or is he quoting as fact passages from some novel?

On pages 92-95 Mr. White offers brief biographical notes on the principal Jugoslav leaders. He describes Moshe Pijade as a hunchback and an "envenomed old cripple." Has Mr. White ever seen Moshe Pijade at close range or talked with him? This reviewer has. Mr. Pijade is neither a hunchback nor an "envenomed old cripple." He is a round-shouldered, elderly man with a biting sense of humor.

On page 18 the author asserts that Tito established a Marxist university in the Sremska Mitrovica prison. Unfortunately he is once again wrong about his facts. The founder and director of this university was Moshe Pijade.

In relating the history of the wartime operations of the Partisan Army, Mr. White writes his own special history. Not having been present in Jugoslavia at that time, he nevertheless ignores or denies such firsthand accounts as the one by Fitzroy Maclean.

Mr. White also writes a great deal about Tito's personal life and his alleged penchant for luxury. Yet Mr. White mentions only once in his book that he saw Tito and that was at a considerable distance during a session of the Parliament. It seems to this reviewer that if a writer wishes to discuss the love life, table manners and eating habits of an individual, the least that can be expected of the author is that he have had some access to the immediate entourage of his subject. Neither this reviewer nor any other persons who have had the occasion to visit Tito in his home have ever noticed anything resembling the barracks-room sense of humor Mr. White speaks of nor the gluttony and ostentatiousness he assigns to Tito. The big diamond Mr. White makes so much of is a fairly modest one, according to middle-class standards, and Mr. White's Bosnian cigarette holder, richly decorated with silver, is in reality just a Bosnian cigarette holder.

These are only several of a great number of factual inaccuracies in a book which is presented to the reader with an arrogance which could have come only from a "totalitarian liberal's" mind, which Mr. White attacks so vehemently on page 77. Mr. White writes with an intolerance of facts and opinion intolerable to himself which deserves the characterization of real totalitarian liberalism.

It seems to this reviewer that in approaching controversial subjects a writer should weigh all the known facts and assess all opinions on his subject. One cannot simply reject unpleasant facts and opinions by brushing them aside and accept others suitable to one's thesis.

Mr. White's method has much in common with that employed by Ilya Ehrenburg, the Soviet writer. Both men seek to prove their cases by assertion. Such a method will appeal only to the uninformed mind which seeks a neatly packaged, predigested solution for all problems.

On page 22 Mr. White relates his experience as an ambulance driver with the International Brigades in the Spanish civil war. It ill behooves a 1937 graduate of the disillusioned to denounce others for allegedly not understanding the tricky tactics pursued by communists, particularly when those he denounces had never even attended the school which produced the disillusionment. In his *mea culpa* Mr. White pleads that he was only 22 years old at the time. That is understandable. But Mr. White shouldn't try so hard to prove his enlightenment by pouring scorn on the allegedly unenlightened, who are not as naive as he would have us believe they are.

Tanjug

Estimated at 30 divisions, the Jugoslav Army is a significant military force.

TITO AND GOLIATH

(Continued from page 59)

Mr. Armstrong relates the rise of Tito to power in quite a different manner from that employed by Mr. White in his book, BALKAN CAESAR. Mr. White makes an effort to produce a devastating effect, but he falls short of the mark because of his extreme violence, his distortion and his undiluted hatred. The Jugoslav leaders in Belgrade, this reviewer can report, only shrug their shoulders over Mr. White. This is not the case with Mr. Armstrong's account of their struggle for power.

Unlike Mr. White, Mr. Armstrong confronted the pro-Mihailovich and the pro-Tito stories of the civil war with scrupulous fairness. The results were not entirely to the credit of the pro-Tito faction, and this reviewer can report that the Jugoslav leaders were more deeply disturbed by Mr. Armstrong's objective study of events during the war than by anything else in his book.

Mr. Armstrong is not an apologist for Tito—far from it. But he seeks to understand the meaning of the Jugoslav Communist revolt, not only as it affects the Jugoslav people but also as it plays a role in the struggle of the Soviet empire against the west. In this respect the author has rendered us a great service by his lucid account.

Mr. Armstrong traces carefully, on the basis of the evidence available at the time he wrote his book, the gradual development of dissension between the Jugoslav and Soviet leaders, dissension which had its origins in the early days of the war. The author demonstrates that the struggle which developed between the Jugoslav and Soviet leaders was not simply a spurious, vulgar contest, but a deep-seated conflict of interest and ideas which were bared to the world only after the publication of the Cominform resolution on June 28, 1948.

Mr. Armstrong relates in great detail the perilous period which ensued and which lasted well through 1949, when the Jugoslav leaders found themselves isolated from the world and their country under an economic blockade imposed by the Soviet government and its satellites. This was the period when the Jugoslav leaders, without any outside support, showed their mettle in resisting the mounting pressures from the east.

Jugoslav Information Service

Tito during the war. With Alexander Rankovich, left, and Milovan Djilas.

The ability of the Jugoslav leaders to resist the Cominform bloc had its repercussions in the satellite states of eastern Europe, and it is this aspect of the Jugoslav-Soviet struggle which receives close attention in Mr. Armstrong's book. The extermination of the communist resistance leaders who remained in the eastern European countries during the war cannot be understood unless related to the Jugoslav-Soviet struggle. The hanging of such men as Traicho Kostov in Bulgaria and Lazlo Rajk in Hungary and the arrest of Vladimir Klementis in Czechoslovakia, to mention only three names, were symptomatic of the Soviet reaction to the Jugoslav defiance.

It is in these sections of his book that Mr. Armstrong demonstrates that the Jugoslav-Soviet conflict is not a vulgar struggle for power, but a struggle which has international importance. The continuing purges in Bulgaria, Hungary and Czechoslovakia fully bear out Mr. Armstrong's thesis.

Mr. White notwithstanding, Mr. Armstrong's estimates of the strength and ability of the Jugoslav army were correct as of the time the book was published. I believe that the United States Combined Chiefs of Staff were satisfied on this point during the recent visit in Washington of Colonel General Koca Popovich, the Chief of the Jugoslav General Staff.

Jugoslav Information Service

Tito today. With Generals Dapcevich and Popovich at army maneuvers.

The only persons today who are denigrating the ability of the Jugoslav army are those in the United States, who for reasons of political passion opposed the American policy of supporting Jugoslavia. These persons find themselves in the same boat with representatives of certain continental European countries which have been the recipients of lavish assistance from the United States taxpayer. This latter group spread the most nonsensical reports about the Jugoslav army for the good reason that they fear that the rise of Jugoslavia in the favor of Washington will be accompanied by a corresponding decrease of the flow of American funds to their countries.

This reviewer believes that Mr. Armstrong has assessed accurately the American stake in the Jugoslav-Soviet quarrel and he believes that his recommendations for American policy are sound.

It is perhaps a coincidence that American policy is pursuing an objective similar to the one proposed by Mr. Armstrong, who has known Jugoslav conditions and its succeeding political leaders since World War I. He has made frequent visits to Jugoslavia. He knew the old leaders and he knows the present ones, and there is no doubt in this reviewer's mind that, of all the people outside the U. S. government service who are preoccupied with the Jugoslav problem, Mr. Armstrong is one of the two or three best qualified persons in this field in America.

Mr. Armstrong writes with a detachment and objectivity primarily concerned with the furtherance of the efforts of the United States to preserve the peace and, in doing so, Mr. Armstrong is an able defender of the interests of the United States. He is not a special pleader. He seeks a strong United States and one of the ways to strengthen the United States is to exploit every crack in the edifice of the Soviet empire in order to weaken it.

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By Donald C. McKay

The United States, and France, and the West in general are endangered by the reluctance of both countries to accept the new roles fashioned for them by the Second World War. In this book, a noted historian with an intimate knowledge of France analyzes the strengths and weaknesses of past and present French and American policy as a part of the world power picture.

The book is the latest addition to the American Foreign Policy Library, of which Mr. McKay is Associate Editor: like its well-known predecessors, it is a readable and objective survey of the foreign scene as it affects America's future, full of the facts that every well-informed citizen needs.

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HITLER'S INTERPRETER

The Secret History of German Diplomacy, 1935-1945

By Dr. Paul Schmidt

Paul Schmidt has had a unique opportunity to see history in the making, and in some of its most fearful aspects. A linguist of amazing ability and amazing memory, he was Hitler's chief interpreter for ten years after 1935. So great was his international reputation that world figures such as Sumner Welles, Chamberlain, Mussolini and Molotov trusted him not only to render their thoughts into another language, but also to furnish them afterwards with an accurate summary of what was said on both sides. At times he was the only third party present at meetings of world-shaking import, and is the only witness of what happened.

$5.00

ARMOR'S CONTRIBUTORS

Elsewhere in these pages is Dr. Roger Shaw's excellent article on the battles of Austerlitz and Jena, in which he brings us some important history in a most readable style. When our author made a recent motoring trip with Mrs.

Napoleon and Roger Shaw
At Austerlitz.

Shaw across the New York State line, to drive through a tiny village named after the Continent's original, he couldn't resist a fast pose. In turn, ARMOR couldn't resist matching the familiar assumed position with one of the old master of the position. The Napoleon view is from an old French print, courtesy of the Library of Congress. The Shaw view is from a 1917 Brownie, courtesy of Mrs. Shaw.

* * *

ARMOR has kept in close touch with the Armor officers of Eighth Army and I, IX and X Corps. You have seen the names of several of them in recent issues of the magazine. Colonel Pickett of IX Corps comes forward this issue with a story on the action of Company A of the 72d Tank Battalion at Kapyong in April, which he tells us is one of the outstanding company tank actions he has seen. The unit has been recommended for a Distinguished Unit Citation.

Colonel Pickett is somewhat annoyed by the fact that ARMOR takes two months to reach him. That is now corrected. The copies going to the Armor Officers of the Army and Corps are now going forward Air Mail each issue, at ARMOR's expense. We feel this is a professional assist. (Sorry, we must limit it to that!)

The Armor Officer of I Corps, Colonel Thomas D. Gillis, is responsible for the excellent combat items in this issue covering the 73d Tank Battalion. It took a lot of cabling, letter writing and leg work to carry the clearance end on this, but the details were ironed out and the reader of ARMOR will find some worthwhile material here.

Colonel Gillis would have liked it if we had air-mailed him a couple of the real T18E2 armored personnel carriers rather than the photos in last issue. However, if things go as all peace-loving people hope they will, he will not have any use for them.

* * *

If you have read the daily newspaper coverage of the war in Korea you will probably have read some of the top reporting under the by-line of Joe Quinn for United Press.

Joe has been on the scene since last fall. A tanker in World War II and a member of the 13th Armored Division (ORC), he has the right background to do the story on armor that you will find elsewhere in these pages. In the course of his stint Joe has collected plenty of notes and has talked with and spent plenty of time with the tankers. With a trip back to the States in view, perhaps he will be able to do another piece for a later issue. A summer training hitch with the 13th in California will be a pleasant experience after the kind of standing Joe is sampling in the picture.

Correspondent Quinn.

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In response to the Special Editorial on Page 63, May-June number.

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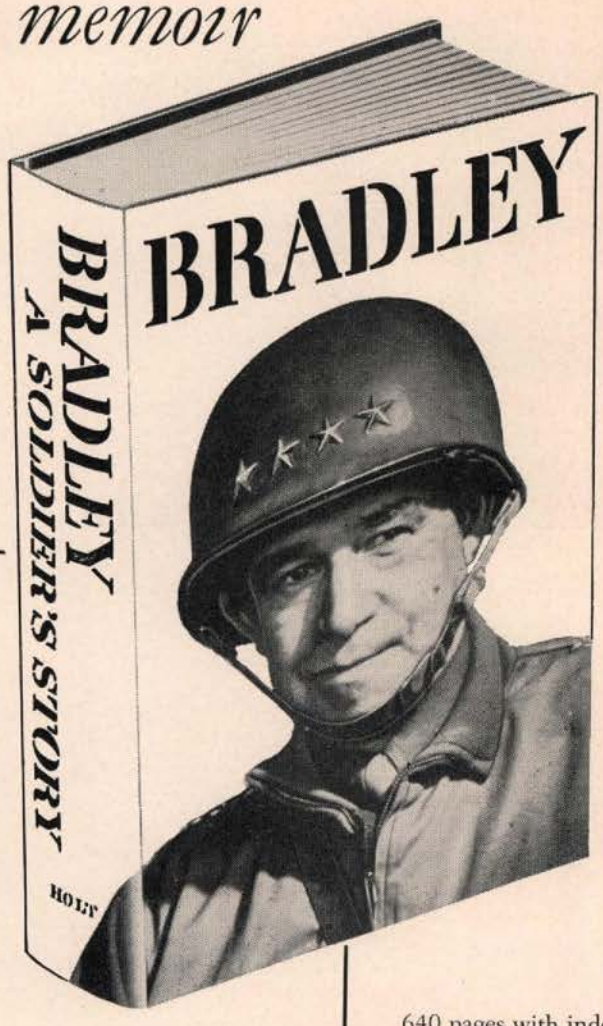

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"**This is a big, rich book.** It tells the soldiers, their relatives and their countrymen just why and how they came to be sent where they were sent and asked to do what they did."—WALTER MILLIS, *N. Y. Herald Tribune*

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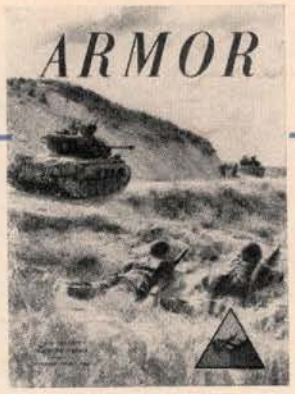

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MOBILITY IN THE FIELD ARMY

Many ingredients contribute to the mobility of so large an organization as the Field Army. Army Commanders, among the senior professionals in the U. S. Army, express themselves on the Sum & Substance of an important subject. (See page 18.)

SEPTEMBER-OCTOBER, 1951

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ARMOR

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Volume LX SEPTEMBER-OCTOBER, 1951 No. 5

CONTENTS

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LETTERS to the EDITOR

Filling the Vacuum

Dear Sir:

I recently had occasion to browse through your magazine ARMOR. Needless to say, I considered much of the information good to know and decided to subscribe.

It would appear that your publication fills the gap created by the stress placed on tank-infantry training and the consolidation of the former infantry and artillery magazines into one. With all due respect elsewhere, I believe tank-infantry training has suffered. And you well know the problems of training the Medium Tank Company of a civilian component regiment.

I mention these points because I am S-3 of a National Guard regiment. And we have just returned from our two weeks of summer camp. There, I detected a vacuum brought about by the Tank Company and infantry units training in widely separated areas. Both did well until the three-day problem; infantry lacked the aggressiveness needed for successful offensive operations with armor, and the armor seemed to forget infantry was around.

This indicates a general lack of understanding and practical application of the tank-infantry principles. A lack of understanding, I might add, from the top down to the private soldier.

Thus, in a roundabout way, I arrive at the point of telling you I think your articles and after-action reports on the use of armor are well appreciated.

MAJOR JAMES F. CLARK
425th Infantry
Michigan National Guard
Dearborn, Mich.

● *Korea hos given tank-infantry teamwork a tremendous boost. Infantry and tank commanders have learned a lot, and the distribution of this battle-trained personnel throughout our training structure will be increasingly felt.*—ED.

A Sharp Eye

Dear Sir:

Since I began receiving your very informative magazine, I have always been interested in the pictorial section on new weapons for Armor.

Your May-June issue has photographs and data about the new personnel carrier T18E2 in the pictorial section. The data gives one .50 cal. MG as the armament mounted on the carrier. However, I have gone over all the photographs of the T18E2 and I find that it mounts twin .50's instead of only one.

U.S. Army
T18 and experimental cupola.

Could you straighten this matter for me?

CADET RODOLFO M. PUNSALANG
Philippine Military Academy
Baguio, Philippines

● *Cadet Punsalang is either the sharpest eyed reader of ARMOR or the most conscientious in sitting down and writing a letter. The commander's cupola shown in the photos is the T122, which mounts two .50s. It was experimental on this vehicle only. Production models will be equipped with a modified cupola from the medium tank, mounting one .50.*—ED.

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Manuscripts: All content of ARMOR is contributed without pay by those interested in furthering the professional qualification of members of the Armed Services. All manuscripts should be addressed to the Editorial Office, 1719 K Street, N.W., Washington 6, D. C.

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Rates: See bottom of contents page.

Junior Officer Training

Dear Sir:

Please accept my congratulations for the very fine presentation of excellent subject material found in the Sum and Substance pages of your May-June issue. Indeed, many words have expressed the thought of the lessons of Korea. How many, however, have been devoted to the importance of the junior officer?

Certainly no previous American campaign has increased the prestige of this tactical leader as has the Korean struggle. Battle success through tactics (employed largely by junior officers) is theoretically insured through sufficient training of these combined arms leaders. But has this training been adequate?

Recent combat experience in Korea and the perusal of the pages written by participants concerning the current campaign indicates our previous training has been inadequate in providing the junior officer theoretical background necessary to assume his vitally important role in warfare.

As professionals we cannot excuse inadequate mental and physical preparedness by recalling political history. Commanders must neglect neither their own training nor that of their subordinates.

CAPTAIN C. R. MCFADDEN
The Armored School
Fort Knox, Ky.

Leave It Alone

Dear Sir:

In reference to the column "What's In a Name," which appeared in the July-August issue:

The specialists in mobility and shock have always been cavalrymen, whether they were on horseback or in tanks. Why change their hereditary title?

The Infantry has many weapons not possessed by Napoleon's "enfants," yet that arm has not altered its traditional name nor discarded its time-honored insigne.

LT. COL. G. I. EPPERSON
Birmingham, Ala.

Mistaken Identity?

Dear Sir:

Reference your article "Catching the Enemy Off Guard," which appeared in the July-August issue; the author refers to Lt. Col. Welborn G. Dolvin of Task Force Dolvin as "a World War II paratrooper."

Unless there are two persons by the same name, I think you will find that Lt. Col. Dolvin, known as Tom by his associates, is a tanker from 'way back. He joined the 756 Tank Battalion at Fort Lewis, Washington, in World War II and remained with the unit through Africa, and on into Italy and the Battle of Cassino, as Executive Officer. He then took over command of the 191st Tank Battalion at Anzio, commanding it until the close of the war. His ability in the field of tank-infantry operations was recognized with his assignment as instructor in that subject at Fort Benning. As a former tank company commander in the 756th I am interested in setting the record straight on Tom Dolvin, a tanker from 'way back.

Dolvin (r) and Rogers one war ago.

MAJOR DAVID LOEB
137th Tank Battalion
Ohio National Guard
Ashtabula, Ohio.

THE COVER

Eight U. S. Armies are operative at the present time. The first six of these are administrative in nature, each embracing a geographical section of the country. The seventh is a Field Army stationed in Western Germany, while the eighth is the fully operational Field Army in combat in Korea. ARMOR's cover features the eight Army Commanders, their photos accompanied by the respective Army insignia. Elsewhere in these pages are their absorbing views on the important subject of Mobility in the Field Army.

Our sense of history has been needling us. You've seen it evidenced in these pages in a number of ways, and will see it again. It couldn't be otherwise when we're sitting as secretary of the oldest of the Army branch associations, and holding down the editorial desk on the oldest of the branch magazines.

We have at our elbow the master file of this magazine, which delineates the history of our special field. It is a source of never failing interest, and at odd moments, which must be all too few, we poke into the sixty-six-year-old story of the Association and the sixty-three years of publication background on the magazine.

Inevitably we were prompted to look up the details on the familiar cavalryman, Old Bill. The research has gone on over a long period. It adds up to quite a story, a story in which one big question remains unanswered: "Where is Old Bill?"

Frederic Remington, the noted artist, contributed materially to the enduring historical record of our Western frontier. The United States Cavalry was a major subject of his pen and brush.

Mr. Remington was a life member of the Cavalry Association. As close as we're able to call it, this honorary membership was conferred in the mid-1890's.

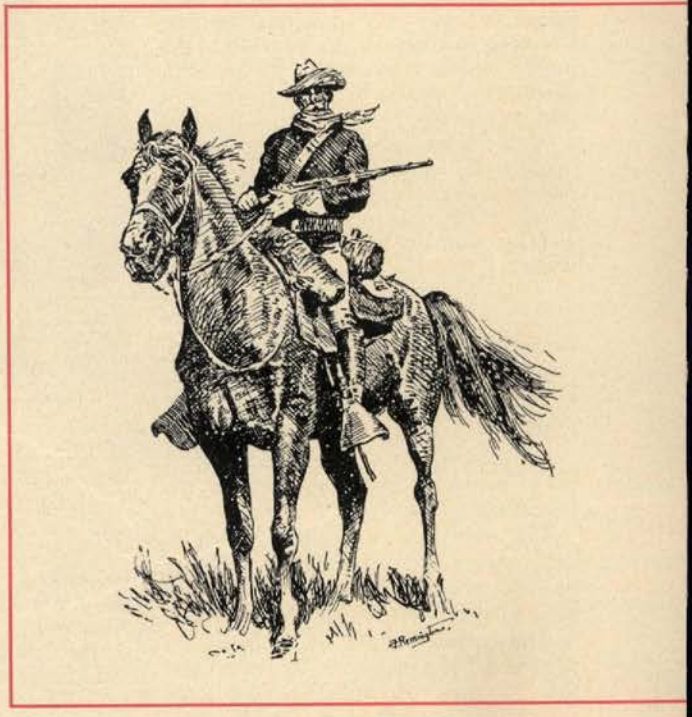
In 1898, Remington visited the camp of the 3d Cavalry at Tampa, Florida, where the regiment was staging for the Santiago Campaign. The artist was a close friend of Captain Francis H. Hardie, who commanded Troop G of the 3d.

During the visit Remington's attention was attracted to one of Troop G's noncoms, Sergeant John Lannen. (Three spellings appear in various accounts—Lannan, Lannen, and Lannon; Lannen originates with the report from the troop records, and is probably correct.) Lannen impressed Remington as the perfect type of cavalryman, a superb rider and an imposing figure. The artist made several rough sketches of him in front of Captain Hardie's tent.

Sergeant Lannen accompanied Troop G of the 3d Cavalry to Cuba, where he died of yellow fever shortly after the surrender of Santiago. At the time of his death he was on his final enlistment and was expecting to retire.

From the rough sketches of Lannen made in Florida, Remington made two finished sketches, which he presented to the *Cavalry Journal,* probably in 1902. The drawings are reproduced on these pages.

The excellent sketch of a frontier cavalryman appeared on the front cover of the *Cavalry Journal*



in January of 1903. It was to hold this position for almost forty years, until July, 1942. The other sketch of the cavalryman riding away appeared on the back cover for a long period, and as a tailpiece inside the magazine.

Always a branch of great *esprit,* and highly conscious of history and tradition, the cavalry took the Remington masterpiece to its heart. Somewhere through the years Remington's cavalryman acquired the name "Old Bill." Today Old Bill stands on our title page, a trademark of mobility in war.

And once again we ask—Where is Old Bill?

What we want to know is—Where are the *originals* of those two drawings?

Here are the findings to date . . .

The report of the annual meeting of the United States Cavalry Association for the year 1903 appeared in the *Cavalry Journal* of April, 1903. In the proceedings, Captain L. C. Scherer, Secretary-Treasurer and Editor, had this to say:

The masterpiece of a frontier cavalryman on the cover of the Journal *and the disappearing rider on*

the back are contributed to the Journal *with the compliments of Mr. Frederic Remington, a life member of the U. S. Cavalry Association.*

. . . and further along it was

Resolved, that the thanks of the U. S. Cavalry Association be tendered to Mr. Frederic Remington, a life member of the Association, for the splendid drawings presented to the Association for the cover pages of the Cavalry Journal.

After establishing these facts in our mind we drew a deep breath as we looked back over fifty years of editorship and wondered where to put the finger . . . and wondered why nothing had been done previously. We began to dig further . . .

A helpful little clue came up in the issue of January, 1911. The original set of engravings, made from the original drawings, had begun to show signs of wear. Editor Lt. Col. Ezra B. Fuller, in the 1911 issue, noted that "Some two years ago it became necessary to have a new plate made [of the large drawing], as the old one was becoming much worn. *The original drawing was, and is still in the possession of a former editor of the* Cavalry Journal and it was obtained from him for the purpose of making the fresh plate."

Well . . . !

The next step was merely that of checking the editorship for the period from 1903, when the drawings were first published, to 1909, approximate date of engraving of the second set of plates. Our predecessors were:

Captain L. C. Scherer . . . 1902-1904
Captain M. F. Steele . . . 1904-1905
Captain Herbert A. White . 1905-1907
succeeded by Lt. Col. Fuller.

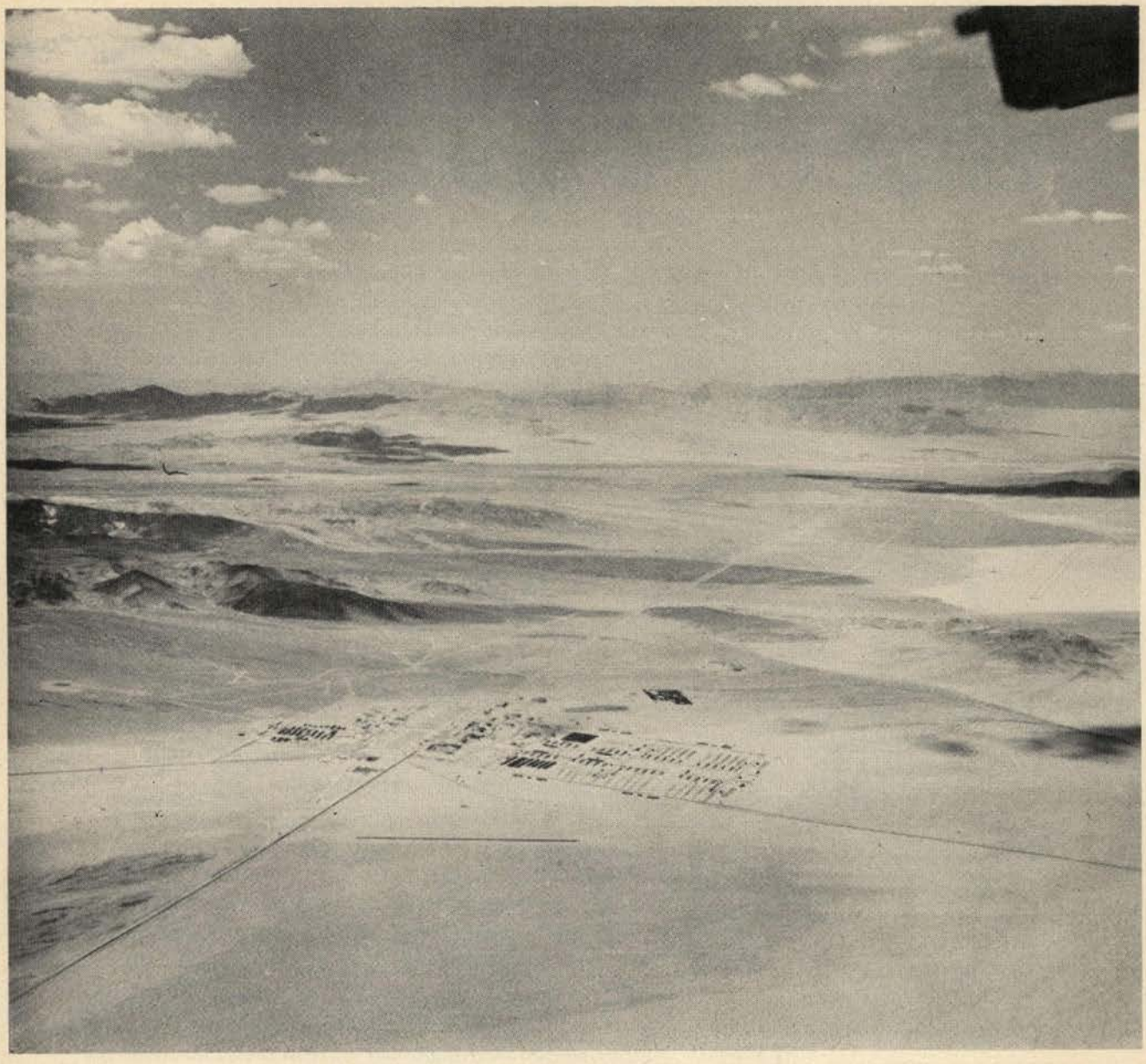
A check indicated that only one of the four was still living. He is Matthew Forney Steele, familiar as the author of *American Campaigns.* Contacted at his home in South Dakota, Colonel Steele could give us no information other than the fact that the drawings were never in his possession.

It seems fairly logical to assume that Captain Scherer, editor during the period of presentation of the drawings, may have retained them in his possession.

Someone, somewhere—perhaps a relative or a friend—may know of the whereabouts of the Remington drawings. They are actually the property of the Association. They should repose in the archives of the Association, available to the greatest number of interested people. They might well be slated for later transfer to the Mounted Service Museum now under discussion.

We throw the mystery open to the field. How are you at sleuthing? If you have a clue let us hear from you.

The Editor



tankers get tougher!

Far out in the California desert

our tankers are ranging over a huge chunk

of unprepossessing real estate

in advanced unit training under rugged conditions

Fire and maneuver are the watchwords

at the new Armored Combat Training Area in the Mojave Desert

U.S. Army Photos

IT was hot that August day. Almost too hot to sit in a Patton tank and stalk an unseen enemy. But these men were tankers and they knew that what they were confronting would get a lot tougher.

There wasn't a sound in the valley except for the deep-muffled "thump, thump" of other tanks firing their 90mm guns on distant flanks. Now and then it was possible to distinguish the hoarse chatter of a .30 caliber machine gun.

As the number one tank in the platoon rounded a slight rise, its maneuver was covered by the other M-46's in the platoon. It took position in defilade to cover the advance.

Cautiously the second tank approached an open space. Suddenly the tank commander shouted:

"GUNNER. SHOT. TANK—ONE FIVE HUNDRED. (Identified) FIRE! . . ."

"ON THE WAY." WHOOMPH! (seconds later) WHOOMPH!

"CEASE FIRE."

This might have been any valley, on any battle front, except for the apparent absence of trees and green vegetation. Yet the tenseness that accompanies combat was not evident among the tankers. Why?

The explanation is simple. This was not just any valley, this was a particular valley—the Garlic Springs firing range at the new Armored Combat Training Area, Camp Irwin, California.

When the Army conceived the idea for the new armored training area, it had in mind a training program which could thoroughly teach tankers to perform their primary function—to fire and maneuver. All other training there would be secondary.

As a result, tank crews at Camp Irwin are trained under simulated combat conditions using the latest combat tactics and techniques, including those learned in Korean fighting. This comprehensive five-week training is integrated into company and battalion combat firing problems designed to prepare both men and units as skilled fighting teams capable of meeting any combat situation on any field of battle.

Special emphasis has been placed on gunnery, tactical training, combat firing exercises and maintenance of newly developed tanks and other armored equipment. As heavier tanks and more powerful guns are developed by the Army, the Armored Combat Training Area will adapt training to meet such needs.

by ***COLONEL C. V. BROMLEY***

Colonel Charles V. Bromley is a 1923 graduate of the U. S. Military Academy. During World War II he led Combat Command B of the 12th Armored Division in the Alsace, Rhineland and Central European campaigns. He is now Assistant Inspector of Armor in the Office of the Chief, Army Field Forces.

Training is given all tank units, except those in an armored division, who have completed their basic and advanced individual training phases. So flexible is the program that the group commander supervising unit training may modify it to conform to the training level previously attained by units. Throughout all training, the tank-infantry concept is carried through by utilizing available personnel.

As prescribed by the Office, Chief of Army Field Forces, headed by General Mark W. Clark, one-third of all training is conducted at night, stressing individual and unit night discipline.

The new training site maintains "resident" tank equipment for use by student troops. This allows tank units to train in the maneuver area without necessitating transporting unit equipment from their home stations. Therefore a tremendous saving in both valuable training time and expense is accomplished, since only troops and bare essentials of equipment are brought to Camp Irwin.

Located 37 miles from Barstow in the Mojave Desert, Camp Irwin borders on the edge of California's Death Valley. It is, the Army believes, the answer to the tanker's need for an unrestricted firing range and maneuvering area. Actually the only restrictions as to fire and movement are those imposed by nature. Thus, direct fire weapons can be fired in most any direction, without fear of ricochets as nearby mountains form the backstops and the parapets. In all instances, the length of the range exceeds the maximum range of the main armament of the Patton Tank and the new T-43.

One-third of all training at the Armored Combat Training Area is at night.

A Patton tank blasts from a defiladed position during one of the range problems.

The camp is 2300 feet above sea level and has an annual rainfall of about one inch. Its temperature varies from a low of 28 degrees in winter to a high of 139 degrees in summer. However, neither the heat nor cold is felt too much because of the extremely low humidity.

Realizing the value of the Mojave Desert as a potential training site, the Army in 1861 explored the area, investigating its possible use for training a camel corps. However, it wasn't until 1940 that a camp was formally organized there, although for several years before this area had been used by National Guard and reserve units as a training area. In 1941 the War Department established the Mojave Anti-Aircraft Range, known as "MAAR," at Camp Irwin. In honor of Major Gen. George Leroy Irwin, battle commander of the 57th Field Artillery Brigade in World War I, the camp was renamed "Camp Irwin" in 1942. It was inactivated in 1948 and reactivated in May 1951 under the command of Colonel Maurice E. Kaiser, of Stockton, California.

Whenever some people think of the desert, they immediately visualize a flat expanse of hot sand. Although this may be true for certain sections of Camp Irwin it does not completely describe the terrain features of the entire Armored Combat Training Area. The country abounds in rugged terrain. It is hot, it is dusty, and there is not, perhaps, a single shade tree on the entire 1000-square-mile post, except for scattered Joshua trees. However, it may be pointed out that the Army did not pick this area as a vacation spot or a place for rest and relaxation. Instead it was selected simply because it was the largest military reservation available and suitable for tank firing and maneuvering without the acquisition of additional land.

The idea for the organization of the new armored training area cannot be credited to any one individual or group. Instead it came as a result of increased emphasis on tank training brought on by the type of fighting in Korea, which stressed the tank-infantry-artillery concept of battle. The actual establishment was accomplished by OCAFF and the Department of the Army.

Before the Irwin training area was opened in July this year, the 90mm gun mounted on the Patton tank had to be fired in narrow "alley" ranges, with extremely strict safety regulations enforced at all times. Nowhere was it possible to fire and maneuver properly without limitations. The Armored Combat Training Area definitely alleviates this situation.

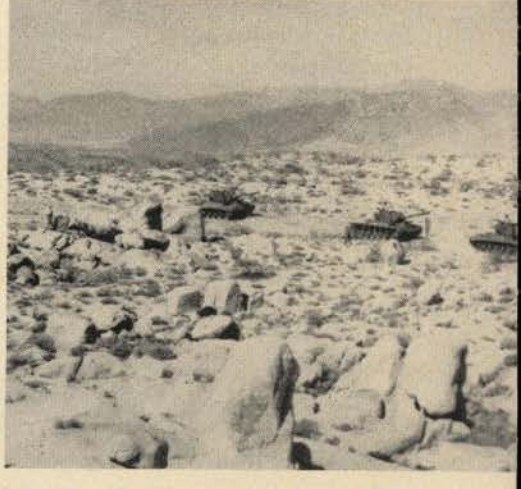
Regimental tank companies of the 43rd "Winged Victory" Infantry Division were the first units to undergo training. They were also the first to attempt the two-phase concept of training as conducted at Camp Irwin for all tactical firing and maneuvering problems.

This two-phase problem begins with an orientation on the situation, similar to actual combat. For the first objective, tanks are driven by instructors using students as assistant drivers. The gun crew and tank commanders are students but there is one instructor with each tank who points out the objectives and the proper firing positions and alternates. After completion of the first phase, a critique is held and errors are brought out. Then the students take over for the second phase.

For the second phase, the final objective is given in the orientation and the students perform all the operations of the tank. The cadre instructor merely acts as a safety officer in regulating the direction of fire. He may, in some instances, point out specific targets but the student takes command from then on.

This two-phase training is important. First of all, it creates initiative on the part of each crew member by giving him a chance to be instructed in a tactical problem, and then being tested in a second phase. That is, he is guided by hand through the problems first and then given a free hand to run the second phase as he sees fit. In addition the tank and platoon commanders and leaders are able to grasp the situations and then apply the instruction immediately to a somewhat similar problem using their own judgment. As one M-46 student driver said: "For the first time I've been able to understand the problems of the entire crew in running a tactical problem. Heretofore, these problems were explained to me in training manuals and by instructors but I think it takes firsthand experience to really grasp what a tank crew is up against in a combat situation."

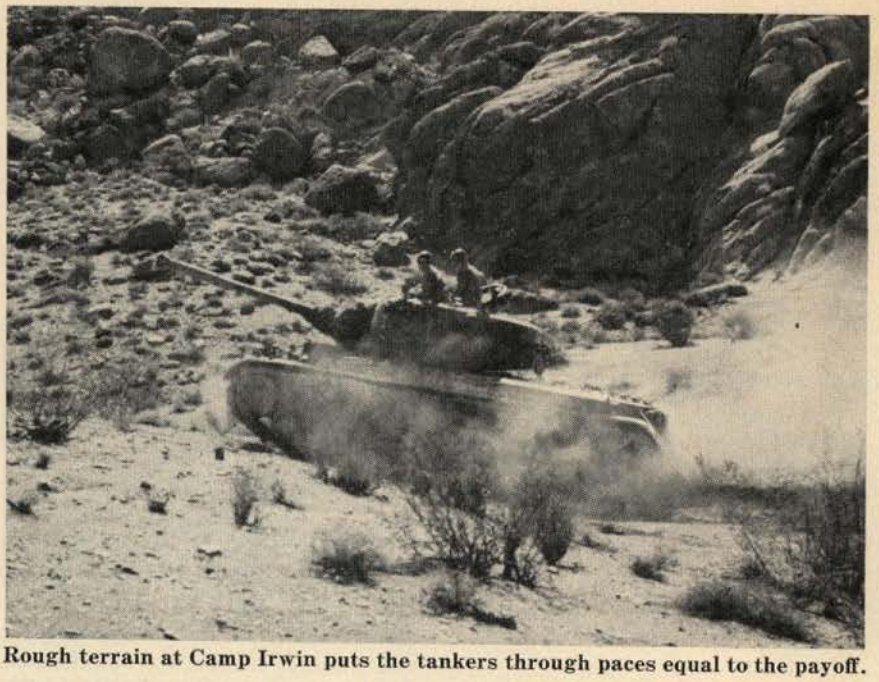
Illustrative of this, the Garlic



Springs combat reaction course has been designed to spark the student's initiative and provoke his thought on a situation which might well arise in combat on any terrain.

An orientation of the problem reveals that (for instance) two Patton tanks will proceed down a wide valley and take a hill occupied by infantry several thousand yards away. The tanks move out in column and as they approach the range area they disperse and advance in normal order, taking advantage of available cover and concealment. Taking position in turret defilade, the tank commander is informed by the instructor that a mobile gun is in position two thousand yards away to the left front. The student commander picks a better position and moves the tank into hull defilade firing position, on advice of the instructor. Student gunners then choose their ammunition and if their choice is wrong they are corrected by the instructor. From then on the particular firing problem is in the hands of the students as they sight and fire the gun. This first phase is repeated in several instances, at the end of which a critique and orientation for the second phase is held. In the second part, the instructor serves as safety officer only and merely points out the targets in the event the student tank commander misses them in his observation.

Another illustration is the Bicycle Lake night problem. In this problem, a tank platoon is engaged in a retrograde movement. The tanks mass their fire on an objective to cover a flank. As one section of the platoon moves out, the other continues to fire at a simulated overwhelming enemy force. When the first section has taken a new position, the second withdraws and fire is massed again. This comparatively simple maneuver requires the utmost coordination between tanks. The instructors guide the student crews by hand in the first phase but in the second, the students have full responsibility and instructors act as safety officers.



Rough terrain at Camp Irwin puts the tankers through paces equal to the payoff.

One of the most interesting problems is the tank versus tank situation. In this action, utilizing M-4 tanks, crews and vehicles are pitted against each other using live .30 caliber ammunition. Usually two or three tanks take defensive positions and are attacked by an equal number of offensive tanks. The tanks are completely buttoned up. As the defensive tanks take position in hull defilade, the offensive tanks move out. Using maximum cover and concealment, they attempt to fire and maneuver and knock out the defensive element. Ten hits on either an offensive or defensive tank constitute a knocked-out vehicle. Thus far, there have been no casualties suffered among students or instructors.

One impressed soldier gave his thought on this particular problem. "It gives us (the defense) a chance to fire at maneuvering tanks and at the same time receive returning fire. What this means to me is simply, get the other guy before he gets you."

Another, an instructor and veteran of Korean fighting, said: "This (problem) really teaches the crews to keep on their toes in maneuvering and picking primary and secondary positions. It teaches accuracy of fire so essential to tankers and toughens them to combat principles they may be called upon to use in either offensive or defensive war."

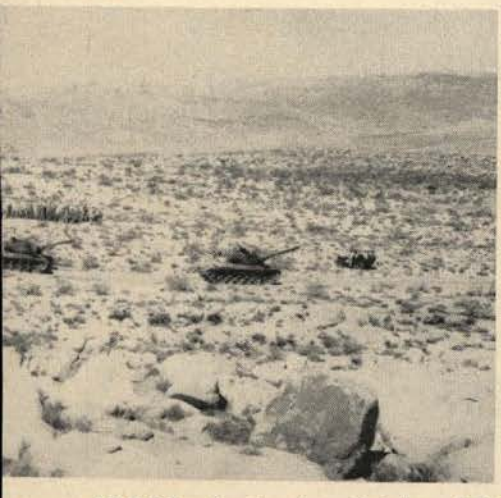
The largest tactical problem run is the battalion in offense. As a climax to battalion training, the two-and-a-half day problem is led by the trainee battalion commander. It begins as instructors give the commander an orientation of the problems and the objectives he is to take. The battalion then goes into bivouac and proceeds with the problem. Acting as umpires, as in maneuvers, are the instructor personnel. The entire problem, involving sixty-eight tanks, is completed before any suggestions or corrections are made. As in platoon and company problems, infantry is used in support of the tanks throughout the entire two and a half days.

Camp Irwin has nine tank firing ranges. There are six tactical problem ranges, two gunnery ranges, and a special range devoted solely to firing tanks massed in defilade position. In addition there are two antiaircraft artillery ranges which are used by National Guard and Reserve units in summer training only.

Here is a breakdown of the types of ranges:

1. Tank gunnery—HE adjustment (miniature range), sub-caliber shot and sub-caliber manipulation exercise (1000 inch range).

2. Moving target—sub-caliber mov-



ing target exercise, service ammunition show group and HE shot and .30 caliber adjustment firing.

3. West Range AAA—120mm and 90mm AAA fire at radio-controlled aircraft.

4. Black Rock—advanced guard tactical problem using M-46 with 90mm and .30 caliber machine gun.

5. Tank versus tank with tracer ammunition.

6. AAA automatic weapons—.50 caliber and 40mm weapons.

7. Drywell Area—tactical problem, tank platoon in the attack and organization for defense.

8. Bicycle Lake—tactical problem, platoon in delaying action.

9. Garlic Springs—combat reaction tactical problem.

10. Platoon mass and defilade firing.

11. Rock Pile—tactical aggressive problem.

Now under construction on the post is a "figure eight" moving-target range which when completed will surpass any similar range built in the past, according to the combat-experienced Colonel Kaiser, who is in charge of all training there. The moving-target range will consist of a standard gauge railway track set in defilade. A small car will tow the target on a level outer edge. On the inner edge of the "eight," the track will be laid in defilade so that when the target is towed over it, it will have a bobbing-disappearing effect, giving the appearance of a maneuvering tank. The target can be fired upon at distances from 800 to 1800 yards.

Training at the Armored Combat Training Area is a part of the accelerated and intensified training program initiated by the current critical international situation.

Col. Maurice Kaiser, C.O. at the new Armored Training Area, discusses some problems with Major Boatwright, S-3

In a public address last fall, General Clark struck the keynote to our present training program when he said: "There is an ever-present need for a realistic, rugged training program in our Army. Now, more than ever before, we face the challenge of being militarily prepared for our role as a member of the national defense team. To successfully accomplish our mission, we have intensified the training of our soldiers." The general added: "The objective of this intensification program is to prepare each soldier and unit to meet a ruthless and savage enemy who adheres to no established rules of land warfare; to instill in our soldier the spirit of the offensive, and to win over this vicious foe on the battlefield, despite any and all odds."

Armor training is geared to a new high. It has not yet reached the peak of World War II but it is making new advances in its respective field which are unsurpassed by any other branch. The Army plans to use the Armored Combat Training Area to train all tank and armored cavalry units, with the exception of armored divisions. It is planned that these units will run through the five-week course at least once a year to keep them in a state of combat readiness. This training adequately meets our present needs. Should the Army be expanded further, it will be necessary to expand the scope of training on a similar basis to conform with the needs.

The accelerated armored training at Camp Irwin is capably meeting training requirements and policies as set forth by General Clark. For the first time it gives students an opportunity to fire and maneuver Patton tanks, and train with other armored equipment, on varied terrain. It is generally accepted by both instructor and trainee tankers at Camp Irwin to be a tough grind. But this is the specific purpose of such training: to make tankers tougher and ready them for the rigors of combat through first-hand experience in tactical problems and other training under conditions as near to actual combat as possible.

As a result of such training—tankers DO get tougher.

The 132d Tank Regiment of the Ariete, a wall of armor across the Friulan plain.

The ARIETE:

Italy's Armored Brigade

by LIEUTENANT COLONEL R. GUERCIO

Italy's recovery and enthusiasm have made her a bright spot in the Western picture. With a full armored brigade in operation and another shaping up, she has been building strength into her forces within peace treaty limitations of a 200,000 man army and 200 tanks. These restrictions have been eased by the Western Big Three, paving the way for a responsible role in the NATO

ITALY'S Ariete Brigade was the first armored unit to be reorganized after the war as a part of the new Italian Army.

Although subject to future revision, at the present time the Ariete is composed of one tank regiment, an armored infantry regiment *(Bersagliere)*, one regiment of artillery, one squadron of light armored cavalry, one company of combat engineers, one communications company, and staff units.

The weapons of the Brigade are substantially those of the Allies during the last war. Substitution of more modern weapons will depend for the most part upon MDAP aid.

The concept of basing the structure of the Italian Armed Forces along primarily defensive lines has not been affected by the introduction of large armored units into land forces. Italy has learned the lesson of the recent war—that the success of modern defensive operation is based not on a static established line, which can be penetrated or smashed by modern methods of warfare, but on the concentration of resistance in positions which are particularly important from the strategic aspect and for the movement of armored and motorized units. This explains the emphasis which the Italians are placing on their armored units—an interest which naturally

Lt. Col. R. Guercio is a member of the Italian Army General Staff.

A tank battalion of the 132d Tank Regiment, one of the Ariete's components.

Mobile support in the form of self-propelled artillery, another top ingredient.

The brigade's reconnaissance squadron would act as the eyes and ears out ahead.

must be correlated with the availability of weapons and a relatively modest military budget.

The training of the Ariete Brigade is greatly facilitated by its location. In Italy, an enemy attack using armored masses, coming from the East, could be developed only on the Friulan plain, which is cut transversally by a series of water obstacles such as the Tagliamento, the Livenza and the Piave Rivers, and whose frontal width is not over forty kilometers. The Ariete Brigade has its headquarters in this plain behind the advance fluvial lines, and all exercises take place on terrain which, in case of war, would be the real theater of operations.

Personnel know every detail of the zone, and are fully trained to act according to possible developments of a future battle. Between the strong pivots of support of the infantry divisions which are solidly deployed for the defense of vital zones, and the natural and artificial obstacles, the Ariete Brigade would be in a position to maneuver with freedom to combat enemy attempts at penetration.

General Eisenhower and Congressional representatives have expressed satisfaction on the state of training of the Brigade and its components.

The weapons and the training of a unit are not the whole story of its fighting efficiency. For a complete judgment the morale of the personnel must be considered.

In Latin countries, the morale factor plays a very great part. Tradition and the history of the unit contribute much to *esprit de corps*.

The Ariete participated in some of the heaviest fighting in North Africa during the last war. Although linked to an unfortunate endeavor, it acquitted itself with honor on the battlefields of Cyrenaica, Egypt and Tunisia. Its record is one of inspiration for its new members.

The banners of the three basic units of the Brigade (tank, armored infantry and artillery) have been decorated with the Gold Medal, the highest Italian honor for military valor.

The 132d Tank Regiment is heir to the tradition of the Italian tank corps. Organized after the First World War, it has a short history, yet it has received many honors in participation in various campaigns on several fronts and in different theaters of operation.

General Eisenhower, Supreme Commander, Allied Powers Europe, reviews the Ariete, an element of his NATO force.

The tank units have a great attraction for Italian soldiers, and they draw the best individuals.

The officers and noncommissioned officers of the tank regiment are, for the most part, veterans of the long campaign in North Africa, and their combat experience contributes substantially to the standard of efficiency of the unit.

The *Bersaglieri*, represented in the Brigade by the 8th Regiment, are also special troops. The *Bersaglieri* were organized in 1836 as a part of the Piedmontese Army, composed of carefully selected men and designed for risky assault assignments. The physical qualifications, their gymnastic training, the spirit developed in them, the long, fast step, their uniform characterized by the wide-brimmed hat with the flowing plume, all captured the imagination and enthusiasm of those identified with the unit. General Eisenhower wrote of them "I can recall few instances in a lifelong military career when I was so impressed by the physical fitness and the enthusiasm of a regiment."

In their century of existence the *Bersagliere* has undergone a progressive transformation, being adapted to developments in the methods of warfare; however, the ardent spirit has always obtained. The light troops of the 19th Century became assault troops in the First World War, then fast patrol troops, and finally the infantry of the mobile armored units.

On his recent visit to the Ottawa conference and to Washington, Italy's Premier Alcide De Gasperi pressed for and received from the Western Big 3 an easing of peace treaty limitations imposed on Italy's armed forces.

The artillery regiment of the Ariete has all semi-mobile weapons. It has inherited the spirit of the famous horse-drawn batteries which were accustomed to fighting from advanced positions and to maneuver audaciously in full action. Armored artillery has enhanced the combat qualities of this branch. The umbrella type of fire support has been adopted.

The cavalry is represented in the Ariete by a squadron of light armored vehicles which are used particularly in tactical reconnaissance missions. This squadron is a descendant of the Novara Regiment, organized in 1828, and which participated in all the wars fought by Italy.

Around this central organization as described above are woven the engineer and signal and service elements, all of them reflecting *esprit*.

The moral, material and training efficiency of the Ariete Armored Brigade is an outstanding example of the seriousness with which the Italian Army has been reconstructed in the postwar period. The Army has worked quietly and with little publicity, bearing always in mind these principal objectives: the reconstruction of the spirit; the modernization of professional training; and the reorganization of units along modern lines. The results obtained have been a source of wonder among outside observers.

Another armored brigade, to be known as the Centauro, is scheduled for organization and will be equipped with more modern weapons.

The Ariete is tangible evidence of the ability of the Italian Army to handle the tasks assigned to it under the Atlantic Pact—tasks which coincide with the direct defense of the homeland.

Improper utilization and minor organizational problems are no grounds for eliminating

The Infantry Regiment's Tank Company

by CAPTAIN ROBERT E. DRAKE

THERE has been much discussion recently on the subject of Armor in the infantry division. The divisional tank battalion seems to meet with general approval, but the regimental tank company has been an item of contention.

Some debaters favor the retention of the present organization with minor changes. Others are for the elimination of the three regimental tank companies, with substitution of an additional tank battalion at division level.

As a tanker, I can't agree with the idea of eliminating the regimental tank company. Too many advantages to the infantry regiment would be forfeited.

I believe that much of the feeling against the regimental tank company stems from a lack of complete knowledge and cooperation in its use. Equipment is no more effective than the manner in which it is utilized. Utilization of the tank company is controlled by the infantry regimental commander, and requires close cooperation with the tank company commander, with the latter acting as a regimental staff armor advisor. The fact that a tank company is misused by an infantry commander does not reflect a need for reorganization of units, but rather a need for more Armor training for infantry commanders and, therefore, increased confidence in tank unit commanders. Cooperation is the keynote for the fielding of a successful team. Only when full cooperation is attained will the capabilities of the regimental tank company be fully exploited and the value of the unit recognized.

What are the capabilities of the company and how have they been borne out in Korea?

The current organization of an infantry regiment provides the infantry commander with armor under his direct command. It supplies him with

U.S. Army

long range antitank capabilities. It gives him armor advice on his staff. All of these are constantly and immediately available.

This constant availability precludes situations where the infantry regiment might find itself completely stripped of armor, and hence of its primary antitank measures. Since enemy armored attacks will be launched to take advantage of surprise and weakness, there would normally not be time to call for a tank company from a divisional tank battalion. A regimental company, integral with regimental plans and operations, would be on the scene.

In the expansion of the successful Inchon landing, my regiment encountered stiff resistance from an enemy force well situated in a mountainous stronghold south of Suwon. Initially, due to the nature of terrain and the fact that most enemy armor seemed to be opposing the Eighth Army advance to the south, armor opposition to the regiment was not considered a serious threat. Nonetheless, a tank company was employed with the regiment. On the second night in the area, the enemy attacked at midnight, down a winding, mountainous road, with five tanks. Four of these were knocked out by tank fire.

Regardless of its antitank mission and numerous secondary capabilities, the regimental tank company will be employed primarily in the role of infantry support. The mere presence of armor does much to eliminate the fear of a potential enemy tank attack and the team feeling encourages the foot soldier. For, in spite of the highly advertised effectiveness of individual antitank weapons, the doughboy alone is not psychologically equipped to stand up to an enemy armored attack. He knows he can cope with enemy infantry, but he is always concerned about this machine gun emplacement or that tank position. An accompanying friendly tank dispels that concern; he can see it with him, he knows it will move when he moves, and he knows what it can do. The regimental tank company provides this support always at the disposal of the infantry battalion commander immediately upon request. On two different occasions, platoons of my company were attached to elements of the 7th ROK Division during offensive operations against the Chinese Reds. The ROK regimental commander asserted that those tanks spelled the difference in some ten miles of advance per day!

Another consideration in favor of the integral tank company is the exploitation of a local success which may not have been anticipated and for which no tank attachments from division would originally have been requested; the regimental tank company would be on hand to meet this unforeseen need.

In the regimental tank company, we have a unit which is already integrated into the team. This situation averts last minute coordination difficulties that invariably arise when orders are issued hastily. I know of few instances in Korea where attack plans allowed sufficient time for prior planning in which to enable a new member to be properly integrated into the team. Frequently, alerts were given late at night for attacks to jump off the following dawn. Most units involved in the attack plans would be committed in night defense positions; thus coordination plans were difficult to make. As a part of the regiment, my tankers knew the battalion and company commanders throughout the regiment. My own work was closely tied in with regimental S-2 and S-3. This had great common advantage.

The inadequacy of maintenance and logistical support of the regimental tank company appears to be the primary concern of proponents of the divisional two-battalion organization. The concern is duly justified but the proposal that an attached tank company with maintenance team support from the tank battalion would be any better off fails to take into account all the facts in the case. Problems do exist in the regimental setup but they are not insurmountable. Most of our maintenance problems in Korea, both in the regimental tank companies and the division tank battalion, stemmed from the inadequacy of the Division Ordnance Company. It had neither equipment, parts, nor personnel sufficient to cope with the infantry division armor. At any rate, as in the case of any newly conceived organization, the test of combat and the maturing with use generally point out numerous minor changes which will effect improvements. My company incorporated many of the changes and systems proposed herewith and we established one of the best maintenance records of tank units in X Corps, including the battalions.

The current maintenance and logistical organization in the regiment is as follows:

TANK COMPANY

Maintenance Section

1 Mtr Sgt
2 Rcvy Veh Mech
5 Track Veh Mech
1 Radio Mech
2 Turret Mech
2 Mech Helper

SERVICE COMPANY

Tank Maintenance Section	*Tank Company Section*
1 Mtr Sgt	1 Sect Ldr
3 Track Veh Mech	2 Sqd Ldr
1 Turret Mech	9 Lt Trk Driver
1 Welder	4 Ammo Handler
2 Lt Trk Driver	
1 Mech Helper	

The Tank Maintenance Section of Service Company was attached permanently to my company. The mechanics of this section performed the quarterly preventive maintenance checks on all tanks, while the tank company mechanics accomplished trouble shooting and monthly preventive maintenance checks. Except for these mechanics and the welder, the personnel of this section were charged with much of the recovery work and all evacuation and parts supply. Parts were procured through normal channels when available, directly from Ordnance of the tank battalion, or through cannibalization of knocked-out vehicles. So acute was the parts shortage that maintenance personnel from various tank units would descend on knocked-out vehicles before the dust settled. In many respects, I believe parts supply would

Captain Robert E. Drake commanded A Company of the 77th Tank Battalion in Japan for one year prior to the outbreak of hostilities in Korea. This company furnished the provisional tank platoon which took the first M26 tanks into Korea, and supplied the cadres for the three regimental tank companies of the 7th Infantry Division. Captain Drake commanded the Tank Company of the 31st Infantry Regiment in the Inchon-Suwon and Chosin Reservoir operations. Now back in the States, he is assigned to Army Field Forces Board Number 2 at Fort Knox, Ky.

have been better handled in Service Company, which is actually the source of supply. The Tank Company Section of Service Company, responsible for ammunition and gasoline supply, consists basically of ten 2½-ton trucks and was more than adequate for operations in Korea, but perhaps quite suitable for other battlegrounds; consequently, no changes in this section are suggested in the organization proposed below except the addition of a parts supply section:

TANK COMPANY

Maintenance Section

1 Mtr Sgt
2 Rcvy Veh Mech
7 Track Veh Mech
1 Radio Mech
1 Welder
2 Turret Mech
3 Mech Helper

SERVICE COMPANY

Tank Supply Section

1 Sect Ldr
1 Parts Supply Clerk
1 Mech Helper
2 Sqd Ldr
9 Lt Trk Driver
4 Ammo Handler

The supply of rations and individual equipment presents no problem whatever in the regimental tank company. In the case of an attached company, if the lessons of the last war are appreciated, this supply matter was usually a serious bone of contention between the tankers and infantry.

By incorporating a tank company into the infantry regiment, maintenance and logistics problems were somewhat multiplied but communications within the regiment were greatly enhanced. On many occasions, the tank company radio net provided communications links among regimental units when other means failed; due to terrain interference, this system was not optimum and was accomplished by relay. Many infantry commanders fail to appreciate this valuable communications support; it not only ties them to regiment but usually directly to adjoining battalions. Tanks also enabled tactical air liaison officers, as well as artillery forward observers, to move well forward to better accomplish their missions while maintaining their communications by relay.

It is interesting to note here that interspersing tank sections through a long column of vehicles provides a source of continuous information of the progress of the column, through use of the tank radios. In the withdrawal from the Chosin Reservoir, from Hagaru-ri to Koto-ri (6 miles), my company was distributed by sections through the long Marine vehicle column. At that time, we were attached to the 5th Marine Regiment. Enemy forces in strength occupied the high ground on either side of the road for most of the march and thus were at liberty to cut the column almost at any place of their choosing during the eighteen-hour march. There is no question about the effectiveness of the tank fire in beating back enemy attacks on the column and of the tank radios in keeping the regimental commander aware of the extent of enemy activity.

In addition to the assets of the regimental tank company already mentioned, there are considerations of the all-important morale factor which must not be overlooked. We have established the infantry's need for the continual presence of armor whether or not it is integral to the regiment. In the case of an attached company, such a unit might remain with the regiment for extended periods of time without rotation and, of course, without administrative records. This situation creates numerous problems in such matters as casualty records,

FROM THE KOREAN FRONT

A SMALL UNIT ACTION

AT midnight on November 27, the Chinese Communist Forces attacked suddenly and isolated battalion positions of my regiment in the Chosin Reservoir area (see map). Up to 0300 November 28, little was known of the situation and no reports had been heard from our I & R platoon operating on the regiment's exposed flank; however, at that time intermittent radio reports from the battalions were received at regimental rear **D** (also the tank company position) indicating the disposition of enemy forces.

It was obvious that the situation required a strong armor task force to attack north, open a supply route to the battalions, and, on arrival, to lend armor support to the defense. The task force required infantry and the only infantry available comprised the regimental antitank mine platoon (which was usually under my control), an attached platoon of combat engineers, and various personnel of Service Company, all committed on the defensive perimeter at **A**. Picture the coordination problems! Yet the problems were somewhat simplified because the leaders concerned knew each other well, had worked together before, and were all on the scene. Radios had common preset channels, call signs were well known, and familiarity with regimental SOP was thoroughly established. The details of the plan of attack were worked out and the attack jumped off on schedule.

Two platoon size tank-infantry task forces attacked north to seize hills **B** and **C**, both strongly defended by the Chinese and both quite steep. On reaching these objectives after a stiff fight, infantry losses had been severe and tankers experienced quite some trouble in holding their ground alone; however, they held long enough to permit me to send my third platoon north on the road to attack around the sharp bend indicated by the X's and which was the scene of an ambush on the previous night. At this time, the Chinese counterattacked, swarming over the unaccompanied tanks on **B** like bees and knocking out two tanks of the first platoon at the bend with captured 3.5" rocket launchers.

Tank fire from **C** drove the enemy from **B** and permitted the fourth platoon at **B** to withdraw to more tenable positions. We occupied **C** and commanded **B** by fire until nightfall, awaiting the arrival of infantry support, which was not forthcoming. The enemy in the meantime had occupied the northern slopes of **A** in our rear and threatened the regimental supply dump at **D**. At this

mail, pay, decorations and promotions for the personnel concerned. No such trouble arises in the integral tank company.

Certain consideration must be given the distinction between the intangible feeling of an infantry commander toward a tank unit which is part of his outfit and a tank unit which is attached. This difference, though unintentional, may be defined as deep concern over his own outfit and mere interest for the attached unit which has its own "parents." Tankers of the regimental tank company have close ties of friendship throughout the regiment and are not simply regarded as strangers who may be gone tomorrow.

Normally, the regimental tank company will operate with two or three platoons attached through the regiment while the fourth platoon undergoes a maintenance treatment. The action at Chosin Reservoir, previously described, represents the only occasion in six months wherein my company fought as a unit. For this reason, only a few days' training in company tactics should be included in the schedule of a regimental tank company. Company size missions should be the responsibility of a company of the division tank battalion and no attachments of such a unit should be requested unless such a mission is contemplated. There are actually few occasions in combat [in Korea] when a regimental tank company is assembled, and some of these are not usually warranted. Generally, the tank company will move together when accompanying the regiment on long administrative or technical marches. However, some deliberation should be given the matter of interspersing tanks through the regimental vehicular column for protection; the matter is of no little significance in wars involving "fluid" tactics. Columns are subject to ground attack while operating anywhere in the combat zone.

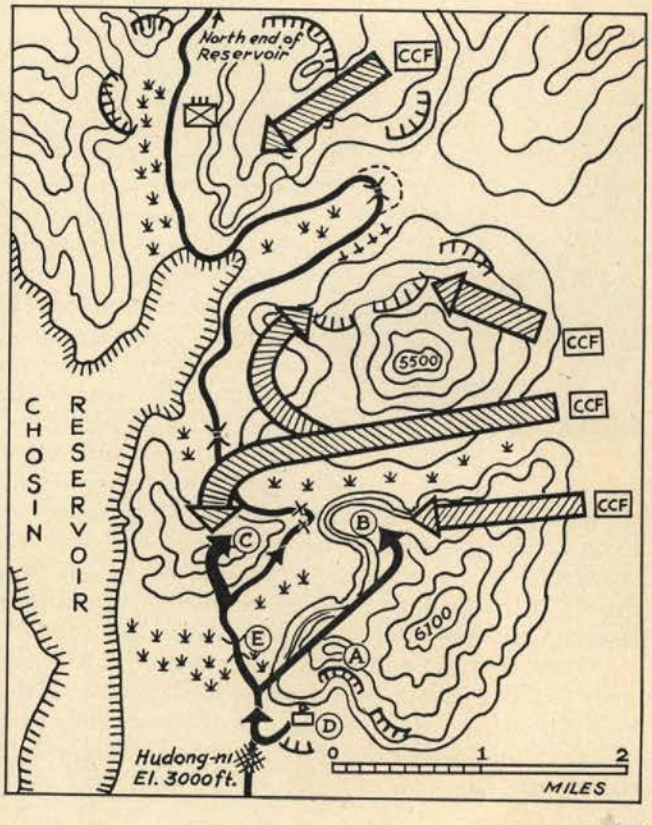
For the redeployment of X Corps from the Inchon area to the East coast of North Korea, my company was attached to the division tank battalion and all tank units moved together by LST. Meanwhile, my regiment moved overland to Pusan by motor convoy. About midway on this march, deep in what was considered friendly territory, the convoy was ambushed, sustaining casualties. The presence of armor in this column would have beaten off the enemy attacks and might well have discouraged the attack in the first place. Armor accompanying regimental columns not only affords protection but provides a means of assisting the less mobile wheel vehicles through stretches of difficult terrain. If the regiment had no integral tanks, it is hard to imagine that column protection would be adequate justification for the attachment of a company from a tank battalion.

In fact, it would have been equally hard to have justified the attachment of a tank company for many of the actions previously described. With the regimental tank company, we have established the value of its immediate availability and outlined its advantages as an integrated team member. The importance of the morale factor has been pointed out. We know that the problems of logistics and maintenance are not insurmountable and we realize that the communications system of the regiment is greatly enhanced by the regimental tank company. So why bother to concern ourselves over the justification for the attachment of a company from a division tank battalion? Let's study and adjust the difficulties of the regimental tank company. Let's exploit its advantages, but let's not eliminate it!

The author's combat experience in support of his views on retaining the regimental tank company

time, I was becoming increasingly concerned over the bridge at **E** which had no by-pass. The fourth platoon was ordered to hold **E** and maintain fire on **A** while we attempted to evacuate two tanks from **C** with thrown tracks and to dislodge the two knocked-out tanks at the bend that blocked the one-way road. Due to the icy conditions and the intense small arms fire, both of these latter attempts failed; we sustained a number of casualties in the recovery operations. We knocked out the two disabled tanks and the company withdrew to **D**.

Though unsuccessful in the two-day action, we had crippled a Chinese regiment, thereby relieving the pressure on our own regiment. Marshes, icy roads, mountains, and 30 below zero temperatures severely handicapped our operations. Had my company not been integral to the regiment, I doubt that armor would have accompanied the regiment into this terrain; however, we learned through necessity that the handicaps could be overcome and we played an important part in this and later operations.



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.

Mobility is a key factor in war. More and more have we become aware that it penetrates every phase of the military, touching alike upon individuals and units, tactics and strategy, equipment and supply. Carrying forward its appraisal of a broad field, ARMOR has asked the United States Army's Army Commanders for their views on the general subject of **MOBILITY IN THE FIELD ARMY.** *ARMOR is proud to offer this professional roundup as a contribution to the military thinking of the day.*—THE EDITOR.

The writer of the following entered upon a career in the field of mobile warfare with his graduation from the United States Military Academy in the Class of 1913. Commissioned in Cavalry, he served in a broad range of assignments as troop leader and staff officer, service school student and instructor. In 1934 he joined the 1st Cavalry (Mechanized), beginning a lengthy association with the early development of mechanization in the U. S. Army, which was to include command of an armored brigade, division and corps. In World War II he commanded the IV Corps in the Italian Campaign. He now commands the First Army with headquarters at Governors Island, New York.

The mobility of the Field Army depends not only upon the flexibility and maneuverability of assigned combat and service troops, but also upon the training and quality of leadership in all echelons, upon communications, upon supporting combat aviation and reconnaissance, upon the weather and terrain conditions in the theater of operations, and upon the enemy. These elements are interdependent and combine decisively to influence the course of operations.

Lt. Gen. Crittenberger

With the advent of combat aviation, armor, and other developments, in the later stages of the First World War, the concept of trench warfare was on the way out. Mobility on the battlefield, which had been exemplified by the horse cavalry, began to pass over into tracked vehicles, combining fire power, shock action and swiftness of maneuver. Since then, and moving up through World War II, there is no longer any place in modern battle for such a concept of static warfare as gave rise to the Maginot complex. The advantage in modern battle rests with the Field Army that can effect sudden, swift movement which will shock and overwhelm the enemy, and inflict on him sudden paralysis.

In America the Field Army is not a fixed organization but is made up of a number of corps and army troops. Neither do the corps have a fixed organization. There are, however, three types of division—infantry, armor, airborne—that may be included in variable proportions in corps and field armies.

Maintaining a superiority in mobility gives the essential freedom of action in offensive operations and greatly enhances defensive capabilities against superior forces. The United States infantry division is a highly mobile fighting unit when compared to its foreign counterparts. With additional truck transportation, it becomes a mechanized division in fact and capabilities. Our airborne divisions, of course, are most mobile through their own element, the air. On the ground, armored units are provided with full tracked combat vehicles to give them cross-country mobility. The combination of these complementing divisions, infantry, airborne, and armored, with adequate logistics support is the real key to tactical mobility in our larger forces. At one time the Ninth Army in Western Europe was composed of ten infantry and four armored divisions; the Third Army had ten infantry and five armored divisions; the First Army had nine infantry and three armored divisions; and the Seventh Army had nine infantry and two armored divisions. In various situations airborne divisions effectively participated with this grouping of infantry and armored units. If we are correct in stating that mobility is enhanced by increasing armor in the Field Army, it would follow that the United States Army with a high proportion of armor should be the more mobile. The achievements of the Third Army would tend to illustrate this. In December of 1944 when Von Rundstedt struck from the Eiffel with his highly mobile panzer army, the major elements of the United States Third Army in a matter of two days were swung through a 90 degree change of direction, from a position facing the Siegfried Line to a full-scale attack against the southern face of the famous Bulge. This same operation illustrates effective mobility of combat forces in strategic defensive situations.

The most mobile combat elements of the Field Army on the ground are the light armored cavalry regiments, the armored divisions and the separate tank battalions, assigned one each to the type corps. Though not inherently motorized, the infantry division can be quickly con-

verted to a motorized division by the attachment of sufficient motor transport to carry its dismounted elements. With its organic tanks, equalling two battalions, and a reconnaissance company, the motorized infantry division is well suited to provide continuing close cooperation in mobile armored combat.

Another vital factor in the mobility of a Field Army is the effectiveness of the tactical air support given it. In modern warfare, the ground forces that have a close tactical air support are fortunate indeed. The extent to which this tactical air support enhances not only the combat effectiveness, but also the mobility of the ground forces cannot be minimized.

The airborne division, transported by air and coordinated with mechanized ground forces, becomes a major means of increasing the mobility potential of a Field Army. While in the air it adds a degree of mobility to the Army which may be considered proportionate to the speed with which the Army Commander can effect a juncture of his airborne and ground troops.

The infantry division, which is now organically equipped with tanks and antitank guns, is a basic major fighting unit in the Field Army's role of assault or defense. It is still true that all other arms and services exist for and dedicate their efforts to the mission of the infantry. The fact that tanks and countermeasures against tanks are now organic to the infantry division, emphasizes the role of armor in infantry combat.

Built around the tank as the main striking weapon, the armored division complements the infantry division. Advancing by deep penetration or by powerful sweeps that envelop the enemy's flank, armor aids the infantry attack. The impetus of mobility and fire power enables an armored division to strike deep into the enemy's communication zone. With its inherent mobility and shock action, armor paralyzes an enemy threat to advance infantry formations. As a result, armor provides a flexible member of the Field Army's fighting team.

Armor aids the infantry committed to a defensive mission by providing a mobile force for counterattack. In addition, it is the counterbalance to the threat of enemy armor. Together they can provide an economical unit equipped with the implements of war to accomplish the wide variety of missions required of the Field Army.

Although the Army Commander is not responsible for organization or weapons, he certainly can have an influence on both. The Field Army, to carry out the mission assigned, should be organized and equipped so as to have the greatest fire power and mobility possible in that part of the theater of operations in which it is committed.

Some individuals have questioned the need for strong mobile forces in a defensive period of war. Because of the vast frontages involved and the tremendous offensive power of modern weapons, a situation such as existed in World War I involving a continuous line of defenses with flanks resting on secure obstacles is not apt to recur. We must fight the opening phases of any future war on the system of "mobile defense," a line along a natural (or artificial) obstacle, lightly held and backed by strategically located highly mobile forces quickly to reinforce a threatened point and immediately counterattack a penetration. Great mobility and armored striking power are essential if such a defense is to succeed.

When our build-up has reached the stage where we can pass over to the offensive, then must we have mobility to mass our forces quickly at a vulnerable spot to break through the hostile forces before they can bring up reinforcements. Once having achieved the breakthrough, mobile columns with armor capable of striking deep into the enemy rear are vital to the exploitation of this success. A typical example of such exploitation is the United States Third Army which broke clear of the German defenses at Avranches on 1 August 1944, and 22 days later had crossed the Seine River to the east, was investing Brest 400 miles to the west, and held the line of the Loire River on the south.

Speed is of great importance in pursuit and the Army Commander should be prepared to push forward the mobile elements of the Army at the first indication of an enemy retrograde movement. In this connection, however, it must be remembered that pursuit of an undefeated enemy is a hazardous undertaking. It is, therefore, of highest importance that reconnaissance in the air and on the ground be stepped up to the maximum in order that the pursuing forces may not be caught off balance and surprised by the enemy. In this event, a competent intelligence service should forewarn the commander so that he could either stop the pursuit, or concentrate quickly the necessary type of troops at a given point and time, for the purpose of countering the enemy's actions or breaking down his resistance. In this phase of operations the object should be to bring final ruin upon the enemy by means of continued and uninterrupted action throughout the day and night. This last can best be accomplished when mobile troops are disposed in depth.

The measure of the mobility of a Field Army depends not only on the mobility of the fighting forces themselves, but also on the capacity and flexibility of the supply system. After the St. Lo breakout in the summer of 1944, the Twelfth Army Group had balanced forces of mobile infantry and armor sufficient to move to the Rhine. Lack of supply capacity in a newly invaded country with damaged railroads and long lines of communications, however, forced these armies to sit before the Siegfried Line until November, when offensive operations once more became feasible with a guaranteed supply of fuel and ammunition. Thus it is seen that mobility is not merely a matter of mobile equipment. Unless it is adequately supplied, the best of such equipment can be a millstone tied to a commander's feet. Mobility, therefore, also includes the means to support mobile action, large stockpiles of supplies and the means of getting them to the rapidly moving troops. But given all these means, the equipment and the supplies, without mental mobility in command and staff the most cannot be attained from the mobility in the Field Army.

Our conclusion is that mobility in a Field Army is a necessary asset that must be balanced against logistics capacity, communications, weather, and terrain obstacles. Superior mobility is an essential in achieving tactical superiority. In striving for increased mobility of the Field Army, that military principle of getting there "fustest with the mostest" is even more important today than when uttered many years ago.

LT. GEN. WILLIS D. CRITTENBERGER.

The writer of the following was commissioned in Infantry Reserve following completion of Officer Candidate School at Fort Sheridan, Illinois, in 1917, and received his Regular commission the same year. He served overseas with the Fifth Division in World War I. Between the wars he served in troop, staff and school assignments. During World War II he was Assistant Commander of the 25th Division and Commander of the Americal and 43d Divisions and of the XXIV Corps in the campaigns in the Pacific from Guadalcanal to Okinawa. He commanded XXIV Corps in the Korean occupation. He now commands the Third Army with headquarters at Fort McPherson, Georgia.

With all the technological advances of our generation the tactical mobility of an Army is, in sum and substance, still tied to that of the foot soldier. It is in the improvement of his mobility that we will obtain an increase in the mobility of the Army in the field. Continuity of tactical action on the battlefield is provided by infantry units. Regardless of the quantity and availability of motor transport, the lightning actions of armor and the mobility of service support, the Field Army as a whole advances no faster than its basic component, infantry, is able to move forward fighting on foot. Hence, while continuing to improve the ground mobility of armored and wheeled vehicles, and of supporting units, the greatest effort to improve mobility must be directed toward means of accelerating the movement and action of the infantry company and battalion without decrease in fighting efficiency.

Lt. Gen. Hodge

The armored division is a special case. Not alone does it exemplify surface mobility of the highest order in its combat elements, but it can move forward to concentrate or engage in action as an entity, all of its men, equipment and supplies transported simultaneously. Not so the infantry division which is the foundation of our army. Its motor movement as a unit can be accomplished only by pooling or attachment of extra trucks. It is not practical for several reasons to so motorize the infantry divisions that they adopt the mobile characteristics of armor, and even if it were, they would lose their cross-country mobility so essential in ground warfare.

There are four facets to tactical mobility. They are mobility of mind, of equipment, of units, and of individuals. We can stand improvement in each of these fields. We are now striving toward improvement through sounder training and in research and development.

Mobility of mind connotes mental alertness, prevision, careful prior planning, energetic execution, and the ability of the leader to project his thinking and planning farther forward than the shallow and narrow area of the immediate battle. Smaller units, in particular, must make improvement in this direction. From the regiment down, commanders and leaders must learn to see and think farther than the thousand yards of slugging to their next objective. The exploitation of an unexpected or unforeseen success is the most to be desired maneuver in warfare.

In mobility of equipment we are and have been making great strides. Technology and orderly development processes are providing us with greatly lightened equipment. This is essential, for we hope always to fight as far from home as possible, if fight we must. Hence, the weight of our fighting and supporting equipment is closely correlated to bridging, shipping, railroad capacities, and to the ability of roads to carry sustained traffic loads. Also, in this new day we seek to carry, within reason, all the equipment of a standard division by air. Air-transportability, then, has become an important key to equipment mobility. As a word of caution, however, we must not sacrifice effective battlefield performance of an item solely to make it air-transportable.

Our outstandingly important goal must be improvement of the mobility of the individual. We load our men down with too much junk, not essential to combat. Our troops have become too road bound; all of them too anxious to ride into battle. We must re-instill in the infantry the art and capability of covering ground rapidly by marching on foot and in being in fighting condition at the end. We must ruthlessly eliminate all equipment from the person of the soldier that does not contribute directly to battle efficiency.

In summation, the mobility of units is the combination of efficient loading and utilization of available transport, mental mobility and individual mobility. As we improve in these fields, we will achieve better unit mobility. In addition, unit mobility can improve with effectiveness of signal communication. We are making satisfactory technical progress in this field, but must carry on further training and indoctrination in the use of all means available.

LT. GEN. JOHN R. HODGE.

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The writer of the following entered military service with the Washington National Guard's Coast Artillery. He was commissioned in Infantry in the Illinois Guard in 1914 and appointed in the Regular Army in 1917. In early 1919 he was transferred to the Coast Artillery Corps. Troop, staff and school posts came between the wars. During World War II, as Director of Operations of SOS, Director of Planning and Acting Chief of Staff of ASF and as Director of Plans and Operations of ASF, he was a key figure in the planning and implementation of the logistical support of U. S. fighting forces around the world. He now commands the Fourth Army with headquarters at San Antonio, Texas.

From the earliest times, the greatest captains of history have been those who have been able to increase the mobility of their troops above that of their adversaries. This increased mobility has usually resulted in more effective fire power. It enables the commander to better and easier shift his fire power as necessary, quickly and surely to the decisive point, before the enemy can react.

As warfare extends to wider fronts, covering greater areas, mobility becomes more and more important. Originally this mobility was confined primarily to the individual soldier. But as the degree of complexity of war increased, the supporting elements increased, and they, too, had to increase their mobility to match that of the front line soldier. If this were not done, the increased mobility of combat troops would be wasted, as the supply and support echelons would not be able to keep up with the front. History is replete with examples where the mobility of fire power coupled with adequate mobility of logistical support has given professional success on the battlefield. Perhaps one of the best was the swift swing of the German armies through Belgium and northern France in World War I. It is believed by most students of military history that only the blunder of one staff officer prevented a swift and early victory by our enemy in that war. A study of the first months of World War I shows that the professional German army of that time had mastered the combined movement of troops, weapons and logistic support.

Lt. Gen. Lutes

Our own American campaigns in Africa and France in World War II showed our professional recognition of these principles also. However, history is replete with examples of military operations limited at the crucial moment or resulting in defeat when combat units too rapidly outstrip their logistical support. Two well-known examples occurred in World War II. The British in North Africa at one time were in hot pursuit of Rommel with every hope of clinching a quick victory west of Cairo, when suddenly they found they had outstripped their gasoline, and motor maintenance support. The crucial moment passed—Rommel escaped. Again, we remember when Patton with his Third Army felt that he could pursue the German forces on his front beyond the Rhine and crush or demoralize them, only to find that he had outstripped his logistical support and that further advance was not practicable. These and other lessons should be borne in mind by combat commanders to insure that flexibility and mobility of fire power can be supported by mobile logistical support also sufficiently flexible to insure the movement and maintenance of fire power of the combat units through to the final blow of victory. This requires meticulous logistical planning and the most painstaking supervision of operation. The commander must provide alternate plans to insure flexibility and must have reserves of mobile logistical support capable of sudden and direct movement to the critical areas at the critical time. If he fails to do this, he may find his logistical support dissipated or tied up in unprofitable ways at the very time he needs it to take advantage of the moment of opportunity for victory. No commander would *knowingly* outstrip his logistical support.

Frontages in war have been gradually extended in the past, and future wars may find units fighting on widely separated frontages with large gaps or military vacuums in between. Particularly could this happen on the larger continents. On the ground, armor and other vehicles have given the commander a means of increasing both his tactical and strategical mobility; thus, flanks can be turned, troops more quickly concentrated, fire power shifted, at a pace unrealized a number of years ago.

Motorized transports, both track and wheeled, have contributed to the ability of the supply echelons to keep up with and adequately support this increased ground mobility. But there is a definite technique in allocating and handling these resources, which must be mastered by command and staff.

A recent addition to the field of transport—the airplane—has increased, and in the future, will continue to add to the mobility of troops and supplies. The speed and range of the modern airplane must be fully exploited in order to gain maximum results. This must be done in both the transportation of combat elements and the aerial supply and resupply of combat troops. Air transport has progressed to a point where it is now feasible to consider the transportation of most major items of equipment with which combat troops are equipped. This simply means that airborne and air-transported divisions will be able to engage in combat of a sustained nature, being resupplied with all classes of items by air drop or air landings.

The combination of air-transported troops, airborne and air-landed and air-supplied, with highly mobile ground troops advancing to a juncture on the ground, will give commanders in future conflict a most effective combination to outmaneuver future enemies and will enable the seizure of critical objectives deep behind the enemy strong points, making in many instances the holding of his present position inadvisable.

Neither phase of this combination can be neglected. Continuous research to increase the number, size and quantities of items which can be air-dropped and air-transported must continue. Hand in hand with this development and research must go studies to increase the mobility of troops advancing on the ground.

Effectively employed, this increased mobility will enable the most advantageous use of available troops and fire power. However, to most adequately employ this mobility, means must be developed simultaneously to add to the mobility of the supporting troops.

The increased mobility now available in the Field Army is primarily provided by machines. Steps have been taken and other improvements are being developed to enable the logistical support to maintain the pace set by the combat troops. However, all this increased mobility will be of little avail unless a great percentage of the machines and fighting vehicles are serviceable and available at the time and place needed. Increased efficiency and attention to maintenance must be attained. Basically, since our mobility is primarily gained from vehicles of all types, it can be said that it begins with the driver and crew and continues through the chain of command. Not only has maintenance become a vital factor in strategic and tactical mobility, but the cost of mobility in dollars has reached such staggering heights that maintenance has become a heavy factor in our national economy.

Properly employed, properly maintained, our mobility

will enable commanders to more efficiently employ the team of combined arms, gaining far more decisive results with less men and equipment, and ultimately saving for our country countless lives, huge quantities of equipment, and large amounts of our national fortune.

LT. GEN. LEROY LUTES.

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The writer of the following was graduated from the United States Military Academy and commissioned in Infantry in 1912. He served in troop, staff and school assignments both in and out of the country between the wars. Shortly after Pearl Harbor he arrived in Australia to join the Southwest Pacific Area Headquarters and serve throughout the entire period of World War II with the Army Forces Pacific, successively as Assistant Chief of Staff, G-4 and Assistant Chief of Staff, G-3. In 1946 he became Director of Intelligence on the War Department General Staff. He now commands the Fifth Army with headquarters at Chicago, Illinois.

Mobility is a principle of war which is peculiarly applicable to American arms. Most of our campaigns have been won by emphasizing mobility, not only in the sense of using mobile troops, but relative to the mental attitude with which our great commanders have approached the planning and execution of operations. We need go back no further than the Inchon landing of last year to remind ourselves that mobility, coupled with considered audacity pays big dividends.

Lt. Gen. Chamberlin

Our need for conducting warfare with boldness and speed is probably greater today than ever before. We face but one probable opponent, and he is known for the employment of great concentrations of fire power. With numerical odds against us, it is obvious that victory can come only by consistently outmaneuvering a slower foe.

But if, as seems likely, hostilities are as widespread as they were in World War II, we must be prepared to apply the principle in many theaters and under widely divergent circumstances. Unfortunately, there is a tendency for veterans of one theater to apply to all theaters the tactics learned through their own experience. A leader accustomed to the deployment of masses of tanks in the ETO or in desert warfare may have to accommodate himself to the limitations of the jungle. Conversely, the Korea veteran, forced to operate with but few tanks, must remember (against the day when production lines reach full swing) the sound principle that maximum success for the tanker lies in mass employment.

From the Field Army standpoint, it should be realized that the Pacific campaign offered as good, and perhaps a better, portrayal of mobility than, for example, the spectacular thrusts of Patton's armor-tipped Third Army. The fact that troops were largely seaborne to the critical point only highlights the principle that really mobile warfare is made up of basically the same ingredients, regardless of the method of transport, land, sea or air.

The leader who strives for speed of operations should consider the common ingredients and apply them regardless of the conditions of terrain and climate. After all, in the essence, mobility does not necessarily mean speed but means merely outdoing the pace of the enemy. Almost any analysis of what promotes mobility will include the following:

Boldness of concept and of execution. These factors are always present in a successful mobile operation. There is a definite requirement for taking the calculated risk; inherent also is a flexible plan which permits the inevitable adjustments when things do not go exactly as visualized.

Personal mobility of command and staff is a prerequisite if speed is to be achieved without disorganization. Once the planning phase of an operation is resolved, it is essential that the commander visit key points and key units in order to influence developments according to firsthand observations. Where communications permit, staff personnel should likewise be abroad while tied to the command headquarters by radio.

Flexibility and Common Sense together make up a third requirement. Although applicable to all human activity, flexibility and common sense apply especially to mobile operations. A flexible plan, already mentioned, is not enough. Those charged with its execution must be able to adjust themselves philosophically to frequent and even drastic shifts in tactics without giving way to excitement, worry or frustration. Moreover, changes will occur with a frequency varying directly with the mobility of the enemy. Common sense is needed not only to appreciate such conditions, but to insure that plans and operations are kept simple, following as closely as possible to established SOP's. A Field Army drill is not as fantastic an idea as it might appear at first glance.

Effective communications are a fourth essential for the achievement of mobility. In the Civil War, General Nathan Forrest employed a group of staff "gallopers" who rode swiftly over the countryside to keep him informed of every change in the situation and to establish his reputation as a great leader. The modern radio network has outmoded the galloper. Its importance assumes significance when it is considered that the great current tactical exponents of mobility (the armored division, the airborne division, and the amphibious task force) possess powerful vehicular or ship-mounted radios which permit a degree of control which was impossible in the past. New equipment will provide infantry with the same means for blitz operations. And even more important to Field Army operations are the special nets which tie in commanders and staff observers—nets which achieve control even where the chain of command fails.

Teamwork is as fundamental to Field Army operations as it is to a rifle squad. It is achieved only when the command and staff personnel throughout the various echelons have learned to work with one another and to capitalize on good communications. Probably no greater obstacles to mobility exist than lack of confidence in one echelon for another, friction between commanders, or the presence

of staff personnel who fail to realize that their primary task is to facilitate smooth relations between their commander and his subordinate leaders.

LT. GEN. STEPHEN J. CHAMBERLIN.

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The writer of the following, a 1915 graduate of the United States Military Academy, was commissioned in Field Artillery. He served on the Punitive Expedition in Mexico and with the First Division in France in World War I. Between the wars he held troop, staff and school assignments, and in 1940 commanded the 1st Cavalry Division Artillery. He activated the 11th Airborne Division in 1943 and planned and conducted the first air lift by planes and gliders of an entire division. In World War II he commanded the 11th Airborne in its operations against the Japanese forces in the Philippines. He now commands the Sixth Army with headquarters at San Francisco, California.

Mobility has always been a principal ingredient of victory; lack of mobility a major contributing factor to defeat. Napoleon's many victories in Europe may be attributed largely to the ability of his forces to move rapidly and decisively. His inability to move resulted in his tragic defeat before Moscow. Jackson's Valley Campaigns are studied as masterpieces in mobility. The essence of Patton's and Patch's victories in Western Europe was mobility.

Lt. Gen. Swing

Some have observed that General Eisenhower held out substantially no reserve in Western Europe during World War II. His reserve proved to be the mobility of his forces—armored, airborne, and infantry. Thus, the ratio of reserves to troops committed is a function of mobility. The wider the front, the more important the mobility factor becomes in determining the percentage of forces that can be committed to the battle and the percentage which must be held or reconstituted as reserves.

The adaptation of scientific and mechanical advances to provide greater mobility has been and will continue to be one of the major problems of military men. The degree to which these products of industry can be utilized effectively to increase the mobility of the fighting man will often be determined by the climate, the terrain, and the nature of the enemy in the area in which the Army must operate.

Napoleon lost his mobility in Russia because of the climate, the terrain and the nature of his enemy. Modern armies may also lose their mobility for similar reasons. Although an outstanding role was played by the airplane, the vehicle and the ship during World War II, the tactical mobility of forces in the Pacific campaigns, in Asia, and in certain parts of Europe and Africa was largely dependent upon the man on foot. Throughout the Korean Campaign the climate, the terrain, and the nature of the enemy have shifted major advantages in tactical mobility to the foot soldier. Some of the modern weapons of war, highly successful in other theaters, become more liabilities than assets under conditions found in Korea. Others, such as the helicopter, have proven to be highly adaptable. A knowledge of such conditions, imagination, judgment, and determination can and must continue to overcome such obstacles.

The invention and use in war of gunpowder, machine weapons, and the airplane greatly influence the application of the principles of war. The pendulum has swung and will continue to swing as weapons and equipment employed influence the mobility of forces and the formations used. The ability to achieve surprise, concentration of mass, or dispersion for security has been dictated by the weapons used and the mobility of the forces involved. Similarly, the tactical employment of atomic weapons will require adjustment in the application of principles. The contradictory requirements of dispersion for security versus concentration for effective application of mass increase the importance of mobility as we enter another phase of weapon evolution. The development of solutions to meet these contradictory requirements will involve extensive tests and careful establishment and evaluation of facts. Only by the establishment, evaluation, and interpretation of such facts, as they apply to the practical military field, and by the indoctrination of field commanders and troops, can we effectively employ atomic weapons tactically or minimize the effects of those which may be used against us.

Those of us responsible for the execution of our national policy in the military field must constantly demand facts—facts about our enemies and potential enemies—facts about the areas of the world in which we may have to fight—and facts about the weapons that we will use or that may be used against us in order that we can continue to develop sound tactical doctrine.

In our evaluations and development of tactical doctrine, which ultimately determine the military characteristics of our weapons and equipment, we must always carefully assess the impact of such doctrine on the mobility of our Field Armies in the areas in which they must fight. We must defeat many with few by developing the capacity to operate on wide fronts with comparatively few forces of high mobility. We must overcome the contradictory requirements for dispersion and rapid, effective concentration of mass which are dictated by atomic weapons. Above all, we must avoid gullibility for gadgets and maintain a balance between mass and mobility.

LT. GEN. JOSEPH M. SWING.

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The writer of the following was commissioned in Infantry in the Regular Army in 1916. In World War I he commanded a machine-gun company and battalion in France. Between the wars he served in troop, staff and school assignments until 1942, when he assumed command of the 9th Infantry Division, leading it overseas and through the World War II campaigns in North Afri-

ca, Sicily and Normandy. In 1944 he moved to command of XII Corps, a part of General Patton's Third Army. In 1948 he became Commandant of the Command and General Staff College. He now commands the Seventh Army, a U. S. Field Army in Europe with headquarters in Germany.

It may seem far-fetched to consider a huge thing like a Field Army as having much connection with mobility, but it really has a surprising degree of maneuverability. Mobility, along with fire power, is the great factor upon which the U. S. Army relies to offset inferiority in numbers. It has been traditional for us, and the prospects are that we will continue, to have a deficiency in military manpower; so, the Army has been forced to develop *mobility* to the utmost. Not only that, mobility is an inherent American characteristic—the vitality and expansion of our great country and the development of far-flung interests quite naturally have been expressed in the rapid movement of people, ideas, and things. Mobility suits ahe American temperament and gives vent to our vigor.

Lt. Gen. Eddy

Our Colonial fighters had to move fast if they were to survive, and even more so to advance toward their bright New World. Nothing could have been more natural than the rapidity and flexibility that characterized the movements of the Continental Army in the Revolution, the Civil War's Confederate and Federal forces, the American Expeditionary Force under Pershing, the American Armies of World War II, and lately, the Eighth Army in Korea. Mobility is a hallmark we try to stamp on every American weapon and on every General and every Private alike. When George Washington hit the British from behind, when Stonewall Jackson romped all over Shenandoah Valley, when Pershing broke the Western Front stalemate in 1918, when MacArthur ran circles around the Japanese, when Eisenhower moved a mammoth army across the Channel and Patton raced across France on a dubious supply of gasoline—they were simply Americans doing what comes naturally.

Within a Field Army today, mobility is typified principally by *motor transport*. Air transport—be it airplane, glider, helicopter, or parachute—is of the greatest interest to a Field Army, limited as airborne means now may be. And at such time as suitable and sufficient aircraft are available they will be put to far greater use by the U. S. Army in planning and conducting field operations. Meanwhile—and for a long time to come—the motor vehicle is the most potent man-made contribution to a Field Army's mobility.

We are all familiar with the use of motor transportation to maneuver fire power, to shift troops rapidly, to bring troops fresh onto the battlefield, to more effectively perform reconnaissance and security missions and to gain surprise. Conversely, motor-mobility enables a commander to shift his forces rapidly when he is surprised by the enemy. A classic example, of course, is the Third Army's movement to the north during the Battle of the Bulge. Mobility of troops must not overshadow the rapid movement of supplies. When the Allied Armies in Europe plunged ahead of their logistical support in the fall of 1944, the offensive ground to a halt.

Any good commander sees in mobility a means of conserving manpower. American superiority in motor transportation constitutes an economy in manpower not only by making divisions and smaller forces maneuverable on the battlefield and saving manpower in reconnaissance and security missions, but also enables large forces to be shifted rapidly from one part of the front to another.

An infantry division with its own motors reinforced by a transportation truck battalion can rapidly follow and support an armored thrust. Or it can move hundreds of miles in a very few days. Even with organic transportation alone, an infantry division can move its combat elements quickly by motor thus gaining valuable time and energy.

As for armor, an armored division is *machine-age mobility* personified. Except for the armored infantry this division is simply mounted fire power. Little more need be said here except that the endless conflict bewen mobility and weight (armor protection) in an armored vehicle will probably continue to favor speed (mobility) over thicker armor and slowness.

Infantry and armored divisions are ordinarily the main fighting forces of a Field Army, and the nondivisional artillery and engineers are as mobile if not more so than their divisional counterparts. Of course, the supply and service units that support the Army are made very mobile, by motor and rail means. While not part of the usual Field Army, the airborne division or RCT is interesting in that, while it is highly mobile until it hits the ground, airborne forces have few motor vehicles and must be reinforced before they are really mobile on the ground. (They get their real mobility from plenty of guts and training to use their feet.)

Mobility of the Field Army comes not only from the mobility within the divisions themselves (what we might term tactical mobility), but also through nondivisional transportation truck battalions. The manpower in the transportation truck battalion of six companies is less than that of an infantry battalion. Yet these truck battalions, normally engaged in logistical missions, give the commander tremendous mobility reserve when it is necessary for him to shift his divisions rapidly in a one-shot haul. These battalions must always be ready to execute a rapid movement of troops in accordance with a pre-planned campaign or to move troops rapidly for a counterattack in case of an enemy breakthrough.

Motor transportation enables an Army commander to employ fully many of his divisions rapidly. By means of the motor transportation available in a Field Army, a numerically weaker force gains what amounts to more strength.

In Europe the Seventh Army does not have a great many divisions. But by increasing a division's mobility with a transportation truck battalion each division could have a remarkably greater battle worth than a less mobile

division. In the defense of Western Europe certainly, and in most other areas of concern to the free world, inferiority in strength can best be offset by greater fire power. And this is achieved by *mobility* wielded with a *will to win*. On the continent of Europe, motor rail, and air transport will figure large in the mobility of field armies.

Spread over a piece of Germany some 200 by 300 miles, the Seventh Army obviously must be mobile to an exceptional extent if we are to be ready for trouble on short notice. And we aim to excel in the technique of rapid motor movement just as earnestly as we seek perfection with our weapons. But a caution should be offered lest the U. S. Army neglect the basic mobility of the combat soldier—his legs and feet, guided by his fighting spirit. All mechanized armies are tempted to be road-bound, or, worse yet, seat-bound. The Eighth Army reported this sort of difficulty early in the Korean war, and when it was corrected, fighting efficiency rose noticeably.

Nothing could be more dangerous than for the American Army to exchange dependence on its feet for an engine. Much has been said on the subject, but now more than ever we must resist the easy course of doing everything sitting down! This thought may sound more philosophical than the practical view to be expected from the commander of an active Field Army, but I am certain it hits the heart of the matter.

The free world will survive only if it is defended by soldiers whose minds are able to direct their feet to move toward and kill the enemy. Defensive warfare, as much as any other kind, succeeds only when soldiers will maneuver *themselves* as well as things. The small unit and individual actions that seek and close with the enemy, that make him pay blood for the ground he takes, that find men holding against incredible odds and see them fight on when by-passed and surrounded—these are the true examples of mobility. The real mobility of an Army is in its *spirit to move* against the objective because it *has to be done*. Americans have this spirit instinctively and they dare not let it fade.

As an Army Commander, I count heavily upon the splendid machines of mobility that our Nation's science and industry and taxpayers have provided. And surely all the instruments I or any other American officer is given will be used completely. But in my Army, the real fighting power will lie in the stout hearts and mobile minds of American soldiers who will not shrink from the tests of ground fighting when, as will happen, a tank burns, a truck miscarries, or the time arrives that *only a man on his feet* can do the job. Men so imbued will get the most mobility out of whatever machines they are given, and no urging to be mobile is necessary for such men. But men whose minds are not of the right turn will not be mobile even if you put jet engines on their feet!

We can get tremendous military advantage from the mechanical wonders of our time; indeed, we can exploit every principle of war with these manufactured weapons. Still, the strength of an Army remains in the tenacity of its purpose, the mobility of its spirit, and the endurance of its feet.

LT. GEN. MANTON S. EDDY.

FROM THE THIRD QUARTERLY REPORT OF THE DIRECTOR OF DEFENSE MOBILIZATION

An estimated $45 billion has been obligated for military procurement and construction since Korea. In addition, $7 billion was obligated but unspent at the time of Korea. Appropriations requested for this year would bring the total available for procurement and construction to nearly $100 billion. These figures include the program of military aid to foreign countries.

Deliveries against this total now have reached an estimated $14 billion.

Now that contracts have been let on a large proportion of the total program, the schedules that were established for planning purposes are being converted into definite production schedules. This involves a detailed job of allocating production resources in short supply to the most urgent programs and the realistic scheduling of the remainder. During the past quarter, the Armed Services have made considerable progress in this essential step in the production process.

As compared with the original planning schedules, deliveries of some items are ahead of schedule and others behind. On the whole, some "slippage" was expected and has occurred.

What is even more important—particularly on items with a long lead time between placing orders and getting delivery—is our progress in making ready for the quantity production scheduled for 1952 and 1953.

In the process of making ready, contractors on some items have encountered difficulties that have slowed their progress, and their scheduled dates for coming into production have been set back. Whether these setbacks have been greater or less than what might be "normal" for a buildup on the present scale, no one can know.

Progress toward quantity production cannot be measured in any single percentage figure. But this much we can be sure of: Our progress in getting ready for quantity production can never be fast enough. Our Nation is in danger. Until we are fully ready to produce the weapons we would have to use if an enemy attacked, we must strive constantly to move toward preparedness at a faster rate.

Once we have made ready for quantity production —with our plants equipped and the production organizations in being—new factors enter into the decision as to how fast we actually proceed in the production of a given item.

A basic consideration, always present, is the extent to which quantity production should be held back in order that new and superior models may be substituted for those now in production or about to be produced. Scientists and engineers are at work constantly on weapons more effective than those currently accepted as standard models. To the extent that "freezing" of designs is delayed, we still get fewer weapons immediately but better weapons later. Weighing the advantages of faster production against the advantages of waiting for new models will be a major continuing concern of the Armed Services during the period immediately ahead.

The tank-automotive program—amounting to about one-sixth of total military procurement—will increase sevenfold in deliveries in the next year. One-third of the combat vehicles, tooling-up is complete and volume production, now begun, will reach a peak in the middle of 1952. On the other two-thirds, development is complete and volume production will begin in 1952.

Amphibious Tank Experiment

This account of hurry-up, German experiments to develop a tank for use in an assault landing on the shores of England was given me by an ex-Oberleutnant of the Panzer Corps who, because of his precarious proximity to Soviet occupation forces, shall be nameless. I have no authentication for the experiments other than his word, but I believe his account to be accurate and factual.—MAJOR CHARLES R. CAWTHON.

Shortly after the blitzkrieg in France in 1940, my panzer division was ordered back to its home station at Vienna, Austria, where we enjoyed the welcome that winning soldiers always receive. The spirit of the Wehrmacht was high and nowhere was it higher than in the Panzer Corps.

This holiday was not destined to last long. In a few days, the division was ordered to assemble one platoon from each company of its two tank regiments for a highly secret mission. My platoon of the 3rd Company, 2nd Regiment was one chosen. We were mustered in an empty Kaserne, where the division commander told us that we were to embark on a dangerous assignment that would make us the envy of the entire Army.

We had not yet become cynical of this type send-off, and so departed with enthusiasm, under orders for a training area near Lübeck, Germany.

We found the training area deserted except for a detachment guarding a warehouse, in which, we were informed, was an experimental amphibious tank. More were on the way. Instantly we knew that they were tanks designed for the assault against England and we were ambitious to start work with them. This ambition changed to anxiety when we discovered that the tank was not designed to float, but was to travel under water on the floor of the sea, after first being carried by ship to within striking distance of shore. Underwater travel was made possible by sealing the hull and turret openings with a rubber compound. Air for the motor and crew was pumped by the tank engine through a long flexible tube extending from the turret and floated above the water by a buoy. The buoy also supported an antenna connected with the tank's radio. A small explosive charge that could be detonated from inside the tank was designed to blow the seal from the gun muzzle and make it ready for use.

The joint between the turret and hull was closed by a small rubber tube that could be inflated and deflated from inside the tank. The exhaust pipe was fitted with one-way valves to keep the water from entering. Navigation was by gyro compass mounted beside the driver.

We quickly found that the greatest danger lay not in flooding of the tank, but from the carbon monoxide gas from engine leaks. To combat this, we were supplied with a mask containing a special filter and also a device to measure the carbon monoxide content of the air.

For escape from a stalled tank all crew members were equipped with the type of mask used by submariners for abandoning ship under water. Before taking the tanks in water more than 5 meters deep, all crews had to undergo training in escape technique at the submarine school in nearby Neustadt.

Following this training we began to operate the tanks in 15 meters of water, keeping contact with a control radio on shore. In spite of the safety measures, tanks and crews were lost at an alarming rate. By the time the stalled tank could be lifted from the water by a stand-by salvage ship, the crew had either died from carbon monoxide poisoning, or else were in such shape as to require long months of hospitalization.

My own horrible experience of being trapped in a tank under water came after some days of training. On this occasion our tank had been under water for about 15 minutes when the motor stopped. We could not start it again because of the pressure of water against the exhaust valves. In answer to an SOS to the shore radio, we were told that the rescue ship with a crane and drivers to lift the tank was on the way. In the meantime, as the air pump had stopped with the motor, we knew that we had at most 20 minutes inside the tank before all the emergency oxygen was exhausted. The best time that had been made to date by the ship and crane in lifting tanks was over an hour.

The mathematics of this indicated that we should abandon tank at once and this we proceeded to do.

The following few moments were the worst I experienced in the war, including being in a burning tank and being caught in a Russian artillery barrage. The water rose slowly over the escape hatch, which one, two and then three members of the crew were unable to force open against the outside pressure.

Finally, all five of us braced our feet against the hatch, and with the strength of desperation slowly forced it open. We shot like corks to the surface.

It was with heartfelt thanks that we learned shortly afterwards that active plans for the cross channel invasion had been shelved.

As short-lived as they were, the experiments cost the lives of some 50 crew members and put many more in the hospital. At times the tanks worked very well under lake conditions. How they would have done in a rough ocean and in actual assault, I do not know, but am of the opinion that a big percentage would never have gotten ashore.

To my knowledge this type of tank was used only once in combat. That was on the invasion of Russia when they were used in crossing the Bug River. However, the Bug was only about 3 meters deep and they performed very well.

A NEW SECRETARY OF DEFENSE

With the recent retirement of General George C. Marshall, the Hon. Robert A. Lovett was named to become the third Secretary of Defense, moving up from the Deputy's post.

Robert A. Lovett, the new Secretary of Defense, entered Government service in December, 1940, when he was appointed special assistant to the Secretary of War. In April 1941, he was named Assistant Secretary of War for Air, in which capacity he served until the end of World War II. He was Undersecretary of State under the Honorable George C. Marshall, recently appointed Secretary of Defense, from July, 1947 to January, 1949, after which he returned to the N.Y. investment banking firm of Brown Brothers Harriman and Co., of which he had been a partner for several years.

Mr. Lovett was born in Huntsville, Texas, on September 14, 1895, the son of Judge and Mrs. Robert Scott Lovett. He was educated at Yale University (BA, class of 1918), took postgraduate courses at Harvard Law School (1919-1920), and Harvard Graduate School of Business Administration (1920-21).

In 1916, he joined the Aerial Coast Patrol Unit No. 1, organized by F. Trubee Davison (the first Assistant Secretary of War for Air) as a naval reserve group, and learned to fly at Port Washington, L. I. This unit was absorbed by the Navy at the outbreak of World War I.

As a naval ensign pilot Mr. Lovett went to France in August 1917. There he won his French wings flying land planes, at Tours, in the autumn of 1917. Thereafter he established a U.S. Naval Air Service Transition Flying School in the fall of 1917.

From November, 1917, to January 1918 he was assigned to the Royal Navy Aid Service at Felixstowe, England, and piloted flying boats on the North Sea submarine patrol and convoy patrol.

He then served with the R.N.A.S., flying night bombers in France against the German submarine bases of Bruges, Zeebrugge and Ostend and marshalling yards and shops in occupied Belgium and France. He became a strong advocate of bombing and on the basis of reports prepared at that time the Navy Department formed the Northern Bombing Group and Mr. Lovett commanded U.S. Naval Air Squadron No. 1. It was based at St. Inglevert and was equipped with night bombers. During this period he received the Navy Cross and was promoted to Lieutenant Commander. He returned from France in January 1919.

In 1921 he began a business career as a clerk in the National Bank of Commerce and eventually became a partner of Brown Brothers Harriman and Company.

Mr. Lovett's personal interest in aviation continued throughout his business career. He was one of the group of aviation enthusiasts who financed an experimental plane in hopes of winning back the Schneider Cup. On annual trips abroad he carefully studied and kept abreast of developments in European commercial and military aviation.

In 1940 Mr. Lovett resigned all his business connections and obtained leave of absence from his philanthropic and education interests, and accepted on December 19, an appointment as Special Assistant to the Secretary of War.

In this position, and following his appointment on April 19, 1941 as Assistant Secretary of War for Air, he continued his advocacy of striking power in the air and prevailed upon aircraft manufacturers to pool their plants and experience in the production of long-range bombers. In May and June, 1943, Mr. Lovett inspected air operations in United Kingdom and North Africa.

In December, 1945, Mr. Lovett resigned as Assistant Secretary of War for Air and again became a partner of Brown Brothers Harriman and Company.

He was awarded an honorary Master of Arts degree by Yale University in 1942.

On September 28, 1950, Mr. Lovett was again called to government service. He was appointed Deputy Secretary of Defense by President Truman, and was unanimously confirmed by the Senate on November 29, 1950, under a suspension of the rules to permit immediate action.

A tank, part of Turkish-Greek military aid, is swung aboard a transport at N.Y.

Turkish NCOs study armored warfare under Turkish instructor and U.S. adviser.

Turkish armor strength is paraded for the citizens in the capital city, Ankara.

U. S. Army and Official Turkish Photos

TURKEY BUILDS SOME ARMOR BACKBONE

A major subject in Atlantic Pact discussions has been the consideration of the status of Turkey and Greece in the Western defense picture. At the recent North Atlantic Council meeting in Ottawa the 12 member nations agreed that these two countries should be brought into the Atlantic Treaty.

Turkey is a strong point in a critical area. She is a connecting link between Europe and the Middle East. She borders on the Mediterranean Sea, and lies astride the Dardanelles, connecting waterway with the Black Sea. She has a common boundary with Russia, and with its satellite, Bulgaria. Further than that, she has a sizable army of first class fighting men whose abilities have been sampled by Reds on the Korean battlefield in recent months.

As part of the implementation of the Truman Doctrine, a United States Military Aid Mission has been assisting Turkey with modernization of her forces. The story in respect to armor is told in the pictures on these pages.

A Turkish tank crew with their American M-24, furnished through Aid Mission.

At Turkish Armored School in Ankara a class studies tank engine maintenance.

Turkish tank crews fire tank guns on the range at the Turkish Armored School.

A MESSAGE FROM THE COMMANDIN

Major General I. D. White entered the Army as a Second Lieutenant of Cavalry on 5 January 1923 after graduating as an honor student from Norwich University.

He is a graduate of The Cavalry School and the Command and General Staff College. He has served as an instructor at The Cavalry School.

In 1940 General White joined the 2d Armored Division as a major, organizing and commanding the 2d Reconnaissance Battalion. During the course of the war General White held every rank from major to major general while with the division. The division participated in eight major campaigns, including two amphibious assault landings, during which General White successively commanded a battalion, a regiment, a combat command, and finally the division.

After the war General White returned to become Commandant of The Cavalry School, later redesignated the Ground General School.

He returned to Germany in 1948 to assume command of the U. S. Constabulary. On 24 November 1950, he was named Deputy Commanding General of the newly activated United States Seventh Army in Europe. On 7 March 1951 he returned to the United States to be Chief of Staff of First Army, Governor's Island, New York.

He was appointed Commanding General of the Armored Center on 25 July 1951.

IT is a great pleasure for me to return to the Home of Armor to be Commanding General of The Armored Center. As one who has been associated with Armor since its beginning in the Army it is a distinctive privilege to be in a position which enables me to supervise the standards and functioning of The Armored School and to ensure that our graduates are properly qualified to assume their roles in meeting the ever-increasing demands for trained armor specialists.

During and subsequent to World War II, Armor has grown in size, employment, and complexity. Examples of the varied methods of employment of armor are myriad and well known and I shall not dwell upon them here. The Armored School will, however, continue to be the leader in the never-ending study of the many applications of Armor to the doctrines of warfare. Changes are constantly being made in equipment, logistics, and tactics for the more successful employment of our arm. The Armored School has always been in the forefront in the determination and application of these changes and will carry on in that role.

The standards of the School have, since its founding, been high; the caliber of instruction has been excellent. I do not intend that there shall be any change in this policy but shall insist that our efforts remain at the same admirable level.

One frequently hears that the School teaches only theory which does not coincide with the experience of all officers. Actually, the School teaches a compilation of the experiences of many officers. By using what is learned at the School in conjunction with what he has learned from experience, an officer will be equipped to meet any ordinary situation and

the majority of the extraordinary ones. We will present—as we always have done—instruction on new techniques, equipment, and organization. However, we will not stray from current organization and operation so far that what the School teaches can have no practical application.

I do not contemplate that our training shall imbue personnel with the idea that Armor, or any other branch, is élite. We must all remember that we are part of a team, the success of which is dependent on the successful manipulation of all its parts. We shall include in all our training the idea of teamwork to the end that no battle shall ever be lost because Armor failed the other members of the team.

The interest of The Armored School does not lie entirely in training of Armor personnel. We are also interested in the forging of raw material into Armor officers and soldiers. To accomplish this, we have established the Officer Candidate Department and intensified the work of the 3d Armored Division. The Officer Candidate Department will not cover entirely classroom work, but will also include much physical training and field exercises, in addition to that instruction in the personal moral code needed to start these young officers solidly on their careers.

My experience with armored units in the field has convinced me that we must inculcate into the curriculum of the School and the training of our troops the latest ideas, thoughts, and desires of those who use our equipment in training and in battle. I intend to incorporate realism into our training. Troops fight in the field; they should gain experience in the field in training. I envisage many of the present classroom units moved into the field in the near future. The experience gained in the field will benefit all students upon return to their units.

General White, accompanied by General A. R. Walk, of the 3d Armored Division, and the company commander, inspects an honor guard composed of members of the 30th Tank Battalion.

and Mr. Schuman.
The three were expected to fly
to Washington today from San (Con

3 Armored Divisions Reported Placed on West Front by Reds

Antiaircraft Batteries Set Up Near Kaesong; New Offensive Seen

By the Associated Press

EIGHTH ARMY HEADQUARTERS, Korea, Sunday, Sept. 9.—Reports of three new Red armored divisions in western Korea today increased speculation that the Communists may be readying an offensive.

In addition to the buildup in Red armored strength, ant

Czech Head o Spur In

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LONDON vakia's sh day nam known— new d dus by

Our experiences with hordes of enemy would make a report of three divisions acceptable with calm. But—when the report mentions three *armored* divisions it's something else again. This armor is reported massed in the Western front area in Korea, two divisions in the hills behind the Communist lines, the third farther north. An older NK armored division has been listed here also.

When you relate this to suspended truce talks, increased invective, continuing build-up of troops, one thousand planes, increased air activity, and Caucasian troops—these are the ingredients of trouble.

Introduction by the enemy of air and armor, and a proportion of these in the hands of Caucasian troops, would inject into the battle elements of balance for consideration by those who have forgotten the perspective of war fought against an opponent employing balanced forces of ample size, with first class troops, and over average terrain. It would remind airmen that operations based upon complete air superiority make the record of vehicles knocked out and troops killed look fine. It would remind infantrymen that they will often go up against as well as fight with tanks. It would remind tankers and others that the armored division and the medium tank are the primary tools of mobility. It would remind all that first class equipment and first class troops are not the monopoly of any nation.

the public service into
disrepute.
I think that is a contemptible way to try to get votes.
We have the greatest Government in the world, and the most loyal and efficient Government

Millionth Death In All U. S. Battles Occurs in Korea

NEW YORK, Sept. 8 (AP).—The one millionth American to die fighting for his country fell on the Korean battlefield this week.

His identity is unknown. He is "GI-X."

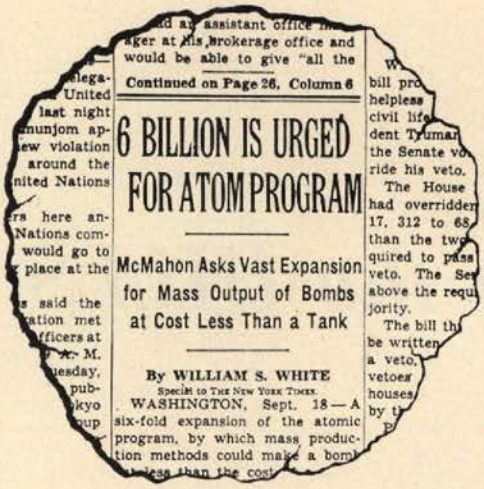
He was one of the soldiers killed on Labor Day or the following day, Sept. 4, the Association of Casualty and Surety companies said today.

Since the first Minute Man fell in the Battle of Lexington on April 19, 1775, the nu American military de

America's millionth war death has just been recorded in Korea. "GI-X," the one millionth soldier to die in all wars in the more than 176 years of this nation's history, was killed on a Korean battlefield in September. The estimate was made by the Association of Casualty and Surety Companies, which has conducted a comparative study of war and traffic casualties in connection with the forthcoming millionth automobile death in the nation's history.

The war dead date back to the time when the first Minute Man fell in the Battle of Lexington on April 19, 1775. The millionth military death is estimated to have occurred on Labor Day, 1951. As the first traffic death dates only to the turn of the century, the edge goes to that field. However, both milestones are unpleasant to consider. Despite the efforts of the National Safety Council and other agencies, automobile accidents go on. Despite the efforts of the United Nations—a sort of international safety council—and other agencies, war goes on.

There isn't too much difference between the two problems. Most highway deaths are caused by a minority of maniacal lawbreakers totally unfit to wield the power inherent in an automobile. Most military deaths are caused by a minority of maniacal lawbreakers totally unfit to wield the power inherent in government.



assistant office ma-
ager at his brokerage office and
would be able to give "all the
Continued on Page 26, Column 6

6 BILLION IS URGED FOR ATOM PROGRAM

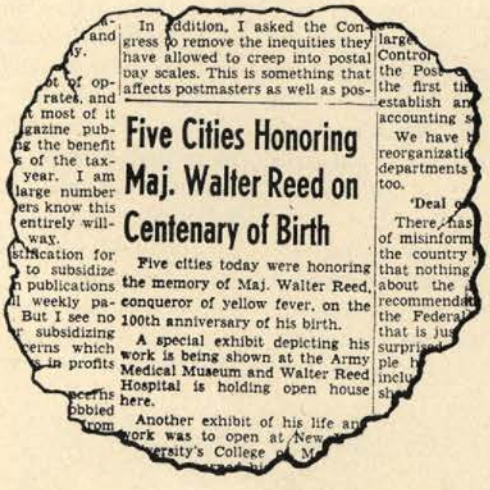
McMahon Asks Vast Expansion for Mass Output of Bombs at Cost Less Than a Tank

By WILLIAM S. WHITE
Special to The New York Times.
WASHINGTON, Sept. 18 — A six-fold expansion of the atomic program, by which mass production methods could make a bomb

The situation with respect to atomic weapons is becoming more pointed every day. Insistent reports of tactical atomic weapons indicate that they are at hand. The recent official announcement that service units were being assigned for forthcoming Nevada tests puts plans well along for the possible use of atomic weapons against front-line troops.

War has become the great specter over the modern world. Defense has become a primary consideration of nations. Military service has become a principal occupation. Budgets and taxes are weighted with defense requirements.

Senator Brien McMahon, who heads the Joint Congressional Committee on Atomic Energy, recently presented a program on the Senate floor for concentration upon atomic weapons, with the view of an atomic army requiring smaller, more specialized units, and ultimately costing less while doing more than the staggering burden and conventional methods of today. The problem of national security within economic capacity is our big headache. It cuts across every part of our national and individual lives. Our solutions will bring tremendous change in weapons, tactics and organization. The effects upon warfare will be far-reaching. The projection of mobility will be interesting. One of war's main ingredients is already developed—common to the battlefields of the past, and likely to be in the mixtures of the future. That is the ground soldier.



In addition, I asked the Congress to remove the inequities they have allowed to creep into postal pay scales. This is something that affects postmasters as well as pos-

Five Cities Honoring Maj. Walter Reed on Centenary of Birth

Five cities today were honoring the memory of Maj. Walter Reed, conqueror of yellow fever, on the 100th anniversary of his birth.

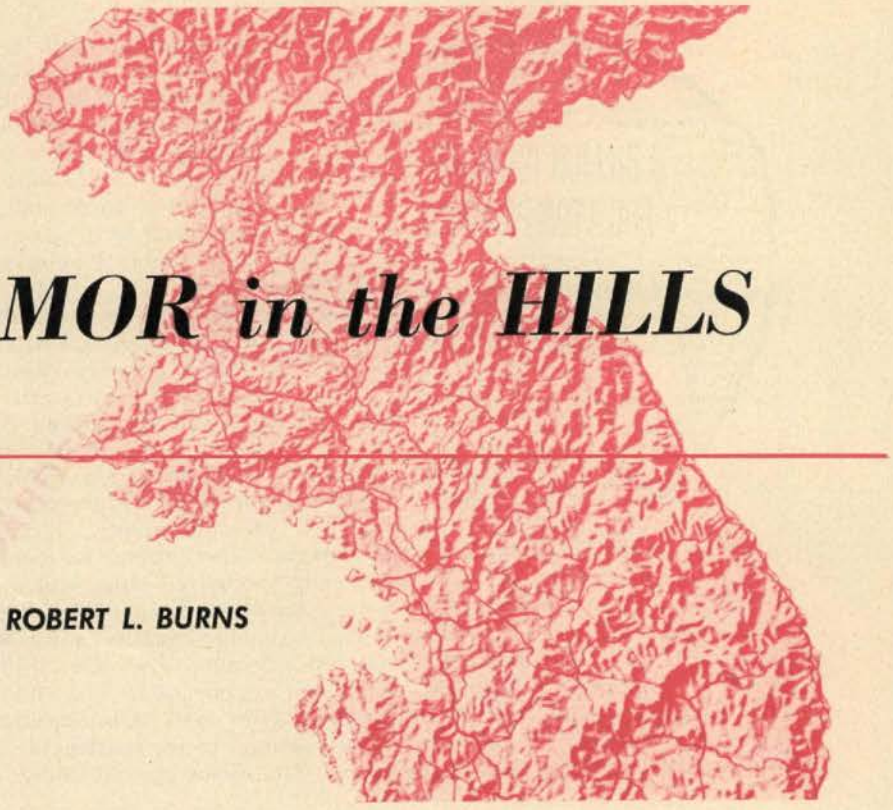
A special exhibit depicting his work is being shown at the Army Medical Museum and Walter Reed Hospital is holding open house here.

Another exhibit of his life and work was to open at New

September 13, 1951, was the 100th anniversary of the birth of Walter Reed, the conqueror of yellow fever. Born near Richmond and educated at the University of Virginia, Reed graduated in 1869 with a degree in medicine and went on to New York's Bellevue Medical College as a medical student, serving his interneship at Brooklyn's Kings County Hospital. Several years later he gave up his idea of a private practice and applied for and received a commission in the Army Medical Corps.

At about the time when Custer was being wiped out farther to the north, Reed was reporting in at his new station, a little frontier post in Arizona territory.

Reed's long desire to do medical research came with assignment to a post in Baltimore in 1889, and permission to work at Johns Hopkins Hospital. But it was in 1900 that his big opportunity came when he was authorized to form a board to study diseases buffeting U.S. occupation troops on the island of Cuba. It was there that he carried out the experiments that pinned down the cause of the dreaded yellow fever. Reed and his work are examples of our outstanding medical corps, which has contributed so much to military medicine and to the entire medical field—contributions evident through the entire chain from aid man on up. The combat arms in particular know what lies in back of the decreasing loss among battlefield wounded, and the high health rate throughout the service.



ARMOR in the HILLS

by FIRST LIEUTENANT ROBERT L. BURNS

IT'S amazing what tanks and tank crews can do when the circumstances are demanding. Take A Company of the 70th Tank Battalion, for example, attached as support for a regiment.

It was the dry season in June. The situation was somewhat static. The enemy had been active with antitank measures in the sector. The only road was heavily mined. Antitank ditches ran about ten to the mile. The rice paddies flanking the road were effective means against by-passing the successive obstacles. A tank dozer attempting to fill in one of the traps was destroyed by stacked mines. Clearance of the road mines was an under-fire job for the engineers, with the enemy constantly harassing with small arms and mortars. Cleared areas could be mined again during the night.

With infantry patrols going out without tank support, and in view of the long and difficult job of overcoming the antitank measures, alternate possibilities for use of the tanks were considered. It was decided to attempt to scale the hills along the road.

Typical of those in Korea, the hills in the area were high and steep, hardly suitable for tank operations. Yet no rain had fallen in something more than a week, and the tanks had at it, the author's platoon drawing the assignment.

The climb was a steep and difficult one, bringing into play all of the abilities of the drivers and crews. It was with a feeling of accomplishment that the platoon reached the ridge top.

A snapshot taken from the turret of the author's tank indicates the field of fire available from the mountain top.

A tank of the author's platoon in position on top of the ridge line, with good camouflage provided by scrub pines.

The ground on top was hard and firm, with considerable vegetation. The tanks were able to move quite freely along the ridge lines, and infantry were moved up to protect the blind sides in various positions.

From these positions the terrain for miles around could be dominated by the tanks. The observation and fields of fire were perfect. Enemy positions could be quickly located and taken under fire.

The terrain was most difficult for operation. Patrolling in the ridge-line area was done to a limited extent, in support of infantry operations. Repair of tracks proved to be a pretty difficult thing on a hillside.

Following a first day of limited movement, the tanks accompanied the infantry along the ridge lines, moving through heavy growth of scrub pine, about twelve feet high and some eight to ten inches in diameter. They were easily knocked down by the tanks, and the infantry followed along in the paths of the tanks.

Upon reaching the highest point of the ridge line, the tanks took up firing positions overlooking the countryside beyond. Enemy troops were moving about below, indicating that they could not have been aware of the presence of the tanks. The growth provided good camouflage, and fields of fire were improved by clearing away some of the branches.

The tank fire that day was not returned by the enemy. One section and an Artillery FO were left on top and the other section led an infantry patrol down the enemy side of the hill. This proved to be steeper, and the descent was difficult. One tank threw a track at the bottom and the enemy began dropping mortar shells, delaying repair efforts and causing casualties among the infantry. Four hours elapsed before the repairs were completed, and the patrol was forced to return to the ridge top.

In succeeding days, as both sides operated in a common middle ground, the tank crews became quite skilled at all types of rough terrain, rarely losing a track or bogging down. Eventually the tanks and infantry moved together over all types of ground.

Obviously, tanks should not be sent into the hills unless their employment will be profitable. Condition of the tank is important, as is the need for experienced crews. Wear and tear is heavy. One platoon in our organization had a "road section" with the worn tanks in it, and a "mountain section" boasting better suspension systems. The road section maintained the base of fire while the mountain section maneuvered. Tanks undertaking difficult and restrictive terrain should always be covered by other tanks.

Mountain operations of this sort are most effective as a means of overcoming obstacles set in canalized terrain. They result in improved fields of fire, and provide close tank support for infantry. Use of the hills is a good surprise element, visual contact can be maintained much more easily, and, of course, communications by radio are markedly more favorable.

On the other hand, a tank on a hilltop or ridge line makes a good target. In this period of action, on one occasion, an enemy gun fired 25 rounds at one tank in about twenty minutes. Another tank had a round land in the dirt right beneath the final drive. Against a more skillful opponent, skyline operation might have been considerably warmer.

In hill operation, movement is somewhat restricted, repairs are more difficult to carry out and retrieving is rarely possible.

The M4A3EA tank has proved its ability to negotiate practically all types of dry terrain. Training and equipment are the keys to negotiation of rough ground. New types of tanks and appropriate techniques of operation for hill fighting will bring a lot of "unsuitable tank country" within the realm of profitable operation and expand armor's potential in many parts of the world.

In training it is highly improbable that such a thing would have been considered, much less attempted. But the alert commander in combat, who tries to make maximum use of the weapons at his disposal, often can successfully carry out a number of unlikely things. In this instance the regimental sector had only one road for vehicular operation, cutting through very rough country, and canalizing the regimental operations. The ridge lines became a supplemental network of roads for the tanks, furthering the action in progress at the moment.

THE AUTHOR

First Lieutenant Robert L. Burns served as an enlisted man in the Air Force from 1943 to 1946. Upon graduation from the University of Massachusetts he was commissioned in Armored Cavalry and attended the Associate Basic Course at the Armored School. After brief assignments with the 3d Armored Cavalry Regiment and the 56th Amphibious Tank and Tractor Battalion, he moved overseas in the early spring to Korea and assignment as tank platoon leader with the 70th Heavy Tank Battalion.

FROM KOREA A TANK COMBAT BRIEF

A tank of the author's platoon moving across the top of the ridge line. Dust and silhouette are the disadvantages.

Three new Officer Candidate Schools began operations September 1 as part of a plan to increase opportunities for qualified personnel from both military and civilian life to obtain commissions in the Army.

The new officer candidate courses will be offered at the Engineer School, Fort Belvoir, Virginia; the Signal School, Fort Monmouth, New Jersey, and the Armored School, Fort Knox, Kentucky. These courses will be in addition to those now offered at The Infantry School, Fort Benning, Georgia; the Artillery School, Fort Sill, Oklahoma and the Army General School, Fort Riley, Kansas.

Courses at the schools will be five months in length. Starting next month, the Officer Candidate program is scheduled to produce 8,000 officers annually.

The program will reduce both the time required to obtain a commission through OCS, and the length of obligated service after receiving a commission. Effective immediately, graduates of Army Officer Candidate Schools will be required to serve a minimum of 18 months after graduation, instead of the previous mandatory time of 24 months. The Leadership Course of eight weeks, formerly a prerequisite for OCS attendance, may be waived. This will permit qualified individuals to be sent to OCS directly from basic training, or from units.

★ ★ ★

Warner Brothers have been engaged in making a full-length movie of an armored division in combat. They selected the 3d Armored Division, and will base the film on the outfit's path from St. Lo to the Siegfried Line. With Lt. Col. Jack Boulger, former member of the division, as technical adviser, the movie company has been at Fort Knox shooting scenes for the film.

The picture is produced by Joe Breen, who wrote the story for it, who was a tank man in World War II. In fact he spent some time in school at Fort Knox. He has always wanted to do a picture of an armored division; started just such a thing when he wrote "Breakthrough," but that turned into an infantry story.

"I want this to be a faithful story of the lives of tankmen in war," Breen said. "I want to portray how it feels to live in a tank and fight in one. And I know the whole thing is authentic, because I worked with reports made by the Third Armored during that action. Even the terrain will be essentially the same."

For battle scenes, the Army is lending the services of G.I.'s in training at Knox. The Army supplied an old worn-out tank which the film people cut away in several places for close-up shots. German relics from the Patton Museum at Knox are being loaned to the film company for more realism. For instance, a German 88mm gun was hauled out for a battle with two tanks. The film folk needed a German command car, so the movie crew borrowed a jeep, and converted it into a German vehicle by building a metal shell around it.

It is expected that the film will be released this fall. Title has yet to be decided upon.

★ ★ ★

The following is an extract from a recent speech by Lt. Gen. Willis D. Crittenberger, Commanding General of First Army and President of the U. S. Armor Association, made in New York City.

By way of explaining why armor is so important a part of our American army, it is only necessary to remember that war is a national effort.

Accordingly, we should capitalize on those American attributes, characteristics, and achievements which make us great as a country.

One of these is our automotive industry, in which the United States is preeminent.

Another is the steel industry. . . .

Then there is the field of radio and communication; the rubber industry; precision instruments; and other phases of design and manufacture.

Putting these all together, we have a tank.

The President says we should gear-up so that we can turn them off our assembly line at the rate of 35,000 a year—if necessary.

Who else in the world can do that?

And don't forget, once we get this tank, we man it with American boys.

All of those boys—any of them—can drive a car, fix a spark plug, shoot a gun, and jiggle a radio or television.

All of this adds up to the fact that armored troops are characteristically American.

That is why we should use them to the maximum!

In a war, calling for a national effort, we should

New Tank Plant

Last issue these pages carried an architect's conception of the Chrysler tank plant at Newark, Del. The photo above shows a section of the plant where construction is running 30 days ahead of schedule. Chrysler Corp. will produce medium and heavy tanks here.

capitalize to the fullest on those American characteristics—industrial know-how, etc.—wherein we lead the world. . . .

At the beginning of the Korean War we read in the headlines that "AMERICAN TANKS NO MATCH FOR T-34."

Of course that referred to our light tanks.

You all know that our first troops went to Korea with only light tanks, which is what they were equipped with, in Japan, for occupation purposes.

And our light tanks were knocked out by the Russian T-34s.

But we soon had medium tanks, shipped from the States, in action out there—and it is reported that in every single encounter to date our mediums have knocked out the Russian T-34s.

We think our guns are better, our fire-control equipment is better, our men are better trained. . . .

Our new light tanks are equipped with a 76mm gun, the new mediums with a 90mm gun, and our new heavies have 120mm guns.

All of these have improved, high-velocity ammunition, and they will all be capable of knocking out enemy tanks of comparable size, at ranges up to 3,000 or 4,000 yards.

We have funds for more than a thousand modern light tanks, going into production now.

We have designed a medium tank called a T-42.

But as a matter of fact, the last medium tank we had during the war, the Pershing tank, was a good tank.

Until we get a new medium we are able to take the hulls of those Pershings and make use of them, putting in a new engine, a new transmission system, a completely new fire-control system, a better gun and improved turret.

And that is now called the Patton tank.

These modifications were accomplished, within the last seven months, as these tanks moved down the assembly line.

Then we have ordered a limited number of new heavies—with a 120mm gun.

It's a terrifically powerful gun and we have ordered enough heavy tanks for a whole battalion test, and some for our schools.

All together, light, medium and heavy, they make up a family of tanks which only America can produce in sufficient numbers and variety.

That is our program, with the medium tank the backbone of American armor.

And don't let anyone tell you our tanks aren't any good.

That is not what our tank crews say.

In addition to production we have actually increased the proportion of tanks in our army.

We have in our Infantry Division today, in contrast to World War II, a tank company as an integral part of each one of our regiments.

Then we have a tank battalion assigned to each Infantry Division.

So we now have the equivalent of two tank battalions in each standard Infantry Division.

Then, of course, the Armored Division is the big brother of the tank battalions.

In Korea, the terrain and roads limit full-scale armored operations, and limit tank action to platoon, company and battalion size.

In Europe, however, the story would be different.

There is where full-size armored divisions can play the same decisive role they played in World War II.

Knifing across the fields of France and Germany, crossing rivers, mountain ranges, and all types of terrain—16 divisions strong—in a decisive support of our ground effort.

Accordingly, we must not let the particular situation that prevails in Korea, lead us to believe that future tank employment elsewhere—in Europe for example—will be limited to engagements where single tanks or platoons closely support a ground attack.

With characteristic American forethought, we must have all types—tanks in Infantry Regiments, Tank Battalions in Infantry Divisions; and finally Armored Divisions, and Regiments for mass armored operations. . . .

★ ★ ★

It was recently reported by United Press that France will probably abandon plans for mass production of its new heavy tank, the 50-tonner designed to combat Soviet armor, because of the cut in U.S. aid.

The arms-standardization program of the North Atlantic Pact nations also is a prime factor in French willingness to give up manufacture of the tank.

Sand Table Models

Maj. Gen. D. W. McGowan, CG of the 50th Armored Division, New Jersey National Guard, his Assistant Division Commander, Brig. Gen. E. O. Wolf, and the division instructor, Col. C. F. Reynolds, look over new plastic training aids, replicas of the divison vehicles.

FROM THESE PAGES

60 Years Ago

Night firing of the Chasseur Detachment of the Eighty-fifth Regiment of Infantry (each battalion has its Chasseur detachment consisting of the strongest, most skillful and athletic men—generally volunteers. The duties are essentially those of foot scouts).

The regulations require all classes of troops to be acquainted with night firing. It is known that with special facilities one can fire as well by night as by day. All these facilities are especially adapted for the defense of a position from which various distances have been measured; but the guns must not be changed. It is also known that night firing without special advantages is very difficult, on a dark night almost impossible; the results are simply accidental. Pasting a piece of white paper on the sight, smearing it with a substance that burns, helps materially. Better yet is always to hold the head and hands the same way and to wear the same clothes and equipment that will be worn at night. It is necessary to observe how the cheek is placed on the rifle, the position of the shoulder, etc. If the target be seen at night, however little, then success may be reckoned upon.

Experiments in Night Firing by Russian Troops

PROFESSIONAL NOTES

40 Years Ago

The employment of aeroplanes in war will for the present be very largely limited to tactical reconnaissance. In this *rôle* they will, of course, in no way replace the cavalry scout, whose capacity for resistance and screening they cannot imitate. Since their use will be, accordingly, supplementary to that of cavalry it is important to examine how they will best cooperate, and what organization will fit them for the work.

Figuratively speaking, the function of the aeroplane scout will be to obtain information in "plan," while that of the cavalryman will be to fill in the corresponding "elevation."

The view of the airman is unrestricted but his military perspective is distorted. He can obtain a very accurate measurement of distances, but very little idea of height.

Thus the aeroplane scout can be properly used to obtain the relative positions of the enemy's forces and his information can be relied on in questions of numbers (at any rate, of formed bodies), but he can obtain very little indication of their "tactical strength" (less, in fact, than can be conveyed by plotting their position on a contoured map). Again, it may be laid down that "negative" information from the air can never be wholly reliable. The country needs to have been traversed by combatant troops to be certain that it is unoccupied. "Positive" information, on the other hand, will be of greater accuracy than that of cavalry, since it will be derived from direct vision, and not from fire effect. . . .

Since the aeroplane will, to some extent, relieve the cavalry of their *rôle* of reconnaissance, it is possible that cavalry movements will become more definitely tactical, as less extended formations can be adopted, and "maneuver" units can be directed, as a whole, against bodies of the enemy already located by aeroplane information. The ground scouts and patrols will, however, still be essential in order to supply such information as is unobtainable by the aeroplanes, for the condition of the terrain cannot be ascertained from the air and it will rarely be possible to say whether buildings, woods, etc., are occupied unless they are examined by patrols.

Aeroplanes With Cavalry

LT. R. A. CAMPBELL

25 Years Ago

The public interest is now centered on the air service. Some enthusiasts expect airplanes to take the place of several of the older branches of the army. It has been stated, that, among these, the cavalry is to be supplanted by airplanes.

Now, the importance of aircraft in our national defense is admitted by all. It is only its relative degree of importance, what it can or cannot do, whether it should replace this or that arm, etc., that is argued and made a subject of contention.

This article is written on the subject of cavalry, and has nothing to do with the arguments about the air service, except in so far as to explain that the air service and the cavalry do not conflict. Neither is trying to assume the role of the other.

The statements recently made to the effect that airplanes would take over the role of cavalry, because airplanes instead of cavalry have become the eyes and ears of an army, are misleading and must be corrected.

It is true that airplanes are now depended upon for the greater part of distant reconnaissance. But cavalry must do the close reconnaissance. And even in distant reconnaissance the cavalry must take its share, because reconnaissance from the air cannot be depended upon when visibility is poor, or during night movements, or to obtain negative information, or to gain information by taking prisoners, or to ascertain the real strength of enemy troops in wooded or mountainous country. Cavalry, unfortunately, must still be used for these fatiguing tasks, though airplanes may assist it or take over the task entirely when conditions are favorable. This is well understood in the air service and in the cavalry. The more of this work done by the air service the better for the cavalry which can be thus spared for its principal role.

Role of Modern Cavalry

COL. H. S. HAWKINS

10 Years Ago

Since the publication of a featured article in our July-August, 1941 issue—"Air Force in Support of Ground Forces," by General Brereton—five *Air Support Commands* have been created within the framework of the Air Forces Combat Command to provide effective and close air support of the Army's ground units.

The support commands include observation aviation (both lighter- and heavier-than-air); light bombers, dive bombers, aerial photograph planes, gliders and air transports for parachute troops and air-landing troops. This is a unified grouping of all the aviation elements that a ground force needs to achieve local air superiority and to insure the success of its mission.

The First, Second, Third and Fourth Air Support Commands will operate with the First, Second, Third and Fourth Field Armies, respectively. The Fifth will operate with the Armored Force. Thus each of the Army's major strategical and maneuvering units will have an air support organization that is specifically identified with it.

This plan for support aviation will not require any change in the principle that all types of units of the Air Force Combat Command must be trained and used in support of ground forces. When conditions make it necessary, air support aviation may be used for special Air Force missions, in conjunction with naval forces or with ground forces other than those to which they are specifically identified.

Air Support Commands Created

EDITORIAL COMMENT

The Congress Dances!

by DR. ROGER SHAW

THE new conscript Prussian army (reinforced by its *Tugendbund* Underground) did well in the War of Liberation against Napoleon Bonaparte in 1813. In 1814, it invaded France and helped to capture Paris. The next year it saved the day at Waterloo and in mad pursuit chased the French far into the night. Old Bluecher wanted to blow up the Jena Bridge across the Seine because of its name, but they dissuaded him by changing the "obnoxious title." He thought they ought to Hang the Corsican, and Dismember France in the "Polish" manner. But he was overruled by saner minds.

In the fall of 1814, with Bonaparte sent off to the island of Elba, the great ones of Europe met at Vienna for a postwar dispensation. There were many weighty problems to be discussed, for the French had shifted the boundaries of all of Europe, made and unmade Kings, and introduced widely their Bourgeois anti-feudal reforms. All the world, in the eyes of the old-school diplomats, was topsy-turvey, and amoral. Their watchword was "legitimacy"—as opposed to revolutionary ways and means.

The now famous Congress of Vienna was described as follows by a Belgian observer: "You have come at the right moment. If you like fetes and balls, you will have enough of them; the Congress does *not* go, it *dances*. There is, literally, a royal mob here. Everybody is crying out: Peace! Justice! Balance of Power! Indemnity! As for me, I am a looker-on. All the indemnity I shall ask for, is a new hat, I have worn mine out in taking it off to sovereigns whom I meet at the corner of every street. . . . Take notice of that graceful martial figure, walking with Eugene de Beauharnais; that is the Czar Alexander. And that tall, dignified man with the lively Neapolitan on his arm, is the King of Prussia. . . . And there in that Venetian suit, the stiffness of which scarcely conceals his affability, is the Austrian Emperor, the representative of the most paternal despotism that ever existed.

"Here is Maximilian, King of Bavaria, in whose frank countenance you can read the expression of his good heart. . . . Do you see that pale little man with an aquiline nose, near to the King of Bavaria? That is the King of Denmark, whose cheerful humor, and lively repartees, enliven the royal parties—they call him the merriest of the brigade of sovereigns. . . . That colossal figure, leaning against the column, whose bulk is not lessened by the folds of his ample domino, is the King of Wurtemberg, and next to him is his son, the Crown Prince, whose affection for the Grand Duchess of Oldenburg has brought him to the Congress, rather than the settlement of public business that will soon be his own. All this crowd of personages, who are buzzing around us, are either reigning princes, archdukes, or great dignitaries from various countries. With the exception of a few Englishmen (easily distinguished by the richness of their clothes) I do not see anyone without a title to his name."

And again, according to a modern commentator: "Dividing the spoils at Vienna, was made painless by sumptuous festivities, military parades, balls, fireworks, hunting and sleighing parties, a thousand diversions. Emperor Franz, as host, felt morally justified in draining the already slender resources of his country's treasury. It was his bounden duty to see that his guests had the best possible time. That the sum ran to 16 million gulden, never seemed to irk the imperial conscience."

The Czar Alexander of Russia was generally considered the big gun of the Congress. It was his wife that tipped Beethoven! Alexander was spasmodically a liberal, with ideas of reform. He wanted to see Poland restored under a progressive constitution, and Germany properly united according to the notions of his friend, Baron Stein. Nor was Alexander enthusiastic about the restoration of the Bourbons (who never learned, nor forgot) in France. But there were very few at the Congress to agree with Alexander.

Prince Metternich, Austrian Foreign Minister at the time, acted as President of the Congress, and he was an extreme reactionary, although a very clever one withal. He hated progress and wanted to set the clock back to before 1789. Chancellor Kaunitz had been a raving red, compared to Minister Metternich. But Metternich was much admired, and his successes with the ladies (including even Bonaparte's sister) were notorious. Metternich detested the contemporary romanticism, and ideologically was something out of the Eighteenth Century: cold, stiff, formal, sane.

Turncoat Talleyrand represented France. He had served the Old Regime, the Directory, and Bonaparte. Now he was serving the Bourbons again, and would live to work for the Orleanists. He saved his country from the fate of Germany in 1919—and 1945—by his extraordinary diplomatic talents. England, Russia, Prussia, and Austria had decided to function as a "Big Four," ruling from their inner councils over France, Spain, and the smaller countries; but Talleyrand soon had France admitted to the inner circle where (despite the defeat of his native land) he played an extremely influential part. Wellington and Castlereagh, both of them renegade Irishmen, represented Great Britain.

Wellington, unpopular with the military rank and file, was soon to be fired on by his own men, at Waterloo. His Nassauers there "had served under the French eagles, their arms, uniforms, and drill were still French, and during the battle his aide-de-camp only once persuaded Wellington to draw bridle. It was when he was about to pass in front of a square of the Nassauers. There was real fear

that they might fire upon him, instead of upon the French." Later on, Wellington did approach the Nassauers. Afterward he admitted himself that, "They sent a few shots after me as I rode off." No such unpleasant, humiliating experience could ever have happened to Bonaparte.

And so the waltzing Congress danced, and wrangled, and tried to administer. France was deprived of all the territory conquered by Bonaparte, and the Revolution. Belgium (taken from Austria by France) was awarded to the next-door Dutch. Belgian Antwerp had been the Napoleonic naval base, a pistol pointed at the head of England, as it still could be!

Norway was taken away from Denmark, which had been loyal to the Corsican, and given to Sweden, which had fought on the Allied side in 1813, under Crown Prince Bernadotte, a former Napoleonic marshal. The independence and unity of Switzerland were guaranteed, and the little republic received Geneva. The Napoleonic Kingdom of Italy was broken up, the old pre-revolutionary Italian states were restored, and Piedmont was awarded Genoa, while Austria took back Venice.

Bonaparte had consolidated the 300 states of the Holy Roman Empire into some 39. This immense step forward, the Congress did nothing to counteract. But it had to do something about the recent Confederation of the Rhine, and the only less recent Holy Roman Empire.

There were two conflicting viewpoints at the Congress, those of the honest patriot Stein, and the crafty legitimatist Metternich. Stein, in keeping with the nationalistic spirit of the times, demanded a close federal union of German states, while Metternich placed Hapsburg interests ahead of German interests, and worked for the loosest sort of bond. Metternich's was the conservative course, and the diehard Congress, for the most part, rallied around him. The newly created (by Bonaparte) Kings of Bavaria, Saxony, and Wurtemberg were proud of their royal titles, and the lesser princes were jealous of their dynastic rights. It was a clean-cut case of the Germanic peoples (who desired union), versus their ruling families (who did not). Stein, in the eyes of the aristocratic Congress, was acting as the devil's advocate.

Metternich won the day. The result was the Germanic Confederation, a union not of German peoples, but of German monarchs. There was to be a federal Diet at Frankfort, with Austria and the Hapsburgs in the federal presidency. But there was no national army or financial system provided for, and "the executive consisted in making one division coerce another, if it refused to carry out the laws." In a sense, it avenged the Seven Years War, for it was definitely a victory for the Austrian aristos over the Prussian plebs. Stein was furious.

This Germanic Confederation—successor to the Holy Roman Empire and the Napoleonic Confederation of the Rhine—consisted of the "sovereign princes and free towns" of Germany. But it also took in the King of Denmark, lord of German Holstein, and the King of Holland-Belgium, proprietor of German Luxemburg. Furthermore, East Prussia and Hungary were not included in the Confederation, although Berlin and Vienna were rivals within its ranks. Wrote Stein: "The shallowness and diffidence of one man, the senile obtuseness and sluggishness of another, the commonness and intellectual frivolity of a third, and the combined triviality of all, make it impossible for any great and noble idea to be thoroughly and consistently carried out."

But not only were Stein and Metternich clashing over the exact form Germany was to take. The victor nations represented at Vienna were clashing between themselves, to the joy of Talleyrand and his vanquished France.

Poland and Saxony were the chief bones of contention. Czar Alexander wished to reunite Poland, and set her up as a constitutional monarchy attached to Russia. He was sincere enough doubtless, for already he had freed his Baltic serfs, and promulgated other domestic reforms of a more or less tangible nature. Prussia was willing enough to give up her Polish territory to the Czar, but demanded in return the whole of the Saxon Kingdom, the Saxon King having been a special friend of Bonaparte. Frederick the Great had been anxious to annex Saxony, in the Seven Years War, and Frederick William III was equally eager in 1814.

Austria and England opposed this arrangement, which was logical enough, and Talleyrand cleverly came to their support. The cleavage led to threats of war between the Allies, but finally the Prussians received half of Saxony, while the Czar was given parts of Prussian Poland for his pet project. Prussia also was awarded the left bank of the Rhine in order to bother the French more effectively. This "Siegfried" territory included Episcopal Cologne, Academic Bonn, with its "Saxo-Borussians," and Charlemagne's ancient capital of Aix-la-Chapelle.

The British imperialists did not do so badly at Vienna, although the long years of warfare had cost them a great deal of subsidy money. They kept Germanic Heligoland in the North Sea, Malta and the Ionian Islands in the Mediterranean, Dutch Cape Colony in South Africa, Ceylon, Mauritius, Demerara, St. Lucia, Tobago, and Trinidad. But after the Congress had been in session for five riotous months, Bonaparte escaped from Elba and appeared in France. The monarchs and diplomats were in consternation, and hastened to patch up their differences, in the face of the common enemy. Wellington left the Congressional debates, and rushed off to what turned into Waterloo, which he succeeded in winning with the help of Prussians, Hanoverians, Brunswickers, those Nassauers, Dutch, Belgians, and a great deal of luck. This was in mid-June, 1815, and the Congress of Vienna—still waltzing—adjourned that same month.

The Congress was not idealistic, nor was it democratic. Its language was the cool, unemotional speech of the Eighteenth Century, but its peace terms were surprisingly mild considering that France had plunged Europe into turmoil for twenty-two years. Very different was the treatment that World War Germany received at Versailles and Potsdam, where popular patriotism, the yellow press, race hate and home elections forced the politicians far out beyond their depth. The Metternich school doubtless were rascals, but they gave Europe a "limited" peace that lasted for forty years, and a defeated France that was neither crucified nor dismembered.

Nor were the Congress snuff-boxers wholly antihumanitarian. Except for Prussia, they opposed military con-

scription and its wholesale slaughter, and they condemned the hideous trade in "black ivory" which was building up the plantations of the Americas. They agreed with Alexander Hamilton—American Metternich—that "Your People, sir, is a great beast," but they were inclined in an Enlightened manner to be paternal. They even allowed the French to retain the international art treasures wrested from a dozen captured cities, and exhibited in Paris; and before Waterloo they asked no war indemnity. After Waterloo, their patience exhausted, they changed their minds to the amount of $300,000,000.

The Austrian Prince Metternich was the connecting link between the old world and the new. Born in Coblenz on the Rhine, he was 41 at the time of the Congress of Vienna. His father was an Austrian diplomat associated with the astute Kaunitz, and he himself married Kaunitz' granddaughter. He served as ambassador to Saxony, Prussia, and France, and in 1809 became Austrian Foreign Minister. He negotiated the unfortunate marriage between Bonaparte and Marie Louise, daughter of Austrian Emperor Franz, but the Corsican always disliked him as a slippery courtier with a poker face. "After the Congress of Vienna he became the leading statesman of Europe, and the period 1815-48 is sometimes called the Age of Metternich." In 1821, the Prince became Austrian Chancellor.

He was lazy; but not as lazy as was commonly supposed! He would get up by nine in the morning, play with his children till ten or after, and then work, off and on, till one. In good weather, he would ride horseback till two-thirty, and then work again till four-thirty, have dinner with a dozen or more guests before six-thirty, and after dinner go back to his office. Every day at seven he would visit with the Emperor, and get home by eleven. After an hour or so in his salon, he went to bed by midnight. Once an excited messenger rushed to him with an important dispatch. Asked what the answer would be, Metternich replied, "I really don't know. Let me finish the novel in my travel-bag, and perhaps the answer will come."

Seldom has there been a man more unpopular with historians. "Austrians have denounced him for having kept them chained to Reaction and Servility and, in the case of some contemporary writers, as being responsible for the dissolution of the Hapsburg monarchy because he impregnated upon Franz Joseph (who died in 1916) his system of governing by police rule and keeping the people under guardianship.

"The Germans," continues this commentator, "of nationalist and liberal persuasion reviled Metternich because he fought against their ideals. The Italians could see him only as the determined opponent of Italian national unity. The French, always under the influence of the Napoleonic cult, could never forgive him for what Heine called his diplomatic poison-mixing that resulted in the downfall of their great Emperor. . . . Finally, the English judged him severely. In recent years, there has been some tendency to do him greater justice."

For indeed, "European peace he achieved; during his Chancellorship there was no general European war. European powers were engaged in military conflicts, but not among themselves. To a Continent exhausted by more than twenty years of Revolutionary and Napoleonic struggles, he gave an ordered repose within the framework of which science and art and industry could and did flourish. Personally a man of peace, he carried this ideal over into the political sphere and was realist enough to know how to make it prevail. No finer act of statesmanship can be conceived than the mild terms imposed upon France," in 1814-15. So much for the Congress that danced and enjoyed itself.

Not long after the close of the Congress of Vienna, a strange, sugary anti-revolutionary agreement presented itself. It made its formal first virtuous appearance in the Frankfurt *Journal* in February, 1816, and it was primarily the instrument of Czar Alexander of Russia. Austria and Prussia fell in with the Petersburg Autocrat, and their joint pact was called the "Holy Alliance."

The Holy Alliance was pietistic and wool-gathering, but it gathered in, beside the Romanovs, Hapsburgs, and Hohenzollerns, the sovereigns of France, Spain, Piedmont, and Naples. The viciously ill-famed Prince Regent, George IV of England, commended the arrangement, although the British liberals prevented him from joining it. Metternich, who had none of the Czar's well-meaning complexes and inhibitions, nevertheless found the Holy Alliance a useful instrument, and he became its mainstay.

The Alliance was, in a practical sense, a reactionary League of Nations or U.N. that held up its hands in horror at the very memory of Danton, Marat, and Robespierre, and at the sinister red strains of the song "Ça Ira." These men were Antichrists, according to the most Christian monarchs of Continental Europe, and the Alliance supposedly based itself on the principles of Christlike charity.

"No one of the princes who adhered to the Holy Alliance, with the single exception of Alexander himself, ever took it seriously," wrote a contemporary observer. But it held congresses at Troppau, Laibach, Karlsbad, and Verona, and made itself a real political force, none the less. In 1821 the Alliance crushed revolutionary movements in Piedmont and Naples with Austrian whitecoats, and in 1823 sent a French army into Spain to oust liberalism and reinstate the church. Thereby, the French themselves exterminated Spaniards duly inspired with the French revolutionary ideals.

The Spanish American colonies had been in spasmodic revolt against the mother peninsula since the opening of the century, under Bolivar, Miranda, San Martin, and other Creole leaders, and the Alliance turned its royal attention to transatlantic affairs. Several of the monarchs believed that Spain should be upheld on the pampas and in the jungles, just as they were inclined to sympathize (despite their outstanding Christianity) with the "legitimate" Turks and against the rebellious Greeks on the home continent.

At the Verona congress, England opposed the Alliance in its Spanish American orientation, and by 1823 the "Monroe Doctrine" came into being in a Yankee Presidential message. Both England and America wished the liberated South American ports to be kept open to their trade, and weak new republics made better customers than highly regulated Hispanic colonies. Russia had ambitions as affecting the Pacific coast of North America, and the United States was conscious of its "Manifest Destiny" in that far-

away direction. James Monroe and George Canning outbluffed the scanty sea power of the Holy rulers, and after the "July" revolution of 1830 (in Paris, etc.), the Alliance began to decline. A last example of its motivation was the sending of Russian troops to help the Hapsburgs against Hungary, in the "February" revolutionary period of 1848-49.

The Czar had had a soulmate named Juliane Kruedener. "She was responsible for the Holy Alliance. The impressionable mood of Alexander made him fall easy prey to her pietism. This lady of fifty, after a dubious marital and extramarital life, had turned pietist, began to evangelize, to advocate public repentance of sins, to believe in the immediate coming of the millenium and to consort with familiar spirits at seances. She captivated Alexander, who had met her many years before in Berlin, when she was at the height of her beauty.

"In Paris he attended her spiritualistic exhibitions, fell completely under the spell of her pietism, and floated along with her in vague, mystic reveries about the approaching human brotherhood. With the cooperation of her ready pen, he drafted the document which he called the Holy Alliance." Metternich said it had "the value and meaning of a philanthropic aspiration clothed in religious garb," which was very much of an understatement. The Holy Alliance also had Russian bulk, the Prussian army, and Metternich's devious brains.

Baroness Kruedener, with her "Moravian" views, survived the rude Monroe Doctrine by only a year. She had been a close friend of Queen Louise of Prussia in 1807, the bad year after Jena, and wrote a book called *Valerie* —"a novel of feeling, based on a love episode with her husband's secretary." This work made her a veritable literary goddess. Deeply religious, she died, appropriately enough, on Christmas.

Baroness Kruedener epitomized all that was humanitarian at the Congress of Vienna. And like the Congress of Vienna, she was cosmopolitan and antinationalist in outlook: a German Russian born in Latvia, and fond of life in heaven, Paris, Switzerland, and the Crimea. She might have proved successful, too, at Lake Success.

With the American Tankers in Germany

In Western Europe the preparations for defense go forward

Here is a story of one phase of NATO activity

by POVL WESTPHALL

The following is an extract translation from Berlingske Tidende, *leading Danish newspaper, of an article written by one of its correspondents following a visit with American forces in Germany.*

KITZINGEN.

"Most conspicuous is the high degree of preparedness of the Americans. In less than half an hour everything can be ready for a turnout. The visible signs are that everything is on wheels and in open air. All repairs are done in rolling workshops—even the repair of instruments. The most unusual order in the barracks makes a turnout possible on a moment's notice. The soldiers' equipment is placed so that they can jump into it like the firemen who jump into their boots on their way to the fire engines. Eighty-five per cent of the force is always ready, 15 per cent at most is on leave, and every night there is telephone control to all commanders. The Americans here in Germany are literally ready to turn out all 24 hours of the day.

"One of the things which involuntarily impresses a Danish officer is the field training. The troops now spend 50-75 per cent of the year in the open air and neither officers nor enlisted men leave the bivouac area. The commander of the battalion's Company A had spent 189 days last year under open air without using barracks. In return the food of the Americans in the field is unusually good. There is probably nothing like it in any other army. . . ."

Captain Niels Erik Leschly from the Garderhusarerne (The Royal Hussars) in Naestved who tells about this is the commander of 15 Danish cavalry officers studying tanks with the 63d Tank Battalion at Kitzingen, 18 kilometers from Würzburg. The Danish officers have been training for one month. The American Military Advisory Group in Denmark arranged the training course for the Danish officers with the First American Infantry Division in Germany.

"The background of our studies," says Captain Leschly, "is that we shall now have armored cars for the cavalry. We have had both tactical and technical instruction and we have taken part in two maneuvers in regiment combat group size similar to the combat groups which will be established as prescribed in the new Danish army law. We spent the whole period of the exercise in the open. Day and night for four days two regiments were tested under the command of General Samuel Conley. The 63d Tank Battalion has 69 tanks. The Danes worked with these tanks."

What have the Danes learned?

"First and foremost, to drive the big Pershing tank and shoot with its weapons—gun and machine guns. Then we have learned the latest American armored car technique and have become familiar with the very extensive communications system which ties in the leader to a degree that we have not hitherto known. As we are going to have these American-type armored cars this training has been of great importance to us."

The 15 Danes now finishing their training with the 63d Tank Battalion are not the first to be trained in an armored-car school with the Americans in Germany. One group has already been in Vielseck on a similar course and in October a new group will arrive there.

These training schools are a link in Europe's joint rebuilding of defenses under NATO. It is a comprehensive military training and education program built up under this defense cooperation. Denmark has up to now approximately 50 air cadets in training courses in American jet schools; infantry and artillery officers and others have been or are or will be on study tours at American training camps.

It is the new American weapons, vehicles and instruments for Danish defense that have necessitated this retraining. Several of the Danish officers who are in tank school in Kitzingen now have driven armored cars before. Captain Leschly, who was operations commander of the Danish Brigade in Sweden, has been trained both in Swedish tanks and by the English in Western Germany, with Centurion tanks. The Americans have an appreciative attitude for the professional qualifications of the young Danish officers, and for their excellent knowledge of languages.

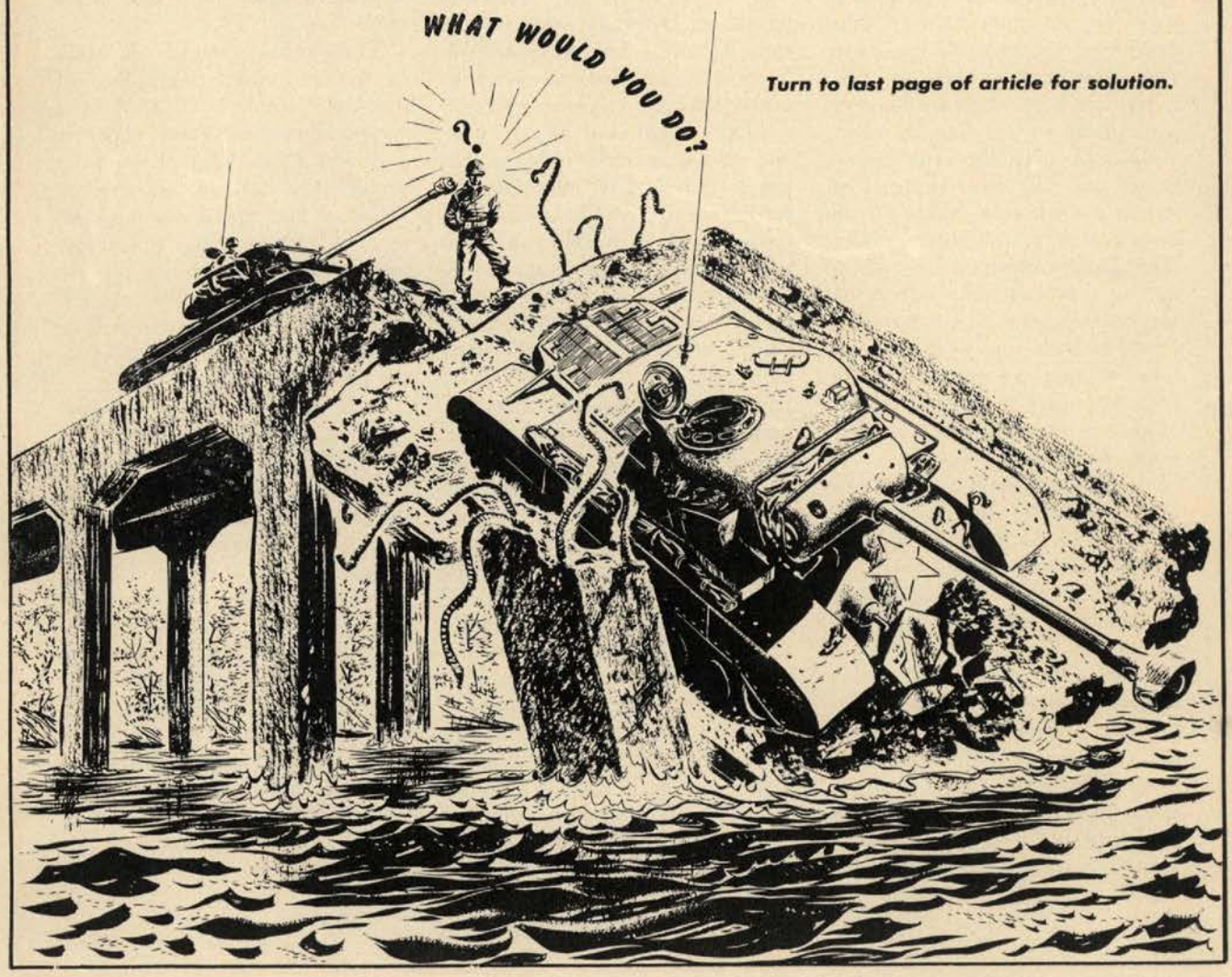
HOW WOULD YOU DO IT?

RECOVERY EXPEDIENTS

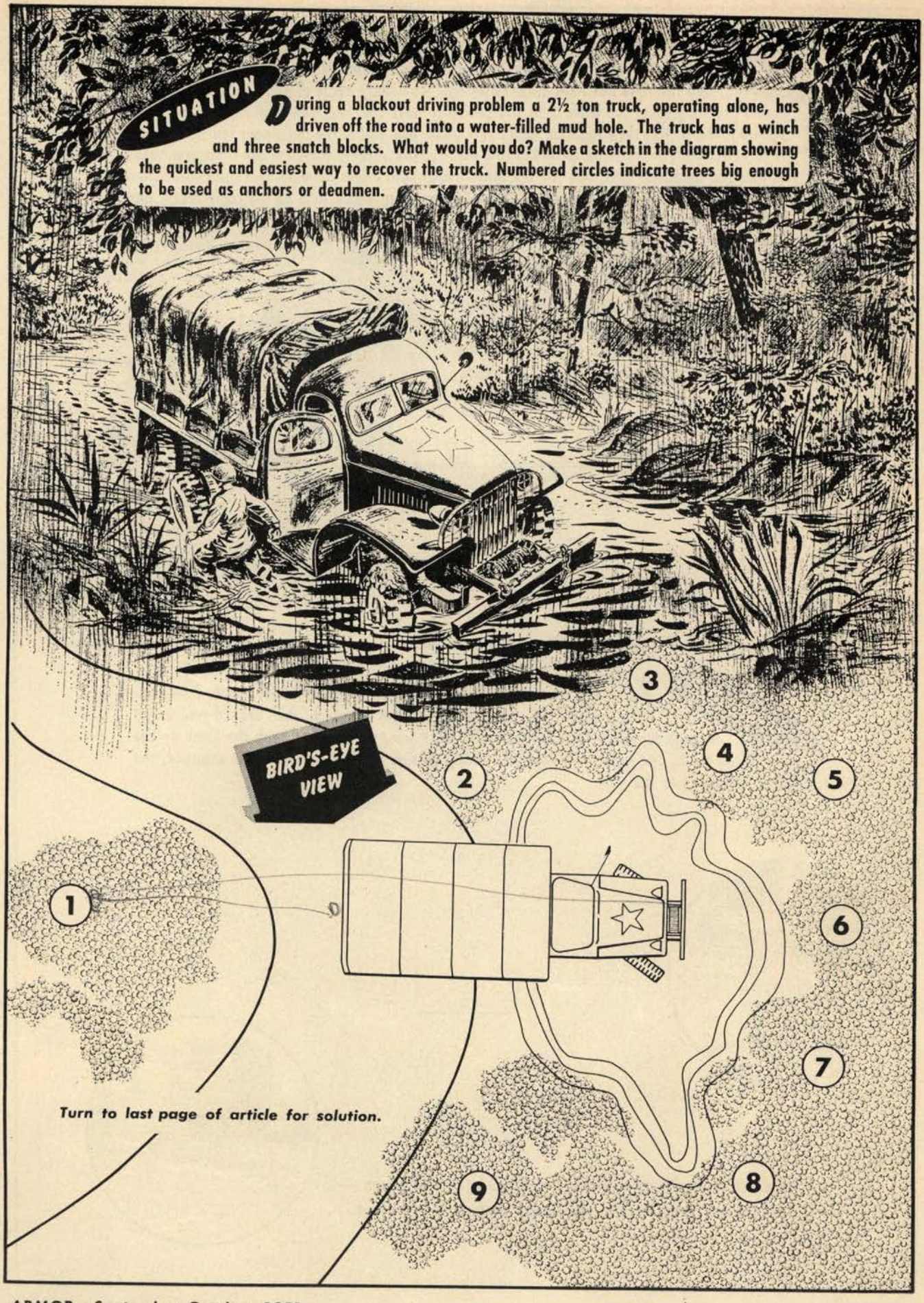
AN ARMORED SCHOOL PRESENTATION AUTHOR: CAPT R P EDENFIELD ARTIST: CPL M A CAMMUSO

SITUATION You are the Platoon Leader, 3d Platoon, Company C, 1st Medium Tank Battalion. You are moving your platoon of medium tanks with steel tracks from a port area to an assembly area. A concrete bridge collapses as the lead tank is crossing it resulting in the situation shown in the sketch. The pier, 20 feet wide, without handrails, is collapsed at a 50-per cent slope and tilted slightly to the right. The tank on the collapsed pier is undamaged and held in place by broken pilings. The stream is too deep for other tanks to ford it.

You radio your Company rear CP at the port for recovery vehicle assistance and find that it will be ten hours before a recovery vehicle is landed and available for use. It is therefore your job to retrieve the tank on the pier. Each tank in your platoon is equipped with a 20-foot cable. You note that the back end of the tank on the collapsed pier is 6 feet from the break in the pier and remember that the ground contact length of the track on this tank is 12 feet, 8 inches.

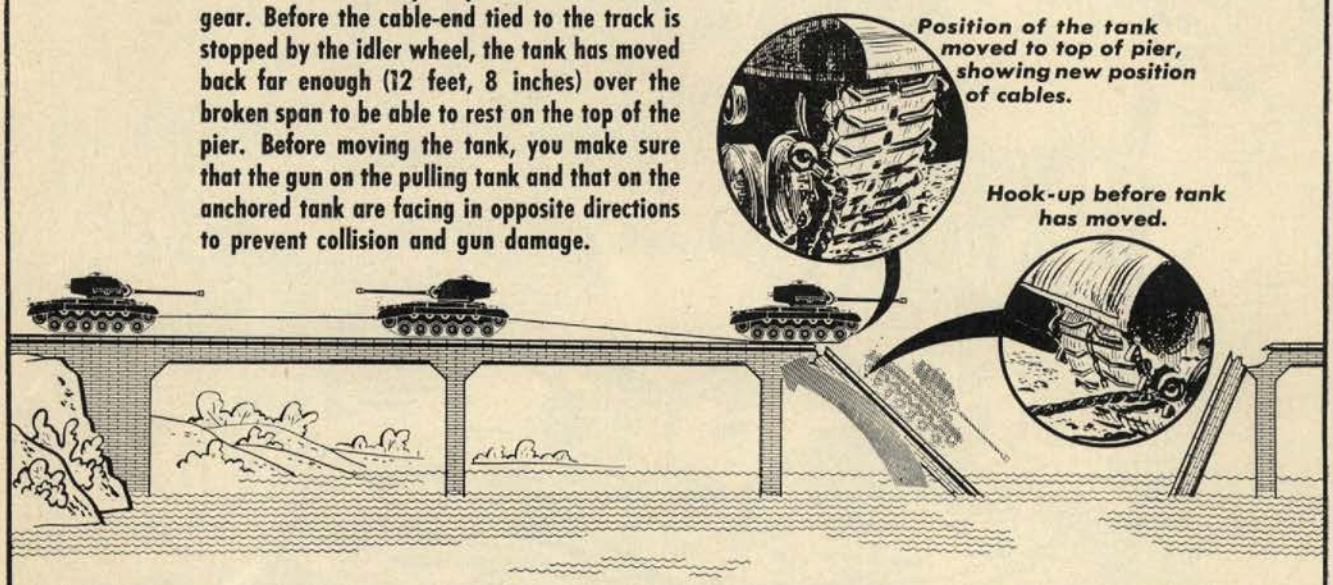


Turn to last page of article for solution.


SITUATION
During a blackout driving problem a 2½ ton truck, operating alone, has driven off the road into a water-filled mud hole. The truck has a winch and three snatch blocks. What would you do? Make a sketch in the diagram showing the quickest and easiest way to recover the truck. Numbered circles indicate trees big enough to be used as anchors or deadmen.
BIRD'S-EYE VIEW
1
2
3
4
5
6
7
8
9
Turn to last page of article for solution.

SOLUTION

You realize first that any attempt to back this steel-tracked tank on a concrete surface would cause the tank to slip off the pier into the water. Pulling the tank out with other tanks against a sharp angle of pull over a broken span would probably sever the cables. So you decide to have the tank winch itself up. You bring up two tanks, anchor them together with a tow cable, and gather the remaining four tow cables to form two forty-foot cables. After hooking each section of these cables to the front tow hooks of the lead anchored tank, you run the other end of both cables between two track connectors on each track of the endangered tank. Now the anchored tanks take up all cable slack, and the tank on the collapsed pier moves in reverse gear. Before the cable-end tied to the track is stopped by the idler wheel, the tank has moved back far enough (12 feet, 8 inches) over the broken span to be able to rest on the top of the pier. Before moving the tank, you make sure that the gun on the pulling tank and that on the anchored tank are facing in opposite directions to prevent collision and gun damage.

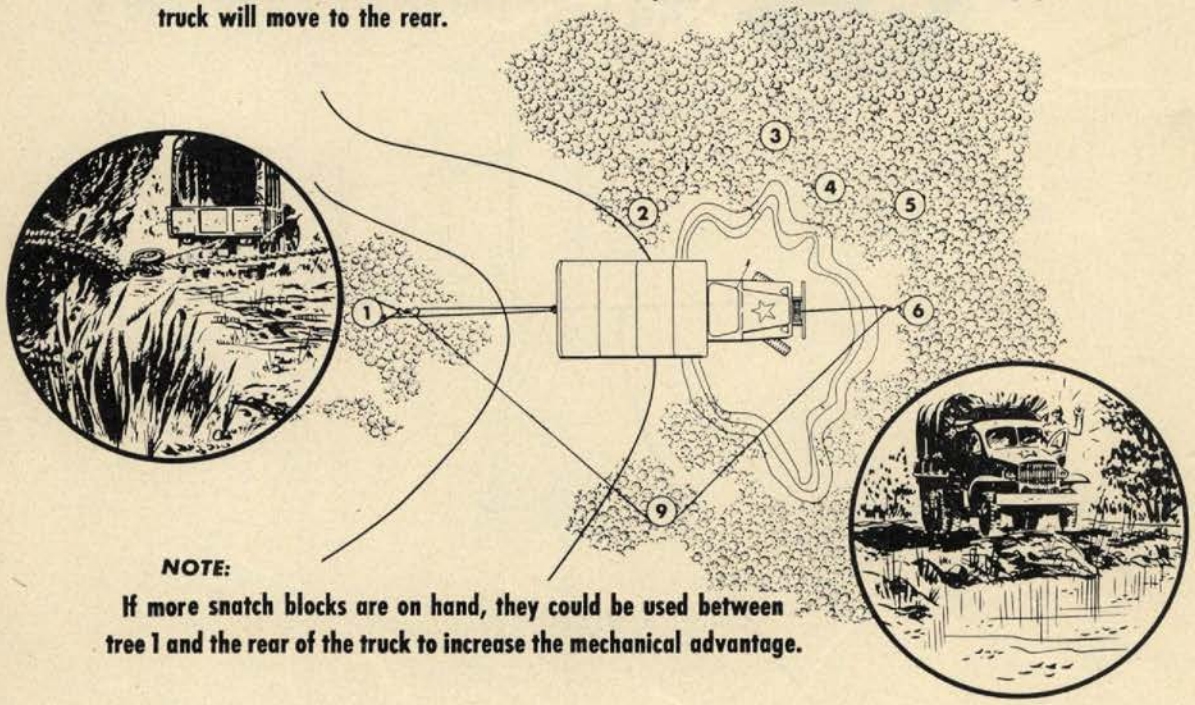


Position of the tank moved to top of pier, showing new position of cables.

Hook-up before tank has moved.

SOLUTION

Tie snatch blocks to the rear of the truck and to trees 1 and 6. Run a cable from the winch through the block at tree 6, then around tree 9 and through the block fastened to tree 1. Next, pass the cable through the block on the rear of the truck, and anchor the free end finally on tree 1. When the winch is engaged, the truck will move to the rear.



NOTE:

If more snatch blocks are on hand, they could be used between tree 1 and the rear of the truck to increase the mechanical advantage.

The reactivation of the First Armored Division at Fort Hood, Texas, brought 13,000 fillers from nine reception centers across the land at the rate of 400 a day. Here's the story of what took place as the trains rolled in from Forts Devens, Sheridan, Lewis, Meade, Sam Houston, Custer, Sill, Jackson and Dix

Filling a Newly Activated Armored Division

by LIEUTENANT COLONEL M. C. PERTL

EARLY in March of this year, the famous 1st Armored Division was reactivated under the command of Major General Bruce C. Clarke.

During the short period that has elapsed since that time, the 1st Armored Division has been filled with cadre and untrained filler personnel and is going full speed ahead with the job of training new soldiers for whatever job lies ahead.

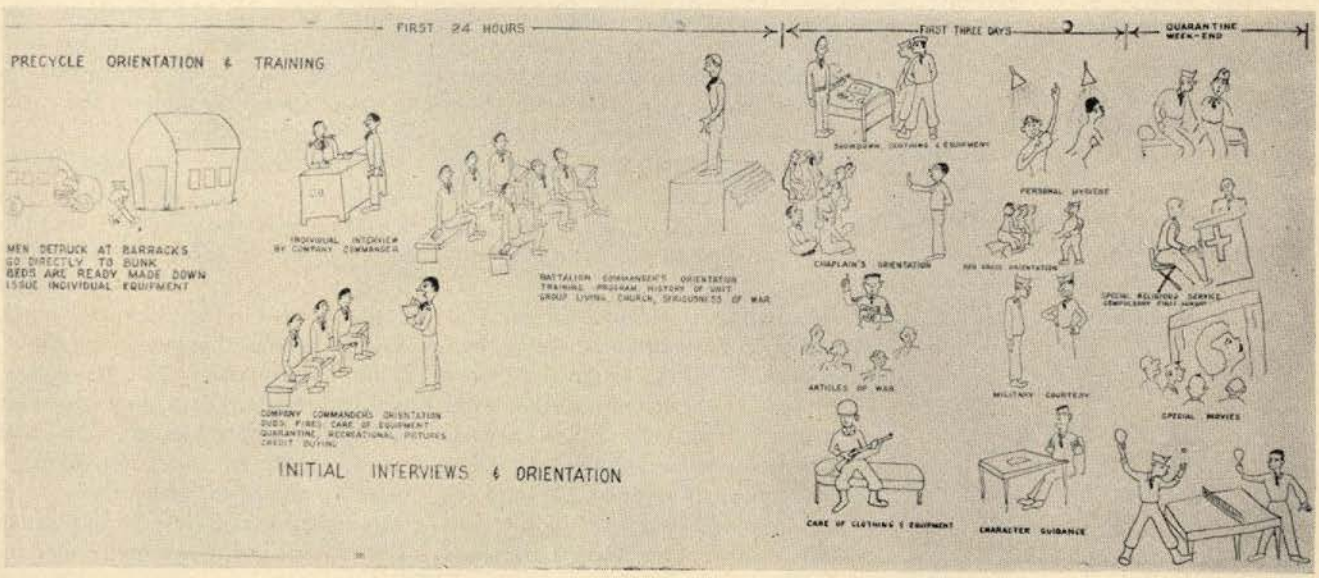
At the time of activation the division was faced with the problem of preparing to receive, process, classify and assign something in excess of 13,600 untrained fillers. A request was made to Department of the Army for the fillers to arrive at the rate of 400 a day. This was approved and the first fillers arrived April 10. A request was also made for 400 trained specialists to be assigned to the division prior to the receipt of the fillers. These included cooks, clerks and supply clerks, and were used to augment a cadre furnished by the 2d Armored Division.

The first personnel assembled were those who performed the actual job of processing, classifying and assigning the fillers. They consisted of four officers and 60 clerical personnel, of which only one officer and four enlisted personnel were trained in classification and assignment procedures. Thirty of these personnel were taken from the 400 trained specialists who arrived prior to the untrained fillers. The remainder of the clerical personnel came from the Division Adjutant General's section and from tank and artillery units' cadre which were the last units filled with trainees.

Two weeks prior to the arrival of the first filler personnel, a Provisional Reception Battalion was established. The personnel for this provisional organization was supplied from the cadre of the 81st Reconnaissance Battalion.

The Reception Battalion was located near the rail head and was responsible for the transportation, housing and comfort of the filler personnel during their stay in the reception area and delivered them to the receiving unit when they left the area. When the fillers arrived they were provided an immediate opportunity to clean up, eat a light lunch or standard meal and relax before beginning their processing. During this period a band played in the reception area. This type of handling proved invalu-

Lieutenant Colonel M. C. Pertl is Adjutant General of the First Armored Division.



able as a morale factor.

The job of processing, classifying and assigning all incoming fillers was delegated to the Adjutant General who utilized the Classification and Assignment Sub-section as the nucleus for the processing center.

The processing center was broken down into four sections: Troop movements, Records, Interview, and a Miscellaneous Section which was composed of special orders, reproduction and statistics. To the processing center fell the job of classifying, checking records, and assigning the fillers to the units, giving as equal a distribution of skills as possible, while attempting to assign each individual filler to the type of unit he preferred, and one in keeping with his qualifications.

This was a pretty big order, but through the simple, unique procedure established, the initial classifying and assignment methods worked in 98 per cent of the cases. Only 2 per cent of the trainees had to be reassigned at the completion of Basic Training.

In order to understand the complete function of this processing section, it will be necessary to go back to the time prior to the arrival of the fillers. Operations began at the time one of the nine reception centers furnishing fillers wired arrival time of a troop train bearing incoming troops. The Troop Movement Section maintained a chart which indicated the date and time of arrival of all known incoming fillers.

Upon notice that a train was expected, this section immediately notified all interested general and special staff sections in order that they could make necessary plans. Approximately six hours prior to the estimated time of arrival of a troop train, a representative of the Troop Movement Section departed for Temple, Texas, a town located thirty miles from Fort Hood, and boarded the train in order to coordinate local plans with the troop train commander prior to arrival at Fort Hood.

Normally, each troop train consisted of 16 Pullmans and one kitchen car, with 25 fillers assigned to each Pullman. The train commanders were instructed to seat the fillers in each car in roster order, from front to rear of the train, utilizing the special orders affecting movement for the necessary rosters. The troop movement representatives then prepared a master roster from the special orders. This roster reflected the car number, 1 through 16, and the names and number of people in each car. These rosters were delivered to the NCO's who assumed charge of the personnel upon arrival at Fort Hood. After insuring that all cars were properly arranged and the personnel oriented, the troop movement representative then checked and receipted for records and allied papers accompanying the shipment. This saved considerable time that would normally have been a vacuum period after the troops arrived.

During the time this important job was taking place, the Troop Movement Officer at Fort Hood was working in close liaison with the Post Transportation Officer and was keeping all interested sections informed as to the exact time of arrival of the troop train. As a result, an impressive group of 1st Armored Division personnel was on hand to greet the incoming fillers. The Commanding General was personally on hand, and with him, various members of his staff, invariably including the Division Chaplain and the Division Surgeon. The officers in charge of the processing sections were present, as were the military police who directed the 16 buses which carried the fillers from the detraining point to the reception area. Two officers and 16 enlisted men were bedecked with helmet liners painted the new Armor colors, yellow and green, and numbered from 1 to 16 in bold white figures. They took charge of the fillers as they detrained, the number on the helmet indicating the number of the group each would be responsible for. An important point to emphasize is that these men were responsible for the same group throughout the entire processing procedure.

Upon arrival of the train at the rail head, the troop movement representative was the first one off. His first job was to notify the Division Surgeon of persons that were to be hospitalized. He then turned over the records and allied papers to the Classification and Assignment representative and reported personnel who were AWOL or absent sick en route, to a representative of the 501st Replacement Company in order that proper disposition could be accomplished. The officers and noncommissioned of-

ficers with the colorful helmet liners then assumed stations at the exit of each predesignated numbered car and placed markers next to the car to correspond with that number. The military police then escorted the bus convoy alongside the train and the noncommissioned officers proceeded to transfer each group from the cars to the busses, complete with baggage. The convoy then pulled out for the reception area where it was met by the 2d Armored Division Band and martial music. While en route the NCO's called the roll.

At the reception area, personnel and baggage were unloaded and conducted to barracks which had been preassigned to each group. The fillers were then allowed a short rest period before being marched to the dining hall for a hot meal, or a snack in event they had recently eaten a meal aboard the train.

Meanwhile, the Classification and Assignment section was at work preparing to process the newly arrived fillers. Records were arranged by groups according to the master roster prepared by the troop movement representative. WD AGO Forms 20 were separated and placed with a records check sheet under the flap of the records jacket for the convenience of the interviewer. Interviewers had previously been designated to handle a certain numbered group, therefore simplifying the assorting of records and allied papers.

Approximately one hour after detraining, the 400 fillers were delivered, still divided into groups of 25, to the Classification and Assignment section, which was set up in a large field house.

General Clarke delivered a welcome address in which he explained the mission of the 1st Armored Division and the part the new men would play in its operation.

Upon completion of General Clarke's address, groups 9 through 16 were escorted to the Post Exchange and afforded an opportunity to make purchases, while Groups 1 through 8 remained seated and were oriented as to the processing procedures. They were told why they were being processed in this particular manner and how they would be selected for assignment to various units.

Each group of 25 men was interviewed by the interviewer who had previously been designated. He welcomed each filler individually to Fort Hood and the 1st Armored Division, presented him with booklets giving the history of the 1st Armored Division, and facts about the facilities to be found at Fort Hood and nearby communities. The interviewer at all times conducted himself in a manner to put the soldier at ease and to make him feel that he was being treated on an individual basis rather than "just one more in a group."

Each interviewer had an assistant who accomplished a personal analysis form which reflected the number of personnel in the group who could speak foreign languages, percentage of personnel in each aptitude area, educational background and those with prior service. This enabled the receiving unit to have a clear picture of the type of personnel composing each group immediately upon receipt.

Assignments were made to several different types of units by the interviewer. Each interviewer had previously been given a quota of from three to five different type units which were to be filled. For example, he would be assigned quotas to a headquarters and service unit, a combat command headquarters, a line unit and an engineer unit, etc. Thus he could match qualification with preference in making assignment.

The Division Trains Units consisting of the 124th Armored Maintenance Battalion, 1st Quartermaster Battalion, 47th Armored Medical Battalion and the 501st Military Police Company, 81st Reconnaissance Battalion and the 141st Armored Signal Company as attached units, were the first units to receive the fillers. This enabled these units to begin training and, as a result, they were able to furnish trained fillers to support Division activities.

Normally 25 men from each train were assigned to a receiving company. Thus, each unit receiving fillers had an equal assignment of personnel from throughout the United States and an equal allotment of varying skills. This size group was easier for the receiving unit commander to properly orient, with each individual receiving more attention.

At the end of an interview a man was assigned, and the assignment was entered on a postal instruction form. The assignment was then recorded

on the man's record and on a copy of the orders transferring him to this station. The notation was later used in publishing Division orders and assigning him to the designated unit.

After the interview and assignment had been accomplished, each man was directed to another station where clerks prepared pencil rosters by unit assignment. These rosters were used to deliver the men to their assigned unit immediately prior to issuance of special orders, resulting in a saving of an extra hour in delivering the fillers to their units.

Immediately upon completion of the interviewing of the first group, all records and allied papers were returned to the records section where proper entries were made in the service records and Forms 20, and the records were indorsed to the units concerned by witnessing officers. This was accomplished while groups 9 through 16 were being processed. The records for the second group were processed upon completion of their interviews.

Besides routine processing of records, the records section recorded the physical profile of each filler for statistical purposes and conducted a daily check of service records and allied papers, noting errors and corrections on an attached records check sheet. Approximately one hour and 15 minutes was required to interview each group. During this time the records section had accomplished the aforementioned details and had the records in order for delivery to appropriate units. The following forms and publications were also dispatched to the receiving units along with the records: change of address cards, unit locator cards, information and education survey forms, officer candidate school instruction letter, public information form, form letter to be signed by the unit commander and mailed to the next of kin, and a pamphlet of information pertaining to Army Emergency Relief.

These forms and memoranda were furnished in sufficient copies so that at least one copy was available for each filler. Five change of address cards were furnished for each man, and one copy of the post newspaper, *Tracks and Half-Tracks*, was delivered for every two men assigned.

Meanwhile, three locator cards were prepared for each filler and were distributed to the Division Adjutant General's Office, the Division Postal Section and the Fort Hood Post Office. Preparation of these cards consumed approximately four hours, but made location of personnel possible within 24 hours after assignment.

Upon arrival at units, the untrained fillers detrucked and went immediately into barracks where their beds were already made. Before they retired, however, their individual equipment was issued to them. If their arrival was early in the day, they proceeded through the various stages of initial orientation and instruction until it was time to retire.

Their initiation to the new unit began with an individual interview by their company commander. They were told what would be expected of them individually and as part of a team, and were given an opportunity to express their views or present personal problems.

After the initial interview with the company commander, the trainees were put through a succession of orientation and indoctrination periods. The battalion commander talked to them and explained the training program, the history of their unit, group living, religious aspects of military life, and the seriousness of war. Then the company commander oriented them as a group in the care of their equipment, explained the recreation program and cautioned them about fires, the handling of duds, etc.

During the balance of the week before actual training began they were addressed by the Chaplain, oriented in personal hygiene, the articles of war, military courtesy and were given a showdown inspection to ascertain whether or not they were short any personal equipment and to determine condition of equipment. During this time they also participated in organized recreation, viewed special movies and attended special religious services.

From the time the untrained fillers detrained until their delivery to their permanent unit, a total of four and one-half hours elapsed. Less than a week later they were in the midst of basic training. Taking into consideration the many details that were accomplished during this period, the old Army adage "hurry and wait" was completely discounted. Thus, no soldier's time was wasted, and time was gained for combat training.

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TOP REPORTING FROM THE HORIZON OF BATTLE

THIS IS WAR! *A Photo-Narrative in Three Parts.* By David Douglas Duncan. Harper & Brothers, New York, 1951. 171 pages. $4.95.

Reviewed by Marshall Andrews

In all the vast literature of warfare it is doubtful if there is a single passage which really conveys to the lay reader precisely what war means to the soldier who endures it. Language fails because no one can describe a sensation or an emotion which has never been felt any more than one can describe an odor to one who has never smelled it. Nor has art, in the narrow meaning of the term, done much better, since the artist cannot capture, except in memory, the evanescent compound of matter and emotion out of which each situation in battle is created.

The Author

David Douglas Duncan, a Marine combat photographer during World War II, has been a member of *Life*'s staff for the past four years, covering assignments in many parts of the world. In Tokyo when the Reds crossed the 38th, he moved his base of operation to the front. Mr. Duncan is co-winner of the U.S. Camera Gold Achievement Award for 1950.

The Subject

Admittedly one object of David Douglas Duncan in *This Is War!* is to bridge, in some measure, this regrettable void. And admittedly he has largely succeeded, though I am far from convinced that he has contributed much of value to the serious study of warfare.

Whether the author intended his book to be part of military literature, I cannot for the life of me determine. And I have reason to believe Mr. Duncan himself may have been of two minds on this question.

In his "Explanation" prefacing the book, the author says his work is "simply an effort to show something of what a man endures when his country decides to go to war," and in that effort he succeeds very well indeed. But he says in the same prefatory "Explanation" that "each chapter deals with a military combat problem," and goes on to describe, in very good prose, a little of what the problem was and how it was met and dealt with.

As an exposition of the minutiae of warfare and of the almost unendurable agonies forced upon the few men who receive the greater part of its impact, the pictorial part of this book is probably without parallel. And it should be noted that the photographs are human documents, rather than military, not only because Mr. Duncan planned it that way, but because nothing he nor anyone else could have caught in his camera would have captured the sweep and complexity of modern warfare.

As for the text which introduces each collection of photographs, there is more room for debate. Mr. Dun-

The Reviewer

Marshall Andrews served in the Army overseas in both World Wars. He is a member of the staff of the *Washington Post*, specializing in the reporting of military affairs, and he has recently returned from an assignment in Korea for that paper. An ardent student of military history, Mr. Andrews is author of the book *Disaster Through Air Power* (Rinehart, '50).

can's writing is clear and colorful and he has a feeling for language which warms every paragraph. And yet you find yourself, if you have had any experience of warfare at all, unsatisfied that each chapter should be a success story in the best Rover Boy tradition. It is difficult to accept a series of military situations in which everybody makes the right decision at the right moment, in which there are impediments but no reverses, in which events move toward ultimate success as inexorably as if propelled by Providential machinery.

Of course these are Marines with which Mr. Duncan's book deals and the author, a former Marine combat correspondent, concedes a predilection for his old Corps. And it may not be too much to expect of a public, which has come to believe that disaster in Korea was staved off solely by one Marine division (reinforced), that it should accept Mr. Duncan's glowing presentation of the record. Furthermore, since, as the author says, "once a Marine, always a Marine," he manages to envelop his characters with an almost mystic quality of devotion and sacrifice which, seen in other troops through other eyes, no doubt would be accepted as a matter of course.

To my way of thinking, probably the best passage in the book is one which may be largely incomprehensible to the nonmilitary minded civilian. That is the section labelled "Late July" in the first chapter, "Korea 1950" (his pages are not numbered), which describes his brief contact with the South Korean army and the arrival among them of General Douglas MacArthur. In it Mr. Duncan ponders over the failure of the ROK forces to hold and, in pondering, reveals a good deal of why they did not, and of the faults of bad leadership and the advantages of good.

LIFE Photos

Another passage which appeals to me, simply as good descriptive writing, is that in the same chapter called "Early July," which describes the author's flight into combat in a two-place jet aircraft. It has the quality, inherent in good exposition, of placing you in the airplane, instead of the author, and permitting you to undergo, not always in comfort, the sensations of maneuvering in a high-speed aircraft.

Mr. Duncan's three chapters dealing with "military combat problems" are not too happily done, as I have already indicated. They cover successively the capture and defense of a hill in the old Pusan perimeter, the seizure of Inchon and Seoul, and the retreat from the Changjin reservoir to the sea at Hungnam. All three share the same quality of effervescent optimism upon which I have already touched. In addition, the last of the three, entitled "Retreat, Hell!" contains one glaring fault which, unfortunately, is shared by Mr. Duncan with many others.

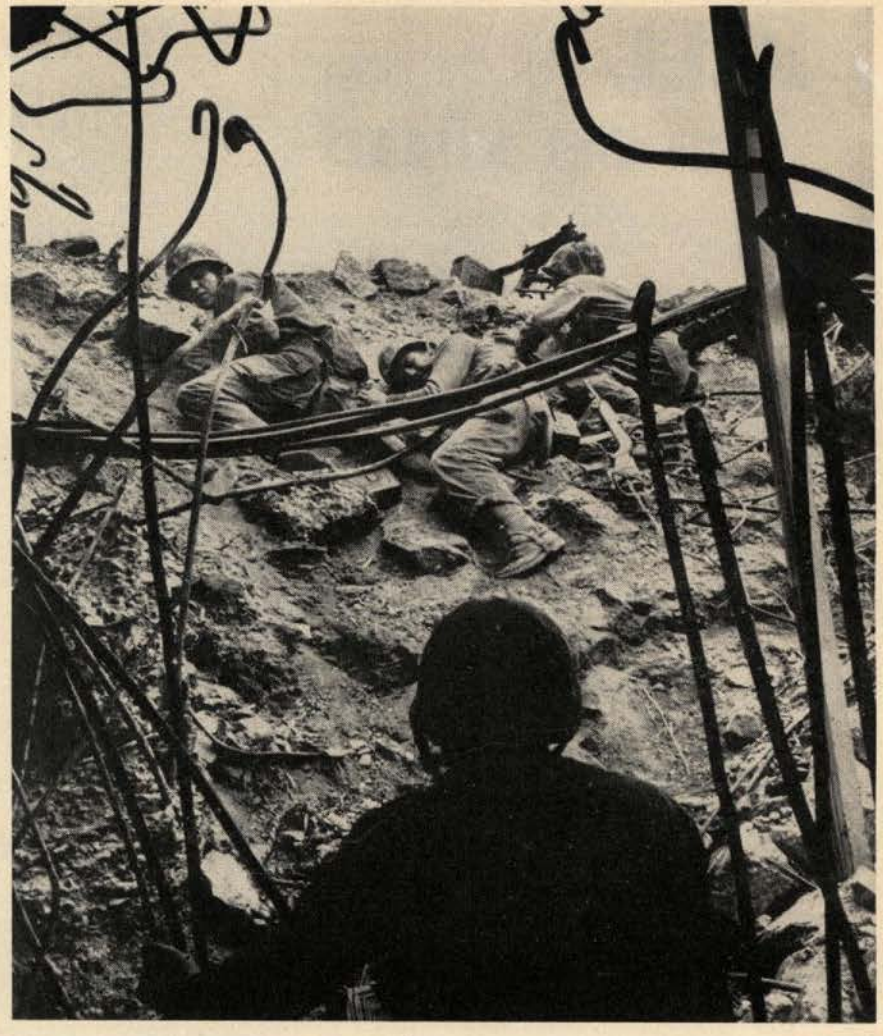
In it he briefly mentions the Third and Seventh Infantry Divisions of the Army, but only to say they were there; and he describes the Third, not too kindly, as "fresh." Then he forgets them and goes on to make the retreat, which he says was no retreat at all though it ended in flight by sea, purely and simply a Marine operation.

No one would ever know, from reading Mr. Duncan's account, that the escape corridor from Koto-ri to the coast was held open by the Third and Seventh and that these Army divisions remained at Hungnam for some twelve days after the Marines had left, holding the perimeter from which refugees and equipment were

evacuated. But perhaps it is too much to expect Mr. Duncan to escape what I shall charitably call this oversight, when the Marine Corps's own motion picture, *The Hungnam Story*, commits it in the same degree.

Of the photographs, all of which are magnificent, my choice goes first to that of two little Korean children, in Marine helmets, fearfully stopping their ears against the blast of machine guns firing nearby. My second choice is an equivocal one, being divided between that in which a wounded Marine is receiving a drink from another's canteen while a staff conference goes on within arm's length; and that in which a jeep has just struck a mine and Marines are rushing to the aid of a shattered man in a ditch. Perhaps these are not the pictures Mr. Duncan would have me select, but there it is: to me they convey more of warfare as I have known it than all the tortured faces and deploying troops in the book.

It is clear that Mr. Duncan accepted the rifleman's risk to get these fine pictures, and he is to be congratulated for it. There would be cause for rejoicing if his book should inspire emulation among Signal Corps photographers assigned to similar missions.



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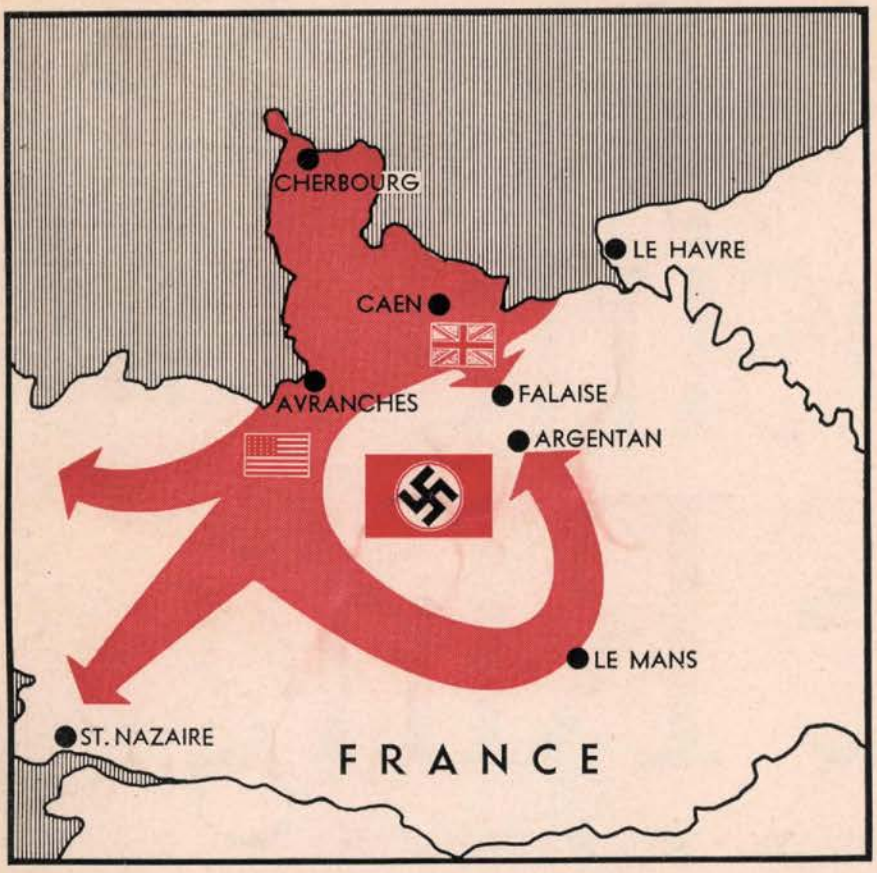

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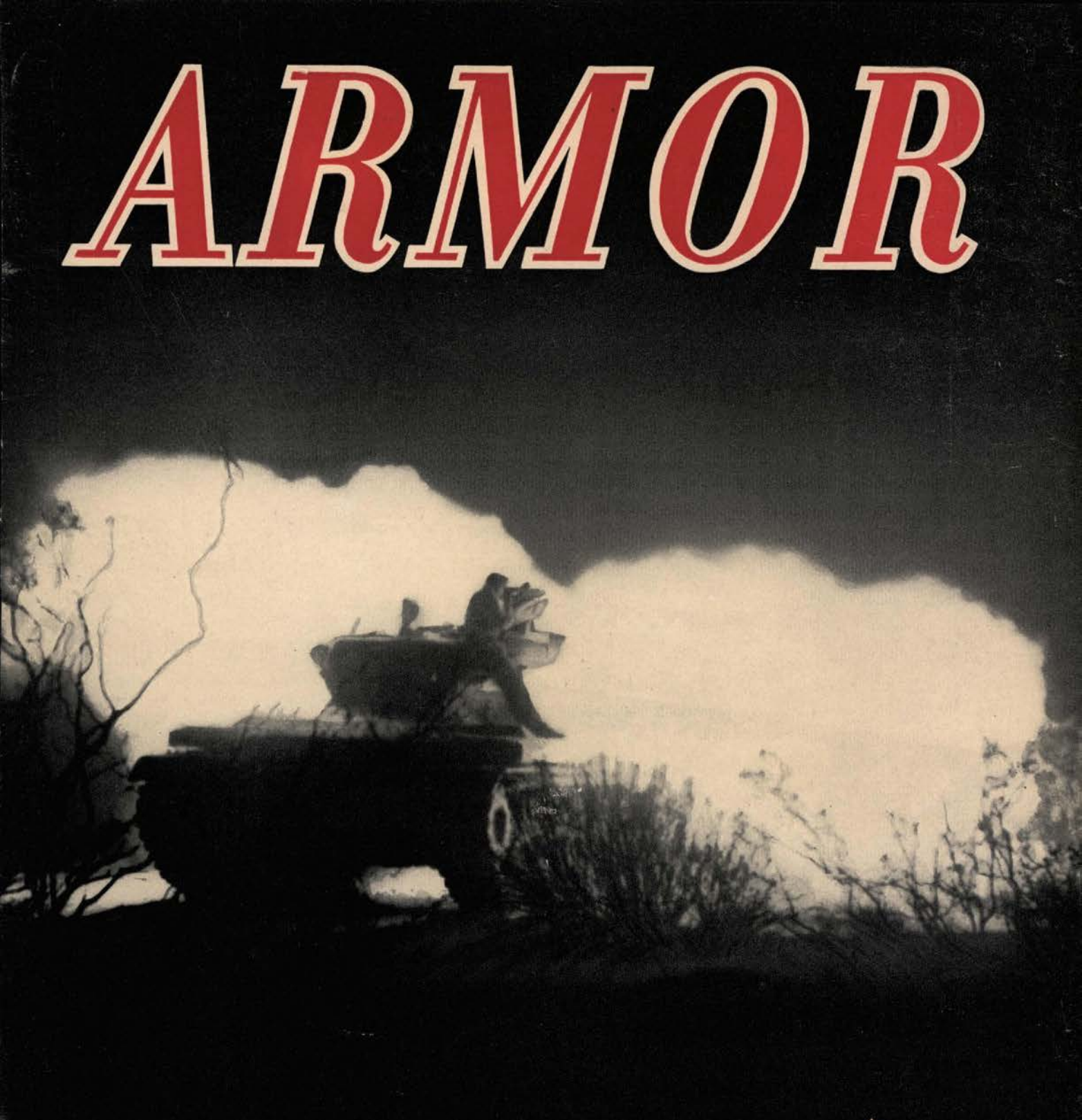


NIGHT FIRING AT CAMP IRWIN

NOVEMBER-DECEMBER, 1951

ARMOR WINS AN AWARD

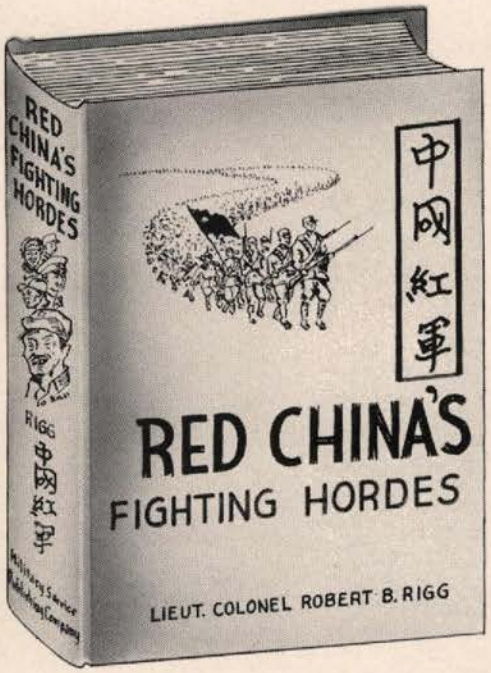
(See page 4)

RED CHINA'S FIGHTING HORDES

By Lt. Col. ROBERT B. RIGG, Armor

CHU TEH,
Commander-in-chief
Chinese Red Army

Pen Sketches by the Author



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Volume LX NOVEMBER-DECEMBER, 1951 No. 6

CONTENTS

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LETTERS to the EDITOR

Deadlock?

Dear Sir:

Reference is made to How Would You Do It?—Recovery Expedients—published on page 45 of ARMOR magazine for September-October 1951, where the situation of a 2½-ton truck stuck in a mudhole was presented, with the object being to recover the truck by use of snatch blocks utilizing the winch powered by the truck.

The situation has been duplicated by means of a model of the same principle and all that happens is that the weakest material in the problem would break without the truck having moved.

The truck winch tends to pull the truck in a forward motion toward tree Number 6. At the same time the block arrangement at the rear of the truck tends to pull the truck toward tree No. 1. Thus there is a deadlock or a pull on the truck in opposite directions.

I am of the opinion that the solution as published will not work. However, if this problem has been field tested it is requested that the omissions in the solution be furnished.

CWO A. B. Crosser, USMC
Engineer Supply Division
Marine Corps Forwarding Depot
Norfolk, Va.

and . . .

Dear Sir:

Upon reading the September-October issue of ARMOR I came across the article called How Would You Do It? Two situations and their solutions were given. I do not believe the solution to the Number 2 situation is possible. The winch on the front of the 6x6 would be pulling forward while the snatch blocks and cable hooked to the rear end would be pulling to the rear. This would result in a two-way pull that would have a tendency to break the 6x6 in half.

I am enclosing the copy of the diagram of the problem and have sketched on it the solution of running the cable underneath the 6x6 to a snatch block on Tree No. 1, then to the snatch block on the 6x6, then to an anchor on Tree No. 1. All the pull would then be to the rear and the other anchorage points would not be needed.

That is the solution I think is best to pull the truck out of the mud. The only problem that I can see is that of running the cable underneath the truck. I think some kind of rig should be devised so that the cable on a truck could be run to the rear as well as to the front.

I'm anxious to know if my exception to the problem presented is right.

Pfc. Raymond A. McClure
3415th Vehicle Maintenance Squad
Lowry Air Force Base
Denver, Colorado

● *ARMOR, pleased to see evidences of wide readership, has passed these comments along to author Captain Roy Edenfield, instructor at the Armored School. His answer follows.*—Ed.

Dear Sir:

Reference C.W.O. Crosser's letter wherein he states that the winch tends to pull the vehicle forward towards Tree Number 6, and at the same time, with the block arrangement on the rear of the truck, tends to pull the vehicle backwards towards Tree Number 1. This is correct. However, he fails to consider the difference of the mechanical advantage of the rearward pull as opposed to the forward pull.

The single pull forward has no mechanical advantage and is therefore in a ratio of 1 to 1. It must be remembered that the cable running through the snatch block at Tree Number 6 is not anchored there. The addition of another snatch block pulling at the rear of the truck increases the mechanical advantage to a 2 to 1 ratio. This comes about by running the free end of the cable through the snatch block attached

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Rates: See bottom of contents page.

to Tree Number 1, through snatch block attached to the rear of the truck, then back to Tree No. 1 and anchored there. Therefore, since the pull of 2 to 1 is greater than the pull of 1 to 1, the truck will move to the rear at a ratio of 1 to 1.

Passing the cable around Tree Num-9 keeps the cable free of the truck and provides no mechanical advantage.

Perhaps C.W.O. Crosser's trouble is that he may have taken his running line from the front of the truck without using a snatch block at the rear of the truck to run the cable back to the tree. This would cause a deadlock of 1 to 1 against 1 to 1, and could break the truck in two.

In like respect Pfc. McClure, by running cable under the truck to Tree Number 1, through the arrangement he has indicated in his diagram, does give him the desired mechanical advantage. It would work except the cable being under the truck would damage its undercarriage or cut the cable in two.

His query about the truck pulling itself in two is answered above. I hope this answers the questions that have arisen over this, and so your readers will not think these are "paper" problems you can assure them these problems are field tested and actually used by us here at The Armored School.

CAPTAIN ROY P. EDENFIELD
Automotive Department
The Armored School
Fort Knox, Kentucky

Appreciation vs. Aggravation

Dear Sir:

For the personnel stationed at Camp Irwin I'd like to express our appreciation for the fine coverage given the Armored Combat Training Area in the September-October 1951 issue of ARMOR in the article, "Tankers Get Tougher."

While you might possibly still have the plates on hand, our S-3 Section has requested me to explore the possibilities of obtaining reprints of the article. The story covers our operation here to such an extent that it is desired to use it as an advance mailing piece to all unit commanders and staffs as they are scheduled for training here.

1ST LT. MILTON ROSNER
Headquarters, Camp Irwin
Barstow, California

Dear Sir:

Having read your article on the Armored Combat Training Area at Camp Irwin, in your September-October issue of ARMOR, I was not only peeved, but really aggravated by the lack of mention of the outfit that labored under the hot sun to set up this school. The men of this outfit were selected for the task for comprising the best tank outfit in the States.

There is no mention of the 12 to 14 hours a day put in by the instructors and men. I hope ARMOR will mention the 325th Tank Battalion, which has done the job in setting up this school.

AN INSTRUCTOR
Armored Combat Training Area
Camp Irwin, California

● *ARMOR is pleased to throw the spotlight on the 325th Tank Battalion for its fine job in setting up and running the installation that is of such great value to the training of our arm.*—ED.

Dear Sir:

Many thanks for the fine play given Lieutenant Burns' article "Armor in The Hills" in the September-October issue of ARMOR. To one of the only two Armor ROTC units in New England it is a distinct shot-in-the-arm and we wish to exploit it to its fullest.

For Unit, campus and local release may we request any available material you used in setting up the article? We particularly request proofs, prints, tearsheets, dummies, covers and/or spare copies that would lend themselves to library displays.

Lt. Burns graduated from this school as a Distinguished Military Student.

CAPT. REINHOLD W. HERMAN
University of Massachusetts
Amherst, Massachusetts

THE COVER

ARMOR's cover for this issue is a sort of double feature. The first of these is the photo of the Patton tank firing on the range at the new Armored Combat Training Area out in the California desert, where one-third of all training is carried out at night. The other feature is that strip along the bottom to beckon you inside to sit in on ARMOR's rhetorical smile (with hands clasped above head), result of winning an award in the Magazine Show of 1951. (Turn page.)

ARMOR has won an award!

Superior on two counts is the story as ARMOR receives a Certificate of Award in the Magazine Show of 1951, sponsored by the American Institute of Graphic Arts.

It took four issues to do it. You may recall that our first issue under the title ARMOR came out in July, 1950, redesigned from cover to cover. It was the fourth number, that of January-February, 1951, that turned the trick.

Until last year there had been no medium for magazines comparable to, for example, the "Fifty Books of the Year." In 1950 the American Institute of Graphic Arts inaugurated the annual Magazine Show, open to periodical publications other than newspapers, printed in the United States, publicly offered for sale by subscription or on the newsstand, and not including house organs, catalogs, sales bulletins or promotional literature. Only issues dated in the period January 1950 through June 1951 were eligible for the 1951 show.

The Institute of Graphic Arts, as the name implies, is devoted to the raising of standards in the graphic arts. It was organized in 1914 to provide a common meeting ground for typographers, designers, illustrators, publishers, print makers, photoengravers, type founders, electrotypers, printers, bookbinders, paper makers and ink makers—in fact, all those whose interests touch the art of graphic expression.

A distinguished panel of judges comprised the editorial jury whose task it was to make the selections from the mass of entries in the 1951 Magazine Show. The members included Mr. Lawrence Lessing, Editor of *Fortune Magazine;* Mr. Alexey Brodovitch, Art Director of *Harper's Bazaar;* Mr. John English, Art Director of *McCall's;* Miss Cipe Peneles, Art Director of *Charm Magazine;* Mr. J. Belcher, Publisher of *Progressive Architectural Magazine;* and Mr. J. M. Fitch, Architectural Editor of *House Beautiful.*

In his *Note to the Jury,* Will Burtin, Chairman of the Exhibition, set the stage with his statement that "little is known about the ingenuity with which the mechanics of vision (illustration, type, color) are handled, how a visual flow is developed, how the character of a publication is consciously revealed in editorial concept and design.

The issue of January-February 1951, the entry selected . . .

"It is the purpose of the 1951 Magazine Exhibition to define more clearly than before how those requirements are met in the entries, and to select examples which can be presented as a guide to the understanding of magazine making and as a reward to accomplishment.

"The jury is charged with the task of making those selections, a task which is admittedly difficult and which calls for a high order of discrimination."

While the editorial jury was considering the merit of design, a separate panel of experts judged the quality of reproduction, appropriateness of reproduction method in relationship to editorial design, and other features of reproduction and me-

chanical production. This panel was composed of Mr. William C. Thomas, Production Supervisor of the J. W. Clement Company; Mr. Asher Aron, Assistant Sales Manager of Davis, Delaney, Inc.; and Mr. Howard Knowles, Production Manager of I.B.E.C. Publications.

ARMOR, we're proud to state, was judged superior on two counts, as mentioned above—by the editorial jury for the handling of type and lettering in the creation of attractive patterns and in promoting legibility of the magazine—and by the production panel for the physical production of the magazine. Needless to say, we are immensely pleased over this recognition of our editorial efforts. It is also a great pleasure to see the recognition of the physical product, and our appreciation goes out to our printer, the firm of Garrett and Massie of Richmond, Virginia, for their contribution in this respect. Our thoughts go right down the line to linotyper, proofreader, compositor, pressman, folder and stitcher.

. . . and pp. 42 & 43, the spread selected.

The 1951 Magazine Exhibition got under way on November 12th with a special invitation preview at the Gallery of the Society of Illustrators in New York City. It was opened to the public on the next day, and in the coming weeks the display will tour the major cities around the country. Watch for it and see it if you are within reaching distance.

The displays are attractively made up in large frames. ARMOR's sample spread, which is pages 42 and 43 of the January-February 1951 issue, appears in two places in the Exhibition, once for the editorial category and once for the production class.

Although this is strictly a trade recognition, quite apart from the military, we are most happy about it because it bears out our thought that military publications must do as much to market their product and sell their subject as commercial magazines addressed to other types of audience. There is no reason why a service journal should be grim, stodgy, dull or unimaginative in its presentation. By being readable and imaginative it puts its content across. And that applies to the literary angle as well as to design.

Acknowledgment of these thoughts is indicated in this paragraph from the Report of the Jury judging the entries in the 1951 Magazine Show, which notes that "The editorial jury did not attempt to impose uniform design requirements over the entire field of publication, but considered each entry on the basis of the group-readership to which it directed itself, and analyzed how well the entry met the thus developing requirements."

Many, many letters from the field over the course of this year-and-a-half of ARMOR's distribution had led us to hope we were on the right path. It's most rewarding to have the ratification of such a distinguished group as the jury in such a notable event as the Magazine Show of 1951.

The Editor

The military's search for improved means of transporting greater fire power into battle is a never-ending one. The advent of the internal combustion engine and developments in the automotive line have provided a tremendous spurt in a brief span of years. The story of evolution from wheels to tracks and machine gun to Long Tom is intimately related to the history of mobility in war and armor in ground warfare

SELF PROPELLED GUNS

Developments and Trends

by RICHARD M. OGORKIEWICZ

U.S. Army

WHILE armored artillery has now come to be recognized as an essential member of the armored team and the use of self-propelled guns has spread to other fields, the story of this development is still relatively unknown and its implications consequently obscured. That this is so is partly due to the fact that the history of armored artillery is so short: it was only during the Second World War, just over ten years ago, that armored artillery, as such, came into being.

However, neither the problem to which self-propelled guns were offered as a solution nor the conception of the equipment was by any means new then. The basic problem, that of the mobility of heavy, crew-operated weapons, has existed for many decades, in fact ever since these weapons appeared on the battlefield.

It was largely with this problem in mind that some of the first attempts to use automotive vehicles for military purposes were made at the very beginning of this century. The first armed autocars were conceived as highly mobile carriages for the then newly developed machine guns. After armoring, these evolved into the armored car, in theory a very advanced, self-contained combat vehicle but in practice of limited utility owing to the limitations of the wheeled chassis. In consequence it quickly became a specialized vehicle, for reconnaissance and patrolling, and lost, outwardly at any rate, the characteristics of a gun motor carriage.

When the trench warfare on the Western Front in 1915 put a stop to the use of armored cars, it brought forth the application of another type of automotive vehicle in the shape of the tank. With its tracks and armor, the tank brought to the battlefield both new means of increased tactical mobility and a measure of mobile protection. Of the two it was the latter, armor protection, which made the stronger impression at first—as shown, among other things, by the common definition of the tank as a "mobile pillbox." Moreover, the early employment of tanks was dictated by the methods and needs of the older arm, the infantry, which they were called upon to support as barbed wire crushers and machine gun destroyers. As a result of all this tanks came to be regarded much more as specialized pieces of equipment rather than a step towards a general increase in the mobility of armament.

After the First World War, tanks, like armored cars, took their place as just another addition to the existing and well established armory and for a considerable time exerted comparatively little influence on other arms. Apart from a small circle of enthusiasts the more general advantages of mechanized mobility met with little understanding. Even where tanks were not regarded as mere auxiliaries to the infantry and were given opportunities for further development, as in the case of the British Royal Tank Corps, this had little influence on the rest of the Army.

Initial Efforts

There were, to be true, some attempts, during and immediately after the First World War, to extend the use of the tracked chassis outside the tank field. Their object was to increase the mobility of the artillery within its traditional methods and organization. In 1916 Britain produced, as such, the first tracked self-propelled gun, the Gun Carrier Mark I. It was designed to carry either a 60 pounder gun or a 6 in. howitzer. Forty-eight vehicles were built but they were chiefly used as supply carriers and the development was not continued.

The French started a little later but in 1918 they had no less than eight experimental models, ranging from a 75mm gun on the 8 ton Renault light tank chassis to a self-propelled 280mm gun. Complete mechanization of artillery was advocated by the general inspector of equipment, but such views met strong opposition from other artillerymen and the High Command. Superior cross country mobility and speed in changing position and economy in personnel compared with towed guns were grudgingly conceded. But arguments were advanced against self-propelled guns on the grounds that their reliability and road performance were poor and, above all, thinking in terms of positional warfare, that the gun could not be placed in position without its motor carriage. The result was that after the Armistice of 1918 further development ceased completely.

Following the French example, U. S. Army took up the development of gun motor carriages during the last few months of the war and experiments continued until about 1922. At least 12 different models were built or sponsored by the Ordnance Department, from a light 5 ton 75mm to a self-propelled 240mm howitzer. The Caliber Board (also known as the Westervelt Board), which was established after the war to study the whole problem of artillery equipment and from whose recommendations many of today's guns have originated, laid great stress on the development of self-propelled mounts. It regarded them as particularly desirable for medium and heavy artillery. Again, however, the development was dropped. Much the same arguments were used against motor carriages as in France, chiefly that if the power plant of the carriage failed the entire unit was out of action. Therefore, the arguments ran, tractor drawn artillery was the more logical system.

What in many ways were very promising beginnings thus came to nothing and in the following two decades there was virtually no further progress in this field. A few isolated attempts were uniformly unsuccessful in reviving interest. The artillery saw no tactical need for self-propelled carriages and the armored forces concentrated on tanks.

One example of this, and probably the most interesting, was self-propelled 18 pounders (83.8mm guns) built in Britain by Vickers Armstrongs during the late twenties. They represented an important step forward from the gun carriages of the First to the self-contained, self-propelled guns of the Second World War. Three different models were built, one of them capable not only of field artillery and anti-tank duties but of anti-aircraft fire as well—a degree of versatility as yet unattained by any self-propelled gun of similar caliber. However, this development met strong opposition from the majority of the artillerymen and found no support among

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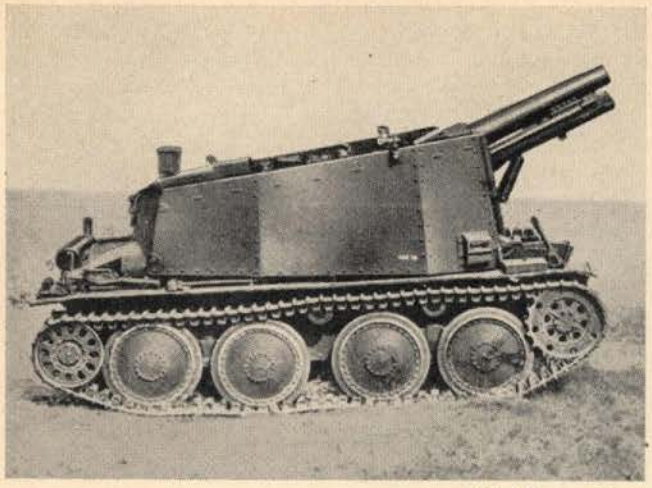
Richard M. Ogorkiewicz was educated in England and holds a B.Sc. in Engineering from London College. He has long studied the history, development and employment of armor, a logical thing perhaps when considered against his background of having been born in Poland in a military family, of seeing his native country overrun by German armor, and of being present in France in May and June of 1940 when the German armor reversed its field. His previous articles in ARMOR have covered French armor, armored cars, and weapons and mobility.



Official German Photo

German GW 38 Heavy Infantry Cannon.

U.S. Army

American Cavalry Combat Car mounting machine guns.

the tank leaders who were afraid lest this development be at the expense of tanks.

The few experimental vehicles built in other countries were similarly abandoned as a result of opposition by some and lack of interest on the part of others. Such was the fate of self-propelled 37mm anti-tank and 75mm field guns built in Germany in the twenties and of the 75mm Howitzer Motor Carriages T1 and T3 built in the thirties by the Ordnance Department. The French Army was the only one to resume seriously the development before the outbreak of the Second World War. The 1936 defense program authorized the creation of five self-propelled artillery battalions. The development of the equipment was, however, slow and only one or two experimental vehicles were available by 1940.

But while the development of self propelled guns remained stagnant, artillery did not, of course, remain unaffected by the progress of the automotive age. In addition to mounting guns on vehicles there was the other and in some ways quicker method: using motor vehicles for towing in much the same way as a horse team. The use of trucks and tractors for towing first came into prominence during the First World War and continued to be extended in the postwar period. Apart from being faster than the horse traction which it replaced, this method did not depart in principle from the methods consecrated by at least three centuries' usage—a fact which, incidentally, made it much more acceptable to the conservative minded majority. But because of this it suffered from the same disadvantages, the chief being that it still required considerable time and effort for going into action, through the necessity of unlimbering and all the associated motions.

Mobility For Artillery

Where wheeled vehicles were used for towing, strategic mobility was high but tactical mobility was poor. With tracked tractors the reverse was true and they were in no respect better than tracked self-propelled guns. The real, initial advantage of the towed over self-propelled guns was an economic one since reliable and commercially available vehicles could be used for the purpose, while only minor modifications had to be carried out on the existing stock of guns. This, however, seems to have been completely forgotten when special tracked tractors were developed. These were a necessity when better cross country performance was demanded and their development represents the farthest point reached in the development of the mobility of the artillery before the outbreak of the Second World War.

In the meantime, however, developments were taking place in other fields, notably that of tanks, which were soon to exert a strong influence on the evolution of artillery equipment. Although views on the employment of tanks varied very considerably, considerable progress was made in tank design. At the same time, in the thirties, the numbers of tanks in all armies began to increase steadily.

As was to be expected, one immediate effect of this was a rapid development of counter measures, pricipally anti-tank artillery. At that time this meant guns of between 25 and 47mm, miniature versions of contemporary field guns, used defensively. The Germans, who led in this development and who had 75 anti-tank guns per division long before anyone else did, were not, however, long contented with a passive role for their 3.7cm Pak 35/36. They began to stress the mobility of the motorized anti-tank units and the importance of an offensive employment. In keeping with this policy anti-tank units were designated Panzerjager or "tank hunters" and in addition were used offensively in support of the infantry. When the Second World War broke out they moved one stage further towards greater mobility of anti-tank units and in 1940 introduced a few self-propelled anti-tank guns, starting with the Czech 47mm gun on the Pz.Kpfw. I light tank chassis. From there they moved on, introducing increasing numbers of self-propelled guns, particularly in 1942 after coming up against the masses of Soviet tanks. Practically all of them were of an improvised nature but nevertheless they served the double purpose of increasing the mobility of anti-tank artillery and filling the gap until more powerful tanks became available. Typical vehicles of this class consisted of the 7.5cm Pak 40 on German Pz.Kpfw. II, Czech 38t and French chassis of about 10 ton weight. There were, however, many others from the Guerlich, tapered-bore 2.8cm S.Pz.B. 41 on a light armored car chassis to a 128mm gun on an experimental heavy tank chassis (not to be confused with

the much later 128mm Jagdtiger).

Other armies followed the German lead, finding from their own experience the limitation of towed anti-tank guns. Although towed anti-tank guns were previously acclaimed as the best means of defeating tanks, a defense system based on them lacked flexibility and being semi-static was ineffectual once operations assumed a mobile character. In fact its effectiveness depended largely on the chance of hostile armor attacking just where adequate numbers of anti-tank guns had previously been emplaced. However, exactly the same guns mounted on motor carriages, or in tanks, were very much more effective in every respect. Thus after the first few days of the 1940 campaign the French produced an improvised, self-propelled 47mm gun on a 6 x 6 chassis. A small number of these chasseurs de chars was made available to the French 2nd and 4th Armored Divisions and used with considerable effect. The following year, 1941, saw the appearance of British 2 pounders (40mm guns) mounted on light, four wheeled trucks and other, rather primitive forms of self-propelled anti-tank guns in Libya.

The United States Army began with similar improvisations, such as the 37mm Gun Motor Carriage M6 on an ordinary 4 x 4 truck. Although the last to enter this field it developed the mobile, offensive role of anti-tank artillery farthest in creating the Tank Destroyer Command. From the very beginning tank destroyer units were, in the words of the Tank Destroyer Field Manual, "especially designed for offensive action against hostile armored forces." Their equipment included such powerful and mobile weapons as 75mm guns on half-tracks, 3 inch M10 and 90mm M36 on M4 medium tank chassis and finally the 76mm M18. The last, which was specifically designed as a tank destroyer, had a maximum speed of 55 m.p.h. and was one of the outstanding armored vehicle designs.

While the desire to increase the mobility of anti-tank guns was partly responsible for the development of self-propelled guns, so was the lack of tanks with effective armor piercing weapons. Although as early as 1916 General Swinton, the father of the tank, stated that the best way of fighting a tank is with another tank, contrary views, that "tanks are not meant to fight tanks" have all too often prevailed since then. In consequence insufficient attention was frequently given to the question of tank armament and when the problem of fighting enemy armor arose, improvisations or special vehicles had to be resorted to. When, finally, the importance of being able to combat hostile armor was acknowledged and adequately armed tanks were introduced the need for special self-propelled anti-tank guns or tank destroyers diminished. This was clearly shown when after the end of the Second World War the attached tank destroyer battalions of U. S. infantry divisions were replaced by organic tank battalions.

The other effect of the appearance of large numbers of tanks on all sides, or more strictly, of the appearance of large armored formations was a partial mechanization of field artillery. In the first permanent mechanized formations, such as the French Division Légère Mécanique of 1934 and the Panzer Division of 1935, all artillery was towed. This was still true of all the armored formations during the first two years of the Second World War; even in the German Army, which at that time was leading in the technique of armored warfare, and in spite of requests from some of the leading Panzer commanders for self-propelled artillery. The lack of interest, if not actual opposition, on the part of the artillery combined with a shortage of suitable chassis after meeting other demands prevented anything being done about this for some time.

But, although the German three-quarter track tractors were the best vehicles for towing yet built, the use of towed artillery in support of tank units presented unquestionable difficulties. As a result semi-improvised self-propelled gun-howitzers, such as the 105mm "Wasp" and the 150mm "Bumble Bee," began to appear in 1942. Further development was, however, severely restricted by the more urgent calls for mobile anti-tank and close support guns. Not more than one battalion in a Panzer division could usually be equipped with them and the others still used towed guns. At the same time, with the introduction of heavily armed tanks such as the Tigers and Panthers, many Panzer commanders felt that the need for self-propelled guns was less urgent and there was already a tendency to go over to rocket projectors for area bombardment.

Experimental work, however, continued right up to the end of the war and led to the development of the

U.S. Army

American Tank Destroyer.

Sovfoto

Russian S.U. 122.

very interesting Waffentrager series of self-propelled guns. This series was meant to cover a whole range of calibers, right up to 150mm, although only a few of the lighter carriages were actually built before the end of the war. The main characteristic of this series was the use of light, low silhouette, lightly armored tracked carriages, in most cases, including the 8.8cm Pak 43, with all around traverse. In the case of the 105mm howitzers there was the additional feature of a dismountable gun, which could be fired either from the vehicle or from the ground. This removed the old objection that the gun could not be emplaced without its motor carriage and at the same time it offered the advantage of being able to split up the load for transport, by air for instance. A price had, of course, to be paid for this in the form of somewhat increased complication and total weight. Without this feature the Waffentrager type of vehicle was lighter and, as regards over-all dimensions, smaller than any comparable towed gun and tractor combination, in addition to possessing all the inherent advantages of a self-propelled gun.

U.S. Army

American M-7 Self Propelled 105mm Howitzer.

It was left to the United States Army, however, to be the first to put the whole of the armored divisions' artillery on self-propelled carriages. Although in 1940, already after the Blitzkrieg in France, there were still some who claimed that horse-drawn 75s were all that was needed, the development of several types of gun motor carriages was begun. One of the first to be standardized was the 105mm Howitzer Motor Carriage M7, based on the M3 medium tank chassis, and it became the standard divisional artillery weapon from 1942 onwards. It was first used in action by the British Army in October 1942 at El Alamein and served as a model for the very similar British "Sexton" self-propelled 25 pounder (87.6mm gun-howitzer).

Another well known gun, whose development began in June 1941, was the 155mm M12. It saw considerable service in Europe in 1944-45, demonstrating in action a remarkable saving in time and effort over corresponding towed equipment. By the end of the Second World War the United States Army had a whole range of self-propelled guns, from the twin 40mm M19 and the lighter 105mm howitzer M37 to the 240mm howitzer T92.

Apart from the two main lines of development already mentioned, *i.e.* that of self-propelled anti-tank guns and that of self-propelled field and anti-aircraft artillery, there was yet a third category of self-propelled weapons. These were first introduced by the Germans, at the same time as their first improvised, self-propelled anti-tank guns and howitzers. Their original name was Sturmgeschutz or "assault guns."

The origin of these assault guns can easily be traced to the evolution of German infantry armament. As a result of studies after the First World War the Germans rightly concluded that neither the rifle nor the light machine gun was adequate for the needs of modern combat and they began to transform their infantry into a much more powerful and up-to-date instrument. In addition to increasing the numbers of machine guns and mortars and adding regimental anti-tank companies long before anyone else did, they also introduced regimental gun companies of six 75 and two 150mm howitzers. In a way it was the logical outcome of experiments with infantry accompanying field guns of the First World War and also the Germans always believed that a gun on the spot is worth a whole battery later. These guns and the whole departure from the rifle and bayonet principles to which other armies still clung certainly paid dividends in the early Blitzkrieg campaigns, though they were apt to be overshadowed by the much more spectacular accomplishments of the Panzers.

The introduction of infantry guns brought, however, its own problems. The chief one was that of their mobility, particularly as they had to be used well forward. Improvised vehicles based on light tank and half-track chassis were tried as a solution but because of their large silhouette and incomplete and thin armor proved unsuitable. For use well forward with the infantry a more thoroughly designed type was required and in 1940 the Germans, anticipating many of the later lessons, produced their first Sturmgeschutz.

Limited in number at first, these assault guns were used to supplement the existing infantry howitzers, with a view to assuring close support to the infantry at all times, particularly under conditions which made the employment of infantry guns difficult, as, for instance, in assaults against well defended positions. The first two battalions of the Sturmgeschutz were used in France, in 1940, and from then on their numbers grew steadily.

In 1942, in place of the original, low velocity 75mm gun, the Sturmgeschutz received the high velocity 7.5cm L/43. This enabled it to engage effectively hostile armor in addition to affording direct infantry support. It also paved the way for the merger of the two classes of equipment, assault guns and self-propelled anti-tank guns, into a single Panzerjager class.

The new class, which came into prominence in the closing stages of the war, included such vehicles as the

8.8cm Panzerjager Panther and the light, 17 ton Panzerjager 38t. The latter was to form 61 per cent of the total armored vehicle production planned for 1945 and was intended to be the chief armored support for the infantry divisions.

By virtue of its low silhouette and good, all round armor protection the assault gun type of vehicle was superior to other types of self-propelled guns. Also, at the expense of traverse, it had more powerful armament or better protection, or frequently both, than a corresponding tank type. It was therefore particularly suited to taking over from tanks many of the tasks in a fire fight and it could thus give the tanks greater freedom to maneuver.

This kind of employment was widely practiced by the Russians, who, benefiting from the lessons of the early German assault guns, introduced from 1943 onwards a whole series of vehicles of this type. With the exception of the S.U.76, which resembled the early, semi-improvised German guns and which has been used in quantity in Korea, the Russians have confined themselves entirely to this type of self-propelled gun.

With their addiction to the use of field artillery for direct fire the assault gun type of vehicle appealed particularly to the Russians. At the same time it made possible through quicker mounting of heavier guns on existing chassis considerable increase in the fire power of tank units—and gun power was the thing Russians always regarded as most important in their tanks. Armed with high velocity 85mm guns and 122 and 152mm howitzers Russian S.U.s were used extensively in cooperation with tanks. Together with heavy tanks they formed a mobile fire base on which the mobile medium tanks pivoted. At the same time they were also used for direct support of the infantry. In this role they were often mixed with tanks right down to platoon level, in the ratio of one S.U.85 to two T.34.

The combination with tanks was hardly surprising since in many ways German assault guns and Russian S.U.s were "turretless tanks" as much as self-propelled guns in the sense hitherto understood. That tanks and S.U.s varied only in small degree from one another was particularly noticeable in the case of heavy types, the Stalin heavy tank and the S.U.152 heavy gun-howitzer. Both relied on heavy, long range fire power and were used in many similar roles.

Unlike the Germans and the Russians, the Western Allies have in the past produced only a few experimental vehicles of this type. And then only of a very heavy type such as the 100 ton T28 and a roughly similar British vehicle. In addition to the orthdox self-propelled guns, tanks armed with howitzers in place of the standard guns were developed to provide support for the armored units. This policy was initiated by the British Army in the late twenties with the so-called "close support tanks" and

U.S. Army

Russian Self Propelled Guns used by ROK Forces, captured by Allies in Korea.

one of the latest examples of this category is the U. S. M45. Recently, however, the French have developed an assault gun, very similar to some of the German types, armed with a high velocity 120mm.

In more than one respect the development of the assault gun type of vehicle is interesting and significant. It is particularly so as a clear link between tanks and self-propelled guns and, what is even more important, as a very significant example of a much more direct and aggressive use of artillery equipment arising out of its increased mobility.

Until now artillery has been regarded almost exclusively as a supporting arm since, in fact, other roles were difficult, if not impossible, with towed equipment. The infantry has thus continued to be regarded as the basis of every army, though the rifle has long lost the position it once held as the main source of striking power. In this order of things cavalry, and more recently armor, have been given the role of a complementary mobile arm.

However, with the introduction of self-propelled carriages the gun became a much more versatile source of fire power instead of being a slow and clumsy supporting weapon. In addition to the more traditional artillery manner, it could be employed as an integral part of a completely mechanized force or as the fire base of the smallest infantry units. The infantry Kampfgruppe, "task forces" and others built round a number of self-propelled heavy weapons, are a clear pointer to future organization and employment.

At the same time tanks have also moved away from the narrow conception of a kind of armored steam roller which would pave the way for the infantry. Or from the other extreme view of lightly armed raiders which could—perhaps—cause confusion in enemy rear areas but which were helpless in face of any hostile armored opposition. Instead they too are slowly being recognized as a much more versatile form of mobile fire power. On the tactical plane mobility is no longer used with the main object of transporting a shield of armor, or for its own sake, but to increase the effectiveness of tank armament.

Thus, in spite of outwardly different approaches, both tanks and self-propelled guns clearly become the means of increasing the mobility and effectiveness of heavy weapons. Outwardly, the differences between the various types of equipment are at the moment very considerable. At one end of the scale are the lightly armored and highly mobile Waffentrager which the Germans developed. At the other end are heavily armored tanks with guns of 155mm or more. In between come such types as the German Sturmgeschutz and Panzerjager, Russian S.U.s and a whole host of tanks and self-propelled guns, down to recoilless guns on jeeps.

Each type has its peculiar advantages and disadvantages, tactical, technical and logistical, but irrespective of form, all the different types strive to achieve exactly the same thing: to increase the effectiveness of armament through the mobility of the automotive vehicle. And, as a combination of the effective form of fire power and mobility they all represent the truly basic weapons of ground warfare.

"A fool can profit by his own experience but I prefer to profit from the experience of others."—*Bismarck.*

Tanks in Korea:

1950—1951

KOREA has definitely given us the opportunity to profit by many experiences and to make new studies of our infantry-tank lationships. Combat experience has shown our infantry-tank doctrine to be sound; however, progress is made only by an analytical examination of events to evolve the lessons indicated, along with the integration of these lessons into their proper place in our over-all tactical doctrine. So let it be with the experiences of our Armor units in Korea.

Terrain Appreciation

The lack of an adequate road net, the poor condition of the roads, demolished bridges, bridges incapable of supporting tanks, rice paddies, steep high dykes, and mountainous terrain imposed severe restrictions on tank mobility. However, numerous operations, including those of Task Force Dolvin in the Cheri-san mountains in September, 1950; Task Force Crombez at Chipyong-ni in February 1951; and Company A, 72nd Tank Battalion at Kapyong in April 1951, indicated the desirability and advantage of employing tanks, even under the most adverse terrain conditions, to obtain their speed, firepower, and demoralizing effect on the enemy. Some terrain is better suited for tank employment than other; but the only change caused by terrain on tank employment in Korea was to lower the number of tanks that could be deployed in any one area at one time. Tanks should still be used "in mass." In Korea a "mass" of tanks may be only a company, if only a company can be employed in that particular area, but the greatest "mass" of tanks should be used that the terrain will accommodate in order to obtain the maximum degree of shock action and destruction of the enemy. The uninitiated employed the old excuse that Korea is not tank country—and it generally was an excuse. However, every commander must make detailed map, ground and aerial reconnaissances to determine the favorable areas for tank employment. Terrain and trafficability reconnaissances and studies are of paramount importance in achieving maximum benefit from

by LIEUTENANT COLONEL GEORGE B. PICKETT, JR.

An analysis of tank operations in Korea over the course of the campaign, by an author who was Armor Officer of IX Corps for 14 months

All Photos U.S. Army

available armor in any area of operations.

Terrain and Trafficability Studies

Due to limitations placed by terrain on armored operations detailed knowledge of terrain and trafficability assumed paramount importance in planning for utilization of available armor. It was discovered early in the 1950 campaigns that previous terrain studies apparently had been based purely on relative elevation rather than ground conformation and soil conditions. Early use of armor along the Naktong River (August-September 1950) disclosed that some areas shown in these studies as good cross country trafficability were actually quicksand bars in which tanks bogged down. Also, these studies failed to consider the effect of such obstacles as rice paddy dykes on cross country movement.

Trafficability studies are of material benefit if sufficiently accurate. To be accurate the information must be collected by means of personal ground reconnaissance, aerial reconnaissance, and interpretation of aerial photographs. The information may be distributed in the form of tinted overprinted maps, overlays, or in statistical form. It should be distributed down to and including each tank platoon leader. Tank and reconnaissance unit commanders should be indoctrinated to report trafficability conditions automatically to the next higher headquarters. The information should be collected, published, and distributed by the lowest headquarters having an Armored Section, normally a Corps. However, special trafficability studies should be made by Division G-2's and Unit S-2's prior to each operation where tank employment is materially restricted.

A trafficability study should not be regarded by a unit commander as an excuse not to employ tanks in an area; but as information that more reconnaissance and special measures may enable him to use tanks, even if only a platoon, in that area to obtain surprise and decisive results.

Methods of Attack

FM's 7-35 and 17-32 prescribe five methods of coordinating tanks and infantry in the attack. Basically these methods apply to Korea; however, modifications have been necessitated due to terrain conditions. There are

four methods that have been most effective in Korea:

The first method consists of having tanks advance rapidly through enemy frontline positions along a high speed approach to inflict maximum casualties, confusion, and destruction in enemy rear areas. The depth of these raids and the size and composition of the force may vary from a tank platoon raiding a close-in enemy reserve position to a Combat Command-sized armor Task Force assigned a distant objective.

The second method consists of having tanks advance rapidly to the flanks and/or rear of enemy positions to cut routes of withdrawal and destroy reserves.

The third method consists of having tanks support advancing infantry by direct fire, destroying bunkers and fixed defenses and neutralizing enemy positions by fire. This method is the least desirable of all and should be used only when tank maneuver to the flank or rear of the objective is prevented by adverse terrain.

The fourth method consists of a combination of methods two and three. When combined, these methods provide maximum tank support for infantry advances.

Attack of Reverse Slope Defenses By Tanks

The method of having tanks and infantry converge on the objective from different directions is particularly applicable to the attack of reverse slope positions. In Korean terrain there were many opportunities for tanks to move into the rear of the enemy position by advancing up valleys leading into the rear of the position and saturating the objective by fire, while the infantry approached from a different direction, generally along the high ground approaches. In many situations the enveloping tank unit encountered the enemy reserve element and by destroying this force by fire or overrunning it, the possibility of a rapid counterattack was eliminated.

Night Combat By Tanks

The continuous employment of night attacks by the Reds made it imperative for friendly tank units to increase their night combat efficiency and to be positioned inside infantry defense areas at night for protection against enemy tank hunter teams. The effectiveness of tank units at night was increased by anticipating possible areas of enemy infiltration and possible routes of enemy attack. This technique was employed by Company A, 72nd Tank Battalion prior to the Red Chinese attack on 24 April 1951 and contributed greatly to the successful night action by that unit above Kapyong on 24/25 April. Arrangements should be made to fire on enemy attack routes and infiltration areas during daylight to include assignment of target areas, selection of positions, computation of firing data, and preparations of a night range card.

Clobbering . . .

Regimental Tank Companies

Based on observation of tank employment in Korea for more than 14 months, I feel that far more effective use of the armor in the infantry division could be obtained by inactivating regimental tank companies and reorganizing the infantry division armor, including the present division reconnaissance company, into an "Armored Regiment," commanded by a full colonel. This would insure adequate training, proper employment, and the required logistical support not now present. In addition, the senior Armor officer would have enough rank to discuss employment on an equal prestige basis with the infantry commanders and would also be available to command armor task forces. To support infantry, units of the armored regiment could be attached to the infantry regiments, but the armor regimental commander would still be available to see that they were employed and maintained properly. The number of tanks in the infantry division would not be increased or decreased by this system.

An analogy can be drawn between the armor regiment commander and the division artillery commander. Each has a command and advisory staff role. Each organizes his forces for combat. If a tank company is required to support the "X"th Infantry, the armor regimental commander would select and attach the company. Naturally the same units would be at attached to the "X"th Infantry as consistently as possible in order to foster the team concept.

Tank Maintenance, Battlefield Recovery, and Evacuation

As a result of experience in South Korea between 23 September and 2 November 1950, IX Corps developed a new method of battlefield maintenance, recovery and evacuation in preparation for the 24 November 1950 UN offensive. The system consisted of pooling the available evacuation and recovery means under centralized control and having this centralized agency, termed the "Division Maintenance Control Agency" (DMCA), coordinate the use of all recovery equipment along predesignated axes of maintenance. The maximum use of mobile maintenance teams along the axes of maintenance, coordinated by DMCA, was stressed.

Training . . .

The system was employed successfully to support tank units up the Chongchon Valley 23-26 November 1950. It is believed that the drafting of a maintenance, recovery and evacuation plan, based on use of a DMCA, mobile maintenance teams, and axes of maintenance, should be the assigned duty of the Division Ordnance Officer prior to each operation. The DMCA technique is equally as effective in defensive actions and retrograde movements as in offensive combat.

Use of Light Aircraft By Armor Units

Light aircraft provided an excellent means of detecting enemy ahead of an advancing armored unit and for immediately reporting this information to the unit. Best results were obtained when the plane was in radio contact with the unit commander. Some tank battalion commanders commanded from their light aircraft on occasion. However, it is believed that a battalion commander should be on the ground and in full control of the situation, using a qualified aerial observer in the plane. If he becomes an observer, his activities as commander are restricted. This applies primarily to a battalion commander. It would not apply to the commander of a combat command task force, since use of a light plane would enable that commander to see more of the battle area personally and make his presence felt to a greater degree. Also he does not need the degree of close control required by a battalion commander.

Tank Employment In Snow and Extreme Cold

Winter conditions imposed a great strain on drivers, crew personnel, vehicles and equipment generally, and the need for proper maintenance was paramount. However, normal tactical principles still applied to operations in the snow and extreme cold of November, December, January, February, 1950-1951. All vehicles required special lubricants and maintenance inspections had to be frequent and thorough. Maintenance tents were critically needed by all tank units but were not available. The hospital ward type of tent is a fair maintenance tent. There were very few buildings available for maintenance shelters. Tentage had to be the principal solution.

Although spikes can be welded on every third track block to increase traction over hard snow or ice, experience in January-February 1951 indicated several disadvantages of using spikes, such as difficulty of installation in forward areas, lack of steel bar stock when needed, increased engineer road maintenance problems due to spike damage, breaking off of spikes, and the difficulty of removing the spikes when no longer needed. It was found by experiment in February 1951 that straw, obtained along the route, can be spread along icy curves and icy slopes to improve traction. Such straw is normally readily available in Korea.

It was learned that at temperatures above −10°F. and below 32°F., engines should be run for short periods every two hours to maintain the tank in readiness for immediate operation. "Preheating" is required below −10°F. in the majority of cases.

Summary of Lessons Learned

Some of the more outstanding lessons learned during offensive operations in Korea were:

1. Tank-borne infantry can not perform the armored infantry role. Infantry units employed as a part of

Supporting . . .

an armored task force for deep penetrations into the enemy rear must be provided with armored personnel carriers.

2. A tank dozer should be included as a part of all armored task forces in Korea.

3. The Communist forces' anti-tank doctrine calls for the maximum use of tank hunter teams employing rocket launchers, pole charges, satchel charges and bangalore torpedoes.

4. Effective infantry-tank communication and methods of target designation from infantry to tanks must be prearranged and understood by all elements.

5. Any armored column containing a company or more of tanks should be supported by a tank recovery vehicle.

6. The shock action of tanks is extremely effective on the Reds. Although their tank hunter teams have been fanatical in their reaction to initial advances, they generally have been content to stay out of sight of the returning tanks.

7. Tank units can penetrate rapidly deep into an enemy position but can not be accompanied by standard infantry. This situation requires the tank units to give up objectives that could be held if the infantry could accompany the tanks at the same rate of speed and with armor protection. Armored infantry is needed for infantry support of tanks in operations of this nature.

Receiving . . .

Defensive operations indicated that:

1. Tanks should normally be included in the combat outpost when terrain permits. They may serve as the entire combat outpost; however they must be screened by dismounted personnel at night.

2. Fewer tanks are lost to tank hunter teams when tank commanders fight with their hatches open than when "buttoned up." This does not apply to the driver.

3. A tank commander is more effective when he fights his crew than when he spends a large part of the action firing the turret mounted cal .50 machine gun. The .50 cal turret gun is advantageous when tanks are giving overhead fire support to advancing infantry, not when the attack is primarily a tank action.

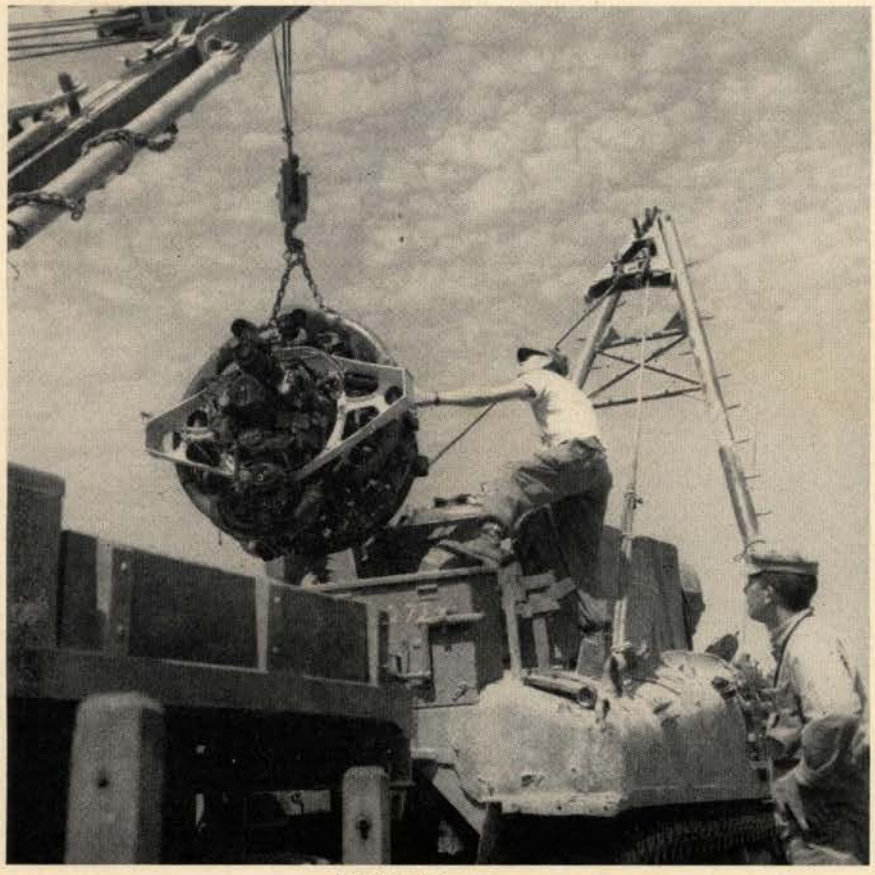
4. Tank unit leaders command by means of their radio net and movement of their tank. A dismounted tank platoon leader is relatively ineffective in attempting to run over the battlefield to direct his tanks.

5. Mutual confidence between tanks and infantry is essential to success. Each must feel that the other will remain and fight when the situation is serious.

6. Tanks employed on the MLR are very effective against enemy personnel in the open.

7. Rocket launchers are relatively ineffective against properly supported tank attacks in open terrain. They are effective against tanks operating in close terrain, defiles, woods and built up areas. When operating in such areas, tanks should be adequately supported by infantry.

8. The Reds attack principally at night. Counterattacks at daylight have had greater possibility of achieving surprise with Red forces in the rear apparently still in their attack formations or assembly areas.



Maintaining . . .

SOME IDEAS FROM A JUNIOR LEADER

To the Editor:

Having spent almost two years as a Reconnaissance Platoon Leader (Co. B, 4th Rcn. Bn.) (MOS 1204), I feel that there is no better unit to command in the Armor Branch. It is a small task force in itself. You have mobility, firepower, shock action; and last but not least, it is very easy to employ the principle of maneuver, whether mounted or dismounted.

However, as the result of my experience, there are certain changes I would make in the Table of Organization and Equipment of the Reconnaissance Platoon. Here are my changes and reasons:

by LIEUTENANT HENRY S. MARCANTONIO

▶ Equip the Support Squad with a Half Track, in lieu of the two one-quarter ton vehicles with trailers, until the armored personnel carrier is available. The reason for this is that the two one-half ton trailers are not large enough to carry even the squad's basic load. In the event the vehicle with the mortar is knocked out, the squad is useless. Then again, in the setting up of the mortar, there are times when the squad will have to pull off the road to set up and give support to the platoon. There have been many times when one of my vehicles with trailer has bogged down on the way to their set-up position, thus slowing down the arrival of the much-needed mortar fire. A half track can carry at least four times the amount of ammunition that the two one-half ton trailers carry, and the half track can offer some protection to the crew from small arms fire.

▶ Arm the five men in the support squad with pistols. In the event of a vehicle breakdown while the platoon is moving forward, the mortar is one weapon that I want right behind me. Therefore, the squad would have to carry mortar and ammunition forward. The shoulder weapon would definitely be a hindrance, as the squad is normally in the base of fire, and the only reason for individual weapons is for self-protection in the event of an infiltration.

▶ Promote one of the support squad leaders to Sergeant First Class, and see to it that he receives training in the use of the M-10 Plotting Board and the Aiming Circle. I would also make the M-10 and the Aiming Circle TO&E to the Reconnaissance Company. The Sergeant First Class mentioned could be in charge of the mortars when they fire in battery.

Another change would be in the communications system. The two SCR 300's mounted in the tanks are useless. If our company were a tank company I could see their use. But in a Reconnaissance Company, I normally dismount mine and give one to the Scout Section when they work dismounted, and the other stays in the platoon headquarters. I strongly suggest three SCR 536's—one in platoon headquarters, another for the Rifle Squad, and the last one in the Scout Section.

It is well known that the Reconnaissance Platoon at times may have to fight dismounted. There are too many reconnaissance unit commanders who are under the impression that the only way a mission can be successfully performed is by staying mounted. I have found, from past experience, that my platoon has worked just as much on foot as mounted. It seems to be the general policy for the Rifle and Scout Sections to dismount their SCR 510's and convert them to SCR 509's. Did you ever carry an SCR 509 while working as a maneuvering element? Well, believe me, it is a hard task, and slows down the squad considerably. So, it boils down to doing away with the two SCR 300's in the two tanks, and adding three SCR 536's. Other than that, the communications system cannot be beat. Of course, new radios would help.

▶ I would eliminate some of the many items that are TO&E and which my platoon has not used in our past operations, as executed on problems and maneuvers that covered all sorts of situations and under most of the weather variations.

The first item that would go is the telescope. There are three in the platoon; one in platoon headquarters, and the other two in the Scout Section. I have never used them, and feel that they are just expensive pieces of optical equipment that the platoon leader and the section leader have to worry about.

Next, the assault boats. I can see one in the platoon, but we have never found use for two boats. Eliminating one would give us that much more loading space on the inadequate one and a half ton trucks that we use in lieu of armored personnel carriers.

I would issue the lensatic compass in lieu of the wrist compass.

The final changes I would make are:

▶ Designate the .45 cal. pistol as the TO&E weapon for the platoon leader. There are many times when the platoon leader will go with the maneuvering element, and the tank section will be part of the maneuvering element. In firing the reconnaissance platoon in the attack, using live ammunition, I have found the carbine to be a cumbersome weapon. A General Officer who critiqued one of our company problems, once stated: "If I had my way, all platoon leaders would not be equipped with a shoulder weapon. Their job is to employ their platoon and not shoot at the enemy. In an instance where you need a weapon for self-protection, the pistol is adequate."

In the Scout Section, I would change the light machine gun to the A-6. There are times when the Scout Section is used in the maneuvering element, and I should like to have a few machine guns along. However, the A-4 is too cumbersome to carry, whereas if the A-6 were TO&E, there would be two automatic weapons that could be used to lay down some good fire.

* * *

I have given my ideas on the changes I would make in the light of what I have actually learned in the field. I know these ideas are open to criticism, as this is but one platoon out of several hundred. I have employed and worked with this platoon under training and simulated battle conditions. Naturally, platoon leaders in Korea or the States may not agree with me. But as far as my work with this platoon is concerned, I feel that the changes I mention would enable me to set up my base of fire much faster, and my communications with the maneuvering element would be much better.

ATOMIC BATTLEFIELD AND ARMOR

The assignment of Army units to participate in atomic tests indicates the advances made in the development of atomic weapons and the focusing of attention upon tactical application. In view of these developments, the moment certainly is at hand for a closer look at the ground combat picture as it concerns atomic warfare.

Considering all of the angles, there are certain conclusions to be drawn in reference to the battlefield. They are conclusions that hold great import for Armor.

The tactical use of atomic weapons will multiply the value of mobility in the combat zone. Mobility will be a primary means of protection, for dispersion will be ever more important should the enemy employ atomic weapons.

At the same time that mobility is essential for dispersion as a manner of tactical protection, so too will it be essential for the rapid concentration of units at decisive points. Mass employment must still be the basis for decision.

Armor is ideally suited for rapid dispersion and rapid concentration.

An atomic blast on the battlefield, of whatever proportion, will blanket a sizable area, an area much larger than that covered by our so-called conventional weapons. It will saturate an impact area, and will obviously require individual protective measures far advanced over those now in use.

We have followed the long series of atomic experiments applied to ships, submarines and planes. As the tests go forward in Nevada, we are seeing this application extended to ground equipment.

The assignment of Army units to the tests was accompanied by the explanation that these troops would set up a battalion position as executed on a battlefield, with foxholes, wire entanglements, and so on. It is said that equipment was placed in the position, including tanks and artillery.

Observer troops were permitted to move into the blast area to see the effects on the positions they had set up, and to examine vehicles. Damage to vehicles was reported as moderate, and the Army stated that "they still could have been used."

Armor appears to be the ideal basis from which to perfect the new defensive measures which will be required for survival on the atomic battlefield. It seems logical to assume that proper protection will be forthcoming only when ground personnel in the battle area are mounted in fully mobile armored vehicles whose characteristics include protection from blast, heat and radiation. Much of the framework exists right in our present vehicles.

Only a force mounted in vehicles combining mobility, properly developed atomic protection and inherent fire power will be able to survive on the atomic battlefield and carry the fight to the enemy. Fundamentally, Armor is such a force.

THE ANNUAL MEETING

The 63rd annual meeting of the United States Armor Association will be held at The Armored Center, Fort Knox, Kentucky, on Monday, 21 January 1952.

This is a departure from the usual procedure of holding the meeting in Washington, D. C., headquarters of the Association. The entire Council felt that a meeting at the Home of Armor would be of greater professional value to the membership.

The concentration of members at Fort Knox, where many are attending Armored School courses, will insure a substantial attendance of those normally assigned across the country. In addition, the central location of Fort Knox will put it within reach of many members from other points.

A program of great interest to all Armor personnel will be presented. All members who can possibly attend are urged to do so. This will be the largest get-together of professional exponents of mobile warfare in the 66 years of Association history.

OF EDITORS, AWARDS AND ULCERS

This issue marks the completion of a year and a half of publication under our modern title, and ARMOR is happy to be able to announce the winning of an award in the Magazine Show of 1951, sponsored by the American Institute of Graphic Arts. The details of this are on another page in this issue.

Although the editor is duly proud of this recognition within the trade, we also spread the credit around where it should be shared. Such an award would not have been forthcoming without, for example, the complete freedom granted the editor by the governing body of the Association.

Credit goes also to the individual member of the Association. You supply the funds, through your membership, which make a production job possible. Thus, it is additionally pleasing to the editor to know that he is turning out a readable product for you, a magazine which, if the award is an indication, is acceptable to you.

Editors come under a variety of titles—Editor, Managing Editor, Executive Editor, Associate Editor, Assistant Editor, Senior Editor, Contributing Editor, Department Editor, Photo Editor, Book Editor—and any combination of these, plus a number more. Each has a special job to do. Few editors have the privilege, as we do, of being all of these at one and the same time.

This magazine is unique in that respect. Of the tremendous staff of five, each is fully absorbed in one phase of the operation—bookkeeping, circulation, clerical details, shipping, editorial. To one person—the editor himself—must fall the entire job of putting out a magazine every two months. It begins with the conception of a rough prospectus of the issue—and carries through personal typing of letters requesting articles; reading of all manuscripts; all rewrite work necessary on every story; selection of all illustrations; securing of the book reviewer; writing of editorials, special columns, biographical sketches on authors, subheads on articles, and captions on photos; most ad composition; covering of special events such as maneuvers with pen and camera; occasional drafting of maps; complete design and layout of the magazine from cover to cover, including selection of type faces and projection of photos; necessary research and fact checking; and supervision of the final printing of the issue. On the side we run the business end and manage the affairs of the Association as required of the secretary.

As we said above, few editors have the privilege as well as the necessity of handling their product in its entirety from start to finish. Where they do, the product almost inevitably absorbs the individual's personality. But there is a tremendous amount of remuneration to go along with a tremendous amount of work. Not the lesser moments are those marking the receipt of a kind letter of comment from the field—or the winning of an award.

TWO-WAY RESPONSIBILITY

The press in recent weeks has carried quite a bit of coverage of the gambling and related gouging activities concentrated around armed forces establishments.

The profiteers who take advantage of service personnel are well below the average standard of citizenship and decency. Obviously the gravitation of undesirable elements to centers of service activity is deplorable.

But the tone of most of the coverage has been rather one-sided. No shady establishment or enterprise of any kind exists unless it is patronized. The problem can be attacked from both sides. A concerted effort by organizations and individuals will do as much as a big official investigation.

It's all a part of the moral pattern we've heard so much about lately. Stay away from the joints and you will not lay yourself open to the charge of being a sucker or a mouth breather. And folks will not have to cluck their tongues over you for having been the victim of your own stupidity.

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.

One word is the keynote to effective operations by our ground combat arms—teamwork! *To have the latest details on the translation of combined effort into battlefield success, ARMOR goes once again to the field in Korea for the expression of representative infantry battalion commanders from each of six U.S. divisions, writing on the important subject of* ***TANK-INFANTRY TEAMWORK*** *basis of so much of the action in the months of bitter ground fighting.*—The Editor.

The writer of the following served with the 603d Tank Destroyer Battalion attached to the 6th Armored Division in the ETO in World War II. With many months of combat experience in Korea, he is Commanding Officer of the 3d Battalion, 5th Cavalry Regiment, 1st Cavalry Division.

The principles taught in service schools for employing tanks and infantry together in combat remain sound and continue to stand the tests of practicability imposed in combat.

The tank still is an instrument of shock and tremendous fire power and, in spite of the very limited road net present in Korea, remains a weapon both of mobility and maneuver.

The terrain in Korea is a restricting factor in the employment of tanks.

However, complete reconnaissance both by air and ground has revealed that tanks can be used effectively in what might appear to be non-traversable terrain.

The infantry, properly trained in the capabilities and limitations of armor, offer invaluable assistance to tanks in reconnoitering routes of approach and firing positions.

On innumerable occasions unit commanders have achieved surprise while fighting the Chinese Reds by employing armor on ridge tops or through valleys latticed with rice paddies over which the enemy thought vehicles could not move.

Many times the key to the success of an attack, especially against fortified positions, is to maneuver the tanks so as to bring their high velocity fire to bear on bunkers and/or automatic weapons.

Communications within the tanks themselves is very effective. The most difficult communications arrangement is between the tanks and infantry, where the main reliance still is placed on the SCR 300 radio.

The only answer to successful and continuous communication is prior planning, well maintained radios, and alert operators. It has been found that communications checks made the day prior to the beginning of an operation are very valuable and many times pay off at critical moments when communications are needed most.

The lessons of the Korean war with reference to tank-infantry training parallel the general conclusions reached at the close of World War II.

Too much emphasis cannot be placed on one subject—continuous training during lulls in the fighting and actually during the fighting.

Tank crews and the infantrymen alike must be taught the procedures and capabilities and limitations of each other's weapons.

The infantry commander who makes a strong attempt to see that his personnel are thoroughly oriented in the use of armor and, in turn, employs his armor properly, will be paid off many times over.

Lt. Col. Demers

Tanks, by the very nature of their bulk and silhouette and their faculty for making a lot of noise, still draw fire from the enemy. Tanks still rip up the roads and cut wire lines.
lines.

However, tanks are tremendously effective battle companions for the infantry.

The infantry wire teams must learn to put wire off the road so it won't be cut and to anticipate that when armor operates in their area, communications lines may be cut.

Infantry commanders must learn that armor need not be employed in every battle formation—and that the tanks may be committed several hours later.

These steps are helpful in reducing the amount of enemy mortar and artillery fire which the tanks draw onto the infantry.

Infantry commanders must remember also that, big and powerful as the tank is, it can be destroyed by enemy individuals with the proper antitank weapons in their hands. In areas heavily wooded and in defiles, plans must be made for protection of tanks.

Continuous training of infantry troops in conjunction with tankers will produce the techniques and bases of mutual confidence so necessary in the tank-infantry team.

If these things are accomplished, then the infantry commander will have the shock and fire power and can achieve surprise whenever the tactical situation presents itself.

Lt. Col. Robert J. Demers.

The writer of the following served as a platoon leader and company commander with the 35th Infantry Division in the ETO in World War II. In Korea for over 15 months, he has participated in all of his division's campaigns, now is Commanding Officer of the 2d Battalion, 38th Infantry, 2d Infantry Division.

Because of the nature of the terrain and the fighting characteristics of the enemy in the eastern sector of Korea, the use of tank-infantry teams has been limited. With very few exceptions, armor has been used in only one of the five methods of attack, that of supporting by fire alone. Even then, the teamwork between the advancing infantry and the supporting tanks becomes of paramount importance.

Prior to the actual attack, tanks are used to knock out known enemy bunkers and emplacements on the forward slopes of the objective. Tank fire is directed and adjusted by direct radio control between the attacking company commander, or platoon leader, and the tank commander. During this phase, the supporting artillery is also brought into the tank-infantry team by firing on the topographical crest and reverse slope of the objective. As the enemy is forced from his positions on the forward slope by the direct fire of the tanks, and moves through the open communications trenches to his mortar- and artillery-proof shelters on the reverse slope, he is taken under fire by the artillery, firing VT fuse. This has proven effective.

As the attack jumps off, the tanks place a steady volume of fire from both the 76mm gun and .50 caliber machine guns on the objective. When the infantry reaches the point where fire has to be lifted, all tanks, except the platoon leader's, shift their fire to the flanks. The platoon leader's tank is then used to engage and destroy any bunkers or emplacements still manned by the enemy. Any targets to be engaged by the platoon leader's tank are then directed onto the new target by verbal description, use of tracer, use of colored smoke, or any combination of the above. During a recent attack, the target area was covered by a heavy fog and the tanks were unable to observe the

Maj. Hodges

target area. However, by firing tracers, and by the infantry platoon leader, talking directly to the tank platoon leader, tank fire was brought to bear and several enemy bunkers were destroyed which were holding up the advance of the infantryman. The fog was so heavy that the tank platoon leader was unable to pick up the normal 4-1 machine-gun fire, so solid belted tracer ammunition was used and the target was readily identified.

In using tanks to support by fire, it is highly important to maintain accurate, steady, and continuous fire on the objective, as the slightest lull in the firing affords the enemy an opportunity for moving back to the forward slope and occupying his old positions. For that reason, it has been found advisable to divide the supporting tank force into two groups. This allows one group to resupply or move to an alternate or supplementary position while the other group maintains the fire. Both support commanders must remain abreast of the situation so that the location of friendly elements and targets is known at all times.

Tank-infantry teamwork is not achieved merely by talking about it. Each new replacement, both officer and enlisted, must realize the capabilities and limitations of both the tank and the infantryman. Most of all, the infantryman must have confidence and a knowledge of what the tank can do for him. At every opportunity, the infantryman should be shown the accuracy and destruction which can be obtained by the 76mm gun. The average infantryman, unless he has been trained, is unaware that he can advance to within fifty yards of the target and still be well outside of the bursting radius of the 76mm shell. This allows him to follow more closely his supporting fires, thereby increasing the element of surprise and shock action. Tank-infantry teamwork is achieved only by training, practice, and experience.

MAJ. WARREN D. HODGES.

The writer of the following served overseas in World War II with the 6th Infantry Division in the Pacific Theater, remaining on with that organization for the Korean occupation. He returned to Korea over a year ago, in his present post as Commanding Officer of the 3d Battalion, 65th Infantry Regiment, 3d Infantry Division.

Tank-infantry teamwork, needless to say, is very essential to the success of an operation. When, for example, a tank battalion and an infantry battalion are notified that they are to work together on a task force into enemy territory, it is essential that the two commanders get together at the earliest possible opportunity.

At this time, in addition to making certain that the mission is *thoroughly understood* by *both* commanders, including the plan of maneuver, routes to and from the objective area, timing, etc., it becomes a matter of getting down to the actual mechanics of the operation.

How will the action be controlled once contact with the enemy is made? In other words, how can the infantry commander get the supporting fire from the tanks where he wants it when he wants it?

In order to do this so that the full support of the tanks can be utilized, tank and infantry company commanders who are to work together on the operation are paired off to get down to the fine points—after the task force commander has explained the plan of maneuver of the task force as a whole and the part that the individual tank-infantry company teams will play.

Here is how the 64th Tank Battalion and the 3d Battalion of the 65th Infantry (both of the 3d In-

fantry Division) worked it out on an operation which took them north from Chorwon almost to Pyong-gang, then east on the Pyong-gang-Kumwha Highway during the early part of July, 1951.

The tank battalion CO (also the task force CO) and the infantry battalion CO established their CPs together, moving to and from the objective area on the same tank and remaining together during the operation (close coordination and mutual exchange of information was thus insured between COs).

The two infantry company COs rode with the tank company COs to and from the objective area. (One infantry company rode in M-39's.)

Each CO (battalion and company, tank and infantry) in addition to their own communications within their own battalions, were tied in by SCR 300 radio to the infantry net.

This gave a double system of communication throughout the task force, enabled infantry COs to call for fire quickly from the supporting tanks when not close enough to use the EE8 phones in the rear of the commander's tank, and, at the same time, kept both battalion COs aware of the activities of all concerned.

It was determined that white-smoke grenades (rifle) and WP rounds from 57mm recoilless rifles would be used to mark targets where haste was necessary or verbal description difficult.

It was arranged that air identification panels would be used to mark the foremost elements of the infantry and to further minimize any possibility of tanks firing on friendly infantry troops (which is sometimes unavoidable during the confusion of battle). Small (individual) "cerise" air identification panels were worn by infantry platoon leaders, squad and assistant squad leaders, tucked into the back of their belts.

The use of these individual panels enabled the tankers to quickly locate the friendly infantry and to keep their supporting fire moving just ahead of them, and, where necessary, to bring fire on targets close to the infantry without danger to them.

This system of voice and visual signals was very effective and cut down the loss of time experienced previously in getting quick accurate fire support from tanks.

Lt. Col. Harris

For example, at one time during the operation, very accurate mortar fire held up the advance of the infantry troops and forced the tanks to button up. The mortar position was located by the CO of Company L, who contacted the CO of Charlie Company of the tanks, which was supporting him, by means of the EE8 phone on the tank. Through a verbal description, fire was brought on the position and the position was knocked out by two rounds from the 90mm cannon.

One other very important item was the offer by the tank battalion CO to have two tanks to transport and provide protection during the operation for the 81mm mortar platoon. This assured us of our indirect fire support and the offer was quickly accepted by the infantry CO.

Tank-infantry teamwork is just as essential as the teamwork necessary in the regiment, battalion and company, and of course, it helps too, if the COs have worked together and especially if they get along together.

Lt. Col. John E. Harris.

The writer of the following served with the 82nd Airborne Division in its European campaign in World War II. In Korea for more than a year he was recently assigned as division G-3 following nine months as Commanding Officer of the 1st Battalion, 17th Infantry Regiment, 7th Infantry Division.

During the last nine months in Korea I have had the opportunity to directly control tank-infantry attacks on many occasions.

Fortunately, the battalion has operated for the most part in areas in which we had some sort of tank-negotiable trail in our zone. As a result, I have used the entire regimental tank company or parts of it very frequently. In all of our actions we have succeeded in getting at least three tank platoons into the operation.

My approach to a tank-infantry attack, especially in the Korean mountainous regions, is anything but the dashing Patton-type of attack. The fast-moving, crushing potentiality of the tank is used after the objective is taken. The approach is slow and calculating.

In our battalion we feel that control is the key to success for the tank-infantry team. The prelude to control is the minute plan which is worked out with the tank and rifle company commanders. If at all possible, we rehearse the entire plan in the rear area with skeleton crews and platoons. An unlimited number of briefings are held so that all tank commanders and squad leaders are positive they understand exactly how and when each task necessary for the successful accomplishment of their mission will be performed. The plan and its alternate arrangements are specific but yet flexible enough to compensate for the unpredictable.

In Korea the tanks approach on a valley floor with the main body of infantry on the overlooking hills. This is a cautious approach, and even when anti-tank mines are encountered, the problem of control is routine. Teamwork poses the most serious problem in the actual attack on the objective.

As co-ordinator of the attack, I generally advance with the infantry to an outpost as close to the objective as possible and into a position where both the tanks and infantrymen are visible. The tanks pull into prearranged firing positions, and each tank commences firing at a designated level in the target area on the hill which is the objective.

At the same time, the infantrymen crawl in under this fire with the third man in each platoon trailing a fluorescent panel from his shoulders. As the troops get to a point about 50 yards

short of the bursting area of the tank fire, I notify the tankers to walk their fire slowly up the hill. Upon this movement, the infantry company commanders and platoon leaders receive the word to move in on the enemy. This usually results in brief hand-to-hand fighting before the enemy either has been killed or has retreated over the crest of the hill.

When the enemy riflemen are seen to leave their positions and head for the rear, the tanks move out fast to prearranged positions on the opposite side of the hill and pursue the enemy with fire while the infantry lays down a heavy volume of small arms fire from the crest of the objective.

If this is a limited objective attack with a primary purpose of killing the enemy and not of securing more ground, these tactics work very well because the enemy is more or less trapped by fire from all angles. On the other hand, if a permanent penetration is desired, the tanks and infantry can have arrangements to refuel and reload ammunition, and then, having already started to rout the enemy, exploit their advantage by continuing down the valley.

Lt. Col. Sayre and tanker

Practically speaking, the SCR 300 is the basic means of communication to tanks and infantry, but its use can be varied. Often, I have found it impossible to contact the tankers on the SCR 300, so I have made it a rule to hold one tank in the rear as a communications tank which is used to relay the messages.

From my outpost, I can contact this rear tank either with my SCR 300, or by telephone if it is practical to run a wire to it.

The use of the fluorescent identification panel trailing from the infantrymen is an invaluable marker for the tankers. In addition to this, the advancing troops have pyrotechnics to signal for lifting fires or shifting the strike from one target to another.

The last but most important element of tank-infantry teamwork is the element of *esprit de corps*. A mutual feeling of trust and confidence is basic in each part of the team, and if this is shared, the battle is well on its way to victory.

LT. COL. EDWIN M. SAYRE.

The writer of the following served with the 82nd Airborne Division in the European Theater during World War II. In Korea for something more than a year now, he is Commanding Officer of the 2d Battalion, 21st Infantry Regiment, 24th Infantry Division.

In combat against an enemy who builds his defense around strongly dug-in and heavily reinforced bunkers, the tank with its mobile, highly accurate, direct fire power is a mainstay of our ground combat team.

The Chinese Communist is such an enemy, and though sorely restricted by the nature of the terrain, United Nations armor and infantry have teamed together to exploit the maximum effectiveness from voluminous, mobile fire power and violent shock action in closing with and destroying this enemy.

Korea at its best is not good tank country. Only in a few widely scattered locations can you find an area flat enough with ground hard enough to allow deployment of a task organization including a tank battalion. Even in some of the few "tank areas" the penetration potential is so restricted and objectives that can be gained so limited, that deployment of even a tank battalion is not profitable. In comparison, it would be somewhat like holding the Memorial Day Auto Races on a football field.

Hence the use of tank-infantry teams has been on a small unit level. Tank-infantry teams consisting of a tank platoon and an infantry company have become highly proficient in digging the enemy out of his honeycombed defenses and destroying him.

But here again, the terrain coupled with a meager road net, has hampered coordinated operation of the team. Often the tanks and the infantryman must operate at widely separated points; the infantry operating astride a ridge line (heights of 1000 meters are not uncommon), and armor supporting from the base of it. It is difficult for the tanker to pick up the infantry lead elements in the brushy undergrowth predominant on most of the Korean mountain ranges. It is difficult, therefore, for the tanks to render the close, accurate fire support of which they are capable.

Lt. Col. Martin

To offset these disadvantages, particular attention should be placed on prior planning and coordination by the units involved. The tank unit commander must know every detail of the infantry plan. Multiple means of communications and recognition must be established. Maximum use of identification panels and pyrotechnics should be made. Team training should be stressed, for a mutual understanding of the problems of each element is essential.

In those cases where the terrain and road net have permitted, tank-infantry teams have made coordinated thrusts which exploit the psychological effect of the crushing action of tanks and their tremendous fire power, in destroying, demoralizing, and disorganizing the enemy.

LT. COL. WILLIAM C. MARTIN.

The writer of the following has been a Marine officer since 1939. In World War II, he commanded Marines in the Second Division and First Brigade in action at Guadalcanal and Guam. Presently assistant G-3 of the 1st Marine Division on the eastern front in Korea, he commanded the 1st Battalion, Seventh Marines for nearly six months in heavy action against both Chinese and North Korean troops.

Tank-infantry teamwork, as employed by the Marines in Korea, has been pretty much a must because the mountainous terrain where we fight in the east precludes mass use of tanks in the classic concept of armored warfare.

Since tanks operating on the eastern front are denied flat land on which to make slashing and overwhelming power drives, the tanks have had to work in smaller groups and almost always with the infantry as a close partner.

Our tanks did yeoman service in the fighting for Inchon, Seoul and Uijongbu in the fall of 1950 against enemy armor and in the fight to Hungnam to cover the evacuation but this year they have had almost exclusive employment as part of the rifleman's support team.

We have found three principal uses for tanks in the rough mountain country in Korea:

First, teamed with the infantry for patrols. We customarily team a platoon or two of tanks with two or three platoons of Marine riflemen to go trouble-shooting into enemy territory from patrol bases.

Lt. Col. John T. Rooney receives the Distinguished Service Cross from Gen. Van Fleet in presentation ceremony at First Marine Division Command Post.

Second, supplementing ground assault on individual enemy bunkers. We sometimes send two or five tanks to reduce a local objective as a direct support for the infantry but the limited hill-climbing ability of the M-46 and M-26 restricts the flexibility of this role.

Third, to screen the division flank. When the 6th ROK division collapsed on the night of April 22 on the Marines' left flank, the 1st Tank Battalion formed a perimeter at the confluence of three valleys with the Pukhan River and held the rampaging Chinese all one day while the rest of the division made its way to positions where the enemy offensive was eventually blunted.

One use made of tanks last spring was when we were pursuing the Chinese north of Hongchon after their fifth phase offensive was broken late in May. Heavy rains had swollen the Soyang River and it was in flood. At one crucial crossing, too swift and deep for heavily laden Marines to ford on foot, we used the tanks to ferry the men across to the other side. It was vital that we keep snapping at the heels of the withdrawing enemy and maintain contact so our air could interdict them as they fled.

Trucks and jeeps couldn't ford the stream and there was no time for a bridging operation. Tanks got the Marines over.

At present, on our positions west of Kansong, we are supporting the men in the front-line foxholes by using some of our tanks as artillery.

They are run up on bulldozer-dug mounds of earth to give them a higher angle of fire. They are particularly valuable in the artillery role because of the great range of the 90 millimeter cannon in the M-46.

Our infantrymen are enthusiastic exponents of teamwork with the tanks. That is evident from the number of requests we get for tank support from the infantry commanders. The noncoms and privates are just as enthusiastic.

The mere sound of the treads or the noise those big 90s make when they fire seems to make the riflemen feel better when they go on patrol, or attack a bunker complex, or just when they see the tanks up there on the line with them.

They do the job for us and help us fight in the style we couldn't use without them. The Marines are used to fighting as a team with our own planes and big guns backing the riflemen. The tanks are part of that team.

LT. COL. JOHN T. ROONEY.

U.S. Army

Fortunate indeed is the Army that has such ideal traffic facilities as the Autobahn for movement. Here prisoners of war move to the rear as tanks and trucks move forward. Conditions ideal.

TRAFFIC CONTROL

by HERMAN BURKHART MUELLER-HILLEBRAND

In this age of mechanized warfare, traffic control is a key to effective operations by ground forces. Good traffic control is assurance of effective logistical support, troop movement and tactical employment. An experienced German commander discusses a subject that lacks glamor but not importance, involving such diverse elements as combat organizations, supply units, refugees, prisoners of war, rain, snow, dust, and mud.

THE invention of the internal combustion engine brought with it the problem of traffic control.

It is the duty of the civilian traffic control system to keep in movement a complicated stream of innumerable vehicles which are proceeding in all directions. Their movement is controlled by police traffic regulations. As a matter of principle, the regulations treat all vehicle operators on an equal basis, apart from a few exceptions, such as, among others, the fire department. Traffic policemen are employed to enforce the observance of traffic regulations and to keep traffic moving at points of congestion. An alert police force is well aware of possible points of traffic congestion from their observation of traffic and from their general experience.

The military traffic control system is confronted with the same problems. These are made considerably more difficult, however, by the fact that the military traffic control system is not a stationary one. Its men have to follow the army into new territories, often into territories where the capacity of the road net is not very well known and where the roads are subject to constant alterations as the result of destruction, new building projects, and the like. This raises the additional requirement, therefore, of flexible operation, speedy determination of the condition of the road net and the rapid location of possible points of congestion.

In addition to this, however, the military traffic control system is faced with an entirely new type of problem: It has to facilitate complicated march movements by units of all sizes while observing the priorities which result from the missions assigned to these units.

Traffic control thereby becomes an important problem of the field command. The military traffic control agencies must also receive their orders from the field commanders who determine the march movements of the

troops. German field manuals, therefore, enlarged the term "traffic control" to include "march and traffic control."

Responsibility for troop movements, and thus for the employment of traffic control agencies as well, rests with those headquarters which determine the nature of troop movements. This obviously presupposes the observance by the troops of the march discipline prescribed in the regulations; march discipline provides the standard of judgment for the course of movements and the decisions of the field commanders. As a matter of principle, every higher headquarters should make it easier for lower echelons to carry out troop movements.

Since time immemorial the giving of orders has presupposed the correct estimate of time and space. In the age of the internal combustion engine it also presupposes a knowledge of road conditions; the latter should be clarified well in advance by reconnaissance (maps, aerial photographs, reports by the troops, special units for road reconnaissance, reports by the road repair services). In addition to issuing march orders to the troops, it is generally necessary to issue special orders to the agencies of the traffic control system. *Correct plans and orders for all troop movements are essential factors in the successful execution of any movement.* Even the very best traffic control agencies cannot compensate for inappropriate march orders.

The importance of the fluid and rapid execution of all movements—on the battlefield, during the advance and in connection with supply—

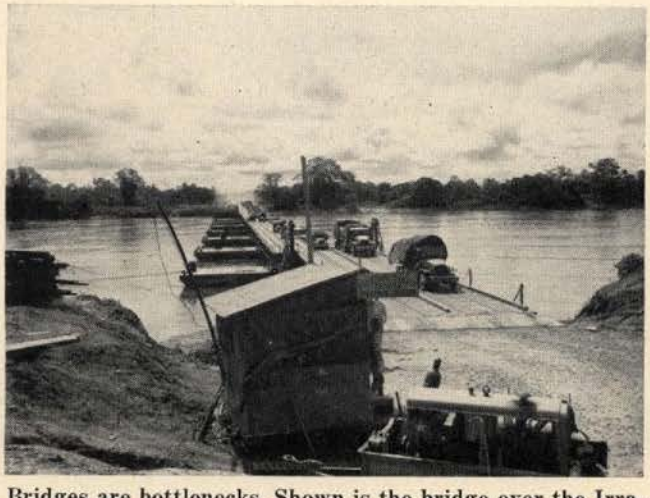
Herman Burkhart Mueller-Hillebrand, former Generalmajor in the German Army, during World War II was Chief of Staff of the German XXXVI Panzer Corps and the Third Panzer Army.

should not be impressed only on the field commanders, their assistants and the traffic control agents, but should be drilled into the entire army down to the lowest squad leader and dispatch driver by means of discipline and training. Only then will the higher command acquire the necessary confidence in the mobility of their troops and be encouraged to carry out bold operations. Only then will the troops realize that a high degree of mobility is an essential requirement for major victories and for the saving of lives. Boldness and aggressiveness have always been outstanding characteristics of soldiers who are not only well armed but also conscious of their mobility.

If properly used, the internal combustion engine provides us with the technical means for accelerating troop movements. Along with superiority with respect to weapons and the number of fighting men, the mobility and speed of the troops is an equal factor in securing victory. Speed and mobility in all situations are the means for wresting the initiative from the hands of the enemy command and forcing the enemy to yield to one's own will. Particularly in attacks they guarantee victory, disrupt the unity of enemy combat operations and thus save lives and men. The loss of mobility—either from the failure to realize its importance or the inability to apply it—leads to heavy casualties and the brutal exhaustion of one's forces. It is worth while to study the German campaigns of the recent war from this point of view.

On the basis of the preceding facts, the traffic control system should be closely connected with both the troops and the command with respect to organization. Only then can the command be expected to exert a rapid and positive influence on the movements of the troops.

Therefore, all headquarters from division up should have their own traffic control agencies. This was the case in the German Army, where division and corps headquarters had "military police detachments," while the higher headquarters had "military police companies" and "military police battalions," which incidentally also carried out police duties such as supervising discipline outside of the troop units. The personnel of these police units were selected with particular care and belonged to the older age classes, so that a personal relationship of mutual familiarity and confidence grew up between them and the troops—at least on division level.



Bridges are bottlenecks. Shown is the bridge over the Irrawaddy River in Burma, control point on Stilwell Road.

Engineer convoys must be phased into the traffic pattern to reach key points for construction to move all units.

In addition to this it is absolutely necessary to have very close liaison between the traffic control units and the command headquarters. This can be achieved by regularly assigning a traffic control officer as special-missions staff assistant to the general staff operations officer of the headquarters. His work there will be not so much to receive orders from his unit as to be present at all the planning conferences of the command; this applies particularly to the lower headquarters, such as division and corps. Only in this manner can this officer do justice to his task. He should think things out in advance, be willing to accept responsibility and should not wait for orders, particularly for written ones, which are useful for the war diary and instructions in schools but not for practical operations with motorized troops. The duties of this officer are as follows:

Traffic Control Liaison

a) To inform the commander of his traffic control unit in sufficient time of the traffic control assignments which the latter may expect to receive.

b) To prepare cooperation with other units and with other agencies of the staff in question. In addition to the commanders of all possible combat teams and combat troops, this also particularly involves the commander of engineers for problems of bridge and road repair, the commander of signal troops for the installation of special signal communications for purposes of traffic control, the director of the cartographic office for the production and distribution of road condition maps, the commanders of medical troops and motor vehicle repair services for the establishment of emergency centers at specific points along the roads, and so forth.

c) To establish close liaison with the proper special-missions staff officers at both higher and subordinate headquarters in order to insure cooperation with the traffic control units, to obtain reconnaissance data, maps, and so forth. It may become necessary to transfer elements of the traffic control units of one's own command sphere to other command spheres for specific tasks, and vice versa.

The strength and equipment of the traffic control units depends on the organization of the other units in the army in question, on the type of vehicles and communications facilities with which it is equipped and on the nature of the theater of war. In estimating their strength the main consideration should be to get along with as few men as possible.

Manuals contain general rules for carrying out the work of the traffic control units, for the use of sentries, patrols, and the like. However, it is by no means possible for the manuals to cover all cases which may arise in actual practice. Therefore, the commanders of traffic control units should be able to adjust themselves easily to new situations, and above all should see to it that their signal communication facilities are used in a carefully considered manner and that they always have traffic control men at their immediate disposal in order to cope with unexpected changes in the situation. It should never be allowed to happen that the intentions of the field commander are impeded by a lack of flexibility in the traffic control system.

The supply officers should be assigned elements of the traffic control units for their own purposes, which are more of a stationary nature. These should not be changed any more than necessary.

In areas which are in a backward state of civilization, such as, for example, the countries in eastern Europe, it is difficult to carry out troop movements. In such countries paved roads, as well as solid bridges and cities with technical facilities, are rare. The expanses are wider. For this reason the forces of nature have a much stronger influence on the mobility of the troops.

The Bottlenecks

Even if in many places it is possible for four or more columns to drive side by side, they are nevertheless forced to submit themselves to strict traffic control at bridges and other points of congestion, just as under normal circumstances. In such regions the wide expanses, the condition of the ground, which changes so rapidly according to the weather and the seasons, the dearth of technical resources, the often unreliable maps, as well as the foreign languages spoken by the inhabitants, constantly present unexpected difficulties to the troops. Here, as was already mentioned in the beginning, the problem of training and disciplining the troops, from the commander down to the last driver, not to shrink before any difficulty but rather to overcome it under all circumstances, becomes the most important factor in maintaining mobility and speed.

In regions of this kind the traffic control units have to be equipped with particular care. They should have the best possible motor vehicles, with the greatest degree of cross-country mobility; they should be well armed; they should be abundantly equipped with cold rations; they require a large number of maps, for in these wide expanses they are also information offices and traffic-direction centers for individual vehicles and units which are inadequately supplied with maps; they should also carry along sign-painting equipment and a large number of prepared direction signs.

Special Measures

In conclusion, traffic control units in such regions are also faced with problems which do not appear to have anything to do with traffic control proper. When road conditions become so bad that traffic can hardly move, the best traffic control system is no longer of any use. However, since the most imperative requirement is still that all troops should be brought up to the front as quickly and efficiently as possible and that their supply system should continue to function smoothly, the additional problem necessarily arises of simply keeping the traffic moving. At such times the officer who has been transferred from the traffic control unit to headquarters becomes a particularly important figure. The traffic control units must then plan for the future and cooperate with other service arms by instigating and directing road repairs on their own initiative. They must also cooperate with towing and repair services, and so forth, and establish bases where individual drivers and casuals can find food and warmth, as well as medical care.

Special tactical situations, such as, for example, river crossings during an attack or a retreat, fighting in mountainous terrain, and similar situations, may compel the commanders of traffic control units, as well as the tactical commanders of troops, to take special measures.

THE YUGOSLAV ARMY: ANTI-SOVIET FORCE

The United States and Yugoslavia have just signed a military aid agreement providing for the shipment of arms to Marshal Tito's forces. The agreement was prefaced by a visit to this country in June by Yugoslav Chief of Staff General Popovic, and more recently by the inspection trip to Yugoslavia of U. S. Army Chief of Staff General Collins. Thus another link is forged in the mutual security program of the anti-Soviet bloc, in the critical Balkan area and along the satellite front.

At the present time the Yugoslav Army, seen in the pictures on these pages, is equipped essentially with German and Soviet matériel. Under the terms of the new agreement the U. S. will furnish a Military Assistance Advisory Group, to be headed by Brigadier General John W. Harmony, as the connecting link in the major switch to American equipment.

Marshal Tito observing maneuvers.

Yugoslav infantry in action. A large proportion of the Army fought against the Nazis to liberate their homeland in WWII.

Tabu prior to WWII, soldiers are encouraged to read newspapers today.

Tank unit commander prepares to lead armor into the attack. First Yugoslav tank unit was formed in 1944, fought in the homeland, met Allies at Trieste.

Tank leader briefs his men on terrain prior to attack. Yugoslav tankers are well trained, need some modern equipment.

Paratroop units are a recent addition to Yugoslav Army organization.

Artillerymen loading a well camouflaged piece.

The tank-infantry team at work. The Yugoslav Army numbered 800,000 at the end of World War II, now numbers 600,000, in some thirty divisions. Principal need is for modern heavy weapons, especially tanks, forthcoming in the aid program.

The story of the development of mechanization in the British Army is a part of the history of armor's evolution. It concerns a small group of forward-looking soldiers, a wall of conservatism, and the traditional peacetime purse—and also a lesson for all countries in a period when factors in time and space place a premium upon their defense preparedness programs

A CASE IN PREPAREDNESS

by WALTER H. BUTLER

MOST people are familiar with the story of the obscure French captain, Charles De Gaulle, who attempted in the early 1930's to convince the French General Staff of the necessity for armored units in future warfare, but few are aware that Britain was the scene of a similar drama fully a dozen years before De Gaulle's classic crusade. De Gaulle's British counterpart was Colonel J. F. C. Fuller, an officer in the British Tank Corps during World War I.

Colonel Fuller became an advocate of mechanized warfare as a result of close association with tank tactics and strategy on the Western Front.[1] He was first assigned to the Tank Corps in August 1916, and in December of that year was appointed Chief General Staff Officer of the Tank Corps, a position which he held until 1918.

In 1916 the tactical value of the tank was questionable. As late as April 1918 "the Tank Corps was reduced from 18 to 12 battalions because infantry reinforcements were falling short!"[2] It was not until the victories of mid-1918 that the tank became recognized as a valuable offensive weapon. Only by accident during the action at Hamel in 1918 was the principle of tank-led infantry acknowledged. As a result of this discovery, the tank received proper attention in the 1919 Campaign Plan, but unfortunately for the exponents of tank warfare, the campaign of 1919 sank into the realm of the theoretical and untried.

Interest in "mechanicalisation," the term used to denote armored vehicles in the early 1920's, was further discouraged by the return of peace. As soon as the war ended, questions of pension allowances, military awards, demobilization, and rehabilitation absorbed the attention of most authorities. The government saw no possibility of employing a standing army in other than colonial spheres, and for this task a minimum force would suffice. The Army was therefore quickly liquidated, conscription was discarded, and "a gradual return if not to the letter, at least to the spirit, of the old Cardwell system took place."[3] From the War Office, Fuller[4] observed the confused state of postwar planning. Dejected and disheartened by the trend, Fulled inaugurated a one-man crusade for a reevaluation of the tank as a future combat weapon.

This was the beginning of the verbal battle that was to shake the very foundations of British military thought for more than a decade. No renowned government official or illustrious military leader who was guilty of impeding progress escaped Fuller's scathing tongue. So explosive and successful was the attack[5] that Fuller succeeded in gathering around him several visionary officers who heralded his leadership. Prominent among the early disciples were Colonels H. Rowan-Robinson and Giffard Martel, both enthusiastic exponents of mechanization throughout the nineteen-twenties and thirties and authors of numerous commentaries on the subject; Colonel Philip Johnson, celebrated British tank designer; and Major General Sir Hugh Elles, commander of the Tank Corps during the war.[6]

This so-called Fuller School was not without critics. Most of the criticism, however, centered upon the limitations of the existing tank models and cautionary advice against rash enthusiasm. For example, Colonel J. C. Dundas, who served in Tank Corps administration during the war, denounced Parliament and service journals for indulging in a severe attack of "tankitis."[7] On the other hand, Major General W. H. Anderson looked to the broader limitations which were likely to discourage tank development, such as financial stringency, the forthcoming reduction of naval armament, and the unlikeliness of war for some years to come.[8]

As for Fuller, his conception of mechanization had already reached the formative stage. Most military authorities saw the value of the tank in certain limited circumstances, but Fuller envisioned a complete mechanical army, equipped entirely with mechanical vehicles and employed tactically as an independent unit. This theory was formulated in a Memorandum, "A New Model Army," a concrete program for the substitution of machine power for manpower, submitted by Fuller to the War Office in August 1919. The plan called for the creation of a mech-

Walter H. Butler served as Staff Sergeant aerial gunner and photographer on a B-24 with the Army Air Forces in World War II. Since the war he has acquired an A.B. degree from Harvard and an A.M. from Clark University, and taught History and English at Deerfield Academy in Massachusetts. In mid-1951 he joined the Navy for assignment to the Office of Naval Records and History, where he is engaged in writing ships' histories.

anized brigade composed of several types of tanks and mechanical vehicles.[9] In essence this organization was based upon the findings set forth in Fuller's Gold Medal Prize Essay for 1910.[10] Admittedly, there were numerous technical limitations to this plan, but Fuller hoped that an extensive campaign to acquaint public opinion with the tank would alleviate some of the deep-rooted conservatism among the "die-hards" in the War Office.

First to take offense at the new trend was Fuller's own department—the War Office. As a result of winning the 1919 Gold Medal Prize Essay, Fuller was severely reprimanded by his superior, Sir Henry Wilson,[11] Chief of the Imperial General Staff (C.I.G.S.), while General Burat, Deputy Chief of the French General Staff, and the President of the French Republic showered him with academic honors.[12] A second demonstration of prejudice against Fuller's methods was the treatment of the Memorandum dealing with the formation of a mechanical brigade. Although the authorities made a passive gesture in favor of the plan by forming a New Model Brigade in the Aldershot Command, they undermined the entire scheme by constructing the brigade on a summer camp footing, so that the continuity of effort essential for success was sacrificed. Fuller was appalled! He made numerous attempts to prevent the erection of this false front, but it was too late, for the Secretary of State for War had already publicized the project.[13]

Even the future existence of the Tank Corps was a delicate matter among higher echelons. Authorities felt that the tank had served its purpose. Fuller's "egg crackers" were regarded as useful auxiliaries for the infantry, not as battle-winning weapons in their own right.[14] In keeping with this attitude, the Corps was reduced to four battalions, while any decision upon the fate of the organization was postponed for the present.[15] Curiously enough, it was the employment of tanks and armored cars in troubled areas within the Empire that kept the tank before the public.[16] Finally in 1922 a dispute between the Air Ministry and the War Office over the control of armored units in Mesopotamia forced the authorities to consider the peace status of the Tank Corps.[17] The decision favored the Corps, and in November a Royal Warrant officially recognized the new organization, renamed the "Royal Tank Corps."[18]

Despite War Office hesitation, the postwar government was the most serious obstacle to mechanization of the army. Greatly influenced by the increasingly popular cry for economy[19] and the feeling of war-weariness, Lloyd George's Coalition Government refused to be stirred by the radical rumblings and theories of one Colonel Fuller. Winston Churchill, then combined Secretary for Air and War, summarized the government's position in 1920 by stating that he foresaw the coming of the "mechanical army," but he felt that the government would be unwise to engage in an extensive building program since tank development was still in the experimental stage.[20] Consequently, Fuller's hope of equipping the postwar Tank Corps with the new Medium D and Light Infantry tanks, which had performed so successfully during the trials at Leeds in 1919 and 1921, was doomed from the start. However, in 1921 Churchill resigned and Sir Laming Worthington-Evans, who was more conscious of the value of armor in modern warfare, assumed command at the "War House."

Footnotes are assembled at the end of this article.—Editor.

The new Secretary commenced at once to reshape War Office policy with regard to mechanization. In his first estimate speech, he asked for £500,000 to aid tank research and experimentation. He told Parliament that "the general view is that mechanical means of fighting must be developed to the fullest."[21] In August he set in motion the plan for expanding the existing four tank battalions during the next two years.[22] Worthington-Evans' role should not be overemphasized, however, since Parliamentary sentiment, especially on the more important military issues, coincided closely with War Office policy; nevertheless, the Secretary showed himself a man who saw the need for a "mechanical army" and was prepared to fight for its development. Had he continued in office, it is possible that he and Fuller might have been able to hasten the mechanization program during the postwar years. Unfortunately, both men soon departed from the scene. Fuller's tour of duty at the War Office ended in July 1922, and Worthington-Evans was forced to make way for his political successor, the Earl of Derby, in October. It was not until the late 1920's that both men could again resume the fight for mechanization from their respective positions.

Thus far interest in mechanization was largely confined to debate and discussion. Aside from several minor gestures, most of the country's leading military and political figures appeared satisfied with the existing military policy in view of Britain's financial problem and the peace-appearance of world affairs. Therefore a period of military retrenchment was warranted but, at the same time, retrenchment contained one inherent weakness—that of indecision.

Throughout the late twenties and early thirties the tank enthusiasts intensified their attack upon military conservatism. Interest in mechanization reached a new high. Vehement debates took place in the newspapers, on the floor of the Commons, and in the prominent military periodicals. On the surface the results appeared negligible as every mechanical experiment dissipated into half measures; yet the mere existence of mechanical experiments indicated a growing awareness of Fuller's concepts.

This period also witnessed a marked increase in the converts to mechanization. Fuller achieved a major victory in 1925 by the addition to the Fuller group of Captain B. H. Liddell Hart, who was already recognized as one of Britain's leading military journalists. Constant debate and friendly discussion between Hart, who after the war saw the value of the tank but could not completely reject the primary role of the infantry, and Fuller led to Hart's conversion.[23] Other new additions to the group included: Colonel C. N. F. Broad, General Ian Hamilton, Captain Lionel Dimmock, Major B. C. Denning, Captain E. H. Sheppard, Colonel Sir Frederick Pile, Major General Sir J. Burnette-Stuart, and Brigadier General E. L. Spears (retired).[24]

Although Fuller's stay at the War Office ended in July 1922, he continued to be the major generating force behind the fight for mechanization. Before taking up his new assignment as Chief Instructor at Camberley, he compiled his first major work, *Reformation of War,* which soon became one of the foundation stones of the Fuller school. Even his teaching at Camberley was conducted with a view to mechanized war. Old lectures, papers, and old documents were burned as the way was prepared for the new approach. Fuller was fully aware that his manner was unconventional; yet he also knew that unless he took advantage of the opportunity to reorient the future staff officers, there would be no breaking away from the past.[25] Conventionalism answered this challenge when Lord Cavan, the new C.I.G.S., refused Fuller permission to publish his Camberley lectures in book form, under the title of *The Foundations of the Science of War.*[26] Cavan told Fuller in a personal interview that he considered it contrary to discipline for officers on active duty to publish books for fear that the younger officers might embrace such works in preference to Training Manuals.[27]

Economy . . . !

Despite this setback, Fuller continued the relentless attack upon traditionalism. In a lecture to the members of the University of London Military Education Committee in February 1924, he compared British and French policies of mechanization. He showed that the French with forty tank Battalions, as compared to Britain's meager force, realized the potentiality of a mechanical army.[28] Later in November he lectured at the Royal United Service Institution on the "Progress in Mechanization of Modern Armies," again stressing the need to think in terms of tank-mindedness.[29] Finally, in 1931 Fuller wrote his most profound work on armored warfare. *Lectures on Field Service Regulations III: Operations Between Mechanized Forces*[30] was published in 1932, and in this one volume all the bits of his long and varied experience were fashioned to form a unified mechanical doctrine. His mechanical group was organized in two wings or units—a tank force for offensive power (fulfilling the condition of speed) and an antitank force for protective power (fulfilling the condition of armor).[31] The two forces were mutually dependent upon each other in offensive and defensive maneuvers. The antitank unit provided the base for offensive operations and the protection in defensive fighting; whereas the tank unit was the striking force on the offensive and the reserve for counteroffensive on the defense. Together they were the shield and sword of successful warfare.[32] One other fact worth mentioning in this connection was the role of aircraft in Fuller's scheme. Previously, the relationship of the mechanical army and the air arm was largely overlooked, even by Fuller, but in *Lectures on F.S.R. III* it became an integral part of the doctrine, necessary in both offensive and defensive action.[33]

Passive Agreement

By 1924 some of these ideas had begun to infiltrate into the War Office. Examination of the records reveals that there was passive agreement among top military officials concerning the ultimate value of mechanization. Discord arose over the question of the rapidity by which the process should become a feature of military policy. The C.I.G.S., Lord Cavan, although a military conservative, did accept mechanization in principle,[34] but did not have the courage to assume sole responsibility for modernization of the Army. Likewise, the Earl of Derby, Secretary of State for War in the Conservative Ministries of Bonar Law and Stanley Baldwin, and his Labour Party successor, Stephen Walsh,[35] declined to accept the challenge of mechanization. In spite of these manifestations of caution, several minor reforms were instituted.

The first military exercises since the war were held in the fall of 1924. In the trials the Mark I Vickers medium tank, standardized and issued to the Tank Corps in 1923, attracted the attention of military and civilian observers.[36] In addition, a tank driving and instructional school was established at Wool and a gunnery school at Lulworth Cove.[37]

Meanwhile, in 1925 two developments took place that changed the military picture. First, Major Giffard Martel revolutionized the technical field by the completion of a new model tank—the one-man tank.[38] The most attractive feature of this new machine was its low construction cost.[39] The "tankette" was therefore one answer to the economy argument which had long justified military conservatism. However, Fuller was not overly enthusiastic. He feared that the enthusiasm for the midget tank might overshadow the tactical value of the more substantial medium and heavy machines.[40]

The second important development was the change in War Office personnel—Worthington-Evans returned as War Minister and Sir George Milne succeeded Lord Cavan as C.I.G.S. This action was heralded as a move in favor of mechanization,[41] and early deeds tended to substantiate this belief. Worthington-Evans in his first Army Estimate report stated that it was his intention to carry on experimentation and research upon mechanical armament. Included in the Army Budget was £95,000 to be used for Army maneuvers, the first full-scale display since the war.[42] Milne's appointment was extremely significant because he was the first postwar C.I.G.S. instructed to work on the problem of Army modernization.[43] Milne further raised mechanization hopes by making Colonel Fuller his Military Assistant. From the outset it appeared that Milne and Worthington-Evans would supply the courage and audacity that was needed at the War Office, but unfortunately both men found the pressure of Army tradition and financial commitments so overpowering that after extensive research and study only minor improvements were achieved.[44]

Some Tactical Growth

Tank design and production were substantially curtailed by financial considerations during the 1927-33 period. Before the depression a number of new designs were tested and found promising, especially the "Independent" heavy tank and the Mark II Vickers medium tank. However, by 1931 the M.G.O. department at the War Office was so trammelled by financial restrictions that several projects were discontinued and only inferior models of the original reached the production stage. The plans for the "Independent" tank were

scrapped, and a small number of inferior grade Mark II tanks were constructed. As a substitute, the War Office burdened the Tank Corps with a number of Vickers light tanks for use in a fighting role and not merely as scouts.[45] While the Tank Corps fared poorly with respect to equipment, it made rapid advances in tactical growth.

Since the First World War there had been no program for the study of armored units under battle conditions. Both Milne and Worthington-Evans saw the need of such a program, and as a result, in March 1927, the Secretary of War notified the nation that an Experimental Force was to be formed at Tidworth, composed of completely mechanical units. The purpose of this force was "To gain practical experience of the effect of mechanization on tactics."[46] The Secretary went on to explain that the force was to be commanded by Colonel Fuller.

Sabotaged!

Fuller was aware of the project as early as 1926, but it was not until he returned from an inspection tour in India that he was officially appointed by Milne—his command to become effective on May 1, 1927. When in February he journeyed to Tidworth to inspect his future command, he found not a completely mechanized force but instead the 7th Infantry Brigade and the Tidworth Garrison troops. The only mechanical feature of the entire command was the provision that mechanical units were to be allotted to him from time to time whenever the 3rd Division saw fit![47] Fuller protested to his superior and suggested changes for increasing the mechanical composition of the force, but Milne repeatedly ignored his requests. Finally, after another futile attempt to alter the C.I.G.S.'s decision, Fuller wrote his resignation, defending his action upon the grounds that it would be a fraudulent act on his part to fill an appointment which in no way resembled the one made public by the Secretary of War.[48] However, after due consideration, he consented to withdraw his resignation upon the condition that another officer[49] would be appointed to command the Experimental Force. Fuller's loss was an irreparable blow to the mechanization cause, but it is doubtful whether he alone could have overcome the numerous handicaps inherent in the composition of the Experimental Force.

As expected the maneuvers in September repeated many of the mistakes of 1921-22. Burdened by unarmored troops, antitank localities, and noneffective leadership, the Experimental Force struggled through the exercises accomplishing very little. However, one fundamental principle was determined—that armored and unarmored units should not be fused until officers and men were more familiar with joint operations.[50] In other words, reasoned the advocates of mechanization, the composition of the Experimental Force was imperfect, not the concept of mechanization.

On the other hand, the critics of mechanization were prompt in pointing to the experiment as a failure. Leading the procession was Victor W. Germains, the most notable critic of Fuller. Germains was one of the first to refute mechanization on the grounds that the tank possessed only negative tactical value.[51] For Germains the infantry was still the most effective striking force. He claimed that the infantryman equipped with the necessary antitank weapons was superior to the tank. He also advocated dependence upon the "mass army" which, unlike the so-called "mechanical army," can be expanded in time of need without serious consequences.[52] Despite these criticisms of the tank, one cannot help but speculate while reading Germains whether he genuinely disapproved of the tank and mechanization, or whether he berated them because their denouement, the "mechanical army," was contrary to his concept of the "mass army."[53]

An Armored Force

Nevertheless, the Salisbury Plain experiment was followed by subsequent mechanical groupings. The 1928 training season was highlighted by the trials of a newly formed Armored Force. The unit, a by-product of the 1927 Experimental Force, was disbanded at the end of the year, but not without achieving some success. It contributed to a better understanding of the composition of armored units and a deeper insight into tactical problems. What was required was a brigade or smaller formations made up of similar units. These smaller units could act independently or as a combined force without sacrificing versatility; whereas the versatility of a larger unit was weakened by division.[54] The result was the formation in 1929 of Experimental Infantry Brigades composed of a light tank Battalion and three infantry Battalions with motorized machine gun companies—the purpose being to decide the best composition of infantry and armored units.[55] After the 1929 training season preliminary Tank Brigades were established in 1931, and their successes in 1931 and 1932 led to the construction of a permanent Tank Brigade in 1934, commanded by Brigadier P. C. S. Hobart.[56]

Appropriations Cut

Fuller and the advocates of mechanization were reasonably pleased with the tactical progress and the War Office Manual (1928) endorsing the doctrine of mechanization, but they were not deluded into thinking that complete mechanization would follow. The authorities were not opposed to the revolution of a tactical doctrine; what they objected to was any rash steps toward complete mechanization. Therefore, Milne and the political heads of the War Office—Worthington-Evans and the Laborite War Minister, Thomas Shaw[57]—adopted the policy of gradual mechanization. The chief reason for this stand was the economic situation. This economic argument was strengthened in 1929 by the world financial crisis, the full impact of which reached Britain in 1931. In order to thwart the forces of depression, the government was forced to cut Army appropriations, which meant a drastic reduction of the already insufficient funds available for mechanization.

Thus far the cautious position of the authorities toward mechanization was tenable. Not only were Fuller's doctrines untested by war and sometimes apparently fantastic, but the inherent conservatism of the senior military chiefs and the peaceful appearance of world politics followed by the economic crisis were not conducive to a large scale program of military expansion.

I am not fanatic concerning mechanization, but we have been experi-

menting for ten years, and surely the day must come when we must make up our minds. We cannot go on experimenting forever, otherwise the day is bound to come when we shall be caught napping.[58]

This opinion voiced in Parliament by Brigadier General Spears early in 1934 is the key to understanding the dilemma that faced Britain's military and political leaders in the 1930's.

The early thirties ushered in a series of new factors that disrupted the foundations upon which the military policy rested. In September 1931, Japan invaded Manchuria, and the failure of the League members to present a united front in face of Japanese aggression dealt a severe blow to League prestige. In 1933 hopes for international peace were further shattered when the Disarmament Conference, meeting periodically since 1931, adjourned without reaching any noteworthy settlement. In March Japan answered the League's condemnation by withdrawing from the organization and by continuing conquest of Manchuria. In January Adolf Hitler seized the German Chancellorship, and by November Germany too had abandoned the League.

Stopgap Measures

The immediate reaction at the War Office to the new conditions was indecision. Officials recognized the need for a re-evaluation of the military policy, but they hesitated to upset tradition. The newly appointed C.I.G.S., Archibald Montgomery-Massingberd,[59] was a staunch supporter of this view. He repeatedly argued that Britain should proceed slowly with regard to modernization and mechanization because of the danger of obsolescence.[60] Other members of the staff seconded the conservative view on the basis of the unlikelihood of war.[61] Therefore, instead of scrapping the old system and constructing a new one based upon modern methods of warfare, the authorities attempted to postpone any decision regarding mechanization by stop-gap measures. Experiments were conducted, and partial armored formations were instituted, but no overall mechanization program was apparent.

The 1934 permanent Tank Brigade exemplified War Office indecision. The move represented a definite step toward mechanization since the earlier brigades existed on a temporary basis; yet it was not completely equipped with an up-to-date light tank, and had no medium tanks.[62] Also there was no guarantee that this unit was to be the forerunner of future armored units. Attention to mechanization consisted mainly of improving the mobility of the older arms in contrast to the trend abroad of creating a number of "mechanized" divisions composed entirely of armored fighting vehicles.

Fuller's Retirement

Fuller's military career after 1927 also illustrates War Office disregard for mechanization. After his release from the Experimental Force command, Fuller remained with General Ironside, commander of the 2nd Division, until 1929 at which time he was shuttled off to command the Rhine Brigade at Wiesbaden. His stay in Germany was ended by the evacuation of Britain from the Rhine Sector, and by October he was back in England commanding the 13th Infantry Brigade at Chatterick, a post dubbed the "bloody limit" by common soldiers.[63] These assignments appeared to be a deliberate attempt on the part of the more conservative staff members to rid themselves of Fuller's ravings. However, the tide subsided for a brief instant in September when he was promoted to the rank of Major General, but the promotion was merely a cushion for the blow that followed. In November 1931, Fuller was notified that his next command was to be a second-class military district in India, consisting of an antiaircraft battery, a heavy artillery battery, and one battalion of infantry. The order was dated November 11th.[64] It was ironical that a man who had devoted the major portion of his military career to the study and application of mechanical warfare should receive his most debasing command on the thirteenth anniversary of Armistice Day. Unable to reconcile himself to the latest "choice" appointment, Fuller refused the command, and on December 4, 1933 he was placed on the retired list.

Thus far the strengthening and equipping of the British Army had been delayed while some hope hung on the Disarmament Conference; but after its collapse the government was forced to take account of the dangers and make a detached examination of their forces. The immediate result was that in July 1934, a five-year plan was adopted for increasing the Air Force. At the same time £4,000,000 was provided for the modernization of the Army, although a large part of this sum was needed to replenish the depleted ammunition supplies.[65]

In March 1935 the government further acknowledged the urgency for rearmament by releasing a White Paper relating to Imperial Defense. Contained in this document were several general remarks concerning the Army's lack of mechanization, modern weapons, and reserve material of all types.[66] Somewhat later came the announcement of another move toward mechanization—the mechanization of the cavalry. This was undertaken in preference to the reduction of the cavalry and the expansion of the Royal Tank Corps.[67]

The first serious effort at rearmament took place in 1936 with the publication of a second White Paper. In this document, the Navy and the Air Force received most of the attention.[68] Regard for mechanization took form in the March Army estimate debates. Duff Cooper, War Minister since December 1935, informed Parliament of the year's plan to combine the existing Tank Brigade with two mechanized cavalry battalions into a Mobile Division. Also three new tank battalions were to be organized apart from the Mobile Division.[69] Now that the government was committed to a policy of mechanization, the important question among tank enthusiasts was how far would this acceptance in principle be carried out in practice?

Paving for Dunkirk

Mechanization received only secondary consideration following the publication of the White Papers. Officialdom rejected total mechanization in favor of motorization, laying emphasis on light armored machine-gun carriers.[70] For the German panzer divisions, these units were mere matchboxes, and thus the way to Dunkirk was well paved. According to Liddell Hart, Hore Belisha, the new War Minister in 1937, vigorously opposed the new trend. As a

substitute he favored the scheme put forward to establish three armored divisions at home and two in India and Egypt, respectively, but this plan to raise the ratio of armored units to infantry was repudiated in higher military quarters.[71] As a result on the eve of World War II there was only one British armored division at home and another in Egypt, neither fully equipped.[72]

Why had so little been done to fulfill the promise of mechanization? Fundamentally, the answer lies in the way that the tank experts were excluded from influencing its development. In addition to the dismissal of Fuller, in 1934 Major General George Lindsay, one of the early pioneers of mechanization, was sent abroad to command a second-class military district in India devoid of mechanized troops; also Sir Frederick Pile was dispatched to an antiaircraft regiment in the Egyptian Canal Brigade. Symptomatic of the same spirit was the appointment of Major General Alan Brooke, an antiaircraft specialist, to command of the First Armored Force.[73]

Equally detrimental to total mechanization was the growing strength of pacifist sentiment among the politicians and the lack of funds for Army expansion and modernization. Even though pacificism had a strong grip on the general public, especially within the Labour Party ranks,[74] its strength was greatly enhanced by men like Neville Chamberlain, who because of their influential position in the government, made pacificism an integral part of government policy. As Chancellor of the Exchequer in the MacDonald Ministry (November 1931-June 1935) and the Baldwin Ministry (June 1935-May 1937) and later as Prime Minister, Chamberlain devoted much of his energy to restoring the finances of the country. He therefore had every reason to regard rearmament as a frustration of his efforts.[75]

Competition of the services for funds was another serious obstacle since Army Estimates were largely determined by Navy and Air Force demands. Throughout the rearmament period the Navy and Air Force received most of the attention. While Navy expansion was a traditional matter, the rapid increase of the Air Force undoubtedly absorbed some of the funds that might have been alloted to the Army.[76] Also other military problems, such as defense theories and the debates concerning the necessity of another British Expeditionary Force,[77] arose during the rearmament era which overshadowed, to some extent, the mechanization issue.

In the two decades after 1919 the doctrine of mechanization formulated by Colonel Fuller was one of the major British military problems. The doctrine survived a period of economic depression, international peace, and military repugnance only to be rejected in the 1936 rearmament program. Feeble promises and half-hearted demonstrations were substituted for action, while in Germany and Russia Fuller's theories were being converted into fact. In other words, as late as 1937 the British War Office authorities, like the directors of British foreign policy, were totally unprepared to face the world that appeared in 1939.

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[1]In 1919 Fuller wrote, "Before the Great War I was a believer in conscription and the Nation in arms; I was an 1870 soldier. My sojourn in the Tank Corps has dissipated these ideas. Today I am a believer in war machines, that is, in a mechanical army which requires few men and powerful machines." Fuller, *Tanks in the Great War* (London, 1920), xiii.

[2]J. F. C. Fuller, *The Reformation of War* (London, 1923), 116.

[3]Irving M. Gibson, "Maginot and Liddell Hart: Doctrine of Defense," E. M. Earle, ed., *Makers of Modern Strategy* (Princeton, 1944), 375.

[4]Fuller had first hand knowledge of War Office policy by virture of his position as Deputy Director of Tank Services.

[5]In 1919 Fuller won the Royal United Service Institution Gold Medal Prize Essay. This success was followed by a provocative series of articles appearing in the *Cavalry Journal* which led to a full-dress debate at Senior Officers School in December 1920.

[6]Rowan-Robinson's contribution to the mechanization issue includes: "The Relation of Mobility and Power," *Royal United Service Institution Journal* (hereafter cited *R.U.S.I. Journal*), LXV (August, 1920), 572-79; *Some Aspects of Mechanization* (London, 1928); *Artillery: Today and Tomorrow* (London, 1928); *Security?* (London, 1935); and *Imperial Defence: A Problem in Four Dimensions* (London, 1938). Martel was not nearly as prolific as Rowan-Robinson but fully as informative, especially the books: *In the Wake of the Tank* (London, 1935) and *An Outspoken Soldier* (London, 1949); and the articles: "Mechanization," *Army Quarterly,* XIII (January, 1927), 291-96 and "Mechanization," *R.U.S.I. Journal,* LXXXII (May, 1937), 280-302. Sir Hugh Elles, "Some Notes on Tank Development during the War," *Army Quarterly,* II (July, 1921), 267-81. Lt. Col. Philip Johnson, "The Use of Tanks in Undeveloped Country," *R.U.S.I. Journal,* LXVII (May, 1921), 191-204.

[7]Lt. Col. J. C. Dundas, "Anti-Tank," *R.U.S.I. Journal,* LXVII (February, 1924), 106-11.

[8]Summary by Chairman Major-General W. H. Anderson after Lt. Croft's lecture on "The Influence of Tanks on Tactics," *R.U.S.I. Journal,* LXVII (February, 1922), 50-52.

[9]J. F. C. Fuller, *Memoirs of an Unconventional Soldier* (London, 1936), 410.

[10]The subject of this essay was: "The Application of Recent Developments in Mechanics and other Scientific Knowledge to Preparation and Training for Future War on Land," *R.U.S.I. Journal,* LXV (May, 1920), 239-74.

[11]Wilson frequently ribbed Fuller by referring to the tank as Fuller's "egg crackers."

[12]Fuller, *Memoirs of an Unconventional Soldier,* 393-95.

[13]"New Army Plans," *The Times Weekly Edition* (March 18, 1921), 218.

[14]Ivor Halstead, *The Truth about Our Tanks* (London, 1942), 65.

[15]J. F. C. Fuller, *The Army in My Time* (London, 1935), 176.

[16]Successful feats of British armoured units in India, Arabia, Ireland, Mesopotamia, and Russia achieved legendary proportions in pro-tank circles.

[17]Fuller, *Memoirs of an Unconventional Soldier,* 400-01.

[18]"Royal Tanks Corps," *R.U.S.I. Journal,* LXIX (February, 1924), 152.

[19]The Geddes Committee reductions and other econmy drives were a constant obstacle to mechanization in the 1920's. Army Estimates from 1922 to 1928 averaged approximately £45,000,000, some £15,000,000 less than the average Navy Estimates. Of this amount, a very small portion was devoted to mechanical improvement and experimentation. Figures taken from *The Statesmen's Year Book,* 1921-29.

[20]Great Britain, *Parliamentary Debates,* Commons, 5th Series, Vol. 118 (February 10, 1920), cols. 1353, 1356.

[21]*Ibid.,* Vol. 139 (March 12, 1921), col. 1288.

[22]*Ibid.,* Vol. 141 (August 2, 1921), cols. 1148-49.

[23]Gibson, in *Makers of Modern Strategy,* 376; B. H. Liddell Hart, "The New British Doctrine of Mechanization," *English Review,* XLIX (December, 1929), 692. Hart's most valuable works are: *Europe in Arms* (New York, 1931); *Defence of Britain* (London, 1939); *Dynamic Defence* (London, 1941); "Seven Years: The Regime of Field Marshall Milne," *English Review,* LVI (1933); "Contrasts of 1931: Mobility of Stagnation," *Army Quarterly,* XXIII (January, 1932), 235-50; "Mind and Machine," *Army Quarterly,* XXV (January, 1933), 237-50; "Looking Ahead—And Back," *Army Quarterly,* XXVIII (July, 1934), 255-59.

[24]In 1919 Colonel Broad compiled a handbook, popularly known as the "purple primer," which was devoted solely to mechanization. Later he commanded several of the experimental armoured formations. At a dinner in honor of the members of the London Press Club, General Hamilton came out in favor of mechanization. He suggested

that it could be accomplished by cutting the infantry and devoting the money saved to mechanization. "Mechanism in War," *The (London) Times* (February 25, 1924), 7. In the article, "The Problem of the Tank," *Army Quarterly*, VIII (July, 1924), 376-80, Dimmock established himself as an active member of the Fuller school. He wrote: "Since the ultimate aim of fighting is to obtain a decision, and since stabilization is the negation of all decisive fighting, the bold course is to develop the tank." Major Denning's contributions to the argument include: "How to Save £4,000,000 on the Army," *The Spectator*, CXXXIX (July 23, 1927), 127-28; "The Obstacles in the Way of Mechanization of the Army," *R.U.I.S. Journal*, LXXII (November, 1927), 784-88. *Tanks in the Next War* (London, 1938), "The Case for Military Mechanization," *World Today* (December, 1938), and "Seeing Ahead," *Army Quarterly*, XXIX (October, 1934), 106-11 are Major Sheppard's most noteworthy publications. Colonel Pile did some writing, but he was more valuable as a field commander of mechanized units. He and General Burnett-Stuart were closely associated with tactical progress. Brigadier-General Spears assumed the role of chief speaker for mechanization in Parliament. Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 170 (March 4, 1924), col. 1160; *Ibid.*, Vol. 287 (March 15, 1934), col. 705.

[25]Fuller, *Memoirs of an Unconventional Soldier*, 446.

[26]Finally published in 1926 while Sir George Milne was C.I.G.S.

[27]Probably this incident more than any thing else decided Fuller to ask that his four year instructional appointment be reduced to three years. Fuller, *Memoirs of an Unconventional Soldier*, 420.

[28]"Development of the Tank," *The (London) Times* (February 16, 1924), 9.

[29]"Progress in Mechanicalisation of Modern Armies," *R.U.I.S. Journal*, LXX (February, 1925), 73-89.

[30]Hereafter cited as *Lectures on F.S.R. LLL.* These lectures were reprinted in 1943 under the title of *Armoured Warfare* (London, 1943).

[31]Fuller, *Armoured Warfare*, 20.

[32]*Ibid.*, 121

[33]*Ibid.*, 86, 123.

[34]At the annual banquet of the Royal Academy of Arts, Cavan claimed that the War Office was making a move toward mechanization contrary to an earlier criticism of General Hamilton. "The Academy Banquet," *The (London) Times* (May 5, 1924), 20.

[35]The Labour leaders during their ten month tenure of office in 1924 were content to take the armed services as they found them. Lewis Clive, *The People's Army* (London, 1938), 17. However, Walsh did continue the experiments with armoured vehicles begun by Worthington-Evans.

[36]"Army Training, *The (London) Times* (May 6, 1924), 15.

[37]Martel, *In the Wake of the Tank*, 99.

[38]Hart claimed that Martel's invention was primarily responsible for the increasing number of tank enthusiasts in the mid-twenties. Hart, "The New British Doctrine of Mechanized War," *English Review*, XLIX (December, 1929), 693.

[39]The "tankette" cost less than £750 as compared to approximately £2000 for a light tank.

[40]Fuller, *The Army in My Time*, 185.

[41]"War Office Appointment," *The (London) Times* (December 15, 1925), 27.

[42]Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 181 (March 16, 1925), cols. 1891-92, 1906.

[43]Fuller, *Memoirs of an Unconventional Soldier*, 424, 426.

[44]Worthington-Evans' attitude toward mechanization grew increasingly cautious as his term of office progressed; while Fuller claimed that Milne's instinctive caution always managed to overrule his progressive intentions.

[45]Martel, *The Outspoken Soldier*, 126-27.

[46]Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 203 (March 7, 1927), col. 887.

[47]Fuller, *Memoirs of an Unconventional Soldier*, 434.

[48]Fuller, *Memoirs of an Unconventional Soldier*, 438.

[49]Fuller's successor was an ex-infantry officer, Colonel Phillip J. Collins. "Mechanization," *The (London) Times* (April 28, 1927), 14.

Maj. Gen. J. F. C. Fuller, frequently mentioned in this article, is recognized as one of the leading military analysts of the day. Watch for his feature review of the book Cross Channel Attack, latest volume in the U. S. Army History of World War II, coming in the January-February issue of ARMOR.

[50]Martel, *The Outspoken Soldier*, 67. The one bright spot in the Exercises was the performance of Lt-Col. Frederick Pile's Northern Column whose vehicles moved for a time at 35 miles an hour. "Mechanized Force Pursuit," *The Times Weekly Edition* (September 8, 1927), 260.

[51]Germains' fundamental concept of infantry superiority is found in his book, *The 'Mechanization' of War* (London, 1927).

[52]Victor W. Germains, "Armoured Warfare: A Plea for Common Sense," *Army Quarterly*, XVI (July, 1928), 369-72. Germains also outlined his theory of the "Mass army" in *The 'Mechanization' of War*. He held this view until the Second World War, and some authors felt that he was the "only military author of note who saw the situation with prophetic vision." Gibson, in *Makers of Modern Strategy*, 383.

[53]An indication that Germains later accepted mechanization by implication is found in Gibson's chapter quoted in the previous footnote. According to Gibson, "Germains was an advocate of all-out continental war with a new British expeditionary force of sixty divisions equipped with everything modern war requires." *Ibid.*, 382.

[54]Martel, *In the Wake of the Tank*, 154.

[55]Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 225 (February 28, 1929), col. 2216.

[56]Martel, *The Outspoken Soldier*, 67. The success of the tank operations was also enhanced by the use of radio telephony. The new invention lessened communication difficulties, and was largely possible through the efforts of Brigadier Hobart.

[57]Thomas Shaw held a more conservative view toward mechanization than his predecessor, although Worthington-Evans had tempered his attitude considerably by the time he left the War Office in 1929. "War Secretary's Reference," *The (London) Times* (March 26, 1926), 11. Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 214 (March 8, 1928), cols. 1265, 1270; *Ibid.*, Vol. 237 (March 24, 1930), col. 82; *Ibid.*, Vol. 249 (March 16, 1931), col. 1612; *Ibid.*, Vol. 262 (March 8, 1932), col. 1659; *Ibid.*, Vol. 275 (March 4, 1933), col. 1439.

[58]Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 287 (March 15, 1934), col. 705.

[59]Montgomery-Massingberd succeeded Milne as C.I.G.S. in 1933.

[60]Hart, *Dynamic Defence*, 32.

[61]Hart, *Europe in Arms*, 75.

[62]Of the 1000 vehicles in the 1934 Tank Brigade, only 240 were armoured fighting vehicles. Lt-Col. A. G. Cunningham, "The Training of the Army," *R.U.S.I. Journal*, LXXIX November, 1934), 730.

[63]Fuller, *Memoirs of an Unconventional Soldier*, 446.

[64]*Ibid.*, 447-48.

[65]Liddell Hart claimed that barely a half million pounds were allotted for modern mechanized equipment. Hart, *Europe in Arms*, 87.

[66]"Guarding the Empire," *The Times Weekly Edition* (March 7, 1935), 6.

[67]Hart, *Europe in Arms*, 76; Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 229 (March 21, 1935), col. 1439. Douglas Hacking, Financial Secretary to the War Office told Commons that already two cavalry regiments had been equipped with armoured cars, and that this year a third regiment was to be mechanized which if successful might lead to further developments.

[68]Gibson, in *Makers of Modern Strategy*, 379. Great Britain, *Accounts and Papers, Cmd.* 5107, "Statement Relating to Defence" (London, 1936), 10.

[69]Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 309 (March 12, 1936), col. 2353.

[70]The reasons for this decision will only be clarified when the records of Hore Belisha's administration at the War Office are made accessible for investigation. Gibson, in *Makers of Modern Strategy*, 380.

[71]Hart, *Dynamic Defence*, 34.

[72]*Ibid.*, 35; Winston Churchill, *Their Finest Hour* (Boston, 1949), 31.

[73]Hart, *Dynamic Defence*, 39.

[74]John F. Kennedy, *Why England Slept* (New York, 1940), 20; Clive, *The People's Army*.

[75]Duff Cooper, *The Second World War: First Phase* (New York, 1946), 40-41. Cooper was familiar with Chamberlain's policy because he joined the Treasury Staff as Financial Secretary soon after he left the War Office.

[76]During the 1935-38 period Navy expenditure averaged £70 million while the Army averaged £51 million. Air Force increase amounted to £15 million in 1935 and £55 million in 1938. Figures taken from *The Statesman's Year Book*, 1935-39.

[77]The debates over the Expeditionary Force and Liddell Hart's theory of Limited Liability were two problems which eclipsed the mechanization issue in the late 1930's.

FROM THESE PAGES

60 Years Ago

Occupying from east to west the broad expanse of a vast continent, stretching north and south from arctic cold to tropic heat, possessing fertile soil, boundless forests, inexhaustible mineral resources, and peopled by a race unexcelled for energy and inventive genius, the United States has no rival.

Separated as they are from all other great countries, war is looked upon as almost beyond the range of possibility.

While all Europe groans with the burden of immense standing armies, which, even in these piping times of peace, shake the continent with their martial tread, the United States rests secure.

But is this security real or apparent? Canada is fast becoming a country, which, if a foe, would be worthy of our steel; Mexico keeps a larger standing army than our own; questions of great moment remain unsolved; the demon of unrest is abroad in the land, and a feverish uncertainty exists.

Who can tell what moment a storm may burst which will call into play the whole strength of our great nation.

Assuming then that the possibility of war does exist —and who after careful thought will deny it—it becomes the duty of the United States to be ready in the hour of trial.

Experience shows that time is necessary for the organization of an army, and that many months must elapse before a raw recruit can be transformed into an efficient soldier.

Organization must, therefore, at all times exist; and its form should be such as to provide the greatest possible security consistent with wise economy.

The Proper Relative Proportions of the Three Branches of the Service

W. A. Holbrook
1st Lt., First Cavalry

40 Years Ago

Looked at from the viewpoint of the efficiency of the army as a whole, there has been no legislation proposed in years that promises such good results as the proposition to place all officers of the fighting arms of the mobile army on a single list for purposes of promotion.

All our legislation for years has been dominated by the one idea of promotion, either to get promotion for some one or ones or some branch.

In self-protection, all those adversely affected have had to oppose such bills, with the result that the mobile arms are always unable to agree among themselves as to what is desirable legislation. The efficiency of the service thus comes to be a consideration secondary to personal advancement.

A number of officers have, through the accidents of such haphazard legislation, gained promotion to which they are no more entitled than are those who have in a similar way lost rank. Those who have thus gained naturally desire to keep their advantage, yet many of them are ready and willing to lose such advantage for the good of the service as a whole.

It has been noticed that articles advocating the measure are usually signed, while those opposing it are frequently not so. This has led to a suspicion that some of them are inspired by motives that would be readily understood if they were signed. At any rate it is thought that in discussing this measure we should lend to our views the support of our names.

One List for Line Officers

LeRoy Eltinge
Captain, Fifteenth Cavalry

25 Years Ago

The organization of a Foreign Legion in the Red Army is progressing rapidly. The center of the formation is at Tula, to which place approximately 12,000 foreigners have been transferred from the Red Army. Temporarily the Foreign Legion is headed by an officer of Polish nationality, whose name is Gajewicz. The position of Chief of Staff of the Foreign Legion is occupied by a Czech, named Kryga. The formations organized at Tula are composed mostly of Czechs, Latvians and Poles, who have previously belonged to divisional detachments which are being organized.

In addition to five regular battalions, a foreign school for noncommissioned officers and one Artillery Division have been formed at Tula.

In Perm cavalry detachments are formed which are equipped with arms of Polish type. In Orenburg cavalry detachments are formed composed exclusively of foreigners of the Mohammedan religion. The citizens of the Baltic States form a separate regiment. Another infantry regiment is formed by citizens of Finland; two brigades are formed of Ukrainians coming from Eastern Galicia.

After the organization is completed it is planned to transfer all Foreign Legions toward the Asiatic frontiers of Russia and station them in the Turkestan.

Foreign Legion in the Red Army

Foreign Military Notes

10 Years Ago

Unquestionably, the 1941 maneuver period, just concluded, was an unequivocal success. It accomplished the purpose for which it was intended. It proved that our expanded army as a whole is *mobile* and rugged. "They can take it." Whoever won or lost the battle is an item of little consequence. The important thing is: *What did we learn? . . .*

In our opinion, the great lesson behind the maneuver lessons is that we have superficial leadership in the platoon, company (troop or battery), and battalion (or squadron). We must crawl before we can walk; and for this reason, we should not expect marked improvement in successive large-scale maneuvers until this noted condition in the lower echelons can be rectified. The success accredited the German Armies is due largely to thorough *basic training*.

The root of this evil began to sprout immediately after World War One. Because of curtailed appropriations for field service, and reduction in size of our Regular Army far below that recommended by General Pershing, a large corps of Reserve officers was created, with resultant undue importance given to academic correspondence work, theory, and map problems. Officers were promoted, with insufficient basic training in the practical combat leadership of platoons. They, in turn, now are not training their subordinates thoroughly in fundamentals. Units are road-bound when they should be well grounded tactically in the "pincher" conception of offensive fighting.

Another cumulative evil is, that in the regular establishment, promotion had stagnated to the point that many officers were held in the same grade for a period of sixteen years or more without opportunity for practical experince in exercising command appropriate to age and length of service—for which we are paying the fiddler today.

Maneuvers, 1941—In General

Editorial Comment

GENERAL COLLINS' REMARKS BEFORE THE ANNUAL AUTUMN CONVOCATION AT TULANE UNIVERSITY IN NEW ORLEANS

LAST WEEK I returned from a trip around the world, during which I visited our troops in Germany, Japan, and Korea and checked on our military missions and attachés in France, Italy, Yugoslavia, Pakistan, India, Thailand, Indo-China, the Philippines, and Formosa. I spoke with our ambassadors and the ministers of defense and the chiefs of staff in most of these countries, with General Eisenhower and Marshal Tito in Europe; with General de Lattre and Emperor Bao Dai in Indo-China; with Generalissimo Chiang Kai-shek in Formosa and President Syngman Rhee in Korea; and with General Ridgway in Tokyo. Needless to say, I also met and talked with many of our foreign service representatives and members of our economic and military missions and with soldiers, sailors, and airmen of all ranks.

During the past ten years I have had to make many trips to various parts of the globe, but this trip, compressed as it was into one month, brought home to me, as never before, the widespread responsibilities of the United States.

When I left Washington I had no clear idea as to what I might say which would interest this distinguished audience. But as I traveled along, my attention focused more and more on the role of the United States of America as the leader of free men everywhere in the struggle against militant communism which is seeking to destroy all that we stand for, I became convinced that I could do no better than to give you my impressions—as a soldier, and as a citizen—of the vital importance of America's role, as I saw it reflected in the will and actions of other peoples and the growing impact of that role upon our lives.

World leadership is still a relatively new role for the American people. I can still recall the surprise in some quarters when it was announced in 1941 that Turkey was essential to the security of the United States and hence could be made a recipient of lend-lease. Many American citizens at that time had never considered that Turkey was particularly important, one way or another, to the United States. Subsequent events proved that our government was right in aiding Turkey to withstand the approaching menace of Hitler's invidious Nazism. For if Turkey had fallen to Hitler, the militant despotism of Nazism might have spread to the Middle East, India, and Malaya, there to have linked up with its allied despotism of Japan in a cordon that might have throttled the remainder of the free world, including these United States.

Still we might not have entered the war against the fascist coalition if it had not been for Pearl Harbor. Aroused by the dastardly attack on our fleet there, America bent all of its mighty energy to the defeat of Germany, Italy, and Japan. With all due credit to our gallant allies, who had fought off the threat of the Axis powers before we entered the war, there was no question but that the economic and military power of America decided the outcome. And with the realization of that power came inescapable world leadership and increased responsibility for helping to maintain the peace.

Bring the Boys Home

But with the end of the war we apparently felt, with typically American revulsion for war and all its works, that our job had been done. In answer to the frenzied cries of "Bring the boys home," we let our emotions dominate our better judgment, and we proceeded to wreck the great Army, Navy, and Air Force that, together with our marvelous industrial system, had brought us victory and, we fervently hoped, lasting peace.

We could have had that peace except for one thing —militant communism. For into the power vacuum created by the destruction of the Axis forces, together with the wanton wrecking of our own, there spread with calculated swiftness the ruthless power of another predatory imperialism—Soviet communism masquerading as a democratic ideology.

There certainly can be little doubt that a mere *ideological* clash between this fraud of communism and our western mode of life would result in victory for true democracy. For who, knowing the truth, would willingly choose the robot-like existence of a slave society? But the Russian communists are not carrying on that kind of fight.

I say fight advisedly because the Soviet Empire has expanded the orbit of its power and forced millions into the slavery of its totalitarian system through propaganda, subversion, infiltration and, where advantageous, by the brute use of military force. Human misery and want merely have served to whet militant communism's lust for power. Supported by the mighty Soviet Army and a ruthless corps of international communists, it has attempted everywhere to push back the frontiers of freedom and to strangle the efforts of war-torn nations to regain political and economic stability.

This planned campaign against human freedom became the established pattern of Soviet activity and has bred fear and insecurity throughout the world. The peoples of Poland, Albania, Bulgaria, Hungary, Rumania,

Early in November U. S. Army Chief of Staff General J. Lawton Collins delivered an address to the Autumn Convocation of Tulane University, New Orleans, Louisiana. General Collins had just completed a trip around the world which by its very nature indicates the position of world responsibility which is America's today. His remarks, touching upon the East-West differences, the regional defense measures, the interrelationship between economic and military factors, the emergency growing out of Korea, universal military training, and the responsibilities of citizenship, are of such significance that they are presented by ARMOR in their entirety.—EDITOR.

and finally Czechoslovakia quickly disappeared behind the Iron Curtain. Small well-disciplined communist minorities seized control aided by the threat of the Red Army or by the insidious penetration of fifth columnists backed by the secret police. Satellite governments were systematically installed and proceeded ruthlessly to suppress all individual freedom.

To the south, as early as 1946, the Soviets attempted to destroy the independence of Iran by subversion and outright military pressure. In China, communist forces, encouraged and aided by the Kremlin, gained political and military control of the country. Soviet military occupation was methodically employed to communize and militarize North Korea.

Greece and Turkey were also prime targets, and beyond them the whole Middle East. And in Germany, the Berlin Blockade was a sign that communism was trying to squeeze the other occupying powers west of the Elbe River.

The peoples of the world, weakened by six devastating years of war, were helpless to stop this creeping menace of communism backed by military might. And because communism probed for weaknesses regardless of their nature and then skillfully shaped its tactics to exploit them, the strengthening of the free world was a problem of strengthening all elements—economic, political, spiritual, and military. And so America, finally aroused, developed an over-all plan embodying: economic assistance programs, regional security agreements—principally the North Atlantic Treaty—the Mutual Defense Assistance Program, and the rebuilding of our own armed forces.

Responsibility of Leadership

These programs together with strong and continuous support for the United Nations, both in word and action, were evidence that the United States, in its position at the center of power in the free world was beginning to assume the leadership the free world needed.

Greece is an outstanding example of the effectiveness of coordinated military and economic aid in enabling the nations of the free world to withstand Soviet sponsored aggression.

I visited Greece several times and discussed the various aspects of the military and economic problems with our military commanders and other government personnel. It was quite apparent that there had to be much give-and-take between our people engrossed in the details of such a complex problem, for Greece was an outstanding example of the fact that there is little value in a country's building a prosperous economy unless it has the military strength to preserve it.

The communist guerrillas ravaged and plundered the fertile farm regions and stole the vital food crops needed to feed the Greek people.

Both our military and civilian personnel engaged in the program of aid to Greece had to consider the full impact of Greek requirements. They had to accommodate themselves to the extremely broad understanding of the Greek people, their sensibilities, their capabilities and limitations. They had to use vision and perseverance and good old American horse sense. Their final success in Greece is due in large measure to their fine appreciation of both the military and economic factors involved.

Our aid to Turkey also resulted in contributing to the security of the entire Mediterranean area and the Middle East. There our purpose was to assist in creating efficient, well-balanced modern forces with the maximum capability of resisting Soviet aggression, without constituting an unbearable drain on the Turkish economy. There too our American personnel had to develop a broad understanding of the intricacies of Turkish life and customs, and an appreciation of the fine balance between military requirements and economic capabilities.

One of those rare occasions happened recently when a working newspaperman went out of his way to tell me personally his reactions to the job our military mission is doing in Turkey.

He had been traveling in Turkey and had visited many Turkish outposts where our young officers and enlisted men were assisting the Turks in training. He said that he happened on this small group of American officers in a remote town. These men had not only won the confidence of the Turkish military men, but they had also earned the trust and faith of the villagers by their high standards of personal conduct and their sympathetic approach to existence in that Turkish town, which had few if any of the amenities of modern life. They will probably be snowed in this winter but they will be patiently and effectively carrying for the rest of us a large share of the burden of our world-wide responsibilities.

In Western Europe, where the people live in the shadow of the threatening Red Army, the North Atlantic Organization, under General Eisenhower's brilliant leadership, has brought new hope.

All these programs have called for the closest integration of complex political, economic, and military factors. Our military and civilian personnel engaged in the administration of our programs are well aware of this. They are working hard acquiring a sound background of the problems in the areas in which they work, and are doing a splendid job.

Many of them are working in the undeveloped areas of the world where the inhabitants are eagerly looking for an opportunity to progress. In these areas the people have little choice, and will succumb to the false attractions of communism unless something better is offered. Our mission personnel, in the name of our government, are offering them a workable chance to choose the path of freedom. It takes hard work, creative thinking, perseverance, and broad understanding, but our representatives overseas are facing it with increasing confidence.

Their primary task is to enable the translation of the common aims of all free people into steadfast action against the spread of communism. They are invaluable in fostering mutual understanding between us and our allies; and through them we gain an insight into the culture of our friends and they into ours. Needless to say, such understanding is of utmost importance as we close ranks against the common threat, and would be of even more vital importance if we were ever called upon to fight side by side.

On the Fringe of the Curtain

There is much we can learn from our friends around the fringes of the Iron Curtain. Their homelands are much closer than ours to the threat of communist aggression, and their long history has given them a great deal more experience in dealing with aggressors. Still there is much they can gain from us. Our military missions, for example, help them by determining what equipment they need and how best it may be used. They are the focal points for the exchange of ideas and for the growth of mutual confidence—confidence that can only stem from a sympathetic and realistic appreciation of the problems of other men.

The great responsibilities of these members of our missions, both civilian and military, are representative of those which rest upon the shoulders of the many other Americans who are engaged in government service both in the United States and abroad. And doubtless many of you will serve your country well in this way in the future as our representatives abroad are serving today. And last year their complex problems were made even more complex.

On June 25, 1950 without warning or cause, North Korean communist forces launched an all-out offensive on the United Nations-sponsored Republic of Korea. The United Nations reacted promptly, branded the action as a breach of the peace, and recommended military assistance to the Republic of Korea. Together with the United States, 52 other nations expressed their support for the United Nations' action and 29 states made specific offers of assistance.

The attack portrayed the true intentions of Soviet militant communism in a way the whole world could understand. The threat was now unmistakable and free men the world over devoted increasing effort to those measures necessary for vigorous self-defense. The attack also demonstrated that the Soviet rulers were prepared to use the organized military forces of their puppets in an attempt to enslave other free nations.

The character of the free world's reaction to the attack was perhaps even more significant than the actual occurrence. Perhaps more than anything else, this significance lay in the fact that military aggression was not merely condemned, but, for the first time in history, collective military force under an international organization was applied to oppose such aggression. The issue on which the League of Nations had foundered—the issue which peaceful nations had refused to face in Manchuria in 1931, in Ethiopia in 1935, at Munich in 1938—was squarely and courageously met.

But Korea has another meaning in that it has thrown convincing light on that least understood aspect of our national security—our need for a reservoir of trained manpower. Nowhere is this lesson more sharply drawn than in the story of the tremendously difficult problems we faced in providing enough trained manpower to stem the communist surge there. In both World Wars our allies staved off the enemy while we readied ourselves for action. In Korea there was no such respite. The Republic of Korea forces, organized solely for internal police purposes, were about to be overwhelmed by a communist army which was deliberately organized and equipped for aggression.

To meet the aggression we had to send support to the Republic of Korea forces as quickly as possible and had to use those regular forces which were available close by. The American 24th and 25th Infantry Divisions and the 1st Cavalry Division were performing occupation duties in Japan. They had to be picked up and rushed into Korea piecemeal with two-battalion regiments, instead of the authorized three, and with all units greatly understrength.

And the weaknesses of the units in Japan reflected the condition of Army units everywhere. Just prior to the opening of our operations in Korea in June 1950, the Regular Army was 38,000 men under the strength of 630,000 originally authorized by Congress for the fiscal year 1951. We had been struggling for months trying to reach and maintain that strength through volunteer recruiting alone, since we had promised the Congress that we would not ask for authorization to use Selective Service except as necessary to fill that gap between authorized strength and the number of men we could obtain through recruiting alone. But despite the fact that we were required by law to accept enlistments for such short terms as one year—which is a terribly costly and inefficient way of doing business—we were unable to get sufficient volunteers, and our strength had dropped gradually to 592,000 against an authorization of 630,000.

The Pinch of Unpreparedness

Then, here at home, we had to face the task of building up that early nucleus into what later became the great Eighth Army which we know today. The only trained men immediately available were in our Regular units, which were themselves understrength. We pulled nine battalions of infantry, armor and artillery from those units, and selected individuals from every organization in the Army to obtain trained cadres for six additional battalions. The 2d Infantry Division was brought up to strength by stripping our remaining units still further and was then

dispatched to Korea. The 3d Infantry Division was recreated, though we simply were not able to get it to full strength before it had to sail. Instead, we had to take a regiment from Puerto Rico as the third regiment for this division. At about the same time the 11th Airborne Division was decimated in order to provide General MacArthur a full-strength airborne regimental combat team, the 187th Airborne Infantry.

There then remained in the Regular Army in this country only one division, the 82nd Airborne, in condition to fight. We dared not reduce our last division to impotency, even though the Eighth Army still was desperately in need of men.

Sources for Manpower

To meet further pressing needs for combat-type units and for essential engineer, signal, ordnance, quartermaster, and other supporting units, we had to order more than 2,000 company size National Guard and Organized Reserve Corps units into active service. But like the Regular Army units, they also were short of trained men. The only sources of manpower with which to fill them—since the Regular Army had already been stripped—were the Selective Service system which had been quickly reestablished by the Congress after the North Korean attack, and the reservoir of trained men still remaining in our Organized Reserve Corps and National Guard.

Selective Service had not been operative since January 1949 and would have required two or three months to call up selectees. These men would then have needed an absolute minimum of 14 weeks of basic training before taking their places in units, plus additional unit training before the units were ready for combat.

The only practicable remaining source of relatively well trained men was in our Organized Reserve Corps which has always had two categories of personnel: individuals assigned to units, and those not assigned to units but catalogued according to their specialized skills. Units had to be held intact as far as possible to back up the active Army in the event the conflict in Korea should be broadened. So the only available source was the large group of Reservists not in units. Fortunately, the Organized Reserve Corps was able to meet the pressing demands, and by the end of August, 1951, 200,000 Reservists had reported for active duty to fill vacancies in combat units and to provide instructors for new recruits.

Unfortunately, in the initial rush of trying to meet the emergency, there was not much time to give consideration to variations in individual cases; and there was an immediate and urgent demand for skilled specialists which had to be met. This resulted in some instances in calling up fathers who had had service overseas during World War II, while other Reservists who had never been overseas and had no children were not called. The answer in most cases lay in the fact that the men had different occupational specialties. These inequities have been eliminated as time and conditions have permitted.

The dreadful experience of rushing understrength units into action; of early emergency recalls for combat veterans with family responsibilities; of long delays in training our citizen-soldiers—all these stark deficiencies hold for us a solemn warning which we must not ignore. We must realize that our Army's Regular forces must be kept close to authorized strength, that we must support those forces with a strong National Guard and strong Organized Reserve Corps made up of both units and individuals. These individuals must be trained men who after a short refresher period of training can effectively fill the ranks of our divisions and other units whether in combat or in training here in the United States.

This struggle against communism may well be a long one, and requires a long-range solution. We must plan ahead for the long pull and not be carried away with short-range crises and the resulting letdowns which always seem to follow. If we are to continue our traditional military policy of placing great dependence on our National Guard and Reserves, then we must make it possible for them to acquire the degree of preparedness which modern war requires.

I cannot stress too strongly the fact that democracies must be defended by citizen-soldiers. We do not provoke wars, and cannot afford large standing forces. It is the enemy who determines when and where we must fight. And such a condition almost compels us to be as prepared as were our early settlers to meet a sudden attack.

It seems to me there is only one solution to the problem; it is one dictated by the lessons of the past. If we continue to rely upon our citizen-soldiers, we must be certain that they are prepared for their roles and must adopt a program that will prepare them. There is such a program and it has already been recommended to the Congress. It is a program of universal military training designed to provide a steady flow of trained young men into our reserve components and to establish an enduring base for our military strength.

I am sure you are asking, "What does such a program mean to me?" "How will students and educators be affected?" "What can we do about it?"

UMT and the Alternatives

Universal military training means some sacrifices to all of us. We know full well that behind each serial number stands a man; that behind each man stand a family and friends who will be affected. We know too that our colleges will feel the impact, although I can see no permanently disruptive effects. And of course, universal military training would be costly, but its costs would be little when compared to the costs of the two alternatives —huge permanent standing forces or gross unpreparedness. But to all the plan offers an opportunity to give something in return for the blessings we enjoy under a free government.

Our students have a dual role.

We will soon have three and one-half million men under arms, and it seems likely that world conditions will require large Armed Forces for some time to come. The needs cannot be met by volunteers alone, and some of you will be called upon to serve. Many of you are already too old to be affected by UMT, but you may be called through selective service. Those of you who are in the Reserves and those in ROTC may be called in your Reserve capacities. But upon all of you rests a strong moral obligation to contribute what you can to the security of our nation in these critical times.

And your other responsibility is equally important. Whether you serve in the Armed Forces or not, as college men and women you will have a great influence on the

thoughts and attitudes of those with whom you come in contact. It is imperative that you have a thorough understanding of world conditions and the role and responsibility of the United States.

Our educators as always have an extremely vital role which grows in importance as they guide the youth of our nation in the years ahead.

Theirs is the task of developing in those young Americans in their care the selfless desire to put the welfare of the nation above their own individual desires, to inspire in them a deep sense of individual responsibility. They must explain that security is a two-way street that involves a lot of giving, as well as taking.

Veterans on Honor Rolls

And both students and educators alike can do much to correct existing misunderstandings in regard to our security problems. Many educators in their opposition to compulsory military training have said that any form of universal military training would not only interfere with normal education but would dull the minds and interests of our men, and result in poor performance from the few who would care to take up their studies again after a period of military service. I do not know how many among you have had military service but I am sure that many of you have already answered that objection. You are making good despite difficulties which probably included for some, working half the night after school hours to make ends meet.

I have been told that college authorities agree without question that veterans have responded with a high performance well above the peacetime average. At one prominent university where veterans made up 82 per cent of the total of 12,500 male undergraduates, scholarship reached an all-time high—13.5 per cent above the last prewar year and nearly 9 per cent higher than the best prewar mark. One prominent educator attributed the veterans' good record to their complete seriousness and to their acquired habit of tackling a job promptly and staying with it until it is done. Nationwide the reports have indicated that proportionately more veterans were on honor rolls and deans' list than were other students while fewer were flunking out, and a large percentage were heading their individual sections or classes.

It has also been said that any form of universal military training was in effect conscription and that any form of conscription in time of peace was opposed to our way of life. The fact that our entire legal system does not rest on a voluntary jury system was overlooked. Also, our taxes are not based on a voluntary payment system. And even our educational system is compulsory. Universal military training would simply be compulsory education in defense, a purpose of vaster consequence than the other forms of compulsion I have outlined and which we accept as normal in our way of life

From time to time you will have to cope with other misunderstandings in regard to our national security. You will encounter those who hold that we can defend the United States from within the United States. I believe that now more than ever before the defense of our nation should be based as far away from our shores as possible. It should be obvious that in these times of supersonic aircraft and missiles, the efficiency of our air defense depends to a large degree on the ability to maintain a defensive perimeter as far out as possible.

Also, there exists today a good deal of misunderstanding in regard to another important aspect of national security. From time to time there is a tendency to believe that the advance of science and its applications to warfare have decreased the requirement for manpower. We are ever mindful of the need for young scientists both in civil life and in the armed forces and doubtless many of you will be contributing in this way to our national security.

But I should like to emphasize that wars are still tough slugging matches—Korea has emphasized that. It has proven once again that we still need men as well as the implements with which they fight. The core of our ability to fight is trained manpower.

We must, however, continue to go forward with our research and development at full speed, for a military force in this atomic age is no better than its weapons. We will add the atom to the Army's arsenal as soon as it is ready.

War is ever-changing in its nature, and we dare not let our defense be outmoded. Every new development in the air, on the land, and above and beneath the sea calls for more men and more training. The more complex the weapons, the greater the need.

So you see the problem of national security is as complex as our role in world affairs. There is much to be studied and understood, and much to be explained.

All of this means that our American universities carry a burden unknown in the past and one which is bound to grow heavier in the future. It is a burden which educators and students alike, together with the rest of us, must shoulder in the realization that it is indeed a great privilege to be living and studying and working under our great democratic way of life. While we widely believe and profess our faith in our system, we must recognize our responsibility to do something about it. Belief alone is not enough.

The Choice We Face

We face a future in which our military needs cannot be met by voluntary means alone. We face a future in which our global problems can only be met through the broadest understanding. Both require of all of us a deeper knowledge of our government and its role in world affairs. Both require a more thorough appreciation of other peoples and their problems and an awareness of the objectives and techniques of militant communism. And most of all they require a more complete realization of our responsibilities as individual Americans and a willingness to contribute what we can to the security of our nation.

I believe that we all have a great choice to make—a choice between strength or weakness, between freedom or slavery. There can be no compromise; either we fulfill our responsibilities now or we shall surely suffer later.

Your record in the past, in peace and in war, as sons and daughters of a great state and of a great university proves your deep sense of responsibility for the welfare of our nation and your superb ability as defenders of our freedoms. Those who have gone before you here have set a high standard and, as a fellow Louisianian, I join with you in pride at the heritage which is ours. I have every confidence that you here at Tulane will continue to measure up to that standard as you prepare yourselves for the critical days which lie ahead.

ARMOR NOTES

Versatile Cargo Tractor Newest In Army's Light Tank Line

The Department of the Army announced recently that production has begun on the newest member of the Army's family of vehicles, the M8E2 Cargo Tractor.

The fast-moving, quick-turning cargo tractor, now in production at the Allis-Chalmers plant at LaPorte, Indiana, will be used primarily to tow the 75mm "Skysweeper" antiaircraft gun and other heavy weapons.

In line with Ordnance Corps policy of standardization of vehicles, the new tractor has basically the same chassis as the Walker Bulldog light tank.

The new tractor is powered by the Continental air-cooled engine and the Allison cross drive transmission, a power package which gives the versatile, 22-ton tractor a top speed of 40 miles per hour. It has the ability to cross swamps and small trenches, to climb or descend sixty percent (about 35-degree) slopes, and to travel speedily on improved highways and cross-country roads. The features have been designed into the tractor to permit it to tow guns quickly into positions where troops can blast enemy strongholds.

Further versatility of the machine is made possible by several interchangeable "kits." These kits are actually different types of tractor bodies which fit the vehicle for pulling the Skysweeper, the 90mm antiaircraft gun, the 155mm gun, or the eight-inch howitzer. In addition, there are wrecker kits, bulldozer kits and stake-body kits. The latter converts the cargo tractor for general purpose hauling.

When used to pull artillery, the cargo tractor carries ammunition and supplies, supplementary equipment and a gun crew.

Two front seats carry the driver and assistant driver. The assistant driver has access to certain dual controls as well as radio controls. He also operates a .50 calibre machine gun, mounted directly above him.

Plastic Shrouds to Protect Army Ordnance Materiel

Plastic shrouds, developed by the Army Ordnance Corps in cooperation with private industry, are expected to replace scarce and costly canvas tarpaulins, wooden boxes and crates used in shipments of Ordnance materiél.

The packaging materials which they replace are several times more expensive than the lightweight covers.

A vinyl chloride shroud large enough to cover a machine weighing 20,000 pounds will weigh only about 30 pounds, while a waterproof tarpaulin of the type normally used would be several times heavier and more costly.

Only eight thousandths of an inch thick, the vinyl chloride shrouds can withstand wind velocities of 60 miles an hour and extremes of temperature ranging from sub-zero to more than 95 degrees. They are being used successfully to protect flatcar shipments of heavy war materiél as well as equipment subjected to longer periods of outdoor storage.

Development of the shrouds at the instigation of the Army Ordnance Corps is cited as a typical example of cooperation between private industry and the Armed Forces.

The Monsanto Chemical Company, in experimenting with the vinyl chloride film commonly used in many commercial products, contributed to the research that stabilized the material so that it would retain its original properties and withstand the extreme wind and weather conditions to which open flatcar shipments are subjected.

Transfer to Combat Arms

Opportunities for officers of the Organized Reserve Corps to transfer to Infantry, Armor or Artillery from other branches of the Army, with concurrent call to active military service, were announced recently by the Army.

Officers up to and including the rank of lieutenant colonel may apply for transfer to the Infantry, and officers in the rank of captain and below also may apply for transfer to Armor or Artillery.

Applicants in the rank of captain and above must have had prior commissioned experience since 7 Dec. 1941, in the arm to which transfer is requested.

Enlisted men and warrant officers in active military service who hold Reserve commissions and meet the other requirements also may volunteer for transfer to a combat arm and concurrent call to active duty in commissioned status.

To be eligible under this program, officers must not be over the following ages: Second Lieutenant, 29; First Lieutenant, 34; Captain, 40; Major, 43; and Lieutenant Colonel, 47.

Officers residing outside the continental United States will not be accepted for this program.

Applications may be submitted through the headquarters of the Military District or the Army area in which the individual resides.

First Armored Tanker Insignia

First Armored Division soldiers at Ft. Hood, Tex., who successfully complete the Individual Tank Combat Course are sporting a new "Tanker" insignia on their uniforms. The insignia, a green diamond-shaped piece of cloth with "TANKER" spelled across the middle, will be worn over the right shirt pocket.

Maj. Gen. Bruce C. Clarke, USA, Commander of the First Armored Division, secured authorization for the patch in recognition of tank proficiency. To qualify as a "Tanker," a crew must have a good maintenance record and achieve a rating of excellence on the complex range designed by the division commander. The tank course includes exercises in fire orders, loading, firing, range estimation, tracking, radio, and combat driving.

Tubing for Tank Program

A contract designed to make available added facilities for the manufacture of a special type of tubing needed to speed America's combat tank production program has been negotiated between The Babcock & Wilcox Tube Company of Beaver Falls, Pa., and the Army. The special tubing will be used in making tank treads.

Tank tread pin tubing, according to The Babcock & Wilcox Tube Company which has been a prime producer since the beginning of World War II, is seamless, small diameter, heavy wall, cold finish alloy tubing. It is used in the assembly of the tank track for many of the tanks and other types of mobile equipment using tracks, produced under jurisdiction of the Army Ordnance Corps through the Ordnance Tank-Automotive Center in Detroit and other areas.

IN SEARCH OF A PROPHET

"COMPLACENCY has usually been an accompaniment of victory." This statement has been made so often that its truth is generally accepted and yet the warning it implies is still disregarded. Any standard history—choose the period at random—will provide numerous illustrations of nations which were the victims of their own victories. More often cited, because it seems most immediate and pertinent in our own day, is the record of the Allies after the victory of 1919.

Following their narrow and hard-fought victory in the First World War, the Allies, without exception, relaxed to enjoy the glory of that triumph. The principal general officers one-by-one published their excuses and justifications and retired. The leaders of the French Army became complacent in their victory and were extremely patronizing in their attitude towards their own younger officers and those of other armies who were not content with the old platitudes and who were already sifting their experiences in the war and discovering some shining new conclusions. Without examination, the pedantic, recently victorious leaders of the French Army dismissed these discoveries as "Fool's Gold."

The British Army, traditionally conservative, continued to resist change and to be suspicious of innovation. Even so, there were in England eager officers who championed the new theories and earnestly struggled against the older, more accepted tactics and organization. Their struggle was, however, largely futile, due to the complacency that came with victory.

In our own country, the military leaders appear to have followed the politicians into a never-never land of isolation from the rest of the world. They would let Europe fight its own wars and we would make no entangling alliances. The advent of the third dimension in warfare, the airplane, was exaggerated, they thought, and tanks were considered a definitely subordinate weapon of the infantry.

The only army which was wilfully progressive, which encouraged imaginative thinking and preferred new solutions to the old problems, was the supposedly nonexistent German Army. Even among the German officers the new methods were not unanimously popular but, significantly, the conservatives could not point to their past victories as justification of their tactics, there was no complacency to overcome, and the new theories were put to the test of experiment in maneuvers.

When the new ideas were finally exploited in battle, against the very armies which had rejected them as radical (and therefore, per se, impractical) the French Army was destroyed and the British Army badly battered. The American Army was, by the grace of God and the stubbornness of the British, spared the natural consequences of its complacent isolationism.

With this expensive experience to guide us and with the uncomfortable knowledge that since we have guaranteed the freedom of the world, we ourselves have become the primary target for any aggressor, we must shake off our victory in the last war and do some realistic thinking about our problems now and in the future.

It is well to study General Patton's campaign in Europe. But we cannot afford to stop where the last war left off. We cannot assume that circumstances will permit duplication of that campaign in Europe or in Asia. We must project the tactical lessons of the last war in terms of the future—in terms of new and improved weapons and the probable conditions which will exist when war comes.

It is obvious that this country is unlikely to precipitate a war by an attack. In spite of some careless talk about a preventive war—we must accept the *probability* that we will be on the defensive, strategically and tactically, at least in the initial phase of any war. In 1948, General Bradley, speaking for the American people, said, "This government will not assail you. You can have no conflict without yourselves being the aggressor." In the light of this primary consideration we should examine our defensive theory. Our current catch-phrase, "exploit violently" may be premature. It may be necessary first to stop the horde before we have the opportunity for exploitation.

One type of defense now considered practical for tanks is the so-called mobile defense. It contemplates the organization of a series of strong points, linked by armored patrols and covered by a screening force which will delay the enemy during our withdrawal. The strong points should cause the attacker to deploy for battle and the force on the strong point might counterattack if the opportunity presents. In essence, this is nothing more than a method of swapping space for time and is practical only where we have space to spare.

We are taught that the best defensive use for tanks is in a counterattack role, but the conditions obtaining at the start of a war may make even *local* counterattacks impractical for some time. Unless I have misinterpreted the reports from Korea, this is the situation which confronted our forces there.

It would seem that our best chance would lie with a completely armored force, immediately available, which would be capable not only of counterattack, but of a counteroffensive. At any rate, since we will not have unlimited space to swap for time in any theater in which we are likely to fight, the theory of mobile defense as it is now understood needs to be revised.

In studying the last war, in trying to find its real trend and meaning, too many of us are ready to accept the actions of a couple of American armored divisions in Europe in 1944 as the only tank actions on a grand scale of the entire war.

In the Advanced Course at Fort Knox, the German invasion of France is mentioned only briefly. Of that long, shifting tactical struggle over the wasteland of Africa between General Rommel and the succession of British commanders, only the battle of El Alamein is treated in detail, while the great tank battles between the Germans and the Russians on the Eastern front are not covered at all! The German generals considered these battles extremely significant. Certainly we stand to profit from a study of this fighting in Russia. Aside from tactical lessons implicit in these battles, we could learn something of the methods of a potential enemy.

Since the war, our Army has undergone some important organizational changes. Some of these changes are now of questionable value. Perhaps the most interesting change from an Armor point of view is the addition of a tank company to each infantry regiment and a medium or heavy tank battalion to the infantry division. Presumably, this was done to provide antitank protection for the infantry and may have been justified when the antitank weapons of the individual soldier were so very inadequate. With the improvement of these individual antitank weapons—improvements so great that some infantrymen now consider the tank obsolete—there is hardly sufficient need to justify tying up the equivalent of two tank battalions in the antitank defense of each infantry division. The improvement of antitank weapons should release the tanks from the obligation of close support and antitank protection of the infantry.

Some infantry regimental commanders with considerable experience in Korea are quite in agreement that the regimental tank company is a burden which is not profitable. They base their opinions on the inability of the infantry to maintain and supply the tanks. The logistical requirements of the tanks of the infantry division have been too great for supply elements which were not designed to support so heavy a unit. Are the infantry divisions to continue to "make-do" with this organization or will we make the required organizational changes?

The theory of the employment of these regimental tank companies has undergone some interesting changes since we entered the fighting in Korea. When first given some tanks of his own, the infantry commander ignored the advice of tankmen and insisted on splitting his tank company into sections and in some instances single tanks. Thus, dissipated, the individual tanks became close support artillery, and nothing more. With experience, the infantry commander gradually became converted, until now the tanks are more often employed as a unit, the integrity of platoons and companies being maintained wherever the terrain permits their employment at all. The development of this tank sense in the infantry is gratifying and it leads us to consider the feasibility of combining the regimental tank companies as another tank battalion. With three regiments of infantry and two battalions of tanks, the infantry division commander would actually have *more* tactical flexibility than he has now. These units could then be combined into infantry-heavy or tank-heavy combat teams to fit the mission, the terrain and the enemy situation.

In other words, if the Infantry Division were organized along the lines suggested, the power of the tank units would not be dissipated, nor would the lightly equipped infantry units be saddled with the burden of supplying thousands of gallons of gasoline and tons of ammunition. The tank battalion would be logistically self-sufficient.

Whatever solution to this problem is eventually adopted, it is a problem which must be solved.

We, in Armor have things to do. While we have made improvements in the armored personnel carrier since Warld War II, we have made little progress toward a completely armored force in which all vehicles will have the cross-country trafficability of our tanks.

The trend of the present and the possibilities of the future have been pointed out with magnificent clarity by B. H. Liddell Hart, who concludes that, "Armored Forces have not 'had their day' because, in the real sense, *they have not yet been tried.*" He points out that, while the combat elements of our present armored division can leave the road and maneuver to avoid obstacles and road blocks, our "wheel-borne tail" cannot. He further contends, and anyone who has seen an armored division on the road would not deny that there is a "fatal disproportion between the number of vehicles in the combat echelons and the supply vehicles." We have had six years to work out a more streamlined organization. We still do not have one.

There are certainly improvements that can and should be made in tank design. These improvements must be worked out now because in time of war the pressure is too great and, for better or worse, we are likely to fight the next war with whatever tank is in production at the time the war occurs.

We still have no planes capable of transporting tanks. When an atomic-powered plane becomes a fact, this problem should be solved and we can develop airborne tank battalions to participate in airborne operations.

We in Armor are badly in need of a prophet of the stature of Chaffee, who, realizing our potential, and confident of our future, can present our case in the counsels of the mighty. Such a prophet will need the patience of Job, the fervent faith of a monastic saint, the stern impregnability of Gibraltar. But the objective is worthy of the effort required, for in saving Armor he may be saving this country.

HOW WOULD YOU DO IT?

AN ARMORED SCHOOL PRESENTATION **AUTHOR MAJOR G F SAWYER**

SITUATION 1. You are a tank company commander operating in rolling terrain. You are having difficulty communicating by radio with your platoons from your present location. Communication has been good until you halted in these hills. The platoons should be well within normal range. ***What would you do?***

SITUATION 2. The battalion is preparing to attack in two hours. You, a tank company commander, are issuing your attack order to your platoon leaders when a radio message is received to withdraw immediately. This is a completely unexpected reversal of plans, and you can't believe it. ***What would you do?***

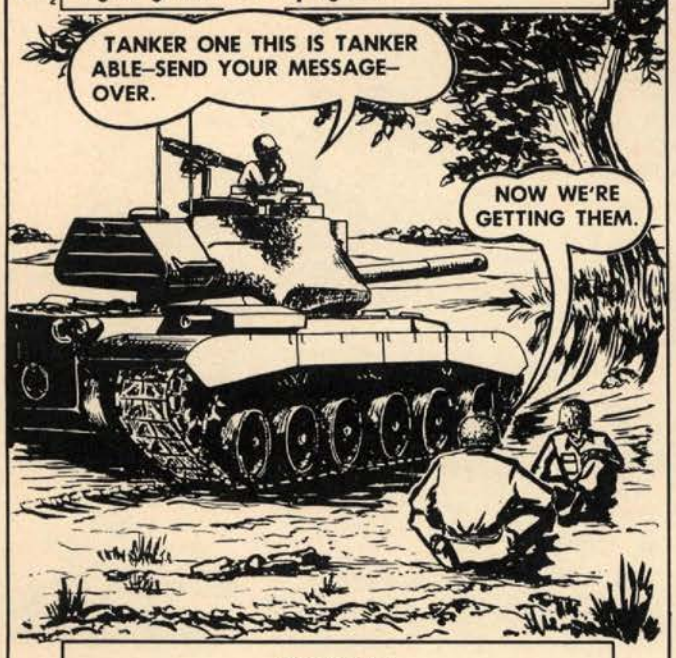
SITUATION 3. You are battalion commander of the lead battalion in the combat command. You have been promised column cover from the Air Force for an exploitation mission. A tactical air control party has just arrived and reported. The forward air controller wants to know where to ride. He must have communication with both ground and air forces.

What would you do?

SITUATION 4. You have recently taken command of a tank company at Camp Patton, in southwestern USA. Most of your personnel have only a few months' service. None of them have the necessary training for communication chief or radio mechanic.

What would you do?

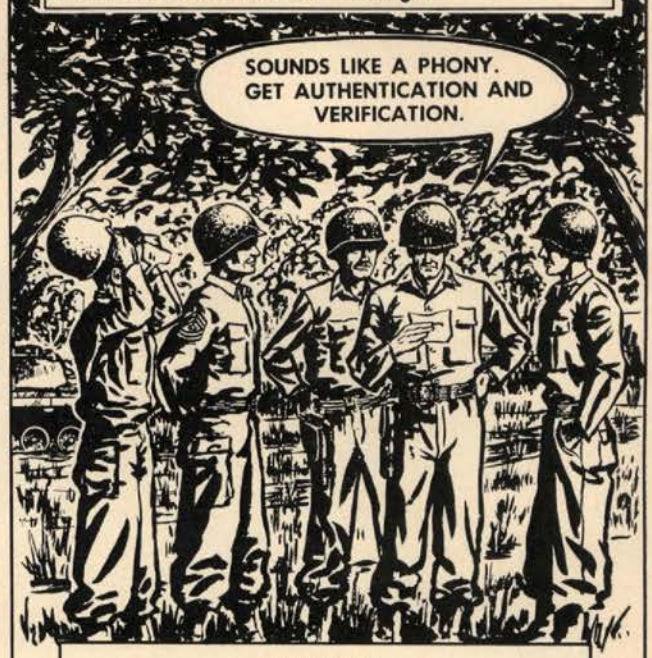
SOLUTION 1. Move your tank a short distance to higher ground and try again.



DISCUSSION 1

THE TANK RADIO HAS LINE-OF-SIGHT TRANSMISSION CHARACTERISTICS. AS THE PLATOONS ARE BELIEVED TO BE WITHIN RANGE, THE DIFFICULTY IS PROBABLY DUE TO INTERVENING HILLS OR DEAD SPOTS. MOVING THE TANK A SHORT DISTANCE, PREFERABLY TO HIGHER GROUND, SHOULD REMEDY THE TROUBLE.

SOLUTION 2. Ask for authentication of originating station and verification of message.



DISCUSSION 2

THIS MESSAGE MAY HAVE BEEN SENT BY THE ENEMY. WE USE AUTHENTICATION TO DETERMINE WHETHER A STATION IS FRIENDLY OR ENEMY. THIS MESSAGE MAY NOT CONVEY THE ORIGINATOR'S INTENTIONS FOR THIS PARTICULAR UNIT. VERIFICATION WILL REQUIRE THE ORIGINATOR TO COMPLETELY RECHECK THE MESSAGE FOR PROPER ADDRESS AND INTENT.

SOLUTION 3. Tell the Controller to ride in the battalion headquarters tank equipped with an Air Force Radio Set, AN/ARC-3.

DISCUSSION 3

EVERY TANK BATTALION IS AUTHORIZED AN AIR FORCE RADIO SET, AN/ARC-3, FOR INSTALLATION IN ONE OF THE THREE HEADQUARTERS TANKS. IT PROVIDES THE NECESSARY AIR-GROUND COMMUNICATION. EACH TANK HAS A RADIO SET, AN/GRC-3 (SCR-508 AND AN/VRC-3 ARE AUTHORIZED SUBSTITUTES FOR GROUND COMMUNICATION). THESE RADIOS PROVIDE THE NECESSARY COMMUNICATION FACILITIES. THE TANK PROVIDES CROSS-COUNTRY MOBILITY AND ARMORED PROTECTION AND ENABLES THE AIR CONTROLLER TO MOVE WITH THE BATTALION (OR LEAD COMPANY) COMMANDER.

SOLUTION 4. Obtain quotas for Communication Chief and Radio Mechanic Courses at The Armored School. Carefully select the individuals to attend.

DISCUSSION 4

OBTAIN THROUGH HIGHER HEADQUARTERS QUOTAS TO ARMORED COMMUNICATION CHIEF AND ARMORED FIELD RADIO MECHANICS COURSES AT THE ARMORED SCHOOL. SELECT MEN TO ATTEND WHO ARE INTERESTED. THEY MUST BE ABOVE AVERAGE INTELLIGENCE AND SHOULD HAVE A BACKGROUND IN ELECTRICITY OR COMMUNICATIONS. DETAILED PREREQUISITES, DESCRIPTION, AND LENGTH OF COURSE MAY BE FOUND IN THE ARMY SCHOOL CATALOG. (DA PAMPHLET 20-21, AUGUST 1951.) THESE COURSES START AT FREQUENT INTERVALS. COMMUNICATION OFFICER COURSES ARE ALSO AVAILABLE.

CLIMAX OF WAR—DOOM FOR A TYRANNY

CLOSING THE RING. By Winston Churchill. Vol. 5., 749 pp. Houghton Mifflin. $6.

Reviewed by DR. ROGER SHAW

One simply cannot escape the long-known fact that Churchill is a controversial character, both at home, in America, on the Continent, and in the "colonies." He has had his ups and downs, his special "down" being the first World War. He had another bad "down" in 1945, and now he is "up" again. By and large, the American and Canadian publics like him; Continentals and a considerable proportion of English, including some Tories, like him less; Irish, Indian, Persian, Egyptian, etc., patriots like him still less; and so it goes.

The Churchill style may have been derived from the really great historian and pungent proponent, Hilaire Belloc; in fact, in part at least, it probably was. It is mannered, highly styled and even distorted, "affected," and most attractive to large numbers of readers, like the man himself. There is a melodrama and brag about this literary and forensic manner, and it is part and parcel of the whole picture. It opens: "Moral of the Work —in war, *resolution;* in defeat, *defiance;* in victory, *magnanimity;* in peace, *good will.*" All this reads very well, and the peculiar thing is that Churchill has pretty well lived up to these four precepts. He has certainly been the best sport among the winners; he was the most defiant among the losers. "Theme of the Volume: how Nazi Germany was isolated and assailed on all sides." Contents of Book 1: "Italy won." Contents of Book 2: "Teheran to Rome."

His "Gathering Storm" was somewhat I-told-you-so in tone, and is the first of the long series. His "Their Finest Hour" is a tribute to the English people and aviators of the Blitz, with trimmings and ramifications. "The Grand Alliance" tells of Lease-lending of sometimes questionable memory; of the German invasion of Russia in June and after, 1941; and of the Pearl Harbor operation, about which some people are still groping in the dark and would like to know a bit more than is vouchsafed them. "The Hinge of Fate"—these are all good, flamboyant titles—starts with beatings, and slides cheerfully into victories at El Alamein, Stalingrad, Pacific Midway, and in Morocco—Allied triumphs for the English, the Russians, the U. S. Navy and its adjuncts, and the military Americans. And so the "crimson tide" turned, as it had at Orleans, at Rocroi, at Saratoga, at Gettysburg, and in July of 1918.

This *fifth* volume, a really stupendous work, coming after all the others, is much better than Eisenhower's book, but perhaps not as good as that model 2-volume military memoir by Ludendorff which came out in 1919. Churchill might, if pressed, admit this, for to serious students of military history the Ludendorff job was, if not literary, yet unsurpassed. "Closing the Ring" goes roughly from June of 1943 to June of 1944, and runs till what is known as D-day. In

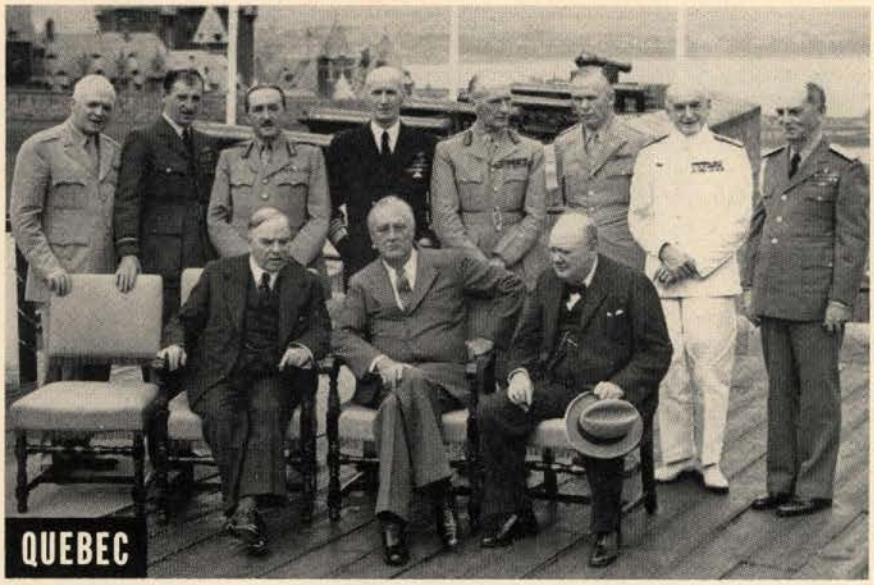
The Author

Winston Churchill has served in public life for a half century. Member of Parliament in his twenties and a cabinet minister before reaching 40, his fifth volume on World War II appears as he enters his second term as Prime Minister and his 77th year. Perhaps as much as any other man he deserves the title so often awarded him—that of Man of the Century.

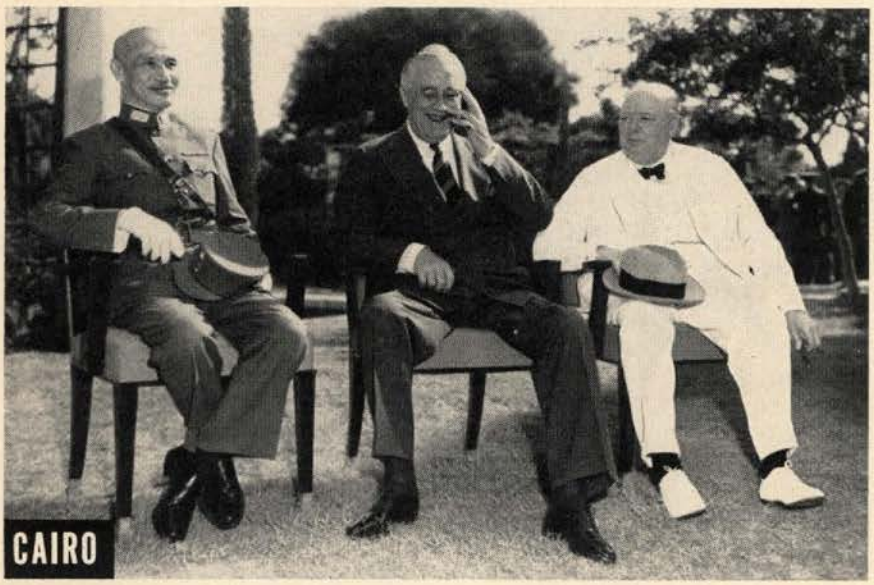
The Reviewer

Dr. Roger Shaw, political scientist, is Professor of International Relations at Trinity College in Hartford, Connecticut. A former foreign editor of *Review of Reviews* and the *Literary Digest*, he is a regular contributor to European and American magazines, and is author of many books, including *Handbook of Revolutions, 175 Battles,* and *Outline of Governments.*

YEAR OF CONFERENCES



QUEBEC



CAIRO

TEHERAN

this book are included the Sicilian campaign following the German withdrawal from North Africa; the fall of Mussolini and the Fascist regime which had been in power since October of 1922; the Quebec Conference, and then the Italian surrender which sought to "ditch" the plugging German allies (who refused to be ditched and with a will).

Also are included the gathering of the foreign ministers and diplomats in Muscovy, where many were taken in or else jumped on the currently fashionable bang-buggy; the Cairo Conference; the initial klanklave of the so-called Big Three at Teheran; and the still mooted question of the Anzio Beachhead in the Italic war. (The morals and methods of Anzio, and of a certain American commander, will be on tap among veterans and commentators many a year from now, and it is senseless for this reviewer to go into it. Somehow, a certain general will live it, or die it, down.)

Churchill's disposition was not improving, apparently, as they all were Closing the Ring. He was perhaps tiring of the Americans, and his sense of doom (in connection with the Russian New Dealers) may have motivated a certain contentious bitterness. Further, Churchill is essentially a man of the Right, and in fighting the extreme Right, he could hardly be expected to feel the same virtuous frenzy as a Left-centrist or extreme Leftist would experience. He had held good opinions of Mussolini, and Blackshirt's chief crime was perhaps in opposing England and France instead of knifing the Germans as he had helped materially to do in May of 1915 (when he still edited the *Popolo d'Italia* up in Milan). But then, it was not really an ideological war for Churchill, who is no hypocrite, and who doubtless realizes that limited wars for limited objectives are far more advantageous than "unlimited" and "totalitarian" crusades for vague and debatable goals which liberate no one except the dead, and which impose the peace of the graveyard.

The American chieftains, it seems, had a great tendency to side with the Soviets against the English, who had declined from being the "only" Ally to being the "least" of the Allies. The squabbles about "Overlord," the unfortunate title for the invasion of

France in June of 1944, are somewhat glossed over in this book, for Churchill—if he did not really oppose the Channel crossing—at least was bearish and wanted the job postponed. He was ever fascinated by Mediterranean and "soft-under-belly" operations, going back to the Dardanelles in 1915; and going back to the Dardanelles, or anything like it, was precisely what nearly everybody among the Yank and Russ bigwigs wanted to avoid—*and how,* as the expression goes! Just the same, Churchill may very well have been right—this time.

The reviewer somehow gathers that Churchill was not quite as fond of Eisenhower as some would have us believe. Eisenhower's opponents, who are numerous in some military echelons, often say he was a push-over, but Churchill possibly did not find him quite as "pushy" as he would have liked, especially for operations at the eastern end of Churchill's *Mare Nostrum.* Churchill well remembered the "frightful" English losses along the Somme in 1916 and 1917, and the "stupid" tactic of always hitting the enemy at his strongest spot: a relic of Clausewitz much relished in American, French, and German circles. Further, Churchill had not fought Stalin and the Russian Revolution for nothing in 1918-21; he did not, presumably, care to open a tailor-made "second front" merely to save pink people he had formerly sought to overthrow and pulverize. It must be stressed again that though Churchill never permits ideology to stand in his way, nevertheless what ideology he has is strongly Rightist and no nonsense about it. He is not one to say that fascism and communism are exactly the same thing when diametrically opposite social classes and forces control them.

Churchill also acts as Cupid in this volume, for he helps engineer the wedding nuptials of the little exile monarch of Jugoslavia, poor petit Peter. For various reasons of "State," the brass and elite and schemers wished to act out "Eighteenth-Century" dynastic politics in this silly little matter, and good old Churchill would not go along. He says let the kids marry, for Louis XIV is deceased, by golly, and we are living in the "lusty squalor of the Twentieth Century." Since Churchill's ancestor, curly Marlborough, worsted Louis XIV, it was Churchill's atavistic pleasure to worst those who carried on the "Louis XIV" tradition and, in short, pauper Peter wed as he pleased. Here, Churchill uses the American phrase, "So what," to express flippancy, probably forgetting that it was a Teuto-Judic idiom out of the Bronx and more suited to the North Poughkeepsie neighborhood than to that of No. 10 Downing Street.

The appendix material is really fascinating in this masterful work, and its coverage takes in a great deal of interesting minutiae as well as false starts and grand slams. Also, somewhere between the lines, the Roose-Church affection seems to begin running thin as the left wing of the New Deal gains ground and paves the way to Yalta and the "next war." Elliott Roosevelt, in his really epic book, epic only in its perhaps accidental disclosures, serves to confirm this half-suspected trend, and England increasingly comes to occupy the position that Prussia had taken at the Vienna Congress (1815) and during the Hundred Days (1815)—*least* of the Big Four and least regarded. Many English still smart under this, remembering the English status of late 1940 and early 1941, and it might be suspected that Churchill is among them.

Churchill is good on the war at sea, and in relation to the Battle of the Atlantic and the U-boats. In early 1943, things looked black indeed, with ship losses sky-high; but by mid-year the sinkings had come down (over 500,000 tons in March; circa 20,000 tons by June, 1943). Here was good news for an island so dependent on the alleged Arsenal of Democracy. As to the grim and ugly Pacific war, so unlike that of Europe, Churchill declares in Churchillian manner: "Long may the tale be told in the great Republic." But the great Republic, alas, has other tales to tell at this writing, and many of them are highly unsavory, as Churchill might be able, if pressed, to help relate.

The best book on the war, to date, is the English Major General J. F. C. Fuller's modest little *Second World War* (Duell, Sloan, and Pearce, 1948). It is not literature of a sort like the *Naked and the Dead,* nor is it literary like the Churchill memorabilia, nor is it meant to please the reader, blessed be its name. It is merely supreme in its field. But there is something pretentious about these Churchill books, and they are supposed to come from the horse's mouth, as the expression goes. They are great in magnitude, and by a "do-er" who is also a "Belloc." Like all memoirs, they approve of their author and disapprove of his opponents, unless these be on the fair field of fight. Churchill deserves much credit for various things, and among them is "Closing the Ring," opus no. 5 in a meaty and meticulous martial series.

The Machine Gun

By Lt. Col. George M. Chinn, USMC

Volume One of Three Volumes

The history, evolution and development of Manual, Automatic and Airborne Repeating Weapons.

Prepared for the Bureau of Ordnance
Department of the Navy

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With an introduction by Samuel E. Morison

This is the first full account of the basic operation on which the Normandy invasion of 1944 depended for success. It ranks as one of the greatest military construction projects ever attempted in war—the building of the complete piers and breakwaters of an artificial harbor for the beaches of France—both the American Beach Omaha and the British Beach.

$3.50

The Seizure of TINIAN

By Major Carl W. Hoffman, USMC

The eighth in a series of operational monographs covering Marine Corps operations in World War II. This is the story of how the Marines surprised the Japs by landing on two small beaches well away from the prepared defenses of the one large beach considered suitable for a major amphibious landing —and the failure of the enemy to reduce the beachhead, followed by the nine-day push that led to Tinian's conquest.

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A Foreign Policy For Americans

By Robert A. Taft

This is the basic premise of a book which presents the theories of a prominent statesman, Republican party leader, and potential presidential candidate, on the vital subject of United States international relations.
Here is an up-to-the-minute statement of Senator Taft's views on events which are happening now, aired as informally as in an off-the-record chat. A major portion deals with the Russian menace, how it was created, how it is to be dealt with at home, in Europe, in the Far East, and throughout the world.

$2.00

Soviet Staff Officer

By Ivan Krylov

Captain Krylov was a Red Army Staff officer. His book covers the period between May 1940 and May 1945. Although he at one time enjoyed the confidence of Voroshilov and high officials of the Army, the Politburo, and on one occasion of Stalin himself, he was later demoted to the rank of sergeant. He served in the front line at Kremenchug and Poltava and was decorated with the Order of Lenin.

$3.75

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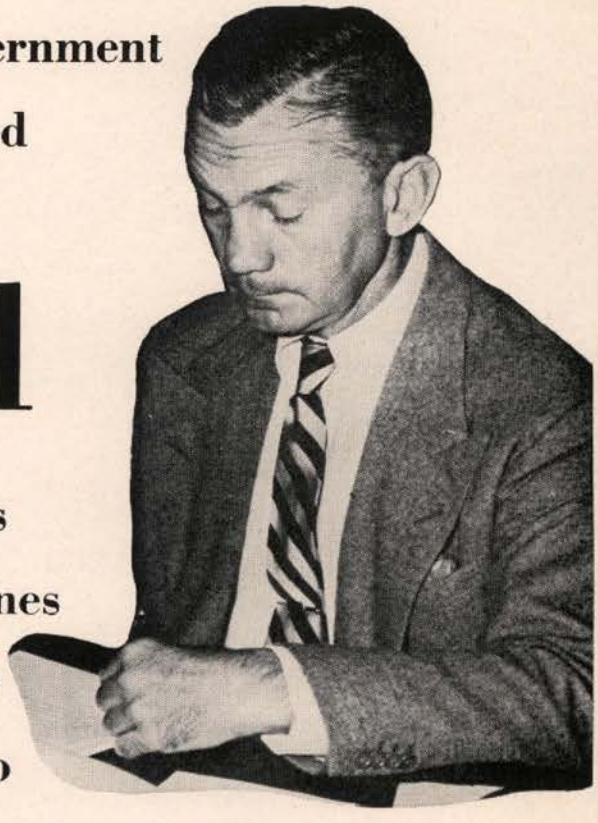

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