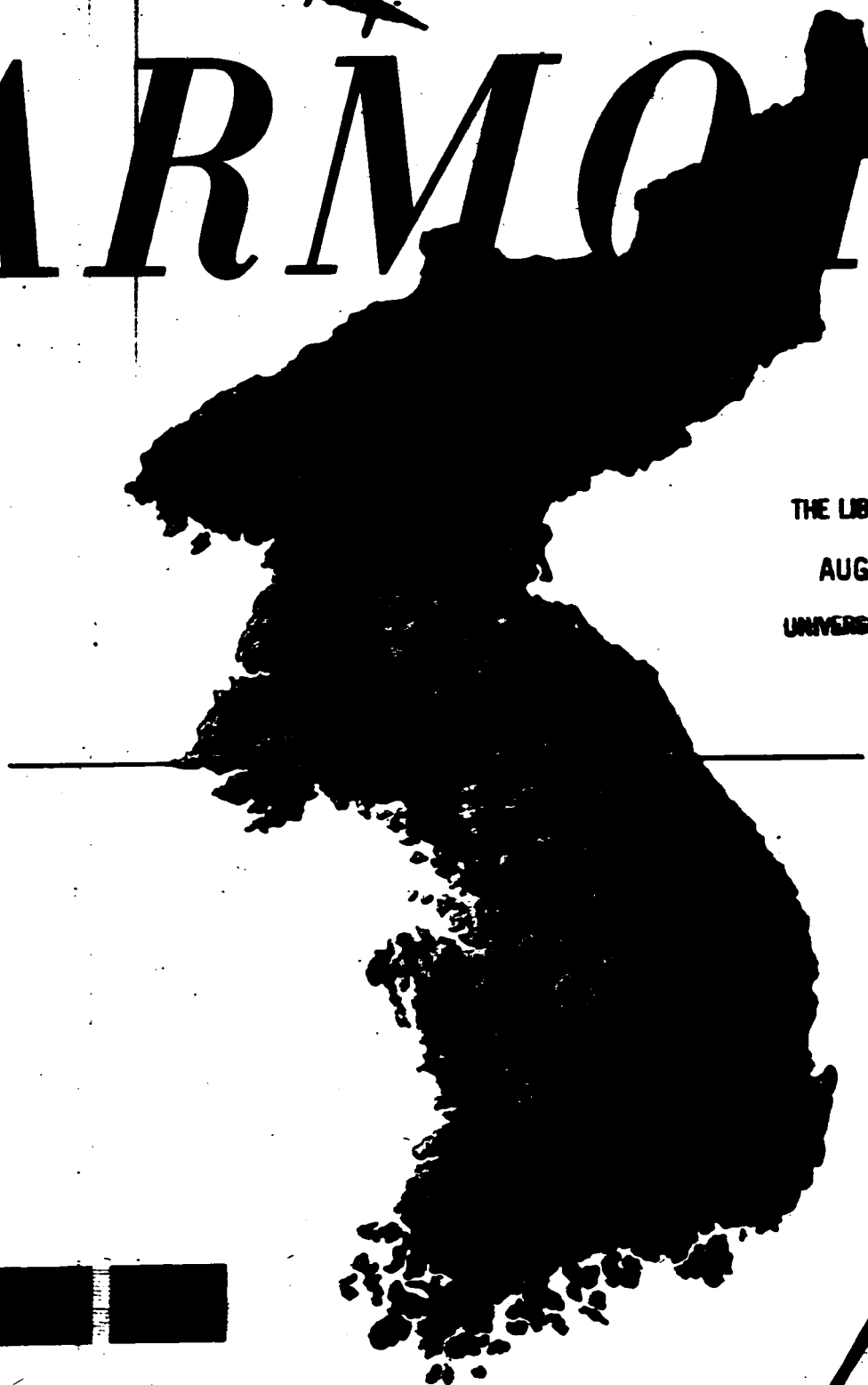
ARMOR



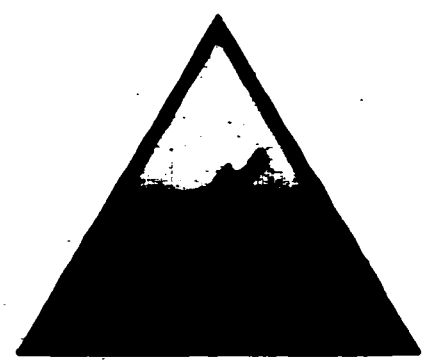
United Nations Defensive: Jun 27 to Sep 15, 1950

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

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ARMOR

Continuation of THE CAVALRY JOURNAL

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Volume LX JULY-AUGUST, 1951 No. 4

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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 most 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 poses 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:

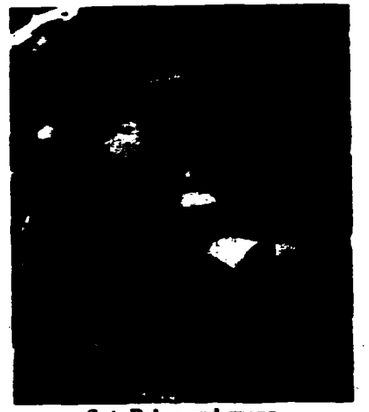
The January-February issue of your magazine contained a picture, on the inside front cover, of three Americans interrogating captured Red Koreans. It shows an American sergeant on the left with a carbine on his shoulder.

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.

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.

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.

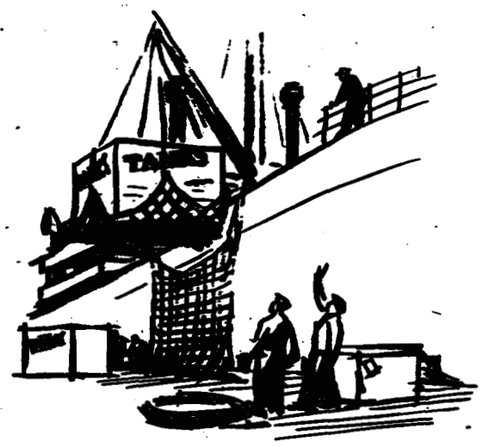
LT. COL. J. C. NOEL
Weapons Department
The Armored School
Fort Knox, Ky.

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.

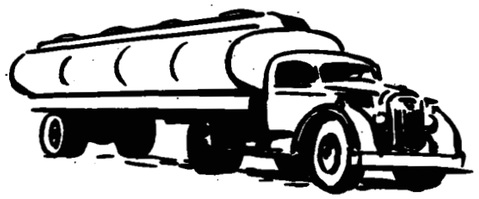
In an effort to conceal the thunder, these weapons were crated in England and shipped to the Continent bearing the stencil "TANKS." The wily individual who conceived the deception probably had no idea that the name would stick, any more than he realized what he was letting a lot of people in for.

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, artillery-

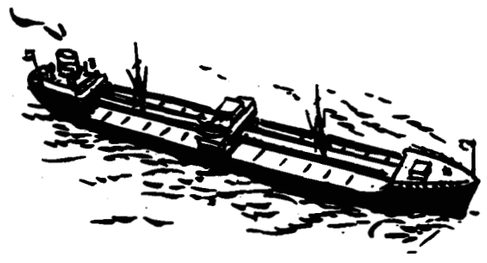


men, etc. Therefore, this title armormen isn't so bad; perhaps it is the lack of usage and familiarity that makes it seem strange.

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 desig-

nation, 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

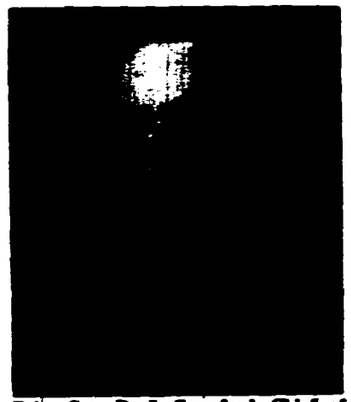
Modern warfare's tools of mobility—so essential to success on the battlefield—cannot be produced on a moment's notice. Only a sustained peacetime program will insure the availability of superior weapons of mobility at the moment of need. The Chief of our Tank-Automotive Center sets the record straight.

RESEARCH • DESIGN • APPROPRIATIONS • DEVELOPMENT • TESTING • TOOLING • PROCUREMENT • PRODUCTION

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 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."



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

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 over-water 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.

The designers are important men. L to R: William J. Brown, Joseph Prenke 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.

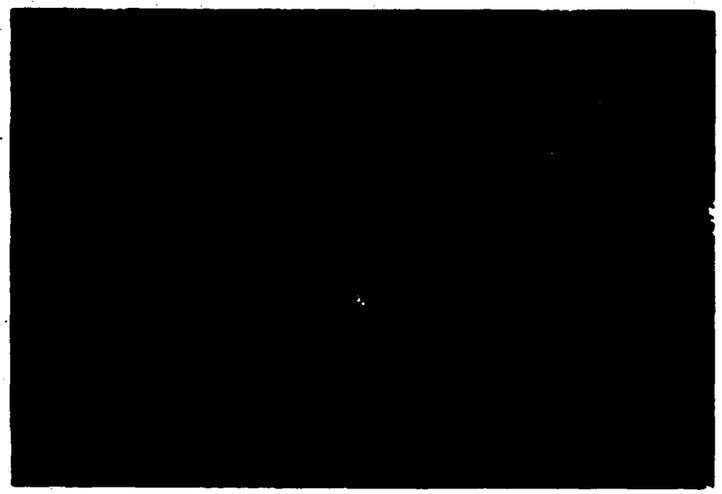
When a requirement is laid down, there are many things to consider before too much of the job is committed to paper. (We are talking of fairly normal times rather than wartime pressure.) It will take time for engineers and Ordnance Committee members to meet, discuss, and decide precisely what conditions 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 sepsicate 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 dimen-



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

sions 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.

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.

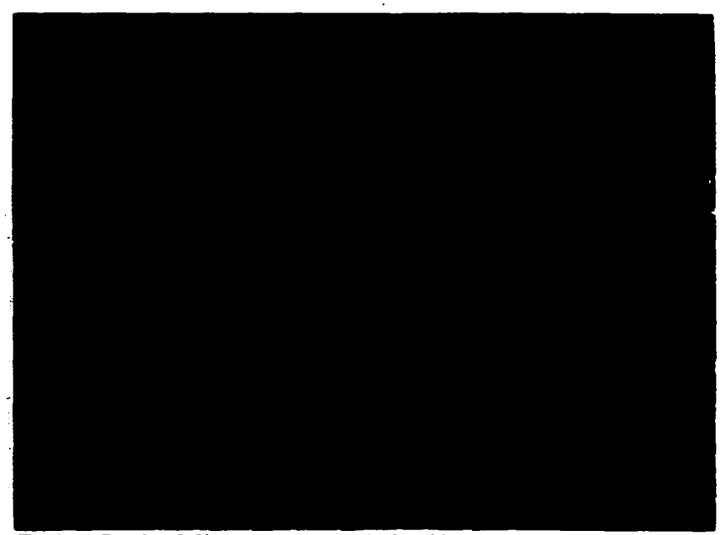
Our budget estimates always take the long-range view. They are begun at least a year ahead, and considerable work is necessary to put them in shape for presentation to Congress. They must be realistic in every respect, for it is the duty of the services to see that everything will serve the best interests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

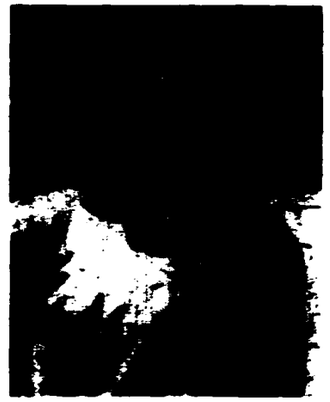
We do feel that, eventually, our very close approach to perfection, which takes so much time and adds so much to the complexity of our tanks, will repay us in good measure. It is our firm belief that we may yet create that tank, of something less than heavy-gun size, which will make the behemoths of 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. Commuso

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 reconnaissance 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:

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.

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 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.

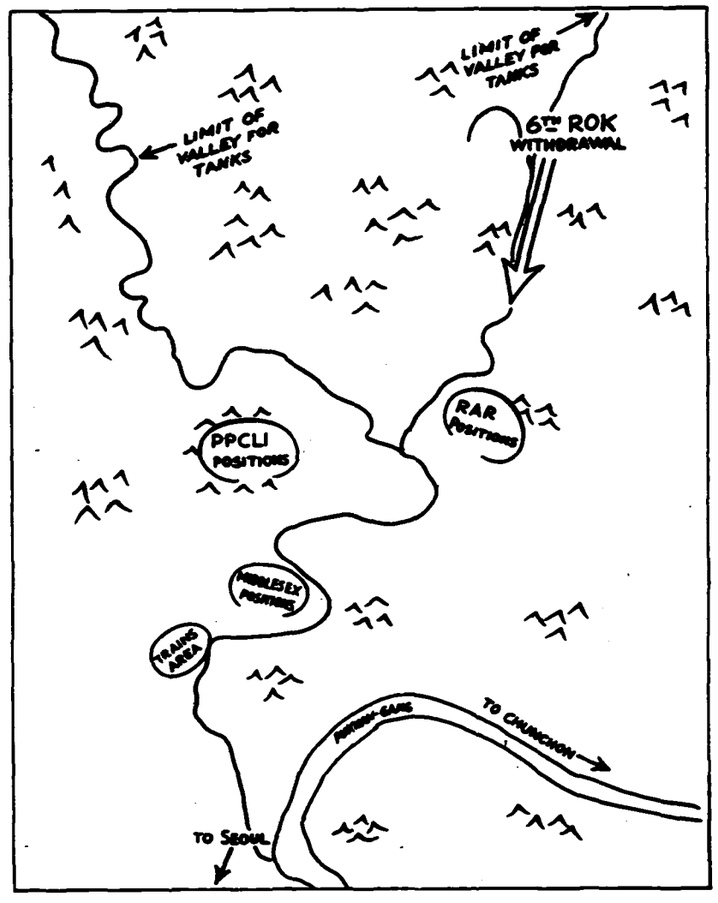
At dawn the Reds began to withdraw. As they attempted to pull back along the west of the hill mass around which they had attacked the night before, the 1st Platoon opened fire. This placed the enemy force in a crossfire from sixteen tanks for, by this time, the three tanks of the 4th Platoon had returned 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-



Lt. Col. George B. Pickett, Jr. served with the 11th Armored Division in Europe in World War II. He left on 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.

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. Ferguson, riding as loader in Lt. Miller's tank, directed them up to the surrounded positions. There Lt. Miller picked up Australians 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.

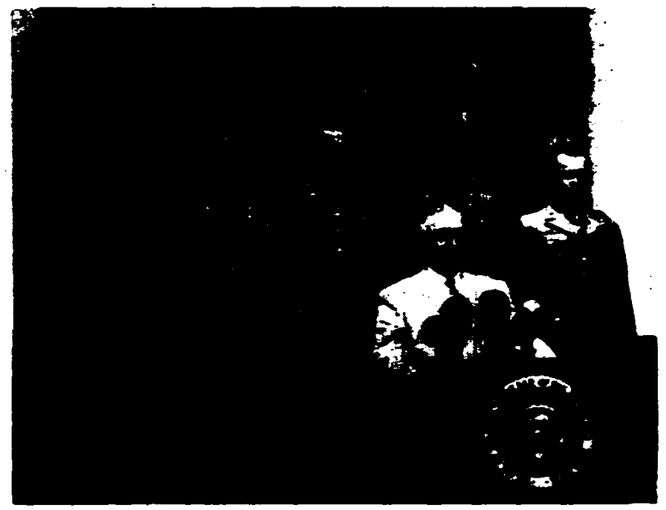
6. Tanks employed on the MLR are very effective against enemy personnel in the open.

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 . . . . . .WE HAVE A LONG WAY TO GO

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.

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.

M Sgt Chase

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!

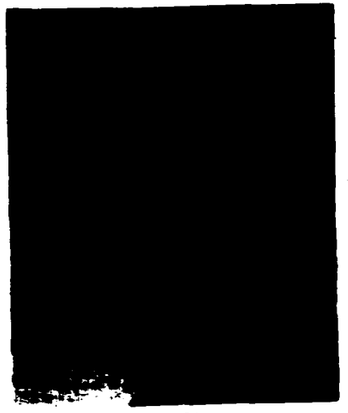
M SGT NATHANIEL GAGE CHASE, JR.

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, discipline 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 Zehner

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

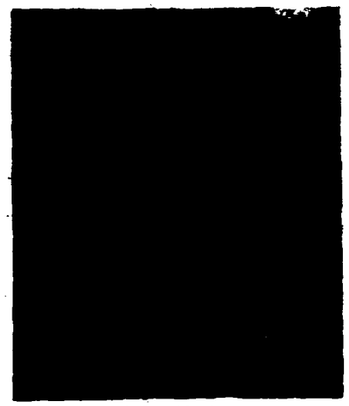
The writer of the following served in Europe during World War II with the 79th and 29th Infantry Divisions, in the Normandy, Northern France, Central Europe, Ardennes and Rhineland campaigns. He has been trained as a reconnaissance leader and radar operator. A member of the 3d Armored Cavalry Regiment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



M Sgt Marlette

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

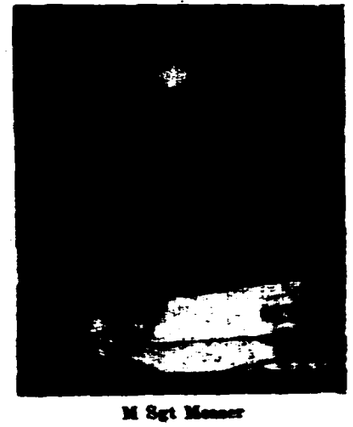
The writer of the following enlisted in the Army in 1930. During his career he has had ample experience as a platoon sergeant and first sergeant, and he has nearly seven years' experience as a sergeant major at battalion and regimental levels. Now Regimental Sergeant Major of the 3d Armored Cavalry Regiment, 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 Mussen.

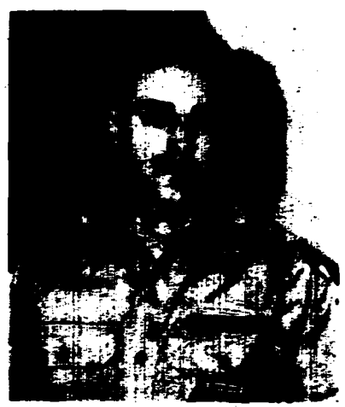
The writer of the following has a long record of service overseas. He has forty-seven months to his credit, most of which time was devoted to the 63d Infantry Division and the U. S. Constabulary in Europe, and wears the Bronze Star Medal and the Combat Infantry Badge. As preparatory training for his 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-

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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 distance 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.

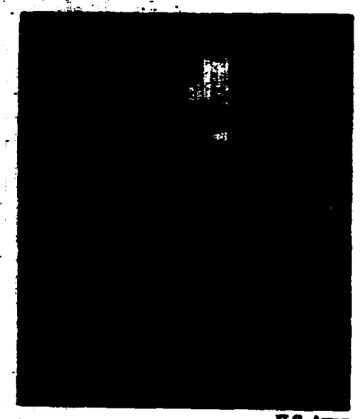
"When Stein met Madame de Stael (famed literary lady), these two choleric natures were so overwhelmed by their common cordial hatred of Napoleon that Arndt (the poet) saw them at tables and on divans, poking and ramming against each other in their excitement." Once Stein wrote a five-line letter to Gneisenau: "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 . . . . . ON ARMOR



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 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."

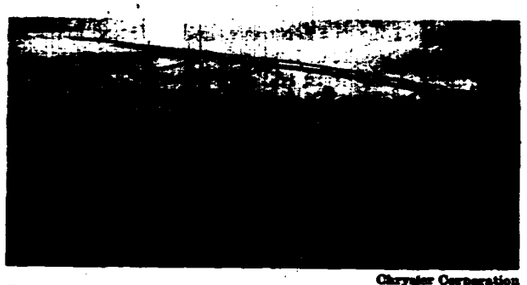
LT. COL. DUFF GREEN, JR.
73rd Heavy Tank Battalion

"... 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. BAUBAKER
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



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.

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.

Wide World

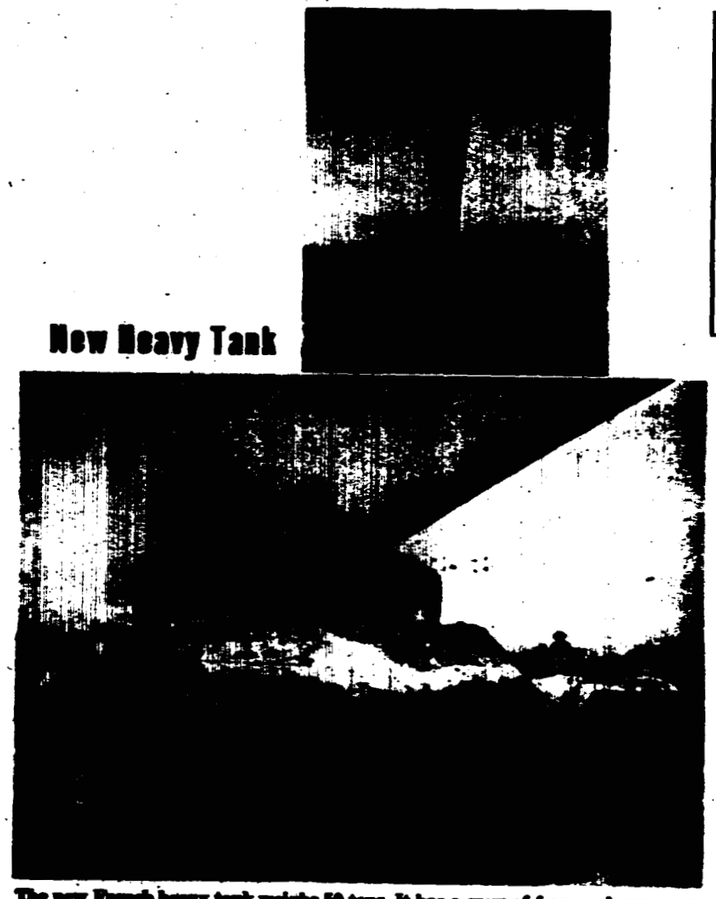
U. S. personnel inspect a new Russian made 57mm antitank gun recently captured in Korea, on the western front. It is said to be capable of penetrating 5½ inches of armor.

FRANCE TURNS OUT NEW LINE OF ARMOR

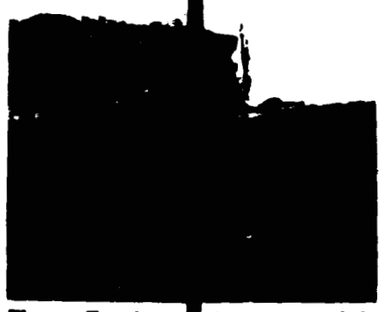
Since the end of World War II [illegible]oken in terms of "the Big Three armor-producing nations" in our [illegible]s of military strength around the world. Our consideration may [illegible]ed to "Big Four" as France joins the United States, Great Britain [illegible] in the important field of ground mobility with a complete new line [illegible] armor. The new weapons include two new tanks, self-propelled [illegible]nored car and an armored personnel carrier. Significant of an [illegible]octrine and a full appreciation of mobility, this new equipment car[illegible] a long step forward into the world military picture, and is of great [illegible] the North Atlantic Treaty forces.

Photos by S.C.A. and Wide World *All weights in metric tons*

New Heavy Tank

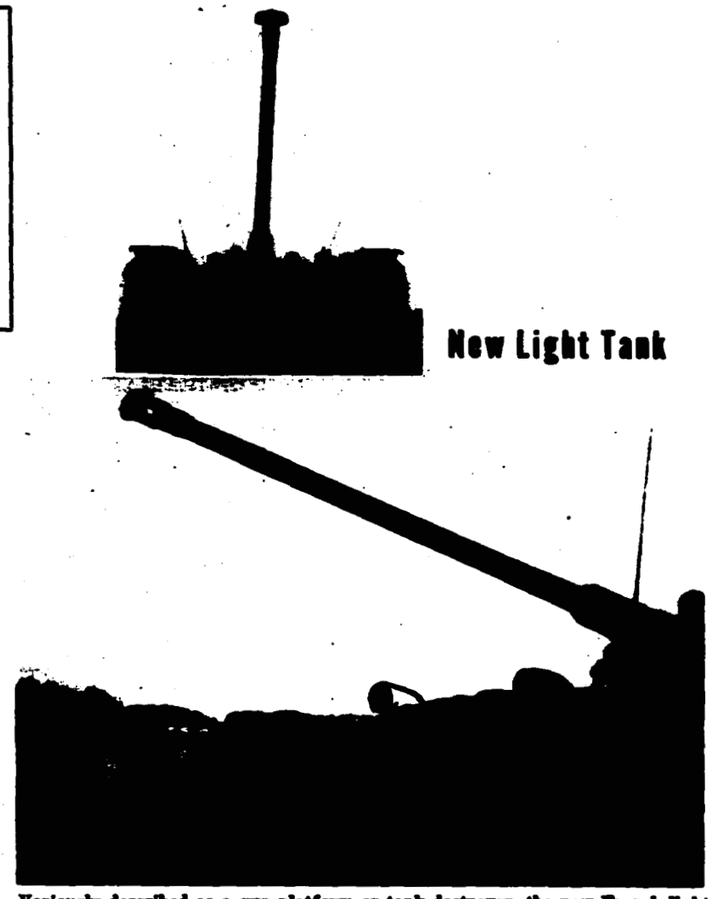


The new French heavy tank weighs 50 tons. It has a crew of four, and can mount a 100 or 120mm gun. Its 1,000 hp engine allows a maximum speed of 30 mph.



The new French armo[illegible]naissance car, made by the Panhard Motor C[illegible]y, is versatile over all kinds of terrain. It we[illegible]s and mounts a 75mm gun in a 360° turret. [illegible]fter and vehicle has a driver at each end, [illegible]un in either direction.

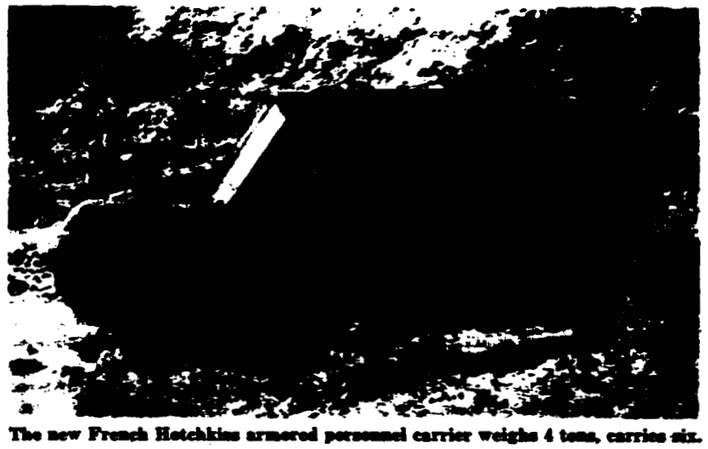
New Light Tank



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 ste[illegible]hile the two sets of center wheels are tractor type and retractable for road [illegible]er 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-pait 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

Soviet

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.

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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.

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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.

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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.

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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.

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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 guns. 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.

Russia's heavy tank, the JS-3.

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.

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.

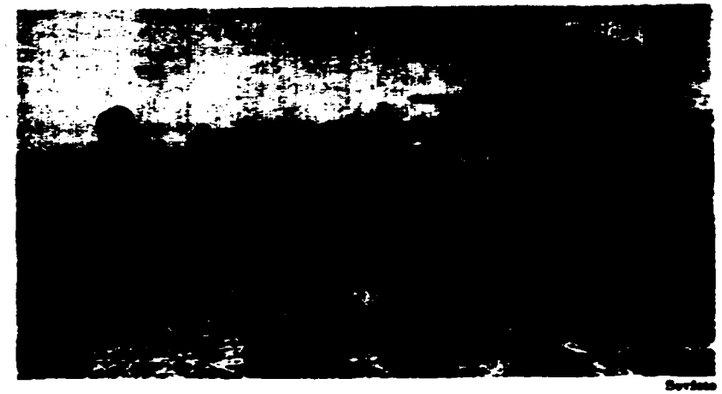
For some reason, the ability to use the terrain on the battlefield, which our soldiers and officers have to a high degree under most circumstances, does not seem to apply when they are shut up in tanks. They like to drive where the going is good, and such ground, as a rule, is on the hilltops or in the 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



Soviets

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 pursuers; 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.

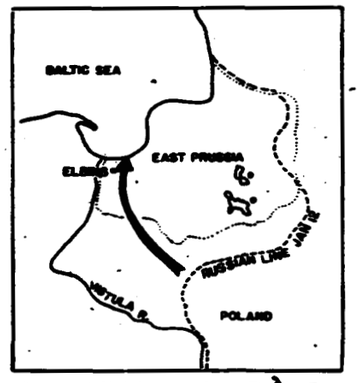
You may have seen an article written by a Colonel Paramonov in the Soviet *Armored Forces Journal*, in which he advocates ambushes during mobile defense, during breakthroughs, in preparing for an attack, after breaking through, during the pursuit (both daylight and dark), in an unexpected meeting with 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 Baltic 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 comperatively 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

[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


Soviets
Marshal Konstantin Rokossovsky.

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."

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

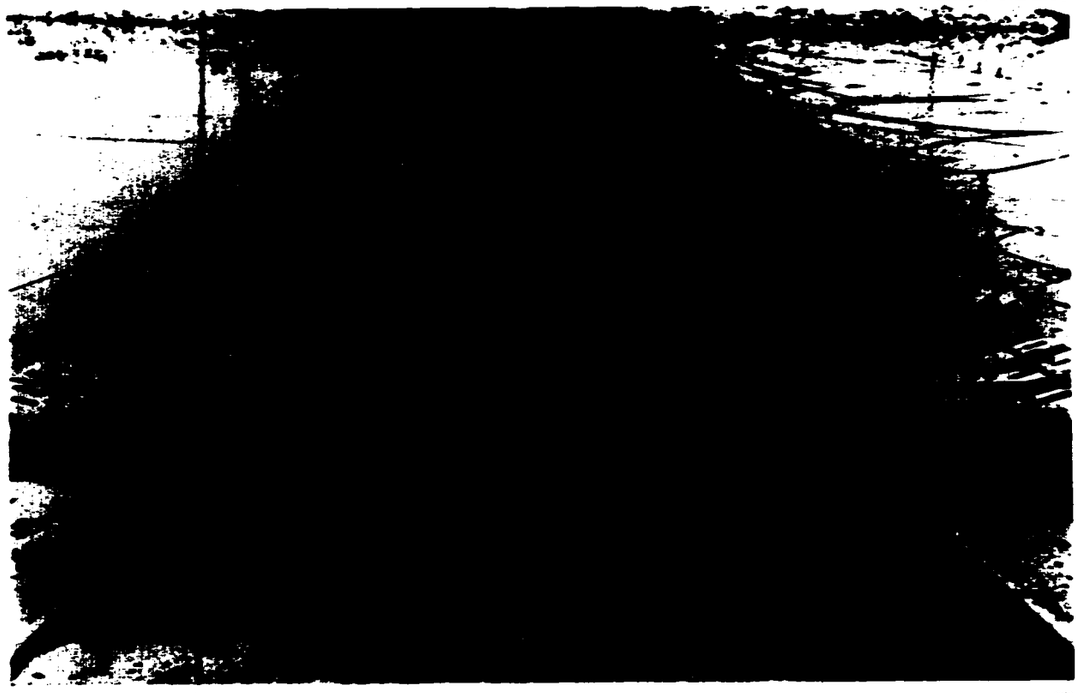
UNTIL the Division Tactical Bridge, now under development, is standardized and issued to troops, the Widened Steel Treadway Bridge will be the standard bridge for the armored division.

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 capability 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.

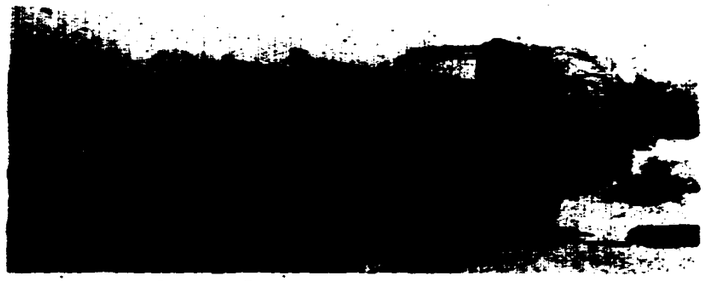
Each fixed section has three bridge trucks and a bolster truck. Each bridge truck carries 24 feet of bridge, and the bolster truck carries two trestle assemblies. Thus, in the fixed section, there is 72 feet of bridging which can be used in constructing bridges in multiples of 12 feet in length. The maximum gap that can be crossed by

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

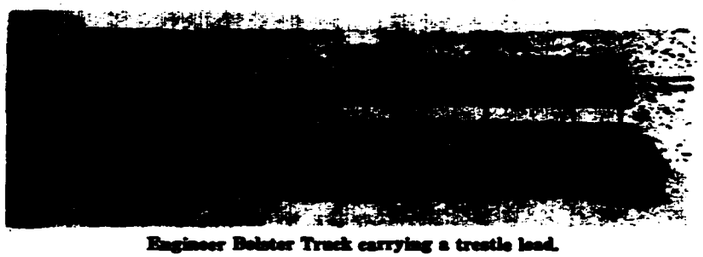
the Widened Steel Treadway Bridge without intermediate supports is 34 feet for normal armored division loads. Therefore, for gaps greater than 34 feet in length, intermediate supports are necessary. The two trestle assemblies carried on the bolster truck provide this additional support, and their use 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 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.

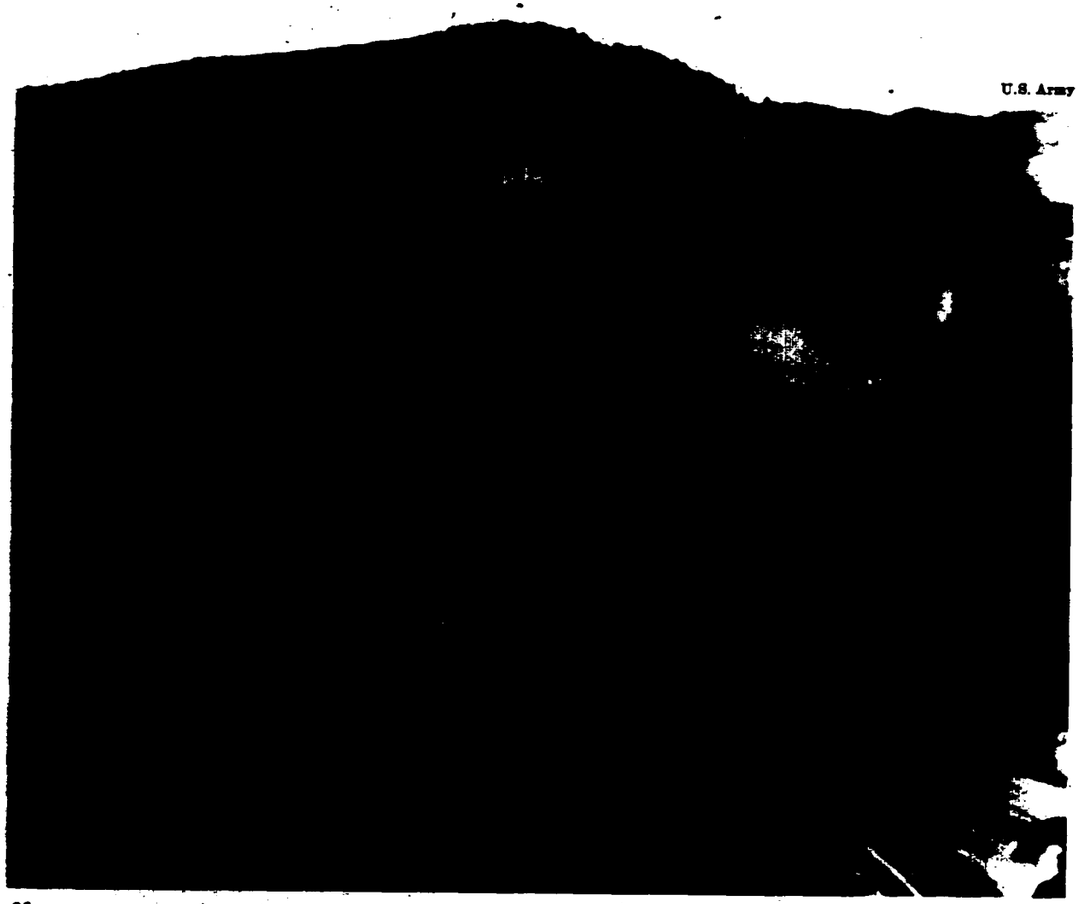
The final operation carried the brigade into the Trieste area at the head of the Adriatic, to meet Allied forces driving up the Italian peninsula.

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.

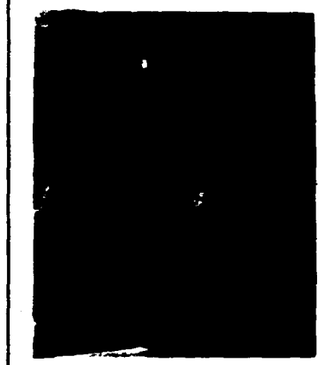
On September 23 the battalion was at Masan, attached to the 25th Infantry Division, when orders were received for Eighth Army's massive drive out of the Pusan bridgehead. The 25th was ordered to attack aggressively northwest, capture Chinju, and be prepared to attack north and northwest with unlimited objectives. The 89th was directed to form a tank-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

U.S. Army

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

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.

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

50 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.

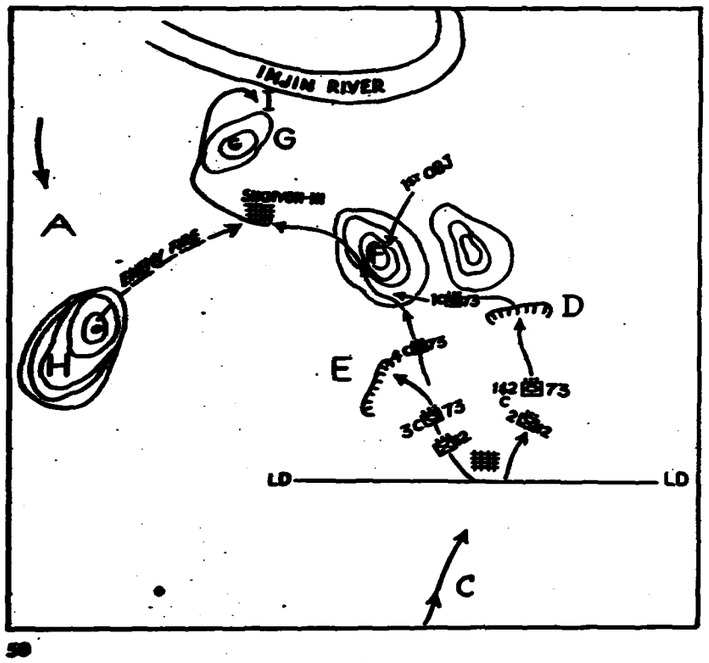
While the tanks advanced on Sikhyon, the infantry was being held up in its advance on G by the heavy fire there and from the high ground to the west. The 1st and 4th Platoons pushed northwest up the road from the town with the mission of outflanking the enemy on Hill G. When the two platoons, advancing 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.

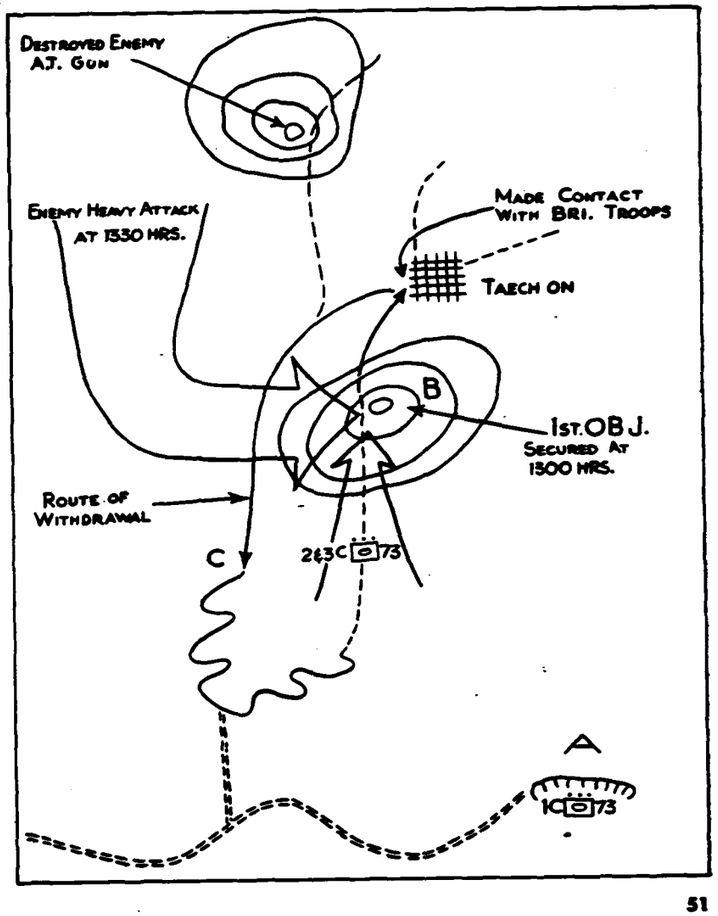
With the tanks acting as physical cover for the foot soldiers against heavy enemy fire, a withdrawal to friendly positions was begun. At 1330 a strong enemy counterattack from the west drove off friendly infantry holding the high ground to the rear of the tanks. The tank company commander reconnoitered 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.

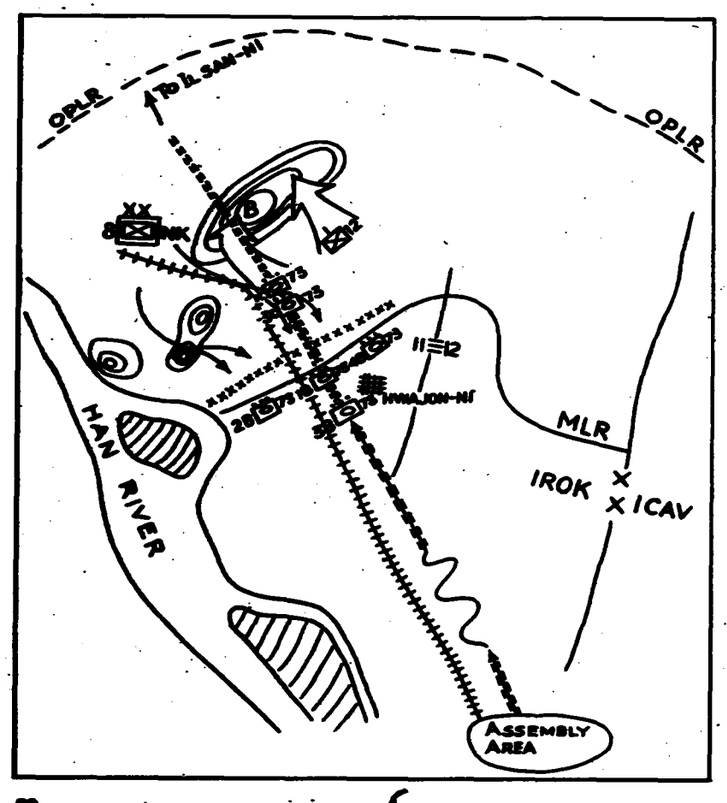
Results of the day's operation were 1241 enemy killed, 170 wounded, three prisoners; and eight machine guns, three mortars, two antitank guns, and one bazooka destroyed. Friendly casualties were 4 wounded.

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 commander 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

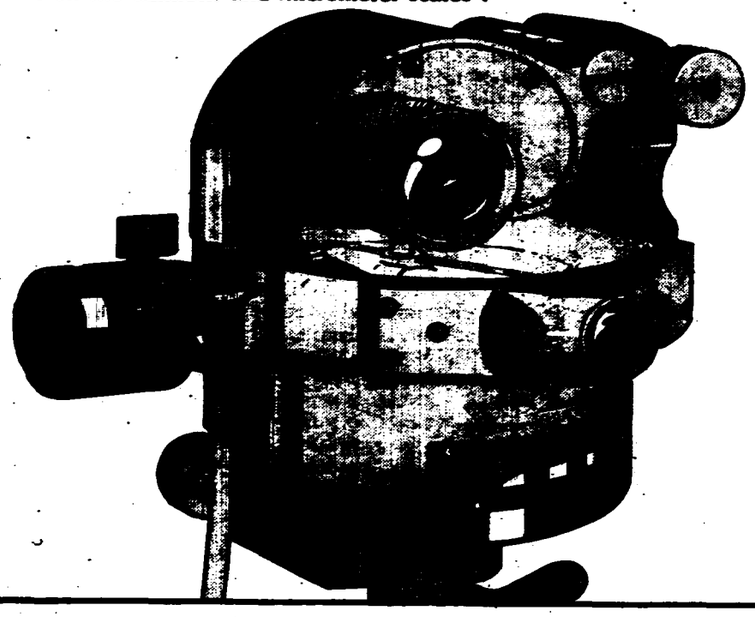
AN ARMORED SCHOOL PRESENTATION

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

ARTIST: M SGT COHN

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).

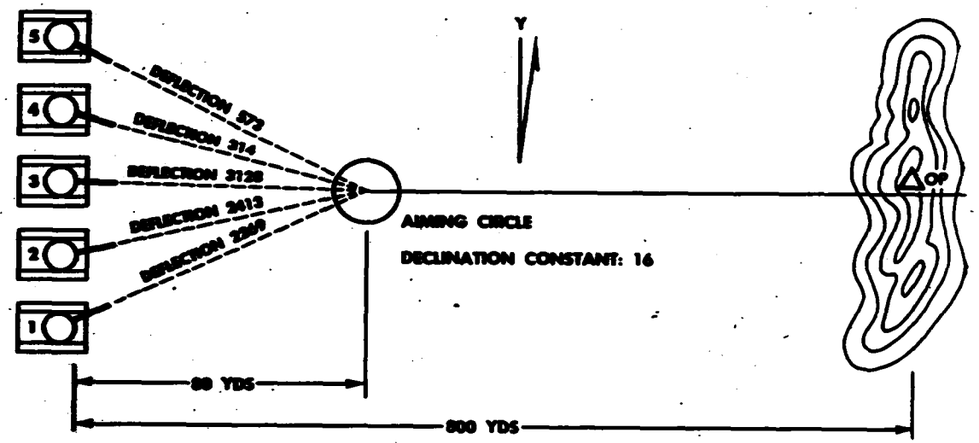
c. Add two "C"s for the caliber of gun (value of "C" for the 90-mm gun is 1).

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).

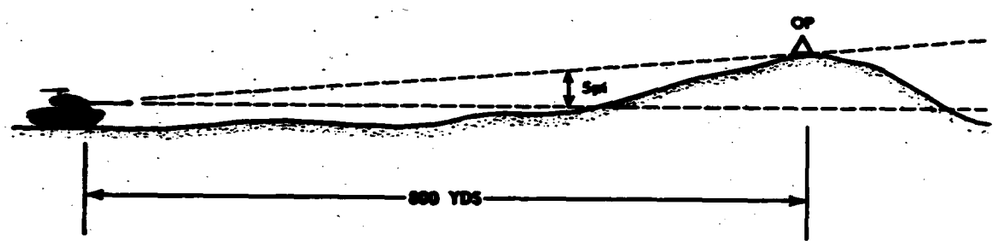
The quadrant set off on the gun to fire initially would be the elevation for range to target plus the angle of site (elevation for 3000 yards equals 23.8 mils plus angle of site, 4 mils, equals 27.8 or quadrant 28).

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.

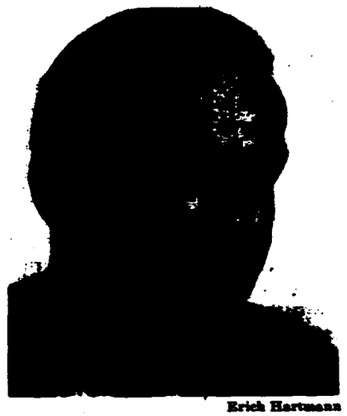
Reviewed by M. S. HANDLER

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.

BALKAN CAESAR

(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 Kumsovetz 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 Kumsovetz 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 Kumsovetz 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.

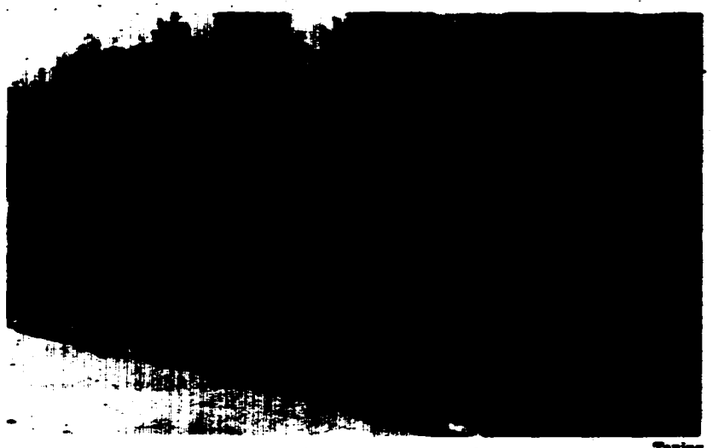
Mr. White also writes a great deal about Tito's personal life and his alleged penchant for luxury. Yet Mr. White mentions only once in his book that he saw Tito and that was at a considerable distance during a session of the Parliament. It seems to this reviewer that if a writer wishes to discuss the 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)

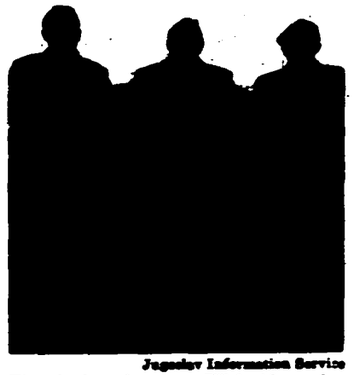
Mr. Armstrong relates the rise of Tito to power in quite a different manner from that employed by Mr. White in his book, BALKAN CAESAR. Mr. White makes an effort to produce a devastating effect, but he falls short of the mark because of his extreme violence, his distortion and his undiluted hatred. The 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

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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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General Weygand's powerful history opens with his first assignment, as chief of the French forces in the Near East. It rises to a dramatic high point with the fall of France in 1940. Weygand was then in command of the Allied armies, and though a strong and heroic figure, he was powerless to prevent Dunkerque or the Armistice. His efforts to defeat the blitzkrieg, however, made him the central military figure around which Churchill, King Leopold, Premier Reynaud, and the top British generals revolved. The story concludes with Weygand's tour of duty with the Vichy government and as French Commandant in North Africa.

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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!)

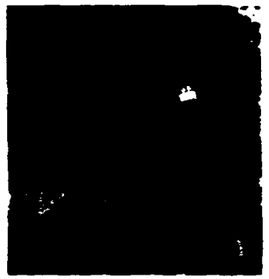
The Armor Officer of I Corps, Colonel Thomas D. Gillis, is responsible for the excellent combat items in this issue covering the 73d Tank Battalion. It took a lot of cabling, letter writing and leg work to carry the clearance end on this, but the details were ironed out and the reader of ARMOR will find 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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Lt. Col. Paul M. Morrill
E. J. Stackpole and
the Military Service Publishing Company
Two anonymous contributors
In response to the Special Editorial on Page 63, May-June number.