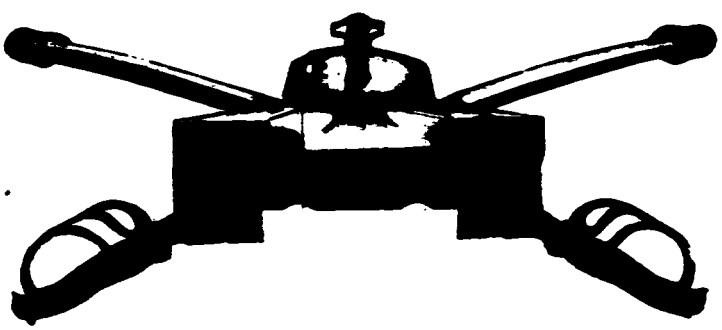
Armor Magazine Index—Vol. LX, 1951

AUTHORS

TITLES

~~Reg.~~

ARMOR



FOR ARMOR—A NEW INSIGNIA

An M-26 tank, front view, with gun slightly raised, and superimposed upon two crossed Cavalry sabers in scabbards with cutting edge up. Of gold colored metal.

[See Page 12]

JANUARY-FEBRUARY, 1951

ARMOR

Continuation of THE CAVALRY JOURNAL

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Volume LX JANUARY-FEBRUARY, 1951 No. 1

CONTENTS

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LETTERS to the EDITOR

From The Fighting Front

Dear Sir:

May I ask your assistance in securing two copies of the cover photo from the September-October issue of ARMOR, and two copies of the center photo on page 33 of that issue?

The tank in these pictures is number B-21, the tank of the Platoon Leader, 2d Platoon, Company B, 73d Heavy Tank Battalion. The scene of the action is north and west of Pohang-dong in the period 28-31 August.

I would like to incorporate one set of these photos in our unit history. The second set will be presented to 1st Lt. Dennis H. Hunter, the Platoon Leader, who received the Bronze Star Medal for his part in this particular action.

CAPTAIN OBA M. HEARN
Commanding Company B
73d Heavy Tank Battalion

APO 7

● *Copies of Stanley Tretick's excellent photos have been secured from Acme Newspictures and forwarded with ARMOR's compliments and congratulations to Reader Hearn.*—ED.

Use of Captured Tanks

Dear Sir:

In the May-June 1950 issue of the *Armored Cavalry Journal*, Mr. Garrett Underhill, in Part IV of "The Story of Soviet Armor," writes that the poor quality of Russian tanks is demonstrated by the fact that Germany made no use of the large numbers of Russian tanks (T34 and KV) which it had captured, although it used Czech tanks and, in the Balkans, in the fighting against the Partisans, French tanks.

This gives a false idea of the situation. In order to clear up this matter, I should like to make the following points:

It is undoubtedly true that from time to time the armor used for Russian tanks was of very poor quality and often did not have the resistance to penetration normally required.

But there are other reasons for the fact that Russian tanks, especially the T34, were not used by the German Army:

Mere possession of a captured tank is not enough. It is useless unless continuous maintenance of the vehicles is possible, and this depends on the availability of spare parts. Aside from technical difficulties, manufacture of spare parts for the T34 in German factories would have been possible only at the expense of a reduction in the number of German tanks turned out. For this reason the use of T34 tanks could not be considered.

In isolated instances the German Army organized captured-tank companies using captured T34 tanks and tried to get the needed spare parts from captured matériel. But the method was unsuccessful, and these captured-tank units were dissolved very soon. It was impossible to get enough spare parts from the matériel captured. The method also involved an irrational expenditure of effort, which was increased by the fact that maintenance itself required special experts thoroughly trained in the work and the manufacture of special repair tools.

As far as the Czech and French tanks were concerned the situation was different. Factories and repair installations for these types of tanks were available. However, the French tanks were at best useful only to frighten peasants: they were altogether inferior to the T34 regardless of the poor materials used in the latter's construction.

The fact that in the East the captured T34 was not used except in a few cases had a second and equally important reason:

From a tactical viewpoint the T34 was inferior to German tank types (Pz III and Pz IV with long-barreled 75mm gun) because it combined the functions of commander and gunner in one person. As soon as the commander began firing, he lost his over-all viewpoint and was unable to direct his tank. Even as gunner, however, he was unable to fulfill his mission because when functioning as such he had no commander from which to receive directions. As a result, the T34 was in most cases hopelessly inferior to the German tanks, especially after German tanks were armed with a long gun, in the spring of 1942. I often saw Russian tank attacks in which the T34's charged like a herd of wild bulls and continuously fired their guns, obviously without aiming, while driving forward. While the limited training given tank crews as a result of the high losses incurred may have been one of the reasons for adopting such tactics, it is certain that the union of the functions of commander and gunner in one person was a contributing factor.

Partly as a result of this tactical inferiority, in the Ukraine my Panzer regiment, from the end of October to the middle of December 1943, destroyed 356 Russian tanks, most of them T34's, with a total loss of only 12 German tanks. The regiment was equipped with a little more than 100 tanks, half of them Pz IV and the rest Sturmgeschuetz III (self-propelled assault gun), both equipped with the long-barreled 75mm gun model L 48.

H. B. MUELLER-HILLEBRAN
Generalmajor, former Chief of Staff of Germany's XXXVI Panzer Corps & Third Panzer Army.

Germany

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Rates: See bottom of contents page.

Facts, Not Prejudice

Dear Sir:

Please forward all future issues of ARMOR to my new address, as I have returned from Korea, due to wounds, and am no longer assigned to the 2d Infantry Division.

The opinion set forth herein is based upon my own observations, as well as discussions with other officers of various branches (Infantry, Artillery) as well as Armor personnel.

I was much impressed by the singular fact that both our advances, as well as our withdrawals, appeared to be based upon a "battle of road nets." This was reminiscent of our dash across France, and later Germany in World War II, but was vastly different because of the over-all *lack* of a developed road net. The situation being further aggravated by the restrictions in size and condition of the few roads themselves, certainly did not lend itself well to a modern highly mechanized army. Once at the desired location, deployment off the road could generally be effected. But to move from one position to another, practically no cross-country movement was effected.

After the widely heralded and much vaunted development of "cross-country mobility" in the Cavalry, as well as other branches, during the last ten years, Korea has shown that the vast majority of our mobility is dependent upon roads!

The most convincing action, and the bitterest pill to swallow when it developed, is that which is even now continuing. A vast force of troops consisting *primarily* of foot and horse soldiers, supported by pack animals, has caused our highly mechanized, heavily equipped forces to withdraw so far, and so rapidly! Initially, the heaviest weapon the enemy used was the 120mm mortar. No artillery, no tanks or SP guns, and no aircraft! Later, of course, these forces have been added and increased.

In fact, the very dependence of our forces upon the roads (*i.e., our lack* of cross-country mobility) caused the withdrawals to stall—almost tragically! Day and night our machines moved to the rear, bumper to bumper, road bound, for miles, moving—halting—moving and halting. Sometimes a move of only a vehicle's length, as voices on the various radio nets frantically attempted to keep the column going, as the enemy pounded at the rear guard.

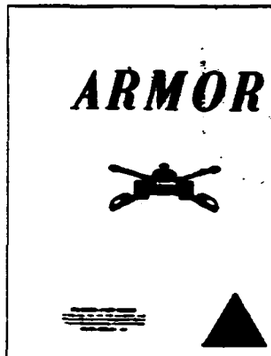
I saw, and spoke with, some of our Infantry soldiers who were using captured horses to support their units on the line. In one group of six animals (all, apparently, of Japanese stock averaging about 15 hands) I saw three with U.S. Army modified McClellan saddles on them. One of the six horses was a particularly good looking mare. I presumed these saddles to have arrived there through lend-lease via Russia, or perhaps our previous efforts to support and train the South Koreans.

In view of our world-wide commitments, and in consideration of some of the terrain included in those possible areas of action, it appears that the horse and mule still should be given a place in our forces—QM pack trains, pack artillery, and cavalry (or, if necessary, call it "Mounted Infantry"—it would not be something new).

A final and more disturbing thought is based upon the expressed opinion of learned statesmen and scientists to the effect that an atomic war can become a long war of attrition. In such a war our Class III supplies will be among the first to become critical (ask those who were civilians in World War II: and what happened to General Patton's 3d Army in Europe one time?), and subsequently one of the first to disappear! So also will manufacturing (therefore spare parts, and replacement major end items) be rapidly diminished in a war of attrition (ask the Germans who served in the Panzer divisions!). Therefore, men on foot, and horses (priority on POL would no doubt go to the Air Force and Navy) *could* be the last line of defense under such circumstances.

As the old saying goes, "An ounce of prevention . . ."

CAPTAIN ROBERT C. McCALEB
Tacoma, Washington.



THE COVER

In the short span of years encompassing two World Wars, armor has had a somewhat fluctuating experience in searching out the right path on which to lay down its tracks. The stretch from the pillbox conception to full mobility is evidenced by the number of representative insignia strewn along the way. Now out of the morass, armor is properly hinged to mobility, fire power and shock, a combination nicely articulated in the new insignia just approved for the Armor Branch.

Wrong Target!

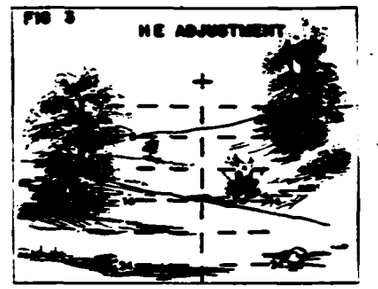
Dear Sir:

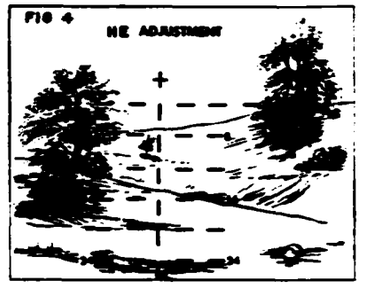
I have read with great interest the story "Advanced Tank Gunnery" in the November-December issue. There is, however, one thing about this article that puzzles me greatly.

The upper pair of drawings on page 25 illustrates adjustment of HE by the "burst on target" method, with the target apparently a tank at a range of about 1,500. In the left-hand drawing I would sense the round as right and over, but to correct this your right-hand drawing indicates the gunner would increase range to about 1,800. I cannot understand how increasing the range for an over will get the projectile any closer to the target, either by advanced tank gunnery methods or the old-fashioned "burst on target" method we learned to employ at Fort Knox in 1942.

Apparently I am misinterpreting either Col. Hammack's article or the illustrations, and I should appreciate being set straight on this point.

CLEMENT R. HURD
Colonel, USAR
Department of State
Washington, D. C.





Dear Sir:

No excuse, SIR! The gunner tied it up: he loaded the wrong pictures when this article was forwarded to you. The initial target was intended to be a house, but an antitank gun is shown.

Inclosed is Figure 3 with the correct Figure 4 (see above).

COLONEL LOUIS A. HAMMACK
Director, Weapons Department
The Armored School
Fort Knox, Ky.

● *In red-faced shame we share the blame.*—ED.

In our kind of activity promotion is a continuing thing. Periodically we must get out and beat the bushes to flush out the holdouts. Some of the patches are pretty dense, and we're liable to be pricked by the beiers along the way. Some of the barbs might sink in except for the fact that in this kind of activity you acquire a pretty tough hide.

The fortunate thing is that most shafts levelled in our direction come from a bitter core of minority. Rather than respond in kind we prefer to exercise our benevolence, parrying the thrusts with the shield of good reason working in our behalf. Herewith we parry . . .

We're a branch magazine. Our first responsibility is to Armor. Our 65-year-old constitution sets it out. "The aim and purpose of the Association shall be to disseminate knowledge of the military art and science, to promote the professional improvement of its members, and to preserve and foster the spirit, the tradition and the solidarity of the Armor of the Army of the United States.

Now, how do we bring this to life?

A branch member, to become a member of his professional association and receive its publication, pays a fee of $4.75 annually. Every penny of that money *works!* It goes into the end product—the magazine. It constitutes *meat!* Why?

The Association has an active duty staff. The Congress and the Army years ago recognized the value to the service of assigning qualified professional personnel to this kind of activity. A total of four military personnel and one civilian are serving thousands of our military personnel around the world.

Our administrative expenses are negligible. We own no property. Our rent is so low it's laughable (we hope the landlord doesn't see this!). Ours is strictly a working shop.

Summing that up, your money goes into the primary product—the magazine. You are not paying to maintain an expensive civilian staff. You are not paying to maintain property. You are not paying for any subsidiary enterprises over and above the publication of the magazine.

What other expenditures of your money do we have in mind? For one, we want to make an annual contribution to the Armor Leadership Tests, as we've done through the years. These tests, supervised by Army Field Forces, have been going forward for years, stimulating individual and small unit achievement in our field.

We have in mind also the publication of several books and pamphlets that are badly needed in Armor. And we are working at the acquisition of a library of material on Armor that will be second to none—a library for editorial purposes, for membership use, for research and for history.

These things can be done within the annual income from our present subscription rates. They can best be done if we push along closer to the goal of 100% membership-subscription by all Armor officers in all components. We don't fool ourselves that we'll ever make that 100%, but we know from what we have now and the trend that we'll come as close as anything comes in this line. We're in great shape. The crescendo is reaching a roar! The NCO membership, the Infantry, Artillery, Engineer and Marine activity, is interest and support that we highly value.

Now let's look briefly at some of the reasons for not joining up.

Most of them are based in the fact that the magazine is readily available. For example . . . "I read ARMOR at my company . . ." (or mess, library, day room, or friend's room).

This leads us to a thought which may not reach many of the nonsubscribers. What are you doing in support of your professional branch association? To us this is a two-way proposition. We're a nonprofit organization whose sole purpose is to do our branch and the military a professional service. To carry that out we need over-all group support, all individuals banded together in full cooperation. You may say that one more member more or less couldn't make much difference. But it does, we can assure you. And remember—every penny of your $4.75 goes right back to work for *you*, not for *us!*

At the moment we think the product is pretty good. But we never feel that it has reached perfection. Winston Churchill once said "to improve is to change, to be perfect is to have changed often." We've got some more changes in mind. How about helping out, you nonmember-subscribers? How about jumping in the pot, boy!

The Editor

P.S. The Editor is a *paid-up* member.

Integrated Training for Armor

U.S. Army

With the goal of strengthening the mental, moral and physical fiber of the American soldier, the Chief of our Army Field Forces some months ago directed an acceleration and intensification of the training program. How is this program being applied in Armor—at The Armored School, the four training armored divisions, the many armored units of all components? The Dean of our College of Armor tells the story.

by BRIGADIER GENERAL THOMAS L. HARROLD

IN these times the need for sound training is essential. And more than ever, the time element has entered the training picture. General Mark Clark, Chief of Army Field Forces, in a recent speech struck the keynote. The Armor Branch, along with the entire Army, has been geared to action made mandatory by the current critical situation. That action is the "Acceleration and Intensification of Training," directed for all units of the Army.

The objective of the intensification program is to prepare each soldier to meet a ruthless and savage enemy who adheres to no established rules of land warfare; to instill in our soldier the spirit of the offensive; to win over this vicious foe on the battlefield, despite any and all odds.

The 17-Series T/O&E

To achieve these objectives the Armored Branch has prepared 23 training programs for 17-series T/O & E units which guide a unit from training of untrained fillers in basic military subjects to participation in field exercises and maneuvers with other units as part of the combined arms team. In addition, two separate programs have been prepared for the training of individuals in the basic entry MOS: Tank Crewman and Reconnaissance Crewman. The objectives of these programs are to develop untrained fillers in basic military subjects; to train them for combat; and to train them as members of a vehicle crew in any armored unit.

These training programs outline training missions and objectives for each type unit as well as for the individual.

All training programs emphasize practical work rather than theoretical instruction. Lectures and conferences are kept to a minimum and are designed to bring out briefly the points to be demonstrated and applied, or to show the relationship between a subject and the over-all training objectives.

The hours of instruction prescribed in these training programs have been reduced to a minimum by eliminating nonessential subjects. Principles, procedures, or skills not directly related to the operational performance of the individual in combat are forgotten. Time allotted is considered adequate to introduce each period of instruction and to conduct an initial period of practical application.

Constant Application

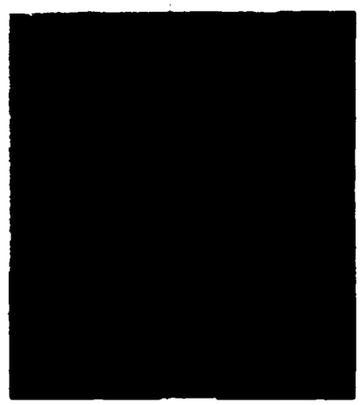
Proficiency comes through subsequent application provided by *integrating training*. Once a subject or a portion of a subject is introduced, it is applied at every appropriate opportunity thereafter. Only by doing this will commanders be able to accomplish the objectives in the time allotted. As an example of this method of training, the hours devoted to tactical training of the individual in camouflage and concealment, hasty fortifications, and defense against aircraft and armor, formerly scheduled in the basic training program for 12 hours, have been reduced to 8 hours. The three subjects can be adequately covered in this time if the principle of integration is followed. Another example of integrated training is the application of the principle of dispersion in defense against aircraft, use of the compass, and care of the feet during a period allotted to marches and bivouacs.

Also included in each of the programs is "Battle Indoctrination" training. This is the means by which men are conditioned mentally and hardened physically; the period when discipline is instilled, in order that they may become accustomed to and capable of withstanding the shock of battle. Battle indoctrination training consists of subjecting the individual to the noise of small-arms fire; day and night negotiation of prescribed infiltration courses; practice in infiltration methods; and the experiencing of overhead artillery fire to demonstrate the effect of artillery employed in close support missions.

Night Training

Since many actual operations are conducted under cover of darkness, at least one third of the applicatory stage of all tactical training and training in movement will take place during the hours of darkness. Here will be opportunities to stress individual night discipline.

The intensified training program as applied to the training division, where the newly inducted recruits are trained, is a direct departure from peacetime instruction. In the peacetime army a recruit went through fourteen straight weeks of basic training along with a liberal dose of citizenship instruction. Then he was given branch training in the type unit to which he was assigned. The present program is broken down into basic and branch advanced individual training. The time for training remains at



U.S. Army

Brig. Gen. Thomas L. Harrold, Commanding The Armored Center and School. During the war General Harrold commanded CCA of the 9th Armored Division, later took command of the division.

fourteen weeks but instead of spending a considerable amount of time on developing the citizen-soldier the time is packed not only with basic military subjects but also instruction on vehicles of armored units, their capabilities and limitations, weapons firing, and maintenance of vehicles and equipment.

A newly inducted enlisted man upon entering the service is given a series of tests which will determine his general intelligence and any aptitudes he may have for a particular type of work. If it is determined that he is qualified for armor he will be sent to one of the four training armored divisions.

Here he receives his first training in armor as a Tank Crewman or Reconnaissance Crewman along with basic training. Basic training in the revised training programs comprises 6 weeks, or 288 hours, of the fourteen weeks' total training time, and covers those common subjects which are prescribed by Army Field Forces, such as personal hygiene, map reading, military justice, weapon instruction, battle indoctrination and squad tactical training.

The remaining 8 weeks, or 384 hours, are devoted to advanced branch training for the individual either as a Tank Crewman or Reconnaissance Crewman.

The Tank Crewman

The Tank Crewman program is designed to train the individual soldier in the subjects necessary to qualify him for satisfactory performance of duties of basic entry MOS 3795 Tank Crewman; and to furnish him a satisfactory basis upon which to assimilate further training through combat experiences and instruction from more experienced members of the crew.

The Reconnaissance Crewman program is designed to train the individual trainee in the subjects necessary to qualify him for satisfactory performance of duties of basic entry MOS 4733, reconnaissance fighting team; and to furnish him a satisfactory basis upon which to assimilate further training through combat experiences and instruction from more experienced members of the reconnaissance team.

The integration program has been molded into one well-rounded program. Initially, trainees receive basic soldier training and basic infantry training. In the fourth week, the Tank Crewman and Reconnaissance Crewman start training in their respective fields.

Through the eleventh week the Tank Crewmen learn how to operate and maintain the tank. This includes firing the tank guns, driving the medium tank, use of auxiliary fire control instruments, use of binoculars, the mil formula, range determination, squad tactical training, tank crew and platoon tactical training.

The Reconnaissance Crewmen

The Reconnaissance Crewmen learn about operation and maintenance of the light tank and wheeled vehicles of the reconnaissance platoon. This training includes driving the light tank and ¼-ton truck, firing the weapons of the reconnaissance pla-

U.S. Army

Tank driver training in armored units is extensive and thorough in order that drivers will know how to handle the tank over all types of terrain.

toon, determining range, and operating tactically in a squad and platoon.

Bivouacs are held for both groups during the twelfth and thirteenth weeks. The field bivouacs are conducted under an assumed tactical situation requiring attention to dispersion and concealment from air observation. Local security measures are taken when they do not interfere with scheduled training. Bivouac areas are changed frequently to accustom individuals to the rapid movement required in combat. Combat firing for tank crewmen is emphasized in the twelfth week while both groups receive battle training during the thirteenth week.

The fourteenth week is devoted to firing several types of small arms and a proficiency test.

Unit Training

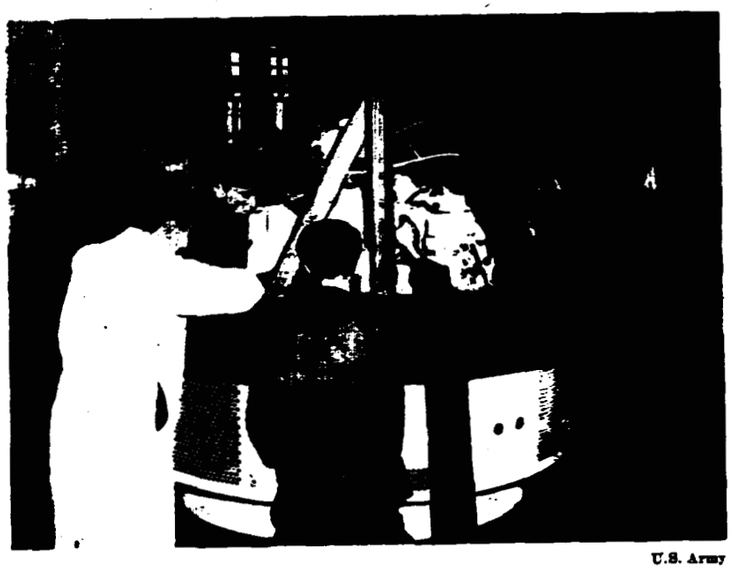
The unit training programs for 17-series T O&E units are based on a 38-week training period. Policies of economy, of time, integration of training, elimination of frills, and toughening are again followed. These programs carry the unit not only through basic and advanced individual training, but up through small unit teams, platoon, company, battalion and combat command training, and combined arms training of these units with comparable units of other arms and services.

Development of the tank-infantry teams is stressed by inclusion of this type of training early in small unit training. At the squad and platoon level especially, stress is placed on thorough indoctrination in the offensive capabilities of the tank-infantry team, and the techniques used to employ this team.

The training programs incorporate the many features of the Tank Crewmen and Reconnaissance Crewmen program, but more time is provided for maintenance of equipment. Particular emphasis is placed on maintenance of weapons, vehicles, and other equipment throughout training. A weapon, a radio, or a vehicle that isn't serviceable affects the efficiency of the unit. For maximum effectiveness armor must maintain the ability to move, shoot and communicate.

Testing the Program

Certain of these programs are being used in the training of newly called civilian component tank units and recently activated tank battalions. At Fort Knox, the recently activated 30th Tank Battalion, which acquired the unit history and battle streamer of the famous wartime 702d Tank Battalion, is using the training programs prepared for the tank battalion. This battalion started with a trained cadre and received untrained fillers to bring the battalion to T/O&E strength. This is an excellent test of the effectiveness of the programs, since they were designed to train units in which a cadre would take personnel received direct from civilian status, and mold them into "armor indoctrinated" soldiers capable of functioning efficiently as members of an armored team. Although the above unit has not completed its training at the time of this writing, results so far indicate that the



U.S. Army

Armored School training, attended by students from all units, features the liberal use of cutaway models and clever training aids on all subjects.

U.S. Army

Tank crews are thoroughly instructed in the operation of all positions in the vehicle so that they may capably fill any crew post in an emergency.

training objectives will be accomplished.

The success of this battalion's training, and also of the training given in the 3d Armored Division, is a good indication of the effectiveness of these new training programs in meeting the "Acceleration and Intensification of Training" objectives. Most of the potential members of the Army's fighting team may never have seen a tank or other armored unit vehicle prior to their transformation from civilian to soldier status, but these programs should meet the need for developing well trained armored soldiers in a minimum of time.

Academic Changes

Meanwhile, The Armored School, to support the intensification program, has revised its existing programs of instruction. It has lengthened the training week from forty hours to forty-four hours and has scheduled night classes to handle the increased student load and resulting increase in number of classes. Also, it has eliminated such time-consuming subjects as preparation of research monographs, remedial reading, and other subjects which do not contribute directly to the training of an officer or enlisted man to be proficient in his MOS field. Finally, stress has been put on indoctrination of students with the reasons for learning certain subjects; why they must concentrate on acquiring the skills required; and the possibility of immediate commitment to combat.

In addition, The Armored School has added to the intensification program by preparing the training programs described previously for training individuals and units of armor. These programs were prepared after considerable research was made to determine what type and amount of training must be given an armored soldier to insure that he will be successful in combat. The recommendation from battle lessons, after-action reports, observer reports from World War II, and personal experience of officers and enlisted men who trained and fought in units of World War II; and the observer reports, action reports, and personal experience of officers and enlisted men who fought and are fighting in Korea, were the guiding factors for this research.

Since these programs have been completed, preparation of check lists for training inspection and training tests for all types of armored units have been prepared. In addition, continuous research is being conducted at The Armored School to find new and better methods of training for armored personnel and units, and to recommend changes in armor doctrine and tactics made necessary by new weapons and equipment.

Fighting Men—For Peace

The Armored Center is the hub of American Armor. From this hub, spokes lead out in many directions—to armored units in all the components, to occupation forces, to the fighting front in Korea. The sum of all this is our aim to assure highly trained fighting men for Armor, a key component of the fighting team standing forth for peace.

U.S. Army

Tankers must know the mechanics of their vehicles. The functioning of the tank motor is well demonstrated by means of cutaway models at Ft. Knox.

In the past few weeks movie-goers have been turning out to see a show called "Rio Grande." Starring Actor John Wayne, it is the most recent of a trilogy of screen epics depicting the Cavalry's part in the development of our country's frontier. Teamed with "Duke" Wayne's fine acting is the fine touch of John Ford's directing. The whole adds up to a real contribution to the perpetuation of the history and tradition of American soldiery, a tribute to some of

The Men Who Put the Arm in Army

by JOHN WAYNE

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

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

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

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

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

Actor John Wayne.

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

The armies with which the Moslem conquerors, as well as Genghis Khan, carved out their empires were composed almost exclusively of Cavalry. With the passing of the Age of Chivalry, along with the development of firearms, the Cavalry inherited the pride and traditions of the ironclad knights. They developed the technique of utilizing the mobility of Cavalry for surprise, and its shock power for disrupting the enemy lines. The well timed Cavalry charge against a vulnerable flank or line became the conventional knockout punch of competent commanders.

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

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

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

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

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

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

It was early in September of 1947

Victor McLaglen provides much of the comedy as a rough, warmhearted NCO.

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

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

The movement of the filming crew and cast to the location site resembled a Cavalry and Armored manoeuver in itself. Thirty-two pieces of equipment transported camera and lighting equipment. Five horse trucks transported twenty-five horses from Hollywood, and 90 more horses were obtained from surrounding ranches. The construction crew built in its entirety a mammoth Cavalry fort.

Filming of "Rio Grande" began on June 15, 1950; and to capture some of the thrills and action that are associated with a movie depicting part of the history of the Cavalry, $50,000 was spent by Republic on stunts alone.

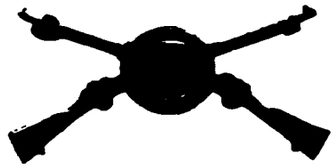
Months of preliminary research preceded the actual filming of "Rio Grande," and I spent many a fascinating hour with Ford reading up on Cavalry lore, even to the music favored by cavalrymen of the past.

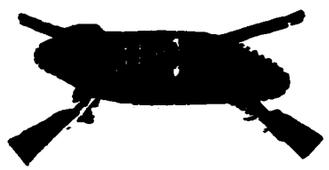
Back in 1870, for example, when Phil Sheridan's outnumbered troopers waged their fierce battles against the Apache and Sioux, the ringing notes of "The Girl I Left Behind Me," played by the post band, would be the last thing the intrepid "Yellow-leg" detachments heard as they galloped through stockade gates after the enemy.

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

Col. Kirby Yorke (Wayne) leads some of his troopers in dismounted action.

. . . GIVING PLACE TO NEW





FOR ARMOR—A NEW INSIGNIA

On January 3, 1951, the Department of the Army approved new insignia, branch color, guidon and cap braid colors for the Armor Branch. Under the provisions of the Army Organization Act of 1950, Armor became a continuation of the Cavalry.

The Armor insignia (see cover) is a front view of an M-26 tank (original version of the Patton tank) with the gun slightly raised, and superimposed on two crossed Cavalry sabers in scabbards with the cutting edge up. The officers' insignia is the usual outline type, of gold-colored metal, 13/16 of an inch in over-all height. The enlisted insignia will be the same, reduced in size for wear on a one-inch disk.

Yellow, the color of the Cavalry, will be the Armor Branch color. Guidons will be yellow, with green insignia, letters and numerals. Cap braid for enlisted personnel will be yellow.

The Department of the Army announced that new insignia will not be available for some time. In the meantime, personnel are authorized to wear present insignia. The Army has also authorized continued use of present standards and guidons until such time as replacement is necessary.

ARMOR is pleased to see this important question settled. It is another step in the professional grounding of the branch; for representative insignia are so much a part of all-important identity—not only through tangible marking of the trade, but in the more intangible matters of mission, morale and *esprit*.

AND ARTILLERY

At the same time that Armor was getting its new insignia, the Artillery received a new one, in a sense. Under the provisions of the Army Organization Act, the Field Artillery, Coast Artillery and Antiaircraft Artillery branches were consolidated into one, to become the Artillery Branch. The single branch will retain the "crossed field guns" insignia which has been used by Field Artillery for more than 100 years. The branch color is the traditional Artillery scarlet, with scarlet guidons carrying yellow insignia, letters and numerals. Cap braid also is scarlet.

IN THE HANDS OF TROOPS

"We are preparing the capacity to produce 35,000 tanks a year. We are not now ordering that many, and we hope that we never have to, but we mean to be able to turn them out if we need them."

Thus spoke the President of the United States in his recent State of the Union message.

The tank program is progressing. Light tanks (T/41) are on order with the Cadillac Division of General Motors. Medium tanks (T/42) are on order with American Locomotive Works. Heavy tanks (T/43) are on order with Chrysler Corporation. These are new designs, not World War II models. In the hands of troops they will put additional backbone into the United States Army. Meanwhile, the Shermans, Pershings and Pattons are holding up their end in good style, not by claim, but through demonstration.

ARMOR's thoughts now turn to that phrase "in the hands of troops." Our eyes are focused on the exit end of the assembly line. Where are those tanks going? What units will get them? After the critical needs of any front of that moment are met, what then?

We're thinking of the armored division. We had sixteen of them in World War II, a war in which Armor established its place in ground warfare with an outstanding record on the field of battle. That firm record seems to have dimmed somewhat in the postwar period. Korea has dusted things off a bit, but there are certain limitations there, as we mentioned last issue.

Sixteen armored divisions in World War II. One Regular armored division today—which has not been mentioned in official releases as being ready for combat. Four armored training divisions, three of them recently organized—but all training. Two National Guard armored divisions. Three Reserve armored divisions.

A number of National Guard infantry divisions have been called up for active Federal service. Why no armored division? Where is the corps potential of two to one? Where does that leave the type field army?

The armored division functioned with great effect in North Africa and Europe. Those are areas which remain critical today. North Africa and Europe—not Korea. Armored divisions, not battalions.

The emphasis on small armored units is disturbing. In turn, the splitting up and parcelling out of those small units, and their tie to foot troops, confronts us with a threat—that of failure to prepare major armored units for employment as such in those areas where employment would be mandatory and where decisions of real proportion may come.

ATTENTION MOVIE DIRECTORS!

Elsewhere in this issue there is a story by John Wayne on the series of frontier Cavalry pictures in which he has starred under John Ford's able directing. We confess to having seen all of these shows and many others about our Cavalry and enjoying them to the hilt. But there is one thing that has us stumped. Why has armor been overlooked in the rash of movies about the military? How long will it be before some director and company realizes that in armor there is every phase of great adventure, with everything in the way of built-in thrills and action, ready to catch the dullest imagination?

ELIMINATE THE NEGATIVE

There's one word in this here military lingo that we oughta find another one for it 'cause when you use it it usually sounds like it means somethin' else and don't do anyone any good anyway. . . . Or so Fibber McGee might say it. The word is "relieved." It has a negative connotation. When the word appears in connection with a change of assignment, it is accepted by many as an indication that someone has messed up. Such may not be the case. The person may be going on to a higher post. There's one word in this here military lingo. . . .

Despite the development of highly modern weapons in all dimensions of warfare, the amphibious operation remains—and most demonstrably so—a vital method of warfare. The story of history's greatest amphibious operation, the Normandy assault, is the subject of a forthcoming volume in the series UNITED STATES ARMY IN WORLD WAR II *being prepared in the Office of the Chief of Military History. Titled* Cross-Channel Attack, *it will be the second in the sub-series* THE EUROPEAN THEATER OF OPERATIONS. *The article presented here is part of a chapter from the coming book, and deals with the beach landings and the critical moment, described by the author, when "the great names drop out . . . In their place will be the corps and division commanders, the colonels, the lieutenants, and the privates. For the few will be substituted the many, as the battlefield, so long seen as a conceptual problem, becomes a confused and disparate fact—a maze of unrelated orchards and strange roads, hedgerows, villages, streams and woods, each temporarily bounding for the soldier the whole horizon of war."*—THE EDITOR.

Hitting the Beaches

by DR. GORDON A. HARRISON

Office of the Chief of Military History

WHILE U.S. airborne troops dropped on the Contentin and British paratroopers landed near Caen, the invasion fleet was bringing the main body of the Allied armies to the shores of Normandy. The assault convoys, after turning back for the day's postponement, reassembled during the morning of 5 June and sailed again for the transport areas 22,000 to 23,000 yards off the French coast in the Bay of the Seine. Behind mine sweepers which cleared and marked ten lanes through old enemy mine fields in the Channel, the huge convoys, under constant air umbrella of fighter squadrons flying at 3,000 to 5,000 feet, made an uneventful voyage unmolested by the enemy either by air or sea.

The weather was still cause for concern. During the passage a gusty wind blowing from the west at fifteen to twenty knots produced a moderately choppy sea with waves in mid-Channel of from five to six feet in height. This was a heavy sea for the small craft, which had some difficulty in making way. Even in the assault area it was rough for shallow-draft vessels, though there the wind did not exceed fifteen knots and the waves averaged about three feet. Visibility was eight miles with ceilings at 10,000 to 12,000 feet. Scattered clouds from 3,000 to 7,000 feet covered about

U.S. Army

half the sky over the Channel at H-hour, becoming denser farther inland. Conditions in short were difficult though tolerable for both naval and air forces.

Most serious were the limitations on air operations. Heavy bombers assigned to hit the coastal fortifications at OMAHA Beach had to bomb by instruments through the overcast. With concurrence of General Eisenhower the Eighth Air Force ordered a deliberate delay of several seconds in its release of bombs in order to insure that they were not dropped among the assault craft. The result was that the 13,000 bombs dropped by 329 B-24 bombers did not hit the enemy beach and coast defenses at all but were scattered as far as three miles inland. Medium bombers visually bombing UTAH Beach defenses from a lower altitude had slightly better results, although about a third of all bombs fell seaward of the high-water mark and many of the selected targets were not located by pilots. Of 360 bombers dispatched by IX Bomber Command, 293 attacked UTAH Beach defenses and 67 failed to release their bombs because of the overcast. On the whole the bombing achieved little in neutralizing the coastal fortifications.

Anchor off Utah

At about 0230 the *Bayfield*, headquarters ship for Task Force U (Rear Adm. Don P. Moon) and VII Corps (Maj. Gen. J. Lawton Collins), dropped anchor in the transport area off UTAH Beach. Twenty minutes later the *Ancon*, flagship of Admiral Hall and the headquarters ship for Task Force O and V Corps, reached the OMAHA Beach transport area. Unloading of assault troops into the LCVP's that would take them to the beaches began.

Up to this point there had been virtually no enemy reaction. The German radar stations still in operation had failed to pick up either the air or the sea approach. Because of bad weather Admiral Krancke had no patrol boats in the Channel during the night, nor did he order them out after he heard of the airborne landings. Tidal conditions would not permit them to leave the harbors before daylight and, besides, Krancke was still not sure that a major attack was in progress. Shortly after three o'clock, however, *Naval Commander Normandy* reported sighting ten large craft lying some seven miles off the coast north of Port-en-Bessin. This news, in conjunction with an increasingly sharp definition of the extent of the airborne landings, at last convinced Admiral Krancke that he was confronting a large-scale landing. He gave such orders as he could. The *Western Defense Forces* were to patrol the coastal waters: the *Landwirt* submarines were to be alerted; the *8th Destroyer Flotilla* was to move up from Royan to Brest; the *5th Torpedo Boat Flotilla* was to reconnoiter the Orne estuary area; and the *9th Torpedo Boat Flotilla* was to patrol off Cap de la Hague. The torpedo boats of the *5th Flotilla* left Le Havre at 0430, but an hour out of port they met six Allied warships escorted by 15 to 20 destroyers. After firing torpedoes at the Allied vessels, the small German boats were attacked from the air. They succeeded in driving off the attackers with antiaircraft fire, but then had to return to Le Havre to replenish their load of torpedoes and ammunition. Two torpedo boat flotillas reconnoitering out of Cherbourg were forced by heavy seas to return to port at dawn. This virtually concluded German naval activity for the day. Admiral Krancke wrote in his diary: "It was only to be expected that no effective blow could be struck at such a superior enemy force." He made plans, however, to attack the Allied fleet that night.

German coastal batteries began sporadic firing at 0535, or only fifteen minutes before Allied naval bombardment opened prearranged counterbattery fire. Projectiles from Allied battleships and cruisers and destroyers continued to thunder over the heads of the troops making the final run-in to shore until a few minutes before the touchdown. Beach drenching was then taken up by the close-support craft. Although the time schedule went generally according to plan on both American beaches, the volume of fire laid down on vital targets was considerably less at OMAHA than expected. Most enemy coastal defenses were sited to cover the beaches rather than the sea approaches. They were therefore well concealed from observation from the sea and were correspondingly difficult to hit. The beach drenching seems generally to have missed its targets; a large percentage of the rockets overshot their marks.

Naval gunfire coupled with the air bombardment, however, had one important effect at OMAHA Beach which was not at first apparent to the assaulting troops. The Germans credit the Allied bombardment with having detonated large mine field areas on which they counted heavily to bar the attackers from penetrating inland between the infantry strong points. Preparatory fire seems also to have knocked out many of the defending rocket pits. But it was supporting naval gunfire after H-hour which made the substantial contribution to the battle, in neutralizing key strong points, breaking up counterattacks, wearing down the defenders, and dominating the assault area.

VII Corps Plans

In the VII Corps zone the 4th Division (Maj. Gen. Raymond O. Barton) planned to land in column of regiments on a two-battalion front of about 2,200 yards. The 8th Infantry (Col. James A. Van Fleet), with the 3d Battalion of the 22d Infantry attached, would make the initial assault. It would first occupy the high ground along the road between Ste. Marie-du-Mont and les Forges and would be prepared to move with the bulk of its force thereafter westward across the Merderet River in the zone of the 82d Airborne Division. One battalion would be left in the area west of St. Martin to protect the division's north flank until the arrival of the 22d Infantry. The 22d Infantry (Col. Hervey A. Tribolet), next infantry unit to land, beginning at H-plus-85-minutes, would turn north from the beaches to seize the causeway across the inundations at les Dunes de Varreville. Continuing the push northwest, the regiment would capture Quinéville and occupy the high ground at Quinéville and Fontenay-sur-Mer. In the center of the beachhead the 12th Infantry (Col. Russell P. Reeder), landing after H-plus-4-hours, would advance with two battalions abreast to seize the high ground between Emondeville and the Merderet River. One battal-

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Captured German Photo

Planning the defense. Rommel and staff officers on the Normandy Beaches.

ion of the regiment was at first designated as division reserve to pass to division control in the vicinity of Turqueville. By the late May change of plan, following the alteration of the airborne missions, the battalion was instead released to regimental control and the 12th Infantry was assigned the additional mission of seizing a crossing over the Merderet at le Port Brehay just southwest of the regiment's main objective area. One regiment (the 359th Infantry) of the 90th Division, the first follow-up division, was attached to the 4th Division to begin landing on D-day. It would assemble in reserve near Foucarville. In May, enemy activity was observed on the St. Marcouf Islands flanking UTAH Beach on the north. It was therefore decided to land detachments of the 4th and 24th Cavalry Squadrons two hours before H-hour to clean out what was suspected to be an enemy observation post or mine field control point.

The airborne troops had done their job well and the 4th Division therefore had little difficulty getting ashore. The cavalry detachments (132 men) found the St. Marcouf Islands unoccupied though heavily mined. From mines and a concentration of enemy artillery that hit the islands in the afternoon the cavalry units lost two men killed and seventeen wounded. The small craft (LCVP's) carrying the first waves of the 1st and 2d Battalions of the 8th Infantry were launched in relatively sheltered water and had no serious trouble with the wind and surf. At H-hour there was no enemy opposition. The thirty-two DD tanks supposed to land in the first wave were delayed by the loss of a control vessel that struck a mine. All but four, which were lost when the LCT carrying them hit a mine, were beached approximately fifteen minutes late. But, as it turned out, the assault troops had no immediate need for them.

Leading elements of the two assault battalions touched down approximately on time but almost 2,000 yards south of where they were supposed to land. The error was probably caused in part by the obscuring of landmarks by smoke and dust raised by the naval bombardment and in part by the southeast coastal current. In any case it turned out to be fortunate since it brought troops in on beaches much less heavily defended than those designated in the plan. Although the mislanding meant that the tasks assigned to each assault section could not be carried out as planned, the lack of serious enemy opposition permitted reconnaissance and speedy reorganization for improvised maneuver. After company-size task forces had reduced the very lightly defended field fortifications covering the two middle beach exits, both assault battalions began their advance across the flooded area. The 1st crossed toward Audouville-la-Hubert; the 2d turned south to pick up the Pouppeville road.

The first infantry wave was followed by engineer and naval demolition parties to clear the underwater obstacles. The obstacles were all dealt with dryshod and were so much sparser than expected that the original plan of blowing fifty-foot gaps was abandoned in favor of clearing the entire beach on the first tide. The job was completed in an hour. Engineers then proceeded to their next tasks of blowing gaps in the sea wall behind the beach and clearing mine fields. Enemy opposition consisted only of intermittent shelling.

While engineers worked on the beach, the 3d Battalion, 8th Infantry, supported by tanks of the 70th Tank Battalion, and the 3d Battalion, 22d Infantry, were landing and moving out. Well before H-plus-3-hours the beach area had been cleared and landings were virtually routine, harassed only by sporadic enemy artillery fire.

Early success and extraordinarily light casualties on UTAH Beach contrasted sharply with the difficulties experienced during those first critical three hours at OMAHA. The German *LXXXIV Corps* and *Seventh Army* believed through most of D-day that the OMAHA assault had been stopped at the water's edge. It was late in the morning before General Bradley aboard the *Augusta* could have contradicted that view and much longer before the Allied command could feel secure about the V Corps beachhead.

V Corps Plans

Leading the attack of General Gerow's V Corps was the 1st Division (Maj. Gen. Clarence R. Huebner) assaulting with two regiments abreast, the 116th Infantry (attached from the 29th Division) on the right, the 16th Infantry on the left. Each regiment was to land two battalion landing teams at H-hour with initial missions to clear the beach defenses and seize and secure that portion of the beachhead maintenance line in their respective zones. The beachhead maintenance line roughly followed the ridge of high ground parallel to the main coastal road and was in most places from two to three miles inland. From this line the assault regiments, supported by the 18th Infantry landing after H-plus-3-hours and the 26th Infantry landing on order of the Commanding General, V Corps, would punch out toward the D-day phase line. Occupation of that phase line would mean securing a coastal strip five or six miles deep astride the Bayeux highway.

The 116th Infantry was responsible for capturing the Pointe du Hoe coastal battery. On the assumption that the six partially casemated 155mm guns would not have been destroyed by pre-D-day bombardment and the heavy naval fire directed on them just before H-hour, two Ranger battalions were attached to the 116th Infantry with the special H-hour mission of taking out the guns. Three companies of Rangers from the 2d Ranger Battalion were to land at the foot of the cliff which the fortified battery surmounted, scale the cliff by means of rope ladders, and attack the German position. Another company, landing on the 116th Infantry main beaches to the east, would attack the fortifications at Pointe et Raz de la Percée and then continue westward to cover the flank of the Ranger force at Pointe du Hoe. The rest of the Rangers would land at Pointe du Hoe, provided the initial landings succeeded; otherwise they would come in on the 116th beaches and assist the right battalion of the 116th in attacking westward.

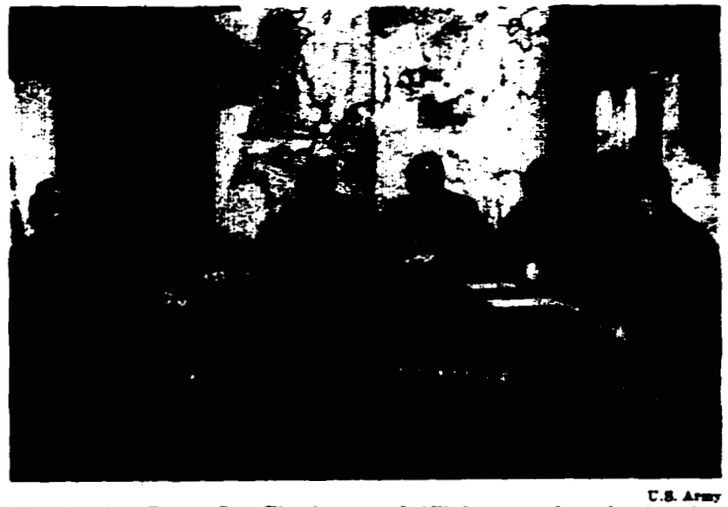
Beach Exits Important

The whole right flank of the V Corps assault forces would thus swing due west almost immediately on landing while the left battalion of the 116th and the 16th Infantry pushed south. It was hoped to clear the coast as far as Isigny by the end of D-day. It even seemed possible that Isigny itself might fall either to the 116th or to the 115th Infantry. The latter regiment, landing on corps order, would initially leapfrog the 116th to organize the high ground around Longueville.

Perhaps the most important job assigned to the first assault waves was the reduction of enemy positions defending the roads leading from the beach inland. The gently sloping sand of OMAHA Beach was backed by an embankment of loose stones, or shingle, in places as much as fifteen yards wide. In the Vierville sector the shingle piled up against a part-masonry, part-wood sea wall. On the rest of the beach there was no wall, but the shingle lay against a sand embankment or dune line. Both the shingle and the dune line was impassable for vehicles. Behind the beach rose scrub-covered bluffs 100 to 170 feet high of varying steepness and merging east and west with the cliffs, which at Pointe et Raz de la Percée and east of Colleville marked the extremities of the 7,000-yard crescent beach. The bluffs were cut by five draws. Through four of these ran unimproved roads, one connecting with the main coastal highway at Vierville-sur-Mer, two at St. Laurent, and one at Colleville. The fifth draw northeast of Colleville was steep and contained only a trail, but it was considered capable of development as a vehicle exit. The plan assumed these exits would be open to traffic at least by H-plus-2-hours when the heavy flow of vehicular reinforcements was scheduled to begin. The importance of the beach exits was, of course, as obvious to the Germans as to the Allies and local coastal defenses were grouped to deny their use to the attackers. On the other hand, the 1st Division had precise information on the location of these defenses and every provision was made to give the assaulting infantry the heavy fire support needed to knock them out.

At H-minus-50-minutes, two companies of DD tanks (741st Tank Battalion) destined for the 16th Infantry beaches were launched 6,000 yards offshore and almost immediately began to founder. Of the thirty-two tanks launched only five reached shore. These were the first of the casualties to the weather. There were others. The assaulting infantry was transferred from transports to LCVP's ten to eleven miles offshore. At least ten of the ferrying craft were swamped on the way in. More serious for the operation was the sinking of much of the artillery. The attempt to ferry guns ashore in DUKW's through the heavy seas proved disastrous. All but one of the 105mm howitzers of the 111th Field Artillery Battalion were sunk. Six of the 105's belonging to the 7th Field Artillery Battalion suffered the same fate. Five of the six howitzers of the 16th Infantry Cannon Company were also swamped. In addition to these wholesale losses the 58th Armored Field Artillery Battalion, whose guns were mounted on LCT's and had taken part in the initial beach drenching, lost three of its pieces when the craft carrying them hit mines. In short, the artillery that was planned to support the infantry attack particularly in the advance inland did not reach the shore.

The weather contributed also to navigational difficulties. Mist mixed with the smoke and dust raised by the naval bombardment obscured landmarks on the coast; in addition a lateral current of from two to three knots tended to carry craft eastward of their touchdown points. The actual errors in landing caused thereby were considerably less than at UTAH, in most cases amounting to not more than a few hundred yards. On the other hand, they proved much more serious for the tactical situation, partly because the errors were not constant, with the result that units became scat-



U.S. Army

Planning the offense. Gen. Eisenhower and Allied commanders plan invasion.

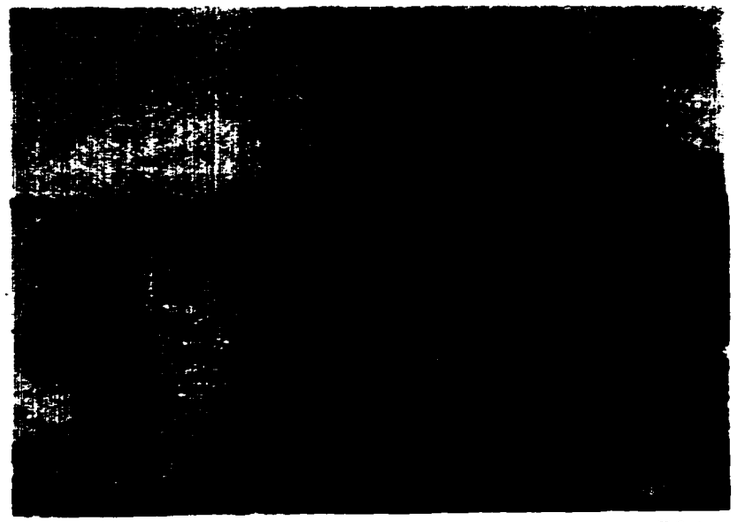
tered on the final approach. Since the men had been briefed only for their particular areas, they were confused by the changed picture. The difficulties were compounded by the heavier enemy opposition which had the effect of isolating boat sections only a few hundred yards apart and at first made reassembly and reorganization for improvised missions almost impossible.

Naval gunfire had temporarily neutralized some of the enemy batteries and fortifications but most of them were still able to fire at the incoming troops as soon as the bombardment was forced to lift inland. The 1st Division men in the first LCVP's could hear machine-gun bullets splatter against the steel ramps of their craft before they grounded. Debarking in water sometimes up to their necks, the troops on some sectors of the beach were met with a hail of bullets that drove some to seek shelter under the surf, others to scramble over the sides of the craft. Control of boat sections was thus often lost before the men were even started in to the beach. The troops, overladen with heavy clothing and equipment, waded slowly through the surf and through fire that increased as they approached the beach. Some stopped to rest or seek shelter behind obstacles. Some lay at the water's edge and were able eventually to crawl in with the tide. But casualties generally were heavier among those who delayed in getting up onto the beach. Many of the wounded were drowned in the rising tide.

Not According to Plan

The first wave should have landed nine companies evenly spaced along the beach. Because of withering enemy fire and mislandings, however, the right wing all but disintegrated; two companies bunched in front of les Moulins, and the remainder of the landings (elements of four companies) clustered in the Colleville sector. One company was carried so far to the east that it landed an hour and a half late.

The two right-flank companies (Company C of the 2d Ranger Battalion, and Company A of the 116th Infantry) landed as scheduled in front of the Vierville draw. One craft foundered and one was hit four times by mortar fire. Men from the remaining craft struggled to shore. Intense



U.S. Army

Some of the many. Soldiers move from craft to their "whole horizon of war."

small-arms fire took toll of about two-thirds of Company A and more than half of the Ranger company before any reached the comparative shelter of the sea wall or the base of the cliff. Of the sixteen tanks scheduled to land in this sector just ahead of the infantry, only eight survived enemy artillery to reach the shore. All had been brought in on LCT's as 116th Infantry officers decided the sea was too rough to launch the DD's.

In the eastern part of the 116th Infantry zone the initial landings had not gone much better: a 1,000-yard gap separated the troops who touched down there from the remnants of the two companies on the right. The two companies of tanks that landed first were brought in on LCT's without losses. This initial success was not shared by the infantry. Only two of the three companies of the 2d Battalion, 116th Infantry, landed within the regimental zone. One of these companies lost a quarter of its men to enemy fire during the forty-five minutes which it took them to cross the beach to the protection of the shingle bank. The remainder had better luck in landing in front and just west of les Moulins where the bluff was obscured by smoke fires and enemy fire was sporadic and inaccurate. Even these men were somewhat disorganized and the officers who survived with them were confused by the knowledge that they had landed east of their designated beaches.

The experience of the 16th Infantry on the left flank of the division duplicated that of the 116th, as scattered landings and heavy casualties left the first boat sections incapable of undertaking their primary assault missions. In the 16th's zone, however, one soft spot was discovered. Four boat sections of the 2d Battalion, 16th Infantry, landing between the St. Laurent and Colleville exits, crossed the beach with only two casualties from enemy fire. The local defense of this sector of the beach was the Colleville strong point, which was planned as three mutually supporting resistance nests. Of these the field fortified position atop the bluff midway between the two draws was unoccupied in February 1944 and seemingly remained unoccupied on D-day. Apparent German negligence that left the beach northwest of Colleville without immediate defense was balanced at first by Allied ill fortune in landing so few men there. Except for those four boat sections of the 2d Battalion the first wave of the 16th Infantry (Companies E and F) touched down immediately in front, or east, of the occupied fortifications of the Colleville strong point and was there caught in machine-gun fire as intense as that which decimated the 116th Infantry. Many of the men of Company E, hard hit and exhausted in their efforts to wade ashore, flopped on the sand and crawled in ahead of the tide; nearly half of them did not survive.

Because of the swamping of most of the DD tanks and immediate enemy destruction of five of the company of mediums beached from LCT's, the 16th Infantry had initially only a third of the planned armor support. Those tanks available went into action on the beach between the St. Laurent and Colleville exits.

Feeling the Effects

The heavy losses and disorganization of the first wave had repercussions on each succeeding wave through the morning of D-day. The first serious effect of the failure to neutralize enemy beach defenses was the inability of the 6th Special Engineer Brigade and naval demolition parties to blow gaps in the beach obstacles as planned. Weather conditions also played a hand in hindering the engineers from accomplishing their mission. Half the demolition teams were delayed in landing and only a third of them touched down on their appointed sectors. Since the rest were carried eastward by the coastal current, the 116th Infantry zone received substantially less than the scheduled effort. But enemy fire also took a heavy toll of both men and equipment. Of sixteen bulldozers only three could be put into operation on the beach, and one of these was prevented from maneuvering freely by riflemen who sheltered behind it. . . .

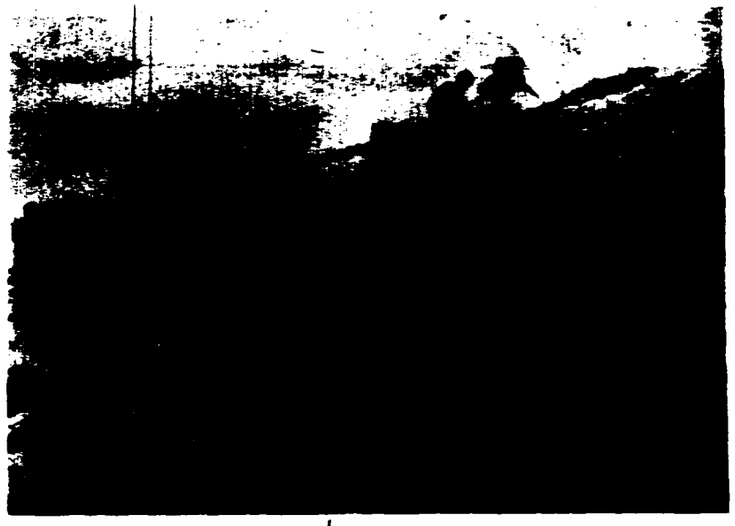
The second group of assault waves, consisting of five separately timed landings, was to complete the build-up of the two assault regiments by H-plus-1-hour and bring in the 81st Chemical Battalion, two combat engineer battalions whose principal task would be to clear mine fields for the advance inland, naval shore fire control parties, and advance elements of artillery, medical, and antiaircraft units. In the zone of the 116th Infantry the remaining three companies of the 1st Battalion were to come in behind Company A on the right. On the left the heavy weapons company of the 2d Battalion would land to complete that unit and would be followed by the 3d Battalion.

The right flank, however, continued to be an area of particular misfortune. Only scattered sections of the reinforcing units managed to land there and they were hit by the same destructive fire that had virtually knocked Company A out of the battle. The battalion headquarters company, including the beachmaster for the 1st Battalion sector, landed at the base of the cliff west of the rifle companies and under such severe enemy small-arms fire that it was unable to move most of the day. The heavy weapons company, scattered and hard hit on the approach, took two hours to assemble survivors. It salvaged only three mortars, three machine guns, and a few rounds of ammunition. Only one company of the 1st Battalion survived as an organized group capable of pursuing its assault missions. This was Company C, which mislanded 1,000 yards east of its planned beach within the area of the bluffs covered by the smoke of a brush fire. With few casualties and equipment virtually intact, the company waded in on a front of not more than a hundred yards and reorganized in the shelter of the sea wall.

Next to land in the 116th zone were the Rangers. The 5th Ranger Battalion together with two companies of the 2d Rangers had waited offshore for news of the assault on Pointe du Hoe, which would determine whether they landed there or came in on the 116th Infantry zone. The Pointe du Hoe assault, however, had been delayed forty minutes by the eastward drifting of the craft carrying the Rangers. There was therefore no news at all, and the Ranger reinforcements, concluding that the assault must have failed, proceeded with the alternative plan. The 5th Ranger Battalion followed Company C, 116th Infantry, and shared the relatively easy assault in landing too far east. But the two companies of the 2d Ranger Battalion came in about where planned on the fire-swept right flank behind elements of Companies A and B. Only between a third and a half of the two 65-man companies survived to take shelter at the head of the beach.

In the 2d Battalion zone, the second wave brought in the heavy weapons company and battalion headquarters. Company H suffered such losses and disorganization that it could be of little immediate help in supplying mortar or machine-gun support. The battalion commander, Maj. Sidney V. Bingham, Jr., coming ashore near les Moulins, organized a few sections of Company F which had landed in the first wave and attempted an assault on the enemy positions in the draw. The attempt made with only a handful of men was unsuccessful, but in the meantime the 3d Battalion was landing bunched up astride the regimental boundary just east of les Moulins. It was somewhat disorganized by the intermingling of units but suffered little from enemy fire in crossing the beach.

At the end of the first hour the 116th Infantry had at least a nucleus of force which could be organized for attack against the enemy's beach positions. Most hopeful was the situation roughly in the center of the regi-



U.S. Army

Over the top. Troops leave the comparative safety of a wall to move on inland.

mental zone just west of les Moulins where enemy fire masked by smoke was light and ineffective, and where shortly after 0730, by great good fortune, the regimental command group with Col. Charles D. W. Canham and Brig. Gen. Norman D. Cota, the assistant division commander, came ashore.

The experience of the 16th Infantry's later waves was similar to that of the 116th. Losses were lighter but the confusion and intermingling of units on the beaches became more serious. The two remaining companies (G and H) of the 2d Battalion followed by the 1st Battalion landed about where planned, due north of Colleville. The 3d Battalion completed landing on the left shortly after 0800. The 3d Battalion headquarters, however, landed to the west and could not join its troops for several hours. The 16th Infantry suffered another misfortune when the regimental executive officer, coming in with the first section of the headquarters, was killed together with thirty-five of his men. The commander, Col. George A. Taylor, did not arrive until 0815 with the second headquarters section.

Command was generally one of the graves problems faced by assault units, not only because officer casualties were high and mislanding of command groups had left many units leaderless, but also because of extreme difficulties of communication. Three-quarters of the 116th Infantry's radios were destroyed or useless. Furthermore, in the confusion of the mixed units, which were under heavy fire in some places, their men huddled along the shingle embankment or sea wall and generally shaken by the shock of the first few minutes of severe action, it would have been impossible for any commander to exercise control over more than a small group of men on a relatively narrow sector of the front.

In these first few hours on OMAHA Beach, the OVERLORD operation faced its gravest crisis. Deprived of the expected air support by accident of weather and preceded by a generally ineffective beach drenching, the 1st Division had gone in against the one sector of the Normandy coast that had anything like the kind of cordon defense which Field Marshal Rommel counted on to hold and smash the Allies on the beaches. Instead of attacking in the sector of one regiment of an overextended static division as expected, General Huebner's troops hit on the front of a full attack infantry division, the 352*d*, whose presence in the coastal zone had been missed by Allied intelligence even though it had been in place for almost three months.

To the German officer in command of the fortifications at Pointe et Raz de la Percée it looked in these first hours as though the invasion had been stopped on the beaches. He noted that the Americans were lying on the shore seeking cover behind the obstacles, that ten tanks and a "great many other vehicles" were burning. The fire of his own positions and the artillery, he thought, had been excellent, causing heavy losses. He could see the wounded and dead lying on the sand.

Sketchy reports to V Corps and First Army must have painted very much the same picture for the American command. From a DUKW cruising 500 to 1,000 yards offshore, Col. Benjamin B. Talley, the assistant chief of staff of V Corps, radioed General Gerow what he could observe of the progress of the landings. Observation was difficult, and on the whole Colonel Talley refrained from reporting mere pessimism. However, he had to report something of the evident disorganization. He could see that the beaches were jammed with infantrymen and that enemy artillery and machine-gun fire was still effective. He sent a message to that effect about 0930. What particularly concerned him was the fact that reinforcing waves were being held up by the continued enemy opposition and the LCT's were milling around offshore like "a stampeded herd of cattle," although some of the more daring commanders took their craft into the hail of enemy fire and beached them. This situation seemed to Talley to continue without alleviation until midmorning, and it was the situation conveyed to Generals Gerow and Bradley.

Already, however, as Talley sent forward his discouraging reports, the crisis was bit by bit dissolving. Among the groups of scared, tired riflemen huddled along the beach were a few intrepid leaders—officers, noncoms, and privates on whose individual backs the big responsibility at the moment lay. They began by example and exhortation to prod the men to get up, leave such poor shelter as they had found, and walk or crawl across the beach flat and up the hills where the enemy was dug in with rifles, mortars, and machine guns. From the larger perspective the combined weight of Allied arms was gradually wearing down the defenders. The *916th Regiment* in the center of the *352d Division* sector, while reporting that the landings had been frustrated, added that its own casualties were mounting chiefly from the heavy Allied naval fire and that consequently reinforcements were needed. Reinforcements, however, could not immediately be spared since they were much more urgently needed elsewhere.

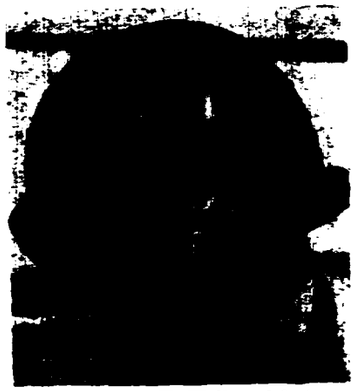
The gravest immediate threat for the Germans arose to the east of V Corps where the British assault cracked through the coast defenses in some places during the first few hours. The British Second Army attacked with three divisions abreast under control of 1 and 30 Corps. Immediately on the flank of the American attack, the British 50th Division landed two infantry brigades supported by tanks of the 8th Armoured Brigade and assault teams of the 79th Armoured Division and the 47th Royal Marine Commando. The troops touched down approximately on time at 0725.

Opposition was heavy at certain points, but on the whole it was much less determined than at OMAHA. In the 50th Division zone le Hamel, strongly defended by the *1st Battalion, 916th Regiment*, resisted until late in the day. To the east, however, the British division's left brigade struck a soft spot in the German defenses. The strong point at la Rivière held out only a few hours and when it fell at about 1000 its defenders, the *441st Ost Battalion*, attached to the *716th Division*, broke and pulled out, leaving the road to Bayeux open. This development, however, was not known to the British. Opposition continued to be reported south of Buhot, at Ryes, St. Sulpice, and Summervieu. It was always difficult in the early stages of the assault properly to distinguish enemy delaying action from major opposition or to discover where the holes were in the German defense. The 50th Division, moreover, still had only its assault forces ashore. Rising tide had prevented effective clearance of underwater obstacles. Enemy opposition and mines delayed the opening of beach exits. Caught in the resulting congestion, the two follow-up brigades of the 50th Division were two hours late in landing. When they did arrive, they found their assembly areas still not entirely cleared of enemy. Elements of the *352d Division*, in fact, were still on the Meuvaines ridge after midday.

From the German point of view the crumbling of the *441st Ost Battalion* was immediately critical. The gap had to be plugged at once. The *915th Regiment* reinforced (*LXXXIV Corps reserve*) had been stationed near Bayeux and had often practiced just the maneuver now required—counterthrust, toward Crepon. But earlier in the morning (at 0400) the *915th* had been ordered to the Carentan–Isigny area to attack reported large-scale enemy airborne landings between the Vire and Douve Rivers. The report was discovered to be unfounded at just about the time the hole in the *716th Division* opened up. Threatened with having his whole right flank rolled up, Generalleutnant Dietrich Kraiss, the commanding general of the *352d Division*, secured corps approval for the return of the *915th Regiment*. But an hour was consumed trying to reach the regiment. Then it had to countermarch almost twenty miles from a point nearly five miles west of the Forêt de Cerisy. The march was made partly on foot, partly by bicycle and French motor vehicles which suffered numerous mechanical breakdowns. Another three hours passed before even a portion of the unit was in position to attack. That delay proved crucial, for in those hours much happened to change the situation on OMAHA completely.

Ernest Hamlin Baker, U.S. Army, Bachrach

Time's "Man of the Year." Name: American. Occupation: Fighting-man.



General Walton H. Walker, 8th Army Commander, accident victim in Korea.

Lieut. General Matthew B. Ridgway, now commanding 8th Army in Korea.

Mrs. Anna M. Rosenberg, recently named Assistant Secretary of Defense.

General Dwight D. Eisenhower, commander of integrated forces of West.

Brig. Gen. Frank H. Partridge, commander of new 7th Armored Div (Tag).

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.

In the close reappraisal of armor going on today the word "universal" has cropped up. It is perhaps to be expected that the search for short cuts and savings should spark the idea of a "combination tool." Fortunately, the tank seems to have weathered this storm; we have progressed to the "family" of tanks. However, there are rumblings that seem to indicate that the next fashion may be the "universal division," an all-purpose organization designed to shoulder the team tasks of our present ground force branches. In an effort to garner the best professional thought, ARMOR has asked some of the top military men in various countries around the world to express their views on **TRENDS IN ARMOR ORGANIZATION.** *Their significant opinions follow.*—THE EDITOR.

The writer of the following, graduate of France's Military Academy of St. Cyr, served with the 9th Cuirassier Regiment in World War I. As Professor of Cavalry at Saumur 1931-34) and the Armed Forces College at Versailles 1936-39), and as member of the 1st Light Armored Division 1934-36), he was closely connected with the evolution of Cavalry toward Armor, the study of motorization of the Army, and the experimentation with armored units. In the 1940 Belgium-Dunkirk action he commanded the 2nd Cuirassier (Tank) Regiment, moving on to North Africa to command a Cavalry Brigade, and then an Armored Brigade in the Tunisian Campaign. He commanded the First French Armored Division from St. Tropez to Mulhouse in 1944. In 1946 he became Chief of Staff of the French Army, and then Deputy to General de Lattre de Tassigny, Inspector General of the Army. He retired in 1947.

Faced with the multiple dangers which lie in wait for it, can the tank hold its own on the battlefield? How should it be adapted to new conditions of warfare?

France's Du Vigier

The search for protection against blows inflicted upon him by his adversary is an instinctive necessity for the fighting man. Going back to Minerva, the goddess of ancient wisdom, we find her depicted not only carrying a lance but taking shelter under a helmet and shield as well!

With improvement in armament, however, shields became breastplates, then armor, and as a result man lost all his agility. His strength was no longer sufficient for him to handle his weapons alone. So the horse came to his rescue and for centuries steel-clad knights ponderously hurled themselves at one another. But the overloaded horse in its turn also lost its mobility, especially on rough terrain. In 1415 knighthood heard its knell sounded at Azincourt where it was unable to escape the arrows of the archers of the King of England, and a few years later the appearance of early firearms completed its ruin. From that time on, instead of protecting him, the knight's armor marked him out for the blows of his opponent. This same misfortune is threatening today's tank!

Terror-stricken by the efficiency of artillery—as we are by the devastations of the atom bomb—our ancestors thought only of digging themselves into trenches, or of taking shelter behind fortifications. It required a Napoleon to be bold enough to declare that battle on the open field would *decide* the fate of a campaign.

At first his successes were overwhelming but balance was restored as soon as Napoleon's foes learned to imitate him—and so came Leipzig, then Waterloo. The nineteenth century vainly endeavored to upset this balance. In 1914 again, opposing armies continued to struggle and wear themselves out in vain. They had no choice but to die face to face, in front of their barbed wire entanglements, beaten down by increasingly powerful and accurate firing.

Later when light engines made possible the creation of aircraft and tanks, maneuvering regained its value. Employed en masse, the tank turned Foch's mighty 1918 offensives into victories.

Hitler understood this lesson. He built up the tool of his revenge—the tank, escorted by planes, and supported by self-propelled guns. Like Napoleon, he dreamed of subduing Europe; like him again, he succumbed after the Allies had finally gathered strength enough to upset him.

1945—Berlin—that was yesterday. Then came Hiroshima! And there have been many other equally terrifying inventions since then. Will the tank be compelled to disappear, like the Azincourt knight, overwhelmed by improvements in weapons specially designed to combat it? It will not if it can adapt itself, as Napoleon did, through the resources of modern science.

In order to *scout* tomorrow's maneuver, we must learn to make full use of all currently available means—electrical ones first (radar, listening posts, television, etc.), air power and partisan combat, of course, and armored details acting with flexibility, speed and daring. A number of fighting vehicles should be enough to achieve that aim. In order to be fast, they should be light, ten to twelve tons should be enough. They should probably be multiwheeled rather than full tracked vehicles, in order to ensure a high strategic mobility on roads. They should be equipped with very high grade means of detection (for planes, mines, tanks, etc. . . .) and of long and short range radio communications.

As for the battle, it will be *decisive* only if the main striking forces are powerful enough to immediately tip the balance in their favor. The heavy tank, very strongly armed and protected, must be this *irresistible* element on behalf of which all the other fighting units will combine their efforts. Nothing must be in a position to stop their moving forward—neither torpedo-bomber planes, nor guns, nor bazookas, nor mines. This means it must be a veritable mobile fortress. Its weight will probably reach a very high figure, perhaps 100 or 150 tons. Under such conditions, research should be immediately initiated, in order to determine the technical and tactical requirements it will have to meet—probably a nuclear energy engine—an asset which would replace gas supplies, unfeasible under combat conditions; strategic transport in several distinct loads, to be reassembled only when tactical use is decided upon; the most powerful possible armament against aerial as well as ground threats, etc. . . . These very heavy tanks will be difficult to build. They will be very expensive. Only the industrial powers will be in a position to afford them.

On the other hand it will not be necessary to have a great many of these tanks available. It will suffice that the enemy be in no position to oppose their devastating advance, and even that he *think* he is in no position to do so. A few elephants were sufficient for Hannibal to cross the Alps; a few guns for Charles VIII to conquer Italy; a few light armored vehicles for Hitler to achieve the Anschluss and a few tanks again for Patton to give the Wehrmacht a final blow.

The tank will survive, but only if it can adapt itself to conditions. To this end we must follow nature's example and produce an "ensemble" embracing the aggressive nimbleness of the small tiger and the overwhelming bulk of the huge elephant, ranging from light vehicles useful for scouting missions to powerful tanks strong enough to force a victory.

LT. GEN. JEAN LOUIS TOUZET DU VIGIER.

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The writer of the following, a graduate of the Royal Military College, Sandhurst, England, was commissioned in 1928 and posted to the 7th Light Cavalry of the Indian Army. In World War II he served as both staff officer and unit commander in Eritrea, Abyssinia, the Western Desert, and Burma, where he was the first Indian to command an armored unit in action. Since the war he has served in French Indo-China, Java and Malaya. Following attendance in 1947 at the Imperial Defense College in London, he returned to India and the Army Headquarters Staff. Since May of 1948 he has commanded India's First Armored Division, except for a several-month period in late 1948 as Military Governor of Hyderabad State.

I would like to confine this article to trends in the organisation of armour as it might be in countries which are semi-developed industrially, and as regards communications. Trends in the more highly developed countries are always under review and though there is much argument, there is also much unanimity.

India's Chaudhuri

Firstly, for the tank itself. That the gun it carries is the most important feature of any armoured vehicle has always been apparent. Unfortunately, the better the performance of the gun, the heavier within certain limits it must be. This naturally conditions the rest of the tank. Despite certain disadvantages with regard to weight, the tendency in the countries I speak about must not be to sacrifice gun performance in the interests of overall weight. As far as possible, every other factor must be subordinated to getting the best gun possible. Once this has been obtained, the designer must think of three things. The power-weight ratio, simplicity in use and ease of maintenance. In the type of country over which the tank will have to operate, it seems that nothing less than twenty horses to each ton will suffice, if it is to have any performance at all. If complicated in use, the crews may, and probably will, not use the refinements correctly. The expense will thus not be justified. If it is difficult to maintain, and this is considering maintenance in all forms from field maintenance to factory repair, the numbers on the battlefield will fall quickly.

Secondly, there is the question of whether there should be one tank, two types of tank or a type for every purpose. Here again, the trend should be towards simplicity, tempered with reason. Wherever it fights, the armour must be prepared to destroy the enemy tanks, to support its own infantry and to exploit success. These will be its primary roles. If the gun is a suitable one and the handling of the armour is correct, one tank should be able to do these tasks. But, the roles that would fall to the armoured car in highly developed countries, roles that will include use in battle as well as use in civil disturbances, will require a lighter tank, for wheels don't carry you very far where there is no road. Perhaps the trend will be towards two types but rationalised as far as possible.

Thirdly, the organisation. The truism that an armoured formation is really a closely knit group of all arms, becomes even truer in semi-developed countries. To make any progress at all, the armour supported by the infantry, or vice versa, and both supported by artillery, is imperative in all stages. The trend must be towards an even closer knit organisation; not only closer knit but more compact. Where there is only one road, an armoured division strung along two hundred miles of it is not only wasteful but military absurd. The trend must be toward eliminating over insurance as regards ammunition and fuel; to ensure that every man has a worthwhile battle task; to dispense with all luxuries; and to see that every vehicle is essential, is of the correct type, is carrying the right load and is in the right place. Where possible, the infantry must travel

on the tanks. In this organisation, the trend must also be towards an increase in fire power of the non-armoured components, fire power of the type that will make them more self dependent both in attack and temporary defence. Further, in semi-developed countries, distances will be greater, transport will move slower and casualties will become a greater problem. The trend will be towards a much closer liaison with the air arm, both operationally and administratively.

Finally, while keeping an eye always on the ideal, the whole trend of thought on organisation must be to get the best out of actuals. There must be a realistic outlook as to what is and what can be made available. The adversary must not be over or underestimated, while the tasks set must be in conformity with capabilities.

MAJ. GEN. J. N. CHAUDHURI.

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The writer of the following, pioneer in armored warfare, served overseas with the Canadian forces in World War I. From early World War II command of the 1st Canadian Army Tank Brigade, he moved on to command of the Fourth Canadian Armored Division in its European campaigns. During 1945 he was Commander in Chief of Canada's Pacific Command, becoming General Officer Commanding Western Command in 1946. Now retired from active military service, he is Canada's Civil Defense Coordinator.

It would be futile to forecast the future trend of armour organization without knowing what is in the minds of the general staffs of both the Communist and Western groups of nations. Not having this occult power I can only render a few abstract opinions.

Canada's Worthington

However, the future trend of organization will depend largely upon three basic fundamentals which have exercised considerable influence in the past and present organizations of armour formations.

These three fundamentals are the prejudice, design and tactical conception.

In connection with the above, it is well to consider some of the important lessons of the past, so far as it concerns the Western groups of nations. The tank came into being in the first world war under the most adverse circumstances possible. It was the Admiralty and not the War Office that gave the first impetus to a weapon that would prove vital to victory on land. At the conclusion of this war, most of the eminent soldiers of the time allowed the orthodox views of the military hierarchy to create a strong and virile prejudice against armour. Efforts were made to remove or at least paralyze this illegitimate child of the army.

A few men, such as Fuller and Liddell Hart, were among the foremost advocates of mechanization and armour, but theirs were voices in the wilderness, and for the most part went unheeded.

Because of this prejudice, design in the armoured fighting vehicles and their auxiliaries lagged behind those of our erstwhile enemies. There were one or two short spurts toward the tactical organization potential, but these were short lived. All of this had a profound effect upon the trend and development of armour and the older tank men of the time were forced into the position of appeasement in accepting any design or organization as being better than nothing. We, therefore, entered the Second World War with fighting vehicles that were under-gunned, under-powered and under-armoured. Nor did we at any time overtake our enemies in this field other than having a preponderance of numbers.

The three fundamentals mentioned above are still vitally important in the trend of armour organizations.

Prejudice. There is evidence that this old prejudice of thirty years is not yet dead despite many outstanding lessons of the Second World War. In the past this prejudice may have been based on ignorance and the fear that armour would supersede more favoured arms. Today there is no such excuse. But unless a very clear concept of armoured potential exists, it may well be that the future trend of organization will be as spotty, as unsound as it was in the past.

Design. To our everlasting shame as nations of great technical potential we never did produce an armoured vehicle capable of matching the best our enemy had. The designers were not entirely to blame, but many of the eminent men of this field could not or would not produce what the fighting man wanted. There was a large gap between the actual fighter and the designer. More often than not, the policy of design was dictated from a level so high that it could not, under any stretch of imagination, interpret the views of the fighting soldier. An example of this is the well meant policy of producing the universal tank.

The modern trend of design appears to be more in the direction of creature comforts and gadgetry. The armour fighting vehicle should be built around the gun; it should be simple and expendable. The Russians have done this and so can we.

Tactical Concept. The tactics of armoured formations must be based on the characteristics of the prime vehicle within that formation and should not be unduly influenced by the tactics of other arms. One of the prime functions of an armoured formation is the breakthrough and exploitation: in other words, mobility and manoeuvre. Therefore, air and armour have a natural affinity. In consequence the tactics of these two arms should be developed to the highest degree of efficiency.

Organization. It is my opinion that an armoured formation should contain no elements incapable of cross-country performance. In the last war our armoured divisions contained a very small war head of armoured vehicles with a long tail and soft belly of wheeled transport. When in march route formation it occupied upwards of 200 miles of road space. There is still not much change. An armoured division should be a tactical formation designed to fight and contain only the bare minimum of administrative

and supply elements. This latter is better placed under Corps. Moreover, I believe it incorrect to mix armoured and infantry divisions into the same Corps. An armoured division should contain a suitable balance of artillery and infantry, the last named being heavy in fire power and trained to fight with the armoured elements.

I believe that tactical air groups should be trained to fight with armoured formations as combat teams. Nor is it unreasonable to suppose that air reconnaissance, and even supply upon occasion, is impracticable. There are many lessons to support this belief.

If the present conflict develops into a more open struggle, we will be competing against a manpower army, the bulk of which will be well trained and reasonably well equipped. In the past when we have faced large manpower armies they have, for the most part, been equipped with primitive weapons, and in consequence small forces with better weapons have been able to be victorious. I suggest, therefore, that our key to the future is not to match man for man, but develop our technical and mechanical efficiency, and from this create tactical techniques of our own rather than those of our enemy.

MAJ. GEN. F. F. WORTHINGTON.

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The writer of the following served with Germany's field forces in World War I. In the period 1936-37 he was in charge of Germany's First Panzer Force School, and in 1939-41 the Second Panzer Force School. During World War II he was a divisional commander in North Africa, and commanded the 7th Panzer Division and Grossdeutschland Division on the Eastern Front. He became Commanding General of the Fifth Panzer Army and was promoted to General der Panzertruppe on 1 January 1944. His name has been mentioned in connection with the formation and command of a new West German Army.

The commitment and use of troops determine among other things their form of organization, both on a small and on a large scale. The technical progress of the individual weapons also influences their form of organization. For this reason a few of the technical demands made by the fighter upon the technician will be outlined herein, and subsequently a possible form of troop organization will be dealt with.

The designer of tanks is faced with the following requirements, briefly put, which the fighter formulates with respect to the construction of tanks: weapons of great fire power, accuracy and rapidity of fire; good means of observation and aiming; armor-piercing ammunition with destructive effect; heavy armor; low silhouette; high cross-country speed; good means of steering; modern, easily handled and quickly interchangeable radio equipment; and ability to climb and cross shallow watercourses.

In the construction of tanks to meet these requirements, the limit with regard to gun capacity, armor, and power of the engine for giving the tank the necessary high cross-country speed is, according to my experience, *fixed by the speed and the maneuverability which the tank must have on the battlefield.* This is true because weapons combating it have improved likewise. In May 1944, in the Rumanian theater, the division which I commanded put out of action Stalin tanks which were then appearing for the first time and which today are probably still the strongest tanks in the world with respect to guns and armor. These tanks were not disabled by our Tigers (Mark VI) or Panthers (Mark V) but by our Mark IV's, a medium type of tank armed with a long-barreled 75mm gun, which stealthily approached these tank monsters, skillfully taking advantage of the terrain and fully exploiting their high speed, and fired on them from the side, opening fire in surprise assaults, with the result that not a single Stalin tank remained in action.

Germany's Manteuffel

It must be emphasized that tanks need improved target reconnaissance and communication equipment, both for notification within the armored unit and for communication with the tactical air force most closely cooperating with it. On tank armament, muzzle flash and report should also be softened. Equipping tanks with night aiming mechanism should cause no difficulties, in view of experience gained with night fighter airplanes; this kind of mechanism is urgently necessary because, in future, march, assembly and combat will take place in hours of darkness to a much greater extent than we have been accustomed to. The combat troops accompanying the tank nucleus, such as infantry, engineers, artillery, rocket details, etc., must have the same speed on the battlefield as the tank unit, in order that all these troops may be able to fight in close cooperation with the tanks. Only in this manner will they be capable of lending adequate—meaning *effective*—assistance to the tanks. They too, of course, must be at least lightly armored and run on caterpillars. The accompanying infantry in the tank unit will fight as a rule from its armored vehicles and will dismount for fighting only in special cases. Continued development of "Goliaths" like those which we had in the Wehrmacht should be attentively pursued and spurred on. These vehicles were small, armored explosives carriers on caterpillars, resembling in shape their large colleagues, the real tanks. They were steered by remote control and were tremendously effective.

For the sake of completeness I should remark here that some of the supply services of armored troops—unless these are supplied by air—must have at their disposal vehicles capable of bringing necessary supplies to the troops on the battlefield, that is, capable of moving cross-country. The same applies to some of the vehicles of the maintenance services.

The question of the organization of troops cannot be dealt with in a few words. In addition to the material basis many other factors must be considered, such as the soldierly qualities and the educational level of the nation concerned, the geographic situation and condition of the potential theater or theaters of operation, the strength of the presumable enemy or enemies and the question

Under Secretary of the Army Archibald S. Alexander Before the Society of Automotive Engineers.

The President, in his State of the Union message, outlined . . . what is before us.

There are two parts of the President's address which I should like to recall to your attention. He set the build-up in personnel strength of our Armed Forces at 3½ million and said: "We are going to produce all the weapons and equipment that such an armed force will need. Furthermore, we will make weapons for our Allies, and weapons for our own reserve supplies. On top of this, we will build the capacity to turn out on short notice arms and supplies that may be needed for a full-scale war."

At another point in the President's address—and this should be of particular note to the automotive industry—he said: "We are preparing the capacity to produce 35 thousand tanks a year. We are not now ordering that many, and we hope that we never have to, but we mean to be able to turn them out if we need them. . . ."

General Collins, Army Chief of Staff, in an article published this month, after describing the close partnership between the Army, Navy, Air Force and Marines, identified the basic problem facing our ground forces, the Army and the Marines. The problem is to produce "sufficient mobility and fire power for our ground forces. . . ."

. . . our plan for tanks will comply with the President's directive that we equip our increased armed forces and create the capacity to make 35,000 tanks a year. And the same will be done for other items of equipment and supplies. . . .

The Army's plans for the fiscal yea. '951 require the spending of more than 4 billion dollars in the tank-automotive field alone. . . .

Looking at the record of the last war, I am sure we shall succeed in what we are trying. The automotive industry, which in 1940 made 331 tanks, made 25,000 in 1942. And though the tanks of today and tomorrow are and will be far superior to those of World War II vintage, and though the cost of most things has doubled since 1942, the tanks we are now buying in quantity cost no more per unit of horsepower than the tanks of World War II. The chief credit for this is due to the engineering brains and the manufacturing skills of the automotive industry working with the Army tank specialists. . . .

whether the campaign will be conducted by mass armies in a small area or by numerically small armies in a large area.

Always a maximum of fighting power and mobility must be achieved and the high command must be able to carry out its will safely and quickly. To this principle everything has to be adjusted.

Regarding the organization of units up to division level I suggest organization on a four-unit (rather than triangular) basis. It affords the subordinate commander a chance, in a fast moving situation, to take immediate advantage of opportunities, enabling him to exploit a tactical success by resolute and appropriate action. With organization on a four-unit basis he is in a position to "feed the battle" from his own reserves without having to wait for the attachment or assignment—and thus for the arrival—of further forces, which always costs time. We all have learned that time thus lost generally benefits the enemy!

The combat technique of the troops will have to be in conformity with modern weapons, their possibilities of application and their effect. This is true of march and assembly as it is of fighting itself. In the future, movements and battles will have to take place in hours of darkness to a greater extent than hitherto, in order to impede enemy reconnaissance and action from the air. An appropriate combat procedure needs to be developed and perfected. Where terrain permits, the troops, supported by the greater effects and longer ranges of their modern weapons, will be able to fight in greater width and depth. In contrast with 1945, they can leave certain areas unoccupied, and may even be *compelled* to do so, because the weapons of the enemy have also improved.

In addition to strategic concealment of all operations, tactical concealment is of very great importance. It includes among other things the choice of terrain in accordance with over-all plans, surprise action, and habitual concentration of all weapons for surprise fire.

The tank troops must not be content with driving off attacking enemy tanks from good firing positions. They must *annihilate* enemy tanks whenever they see them or suspect their presence. For this reason the tanks must themselves attack again and again to destroy those enemy tanks which from great distance are giving fire support to their own attacking tanks.

A further relevant point is the following: The armored troops breathe through their services of supply, that is, supply of fuel and spare parts and their towing and maintenance. Their importance became plain to us when a large part of these services remained stuck in Russian morasses and snow fields, owing to a lack of proper organization or leadership, while combat was in progress. Organization, equipment, and mobilization of these various services are of decisive significance. Those units which directly support the combat troops, and that includes a large part of them, need a tactical command like the combat troops themselves.

HASSO ECCARD VON MANTEUFFEL.

The Requirement For Armor

by **COLONEL HAMILTON H. HOWZE**

SOME months after a nation commits its armed forces to battle there normally occurs a healthy process of military self-examination. Many searching questions are being asked now, not only by professionals, but by all citizens conscious of military matters. I believe we can acknowledge that the war in Korea has been a full-scale conflict, definitely not susceptible to description as a mere police action. It is also true that it is being fought without the employment of a single armored division or light armored regiment.

There are obvious reasons why these units were not employed in Korea, among them being that our order of battle lists, under armored divisions, exactly one. It nevertheless remains true that *tanks* have participated very importantly in this extensive action, and none of these tanks belong to what are generally considered to be the primary formations of the armored branch. These facts would seem to lead logically to the conclusion that the Korean war is prima facie evidence in support of the concept of the "universal" division—in effect, an infantry division beefed up with sufficient tanks and transportation to enable it to fulfill not only its own role but also that commonly accorded to an armored division.

The Korean experience may encourage many infantry commanders to contend that the infantry division right now meets all the major requirements of the universal division: just a few more fighting vehicles and trucks here and there will do the job. An infantry division is in truth very strong in armor, having organic a standard tank battalion plus the full equivalent of a second. Additional tanks, in separate tank battalions, are available in the Corps and in the Field Army. It might seem crassly selfish of Armor as a branch to regret the fact that the Infantry, having been made organically so powerful, finds itself in a position to do without major armored units in most combat situations. On the other hand if this concept is generally accepted, and therefore reflected in the organization of the Army as a whole, I believe that great damage will have been done.

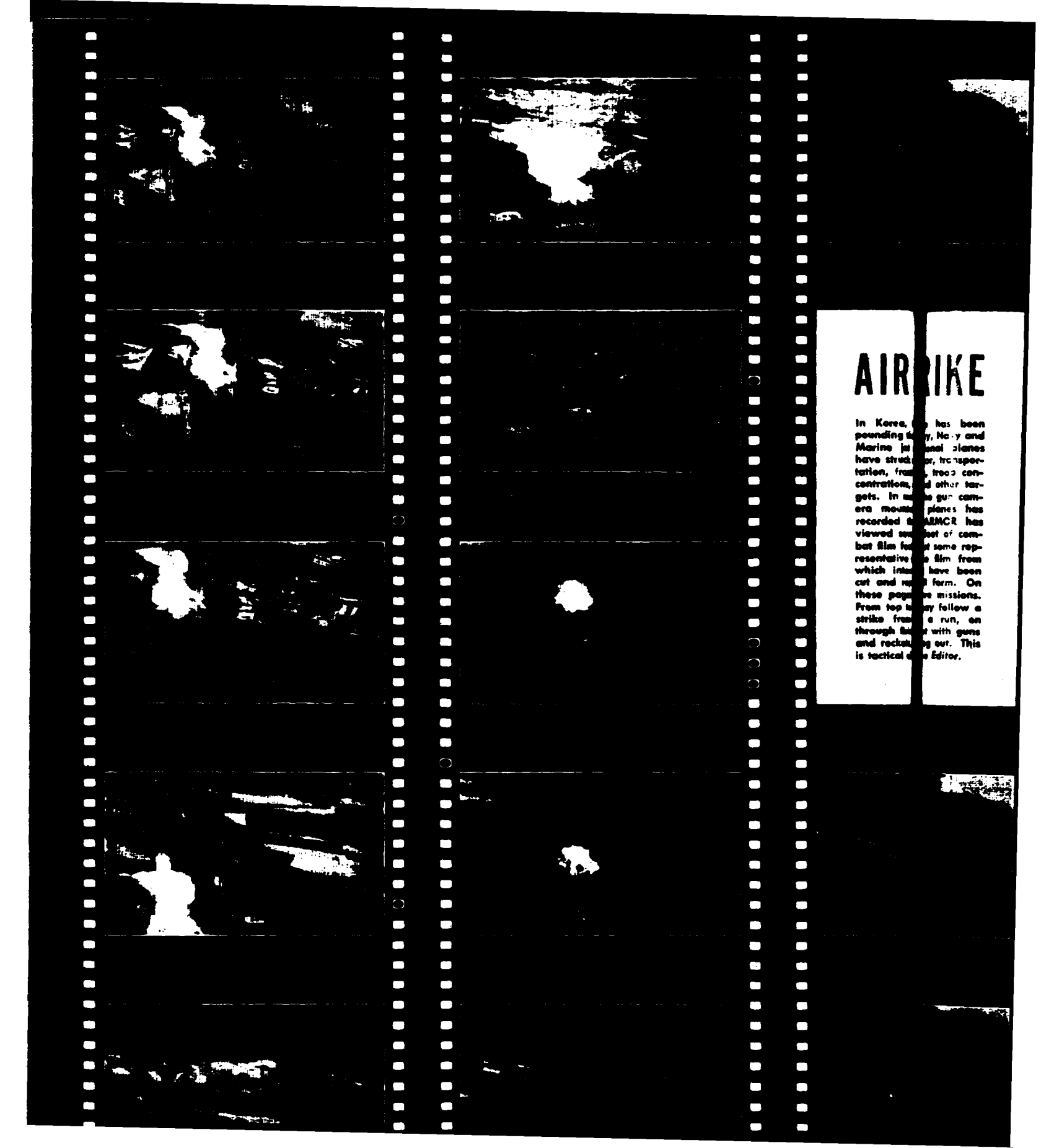
It is difficult to see how the organization of the war Army will *not* be affected. I suggest that the process will be about as follows: in the hurry and stress of mobilization, emphasis will be upon putting divisions into the field; new infantry divisions may be activated and made operational in a somewhat shorter time than armored divisions; the case may logically be made that these infantry divisions can do most of the things that armored divisions can do, since they approach the "universal"; each activated infantry division will soak up its full, and considerable, proportion of tanks, which must be expected to remain in short supply; the operational readiness of new armored divisions will thereby be repeatedly deferred, in the interest of expediency and because of a shortage of its basic weapon: the tank.

This paradoxical situation might be accepted if it were based on sound tactical principles—but it is not. The armored division has a battle role that is totally unique, a role that cannot be adequately fulfilled by a standard infantry division through any process of adaptation. It is necessary, however, that Armor acknowledge that this concept imposes on Armor a rather awesome responsibility: *it must be capable of fulfilling its special role with special excellence.* Unless it meets this criterion it loses the right to exist.

To meet the challenge the armored division cannot, on any account, be fought simply as an organization with a somewhat larger proportion of tanks-to-infantry. The armored division must design all its tactics with special reference to the unique capabilities of the tank, which may be stated in simple form as the ability to move and the ability to kill. Those capabilities *are* unique only in the sense of degree: the infantryman has the same powers, but he cannot move as far and he cannot kill as extensively. Please note that I have not assigned to the tank as an important asset the ability to absorb punishment by virtue of its armor plate—this is a secondary consideration for tanks of the armored division, and must always remain so if the division is to operate with "special excellence."

Moreover, the true role of armor cannot be fulfilled merely by the provision of *any* sort of equipment, however organized or however perfect—a certain psychology, or mental attitude, is involved. Like the cavalry of Forrest and Sheridan and Jeb Stuart, our major armored formations require officers who understand the true value of mobility, the essence of which is "quick decisions, quick movements, surprise attack with concentrated force; to do what the enemy does not expect, and constantly to change both the means and the methods to do the most improbable thing whenever the situation permits; to be free of all set rules and preconceived ideas." Armored officers must also know what Clausewitz meant when he said that no subordinate commander must be held accountable for the *success* of his part of the battle, although fully responsible that his troops are skillfully led and fought vigorously "in a spirit of self-sacrifice"—the theory being that if a commander is too preoccupied with success, as such, he will put undue emphasis on the protection of his flanks and other precautionary measures, and will thereby eschew the bold approach. This is not a theory for amateurs.

In the possibly forthcoming struggle for Western Europe there will be an indispensable requirement for powerful, mobile troops; the greater the disproportion in total numbers, between ourselves and our opponents, the greater the requirement. General Martel, of the British Army, says that 20 armored divisions could do the job. Whether that figure is too large or too small cannot be decided on the pages of this or any other magazine, but certainly it would seem desirable to set about the provision of proper and adequate armored forces by the earliest possible time.



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TANK ECONOMY:
Analysis of Combat and Operational Losses

Tank losses in or out of combat must be the subject of continuing analysis as a basis for corrective action on the part of the maker and the user. Here is a discussion of some most important measures.

by BRIGADIER GENERAL P. M. ROBINETT

A TANK is a very expensive instrument of war—probably the most expensive item of equipment issued to the ground troops. Improvements are constantly making this increasingly so. Collectively, therefore, tanks constitute not only a very great financial drain on the national economy, but a drain on essential resources as well. This is true because of the amount of strategical raw materials required to build tanks and because of their vulnerability to enemy action in battle. Certain groups of military men have overrated these considerations with the result that the development of defensive weapons has been unduly emphasized. This tendency toward the defensive, though not totally condemned if held within limits, is not in keeping with the mechanical genius of the American people or the traditional American adherence to the principle of the offensive in the conduct of war. While economy is vital, it should not be at the expense of decisive offensive weapons.

The principle of economy of force is taught in all our military schools and permeates our Army, but the implications of the principle apparently are not fully appreciated. The principle of economy of means or of equipment is an element of the broader principle which is commonly understood in terms of manpower. Of course man is, by all odds, the most important element. This should be apparent even to the most brutal realist, for quite obviously there is a limited source of supply and it takes eighteen or more years to grow a soldier plus one to two years to train him at a great cost. But even if equipment can be made and put into service in less time, it has become so intricate and expensive that the strictest care and attention must be taken to insure maximum results in operations. There are strategical, organizational, logistical, tactical, and technical matters to be considered in developing a sound program for utilization of tanks or any other major weapon.

At the end of World War II, American tanks far outclassed those of Italy, Japan, and Great Britain but still compared unfavorably with those of Germany and Russia. However, there was a pronounced tendency during the war to cover up our deficiencies by propagandistic statements to the effect that American tanks were the best in the world. Certain high-ranking field commanders and technical specialists did much to spread this idea. The statements might have been adequate for the uninformed public at home, but were recognized by the fighting men at the front for what they were —mere bunk. If evidence is needed to show what their attitude was, consider the words of Lieutenant F. A. Daubin, 1st Armored Regiment, who was one of the first Americans to face the long barreled 75mm gun of the German Mark IV tank. He was shot out of his M-3 light tank and lived to tell the story.

"Tracer-tailed armor piercing bolts streaked out of the American's muzzle and bounced like mashie shots from the plates of the Mark IV. The German shed sparks like a power driven grindstone. In a frenzy of desperation and fading faith in the highly touted weapon, the M-3 crew pumped more than eighteen rounds at the Jerry tank while it came in. Through the scope sight the tracer could be seen to hit and glance straight up. Popcorn balls thrown by Little Bo Peep would have been just as effective. . . . Death, unexplainedly deferred these many seconds, struck as the light tank backed out. . . . The slug struck the vertical surface of the heavy armored driver's door and literally caved in the front of the M-3. With its driver instantly dead, the bow gunner blind, stunned, and bleeding, the leader cut down by machine-gun fire as he sought cover, the little tank, though sheathed in flame, backed on through the battle until stopped by friendly hands. Safely in a ditch, his thoughts were on two things; how long would it be before the German tanks swept past him and finished him off; and how was the loss of faith in their chief weapon, the 37mm cannon, going to affect the future battle performance of his platoon, company, and battalion?" Victory, however, covers up all failures and inadequacies in war, and did in World War II.

To the fighting man weapons are the symbols of power. It is worse than useless to try to convince a soldier that his weapons are the best in the world when his own experience tells him otherwise. Commanders who repeated the propagandistic statements to the men at the front only tended to destroy the respect in which the soldiers held them. It is best to tell a soldier how to get the most from his weapons.

Brig. Gen. P. M. Robinett commanded American armor in the Tunisian Campaign. Later Commanding General of The Armored Center, he is now retired and is Chief of the Applied Studies Division in the Office of the Chief of Military History, Department of the Army.

On the other hand, a commander should not speak well of the enemy or of his weapons to his men; it is better to take the advice of Frederick the Great and damn them. General Patton practiced this principle assiduously. It is the part of wisdom, however, to adopt and teach a tactical doctrine that is appropriate to the equipment and to the circumstances under which it operates. This requires great flexibility on the part of commanders since new or improved weapons first appearing on the battlefield come as a surprise. Failure to adjust tactics to operational conditions might well lead to defeat. This point is illustrated over and over again both in World War I and in World War II. But any adjustment made to meet a surprise is merely a temporary solution. A real solution can only be found in better-handled, superior weapons. The basic problem is, therefore, technical rather than organizational or tactical. This article will deal primarily with the technical aspects of the problem, largely from the point of view of the combat troops.

New Tank—New Problems

Coincident with the introduction of a new tank, new problems of tactics, maintenance, and operation arise. These are anticipated, as far as possible, in field manuals, in maintenance charts and regulations, and in technical manuals. All these should be developed and issued with the equipment. Even when available, these first instructions are always incomplete or faulty—the tank itself, in spite of all efforts to the contrary, still has certain bugs to be eliminated. This is understandable as it is impossible for even the most intelligent and imaginative individual or group of individuals to anticipate every possible condition or situation. It is therefore necessary that most accurate information concerning mechanical shortcomings or failures be maintained, transmitted, collated, and analyzed. Based on this analysis appropriate specific, corrective instructions should be given to both the user and the manufacturer.

Operational analysis is of the highest importance and concerns all echelons of command. At the highest level, it is necessary that: (1) comparative studies of American and foreign tanks should be made and kept current; (2) integration of tanks in military organization should be constantly reviewed with regard to prospective theaters of operation; (3) maintenance and operating techniques suitable to the climatic and terrain conditions of possible theaters of operation be anticipated; (4) proper instructions be issued to insure the accumulation of adequate operational and combat data relative to the performance of the tanks; (5) information concerning our own and foreign tanks and tank operations be disseminated to the Armored School and the Ordnance Corps; and (6) adequate inspection controls be maintained to insure execution of the program in all lower echelons of command.

Ordnance the Repository

The technical services, particularly the Ordnance Corps, should be the final repository of operational and combat data concerning tank equipment. It should also be the agency to make the technical analysis necessary for the improvement of equipment. Nevertheless, the Armored School should also study the problem from the standpoint of the user and should, therefore, receive copies of all pertinent data. This work should help in developing tactics suitable to our equipment and in reducing operational failures. It should thus favor the maximum effectiveness of tanks at the fighting front. It should also establish the causes of tank losses by enemy action and suggest measures to be taken to reduce these losses.

In a theater of operation, all commanders should be constantly conscious of the principle of economy of means and should exert their influence to insure that ground troops get the maximum advantages from their equipment. This requires a mental reorientation by all commanders, if mechanized warfare is to be conducted in the most efficient manner, and will entail an attitude of mind very similar to that of naval officers, who have always been ship conscious. Army officers must become tank conscious. They should carefully husband the tank strength but not hesitate to go all out or to take risks when the prize is equal to the expenditure of means. At the same time they should insure that all tank units maintain the offensive spirit and the will to assault and overthrow the enemy. They should take due precautions to insure that coordination and close teamwork between the various arms—Armor, Infantry, Artillery, and Air—is carefully preserved. However, there may be times in the pursuit where this careful co-ordination may be temporarily abandoned in order to overwhelm and destroy a beaten force. In such cases it is appropriate to accept heavy losses of equipment for the sake of the advantages to be gained. In this connection it is to be noted that the physical possession of the battlefield was never so important as it is today, because our own damaged and abandoned equipment is not only recovered but the enemy's falls into our hands as well. Even the most severely damaged tank is a mine for repair parts and the less damaged tanks can quickly be put back into operational condition. Special recovery equipment should be developed for the withdrawal of disabled tanks for repair.

Regulations for a tank remount or replacement service should be prepared and all plans should include provisions for replacement equipment. Data on which to make the computations for replacement tanks should be accumulated in the course of every war, just as it was for horses in the past.

Conclusion

To recapitulate, the principle of economy of means should be understood by all commanders in mechanized ground warfare. This principle should be given careful consideration in developing strategical plans and organization, and in the actual conduct of operations. It is possible to accumulate much operational data in peacetime that will be applicable in war, but this will require the employment of tanks under all climatic and terrain conditions and the careful accumulation, collation, and analysis of data gained from these operations. In wartime data should include failures from both operational and combat causes. Analysis and study of the data should facilitate an immediate adjustment of tactical doctrine to the situation and, ultimately, the production of tanks superior to those of the enemy. Procedures should be established at all echelon levels to insure the accumulation of necessary data. Finally, inspection controls should insure the execution of the program at all levels of command.

Loudspeakers used for Psychological Warfare proved effective when used against North Korean troops. Many surrenders were directly attributable to the front line use of this propaganda medium.—From various news sources.

The "Propaganda" Tank

by A. T. HADLEY

EVERY armored soldier knows that one of the essential characteristics of all tank action is shock. Shock, that strikes at the enemy's mind, increases his anxiety and paralyzes his ability to fight. Psychological warfare is that branch of the Army whose primary concern is lessening the enemy's ability to fight through action on his mind. One would think because of this similarity that Psychological warfare and Armor would be constantly working together. Yet, probably because of the woefully limited use made of battle propaganda during World War II, the two have not trained together during this uneasy peace.

Properly used combat propaganda exploits the speed, violence and surprise inherent in every well planned armored attack to tremendously increase the shock effect. The effect of this shock causes the enemy such anxiety that he can no longer fight effectively and may even surrender. This saves American lives and gets the commander on the objective that much more quickly.

To aid the combat soldier, battle propaganda employs two weapons: the tactical leaflet and the tank mounted combat loudspeaker. This latter is the most important to the tanker. The new light (25 lbs.) loudspeakers just coming into production can throw the human voice with understandable clarity for a range of two miles. They are mounted on tanks so that they can go into action along with the assault wave, exploiting the initial shock caused by the appearance of tanks before, or even better, behind, or on the flanks of a position.

Because so little is known about the operations of tank mounted loudspeakers a glance at a World War II operation is instructive. The tank mounted loudspeaker was operating with an advance column of the 2nd Armored Division. Arriving before a fortified town the column deployed. Some fire was received from the town. The loudspeaking tank informed the garrison of the town that a large armored task force stood on the outskirts. The broadcast also informed the people that the commander didn't want to destroy the town. The garrison was then informed that American artillery was ranged on them.

Over the tank communciations system, word was sent back to the artillery. Six leaflet shells, containing surrender instructions for towns, burst over the village. The occupants of the town were then informed that American fighter-bombers were overhead. The Forward Air Controller called down a P-47, that laid a leaflet bomb squarely over the center of the town. The tanks then moved forward without firing, while the loudspeaker continued to call on the town to surrender. As the tanks brushed through a light curtain of fire, the firing stopped and white flags appeared. A garrison of some 800 men with antitank weapons surrendered.

Admittedly, this was an ideal operation. Usually the results achieved are not so spectacular nor is the coordination so perfect. However, several important aspects of battle propaganda can be gathered from this operation. Most important of these is the realization that no one is surrendering to the propaganda. What they are surrendering to is the military force, the tank attack. However, that force has been exploited by the battle propagandist for its fullest psychological effect. Nothing could be more wrong than the idea, unfortunately prevalent in many quarters, that psychological warfare is a wonder weapon operating by itself to achieve spectacular results. It is merely another supporting weapon, though of overlooked power, and like any supporting weapon its fullest results are only achieved through cooperation.

M-5 tank of Psychological Warfare unit with 2d Armored Div in Europe.

In this particular instance the tanks and supporting infantry never returned the hostile fire. This is a customary battle propaganda device that exploits the shock action of tanks to the fullest. Once the fire fight has been joined the enemy gets some relief from his anxiety in action and it becomes harder to get the maximum psychological result. This points up the need for peacetime training in this field. It takes a well disciplined unit to hold their fire. During World War II it would take on the average of ten to fifteen loudspeaker missions before troops learned to make the adaptations necessary for psychological warfare to be a success. Some outfits that had bad initial experiences with loudspeakers never learned. The intricacies of tank-infantry-loudspeaker cooperation should be forged now in training.

The individual tanker and armored infantryman also has to be trained to think in terms of psychological warfare. At the time the enemy first starts to surrender, any single soldier can change the outcome of a battle by shooting down the surrendering soldiers. This makes the enemy feel betrayed and he settles down to really fight. Also the belief that it is "sissy" to take prisoners must be eradicated. It is a far more soldierly course to get on the objective quickly with few casualties through taking prisoners, than to reach the objective after a hard battle in which no prisoners were taken, so heavily hurt yourself that you cannot exploit your gains. After all, Armor is the arm of speed and violence and taking prisoners often will increase your speed a hundred fold.

There are a host of other questions that should be ironed out in training. What is the best position for the loudspeaking tank to take in an attack? How should its radio set be hooked up? Who should command it? Through what chain of command? Then there are the technical questions of the best form of power supply, the best position for the loudspeaker on the tank, the exact distances the speaker can be heard in different terrain and weather?

There are also to be investigated the numerous supplemental benefits that derive from the presence of a loudspeaker tank. The most striking of these is the use of the loudspeaker in the control of infantry during an attack. The loudspeaker can reach every infantryman at once without having to go through the radio net. For example, after the tanks have finished putting fire on a strongpoint, the infantry can be informed of this over the loudspeaker. This way they can attack the strongpoint immediately without that lag that lets the enemy reorganize. The 2d Armored used this method with great success, particularly in towns where control was always difficult.

"Psycho" at work in Korea today.

The question of how many loudspeaker tanks there should be and the command channel should also be gone into. The combat arms have a vital interest in this question, yet few armored experts have given the problem more than passing attention. At the risk of sounding like that famed loser of future wars "the old expert," I believe the following to be the proper ratio of loudspeakers.

There should be one organic loudspeaker tank with every tank battalion in the armored division. There should be two such tanks with the separate armored mechanized reconnaissance regiments that operate out of Corps. There should be a PW officer in Division HQ responsible for training the crews in PW techniques and leading the key loudspeaker unit in combat. The loudspeakers must be organic. World War II proved that you cannot attach them to a division for an operation any more than you could attach a tank battalion to an infantry division on the eve of an operation and expect real results.

Looking briefly into the future, loudspeakers are due to play a tremendously important part in airborne armor units. In the air head, which is shock action at its highest, the mobile loudspeakers will range 'round the perimeter. Everywhere confusion is found they will exploit it, calling on the enemy to surrender, enhancing his fears with battle noises, increasing the confusions through phony orders to his troops.

To further its mission Armor needs the tank mounted loudspeaker and the techniques of battle propaganda. To be effective, battle propaganda must work with Armor and the other mobile combat forces. The lateness of the hour almost demands that the marriage take place soon.

A. T. Hadley, at present with the Washington Bureau of Newsweek primarily covering the Defense Department, is a Captain in the Psychological Warfare Reserve. During the war as Psychological Warfare officer with the XIX Corps he participated in the development of the tank-mounted loudspeaker and pioneered the tactical use of this weapon, receiving the Silver Star from 2d Armored Division for this work.

HOW WOULD YOU DO IT?

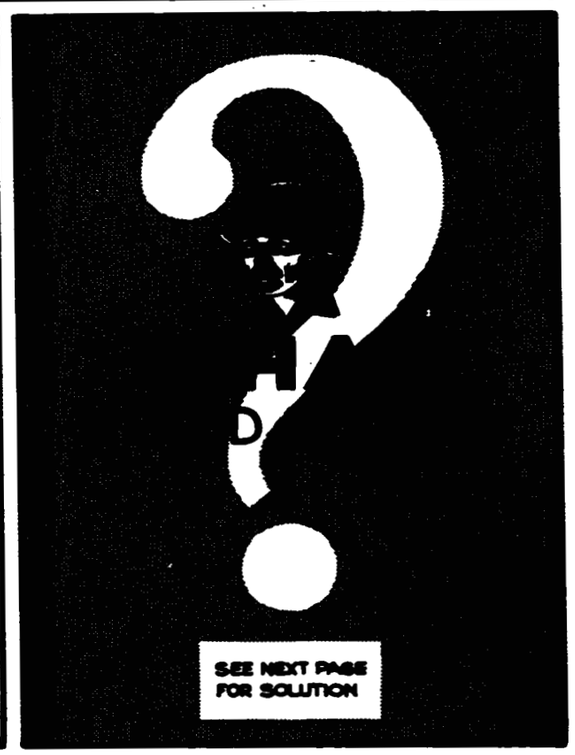
SITUATION:

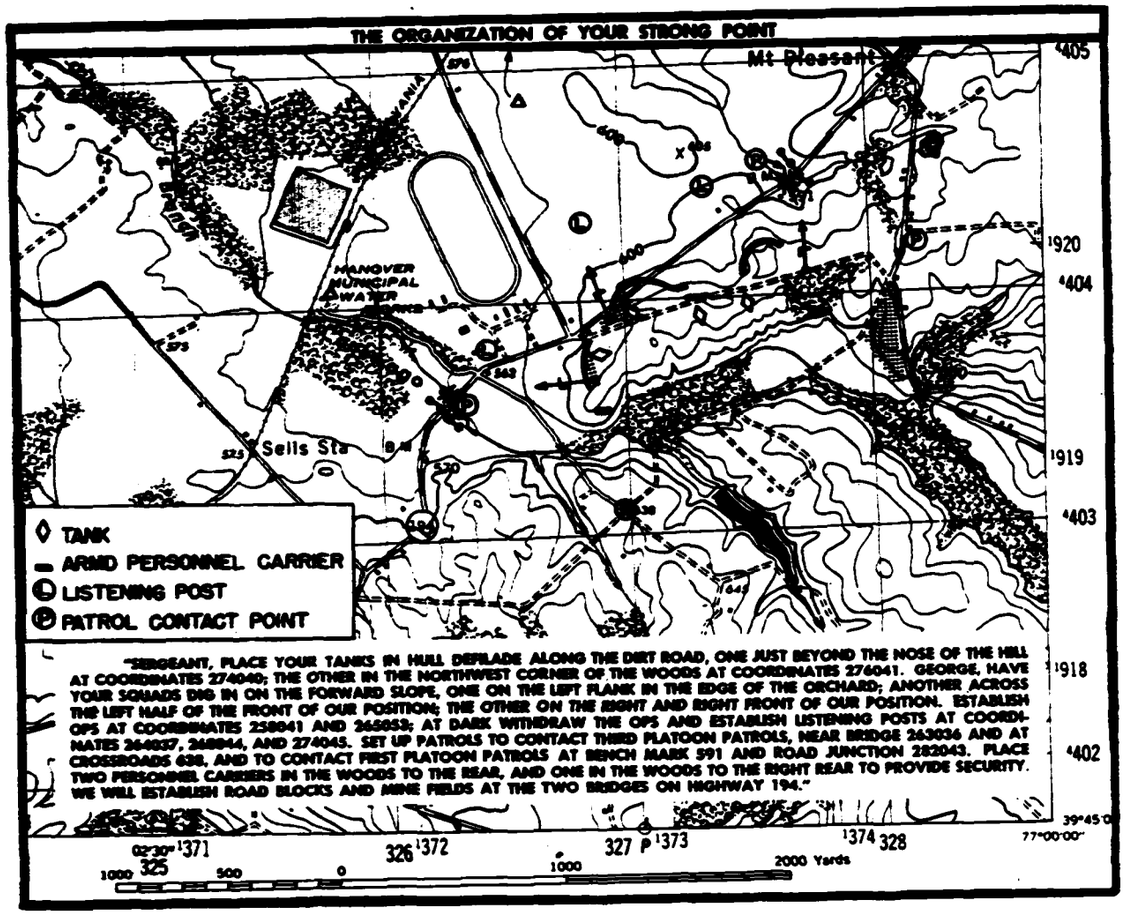
THE 21ST M TK BN (REINF), PART OF CCA, 301ST ARMD DIV, HAS BEEN ATTACKING NORTH TO SEIZE AN IMPORTANT ENEMY COMMUNICATIONS CENTER. BECAUSE OF A LARGE-SCALE ENEMY COUNTERATTACK ELSEWHERE ALONG THE FRONT, THE 301ST ARMD DIV HAS BEEN ORDERED TO HALT AND DEFEND GENERALLY ALONG LINE HIGHWAY 194. WITH THIS EXTENDED FRONT, THE DIVISION COMMANDER REALIZES HE MUST EMPLOY MOBILE DEFENSIVE TACTICS. THE 21ST M TK BN (REINF) HAS BEEN ASSIGNED A PORTION OF CCA'S SECTOR OF THE OUTPOST SYSTEM. CO A, 21ST M TK BN (REINF) HAS BEEN ASSIGNED THE SECTOR SHOWN ON THE SITUATION MAP. YOU ARE PLATOON LEADER 2D PLAT, CO A, WHICH HAS BEEN REINFORCED WITH 2D PLAT, CO A, 111TH ARMD INF BN. YOUR COMPANY COMMANDER HAS POINTED OUT YOUR REINFORCED PLATOON STRONG POINT ON THE MAP AND ON THE GROUND. HE HAS ORDERED YOU TO ORGANIZE THE STRONG POINT FOR THE DEFENSE.

YOU AND THE ARMORED INFANTRY PLATOON LEADER AND THE PLATOON SERGEANTS STUDY THE TERRAIN—ON BOTH THE MAP AND THE GROUND—FORWARD OF THE PLATOON POSITION.

A STUDY OF THE TERRAIN SHOWS PLENTY OF COVER, BUT LITTLE CONCEALMENT. USING WHAT CONCEALMENT IS AVAILABLE, YOU START PLACING YOUR TANKS COVERING ENEMY AVENUES OF APPROACH FROM THE LEFT AND LEFT FRONT.

TANKS TWO AND THREE LOCATED, YOU COMPLETE AUTOMATIC WEAPONS COVERAGE OF THE LEFT FLANK AND ISSUE INSTRUCTIONS FOR ORGANIZATION OF THE REMAINDER OF THE PLATOON POSITION.





DISCUSSION

Strong points in the mobile defense are organized on critical terrain features which dominate likely avenues of enemy approach into the defended area. The mission of units at strong points is to deceive the enemy, to slow him down, to force him to deploy, and, if possible, to stop or destroy him. Tanks and automatic weapons are placed on the position so as to provide a maximum volume of fire covering enemy avenues of approach. Personnel carriers, because of their vehicular machine guns, may be used in organizing the position; otherwise they are assembled in a covered position within the strong point. Range cards are prepared for each position. Road blocks and mine fields are established and covered by tank and small-arms fire. These obstacles should be located so that they do not hinder the counterattack by the reserve. Advantage is taken of all natural obstacles to delay, slow down, and harass the enemy. Observation posts are established during daylight hours, and listening posts at night when observation posts are pulled in. Contact between strong points is maintained primarily by radio. However, patrols are usually operated between strong points during hours of darkness, and are used during daylight to safeguard areas covered neither by the strong points, nor by observation. At night, or when visibility is limited, tanks and automatic weapons should be sited to fire down roads or similar likely avenues of approach in order to ensure hits on approaching enemy vehicles and personnel. Armored infantry normally will dig in along forward slopes of strong-point positions.

We must have integration of armor, integration "in the sense that we are prepared mentally as well as physically and in every other way for mobility . . ."

INTEGRATED ARMOR

by COLONEL ROBERT J. ICKS

THE impression gained from Lieutenant Colonel Pickett's article "Tanks in Korea," in the November-December 1950 issue of ARMOR was that our officers still fail to understand the use of tanks. This is amazing at first glance and yet, in the light of Brigadier General Riley F. Ennis' "Statement on Armor" in the same issue, it is understandable. General Ennis may be surprised at such an interpretation of his remarks as well as to learn that I received my first tank training from him when he was a First Lieutenant. But that is beside the point.

General Ennis summarized briefly but very well, without intending to do so, the reasons for this failure in our training. Armor was, as he says, the product of men of vision, but leadership in this field passed from hand to hand and from country to country. The reason is that there have been, from the beginning, two schools of thought and one or the other has been in the ascendancy at different periods. There was and is one school made up of officers and civilians with imagination, those who grasp the possibilities of this type of warfare. The other is made up of those who fail to see the possibilities in anything new or who aggressively resist change.

He pointed out that the pendulum of the theory of armor employment has swung first one way and then the other. World War I developed the view that armor was but an infantry support weapon. Thinking changed in 1928, principally due to British influence which we followed, as later did the Germans. During the earlier phases of World War II, the concept of armor was as an independent entity. Then the pendulum swung again to a midpoint. General Ennis says that this is the reason that today "armor forms a hard core in our army which extends in depth through all of the major tactical units."

It seems to me that this continual swing has failed to develop in our army a corresponding "hard core" of tactical thought. Regardless of the T O & E, we do not seem to have been able to make up our minds. There still are evidences of the influences of the past thirty years in each position of the pendulum and many of them are negative influences. It is not to be wondered that many of our combat officers fail to understand the use of tanks. The same thing could be said about many staff and general officers.

Prior to June, 1950, the official view was that Korea was unsuitable for tank use but the NK's apparently were not familiar with that doctrine and used tanks without knowing any better. That forced us to do likewise. I say forced because, on the basis of official doctrine, the terrain was unsuitable for their use. Where was the "hard core" of tactical thought among the officers who made that decision?

Military men are greatly interested in the war in Korea and the lessons to be learned from it. Colonel Pickett's article pointed out nine of them. Those lessons could have been written during World War I, during the period between both World Wars, during World War II and the period since World War II, as well as about Korea, if one substitutes earlier types of antitank weapons and communications equipment for those in use in each corresponding earlier period.

Here they are:

1. Failure on the part of our officers to appreciate the cross-country mobility of tanks.
2. The necessity for teamwork between infantry and tanks.
3. The measurement of tanks in numbers rather than units.
4. Use of personnel lacking tank training.
5. Poor maintenance, resulting from inexperience.
6. The need for maintenance along the axis of advance.
7. The importance of camouflage.
8. The sense of security the "super bazooka" gives to infantry.
9. The difficulties of FM radio communication in hilly country.

All during the period from 1918 to 1950 the statement has been made by the conservatives that the tank had had its day, that in any battle between tank and gun, the gun would be victor. It is just as sensible to say that in any duel between a man with a gun and one without, the latter will always be defeated. This is a surface conclusion. The fact that large numbers of infantry do survive a war is proof of that. Were it not true, wars would have ceased long ago. It is a surface conclusion likewise to say the tank has had its day. Such categorical conclusions fail to consider the imponderables of man's adaptability, his ingenuity and his imagination.

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At any rate the pendulum has swung, not just a few times, but many times and our doctrines have swung with it. After World War I, the French became imbued with the doctrine of fire power and we aped them. Then, after the British experimental armored force was established, we started off in that direction as well. The idea was to retain the fire power of the infantry-artillery team and to give cavalry a new highly mobile striking power, but it had rough going. General Chaffee and others succeeded in creating some enthusiasm for using tanks with imagination, in spite of many heartbreaks and the pinch-penny attitudes so frequent in peacetime.

General Ennis goes on to point out that the opening of World War II gave this idea very considerable support. The initial successes of the Germans in their use of armor caused us to copy them and their methods—or so we thought. The British and ourselves even went so far as to copy their organizational setup, believing that to be the secret of their success. Then, as the Germans changed their organization due to political and logistical considerations and we began to take part in the war under varying conditions, we became confused, having failed to see that we had copied the wrong things.

The Germans' armored force came into being in 1935. In Germany, as in other countries, there were disputes between those with imagination and the conservatives. Many of the German generals wanted to tie armor down to infantry but were not completely successful. The brilliant use of armor by the Germans early in the war was not followed up and the pendulum there also swung back.

Since World War II we have gone through the same sort of thing. This time though, the conservatives received the backing of a famous scientist who was held in awe by our military and civilian leaders. He said tanks were obsolete as part of the general "one-weapon, easy war concept" which he helped to make popular. At any rate, our official view followed this line and it was not until 1948 that the pendulum swung back to the present view of an integrated tank-infantry-artillery team, which puts us right back to where we were in the early twenties.

Is it any wonder that our officers do not realize the capabilities and potentialities of armor? How can they be anything but confused?

Our concept of fire power is fine. Let us keep it by all means. With our limited manpower, fire power will become of increasing importance. Major General Christmas' article "Effective Development and Use of Armor" made a plea for evaluating machines and manpower so as to overcome our handicap in the latter should we meet in out-and-out war a potential enemy possessing unlimited manpower. Such an evaluation should, in my opinion, let the pendulum of thought on armor swing back again in the direction of mobility.

Fire power has demonstrated its importance in Korea and its retention is not in question. But, since it is apparent that our present doctrine concerning armor has not seeped through completely to all concerned, if we do decide to revise that doctrine, why not take a look at the doctrine of mobility too as a means of conserving manpower? And then by every educational means at our disposal, pound home our revised "hard core of tactical thought" to all ranks from Army, Corps and Division Commanders down to the last private soldier.

Why not give consideration to this evaluation of machines versus manpower? Why should we not think in terms of ingenuity tactically? Why have we become Montgomerys instead of Pattons? We have never tried an armored force as such or even an armored division. Neither have the British or the Germans even though we thought they did. Why don't we try it? The Russians have come closer to it than any of us because of conditions inherent in their military and economic structure and because they have become adaptable and militarily ingenious.

Back in 1918, the Allied General Staff planners had in mind the possibility that the war might go on into 1919. The plans for 1919 have been consistently overlooked since then, undoubtedly because the lessons from the four years of war as they were actually fought transcended any lessons from plans which were never carried out. Yet the four years of the war as fought had led directly to the plans intended for 1919. Those plans contemplated tank-infantry-self-propelled-artillery teams plus a separate armored force to exploit the breakthrough. That armored force was, I contend, the only genuine armored force that was ever visualized as a definite part of a plan for war.

Why? Because it was to consist entirely of tracklaying vehicles. In the article "Tie-In in Korea" in the November-December issue of ARMOR, which was based on a report by Lieutenant Colonel James H. Lynch, there was the following significant statement: "With orders to move aggressively . . . the three lead tanks shortly outdistanced the slower moving truck column, despite attempts to control them by radio."

That in a nutshell is the problem we have kicked around for thirty years without a real attempt at solution. We have completely ignored that 1919 plan. With about 300 tanks in a so-called armored division, we have many times that number of wheeled and half-track vehicles. What is the good of developing a tank with a speed of thirty miles an hour if we intend to use it as an infantry accompanying vehicle? Why tie down its mobility by wheeled vehicles unable to keep pace with it? Why organize a division, ostensibly an armored division, if it is our intent to parcel out its tanks in driblets to accompany infantry.

Now we intend manufacturing the new light tank T41. It is even faster than the M46. What a curious paradox. Lighter, faster, more mobile tanks with great fire power, intended for—what? Mobility? Where will we use it if we are committed to a slugging policy tactically, or are tied down to roads with the present wheeled transport of the division, or with the muddled thinking which exists among our officers, high and low? If all we want is an infantry-accompanying tank why are we having difficulty making up our minds regarding the manufacture of one of the several models of heavy tanks which are available in pilot form?

There is a related point, too, which was mentioned by General Christmas. He made a plea to the Using Services to stop being so "gadget conscious" in their demands for the perfect vehicle. No potential enemy has a perfect tank but one of them has a hell of a lot of tanks that will serve his purpose just as well.

One of our industrial engineers working on a contract for a new tracklaying combat vehicle expressed this thought to me recently when he said that the Army has gotten to be "a bunch of one-per-centers." What he meant was that every contingency imaginable is dreamed up as a possibility and must be provided for. When he complained about the installation of a bilge pump which the Army wanted in the vehicle because it might be needed some time, not only was the bilge pump retained but the design was changed to add another one as a spare, in case the first one should get out of order!

Perhaps this is representative of our problem—that we think in terms of one perfect tank instead of armor as an integrated force of broad and mobile consequence.

I do not consider myself a prophet but for many years my view has been consistent in believing that the 1919 plan is still a good one and worth consideration. Armor should be integrated with infantry and artillery but integration is needed over all. Not integration in the sense that everything is subordinated to slugging, hard hitting fire power but in the sense that we are prepared mentally as well as physically and in every other way for mobility: in the sense that we develop a true armored force containing a minimum of overhead and no vehicles but tracklaying vehicles; that we develop cross-country tracklayers for carrying infantry and supplies; that we develop a tactical air force for the hard hitting combat team and another trained to cooperate with a true armored force; that we really evaluate machines and manpower.

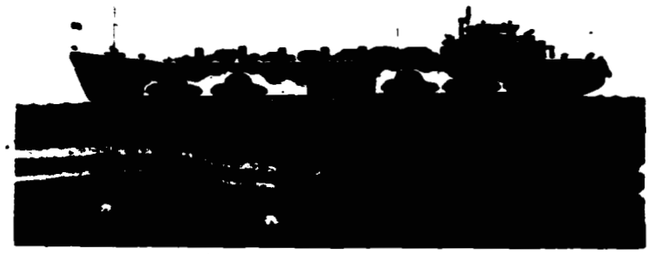
On the other hand if we are going to continue with a "hard core of armor" throughout all our tactical units with fire power and more fire power the end goal, let's say so and quit deluding ourselves with talk about mobility, because we won't have it. Then at least our troops will not be caught mentally in between the swings of the pendulum.

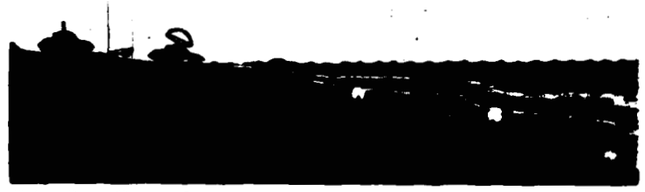
Today there should be clear concepts resulting from thirty years of experience. Let's have integration of thought as well as integration of fire power. Let's really integrate armor so it can never be said about the new Army now building that "our officers still fail to understand the use of tanks."

UNDERSEA TANK

Technical engineers have designed an undersea tank of the future for amphibious operations. Still in the blueprint stage, it is designed to overcome underwater obstacles and carry the punch against shore strong points in the critical initial phases of a landing. The illustrations below are from Mechanix Illustrated Magazine, and show the steps in landing the tank from the point offshore to arrival at beach.

The underwater tank blows off its plastic bubble top on reaching land.





Unloading offshore for the underwater approach, a submarine on tracks.

Arms are 105mm recoilless, flame thrower and machine guns, turret mounted.

U.S. Army

ARMORED INFANTRY IS *DIFFERENT*

by CAPTAIN CHARLES W. KOBURGER

teamed, not alone—mounted, not afoot—mobile, not stationary

ARMORED infantry and standard infantry differ greatly in mission, organization, and tactical employment. Armored infantry is *not* simply regular infantry mounted in armored personnel carriers.

The purpose here is to examine some of the outstanding tactical differences between the two. Before we can begin this, however, we must touch on the other factors mentioned—mission and organization—since they materially affect our subject.

Mission

The mission of the armored infantry battalion is to close with and destroy the enemy by fire and maneuver; to repel hostile assaults in close combat; and, most important, to support the tank units of the armored division.

The fundamental difference between armored and other infantry may be summed up by stating that in the various infantry divisions the tanks are there to get the infantry forward; in the armored division the infantry is there to get the tanks forward. There are four armored infantry battalions in an armored division. The division's three medium tank battalions are the division's main striking force; it also has one heavy tank battalion. Armored infantry is designed to accomplish one *primary* mission: infantry support for these tank units. There is no other reason for having armored infantry in the division.

Organization

To accomplish its mission the armored infantry battalion—the largest armored infantry unit—now has a headquarters, headquarters and service company, four identical rifle companies, and a medical detachment.

As to differences, organization-wise, firstly, the armored battalion, unlike its standard counterpart, is administratively independent. It is mounted entirely on tracks or wheels; the regular battalion is not (riflemen walk). The armored battalion has a greater proportion of automatic weapons in the lower units, but has no recoilless weapons at all. Lastly, it has four, not three, rifle companies, but lacks the dismounted battalion's heavy weapons company.

Captain Charles W. Koburger took part in the Italian Campaign as a member of the 11th Armored Infantry Battalion. A graduate of Infantry OCS in 1943, he is now Communications Officer of the 67th Medium Tank Battalion, 2d Armored Division. His last article was in the July-August 1950 issue.

Tactical Employment

Armored infantry battalions are highly mobile, lightly armored tactical units capable of executing most standard infantry missions and some unique ones. They can accompany tanks in offensive action—either in armored personnel carriers, dismounted, or mounted on the tanks—to close with and destroy the enemy in close combat. They can absorb reinforcing units to form a team of combined arms, and can furnish armored infantry companies to other units for the same purpose. They can also reduce and establish obstacles, supported by tanks and other arms, and organize and defend ground, supported by tanks and other arms.

Some of the outstanding tactical differences between armored and regular infantry battalions, speaking generally, are as follows:

1. Armored infantry normally functions as a part of the tank-infantry team in all operations. There are always some tanks with the infantry and some infantry with the tanks. This is not the case with standard infantry. (Alas!)

2. Armored infantry in the attack rides from the attack position to the assault position, while regular infantry moves on foot.

3. Armored infantry uses a mobile type defense; standard infantry uses a sustained-type defense.

4. Armored infantry defends avenues of approach; regular infantry defends a main line of resistance.

Let's discuss these a little.

Armored infantry is meant to be used as an integral part of the armored fighting team—tanks, infantry, and engineers, closely supported by artillery and air.

The policy of exchanging companies between tank and armored infantry battalions, often one for one or two for two, is usual for normal armored operations. A reinforced armored infantry battalion could, therefore, consist of two rifle companies, two tank companies, and its own headquarters, headquarters and service company.

Tank Guns Serve

Where you see armored infantry units of even the smallest size you will see tank sections or platoons. This explains why there are no recoilless weapons in armored infantry T O and E's; they are not needed; tank guns serve instead. This also explains why armored infantry does not perform *extreme* independent (long-range infantry-only) missions as well as lighter-footed standard, mountain, or airborne infantry; armored infantry is heavy infantry, and that greater proportion of automatic weapons gets to be quite a load. (On the other hand, neither do the other types work as well with tanks.)

There are exceptions to the rule, naturally. Night patrols, breaching of minefields, river crossings, and night attacks all involve dismounted armored infantry acting in the traditional infantry manner, either because of the necessity for stealth and surprise, or because obstacles absolutely prevent any vehicles from accompanying them. These are special operations, limited in scope. They are overwatched by the guns of the tanks.

However, it should be noted, there are surprisingly few places a tank cannot go, as was proven in Italy and Korea. General George Patton, who proved it, said, "There is no such thing as 'tank country' in a restrictive sense. Some types of country are better than others, but tanks have operated and can operate anywhere." Armored infantry is busy infantry.

The Armored Personnel Carrier

To increase its effectiveness in support, armored infantry rolls—all of it—on tracks or wheels. The armored personnel carrier with which it will be equipped is full-tracked, lightly armored top and sides, and armed, I believe, with one (1) 50 caliber and one (1) 30 caliber machine gun. It is given to the infantry to enable it to accompany tanks any time, anywhere, and under all circumstances. It is, however, almost never used as an assault vehicle; the infantry develops to full power only on foot attacking with rifle and grenade.

Where the infantry dismounts, the personnel carriers may be used to form or supplement the base of fire or to supplement the defensive fire plan as the situation requires. They may also be used for protection of the flanks and rear of small units. Their considerable firepower is, in any case, not allowed to go unused.

The Attack

It is the tin-can doughboys' job to aid and abet armor's speed (mobility) and violence (firepower) and to exploit the resulting shock to the utmost. The possession of an armored personnel carrier for the combat troops enables armored infantry, in the attack, to ride from the attack position to the assault position, under the cover of and usually right behind attacking tank units. Again, armored infantry then dismounts and assaults on foot.

There are at least three distinct advantages to this. Firstly, armored infantry arrives fresh and on time. Secondly, more of it gets there. Lastly, the attack is made at the speed of the vehicles, not at the speed of walking infantry. Some astronomical percentage of infantry's casualties is normally incurred moving the 1,000 or more yards from the LD to within assaulting distance of the enemy. This loss is minimized by riding the distance at 15 mph (not walking at 1.5 mph) in armored vehicles, making maximum use of the fire of tanks and of supporting artillery and air to keep the enemy's mind on other things.

Defense

This high protected battlefield mobility of armored infantry also enables it, together with its cooperating tanks, to defend an area by fire and maneuver. This mobile-type defense places small infantry-tank teams on an OPLR, holding key terrain features, road blocks, crossroads, etc., while the bulk of the force (including *most* of the tanks) remains in mobile reserve. When the enemy has committed himself at a definite point, this tank-heavy reserve counterattacks, hitting the flank(s) of the attack, with an objective forward of the OPLR where possible, to *destroy the enemy*. If regular infantry should try this, and the enemy has artillery in any strength, the counterattack would be smothered in short order.

Armored infantry uses a mobile type defense partly because of the extended frontages it must ordinarily hold, and this in turn prohibits it from defending every inch of the ground. What armored infantry does is figure a calculated risk and defend only the likely avenues of approach, covering the rest of the ground by observation and fire or with patrols. Regular infantry, denied maneuver, holds its battle position at all costs; its defense is based on an MLR with an FPL (a continuous band of grazing fire) placed along its front; limited counterattacks are made only to restore the battle position.

Armored infantry defends by fire *and maneuver*, and makes no attempt to hold everything in its assigned sectors. It defends only likely avenues of approach, and then only to locate the enemy's main effort, canalize his attack, gain time and space for the decisive counterattack of the reserve.

Armored infantry can accomplish 99 44 100 per cent of the missions it should be called on to handle at least as well as or, in most cases, much better than standard infantry—but not always in the same way. The continuous cooperation of large numbers of tanks and the possession of an armored personnel carrier together increase the battlefield mobility of *armored* infantry to many times that of regular infantry. When this difference is understood, armored infantry really begins to realize its full potentialities as a key member of the armored fighting team.

Let's Talk About Armor

by JANUS

Who is this guy Janus?

Well, I'll tell you about him, see!

In Roman mythology he is the god of "beginnings."

He had two faces, and could look east and west at the same time.

He had a temple that was shut in time of peace and opened in time of war!

Golf, anyone . . . ? Or shall we talk about armor . . . ?

ARTICLES appearing in our service magazines, discussions at the service schools or colleges, and pamphlets issued by the War Department lead to the belief that the American military student of the World War may be led astray in formulating conclusions on tactical questions and on organization, since the circumstances surrounding quoted instances of our participation in the war are not usually presented in sufficient detail to enable one to correctly judge the situation studied. Furthermore, the majority of our officers had but a brief experience in battle and were so hard-pressed before, during, and immediately after engagements that it is difficult for them to make an accurate, critical analysis of the battle tactics involved, and it is well known that a single example is apt to prove a dangerous guide for future action."

How true! Although the above quotation was written in 1921 for the *Infantry Journal* by Major George C. Marshall,* it is equally applicable to modern military thought—especially in the field of armor.

Perhaps a brief review of armor, past, present and future, might clear up part of the haze which apparently surrounds too much of the thinking on the subject. Until his mental perspective is well-grounded, the soldier will be inclined to arrive at a conclusion confused by factually unsubstantiated examples of the past and ensnared by glittering yet unfounded hopes for the future. And U. S. obligations under the North Atlantic Treaty, with the attendant requirement to prevent war or to fight in Western Europe—to say nothing of the balanced collective force idea—make it imperative that the correct solution to armor be obtained immediately.

*Presently Secretary of Defense.

The Past

With this requirement in mind, let us turn back and examine the past of armor. Like the infantry, the armored division has had its growing pains and, like the infantry, it has undergone many reorganizations.

Although U.S. tanks saw action in World War I, they were considered to be one of the supporting weapons for the infantry. During the period between World Wars our armor consisted only of a few separate tank companies, plus one tank battalion and the tank school at Ft. Benning as a part of the infantry. Tank doctrine still contemplated only limited objective attacks in close coordination with the infantry. Actually, an Army regulation prohibited moving tanks more than 50 miles except by rail. During this period the cavalry did some experimenting with a mechanized cavalry unit and finally, in 1940, the separate tank units were assembled at Fort Benning and formed into a provisional tank brigade.

Meanwhile, the war in Europe was characterized by increased use and importance of armored divisions operating in close coordination with air and motorized units. These highly mobile striking forces had great speed and power and were uniformly successful in their operations.

The use of the mechanized cavalry unit and tank brigade in the Louisiana maneuvers resulted in the present concept of armored warfare and led in July, 1940, to the organization of the First and Second Armored Divisions. The training of these, as well as the units organized later, in the maneuver areas of Louisiana, Carolina and California proved the soundness of the concept. In fact, in 1941 General Patton first demonstrated the possibilities in the employment of an armored division by maneuvering his "Hell on Wheels" division more than 100 miles and overrunning the rear areas of the opposing Red forces in Louisiana. His action emphasized the chief characteristics of armor: mobility, tremendous fire power, shock action and flexibility. By 1 July 1941 the United States had four armored divisions with two more being activated.

The armored divisions have undergone some drastic organizational changes since General Patton's audacious move. The first came immediately after the maneuver and the heavy armored division was evolved. Then operations in Africa, Sicily and Italy demonstrated that the division was too big. The mountainous terrain usually permitted use of armor in battalion strength only; objectives were limited; movement forward was measured in yards; and so the light armored division was born. Again, after the St. Lo breakthrough in Normandy, when the opportunity arrived for the armored divisions to use their mobility and race around the German flanks and into his rear areas, it became apparent that the light armored division was lacking in the necessary supply organization to make it self-sustaining in prolonged operations. Hence, since the 2d and 3d Armored Divisions fought the war as heavy divisions and the rest as light divisions, the experience obtained made it possible to incorporate the desirable features of both types into the present division.

Armor was used in division strength in North Africa, Sicily, Italy, and Europe and in smaller formations in the Southwest Pacific, the Central Pacific, the Philippines and Okinawa; yet World War II statistics show that armored units, even though heavily engaged, suffered fewer casualties than infantry divisions. The average number of men killed per tank destroyed was 1½. An armored engagement wherein 30 tanks were destroyed was a terrific fight, yet the total killed in action averaged 40-50 men. In a similar action, an infantry division's losses probably would be in the neighborhood of 400-500 men. Thus, since the U.S. is faced with a manpower shortage at a time when we must contribute to the defense of Western Europe, the desirability of taking advantage of our superior industrial capacity and, at the same time, conserving manpower by using armored divisions (16,053 men) instead of infantry divisions (18,894 total strength) is readily apparent.

Armor was the master of the battlefield in World War II and its accomplishments must not be forgotten. Rommel's actions in the desert of North Africa, Patton's mad dash to Palermo, Harmon's breakout at Anzio and Patton's race across France are historical facts today. So is the German use of armor during the early days of the war when their panzers raced through Western Europe, Poland, Greece and into the Ukraine.

The Nazi attack in Poland was begun by an all-out effort to eliminate the Polish Air Force by air action. The Germans accomplished this feat quickly and immediately sent their panzers and mechanized units racing into Poland. The panzers by-passed any strong resistance, leaving the mopping up of these units to the infantry divisions which followed. The German armor smashed deep enough to attack the Polish military forces in the rear. As a result the Polish fighting machine disintegrated. This use of mobility in the form of air power and armor surprised the world. In 18 days the fighting was over. The total depth of armor penetration was 300 miles.

Again, in 1940, the pattern was repeated in the West. German panzers plunged 180 miles in 6 days. And again, German armor did not attempt to disrupt civilian governments: it merely contented itself with disrupting the rear areas of the military forces opposing it. The Polish Campaign was the tip-off that linear defense systems were outmoded: the German successes in the West confirmed the fact.

The attack against Russia in 1941 started off in the same way. German armor penetrated 200 miles in 10 days. The panzer units were used to effect surprise, to attack new objectives from different directions, and always to execute the pincer double envelopment. Actually, German armor had the war practically won. At one time, the Russians in the southern sector began to cease fighting.

Then Hitler entered the planning and directing picture and the victory which was within German grasp was lost irretrievably. Hitler wanted all of Russia within the line Leningrad-Moscow-Stalingrad-Caucasus Mountains.

As a result of his decision, the German armies had to penetrate deeper into Russia instead of destroying Russian armies nearer to the border, and this move used up a lot of infantry divisions, necessitated that fighting units be used to hold the country, and overextended the lines of communication. Supply for the mechanized units became a huge problem and soon the Russians could equal the Germans in armor. In Poland and France, the panzers went after the enemy forces—and got them. In Russia they were ordered to go after a far-off boundary and failed.

Perhaps the Germans provided one of the best examples of the use of armor defensively when they employed it against our lodgement on the Cotentin Peninsula. It was German armor that slowed up the Allied timetable, especially the British progress at Caen. Then, after the St. Lo breakout, when the 2nd and 3rd U. S. Armored Divisions were given the mission of pushing out and cutting off the German Army in Western France and sealing the Falaise Pocket, German armor in the form of tanks at every successive road junction forced our own armor to continually deploy, often call for air support, and invariably waste precious time while the bulk of their units were extricating themselves from the planned trap. German use of the inherent mobility and fire power of their armor saved the day for the bulk of their Westwall units.

The Battle of the Bulge also provided a good example of how armor can be used decisively. One must remember that, just prior to the German attack, the Allies were on the offensive. No doubt the most heroic action in the Bulge was the holding of Bastogne by the 101st Airborne Division. However, the fact still remains that, when Von Rundstedt did smash through, fortunately Allied armored divisions were available and were rushed to the scene and choked off the threat. The 4th Armored broke through to the surrounded paratroopers. The Allied attacks against the shoulders of the Bulge by the First Army from the

north and the Third Army from the south were finally successful when the 2nd and 11th Armored Divisions met at Houffalize in the center of the Bulge.

Everyone agrees that armor played an important role in World War II. but few realize what happened to the armored divisions after the war.

The Present

Demobilization is part of the answer. After the Germans and Japanese surrendered. practically all of the units which were brought back to the United States were demobilized. All of the armored divisions were returned as it was considered that infantry divisions were much more suitable for occupational duties. As a result. the Regular Army ended up with " infantry. 2 airborne and one armored divisions.

The inevitable economy program which follows every war kept the strength of the Armed Forces down. Further. inasmuch as tanks were expensive—roughly $200.000 each—no additional armor to speak of was created.

Another factor which probably militated against increasing the ratio of armored divisions in our peacetime Army was the concept. later embodied in the book. *Modern Arms and Free Men*. of Dr. Vannevar Bush. Dr. Bush is regarded as one of the leading scientists in the country and is very close to the hierarchy in the Pentagon.

In his book he points out that the scientific improvement of weapons has just about reached the stage where the defense has an edge over the offense to the point where weapons in the hands of infantrymen will drive the tank from the battlefield. Guided missiles. he avers. will make air attacks impracticable. In fact he looks upon the guided missile as a weapon of great potentiality. both for the offense and for the defense against certain types of atomic attack. He appears to champion the thesis that we can win a war with weapons rather than with men.

Tank advances. in his opinion. will be impossible in the face of shaped charges. He points out the fact that the latter weapon is much cheaper to produce than is a tank. but he neglects one important factor of war—to win. one must take the offensive.

Dr. Bush has apparently failed to test his conclusions by applying them to past developments in the field of weapons. For example. why did not the rifle drive the infantryman from the battlefield? Certainly a rifle can kill a man at a greater range than any presently visualized light weapon can kill a tank. Similarly. the German "88" did not drive the tank from the battlefield. the VT fuze did not prevent German infantry from holding positions or attacking as the scientists had prophesied, nor did the V-1's and V-2's cause England to capitulate. All of these weapons necessitated changes in tactics and techniques as well as concurrent development of other new weapons. Furthermore, no defense has yet been designed that cannot be overcome by a properly planned and executed offense.

However, since Dr. Bush is a consultant, he has considerable influence in shaping current military thought. including that on armor.

The Korean action has highlighted the armor situation in our Army. Before the North Koreans attacked, the tank was said to be a military handicap in that country of mountains and rice paddies. Tanks would of necessity be limited to the roads.

But the results proved the so-called experts wrong. In the first place they didn't weigh the psychological factor involved. Even though every South Korean regiment had an antitank platoon; even though they had eight engineer battalions especially trained in dealing with armor; the fact remains that they didn't stop the North Korean tanks. In fact the armor was responsible for chewing up two of the four South Korean front line divisions north of Seoul, leaving the ROK capital wide open. Admittedly, the South Koreans were untried troops and had no tanks. It isn't surprising that confusion resulted. units broke in the face of enemy armor. ground was lost. The American units also pulled back from positions in front of Seoul because of the lack of armor.

The situation at the beginning of the Reds' attack in Korea brings to mind the words of General Harmon. now retired, who once stated that. "The purpose of tanks is to get the infantry onto the objective with the minimum of casualties to the foot soldier. To permit our infantry to become overrun by hostile armor is one of the greatest crimes that can happen on the modern battlefield."

In the first place. General MacArthur's divisions had been stripped of their full complement of organic tank units. One explanation has been that the bridges in Japan wouldn't support them: another that occupation forces didn't need tanks: a third that the economy program necessitated cuts and the Far East Command could better withstand such cuts than our forces in Europe.

U.S. Army

Adding mobility. The 105mm recoilless rifle is jeep-mounted. Obvious limitations—shorter range than tank; no protection; wheels, not tracks.

The facts were obvious. Our tank weaknesses were both qualitative and quantitative. Much lip service was given to the idea that we cannot hope to match any prospective enemy. tank for tank, but must compensate for our numerical inferiority by a qualitative superiority. The type field army was considered acceptable. but it was still a "paper" army. The "family of tanks" idea was also a sound concept but very disappointing in development.

A comparison of the present T O & E of the infantry division with the old type division reveals that actually less men are assigned the mission of tank and antitank work in the new division. The antitank company has been abolished and its place taken by the relatively short-range bazookas and recoilless rifles.

The tank battalion of the infantry division is organic instead of being attached. The tank destroyer battalion was replaced by tank companies in each regiment.

Korea emphasized the need for organic tanks in the infantry division. but it also emphasized the need for an armored division in a corps to make the Army corps a balanced force. The United Nations forces had to get tank superiority on the battlefield before they could advance, despite the fact that. by our standards. Korea was not good tank country. General Gay actually fought his division like an armored division. organizing task forces of armor. infantry and artillery. The breakthrough operations very probably would have been rendered much simpler and would have been accomplished more quickly if an armored division was available. Then too. when the Chinese communists began pouring into North Korea, armored divisions would have been useful in eliminating this threat.

One fact must be remembered in connection with any discussion of the infantry and armored division. It is true that the former has a lot of organic tanks. but the armored division has more inherent mobility and better communications. The infantry division still must be dismounted to fight.

In short. Korea showed the result of not having a complete team in readiness for action. It proved that the best way to defeat a tank on the battlefield is still the tank: that the pendulum which was allowed to swing from blind acceptance that armor is invincible to the belief that it has been rendered obsolete by antitank weapons. must be corrected. Korea proved that talk of potential weapons of the future as if they were actualities is a dangerous practice.

The Future

Now let us take a look at the future of armor. In many ways we have a problem similar to the one which confronted us in 1940. However. the problem is much clearer. We are committed to participation in the defense of western Europe and we know the composition and strength of our only potential enemy. The Soviets have in being a great number of armored divisions. mechanized divisions and an adequate supporting tactical air army.

Obviously, any contention that armor is the panacea for all of our ills in this respect would be erroneous. However. armor has proven itself to be one of the means whereby speedy success in large-scale military operations can be obtained.

The Mutual Defense Assistance Program in its military phase is based on the development of a small but highly mobile force consisting of both mechanized ground units and tactical air which will be capable of quick movement and great fire power. Obviously armor must play an important role in any such organization. for it has been proven that only by the liberal use of armor. backed by mobile infantry and supported by tactical air. could a similar force hope to meet and halt any offensive launched by a great army.

In discussing the future of armor one must consider the time element. Today armor can be used as it was in World War II. Its probable use in the far distant future is speculation: but so is the probable use of jet planes. carriers. infantry divisions and airborne units. The fact remains that we need armor today. Furthermore. we need it where the fight would begin.

Possible Course of Future War

But perhaps an outline of a possible course of a future war might serve to illustrate some of the points pertinent to armor.

Defensive Phase

The NATO countries will not begin a war: an enemy would choose D-day. Hence that D-day would be heralded by an offensive. spearheaded by masses of armor and mechanized divisions. The initial requirement during the defensive phase would be the means to stop and hold this steamroller while the Allies were building up their forces. Armor and air have proven capable of this task. A mobile defense. made possible by superior mobility and communications. will enable armor to delay as the Germans did after St. Lo. counterattack as U.S. armor did in the Ardennes. force the

Acme

Mobile antiaircraft weapons. like this 40mm self-propelled unit on the Korean front. may be more active with increased Red activity in the air.

enemy to deploy, lose time, and worry about his flanks and rear. It is important to remember that during this defensive phase when limited attacks will be made, armor can counterattack with less chance of being cut off than can infantry divisions, and with less danger if cut off, because of its mobility. Actually, armor could only be cut off and rendered ineffective if the terrain is bad. Guderian, for example, was cut off several times from his supply base during his drive to the West in 1940, but, because he had suitable terrain in which to maneuver his armor, the fact that he was cut off did not operate to affect his efficiency.

Then, too, if our own infantry or airborne units are themselves cut off, armored divisions or task forces heavy in armor will be needed to come to their rescue.

And tank development won't remain static. Much has been written and said about the U.S. tank not being able to match the tanks used by the North Koreans. But if scientists like Dr. Bush are correct concerning our ability to out-develop any other nation, surely no reason exists for our not having the best tanks in the world. After all, we have better planes, television sets, refrigerators and automobiles than any other nation. If the decision is reached to produce tanks there is little doubt that U.S. industry can produce a better product than the Russians. The services can set up the military requirements and desirable characteristics in a weapon and give the problem to industry. Then, with leeway in changing specifications as long as the military requirements and characteristics are met, industry can develop the necessary techniques for mass production.

Tanks carry antitank guns. They combine, more than any other weapon, fire power, protection and mobility. They have the advantage in offensive capabilities, and wars are not won by remaining on the defensive. In the future, as in the past, the secret of successful tank warfare will be in mobility and momentum. The military simply cannot discount the mobility of armor unless stalemate and attrition form the basis of doctrine.

The defensive phase of a future war will mean slowing the enemy armored advance by effecting maximum delay on their panzer spearheads and by preventing our infantry from being cut off.

Infantry divisions are best suited for organizing and holding critical terrain: armored divisions are not. Normally the armor is held in reserve, prepared to counterattack and, because of its high mobility and tremendous fire power, it is especially suited for a rapid concentration of superior forces at a critical point. Appreciating the latter statement and employing armor in this way enabled Rommel to win his victories in North Africa.

Armor can delay in front of the main battle position. It can engage massed enemy armor. In the event of a breakthrough, armor is suitable for moving rapidly to establish blocks in front of enemy armor while, at the same time, counterattacking the enemy flanks in order to restore the position. Then, too, armor can deal effectively with any enemy airborne units which have been employed to secure river crossings, bridgeheads, and the like.

The Battle of the Bulge is a good example of the need for armored divisions when defending on a broad front. An extract from the *History of the 2d Armored Division* will make the point.

"With only three hours' notice the entire division packed up, turned its Roer River line over to the 29th Infantry Division, staged a forced march by night on 22-23 December from Germany to Huy, Belgium. All combat elements covered the 75 miles over strange roads within 22 hours, in spite of a shortage of maps. . . . Von Rundstedt's spearheads were threatening Liege, Dinant, and Namur at the time. Upon arrival in Belgium patrols immediately moved out to the south and east, making contact with the enemy on 23 December near Haid, Belgium. . . . Other enemy units had penetrated within three miles of the Meuse River at Dinant, and were only six miles from the Belgian-French border at Givet."

In this action, after making a forced march through rain and snow, the armored division blocked the head of the German advance on 23 December, more than a hundred miles from the defensive position it had held on 21 December. At 0800 on 25 December, the Division attacked. In the five-day battle that followed, the Division was given credit for destroying the German 2d Panzer Division, which had paced the enemy's 60-mile westward advance. General Collins' VII Corps summarized the action as one that "may well be remembered as having one of the most far-reaching effects of any action of World War II." The histories of the 3d, 4th, 6th, 11th and other armored divisions probably give similar accounts of being rushed to the fire in the Ardennes.

Offensive Phase

After the build-up phase, infantry divisions will be needed to develop the breakthrough, open a gap in the enemy positions and hold the shoulders of the opening. They will breach obstacles in fortified areas, establish bridgeheads and secure ground which will enable armored units to launch an attack. The latter will exploit the breakthrough, advance rapidly in order to link up with any airborne divisions used in the offensive, seize critical terrain in the enemy areas, destroy his reserves, overrun his artillery and disrupt his communications. Armor will keep the enemy off balance, prevent his becoming set, and create the stage for his destruction. The tank problems will be the breakthrough and exploitation, and supply. Perhaps a breakthrough at night will be feasible.

In such an offensive phase it would appear that for an army to operate effectively in the face of an atomic threat it will be necessary to have a highly mobile force capable of quick dispersal for its own protection and of rapid concentration for offensive strikes. The book, *The Effects of Atomic Weapons*, prepared by the Atomic Energy Commission and the Department of National Defense, indicates that people behind shielding will be protected to a great extent from atomic bursts. Armor, with its mobility, certainly has not been rendered obsolete by the atomic bomb. The tank crews will be protected from blast and heat and their tank will provide considerable shielding from the radiation. An infantry division in the attack would not have this advantage.

Rather, today and in the foreseeable future the tank can still be considered as the decisive ground weapon of the battlefield. The distant future of the tank is still in the impenetrable mist. So is the infantry, the H-bomb, the plane.

The United States and its Allies must offset any opponent's manpower superiority by utilizing its industrial superiority. The Western countries require a mobile army; mobility to outmaneuver enemy mass; mechanization which will provide this mobility. And mechanization, simply stated, is superiority in armor and this superiority will determine battlefield maneuverability.

Today we have 12 infantry, 2 airborne and 1 armored divisions in the Army. The question arises as to whether this proportion is correct in view of the publicized build-up to 18 divisions. It is very difficult for the National Guard to maintain an armored division in the high degree of readiness which will permit early deployment. It is well known that more time is needed to train men to fight in armored units than in infantry divisions. It also takes longer to produce the equipment needed for an armored division. The current lead time in tanks, for example, is eighteen months. In an emergency, manpower can be shunted into infantry units quickly, as was done in Korea by putting South Koreans into our own infantry divisions, but men cannot be picked up who can drive tanks, fire the guns and use the radio equipment. It would seem, therefore, that the Regular Establishment should have more armor and depend upon the Guard for infantry divisions. Actually, there are only 2 armored divisions in the National Guard while 25 infantry divisions are available.

Invariably the point about "costs" arises. Admittedly, tanks cost a lot of money, but so do planes, antiaircraft guns, carriers. We can afford to lose tanks rather than men.

Airborne divisions are very expensive units, yet we have two of them today compared to one armored division. And airborne units are designed for offensive roles. Armor would be needed on D-day, airborne would not —unless they are used as infantry divisions in the defense: certainly an expensive solution to the problem.

Presently we are deficient in numbers, quality, and in tactically trained units, as far as armor is concerned. This should and would be corrected if the role of armor for the foreseeable future is appreciated. Mechanized warfare should be a "natural" in our industrial nation. Although armored warfare is still taught at Knox and Leavenworth, the present organization of the Army will not permit large-scale

armored operations. The Army should have at least one armored division for each corps of 3 infantry divisions and mobilization plans should include a requirement for at least one armored corps.

An increase in armor would be politically acceptable to the nation for it would emphasize our technical superiority. Psychological factors also favor more armor. U.S. strength in armor will make a favorable impression on any possible enemy. Superiority in equipment: armor, planes, and other weapons, will create respect and thereby act as a deterrent. Armor is more acceptable to the average American as he is perhaps more mechanically inclined than is the average youth of any other nation. More armor will be gratifying to our Allies and lend greater strength to the Atlantic Pact. Finally, armor is vital to the national security—we can never hope to win battles without it.

Conclusions

Hence five points are readily apparent. First, armor is not a thing of the past but a very necessary part of any efficient and effective fighting force. Second, the present proportion of armor to infantry and airborne divisions leaves much to be desired. Third, the United States needs more armor in place and operational for a D-day—which means we must have the units before that D-day. Fourth, the development of the atomic bomb has not signalled the end of the armored division as a military arm. And fifth, blind acceptance of weapons of the future which to date have not been developed or tested may well lead to disaster.

The tank has just reached the crossroads of discussion that the aircraft carrier reached several years ago. Much heated debate, good and bad publicity, charges and countercharges, and study resulted before the fact was established that the carrier was still a necessary unit in the Navy. We in the military should do some careful thinking and not allow ourselves to be swept away by unfounded predictions if we are to prevent armor from getting into that type of limelight. We must remember that the Army must be prepared to fight effectively today or tomorrow as well as any time in the future. To do this we will need weapons today. Armor is one of those weapons.

THE BOOK SECTION

". . . FROM ALMOST UNINTERRUPTED DISASTER TO ALMOST UNBROKEN SUCCESS."

THE HINGE OF FATE (The Second World War, Vol. IV) by Winston S. Churchill. 1,000 plus xiv pages. Houghton Mifflin Co., Boston, 1950. $6.

Reviewed by
MARK S. WATSON

In the fourth volume of his monumental history of the Second World War Winston Churchill marches once more at the majestic pace which his best writing maintains, a pace which one is relieved to discover was lost only temporarily in the third volume. It is therefore (like so many of his earlier writings, from the Boer War to the world conflict in which he was Britain's towering chief) a momentous book worthy of its momentous theme so aptly sounded in the title *The Hinge of Fate*.

This volume deals with 1942, in all the theaters, reaching into the fourth year of Britain's participation in the great war, with three more years of costly struggle to come.

> In it we turn from almost uninterrupted disaster to almost unbroken success. For the first six months of this story all went ill: for the last six months everything went well. . . .
>
> We were alive and at bay: but that was all. On the other hand, what a cataract of disasters had fallen upon us. The fiasco of Dakar, the loss of all our Desert conquests from the Italians, the tragedy of Greece, the loss of Crete, the unrelieved reverses of the Japanese war, the loss of Hongkong, the overrunning of the ABDA command and all its territories, the catastrophe of Singapore, the Japanese conquest of Burma, Auchinleck's defeat in the Desert, the surrender of Tobruk.
>
> It is indeed remarkable that I was not in this bleak lull dismissed from power or confronted with demands for changes in my methods, which it was known I should never accept. I should then have vanished from the scene with a load of calamity on my shoulders, and the harvest, at last to be reaped, would have been ascribed to my belated disappearance. . . . I was not denied the right to share in this new phase of the war, because of the unity and strength of the War Cabinet, the confidence which I preserved of my political and professional colleagues, the steadfast loyalty of parliament, and the persisting good will of the nation. All this shows how much luck there is in human affairs, and how little we should worry about anything except doing our best.

The United States had its troubles, certainly, but Britain's unmistakably were more numerous, more varied, and so much more urgent at times that the reader must look with admiration not at the "luck" but at the manner with which this indefatigable and unscareable Premier, holding too the title and full responsibility of Defense Minister, could keep a watchful eye on all matters at home and abroad and move incessantly from one undelayable task to another. We see uninterrupted a determined guidance of British (and often Allied) strategy, a prodding of supply and administration, a correction of errors and a sub-

The Author

Winston S. Churchill, outstanding statesman of the half-century, and leader of His Majesty's opposition in another critical time, comes forward with the fourth of five volumes in his series on The Second World War. Titled *The Hinge of Fate*, it becomes one of a final eight volumes, including the trilogy on World War I, which, in Mr. Churchill's words, will "cover an account of another Thirty Years' War."

The Reviewer

Mark S. Watson, artillery officer in World War I, war correspondent in World War II, and longtime student of military affairs, won the Pulitzer Prize for international correspondence in 1945 for his dispatches to the *Baltimore Sun*. He is author of the recently published book *Chief of Staff: Prewar Plans and Preparations*, sixth volume in the series THE U. S. ARMY IN WORLD WAR II.

British Official

Some of the disasters in the making. Rommel and staff confer in the Desert.

stitution in plans and planners, a dazzling skill at dealing with partners Roosevelt and Stalin, and with an occasionally obdurate commonwealth chief or a sometimes cantankerous Cabinet member—all the time adjusting impulse to necessity and employing all his arts to gain agreement, or at least time. Sometimes it was his tenacity which did the trick, sometimes his robust humor, sometimes (as with Stalin) a grim but dignified statement of reality in inspiring contrast with the calloused insolence of the Russian, sometimes (as with Fraser of New Zealand) a half-smiling reproach for a complaint because forecasts had been optimistic:

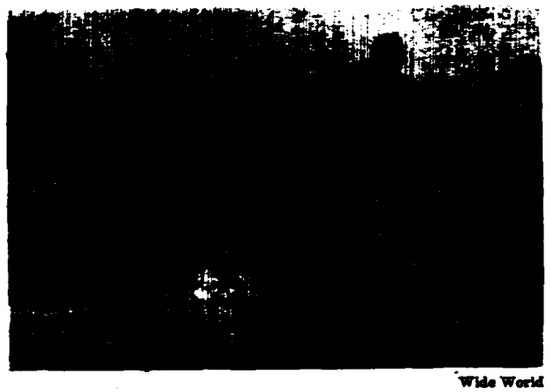
> The events of this war have been consistently unpredictable, and not all to our disadvantage. I am not sure that the German General Staff have always forecast events with unerring accuracy. For example, the Battle of Britain, the Battle of the Atlantic, and the Russian resistance must have shaken Hitler's faith in careful calculation of military appreciations.

To Mr. Curtin of Australia, overfearful of Japanese capabilities, Mr. Churchill had to speak more plainly. He gives the record of "a painful episode in our relations with the Australian Government and their refusal of our requests for aid" as an essential means of explaining the Burma disaster. Certain aspects of Singapore's fall still amaze him and, while he admits that as Defense Minister he presumably should have known that Singapore's guns protected only the seaward side of the peninsula, he adds that he thinks some of his professional advisers ought to have realized it themselves. His own persistent questionings on Singapore's situation are impressive and include almost every aspect of the defenses save that incredible circumstance of the guns' limitation—as improbable as "a battleship being launched without a bottom." He is still surprised that today, eight years after the disaster when war's security demands no longer forbid it, there still has been no court to consider "the worst disaster and largest capitulation of British history."

He is extremely blunt too about Rommel's humiliating defeat of the British Desert force in 1943, particularly the Tobruk surrender. "Nor should the British nation, in probing these matters, be misled into thinking that the technical inferiority of our tanks was the only reason for this considerable and far-reaching reverse." In brief, he thinks and says that it was poor command.

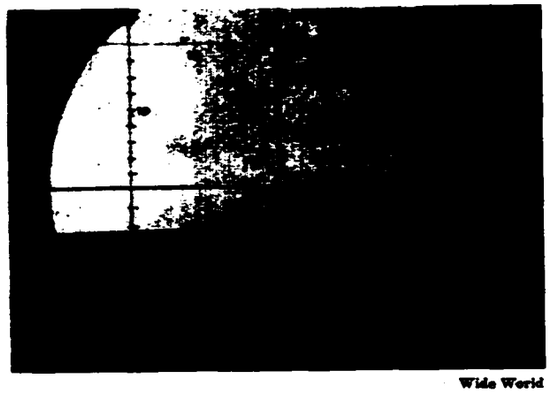
He is almost equally blunt about American failure in 1940-41 to develop coastal defense by planes and patrol craft, as well as convoy techniques against the U-boats—even while wholeheartedly grateful for the indispensable aid in these respects which America gave to an England in desperate need. This directness and precision of critical statement, favorable or otherwise, is one of the striking virtues of a book whose appreciations are thereby the more persuasive.

There were many differences of opinion with President Roosevelt on Far East matters. If the United States Chiefs of Staff were more realistic than Churchill about the prospects of the Southwest Pacific islands and Malay-



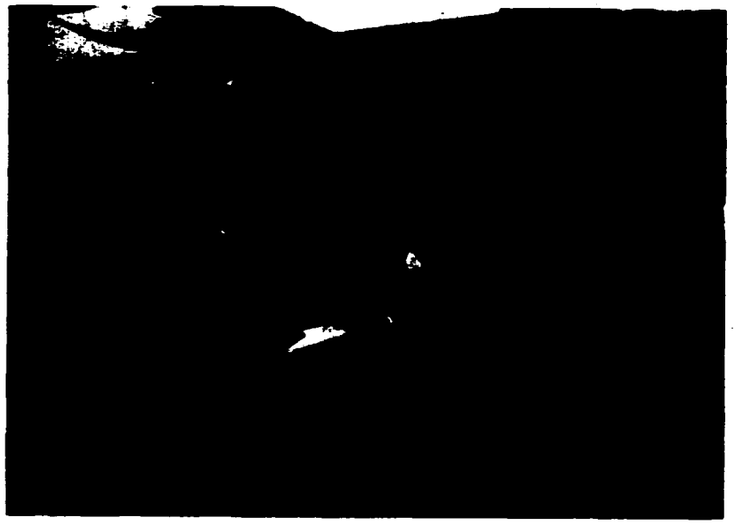
Wide World

DISASTER: Fall of Singapore. Japanese-British conference.



Wide World

DISASTER: German U-boat menace. Periscope on convoy.



U.S. Army

Some of the successes in the making. Roosevelt and Churchill at Casablanca.

sia. Churchill was very much sounder than the President in his estimate of China's powers, so far as World War II was concerned, and that "was quite enough to go on with for the time being." China had to be kept in the war no doubt, but in Mr. Prime's view that was solely to keep Japan's forces away from India.

The chapters on India are of profound interest as revealing how much indeed, for imperial purposes, was done for the great subcontinent where, despite magnificent service by both Moslem and Hindu soldiery, the politicians of the Indian Congress and the Moslem League "were either actively hostile or gave no help." Despite the politicians' whimperings Mr. Churchill points proudly to the fact that 2,000,000 volunteers were enrolled, "a glorious final page in the story of our Indian empire." There is a sorrowful chapter on ABDA, destroyed before it was out of swaddling clothes, for all the gallantry of the Dutch soldiers and sailors who with their allies died in trying to block a superior foe.

There are sharp passages here too about Mr. Roosevelt's views and about American concern with Indian affairs "on which they had strong opinions and little experience. . . . States which have no overseas colonies . . . are capable of rising to moods of great elevation and detachment about the affairs of those who have." The issue was not "one upon which the satisfying of public opinion in the United States could be a determining factor."

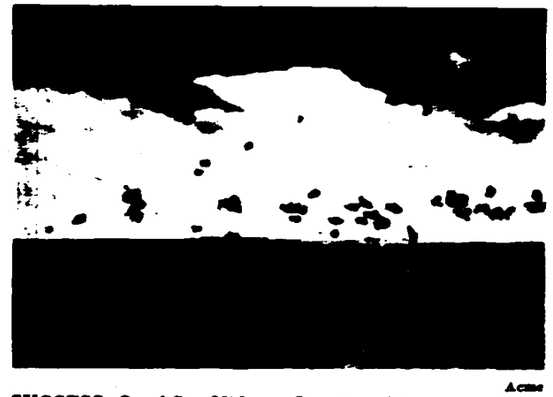
An interesting letter from Roosevelt in April 1942 (a great many are quoted) offers some surprising criticism of hostile American newspapers. In this somewhat cocksure letter the President decided to be "brutally frank when I tell you that I think I (Roosevelt) can personally handle Stalin better than either your Foreign Office or my State Department."

There is an immense amount of material on Russian relations in that critical year. Mr. Churchill is as spirited in his praise of the "magnificent struggle" of the Russian fighters as in his cold wrath at the "sullen, sinister state" represented by the suspicious Molotov, and his chief, Stalin. The Russians' terror of being assassinated tickled Churchill, who apparently never gave his own security a second thought. He tells of the Russians' arrival in orderly England, and their being put up at Chequers Court, the premier's home.

> On arrival they had asked at once for keys to all the bedrooms. These were provided with some difficulty, and thereafter our guests always kept their doors locked. When the staff at Chequers succeeded in getting in to make the beds, they were disturbed to find pistols under the pillows. . . . Molotov's room had been thoroughly searched by his police officers. . . . The bed was the object of particular attention: the mattresses were all prodded in case of infernal machines, and the sheets and blankets were rearranged by the Russians so as to leave an opening in the middle of the bed, out of which the occupant could spring at a moment's notice, instead of being

Acme

SUCCESS: El Alamein. British advance against the Nazis.



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SUCCESS: Coral Sea-Midway. Japs lost ships, men, planes.

THE SOLDIER'S LOAD AND THE MOBILITY OF A NATION

by Colonel S. L. A. Marshall

The riflemen who waded ashore at Omaha and Utah beaches carried more than eighty pounds. Some of them never made it *because of the weight they were carrying.* Many were physically so weak from the shock of combat that they drowned under the intolerable load. Many who made the beach "lay there motionless and staring into space. They were so thoroughly shocked that they had no consciousness of what went on. Many had forgotten they had firearms to use . . . their nerves were spent and nothing could be done about them."

It has been proved that the fear and shock of combat weaken almost any man. When that man has been previously weakened by carrying an intolerable load for long periods of time and long distances, it is no cause for wonder that he arrives at the firing line too frightened to fight.

In the past we knew no better than to overload the fighting man. Since World War I, and especially with the experience of World War II under our belts, we know better. We know better but we do nothing about it.

Col. S. L. A. Marshall, who is considered one of our true military thinkers, has analyzed brilliantly the subject of overloading the combat soldier.

$1.00

tucked in. At night a revolver was laid out beside his dressing gown . . .

With all of the well-bred Englishman's contempt for Russian uncouthness and bad manners and plain savagery (as in the treatment of the 15,000 Polish officers at Katyn) there is no stinting of admiration for Russian fighting will, repeatedly referred to with solid understanding of what it meant to Britain. For this is a book which recognizes merit and demerit alike for what they are. Here is a swift but glowing recital of what took place at Stalingrad and why and how. Here is one of the finest and most compact stories yet written of our own naval victories in the Pacific in 1942 when the hinge of fate was turning against Japan as well as against Germany. Here is a lucid story of Alamein, free of unnecessary detail and most remarkably effective; and again, in recording Montgomery's sureness and skill in passing the Mareth Line, a more direct recital than one is likely to find elsewhere; likewise of the tactics in Tunisia. If one looks for idle pleasantries about the leaders, British and American, he will be disappointed. There is a frank declaration of errors in planning and in execution, which it will do us no harm to read, with as little rancor as the author's.

The effectiveness of all this is enhanced by the author's patent sincerity. If he is calm in his criticisms, he is warm in his grateful acknowledgement of what our *Wasp* did for Malta's relief, and what our tanks did for Egypt, and what the promptness and fullness of American aid did for Britain. There is a moving recognition of General Marshall, not only as "a

Previous Reviews in the Churchill Series

The Gathering Storm, first of the Churchill books on The Second World War, was reviewed by Captain William Gardner Bell in the July-August 1948 issue of this magazine.

Their Finest Hour, second volume of the series, was reviewed by Charles Collingwood in the May-June 1949 issue.

The Grand Alliance, third volume, was reviewed by Morgan Beatty in the May-June 1950 number.

Military Management For National Defense

by John R. Beishline
Colonel, U.S. Army

Critical times like these demand more from us than just men, ships, money, planes and guns. They require the highest degree of efficiency in the administration of our armed forces. This timely book presents the military and industrial techniques for achieving this goal.

The first book to apply the science of industrial management to military problems. It fuses time-proven techniques of industrial management with the best principles of military organization.

For a clear understanding of the problems and techniques involved, Colonel Beishline breaks down military management into four basic functions: Planning, Organizing, Commanding and Controlling. He analyzes in detail such essentials as basic problems in military administration . . . objectives and policies of military management . . . military functions . . . structure of military organizations . . . leadership and morale in military management and organization . . . and the composition and duties of the General Staff.

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ECONOMICS OF NATIONAL SECURITY

Edited by G. A. Lincoln,
W. S. Stone and T. H. Harvey

Economics is perhaps the most important single factor in support of our struggle for survival against Communism. Now more than ever it is vitally important for every American to understand how economics affects our national security.

Written in plain, non-technical language, this is the first book to set forth a comprehensive account of the scope and nature of the economic problems which have arisen from our country's anti-aggression policy. "Peace through power" and "mobilization for survival" are two of the book's major tenets. The necessity both for total economic effort in the event of war and of a greatly increased security program in "cold war" is stressed.

Charts, graphs and tables supplement the text material and provide essential details on raw materials, production and manpower. An appendix discusses iron ore, coal and petroleum reserves and output of the United States.

$6.65

rugged soldier and a magnificent organizer and builder of armies" but as "a statesman with a penetrating and commanding view of the whole scene."

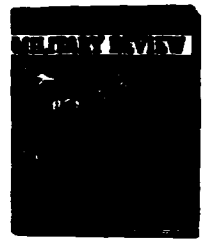
There is a particularly crisp discussion of the Darlan episode, in which the rocklike Churchill supported Eisenhower against a large, if somewhat addled, hostile opinion in England, echoed by an American group understanding little of General Ike's dilemma, of his need for immediate decision and of his wise choice of Darlan rather than of a much worse alternative—with no third choice at hand. Likewise there is a defense of the "unconditional surrender policy" which should be read in full—if only to discern how widely the policy was accepted in advance of its enunciation, and by people whose memory later failed them. More important, it sought, says Churchill, to avert this time anything like Germany's misuse of the Fourteen Points after World War I; it certainly did not imply an intention of treating a beaten foe in barbarous manner—and Churchill doubts that it prolonged the war.

Finally, this book portrays the necessity of mid-war thinking on post-war desires as well as on military victory. Britain's parliamentary system perhaps makes this obligatory, to a greater degree than does our form of government. Certainly some memorable passages in the book are those which deal with Churchill's necessary and proper concern with *intranational* as well as *international* policy, and the reasoning back of this concern can apply to our own country. In this respect, as in others, it can be examined with great profit by our American statesmen, of both parties.

MAGAZINE ROUNDUP

In which ARMOR rounds up some suggested reading for the military in some top publications of the service field.

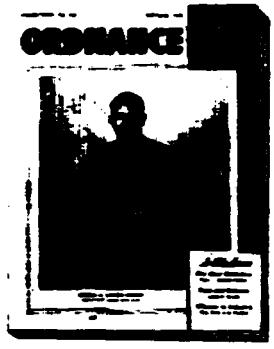
INFANTRY SCHOOL QUARTERLY, only magazine devoted exclusively to Infantry, in its October issue carries an article by Lt. Col. Bruce Palmer titled *Infantry and VT Fires*, which is a rebuttal to an article in the July number by Lt. Col. George Pickett, who had visualized a totally mechanized army in which infantry, relatively few in number, would employ the killing power of machines to offset a numerical inferiority in men. Col. Palmer takes exception. INFANTRY SCHOOL QUARTERLY now unclassified.



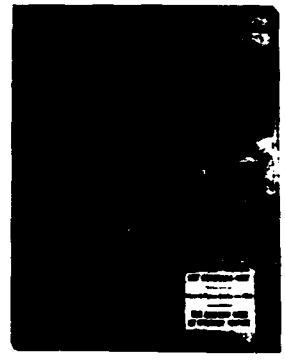
January's MILITARY REVIEW looks at *The Personnel Function Within the United States Army*, as set forth by Armor Instructor Lt. Col. William H. Patterson. It concerns the scientific approach to the utilization of manpower—the idea of putting the right man in the right place at the right time.

The November-December issue of ANTIAIRCRAFT JOURNAL carries an article on *The Armored Division* by Colonel Hamilton H. Howze, one of a series in this magazine on the different types of divisions. Another lead article of great interest is Maj. Gen. W. F. Marquat's *Automatic Artillery in Korea*, story of the use of our fine antiaircraft in a ground role.

THE MILITARY ENGINEER for January-February has some important dope from Korea—a story on the combat engineers. Titled *Engineers in Korea—Operation "Shoestring"* and authored by Col. P. N. Strong, this is a broad picture of the key work being done in support of combat operations. There are several photos showing graphically the big problem and the work of rebuilding necessary.



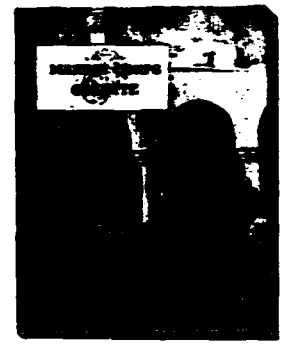
In its first issue of 1951, ORDNANCE has an article on *Russia's Jet Aircraft* by William Green and Roy Cross. In addition to the interesting basic information there is a two-page picture spread showing the different types of jet aircraft including the MIG models about which we are hearing in reports from Korea. Also of interest in the issue is an article on *Hypervelocity Missiles*.



The January issue of COMBAT FORCES JOURNAL carries an article by the Chief of Staff of the Army, published simultaneously with *Coronet* Magazine, in which General Collins stresses that we can secure the future only if we have an Army superior in mobility and fire power. Major Paul Linebarger writes of the Red activities in Malaya.

AIR FORCE Magazine puts its January issue under way with an article on the delta wing type of aircraft. *Delta Wing: How Near?* There is some information on the British and Swedish work in this field. Carrying along is another interesting piece called *A Noise Annoys*, which deals with the work of the Air Force Aero-Lab, where studies are in process which are aimed at finding out the destructive capabilities of noise on the eardrums, and means of devising protective measures.

Captain James F. McInteer's piece on *The New Weapons Company in Korea* gets the lead spot in the MARINE CORPS GAZETTE for January. The article deals with the recoilless rifles and bazookas in the employment of the company, and mentions the lack of mobility of the mortar platoon. Another interesting item in the issue is a *Letter from Korea*, by MSgt William G. Feningno. Some of the comments from the fighting level are interesting.



THE UNITED STATES ARMOR ASSOCIATION

THE 62d Annual Meeting of the United States Armor Association was held on Monday, 15 January 1951 at the Army and Navy Club in Washington, D. C. Upwards of half a hundred members were present in person and hundreds more were represented by proxy, members on duty all around the world.

Lieutenant General Willis D. Crittenberger, President of the Association, presided. The group heard the report of Captain William G. Bell, Secretary-Treasurer of the Association and Editor of ARMOR, covering the activities and financial status for the year 1950.

Three amendments to the Constitution of the Association were passed by the membership. The first set up a new type of membership in the Association, to be known as a Junior Membership, for students at the various military academies and ROTC institutions. This will be available at a reduced rate in the interests of assisting in the careers of our military students.

The remaining two amendments concerned the broadening of the Executive Council. The first added two additional posts of vice-president, making a total of three for the governing body, and specifying that one each should be filled by a representative of the Regular Army, the Reserve and the National Guard.

Second of these amendments provided for the addition of three new posts on the Council. This brings the Executive Council to a total of 17 members, not including the honorary positions.

With the passage of these amendments, the next order of business became the election of officers to fill the posts on the Council. General Crittenberger was again elected to fill the top post. Major General Guy V. Henry, retired, a distinguished cavalryman, was elected to be Honorary President. Major General Clovis E. Byers, Major General Donald W. McGowan and Colonel Herbert H. Frost were elected to the posts of vice-president, to represent the Regular, National Guard and Reserve components respectively. Two men distinguished in the field of mobile warfare were elected to be honorary vice-presidents: Major General Charles L. Scott and Colonel John L. Hines, Jr.

The twelve additional member posts on the Council were filled as follows, a top group of officers in the branch, representing a cross section of Armor in the United States Army: Maj. Gen. Hobart R. Gay, now commanding First Cavalry Division in Korea; Maj. Gen. Albert Sidney Johnson, commanding the 49th Armored Division, Texas National Guard; Brig. Gen. Thomas L. Harrold, commanding The Armored Center and School; Brig. Gen. John T. Cole, member of the Military Staff Committee, United Nations; Col. Henry C. Gardiner, Reserve, who served with First Armored Division in the Tunisian Campaign; Col. William J. Bradley, Chief of Armor Branch of Career Management Group; Col. Hamilton H. Howze, G-2; Col. L. K. Ladue, Joint Chiefs of Staff; Col. John C. Macdonald, Chief of Staff, The Armored Center; Col. Charles Bromley, Office of the Armor Inspector, AFF; Col. R. J. Butchers, Chief of Staff, 2d Armored Division; and Col. John R. Pugh, 3d Armored Cavalry Regiment.

1950 was a significant year in the history of the 65-year-old Association and its 62-year-old magazine. The membership, voting on a merger proposal, elected by a substantial majority to continue their own branch magazine. The name of that magazine changed at midyear from *Armored Cavalry Journal* to ARMOR, with the organizational name changing from U. S. Armored Cavalry Association to U. S. Armor Association—all conforming to the legislative change of branch name as contained in the Army Organization Act of 1950.

With the first issue of the year 1951 going to press amid a flood of heartening and most gratifying comment on the magazine, coming in from all sides—along with full support and a tremendous surge in subscriptions—'51 will go over the top!

FINANCIAL STATEMENT

of

THE UNITED STATES ARMOR ASSOCIATION

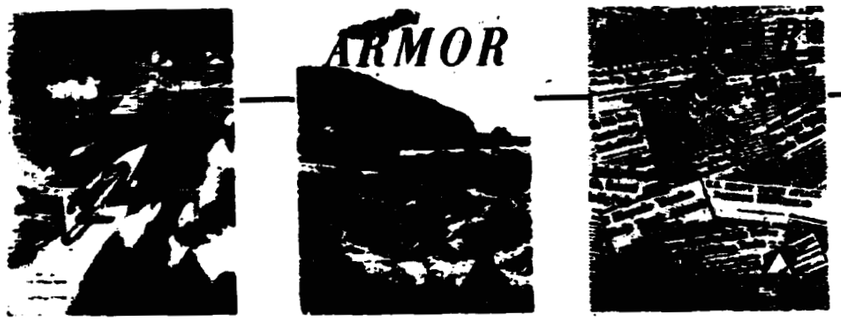
For the Year Ending
31 DECEMBER 1950

CASH STATEMENT

Department	*Receipts*	*Expenditures*
ARMOR Magazine	$16,123.31	$14,161.72
Book Department	3,357.46	2,109.52
Rent & Rental Expense	825.00	1,849.24
11th Armored Div. Assn.	2,253.99	556.60
Income from Securities	1[illegible].75	
Redemption of U.S. Bond ($1,000)	970.00	
Miscellaneous	155.70	576.86
Council Meeting Expense		159.91
Insurance		37.61
Salaries		2,016.24
Taxes:		
Social Security		51.30
Withholding		180.00
D. C. Sales		2.04
D. C. Personal Property Tax		24.29
Stationery & Postage		1,744.58
Office Supplies		552.93
Telephone & Telegraph		376.07
Janitor Service		66.00
	$23,863.21	$24,464.91
Bank Balance 1 Jan. 1950	1,091.42	
Bank Balance 31 Dec. 1950		489.72
BALANCE	$24,954.63	$24,954.63
Total Assets		$ 8,193.90
Total Liabilities		$ 188.30
Net Value of the Association 31 December 1950		$ 8,005.60

free . . . *if you're fast and mention it when you write*

the first 25 *NEW* subscribers to send in a subscription for calendar 1951 will receive a free bonus of the first three issues of ARMOR, thus enabling them to start off with a complete file



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