the footsteps to follow . . .

Pictured above are the presidents of the organization of mobile warfare during its sixty-seven years of service. They are representative of the thousands of alert and sincere professionals who comprise the membership of the fraternity whose trademark is mobility in war. Are you assigned in Armor? Are you a member of this society of specialists? Do you receive its trade magazine ARMOR? The cost is not much more than a penny a day. You will find it the best bargain available in support of your professional career. The benefits to be derived through association with those holding companion interests are obvious. Join now!

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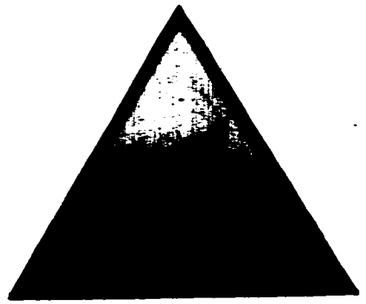
ARMOR

FOR ARMOR—A NEW MEDIUM TANK

The new M47 medium tank has been accepted by the Army for delivery to troops. Weighing 48 tons it carries a crew of five, mounts a 90mm gun, is powered by an 810 hp Continental engine with Allison cross-drive transmission. American Locomotive Company is producing it.

[See Pages 30-33]

MAY-JUNE, 1952



ARMOR

Continuation of THE CAVALRY JOURNAL

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LETTERS to the EDITOR

Comment on Night Firing

Dear Sir:

In regard to Lt. Long's letter concerning night firing, I feel that I might be able to clear up a few points. During an extended period of training in the late winter of 1951 at Baumholder, Germany, the 63d Tank Battalion, 1st Infantry Division, conducted platoon night firing exercises with excellent results. At that time I was in charge of the range and had no small hand in running the problem.

Briefly it was handled in the following manner. The platoon leader, about two hours before darkness, was told to move his platoon to an assembly area, where he would receive a defense order. Upon arrival he was met by the range officer, who pointed out a defensive position to him, giving him the standard five-paragraph operation order, the gist of which was for him to occupy the position with his platoon and be prepared to defend it against all comers during the hours of darkness.

The platoon moved in, made out range cards, and generally tied itself in, with imaginary units on the flanks. The problem was so devised that the platoon would have sufficient time to organize its position and make out the proper fire plan.

After total darkness had set in, allowing the troops to obtain night vision, the platoon leader began to get indications of approaching enemy through information given him in the form of stereotyped messages over the radio. At a specified time the actual firing problem began.

We were able to fix up five targets per platoon by use of electric blasting caps, a blasting machine and 800-1000 yards of assault wire per target. A one pound block of TNT was set in the target area. Within ten yards of the TNT was a five gallon drum of gasoline and oil. This did not explode when the TNT was detonated, but did explode, signifying a hit, when struck by tracer or WP 90mm. Targets were set off at about one minute intervals and at the end of the problem the platoon was ordered to fire its weapons along each weapon's principal direction of fire. Needless to say, the platoon was well critiqued at the completion of the exercise. The following points were taken into consideration for the critique: 1 Completeness of range cards and fire plans; 2 Use of the dismounted .30 caliber machine guns; 3 Target designation and general fire control by the platoon leader; 4 Number of targets hit versus number engaged; 5 Maximum use of all night sighting and lighting devices; 6 Actions and orders and reactions to orders by tank crews.

The weak points of the problem were as follows: 1 Lack of infantry to provide realism to the situation; 2 Some target failures due to destruction of detonating wire; 3 Some lack of realism due to range limitations and a shortage of wire.

All of the above limitations are minor and easily remedied.

The problem had excellent results. It gave needed confidence to the men participating, demonstrating that their weapons are effective at night when the user has confidence and experience. It familiarized them with the operation of night firing and lighting devices and the functions of a range card.

I hope that this sketch of our exercise will be of some value to Lt. Long and others interested in night firing.

CAPTAIN GEORGE S. PATTON
Advanced Class, TAS
Fort Knox, Ky.

Posting the Guard

Dear Sir:

M Sgt James D. Merrill and ARMOR are to be congratulated on the excellent "The Little Things that Count!" in the March-April issue in your increasingly fine magazine.

The techniques described by Sgt Merrill provide absorbing reading; I hope that this feature becomes a regular section in ARMOR.

Such things make for splendid background material in classroom instruction. I'd like to toss in the suggestion that some battlefield techniques also be printed—such as the fine one brought out by Major Rankin of the C&S Department at the Armored School that a sure way to slow down enemy armor at night is the simple expedient of placing a lamp or two on likely avenues of approach.

You are making an excellent contribution to the education of all armored officers and men.

MAJOR DONALD G. McLEOD
Hq 138th Tank Bn (Med)
Indiana National Guard
Bedford, Indiana

Background for *Esprit*

Dear Sir:

The flags Sergeant Brown proudly *points to* on your splendid March-April cover are symbolic of an element of leadership . . . *esprit de corps* . . . more important at the combat level than international cooperation.

As you know Armor unit combat recognition, during the first year in Korea, was sufficiently remote to jeopardize the *esprit* of tankers. Therefore, as contest to ill deserved recognition, we conceived a turret decoration, part of which is shown in your cover photograph. We achieved our purpose, well deserved combat recognition, by painting the tank commander's name just below the hatch, then the flags depicting the units we fought with, while below that the enemy vehicles each tank had to its credit.

Suffice it to say, by announcing to the Eighth Army at large each tank commander's name and the tank's decorations and achievements, the individual crew's combat efficiency, morale and discipline soared to new heights. As a result the recognition necessary to high *esprit* was accomplished.

On behalf of the former men and officers of Company C, 72nd Tank Battalion, please accept my gratitude for the recognition you have bestowed upon them.

CAPTAIN C. R. McFADDEN
Fort Knox, Kentucky

It's Funny But It's True

Dear Sir:

I enjoyed the March-April issue of ARMOR very much, just as I have enjoyed all issues in the past.

I do, however, question the figure of $700.00 for rebuilding an M46 tank in the Tokyo Ordnance Depot as set forth under the pictorial story, "Tank Rebuild in Japan." That sum would hardly pay for reconditioning a "jeep."

LIEUTENANT JAMES B. EGGER
Office of Inspector of Armor
Fort Monroe, Va.

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Rates: See bottom of contents page.

A Problem Problem . . .

Dear Sir:

We read with continued interest your "How Would You Do It" section. Problem No. 2 of your January-February issue indeed poses a problem. We wonder at the advisability of a stationary anchor tank, inasmuch as the cable from the M-32 will cut across the track of the anchor tank as the upset tank is towed forward.

We recommend that the anchor tank bear to the left, and move forward with the towing tanks.

LIEUT. JOSEPH R. GIESEL, USMC
LIEUT. FRANCIS J. STOECKER
LIEUT. DAVID C. WALTZ
73d Tank Battalion
APO 301

Our Tank Position

Dear Sir:

It was rather alarming to read the comment of a British tank officer in Armor Notes (March-April issue) regarding the value of American tanks in Korea. This statement, coming on top of two letters published recently in another service journal regarding other arms, is enough to raise and to cause us to seriously consider the question: Is Ordnance meeting its responsibility to the combat soldier of furnishing him the best weapons and arms available? And, more pointedly, do American tanks stand up under the strain of combat usage.

It is more or less accepted that the M4 series tank was not ideal in many respects but the best we could do in quantity production at its time; that the M26 pointed towards the type of tank development we desired but had its power, maintenance and firing difficulties. It was my understanding that the Patton tank, while only an improved version of the M26 and an interim model, would overcome the low power and improve on the firing and maintenance difficulties; and that the newer tanks would be the ultimate in tank development of their time.

However, the statement by the British officer calls a halt to such consoling thoughts and understandings. It points directly to the question: Are our tanks the finest we can get? From what I have read and heard, and from what I learned and saw as a tank platoon leader in the 6th Armored Cavalry Regiment, I feel certain that we can say we do have the finest tank—in refinements. That is, our tanks probably are the most highly engineered; but do they have the dependability and stamina—the guts—to stand up to the strain of combat; rough cross-country handling, the ability to keep going when maintenance falls off (this must be considered) and to continue to operate dependably with only gassing and oiling, to take the driver and terrain abuse?

It would be helpful to have comments from those men who have had the opportunity to see in action and to compare the fighting qualities of our Patton with the British Centurion. These comments should cover:

a. Do our tanks measure up in the desired fighting characteristics (speed, cross-country mobility, response to controls, agility, overcoming obstacles) to the Centurion? If not, where do we fail?

b. Do our tanks have too many gadgets that foul up or cannot be trusted? If so, which are impractical and what goes wrong?

c. Will our tanks take the over-all beating of others. If not, where are they weak?

d. Are our tanks too complex and do they require too highly specialized and trained personnel to operate and maintain them?

These comments should be blunt and open and backed up by factual examples as illustration.

I would like to see some comments on our combat vehicles; especially from those who have had the opportunity to compare them in combat and on maneuvers with those of other nations.

LIEUTENANT H. C. RICHARDSON
The Ordnance School
Aberdeen Proving Ground, Md.

Although the light and heavy tanks have a firm place in the mobile picture it is the medium tank that has the major task of putting the mobility, fire power and shock action into ground combat. Thus the importance of the arrival of a new medium tank for American forces. The M47 tank is significant by virtue of its new turret and many other improvements. It has successfully completed production line modification and is ready for the mobile arm.

The Groundwork

Dear Sir:

Your magazine has been so interesting and informative to me and to my classmates at the Military Academy . . .

As a Cadet who will be commissioned in the near future I am particularly interested in your articles on the small unit commander. I am especially interested as I hope to be commissioned in Armor, and your magazine provides a wealth of valuable and practical information. Your "How Would You Do It?" series is very good. These articles give us a chance to project ourselves into the future and get some "academic," so to speak, practical knowledge. Just keep these coming and you will keep a friend. Many friends, I might add, as my copy of ARMOR generally makes the rounds before I get a chance at it.

CADET E. B. McCLUNG
Co. B-1. USCC
West Point, New York

Protection and Penetration

Dear Sir:

Although much of our tank construction is along conventional lines, I feel we should always be looking for the new developments. And since weight and crew space are such important factors, I am wondering why we can't mount our guns, for example, outside of the turret in such a way that it can be served from inside.

What would be the effect of shaped charges on highly compressed thick casein plastic plates?

These are interesting considerations to me, and I would like to hear some discussion on this line.

MAJOR R. SHEEL
Ambala, Cantt, India

Armor Reserve

Dear Sir:

I would like to comment on your editorial "Let's Not Lose Division Vision" in the March-April issue.

It is too bad that we had to lose these organizations. Many of our Reserve Armor officers feel that there is little for them on an inactive status in their branch specialty. I know quite a few Armor Reservists who have no real interest in their branch because most of the inactive training they receive has nothing to do with Armor.

Perhaps one solution for the Reserve would be to concentrate on the Armored Cavalry Regiment and Group formations, the latter especially for higher level officer training in conjunction with Armored School courses.

I think the idea of making the Constabulary units in Germany into the 4th Armored Division is excellent. If that had been done a year or so ago, perhaps the 2d Armored would not have been needed so early.

LT. COL. JOHN F. RATHBUN, USAR
Falls Church, Va.

*Inquiry Into the Military Mind**

In an election year spotlighting two of our top generals a distinguished writer weighs the advantages and disadvantages of the military mind in the area of nonmilitary affairs

by JOHN P. MARQUAND

Army Commander in Chief in the Revolutionary War and our first President, George Washington was no career soldier.

PRESIDENT TRUMAN, who is in a position to know about such things, said the other day that eleven Army generals had served as Presidents of the United States. Superficially this seems like an alarmingly large percentage of the thirty-two individuals who have held the Presidential office, but a further analysis of the list shows that most of Mr. Truman's big brass were ordinary civilians, like you or me. George Washington, for example, though his tactics received the approval of Frederick of Prussia, was not a professional soldier but a Virginia planter. Neither was the greatest hero of the Democratic party, Andrew Jackson, although he whipped the British career officers in the battle of New Orleans. He was primarily a lawyer and a politician, the purest example, perhaps, of a political general in the annals of our Republic.

Zachary Taylor, a fine strategist and excellent field commander, comes closer to the strict professional definition, but he was not a graduate of West Point. In fact, only one general in the Truman list really comes up to an exacting standard. He is, of course, Ulysses S. Grant, the only one of the lot who was a graduate of West Point and a man whose military gifts are now receiving a much greater critical recognition than they did a few years back. General Grant is also the only individual who brought to our highest office what might be called the gifts of the pure military mind, and also some of its weaknesses. He was, for instance, unable to understand a great many of the civilian minds he encountered, notably that of Jay Gould, the financier, who had never heard a gun go off in anger.

While we are on the subject, it is interesting, if not important, to observe, in view of the continued rivalry between the two services, that no admiral has ever been a President of the United States. This does not mean that no admiral has coveted the position. Admiral Dewey, for one, was seriously considered as Presidential timber by politicians after his Manila victory. When tentatively approached, he is supposed to have said that he thought he could fill the office adequately, because, in his opinion, the Presidency demanded an ability to take and execute orders, and this was something he had learned to do during his life in the service. For some reason this simple considered statement, while utterly characteristic of an accepted service viewpoint, did not appeal to the general public, and shortly after he made it, the admiral's star dropped rapidly below the political horizon.

In the light of our present reliance on military men, it is somewhat ironical that General Grant, with all his proven abilities for leadership and with a sense for strategy that is entirely modern, was not outstanding as President. Like Admiral Dewey, he was used to taking orders, but he was also highly competent to give them. He was not afraid of decisions. He could think through any given problem to a clear conclusion and, in spite of what critics say of him, he was a man of exceptionally strong intelligence. His main difficulty would seem to be that he never understood the democratic give and take of the Presidency any more than Admiral Dewey, and there is no particular reason why he should have. He was not trained at West Point to be a future President of the United States. He was trained to be a soldier with a military mind and his deficiencies do not imply that a military mind necessarily unfits its owner to hold a high political office. Yet they indicate, perhaps, that the military mind does present its owner with specific handicaps which he must overcome in order to get on with the great mass of his fellow-citizens, who have not been subjected to his disciplines and training.

The question now arises again, as it has here after each of this nation's wars: Can a soldier be a good President of the United States? Can a man who has spent his life within the exacting, arbitrary and rather unworldly limits of the military service cope with the broader and very different complexities of the Presidency? Is he pliant enough? Can he understand and forgive the indisciplines of citizens out of uniform? More specifi-

Library of Congress & U.S. Army Photos

Andrew Jackson, courier in the Revolution, general in the War of 1812.

William H. Harrison, Indian fighter and also general in the War of 1812.

Zachary Taylor fought in 1812, in Indian campaigns, and the Mexican War.

*This article appeared in a recent issue of *The New York Times* Sunday Magazine, and is reprinted here with the kind permission of *The Times* and the author.

John P. Marquand, novelist, is author of *Melville Goodwin, U.S.A.*, a story about an Army general, which was published last year.

cally, can General Eisenhower do a better job as Chief Executive than his distinguished predecessor?

General Eisenhower is a graduate of General Grant's old school and he wears the old school tie more dashingly than Grant ever wore it. He stands at the top of his profession, as Grant did. He has even greater popularity, having the South behind him as well as the North, never having been obliged to send a Sherman marching through Georgia.

General Eisenhower is less grim, less slow, less ponderous and his character, judging Grant's from a distance, is vastly more genial. It would be impossible to think of U. S. Grant, had he been President of Columbia University, asking students to call him Sam. He would not have done so any more than General Lee, when he was a college president, ever asked the boys to call him Bob. Other times, other manners, but then U. S. Grant was always more diffident and less at home in his high position than General Eisenhower. Unlike Ike, he would have been very bad at the mike.

Yet these two very different personalities start from a common base. Any general, past or present, is very much like any other general. All professional soldiers have similar attitudes and reactions unavoidably, because they have the military mind.

There is a definite physical resemblance between all professional soldiers, especially when they have succeeded in reaching a two-star rank or over, no matter how differently each may have looked from the other when they started as plebes at West Point. The stamp of success has been placed on their features. Their mouths have the same lines of resolution and their eyes the same steadiness. No matter what their particular attributes of character may have been, they have become individuals of action. They all make a similar impression upon an outside observer, an impression which has often been described by Tolstoy, Stendhal and many lesser writers. This resemblance, of course, is superficial, and most individuals in this highly specialized group would be apt to deny its existence, knowing that they possess at bottom the infinite variety of their fellow-citizens. Yet their similarity in appearance, their physical vigor, the squareness of their shoulders and even the cadence of their footsteps reflect a common character.

For years these highly skilled specialists have been subjected to a series of physical and mental tests far more grueling than those surmounted by the average industrialist or lawyer or scholar. The unfit among them have been eliminated by this constant competition, and World War II has subjected them to the greatest test of all —the ordeal of leadership in battle. Having succeeded, they have all developed in confidence and self-assurance, but they are so successful that assurance rests on them easily, and they know their capacity so well that they no longer require the support of arrogance or aggressiveness. Instead they can finally afford a philosophical kindliness. They have learned a great deal about human beings under stress. They are excellent judges of certain limited regions of human character.

It has been the fashion lately, especially among younger writers who have revolted against the peculiar demands of their military service, to picture general officers as stupid extroverts, and in this respect I think they are much mistaken. The military mind may have blind spots, but no general can possibly be stupid. Actually, he is a better writer than most of his literary critics, at least in straight expository prose. He is also a clearer thinker, more logical and more objective and his training has enabled him to face any problem and to come up with a concise solution. The solution may be wrong, but at least it will be an answer, and this knowledge of ability naturally adds to assurance. It may even result in what is occasionally called a Messiah Complex by irreverent members of the staff. Generals themselves are aware of this final weakness. I have even heard one of the best of them say that no general should be in a high position for more than a limited time because the position itself removes him too far from reality.

The varieties of experience shared by all generals are quite different from those faced by a civilian in a nonmilitary career. Ever since they

Franklin Pierce was a brigadier general in the Mexican War, 1846-1848.

Andrew Johnson was military governor of Tennessee, saw no field service.

Ulysses S. Grant, true career soldier and only West Pointer to be president.

entered West Point they have been in a game with different ground rules. They have been freed largely from the usual drives of financial necessity without ever becoming rich. They have been endowed with an economic security highly enviable to most of their contemporaries. Their profession has placed them in their own social order, a strict monastic sort of order governed by definite regulations seldom wholly comprehensible to a civilian, though millions of civilians have lived lately in the military world.

This order is what a general, broadly speaking, would call the Chain of Command, which gives everyone in the service sphere a definite relationship to everyone else above and below him, setting everyone exactly in his place. It is a world in which everyone has both to command and obey, promptly and without the frictions of debate. Individuals, like generals, who have moved to the top of this chain of command know its artificial workings thoroughly, and they know exactly how to get things done within its limits. They have learned to rely on loyalty and to take compliance for granted in their world. If an order is clear and comprehensible, they can feel certain it will be obeyed within the limits of human fallibility. They will admit that there are good ways and bad ways of giving an order and that proper prompt compliance may depend on respect for the abilities of a superior, and this leads them to a subject known in military circles as Leadership. But Leadership has little to do with persuasion as a civilian knows it. It rests firmly upon character.

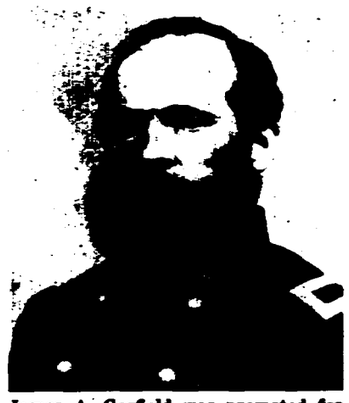
There is not space here to go into the intricacies of military life, but essentially it is a life of order devoid of many of the freedoms accepted in civilian life, and thus it is bound to develop many attitudes which are noncivilian. Though it may have its peculiar complexities, in the main it is a simple life for one who understands its values. This is why many generals appear to civilians like deceptively simple men. Most of them possess, from a civilian viewpoint, an unworldly character. At odd moments they are all beguilingly like Thackeray's Colonel Newcombe.

It is difficult for the military mind to grasp exactly what goes on at a meeting of the National Association of Manufacturers. It is hard for any general not to look upon industry as a sort of military installation and not to bring to his thoughts about civilian life the truths he has learned in the military world. It is very hard for him to understand the perpetual conflicts between labor and management, since in the Army a labor union would be unthinkable. It is difficult and often impossible for him to view patiently the interminable discussions over wages, hours and benefits, since all these have always been fixed in his world by arbitrary order. He can understand the handling of enormous sums of money when money is concerned with military appropriations, but on the whole he is impatient with small greediness and financial anxiety. He thinks of any human organization as a team and usually speaks of it as such, preferably a loyal football team with a good backfield, a brainy quarterback to call the signals, and a strong obedient line.

He knows the value of simple virtues. He has small tolerance for cowardice or selfishness, because he has become a selfless, dedicated person. He is apt to be confused also by the intricacies of civilian government, although he has always lived within its frame and is more familiar with certain aspects of it than his average civilian contemporary. He has often seen lawmakers when he has faced Congressional committees, and some of his best friends may be Congressmen and Senators, but it is hard for him to understand more than academically their pliability and their ability to compromise. He has no constituents of his own and he has only been subjected indirectly, and usually most unpleasantly, to the pressures of the electorate. Debate, when protracted, makes him impatient, and the niceties and the delays of the law make him impatient too, when he compares them with the simpler military justice. He can recognize that there is a civilian chain of command in government, and he can even see theoretically why it should be different from the military, but he is seldom wholly at home in it.

Clearly, a general's point of view

Rutherford Hayes fought in the Civil War, was wounded on five occasions.



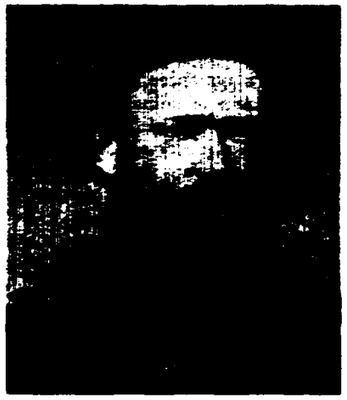
James A. Garfield was promoted for gallantry at Battle of Chickamauga.

Chester A. Arthur was quartermaster general of New York State militia.

tends to differ in many respects from that of most citizens. Life has set him as much apart from the crowd as many ministers, headmasters and college professors. Though he would be indignant if it were pointed out to him, he has led an extremely sheltered life. Thus he has a great deal to overcome before he can mingle freely with ordinary boys and girls, but on the other hand, with the world situation now existing, most generals have been obliged to make the effort. Duty, in the last few years, has compelled them to address Rotary clubs and women's clubs and to shake hands freely with various assorted groups. The higher military echelons have had to confer with diplomats and Mayors and Governors and to pass compulsory courses in handling politicians and heads of other states.

Upon retirement generals now become vice-presidents and presidents of corporations, and some of them have done very well at these unfamiliar tasks. They have also had to teach college boys at university R.O.T.C.'s and to treat conscientious objectors and racial minorities with tact and gentleness and even to argue restrainedly with pacifist organizations. More significantly, during the war and post-war years they have had to associate closely and often cordially with large numbers of civilian officers, most of whom have looked as awkward in their uniforms as generals themselves look customarily in mufti. These recruits from the Outside, changed after hasty indoctrinations into military figures from having been lawyers, doctors, journalists, insurance agents and stockholders, have made a somewhat profound impression upon the modern military mind. They have in no real sense diluted or broken the *esprit de corps* of the regular service, but they have frequently dented it. In fact, of late the military mind has been compelled to cope with civilian eccentricities more intensively than it has for an entire generation. If in individual instances the results of this exposure have not been spectacular, they have been in others.

Many generals have become humanized of late from a civilian point of view, and some, while still in uniform, have made spectacular adjustments to civilian ways of life. The truth is, these comes a time when a highly successful man in any sphere



Benjamin Harrison was one of Sherman's officers on march to the sea.

Douglas MacArthur has had broad experience in the diplomatic-political field as well as in military matters.

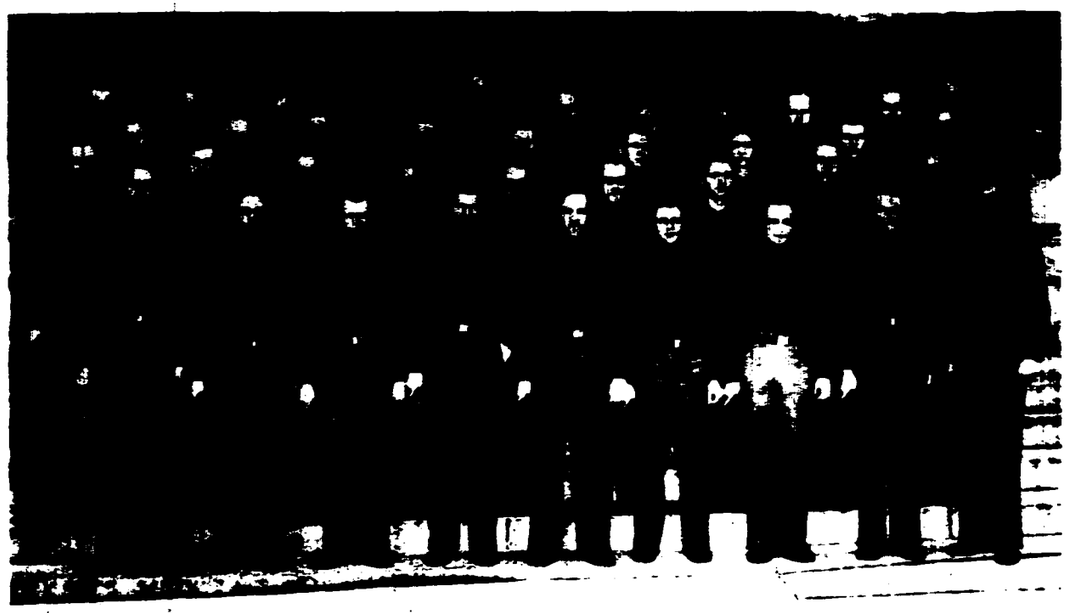
Dwight Eisenhower has had broad experience in the diplomatic-political field as well as in military matters.

of activity is able to rise above the conventions of his profession until he is indistinguishable from other people. It may always be remembered that generals in the upper brackets are outstanding and many are superbly exceptional.

General Eisenhower, according to most observers, would seem to fall into this last category, and certainly millions of his fellow citizens believe that he has broken the West Point mold. Certainly, he has had exceptional opportunities to do so in the arduous postgraduate courses he has taken since he was a comparatively unknown field officer at the beginning of World War II. His duties have forced him to become a cosmopolitan and a diplomat as well as a soldier. He has had the opportunity to learn more about Europe and Europeans than any living American. He has consistently demonstrated organizational powers of the highest order. He has succeeded in the task set before him, through diplomacy and persuasion far more than through military directive. He has been able to use people wherever he has found them and to delegate authority in a way that betrays a deep knowledge of human beings in and out of uniform.

Few people in the service criticize superior officers if they know what is good for them, but there are groups who have served under him who don't like Ike. The worst they can say about him is that he is not a combat but a political general and a wire-puller. If he is, these very attributes, while not military virtues, may very well make him an excellent President of the United States in a confused period when dozens of factions and interests must be reconciled. Of course, as they say in the service, the battle is the payoff, and no one can judge the Eisenhower capacities unless he is elected to the office.

The present may be a time more than ever in the past that demands a military mind. The legal mind and the business mind and the reformer mind have their own peculiarities and defects. There should be nothing wrong with a military mind in the White House if it is sufficiently well educated for its task, broad-gauged enough and tolerant. An outstanding man is always outstanding no matter from what walk of life he may come —Army, Navy, or General Motors.



1st row, left to right: Malcolm E. Craig; Edwin J. Upton; Birtrum S. Kidwell; Robert S. Tickle; Richard D. Moore; James W. Mueller; Don Bradley; Harry L. VanTrees; Daniel W. Derbes.

2nd row, left to right: Stewart Paterson; John W. Sadler; Paul J. Brown; Lawrence H. Putnam; Peter C. Hains; John M. Misch; Corwin A. Mitchell; Edgar A. Gilbert; Lewis E. Beasley.

3rd row, left to right: Joseph R. Paluh; James M. Peterson; Edgar B. McClung; John O. Bovard; John J. Lentz; Walter F. Ulmer; John H. Tipton; Craig Alderman; Albert N. Stubblebine.

4th row, left to right: James B. Reaves; Robert S. McGowan; Howell L. Hodgskin; Gordon M. Hahn; Arthur R. Stebbins; Joseph L. Jordan; Carl F. Dupke; Harold R. Lamp; Glenn H. Palmer; Joseph A. DeAngelis; Ralph M. Cline.

Not present: T. F. Cole.

UNITED STATES MILITARY ACADEMY: CLASS OF 1952 ARMOR GRADUATES

Thirty-nine cadets in the 1952 graduating class at the United States Military Academy, West Point, New York, will be commissioned in Armor. The quota for the mobile arm of the ground forces was snapped up by cadets in the upper half of the class, which totals 553 cadets.

Cadet Harry L. VanTrees, top-ranking man in the Class of '52, chose Armor as his branch. The number five man, Cadet Edgar A. Gilbert, and the number nine man, Cadet Richard D. Moore, also selected Armor for their arm. Remaining selections of Armor were made from class standings ranging down to 262.

Branch quotas are allotted on a proportional basis to the graduating class at the Military Academy, and first classmen make their choices based upon class standing, as far as the respective openings go. Those further along in the standings must take what is left after those above them have made their selections.

Each of the Armor cadets received a personal letter of congratulations from Lt. Gen. Willis D. Crittenberger, President of the U. S. Armor Association, on behalf of the membership. Many have been Junior members of the Association and have applied for full active membership upon graduation.

A careful review of the history of the tank is a necessary preliminary to operations on the atomic battlefield Mobility must be the basis of our doctrine, and its instrument must be insured against chaining to a foot-paced concept

The Ten Ages of Tank

By RICHARD M. OGORKIEWICZ

THE routes by which tanks and armored forces have advanced during the past thirty-odd years have been many and varied. Of this, the present profusion —and often confusion—of facts and opinions is but one indication.

Yet, considered in broad outline, the whole development can be divided into a relatively small number of fairly distinct phases. These could well serve as a basis for classifying the masses of detail and systematizing the knowledge on the whole subject of armor. At the same time, they can help to clarify the different contributions to the present stock of ideas and help to assess the future worth of various concepts.

Thus, each one of these phases can be associated with a particular conception of the tank, a general recognizable trend or a group of characteristics. Each can also be identified with a certain chronological period, though these must not be regarded as rigid and mutually exclusive.

Common to them all is the background of the gradual evolution of the automotive vehicle and the steadily growing importance of the heavy, crew-operated weapons. This, of course, is particularly significant in connection with the origin of the tank, even though its invention (or synthesis) was more immediately connected with the particular conditions of the First World War.

I. Trench Warfare

It was as a direct outcome of the trench warfare conditions into which the Western Front settled after the initial moves of 1914 that the processes which led to the first tanks started. The problem which these conditions posed was how to move in face of dug-in machine guns and barbed wire. The original answer to this proposed in England and France, the two countries in which independently but almost simultaneously development began, was on the lines of armored carriers for the transport of men and equipment over the bullet-swept no-man's land. On taking shape, however, the role of the armored vehicle was redefined, in particular in England, as that of a machine-gun destroyer and barbed-wire crusher which would open the way for the infantry: partly as an alternative to field artillery.

In this role the very first British tanks went into action on September 15, 1916, on the Somme in France. Similar methods were employed in many later actions, usually of a local character, by both British and French tanks.

Such success as was achieved was due mainly to the effectiveness of armor protection, which enabled the tanks to disregard machine-gun fire. Thus, from the original ideas right through this first period runs the theme of mobile protection as the main characteristic of the tank—although the early tanks were by no means invulnerable. From this sprang the definition of the tank as a "perambulating fortress" and much of the later emphasis (and overemphasis) on armor protection.

The other legacy of this phase has been a tendency to regard the tank as some specialized piece of equipment and not a general means of increasing mobility. At first, of course, it was in the minds of many associated with the peculiar conditions of trench warfare. After the First World War, when a return to more mobile warfare was visualized, voices were not lacking that claimed the usefulness of the tank was over!

Richard M. Ogorkiewicz, lecturer at Britain's Imperial College of Science, is a student of tank history and a frequent contributor to this magazine.

II. First Massed Assaults

There were, however, some, both among the originators such as General Swinton in England and General Estienne in France and those who joined the first tank units, who saw the wider potentialities of the tanks. Particularly their capacity for surprise mass assaults with little or no preliminary artillery bombardment, which hitherto precluded all chances of tactical surprise. Proposals on those lines were in marked contrast to the early tendencies among Allied commanders to use tanks in driblets in local actions. Also they necessitated the grouping of tanks in larger bodies, of regiment or brigade size, and careful planning by staffs familiar with the characteristics of tanks.

The British Tank Corps was the first to put these ideas to test. At Cambrai, in November 1917, no less than 474 tanks were used and for the first time they became the principal factor in battle. A spectacular breakthrough was achieved but, through lack of suitable means and technique, it was not exploited. Similar results were later achieved by the British at Amiens and by the French at Soissons.

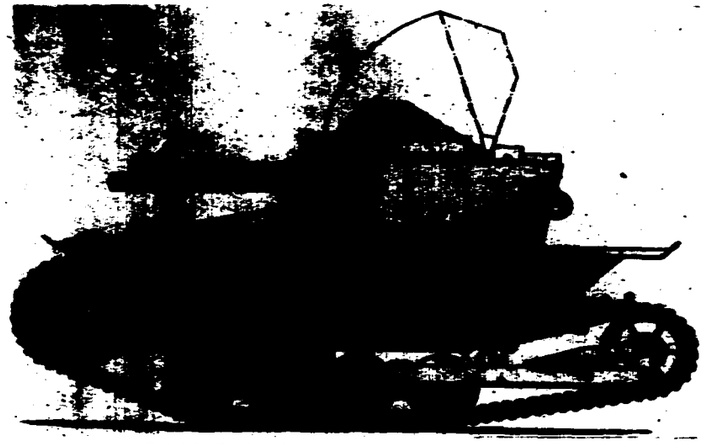
These battles demonstrated for the first time the potentialities of the tank as a means of breaking through hostile fronts and in the saturation technique of surprise mass assaults. They were still executed in close contact with the infantry, but tank units now operated chiefly for the benefit of higher formations.

The main problem, after that of the initial breakthrough proved capable of solution, was how to extend the action. Horse cavalry, which, it was hoped at first, would be able to exploit the breakthrough, proved quite incapable of it in all of the three main battles. The standard types of tanks, with maximum speeds of 4 or 5 mph, were equally incapable, though for a different reason.

Faster types were, however, being developed by then and General Fuller (then colonel and chief of staff of the British Tank Corps) conceived the idea of deep tactical penetration by fleets of these mobile tanks. This was

British Medium C of 1918.

French Renault FT.



British Carden Loyd Mark VI Tankette of 1929.

embodied in his "Plan 1919," an operation to have been carried out by some 10,000 tanks, which was accepted in principle by the Allied C-in-C Marshal Foch.

Before any of this could be put into practice the First World War came to an end and the plan was never put to test. But the idea of the more independent employment of tanks remained. So did the record of the efficacy of tank units in the role of an operational battering ram. Both were resumed later but in the meantime other ideas prevailed.

III. An Accompanying Role

In the immediate, postwar period it was France which had the strongest Army and the biggest tank force with over 2,000 tanks. This, together with various political and economic circumstances, added considerable weight to French ideas on the subject of tanks. Anyway, in the 'twenties they were adopted by virtually all other countries.

The original French conception of the tank was as a means of increasing the mobility of artillery—hence the *artillerie d'assaut* designation of the first French tank units. Or, later the mobility of heavy infantry weapons in the case of the lighter vehicles. In practice, however, the employment soon approximated that of the British "machine-gun destroyer" concepts and tanks were closely linked with the infantry.

After the war this connection was made official and permanent: the separate tank command was abolished in 1920 and tanks became an integral part of the infantry. Their role became that of accompanying the infantrymen, silencing hostile automatic weapons and opening a way through barbed wire and other obstacles.

In many ways the Renault F.T. type light tanks were suited for little apart from an accompanying role and there is little doubt that the existence of a considerable stock of them had a negative influence on any further development. But even when the Renault F.T., and similar tanks in other countries, were replaced by more modern designs there was little change in ideas on their employment.

They were organized in light tank battalions which were meant to be allotted to infantry formations in the ratio of one tank battalion to one infantry regiment to form a *groupement mixte*. Tanks were further distributed by companies to infantry battalions and, as laid down in the "Instructions on the employment of tanks" of 1930, they were to be regarded as no more than supplementary means placed at the disposal of the infantry, entirely subordinated to the infantry units to which they were attached.

Similar ideas prevailed in the United States, where the wartime Tank Corps was abolished by Act of Congress in 1920 and tanks became part of the infantry. The mission of the tank was defined as that of "facilitating the uninterrupted advance of the riflemen in the attack," and the majority of the tanks were held in divisional light tank companies.

The Russians also subscribed to such ideas, when they began to build their tank forces in the late 'twenties and early 'thirties. Their counterpart of the accompanying tanks were the N.P.P., or close infantry support, light tank battalions, one of which was attached to each regular infantry division. So did countries such as Italy, Japan, Poland and many others. In the late 'thirties even the British Army partially subscribed to these ideas.

It was in this role of an auxiliary to the infantry that tanks were used in all the fighting between the two world wars. The French operations in Morocco in the 'twenties, the Gran Chaco war between Bolivia and Paraguay, the Italian conquest of Abyssinia, the Japanese invasion of China and the Spanish Civil War all saw them in this role. So did the early stages of the Second World War, on the part of the majority of the French and Soviet armored forces, when these ideas were swept away, temporarily at least, by other, much more successful concepts.

In many ways this phase was a continuation of the first one: tanks were regarded as auxiliary and specialized equipment and acted mainly by virtue of their invulnerability to automatic weapons' fire. Their usefulness to the infantry was acknowledged but, at the same time, denied outside this sphere. With this, and an inescapable result of the importance attached to armor protection, went the belief that tanks met more than a match in contemporary antitank guns and, therefore, could only be used in close liaison with the infantry and the slow artillery barrages.

In fact, of course, such methods were best designed to expose tanks to the full effectiveness of antitank fire. As the German *Truppenführung* manual put it, "if the tanks are held in too close liaison with the infantry, they lose the advantage of their mobility and are liable to be destroyed by the defense." This was not meant to preclude the cooperation of tanks and riflemen but it condemned—and very rightly—the prevalent contemporary tendency to subordinate tanks entirely to the infantry.

The narrow and usually pessimistic views have appeared and reappeared several times, including the present. They can generally be ascribed to the tendency to approach the problem of tanks with rigid, preconceived ideas of how tanks should fit in with the older arms—particularly the infantry—instead of a rational analysis of the potentialities and limitations of the tank and other means, such as the .30 caliber rifle for instance!

Also, to the overemphasis on armor protection which leads to hasty conclusions that the tank is doomed every time some more effective armor-piercing weapon is introduced.

IV. In Quest of Mobility

A notable exception to the views prevalent after the First World War was the British Royal Tank Corps. Although reduced to only four battalions, it was saved from the postwar fate of French and American tank units. Its independence and the possession of new tanks, the Vickers Mediums, with mechanical performance greatly in advance of anything previously built, created conditions favorable to further progress.

The independence and the early experiments were only achieved as a result of a hard struggle by a small band of enthusiasts against an abysmal lack of understanding and prejudice. The most prominent in this group of pioneers was General Fuller but it included others like Liddell Hart and Martel. Fuller's own ideas evolved from his "Plan 1919" and were on the lines of formations composed almost entirely of tanks. Their operations were to resemble those of fleets at sea—this "landship" influence, incidentally, being quite strong in all the early British tank philosophy. Other arms were at best regarded as subsidiary.

Such "all-tank" views, which, of course, corresponded to the natural wishes of the Tank Corps, exerted a strong influence on the experiments carried out in England in the 'twenties and early 'thirties. The First Experimental Mechanized Force, assembled in 1927 on Salisbury Plain, was made up of several elements apart from tanks. But, by the time the Tank Brigade was put on a permanent footing in April 1934, it consisted solely of tanks: one battalion of light tanks and three mixed, light and medium, battalions. Tanks were regarded as virtually or potentially self-sufficient.

These British trials and experiments demonstrated for the first time many of the potentialities of fully mechanized forces. They also pioneered in the development of operational technique of tank units freed from the slow-motion infantry methods. Unfortunately, the development tended to be one sided, or at least unbalanced.

While great stress was placed on developing the advantages of mechanized mobility, striking power tended to be overlooked. This and financial stringency produced that crop of fast light tanks with very limited combat power. And while the strategic potentialities of mechanized forces were, rightly, stressed, the tactical limitations of the tank were glossed over. The result was that instead of being the versatile, dominating arm—as the exponents of the "all-tank" views originally claimed—tank formations developing on those lines became of somewhat limited utility. Suitable, perhaps, for the role formerly performed by the cavalry, *i.e.*, that of a complementary mobile arm. But, like the cavalry of the previous fifty or hundred years, incapable of really profitable participation in all stages of the battle.

Apart from this, the overenthusiasm of the "all-tank" views strengthened the other extreme school of thought which, quite irrationally, denied all value to tanks except when tied to the infantry. Thus both sides contributed something to obstructing the evolution of a new type of versatile field formation, in which tanks and other arms would *jointly* play their part.

French 35R Infantry Tank.

German Pz.Kpfw. III.

Russian T-34 Medium.

The British lead was followed in other countries and, in fact, it set off a kind of chain reaction in experiments with mechanized forces. In the United States, in 1928, a force similar to the British Experimental Mechanized Force was assembled at Fort Meade. This was followed, in 1931, by experiments at Fort Eustis and then, from 1933 on, at Fort Knox, inspired largely by General Chaffee. In France *exercices combinés* in 1932, in which infantry and cavalry mechanized units took part, and the mechanized cavalry experiments at Rambouillet in 1933 were also influenced by British developments. So were the roughly contemporary experiments in Russia and Germany.

Of all these, the results in the United States and in Russia most closely approached the British pattern: the 7th Cavalry Brigade (Mecz) and the Soviet Mechanized Brigades were composed almost entirely of tanks and although they were highly mobile their capabilities were limited.

V. Cavalry Tanks and Infantry Tanks

Similar results, but by a somewhat different process, were achieved in France. There the gradual mechanization of the cavalry began shortly after the First World War when motor vehicles began to replace horses. A little surreptitiously at first as emotional prejudices were strong! However, by 1930 cavalry divisions were almost half motorized and in 1934 the first fully motorized cavalry division was placed on a permanent footing.

This, the *Division légère mécanique*, in its organization, with a tank brigade, a motorized infantry brigade and divisional troops and services, had many of the characteristics of the later armored divisions. But, as regards its role and employment, it was still very much on the lines of the cavalry of the previous hundred years or so. Its main role was that of strategic reconnaissance and security for the benefit of the infantry formations; in other words only that of an auxiliary mobile arm.

Elsewhere a similar process of gradual, and at first only partial, mechanization of the cavalry was taking place in the 'thirties; the idea of mobile, mechanized forces taking over the role previously entrusted to horse cavalry was gaining wide recognition. It was reached either by this gradual mechanization of the cavalry, as in the case of the French *Division légère mécanique*. Or, by the development of the mobility of the tank force combined later with a conversion of cavalry units to tanks, as in the case of the British Mobile Division of 1937 (subsequently renamed the Armoured Division).

But, if some tanks were considered useful for the cavalry role, others were still wanted to help the main body of the Army, which was represented by the infantry. In other words others were wanted for the harder task of combat in conjunction with the infantry. Put in this way, *i.e.*, as specialized tasks, these demands gave rise to separate, specialized categories of cavalry and infantry tanks, which are a characteristic feature of this phase. Even in Britain, where previously close infantry support was not very seriously considered by the tank forces, special infantry tank units were formed after 1934.

As a consequence of this division and of the ideas that went with it, right up to 1940 the great majority of tank units in practically all armies was represented by the infantry accompanying tanks, which were to be used by platoons or companies to support small infantry units. Such were the French *bataillons de chars légers*, Soviet divisional light tank battalions, U.S. divisional tank companies, Japanese tank regiments, Italian *reggimento fanteria carrista*, and tank units of many smaller countries.

But as tanks improved and increased in number, and as their potentialities were slowly recognized, some of the infantry tanks, usually the more powerful types, were withheld for use at higher levels. Instead of acting for the benefit of infantry battalions or companies they were used at the level of division or corps, especially in breakthrough operations, where they would pave the way for the infantry and its accompanying tanks by destroying hostile guns and armor, or in counterattacks against hostile armor. This development could be seen most clearly in France where units of such tanks were designated the *chars de manoeuvre d'ensemble*, in keeping with their role.

Grouping of units of such tanks, though at times only for administrative convenience, led to the organization of higher formations of infantry tanks. Army Tank Brigades in Britain and Soviet Tank Brigades, each with 3 battalions of heavy tanks, are one example. With the addition of other elements, such as motorized infantry and artillery, some of these grew into full divisions, such as the French *Division cuirassé* and the Italian *Divisione corazzata*, both of 1939.

These infantry armored formations occupied something of an intermediate position between the infantry accompanying tank units and the mechanized cavalry. Their employment approximated very closely that of the tanks used in the first massed assaults of the First World War.

As time went on, however, and with other developments becoming known, ideas moved away from the narrow concept of a kind of operational battering ram. The wider possibilities were beginning to be recognized, in the case of both the French and Italian divisions for instance. Not only tactical striking power but operational mobility were beginning to be taken into account.

At the same time, in the case of some of the cavalry armored formations striking power was beginning to be considered in addition to mobility. There is little doubt that in time both types would have merged into a single, versatile type of mechanized formation.

However, by and large, right up to the early stages of the Second World War the division into the two separate categories of tanks stood firm. It then largely disappeared except, oddly enough, in Britain. There it was rigidly adhered to until 1945—with deplorable consequences in the shape of the two narrowly specialized categories of "cruiser" and "infantry" tanks. Particularly the clumsy and grossly undergunned "infantry" tanks.

It still finds supporters who arbitrarily divide tanks into the two separate categories, on the traditional lines of the division into infantry and cavalry, rather than accept the truism that a tank is a tank—whether it is used with the infantry or any other troops—and consider objectively its general characteristics.

In the past, when allowed full play, this division produced on one hand highly mobile but lightly armed and armored "raider" tanks and on the other heavily armored but slow and

clumsy "steam rollers;" both of very limited utility outside their narrow spheres. If accepted, this division could not fail to produce similar results again.

VI. The New Model Force

It was left to the Germans to be the first to do away with this division and to show in practice the way between the extremes of the "all-tank" views and the complete subordination to the infantry; also, the ultimate form of the cavalry light mechanized formations and infantry tank divisions. Others wrote about it earlier but it was with the creation of the first Panzer Divisions, in October 1935, that the idea of versatile armored forces first began to take practical shape.

For instance, already soon after the First World War General Estienne in France and Captain Liddell Hart in England advocated versatile, mechanized field armies made up of tanks, armored infantry and self-propelled artillery. So did, in the mid-thirties, General de Gaulle in France and General von Eimannsberger in Austria—though, contrary to popular belief, neither had any influence on the creation of the Panzer Divisions. As General Guderian, the foremost German tank theoretician and one of the organizers of the *Panzerwaffe*, put it, "it was Liddell Hart who emphasized the use of armored forces for long-range strokes and proposed a type of armored division containing tank and armored infantry units."

As in other armies, infantry and cavalry tried to subordinate tanks to their respective branches but the armored force managed to emerge untied to either—to the everlasting credit of the organizers of the *Panzerwaffe* and General Guderian in particular. It represented a new style fighting force of both greater mobility and greater striking power than the rest of the Army, based not on any preconceived ideas about the superiority of any one arm but on the potentialities, and limitations, of all.

For the builders of the *Panzerwaffe*, while alive to the potentialities of mechanized forces, did not lose sight of the tactical limitations of the tank. As a result, the Panzer Divisions, although based on tanks, represented a well integrated combination of several elements, including armored infantry, artillery and combat engineers. Equally clearly was this trend to well balanced combat teams shown on the lower levels of *Kampfgruppe*, or "battle groups," organized temporarily on the battlefield.

At times, nevertheless, Panzer Divisions have been simply equated with the "cavalry type" armored divisions of other armies. And, as regards the equipment, there were indeed some similarities. Up to and including 1940 almost two-thirds of their tanks were light models of limited combat power. However, these were adequate to deal with the contemporary infantry which opposed them and the divisions contained a sufficient number of more powerful types, such as the Pz.Kpfw. III and IV, to be able to deal with hostile armor.

As for employment, while their most striking results were achieved by brilliant strategic exploitation they were by no means confined to this role. It is all too often forgotten now that the Panzer Divisions not only exploited successes but that they also usually fought out the necessary initial conditions for exploitation; and that they were as capable of smashing opposition as of rapidly outflanking it. As a 1940 German armored force training manual put it, the Panzer Division was especially suited for "rapid concentration of considerable fighting power, obtaining quick decisions by breaksthrough, deep penetration on wide fronts and the destruction of the enemy." This was quite a different concept from that expressed, for instance, in an official British view that armored divisions were "designed for exploitation *after* the enemy's position has been broken."

Grouped in armored corps, and later armies, the Panzer Divisions formed the spearhead of the German Army in all of its *Blitzkrieg* campaigns. They delivered the main and decisive blows in Poland in September 1939, in France in May and June 1940, in the Balkans in April 1941 and then in Russia in the summer of 1941.

In the process they disposed of various tank units which opposed them piecemeal, each going about its own limited task. In France the Germans with 10 Panzer Divisions accounted for, one by one, three *Divisions légères mécaniques*, four *Divisions cuirassés*, one British armored division and many infantry tank battalions. In Russia, with 20 Panzer Divisions, they roused numerous, and numerically greatly superior, Mechanized Brigades, Tank Brigades and divisional light tank battalions to the tune of some 18,000 tanks destroyed or captured!

VII. Armored Warfare

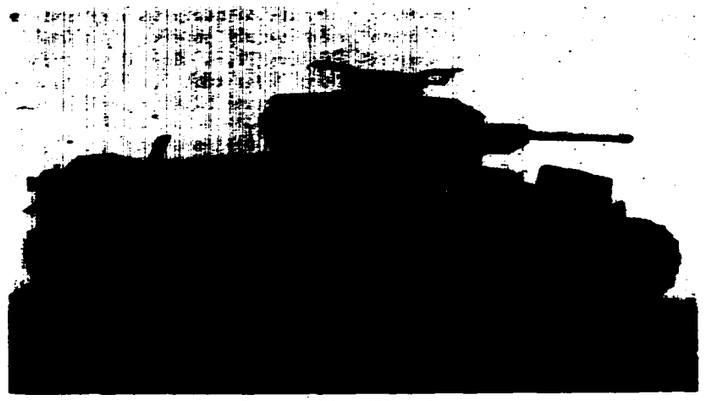
The German successes in the first two years of the Second World War had a profound influence on the development of armored forces. To begin with, they literally swept away many of the older concepts which disappeared on the destruction of the French and of the bulk of the old Soviet armored forces. At the same time the German successes pointed out clearly how tanks and mechanized forces could be used to the greatest advantage and forced others to adopt similar methods.

Thus, in June 1940, in the U.S. Army the division into infantry and cavalry tank units was abolished by the creation of the Armored Force, whose main elements were to be the Armored Divisions resembling the German Panzer Divisions. The Italian *Divisione corazzate* had already closely approached its German partner, and in Russia, after the painful lessons of 1941, the different types of tank units and formations were replaced by a single type of versatile armored brigade. The British armored divisions also, whatever some of the official theories, in practice acted as versatile fighting formations, like the German divisions.

With these developments and with the rapid numerical expansion, armored forces became the truly dominant arm on the battlefields of 1941 and 1942. They were now used fully on all sides and whether the operations were carried out on the Russian plains or in the African deserts their outcome depended upon the success or failure of armored formations.

Infantry, on its own, when faced with enemy armor was hard put to it to defend itself and had to seek refuge in built-up areas or behind vast natural or artificial obstacles, such as extensive minefields. There it could defend itself but usually no more.

The growing importance of tanks and armored vehicles was reflected not only in the soaring production figures, the rapid expansion of self-propelled artillery, but in such very significant experiments as the reorganization, in



Japanese Type 97 Medium.

1942, of all British infantry divisions from the orthodox 9 infantry battalion pattern to one with 6 infantry battalions and 3 tank battalions.

Tanks themselves were at last adequately armed, a feature of this period being a rapid increase in tank armament. The move from smaller calibers to guns of 75 or 76mm on medium tanks being universal. It made up for a good deal of the neglect of armament of the earlier periods, which resulted either from the overconcentration on armor protection or on mobility. This arming of the tank with what were the effective weapons of the time made it at last into that effective combination of fire power and mobility which is the tank's first and most important characteristic.

Operationally, the period saw the great armored offensives and deep penetrations on the Eastern Front, the rapid thrusts of Rommel's *Afrika Korps* and Allied counteroffensives. Actions, too numerous to be listed in detail, where armored forces played the leading and decisive role and which are well worth studying. Unfortunately (those on the Eastern Front in particular, both during this and later periods) they have still received far too little attention.

VII. Disappointments and Regression

To a certain extent the conditions in the main theaters of operations were, of course, particularly favorable to the employment of armored forces. Whatever the difficulties of operating in the extremes of temperature and the problems of logistical support, there is little doubt that both the Russian plains and the African deserts offered exceptional opportunities for highly mobile forces. When action shifted to other theaters many of these opportunities disappeared.

In Sicily, in 1943, and then in Italy, British and American armor found their movements severely restricted by the nature of the country which, at the same time, favored static defense. So armor began to operate much more cautiously, in small bodies and in close liaison with the infantry. In this way they were able to render very valuable service and operated over many kinds of terrain hitherto considered impassable for tanks.

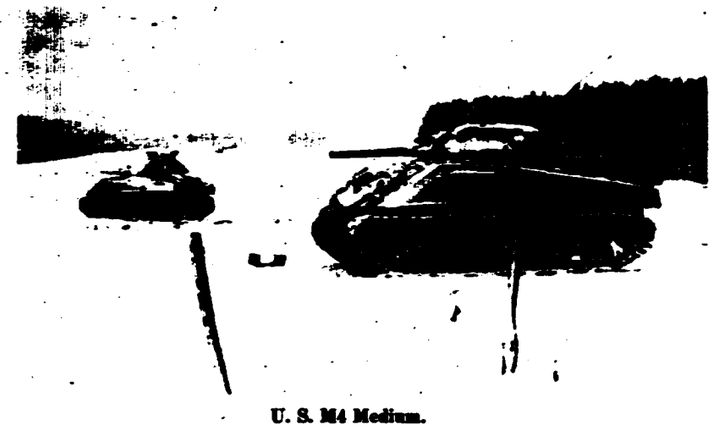
But it was a far cry from the dashing and spectacular employment of the preceding years. And it is always one of the unfortunate consequences of a series of successes that any subsequent failure, real or imaginary, is apt to be greatly magnified. This is exactly what happened with tanks. Many political and military leaders, commentators and, after them, the general public, military as well as civilian, having come to expect nothing but spectacular successes, jumped to the other extreme, that "tanks are finished," when these successes were no longer forthcoming. They were greeted with open arms by all those who, on traditional or emotional grounds, insist that infantry is still the one and only principal arm.

So armored forces were held back for some special occasion, when they could be used in the cavalry role, or tanks went back to supporting the infantry.

This was particularly true of the participation of tanks in the Pacific campaign. There, in the island hopping operations, only small bodies of tanks, of never more than battalion size, were and, in fact, could only be used. The Japanese produced an armored division in the Philippines but they too had made no progress beyond the idea of infantry-accompanying tanks and used the division up in platoon attacks.

Similarly, the initial employment of armor in the first phase of the Normandy operations was restricted, both by the difficulties of such an assault landing and the conditions of the bridgehead build-up.

Yet, in spite of disappointments and the generally pessimistic opinions, not all was regression. True, the methods used did not exploit fully the advantages of mechanized mobility—nor could this always be exploited for many reasons. But they were able to



U. S. M4 Medium.

German Tiger II.

demonstrate, even under the most adverse conditions, the capabilities of the tank as a means of increasing the effectiveness of the armament with which they were armed and which they carried forward with the infantry. In fact very often tanks, and self-propelled guns, formed the main source of striking power and the fire base for the infantry component of various battle groups, combat teams and task forces. At their best, these represented that ideal close tactical teamwork between the heavy weapons and the supporting riflemen so essential at this stage of technical and tactical development.

IX. Fire Power vs. Mobility

The apparent eclipse—for it was only apparent—of armor on the Eastern Front was brought about by somewhat different conditions.

After the costly failure of their offensive against the Kursk salient in July 1943, the Germans never possessed sufficient resources to mount a really large-scale action again. Their armored forces continued to render very valuable service, but in local counteroffensives or in blocking the penetrations by Soviet armor. They never had enough to resume large-scale offensive operations in which armored forces could demonstrate their full potentialities, as before.

The Russians, on the other hand, had the numbers—the Germans identified no less than some 250 different Soviet armored brigades during the fighting on the Eastern Front. But they were slow in making full use of them and for a long time confined themselves to the bludgeon tactics of massed assaults.

But if the exploitation role of armor fell for a time into disuse and the armored forces lost for a time some of their glamor, their importance had not really diminished. They continued as the most effective form of striking power, in fact the only combination of heavy striking power and mobility. They were used both to deliver massive blows and swift counterblows and, when the necessity arose, even proved very effective in the defensive. The issues of major operations were still largely decided by the fortunes of tank and mechanized corps on the Soviet side and Panzer and Panzergrenadier divisions on the German.

Striking power combined with mobility being the main attribute, attention naturally concentrated on increasing it further and making armored formations more powerful still, particularly to enable them to master hostile armor which always represented the greatest single threat. The outcome of this could be seen in the shape of the heavily armed tanks such as the Tigers, Panthers and Stalins and in the armored battles when the Germans were being pushed back across Eastern Europe in 1943-44.

In the West, in the meantime, after the process of attrition wore down the German forces in Normandy, Allied armor was able to break out of the bridgehead and then exploit this by a series of spectacular advances across France and Belgium. Operating among shattered enemy formations Allied armored divisions were able to take full advantage of their mobility and were only stopped when they outran their logistical support. After the crossing of the Rhine, in the final stages of the war, Allied armor was able to repeat its exploitation performance and its total exceeded twenty divisions, American, British and French.

As a result of all this there was a revival of interest and faith in armor. It even seemed to restore it to something like the position it held in the seventh phase.

However, being associated with the particular conditions of exploiting a major enemy defeat, it was somewhat one-sided. Mobility was of greater, and striking power of lesser, importance than they would otherwise have been. Nor, in any case, did all this last long enough to make a sufficient impression on all the many skeptics.

It was, in consequence, less of a revival of the seventh phase than a return to the fifth where armor, in part at any rate, was regarded as only a complementary mobile arm. Complementary to the main body of the Army which consisted of the infantry.

It differed, therefore, from the views on German and Soviet armor which were looked upon as the main striking force, both more powerful and more mobile than the rest of the Army. These were the continuation of the seventh phase, though less spectacular and less mobile, especially by comparison with the Western Allies. However, they were much less behind in mobility than the American and British built tanks were, at that time, behind German and Soviet ones in armament.

X. The Basic Weapon?

On these two trends in ideas on the employment of armored forces ended

U. S. M46 Patton.

the development during the Second World War.

In the immediate postwar reorganization American and British armored divisions seemed to draw nearer to the German and Soviet concepts of increased striking power and away from the extremes of undergunned mobility. That is, going by equipment and organization. On the other hand, the very small proportion of armored divisions would show that they are by no means regarded as the main striking force of the field army. Presumably, then, still only as the complementary mobile arm?

At the same time, however, there has been a gradual extension of the use of tanks and in practice they are not restricted to any one limited role. For instance, the same types of tanks as used in the armored divisions now form an integral part of United States and of the better equipped Soviet infantry divisions. Some of these infantry formations, in fact, have as many tanks as some of the earlier armored formations—while at the same time armored formations have increased their infantry strength.

What the ratio of tanks to riflemen is, or should be, is in the first instance of little interest. What is important is their combined employment: while the infantry cannot, obviously, compete with tanks and self-propelled guns in fire power, the latter very often need the supplementary light fire and penetrating ability of infantry and combat engineers. The resultant growth of combined battle teams has already been mentioned.

Whether the different elements come from infantry or armored divisions is also, in principle, of little interest. In practice, of course, if they come from the latter they will have the obvious advantage of armored transport for the foot slogging elements and hence much greater overall mobility. Therefore, usually, greater effectiveness, though, at times, this may also be a disproportionate logistical burden—when the armored carriers cannot be fully used, as in the present airborne formations, for instance, or in other "light infantry" units.

How many of these battle teams will come from armored divisions and how many from infantry divisions is a question of Army organization, strategic concepts and logistics. A discussion of these, and of the details of operational employment and of the equipment, is outside the scope of this article. However, the desirability of having the maximum of units combining maximum striking power with maximum mobility, *i.e.*, armored units, for the main striking force of the Army is clear. And even if this ideal cannot be immediately or universally realized it is well to recognize it and bear it in mind.

As far as tanks themselves are concerned, the trends and implications seem equally clear: they are a general means of increasing the effectiveness of heavy, crew-operated weapons—at present weapons of 3 to 6 in. caliber generally—and the basic equipment of the potentially homogeneous field army.

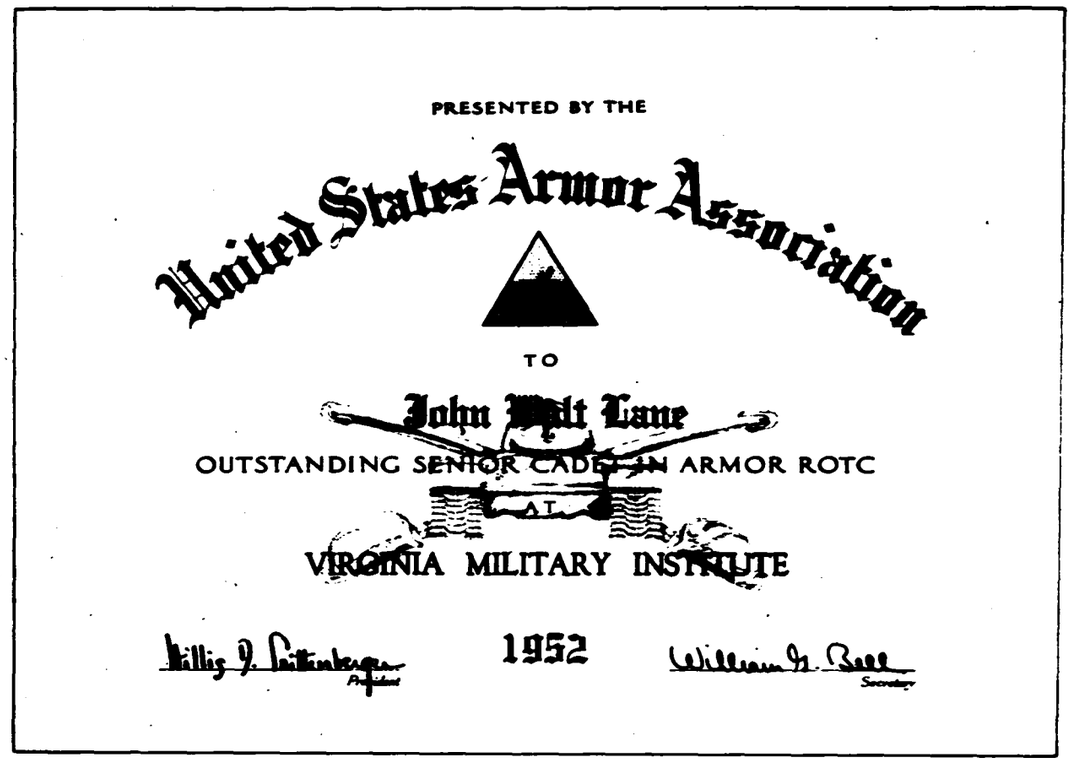
But what of all the other views on the subject?

There are, for instance, those who regard the tanks outdated by various new armor-piercing weapons. This antitank chorus, in which military leaders, eminent scientists and others joined in, hit one of its periodic high notes just before the start of the fighting in Korea. The latest bogeys have been the bazooka and the recoilless rifle. But there were many others, of all shapes and sizes, before them and the conception of the tank which goes with these views does not seem to have progressed beyond the "perambulating fortress" of the first phase.

Then, there are those who still regard the tank as an auxiliary, fit only for the subordinate, limited role of infantry support. Their narrow views are almost matched by those who would consign the tank to some supermobile arm—which itself, however, would only be a mere complement to the main body of the Army. Hence, the tank would become a special weapon of limited usefulness; going by past experience the kind of tank that is useful after an enemy defeat but little else.

In fact, the range of opinions just about covers all possibilities.

In support of each concept historical precedents and various, more or less relevant, facts are usually quoted, or can easily be found. To put all these in their proper perspective a thorough understanding of the whole tank development is essential; and not merely that of a fragment, as is all too often the case.



The United States Armor Association engraved scroll which will be presented annually to the Outstanding Senior Cadet in Armor ROTC at each of the fifteen institutions where an Armor Course is in operation. 1952 marks the inaugural year.

ARMOR ASSOCIATION 1952 AWARDS TO OUTSTANDING SENIOR CADETS IN ARMOR ROTC

Richard E. VanNess, Jr.	Norwich University
Alan R. Pehrson	University of Massachusetts
John Walt Lane	Virginia Military Institute
Daly Heath Stanford	Alabama Polytechnic Institute
Green B. Williams, Jr.	University of Georgia
George E. Taylor	Clemson Agricultural College
Frank P. Thomas	Furman University
George T. Shearin	Middle Tennessee State College
David F. Stoutamire, Jr.	The Ohio State University
Donald Lee Nish	University of Illinois
Richard M. Meyer	Michigan State College
Reuben W. Evans	New Mexico Military Institute
Frank E. Drachman, Jr.	University of Arizona
Louis Lynn Stuart	Agricultural and Mechanical College of Texas
Harry L. Shackelford	Oklahoma Military Academy

In these uneasy years following a world conflict America has faced a perpetuation of her role as the Arsenal of Democracy. A decade ago the cause was war—today it is peace. MDAP is a story of international cooperation in defense of our freedom

Security For the Free World

by MAJOR GENERAL GEORGE H. OLMSTED

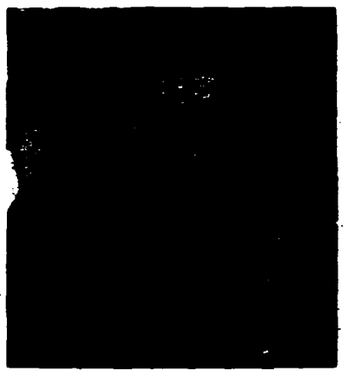
THE foreign policy of the United States has been summed up by President Truman as "the policy of peace through collective strength." The experiences of two world wars have made it clear that the free nations can only achieve world peace and security through mutually supporting strength. Present-day world conditions have made self-sufficiency a thing of the past. We are too dependent upon the other countries, as they are upon us, for all the things which a civilized, democratic nation needs to live, let alone to fight an aggressor.

Since the end of World War II we have not had the peace for which we hoped. The aggressive actions of Soviet Russia's leaders have posed a constant threat to the security of free nations and people everywhere. Consequently, the United States and other freedom-loving countries have worked together through the United Nations, the North Atlantic Treaty Organization and other pacts, to neutralize this threat of Soviet aggression. In cooperation with the other free nations, our country has sought to promote conditions of strength—economic, political and military—in the endangered countries of the free world.

A brief review of American foreign policy in the last five years shows clearly how we have worked to build up the collective strength of our friends and allies, based upon the principle of continuous self-help and mutual aid.

When the independence of the Greek and Turkish people was threatened in 1947 by communist aggression, economic and military assistance was dispatched which enabled the two countries to overcome their danger. This assistance was followed by the Marshall plan which gave to the European and other friendly nations the desperately needed economic aid to stabilize their economies and to start rebuilding their crippled industrial plant.

By 1949 the aggressive nature of Soviet communism had made it imperative for the threatened nations in the North Atlantic community to create defense forces strong enough to deter and, if necessary, defeat any armed attack from the East. The result was the North Atlantic Treaty, signed by 12 European nations (Greece and Turkey have since joined) which pledged mutual support and assistance in the case of any attack upon a Treaty member.



Major General George H. Olmsted, Director, Office of Military Assistance.

When hostilities ended in 1945, the United States and many of the free nations, in good faith, had demobilized their armed forces and converted their arms production to civilian uses. But as the threat of Soviet aggression continued, many countries found their economies too weak to take on a rearmament program at the same time that they were trying to rebuild their homes and factories. Recognizing that the military strength of these countries was essential to our own security, Congress on October 6, 1949 enacted the Mutual Defense Assistance Act (MDAP). Under the provisions of this act, military assistance was made available to the NATO and certain other friendly countries to enable them to equip and train the forces essential for the collective defense.

The outbreak of the Korean War, however, convinced us we had little time to arm; that our weakness was inviting armed aggression by a hostile Soviet government. This fear of imminent danger was increased by the knowledge that the Soviet Union, unlike the West, had not demobilized its armed forces. Some 175 Red Divisions, 20,000 aircraft and 300 submarines were reported in combat readiness, posing a constant threat to the peace and security of the free nations. In addition, approximately 60 Soviet-trained divisions were reported under arms in the satellite countries. It was urgent that the armed forces of the free nations take immediate defensive measures to offset or neutralize the Soviet advantage.

Well over 3,000 members of our armed services are assigned to Military Assistance Advisory Groups in some twenty countries around the world. This type of duty will come to many of us as the program of collective security goes along. Familiarity with the program and attention to fields of language, history and current affairs will do much to enhance the value of such a tour to the individual and the country.—THE EDITOR.

To accomplish this as rapidly and as effectively as possible, it was decided to speed up and expand the rearmament of the countries of NATO and other free countries concerned. The first step was the appropriation of $5.2 billion for military assistance for FY1951, followed by an additional $5.7 billion last year. The passage of Mutual Security Act of 1951 provided for the supervision and coordination of all the U. S. foreign aid programs (ECA, Point 4 and MDAP) under the Director for Mutual Security, W. Averell Harriman. Its design was to strengthen the free world through a threefold program: (1) direct contributions to military security, mainly with military equipment; (2) provision of raw materials, commodities and machinery to our allies in support of the defense buildup; and (3) economic and technical contributions. Top priority in the Mutual Security Program was given to military aid and this has been reflected in the appropriations. This money is providing the weapons and means needed by the free nations to rearm.

The military assistance programs are developed and administered by the Department of Defense; the defense support and certain other economic aid programs by the Mutual Security Agency; and the programs of technical cooperation with underdeveloped countries (except in Southeast Asia) are administered by the Department of State. General supervision and coordination of the military, economic and technical aid programs are the responsibility of the Director for Mutual Security.

In Europe, the Director for Mutual Security is represented by Ambassador William H. Draper, Jr. As U. S. senior representative to the North At-

Armor plays a key role in the Assistance Program. Belgian, Dutch and Danish students receive instruction at the M48 Joint Tank School at Bourg-Leopold.

lantic Treaty Organization, Ambassador Draper represents the U. S. government as a whole, reporting directly to the President.

A coordinated, integrated U. S. organization is also set up at the national level for every country receiving aid under the Mutual Security Program. Known as the United States "Country Team," it is composed of all the various diplomatic, military and economic or technical missions which are engaged in foreign aid programs and functions under the direction of the resident American Ambassador or Minister. The military aid section of the "Country Team" is the Military Assistance Advisory Group (MAAG) which supervises and administers the military assistance program.

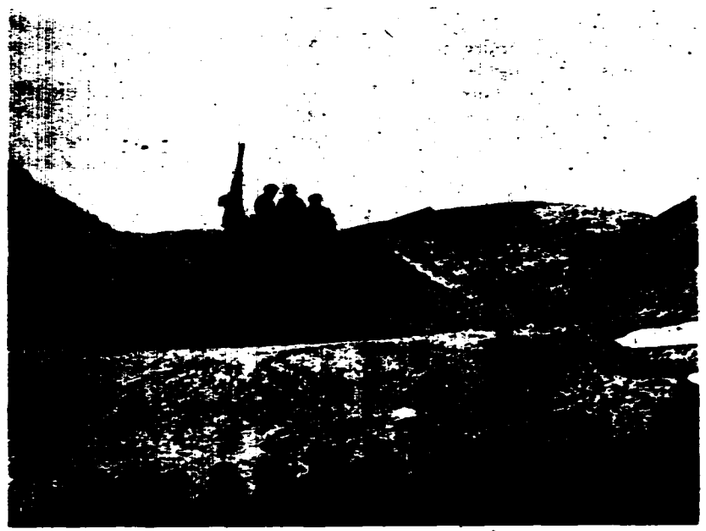
Primary responsibility and authority for the administration of military assistance is vested in the Secretary of Defense. The Office of Military Assistance, which operates under the Assistant to the Secretary of Defense for International Security Affairs, Mr. Frank Nash, is the Defense Department coordinating agency for the military aid programs. OMA supervises and coordinates the activities of the three military services which are responsible for the development of the programs, the procurement, and shipment of military end items and the implementation of the military training programs.

In Europe the military chain of command is through the U. S. military representative for military assistance in Europe, General Thomas T. Handy. He in turn is assisted by a joint military staff, the Joint American Military Advisory Group (JAMAG) through whom he exercises coordination of the military assistance programs for the various countries and command of the activities of the country level military groups (MAAG's).

At the country level, operations are carried out by the MAAG, a joint U. S. Army-Navy-Air Force mission headed by a general or flag officer. The members of the MAAG work closely with their counterparts in the armed forces of the recipient country and they have the responsibility for analyzing all requests for military assistance and recommending an equipment and training program for the country (in Western Europe these recommendations are coordinated by JAMAG). It is Defense Department policy that no military equipment be shipped to any eligible country until the MAAG responsible certifies that the country's armed forces are ready and capable of utilizing and maintaining the equipment.

Today there are some 3,300 U. S. personnel assigned to MAAGs located in the following countries: Belgium (also serving Luxemburg), the Netherlands, France, United Kingdom, Norway, Denmark, Italy, Portugal, Yugoslavia, Greece, Turkey, Iran, Thailand, Indo-China, the Philippines, Formosa and Indonesia. The first increment of a MAAG is now established in Saudi Arabia, and with the deliveries of grant assistance to certain Latin American countries, MAAGs will be established there.

MDAP is the chief instrument for achieving collective military strength.



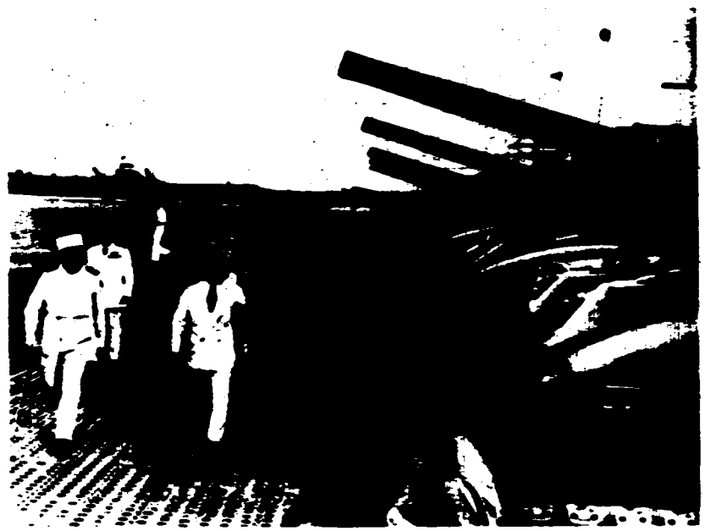
Further along the peace perimeter members of the Greek forces attend a class and demonstration on U.S. equipment at Greece's Armored Training Center.

The U. S. furnishes to those nations whose security is considered vital to our own, two types of military assistance: (1) weapons and equipment; and (2) training and technical assistance. Besides the countries receiving grant aid, other countries who have made collective security agreements with the United States receive military aid on a reimbursable basis (Canada is primarily one of these).

As of the end of April we had shipped more than 3,000,000 tons of military aid, including more than 10,000 tanks and combat vehicles, 12,000 pieces of artillery, 42,000 motor transport vehicles, 812,000 small arms and machine guns and some 334,000,000 rounds of ammunition.

The training programs carried out under military assistance are extremely important in preparing friendly foreign troops to use and maintain MDAP equipment and in developing their combat readiness. During the past two years more than 18,000 foreign soldiers, sailors and airmen have been enrolled in U. S. Army, Navy and Air Force service schools. The NATO countries account for the bulk of these foreign trainees, although Middle East, South American and Far East countries are represented. One of the main training schools is the Armored School at Fort Knox, where many foreign soldiers have received U. S. instruction under MDAP. These foreign graduates of the Armored School have returned to their own countries as instructors, passing on to their fellow countrymen the lessons learned during their United States training. The training of this small nucleus is paying off in tremendous dividends in the thousands of Allied servicemen being trained in turn by these graduates of Fort Knox and other service schools.

In addition to the formal courses of instruction given in U. S. service schools, we have in the field more than 100 mobile training teams, equipped with training aids, films and mockups, who bring instruction directly to the armed forces of the MDAP countries. These teams, half military and half civilian, give on-the-job training in the use and maintenance of U. S. equipment. U. S. technical instructors, who are industry experts in fields such as radar, supplement the work of these mobile teams.



The French have used American equipment in the fight against communists in Indo-China. The late General de Lattre inspects a French unit using U. S. tanks.

The Mutual Security Program is not just a one-way proposition. As the name indicates, it is a mutual program, and the contribution of our allies is a sizable one. The largest portion of troops under NATO defense plans, for example, is provided by the European countries themselves, and by the first of this year they had expanded their armed forces to more than 2,400,000. From an equivalent of $4.5 billion in fiscal year 1950, the European NATO countries had increased their defense expenditures to an estimated $9 billion in the current fiscal year. Despite limited production facilities and critical economic problems, the production of military hard goods in Europe will reach about $2.5 billion by the end of June—an increase over the previous year of approximately two-thirds. In addition, with U. S. help, our NATO allies are building vital bases, airfields and other installations needed in our common defense program. Considering the lower standard of living found in these countries, as compared with our own, their rearmament and defense programs entail real sacrifices on their part.

Many languages, a common purpose.

American military assistance to a great degree has been responsible for the tremendous gains made in building up the NATO forces. The continuing flow of U. S. arms under MDAP will make it possible for the North Atlantic Treaty Organization to achieve its goal for the end of this year of 50 divisions, 4,000 aircraft and supporting naval craft. The past year was characterized by the organization and training of the NATO forces in Europe. This year will see their development into a capable, combat effective force.

The North Atlantic Treaty and the Mutual Security Program are the answers of the United States and the other nations of the free world to the threat of aggression by Soviet Russia and her satellites. In voluntarily entering into these agreements and arrangements for our mutual defense we of the free world reemphasize our faith in democracy and in the dignity of man and reaffirm our common determination not only to be free but to remain free.

SOVIET ARMOR TACTICS

Breakthrough at BELY

by **AUGUST-VIKTOR VON QUAST**

IN November of 1942 the 376th Infantry Division (composed of older age classes) had been in position for about six months on both sides of Bely, several hundred miles west of Moscow, from Podvoyskaya through Bely-Simonovka to the edge of but not including Yemel-Yanova.

Adjoining on the northeast was the 144th Infantry Division with positions along the Obsha valley as far as and including Shisdesovo.

Adjoining on the southwest were the 11th and 21st Jaeger Battalions extending as far as north of Demakhi, then Luftwaffe Field Division 15 in base positions in the swampy area extending to a point south of Shihtovo.

Organization of the 376th Infantry Division: Three infantry regiments with three battalions each, one artillery regiment with three light battalions containing three batteries each, one heavy field howitzer battalion with three batteries, one engineer battalion; and one battalion of heavy field howitzers attached from GHQ troops.

Assignment: One infantry regiment was assigned a sector extending from and including Podvoyskaya to a point just east of Bely; one infantry regiment in Bely to a point about 2,000 meters southwest of Bely; and one infantry regiment with advanced position (one reinforced company) in Simonovka; and the bulk of the regiment in positions on heights northeast and northwest of Shiparevo.

Strength of the infantry companies approximately 60 to 80 men.

Bulk of the artillery in position south and southeast of Bely; one light artillery battalion north of Shaytrovshchina, one light artillery battalion northeast of Shiparevo.

Engineer battalion; one company in Bely, two companies as a divisional reserve.

Position: In the right and central sectors (Bely) there was a continuous, simple trench position with a continuous narrow barbed-wire obstacle; in the left sector there was an advanced position in the ruins of the village of Simonovka, a trench system with barbed-wire obstacle, and a main trench position with a weak barbed-wire obstacle.

Supply: The supply base was the Nikitinka station (which was, at the same time, a railroad terminal). There was one supply road through Vladimirskoe-Bosino in the direction of the front and Bely and one supply road through Klesheino-Sorokino in the direction of the front and Bely. There was considerable partisan activity in the rear area, especially in the large forests. The supply situation was generally stable.

Terrain: Around and south of Bely, hilly; west of Bely, flat forests and swampy region. At the front as far as the area west of Bely there was a field of fire of 400 to 600 meters in depth, while north of Simonovka there was one of about 200 meters.

Weather: Winter weather, below freezing, snow 40 to 50 centimeters deep; during the day it was generally hazy, with fog in the morning and evening.

Enemy: A Russian infantry division, which had changed several times. Its light artillery was approximately equal to ours; its heavy artillery somewhat inferior. The Russians lay opposite the German front in well camouflaged and constructed positions.

Repeated hard and bitter fighting had been going on for the possession of Bely, the key point in the direction of the Smolensk-Vyazma highway. Since the middle of October the situation had been somewhat calmer with only isolated Russian attacks; Russian tanks had not appeared since that time. There was brisk patrol activity on both sides.

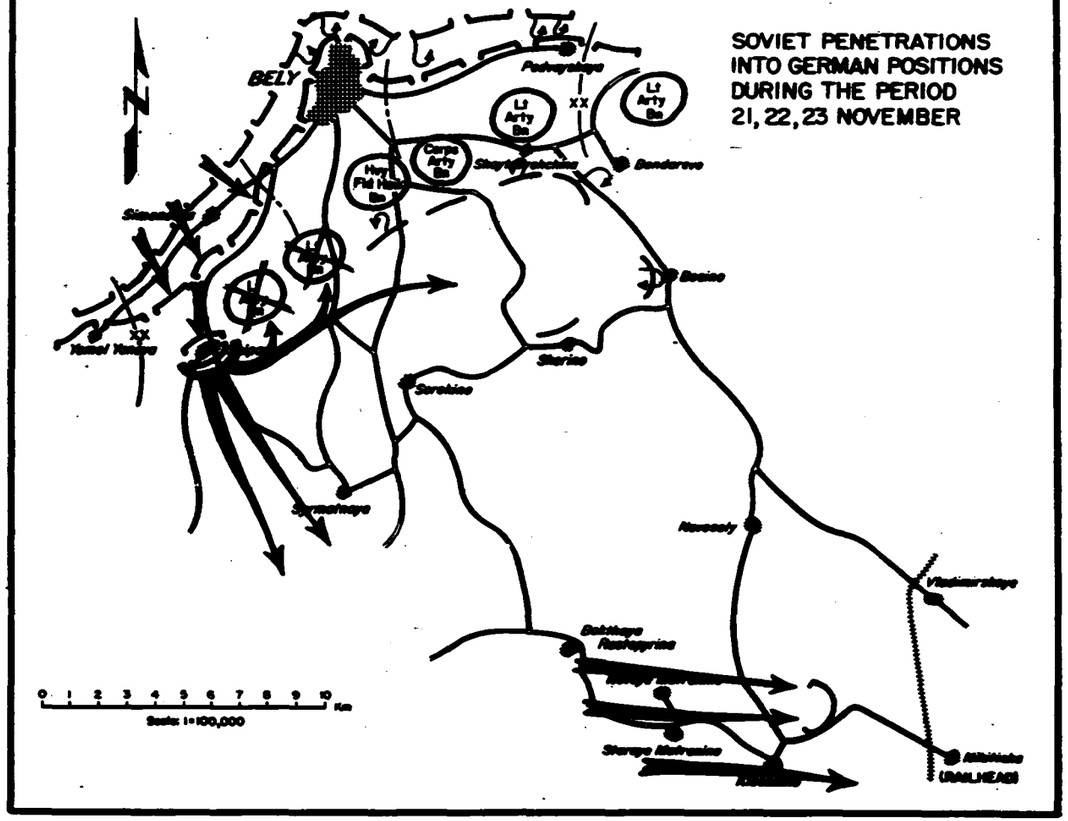
* * *

As early as the winter of 1941-42 strong Russian forces had succeeded in pushing through the German front, capturing Bely and advancing as far as the highway, which was temporarily blocked by German action. It was not until after sustained battles, which came to an end in May and June 1942 in Operation SEYDLITZ, that the Russians were driven back from the highway and the area as far as Bely was cleared and brought under our control again. These battles ended in the establishment of the Bely front. Out of the remnants of this Russian penetration were formed groups of partisans who hid themselves in the numerous large forests and maintained contact with the Russian front through the front west of Yemel-Yanova, part of which was occupied or fortified only in the form of strong points.

August-Viktor von Quast completed his cadet training in time to join the German Army in March of 1918 as an officer candidate NCO. He saw active service as a platoon and troop leader in the 2nd Kavallerie (Cavalry) Regiment on both east and west fronts. He was commissioned in 1922 and went on through various troop, school and staff assignments until 1938, when he was assigned to the 6th Panzer Regiment as a company commander. When World War II broke out he was Chief of Staff of the 2nd Panzer Division, stationed in Vienna. With this division he took part in the Polish, French, Balkan and Russian campaigns. In January 1942 he was transferred to XXXIII Panzer Corps as Chief of Staff, and in 1943 to Fifth Panzer Army in North Africa as Chief of Staff. He was captured in Tunisia in May of 1943.

21 November 1942

In the morning of 21 November 1942 the Russians attacked Bely with about one battalion from the northeast and one from the northwest, each supported by artillery. They succeeded in making a few minor penetrations in the German main line of resistance, which the Germans succeeded in sealing off during the afternoon before the advent of darkness after committing the divisional reserves, approximately three companies. Throughout the day Russian artillery harassing fire was directed on Bely as well as on the artillery positions and on the main line of resistance at Shiparevo. About one hour before darkness, at approximately 1530 hours, the Russians launched a surprise attack on the advanced position with approximately six to ten tanks, and overran it. While the Rus-



SOVIET PENETRATIONS INTO GERMAN POSITIONS DURING THE PERIOD 21, 22, 23 NOVEMBER

sians were breaking into Simonovka, heavy artillery fire was directed from hitherto unknown batteries against the area between the advanced position and the main line of resistance in the Shiparevo sector and the artillery positions southeast and southwest of Bely. In about one hour the advanced position was in Russian hands. Only a few of the men in this position were able to get back to the main line of resistance during the night.

The surprise attack by tanks of the T-34 type, which were painted white and which carried mounted riflemen, came along a broad front, thus scattering the defensive fire. The tanks crushed through the trench on both sides of their point of penetration by moving along the top of the trench and firing into it. Any men who had not been killed or had not fled were liquidated by the mounted riflemen. At the approach of darkness these tanks were followed by Russian infantry, who took firm possession of Simonovka.

The reserves of the 376th Infantry Division were pinned down by the fighting around Bely and were not yet available for redeployment. The XLI Panzer Corps had no reserves and in accordance with orders had to request them from the Ninth Army.

The 144th Infantry Division received orders to assemble all available reserves behind the left flank, so that it could commit them in time in the event of a subsequent attack on Bely, and so that by reorganizing the artillery behind the left flank during the night it could establish an artillery element that could assist in the engagement at Bely. This artillery element and the artillery in the sector of the 376th Infantry Division were placed under the unified command of the corps artillery commander.

The Ninth Army immediately made available a weak infantry battalion as a reserve, which was to be picked up during the night and moved up to Shiparevo by means of supply columns.

In addition, the following elements were promised in the event that the Russians should make a further penetration on 22 November: elements of the *Grossdeutschland* Division, the bulk of which, however, was unable to arrive until 23 November; and the 12th Panzer Division, which was supposed to reach Nikitinka with its advance elements by the evening of 22 November. Both divisions had been severely mauled, and had only about 50 per cent of their authorized personnel strength and matériel left, while not more than half of their riflemen and motorcycle units were motorized. The rest marched on foot or were moved by supply columns, or in shuttle movement. The 12th Panzer Division had about fifty tanks left.

Plan for 22 November: Counterattack from the main line of resistance at Shiparevo in the direction of Simonovka to regain the advanced position and prevent a Russian breakthrough from Simonovka eastward and thus an attack on Bely from the south.

22 November 1942

The night passed quietly. Reconnaissance in force toward Simonovka revealed that it was strongly occupied by the enemy.

The infantry battalion provided by the Ninth Army arrived on schedule and was moved forward to Shiparevo. The reorganization of the artillery proceeded according to plan.

Around 0700 the Russians attacked the main line of resistance at Shiparevo with heavy tank forces and infantry but without artillery preparation, smashed the attack assembly area of the regiment there, including the assigned infantry battalion, broke into Shiparevo and pushed farther to the southeast with strong tank forces followed by infantry. Additional armored forces turned eastward from Shiparevo, destroyed the artillery in the area southwest of Bely by an attack from the south and advanced as far as the hilly terrain north of Sorokino. Furthermore, the Russians attacked the main line of resistance at Podvoyskaya and on both sides of Bely with infantry supported by heavy artillery fire. However, all of these attacks, which continued throughout the day, were repulsed in spite of a few minor penetrations, which were sealed off.

By evening the tank group that had pushed southeastward from Shiparevo had reached the railroad terminal at Nikitinka with a few tanks and riflemen while the bulk of it turned north of Kleshino toward Hill 245.

West and southwest of Shiparevo the situation was unclear. All communications were broken, including those to Nikitinka.

In the sector of the 144th Infantry Division the Russians had also attacked with minor forces at several points, but were repulsed everywhere with heavy casualties.

When the breakthrough at Shiparevo began to take shape, the Ninth Army made the promised divisions immediately available, the *Grossdeutschland* Division and the 12th Panzer Division, and, in addition, promised the assignment of the 19th Panzer Division, which was supposed to reach the area southwest of Shiparevo by 0700 of 24 November. Its strength was approximately the same as that of the 12th Panzer Division. The tactical reserve of the 144th Infantry Division was assigned to the Nacha sector southeast of Bely, while on the southern margin of Bely a defensive front was formed out of stragglers, train and staff personnel and others.

All available supply units as well as the forward elements of the 12th Panzer Division were assigned for defensive purposes to Nikitinka.

The following plan had been made for 23 November: The elements of the *Grossdeutschland* Division which had arrived were to be moved forward on an eastward supply road and were to be committed south of Bely in an attack on Shiparevo to close the gap in the front. The 12th Panzer Division was to attack to the northwest from Nikitinka in order to clear the western supply road.

23 November 1942

On this day, too, the Russians attacked the main line of resistance several times at Podvoyskaya and Bely, as well as in the sector of the 144th Infantry Division, with comparatively weak forces, but were repulsed everywhere with heavy losses. The Russian armored forces and riflemen who had pushed forward into the hilly terrain north of Sorokino continued to drive on toward the north and east. The Germans were able to repulse attacks across the Vladimirskoe-Shaytrovshchina road and against the village itself and the artillery positions south of Bely.

The attack which had been carried forward south of Bely in the direction of Simonovka-Shiparevo with the first elements of the *Grossdeutschland* Division scored an initial success, but had to be withdrawn to the original

position in the later afternoon owing to heavy Russian counterattacks from Shiparevo.

By noon the tank attack which had been delivered with great élan in the morning by the 12th Panzer Division had led to the destruction of approximately two Russian armored brigades of T-34's on Hill 245 north of Kleshino. The situation in the forest northwest of Kleshino was still unclarified; there were Russian armored forces and riflemen there. The Russian forces which had advanced toward Nikitinka evaded the pressure of the 12th Panzer Division and bore off to the northwest. Nevertheless, there were fire duels at Nikitinka throughout the day with individual Russian tanks and small groups of riflemen, apparently straggling elements.

The situation southwest of Shiparevo was still unclarified. The 11th and 21st Jaeger Battalions reported through the Ninth Army that hitherto weak Russian attacks from the northeast and east had been repulsed. All positions were in friendly hands.

The 19th Panzer Division was reported approaching.

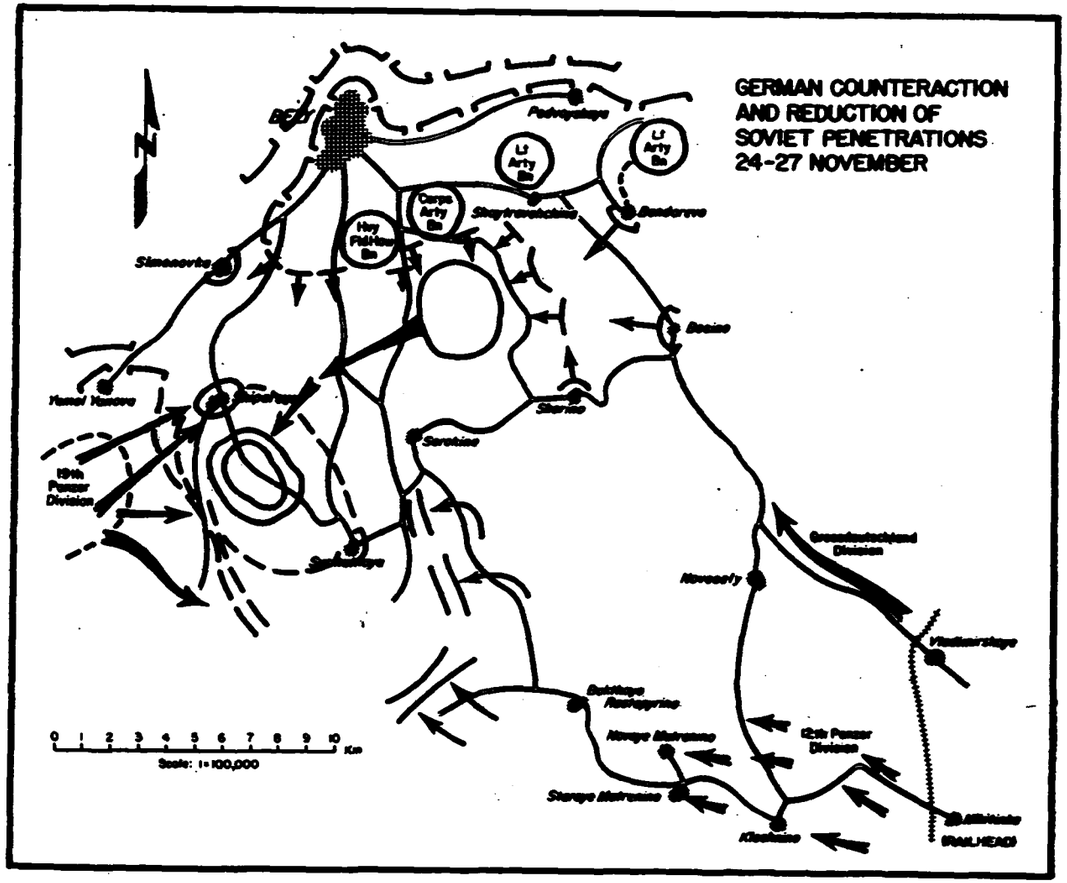
Plans for 24 November: The 12th Panzer Division was to clear the area northwest of Kleshino and push toward Shiparevo.

The *Grossdeutschland* Division was to hold its positions and, after the attack of the 12th Panzer Division became effective, was to attack in the direction of Shiparevo. The 19th Panzer division was to attack Shiparevo from the southwest and, in cooperation with the 12th Panzer Division and the *Grossdeutschland* Division, close the gap in the front at Shiparevo.

24 November 1942

In the sector of the 144th Infantry Division and at Podvayskava and Bely the Russians continued their unsuccessful attacks. The *Grossdeutschland* Division reported large enemy movements from Simonovka in the direction of Shiparevo and from the hilly territory northeast of Sorokino toward Shiparevo. This division and the reserves of the 144th Infantry Division succeeded in driving the Russians farther out of the area northeast of Sorokino. However, the presence of heavy enemy forces between Bely and Sorokino was also confirmed. In hard fighting the 12th Panzer Division succeeded in gaining ground toward the northwest and in driving back the Russians in the direction of Syrmatnava-Shiparevo.

The 19th Panzer Division, which had arrived according to plan in the



GERMAN COUNTERACTION AND REDUCTION OF SOVIET PENETRATIONS 24-27 NOVEMBER

area southwest of Shiparevo, succeeded in hard fighting in temporarily capturing Shiparevo, but had to retreat to the edges of the forest west and southwest of the village in the evening under strong enemy pressure.

By evening, although the gap in the front at Shiparevo-Simonovka had not been closed, it was at least dominated again by our artillery.

Plans for 25 November: Closing of the gap in the front by a concentric attack by elements of the *Grossdeutschland* and the 12th and 19th Panzer Divisions.

Encirclement and destruction of the enemy forces south and southeast of Shiparevo and of the enemy group north of Sorokino.

25-27 November 1942

On 25 November and the following days calm prevailed in the sector of the 144th Infantry Division and at Podvoyskaya and Bely. The Russians did not continue their bloody and unsuccessful attacks.

On the morning of 25 November the 19th Panzer Division finally succeeded in taking Shiparevo after hard, seesaw battles, thus closing the gap in the front and cutting the Russians off from their retreat route. In cooperation with elements of the *Grossdeutschland* Division and the 12th Panzer Division, the Russian elements were encircled in the forests south and southwest of Shiparevo.

After being attacked by elements of the *Grossdeutschland* Division and the reserves of the 144th Infantry Division, the enemy group north of Sorokino broke out toward the southwest during the night of 25 and 26 November, forced its way through the encircling forces of the 12th Panzer Division from the rear and joined the forces encircled southwest of Shiparevo.

On 26 and 27 November the pocket was gradually tightened and finally destroyed in hand fighting, in which the Russians tried repeatedly to break out toward the south and south. To prevent unnecessary losses on the German side in the dense, snow-covered woods, all the available heavy weapons and artillery had been concentrated together. After incessant and extremely heavy fire all resistance was crushed, and the pocket was cleared by tanks and riflemen by the evening of 27 November.

Statements by prisoners of war revealed that four armored brigades (T-34's) and six infantry brigades (so-called assault brigades) with heavy artillery had been ordered to force a breakthrough of the German front by way of Simonovka-Shiparevo, to break off Bely from the front from the south and then, pushing westward through Nikitinka, to reach and block the Smolensk-Vyazma highway.

In addition it was disclosed that in the final phase of the battle in the pocket southwest of Shiparevo the morale of the Russians had been worn down by the incessant fire of all our heavy weapons, and that their own heavy weapons, tanks and trucks had all been gradually destroyed. Russian officers stated that it had been their intention to break out toward the north or, if that should no longer be feasible, to the south, at the moment when the German troops began to comb through the forests. This intention was frustrated by our heavy, incessant fire, especially since the German troops did not advance into the pocket but destroyed it by fire power.

Conclusions

The Russians, who, in the winter of 1941-42, had already once succeeded by a deep penetration in dominating the Smolensk-Vyazma supply highway and thus paralyzing the supply system in one part of the front of the central sector, repeatedly strove to regain this objective in several large-scale operations. They were favored in this plan by the following circumstances:

At and west of Bely the Russian front was extremely close (about 70 or 80 kilometers) to the German supply artery, the highway and railroad between Smolensk and Vyazma.

Between Bely and the highway there are large woods and swamps (not easily recognizable on the 1:250,000 map), which made it possible for troops to disappear quickly and reappear at another point. If they succeeded in advancing to the highway here, not only the highway but also the Smolensk-Vyazma and Zhugino-Nikitinka railroads would be eliminated from the German supply system.

Here it was easier to penetrate the German front, which was very thinly occupied and at some places, such as, for example, in the swampy region west of Bely, was only defended by a system of strong points and was not systematically fortified in depth.

The rear area was so thinly occupied, especially by battle-worthy units, that no particular resistance was to be expected.

Strong groups of partisans, of whom some had been recruited from deserters and stragglers from the time of the German advance on Moscow, and of whom some had infiltrated the thin German front, offered considerable support to the attackers, either by making surprise raids on German rear installations or communications, or by carrying out sabotage and espionage, or by active participation in combat.

The rapidity of the German advance was repeatedly offset by the fact that while our troops, in their pursuit of the Russians, had moved on or along the main highways and roads, the Russian troops had in part retreated into the forests and thus evaded capture. Thus, for example, there was still a Russian cavalry brigade in the forests between Nikitinka and Sychevka. In the long run the German command lacked troops of sufficient fighting strength to exterminate such units and partisan groups in this difficult terrain, which offered such poor visibility.

In particular the Russians took advantage of their superiority to the German soldier in winter warfare. Thanks to their slight sensitivity to cold, their frugal habits, the imperviousness of their weapons and motor vehicles to freezing temperatures, the superior cross-country mobility of their tanks, particularly the mobility of their T-34's in deep snow, they were generally superior to the German soldiers in winter warfare from the very beginning.

Before the engagements from 21 to 27 November the Russians had been extremely skillful in concealing the arrival of tanks and attacking troops and the assembly and adjustment fire of their attacking artillery not only from the German front but even from their own forward units. The preparations for the attack had remained concealed from the daily German visual and photographic air reconnaissance.

Deserters and prisoners who had been captured during the days preceding the attack in reconnaissance operations had never made any statements concerning preparations for attack, reconnaissance activity, the presence of tanks or the like. Prisoners taken during the days of the attack said that the attacking troops had arrived fresh from the rear and had immediately been committed in the attack, while the troops who had previously been at the front were not sent after them until the attack had made some progress.

Moreover, the Russians made use of deceptions and surprises on this occasion, too. Thus, they attacked Bely—whose defensive strength they knew from former battles—without tanks on 21 November, nor was their attacking artillery in any way noticed by the German defense. This attack on Bely probably had the following objectives:

- To attempt to make a direct penetration into Bely by a double envelopment.
- To divert the German attention to Bely.
- To pin down the German reserves.
- To ascertain once again the deployment of the German artillery.
- To conceal the noises made by the tanks assembling for the attack on Simonovka.

It was not until their surprise attack on Simonovka in the evening that they revealed the presence of their tanks and allowed a part of their attacking artillery to commence action.

Tactically Simonovka was the initial point for an attack on Bely from the south, in the course of which the hilly territory around Shiparevo either had to be eliminated by artillery or else captured. The Russian command had decided on the latter course. Not until after Shiparevo was in their hands did elements of the attacking wedge turn eastward toward Bely and the artillery groups stationed south of the village.

The Russian attack seemed to have had two concurrent and simultaneous objectives during its first phase: To break Bely off from the German defense system and to push forward in depth.

By dividing their objectives in this way the Russians probably hoped to arrive sooner at their final objective, the supply route. If they succeeded in breaking off Bely as intended, the gap in the front would have become so great that strong forces would have been able to advance southward along a broad front, while on the other hand the German command would have been prevented from closing the gap without making major preparations and bringing up strong reserves. The group which had advanced toward the south could have crushed any reserves hurrying up during the fighting at Bely in good time, or at least kept them from providing any assistance at Bely, and, on the other hand, by exploiting its initial surprise, gained ground toward the south and thus cleared a way in depth for the forces following them after the capture of Bely.

If the attacking forces had turned away from Shiparevo to the east with both attacking groups, that is, without a simultaneous plunge to the southeast, this might have led, according to German opinion at that time, to the fall of Bely within forty-eight hours. On the other hand, a southward thrust with all forces while screening the flanks with mobile groups might also have produced serious results if the Russians had succeeded in pinning down the approaching reserves in good time and pushing through with some elements to the supply highway.

What can have been the principal reasons why this attack, which was carried out with complete surprise and with strong forces, failed to achieve success?

Despite the deep penetration (for example, even the operations staff of the XLI Panzer Corps had been driven out of its command post by the fire of the Russian tanks on 22 November) the German soldier and the German command did not lose their nerve.

The German command was able to bring up reserves in a relatively short time and in astonishing strength in view of the conditions prevailing at that time. The speedy destruction of the Russian forces should probably be attributed to the commitment of these reserves and their determined will to fight.

After the first shock had been overcome, every village was stubbornly defended by the supply trains, and other units which were stationed in it. (The villages had already been hastily prepared for all-around defense in the preceding summer.)

The Russian command was apparently not entirely equal to the problem of a uniform command of the two groups. Whereas on 22 November the thrust in depth from Shiparevo in the direction of Nikitinka was successful—the German supply trains, and so forth, in that area had been completely surprised and destroyed—the attack eastward from Shiparevo had not made as much headway as might have been expected. This was probably due for the most part to the stubborn German defense. Thus, for example, individual guns of the two light artillery battalions which were attacked and subsequently destroyed by the Russian tanks had continued to fight until they were attacked and run over by several tanks.

The group stationed north of Sorokino did not succeed in pushing into Bely during the fighting or in crushing the artillery south of the village, or in permanently blocking the eastward supply highway for any length of time. There should not have been any lack of forces for this purpose. The attack on Hill 245 by the tanks of the 12th Panzer Division at dawn on 23 November seems to have taken the Russians completely by surprise; moreover, the lack of fuel for some of the Russian tanks or the failure of their supply system may have been partly responsible for this.

This is the only explanation of why more than two hundred T-34's were destroyed by about fifty German Mark III's and IV's in a battle lasting approximately three hours.

Thanks to the destruction of a large number of the tanks in the Russian attacking groups, the German command succeeded in regaining control of the situation. Up to the end of the fighting on 27 November the Russian command was unable, on the whole, to escape the systematic German encirclement and subsequent tightening of the pocket, or even to achieve any new success.

After the encirclement and junction of the two Russian groups southeast of Shiparevo the Russian command seemed to have considered the fighting power of this group to be still so strong that no serious relief attacks were launched from Simonovka nor was any attempt made to transfer them. As captured officers stated, the Russians had intended to make a thrust northward on Shiparevo in order to reopen a gap in the front from the south, as well as a breakthrough toward the south.

However, since the pocket had been blanketed for more than twenty-four hours with extremely heavy fire from guns of all calibers without any German units pushing into it and thus relieving the encircling pressure, it was no longer possible to carry out these plans. Most of the vehicles and heavy weapons, as well as the stocks of ammunition and fuel, were destroyed by this incessant fire or at least rendered immovable and no longer available for active service, quite apart from the heavy losses of personnel.

The Russians showed themselves extremely skillful in concealing an intended tank operation as long as possible from the German front. Whether single tanks or entire tank units were committed they were generally brought up at night and the noise made by their tracks was covered up by artillery harassing or surprise fire delivered by heavy guns. Tanks which had assembled in position were so well camouflaged that they often escaped the German air reconnaissance. The tracks left by tanks were made unrecognizable and advantage was taken of every natural cover and vegetation.

Just as the Russian rifleman was extremely skillful in camouflaging himself, his weapons and his position so that they could not be recognized from the air, the Russian tank crews knew how to make use of the terrain, vegetation and existing opportunities for camouflage to conceal themselves. The Russian tank soldier was persevering, tough, frugal, and insensitive to fire directed against his tank. Even when his tank was seriously hit or on fire he continued to fight to the last. This toughness of the Russian in battle, this shrewdness, cunning, frugality and the talent for blending into the landscape, that is, for rendering himself invisible to the enemy by rapidly constructing cover, are traits which have their roots and causes in the century-long serfdom and subjugation of the Russian people under a succession of rulers.

These basic traits have been reflected in Russian tactics, including even their tank tactics.

The maps in these articles are consolidated from a number of detailed action maps and are designed for general reader orientation only.—Ed.

Army's New M47 Medium Tank Ready for Distribution to Armor Troops

(For additional data see front cover and pp. 32 and 33.)

The Department of the Army on April 16 announced acceptance of the M47 medium tank for delivery to tank troops at home and abroad.

Recently completed tests at Camp Irwin, California, and Aberdeen Proving Ground, Maryland, have shown that the modifications applied to the turret during the past six months stepped up the capability of the M47. Its hull is more heavily armored and its 90mm gun is of higher velocity than any other medium tank. Its range finder increases the probability of hits on a target.

Acceptance of this tank for issue to troops reaffirms the statement by General J. Lawton Collins, Army Chief of Staff, on January 14, in an address to the Armor Association, that the gamble taken in short-cutting, or telescoping normal development and production will pay off.

It took ten months from the initial decision to build to the actual production of tanks. Then came testing and elimination of the inevitable "bugs." Difficulties encountered in connection with the turret were serious for a time, but this fact was not allowed to halt or even slow up production. This calculated risk gave a production lead that is very important at this stage of defense rearmament, and gave rapidly a large number of tanks on which turret modifications are being made. In addition to resulting in a large number of new tanks, a considerable dollar saving to the taxpayer has been accomplished.

The now famous Patton medium tank, which has proved more than a match for any Communist armor so far met in Korea and is in high favor with our troops, was an interim design composed of the hull and turret of the wartime Pershing and a new engine-transmission combination. The M47 resembles the Patton outwardly, but the resemblance stops there.

The acceptance of the M47 means that two basic Army concepts have "paid off." One concerned the direction tank development would take after World War II; the other, a decision made after the fighting started in Korea as to what tanks should be built.

With the end of the war, the Army Research and Development budget was cut drastically. In one postwar year, a leading automobile manufacturer had a research budget that was five times the amount Army Ordnance had for its entire tank-automotive program (tanks, trucks, tractors, self-propelled artillery, etc.). Two courses were open at that time: Either to concentrate the bulk of the money available on the development of the major tank components, such as engines and transmissions, or to build a few complete vehicles each year. To follow the former course might mean that, should an emergency arise, the Army would have no proven designs of complete tanks. To follow the latter could mean complete vehicles with incompletely developed components. Since a tank is no better than its parts, the Army decided that it would be better to have modern components than a few brand-new tanks of obsolescent types.

When fighting broke out in Korea on June 25, 1950, the Army called a series of conferences to assay the tank picture. In the medium field several hundred World War II Pershing M26's were being converted into Patton M46's, the major change being the installation of a newly developed engine and cross-drive transmission "power-package"—one efficient result of the "component" risk. A completely new medium tank, the T42, was being designed, but the design drawings for the complete vehicle were not expected to be finished before November of that year. The M46 was considered a good tank, and it had the advantage of being a proven design. However, it was felt that to resume production on it would not be a step forward.

Since speed was vital, the second risk was agreed upon. Design work on the turret of the T42 was complete. It featured a more lethal gun, a better fire control system (including a range finder), and better turret configuration. Since these were the major goals the Army was striving for in its new designs, it was decided to wed the T42 turret to what was basically the M46 hull. On July 17, 1950, the new tank termed the M47, was ordered directly into production, even though no complete design drawings of the vehicle existed. In so doing, the Army completely by-passed the usual mock-up, pilot model, and engineering and service board test and field test stages, jumping directly to the tooling-up phase.

Whenever normal, sound procedures are telescoped, as they had to be in the case of the M47, difficulties will be encountered. The "bugs" inherent in any new design, usually eliminated before a vehicle is ordered into production, remain to be dealt with later. Such was the case with the M47.

The first M47's started rolling off the line in May 1951, some ten months after the idea to produce such a tank was conceived. Range finders were not available at that time, so it was difficult properly to evaluate the new tanks. As had been expected, most of the troubles encountered centered in the turret. For example, the hydraulic traversing mechanism would function correctly in one tank, but would be deficient in another.

An analysis of the troubles indicated that they could be corrected by normal automotive processes without returning the tanks to the production line, so output was maintained. As fast as engineering tests could trace down the cause of a deficiency, a corrective modification was introduced in the tanks at the line. In December, range finders became available. In March 1952, firing tests of *complete* M47's were held, with the dual fire-control system functioning as it was designed to do. The accuracy shown by the M47 in these tests and corrections of the "bugs" led to its acceptance for issue to troops.

The Army feels that the risks taken on the M47 have proved wise. Despite the anxious moments—and hours—spent because of them, at least a year has been saved in the production of the new medium tank.

U.S. Army

BACKGROUND FACTS ABOUT THE ARMY'S M47 MEDIUM TANK

The M47 is the first medium tank to be turned out for Army Ordnance since World War II. It is the successor to the M46 "Patton" tank, which has performed successfully in Korea. In outward appearance the M47 resembles the Patton but contains many vital improvements affecting fire control, armament, armor, and reliability of engine and transmission. As yet the M47 has not been nicknamed.

Details on the M47 Medium Tank follow:

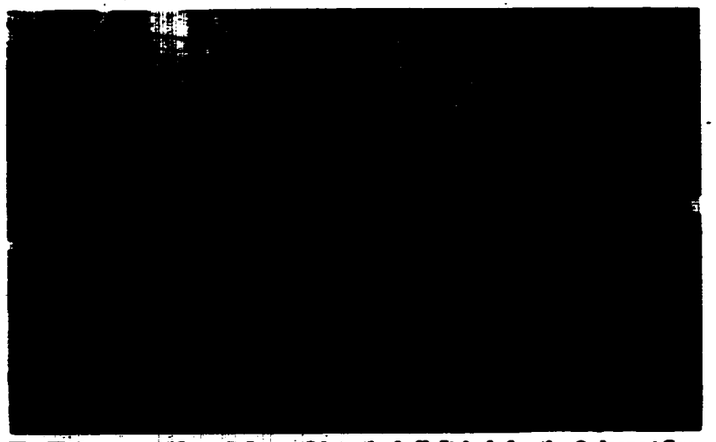
Weight	48½ tons when ready for action
Length (over-all, with gun in forward position)	28 ft
Height	10 ft
Width	11½ ft
Crew	Five men
Armament	90mm high-velocity Two (2) cal. .50 machine guns One (1) cal. .30 machine gun
Engine	Ordnance-Continental, air-cooled, gasoline 810 hp, V-12
Transmission	Allison cross-drive (combination hydraulic and mechanical
Fire control	Electro-hyraulic, providing greater accuracy and speed in firing. Two separate fire control systems allow the 90mm gun to be fired by either the tank commander or the gunner.
Communications	Two-way radio transmitting and receiving equipment
Builders	American Locomotive Company in Schenectady, N. Y., and Army Ordnance's Detroit Arsenal.
Alco Tank Plant	Consists of two facilities—a primary manufacturing plant, covering 300,000 sq ft, equipped with powered conveyor lines and using modern production techniques. This plant was converted from existing production shops in five months. The second facility is a new modification and test center, comprising a 100,000 sq ft building and a mile-and-one-eighth test track. Cost of these facilities making up the Alco Tank Plant was only a fraction of the cost to the Government—and to taxpayers—of a completely new plant with the same capacity.
Alco Subcontractors	There are more than 2,000 subcontractors producing for the Alco tank program. More than 70% are companies with less than 500 employees. To supervise quality and insure production lead-times, Alco maintains a staff of expediters and trouble-shooters in the field.

NEW M47 MEDIUM TANK READY FOR ARMOR TROOPS

The new M47 medium tank weighs approximately 48 tons. It carries a crew of five. It mounts a 90 millimeter high velocity gun. The power plant is an improved Ordnance-Continental air-cooled 810 horsepower V-12 engine, which, in combination with the Allison cross-drive transmission, gives a mobility of operation which will enable the M47 to outmaneuver any known enemy tank on the battlefield. Accepted by the Army on April 16th, it is coming off American Locomotive Company and Detroit Arsenal lines.

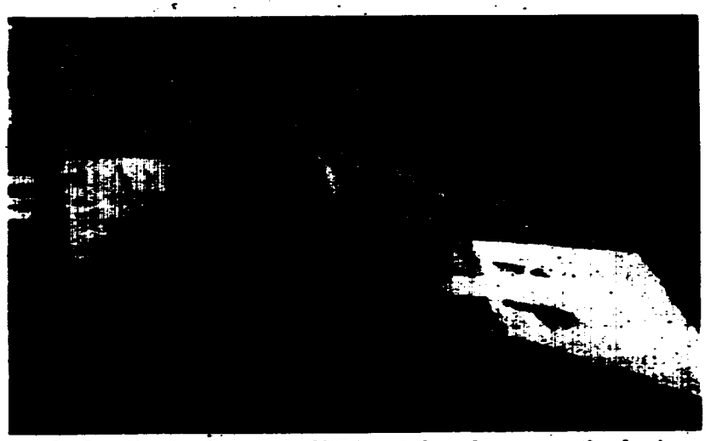
WHAT FEATURES MAKE THE M47 SUPERIOR?

1. Increased probability of a first round hit.
2. Higher velocity gun—more lethal, more effective.
3. An automatic compensator restores the aim of the gun after each round so that no manual adjustments are needed to correct for the effect of recoil. Consequently, a higher rate of fire is possible.
4. Two separate and distinct fire control systems allow the gun to be fired by either the gunner or the tank commander. If, for example, the range finder system is knocked out and the gunner wounded, the commander can take over, using the supplementary periscope system. In normal operation, the commander can override the gunner if he sights a better target.
5. Greatly improved field of vision—targets can be spotted much more quickly.
6. Armor protection has been improved to make it more difficult for an enemy shell to get a "bite."
7. The M47 retains the Patton's ability to stop on a dime and spin in its own length; in short, its ability to outmaneuver any other medium tank.



The M47 power package is lowered into the hull. It includes the Ordnance-Continental 810hp air-cooled V-12 engine and the Allison cross-drive transmission.

The turret goes on an M47. The gun is operated by two separate electric hydraulic fire control systems. Tank commander or gunner can operate the weapon.



At Aberdeen Proving Ground the M47 is put through severe testing by Army Ordnance personnel. Here a test tank is required to prove itself on a 40% grade.

At the American Locomotive Company Plant in Schenectady, N. Y., each tank coming off the line receives a 45-mile "shakedown" before Ordnance gets it.

To tankers the armament is the key item. Here's the kind of shot pattern turned in by the M47's 90mm high velocity gun firing at a target at an 800-yard range.

"Many hundreds" is the figure reported concerning production on the M47. This view of finished tanks at Al plant will please the using arm.

A test vehicle is put through the paces at Aberdeen Proving Ground where a rough course on tracks, suspension and power plant tests its maneuverability.

FIRST OF TWO PARTS

Federal Recruiting and Drafting In the Civil War

by DR. FRANCIS ALFRED LORD

The turmoil over universal training, selective service drafting, recall of reserves, periods of service, and other related doings, is by no means new in our country's military affairs. These things have been going on periodically since the firing of the shot heard round the world. Here is a story of our trials and tribulations in another generation and another century.

AT the outbreak of the Civil War the military forces of the Federal government consisted of a standing army and militia, but neither was prepared for the extremely difficulty task of overcoming the resistance of an excellent fighting force operating in an area of roughly one million square miles. The Regular Army, which had had combat experience in Mexico a decade before, was a well disciplined force dispersed over the United States. This army, numbering only 16,402 men on January 1, 1861, was reduced by the resignation and desertion of 313 commissioned officers or approximately one-fifth the total strength.[1] Such a force was obviously incapable of crushing the revolt of a determined people who had 401,395 men in the field by the end of the first year of the war.[2] The role of the Regular Army throughout the war was really divided between acting as a "token force" in the field and serving as an officer pool. Unfortunately, it never was permitted to concentrate on either of these roles and the contribution of the Regular Army toward winning the war must be found in the higher command echelons. It did not function as a significant training or fighting element.

The militia, mostly unorganized and numbering more than 3,000,000[3] was weak in fighting potential. What little training the militiamen received was antiquated and discipline was poor. With the exception of a few "crack" units such as were found in the larger cities, the militia regiments were no better than their inglorious predecessors had been at Camden and Bladensburg. The Northern people were not military-minded and had never come to appreciate the value of training and discipline for their militia. A few of the States had made preparations to get their militia ready before hostilities began. For instance we find that for three months prior to the attack on Sumter the Massachusetts Volunteer Militia, "in anticipation of some great traitorous movement in the South,"[4] drilled almost nightly in their armories. Governor Andrew issued his "General Order No. 4" on January 16, 1861, which placed the militia on a wartime footing. As a result of this order certain companies dropped from their rolls men unfit or unwilling to serve and accepted replacements.[5] Even before these preparations in Massachusetts the New York State Legislature extended the service of the State militia to President Lincoln to be used as he deemed best "to preserve the Union and enforce the Constitution and laws of the Country."[6] Pennsylvania, Michigan, and Massachusetts were equally prompt.

The reaction in the North to the attack upon Fort Sumter was instantaneous and widespread. Mobs went about New York and elsewhere forcing suspect newspapers and private dwellings to display the Stars and Stripes. The garrison from Sumter met with a hearty reception when it reached New York. Officers and men were carried on the shoulders of crowds wild with enthusiasm. The great city's streets were decked with banners.[7] For a short time dissenters were discreetly silent.

To meet the challenge of insurrection the President called on the States for 75,000 militia for a period of three months. The legal basis for this call of April 15, 1861, was found in two ancient militia acts, those of February 28, 1795, and March 3, 1803. The 1795 act empowered the President to call forth the militia of any State or States "whenever the laws of the United States should be opposed or the operation thereof obstructed in any State, by combinations too powerful to be suppressed by the ordinary course of judicial proceedings, or by the powers vested in the Marshals by this Act."[8] By this act no militiaman could be compelled to serve more than three months in any one year. The 1803 law provided for the calling out of the militia in the District of Columbia for the maintenance of law and order within the District alone.[9] Under this 1803 law the President issued calls in April for three regiments, but many of the men refused to take the oath of allegiance for fear they would thereby become regular soldiers. However, they were reassured that they were merely militia and were not sent out of the District.[10] It was popularly believed that the war would be of short duration. The Federal government was weak at this period of the war as evidenced by its complete lack of military policy. Secretary of War Cameron, a political appointee, was incapable of administering his office. The States took the lead in the first effort to raise troops since the Regular Army was too small and too greatly dispersed to be of use. Although regular officers like Sherman firmly believed that such troops "never were and never will be fit for invasion,"[11] the Northern States responded enthusiastically to this first call to arms and recruited their militia regiments very rapidly to full strength. Under the call of April 15, 1861, the States raised 91,816 men.[12] Even then, some governors were insisting that the Federal government call many more regiments, and in some cases, for longer periods of time than ninety days.[13]

These demands by State governors were backed by a seemingly irresistible advance in the military program of the enemy. In Baltimore the passage of two Northern militia regiments (6 Massachusetts Infantry and 7 Pennsylvania Infantry) was disputed by civilians hostile to the Federal government. Federal forts and arsenals within the Southern lines were seized; railroads and telegraph lines were cut; the Capital was in a state of siege, and communication with the outside world was possible only through the medium of private messenger. It seemed as if 1814 was to be repeated. To prevent such a disaster the President on May 3, 1861, issued a proclamation whereby the Regular Army was to be increased by 22,714 officers and men, and the Navy by 18,000 seamen. In addition, he called for 42,834 volunteers. This meant an increase of ten regiments of regulars and forty regiments of volunteers.[14] Although the call provided for a Regular Army of 42,000 men, enlistments in this force were disappointingly few and by December, 1861, when the volunteers already totalled 640,000 men, the total of the Regular Army was only 20,334.[15]

In those early months of the war before Bull Run the Federal government could have accepted a much larger volunteer force, but the war matériel for additional troops was lacking.[16] Hundreds of thousands of volunteers offered their services in 1861 but were turned away by this unfortunate situation. Not only did the States function as agencies in raising troops, but sometimes individuals tried to raise and proffer regiments or even brigades directly to the President. Usually these individuals were prevented by their respective governors but Daniel Sickles, ex-diplomat and society man, succeeded in raising the famous Excelsior Brigade in New York and took it directly to Washington. The brigade lost half its men by the vicissitudes of war before President Lincoln finally overrode Sickles and credited the regiments to New York.[17]

While the volunteers were pouring into State rendezvous camps the three-month militia received their baptism of fire in the Battle of Bull Run, July 21, 1861. The men fought bravely but lost the battle late in the day. These men have never received the credit they deserve; they served for a short period only and saw little action but they did give the Federal government time to catch its breath in the almost impossible task of forming an army out of raw material. Bull Run was the inevitable answer to the clamorous "on to Richmond" but the people were rudely awakened and the fervor of recruiting which so characterized the spring fell off sharply. It is true that the quotas under the 1861 calls were substantially oversubscribed but the distribution was very unequal. Some New England States and such States as Delaware and Maryland failed to fill their quotas.[18] There was a slight increase in recruiting during the winter of 1861-1862 due to the seasonal slackness of labor in the agricultural regions. But the increase was not sufficient for attaining the goal set by General McClellan, who assumed command after Bull Run, and hence it was necessary to resort to special appeals, extraordinary financial inducements and even covert threats of possible future drafts in order to stir up the laggards. The reasons given for prompt enlistment were: it was a noble cause; the pay was the highest in the world; the rations and supplies were good; and weapons were unsurpassed.[19]

An order of December 3, 1861 placed recruiting in the hands of the War Department. By March 31, 1862, the army consisted of 23,308 regulars and 613,818 volunteers.[20] The militia is not included in these figures except in the cases of those militia units which had become "federalized," that is, had come under Federal control. Then they were in the same category as regiments of volunteers raised for service in the war. On April 3, 1862, recruiting for volunteers was temporarily halted.[21] Officers and men returned to their regiments from their detached duty at recruiting offices; the offices themselves were closed down; and the public property belonging to the volunteer recruiting service was sold to the highest bidders, the proceeds being credited to a fund for collecting, drilling, and organizing volunteers.[22] To replace the men lost by Grant at Shiloh and McClellan on the Peninsula it was necessary to re-establish recruiting, which was done by an order issued June 6, 1862.[23] The shortage of men continued, however, and in May and June special authority was granted to the States of New York, Illinois, and Indiana to

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furnish men for three months of service. Under this authority New York furnished 8,588 men, Indiana furnished 1,723, and Illinois furnished 4,696.[24] The reinforcement of 15,007 three-month troops would obviously be meagre in the light of what was transpiring on the Peninsula and on other fronts. More men were needed at once.

The President and his cabinet were gravely concerned over the military situation in general and that of the Army of the Potomac in particular. Now realizing that a new call was imperative, they reached an agreement which resulted in a War Department order published July 2, 1862, calling for 300,000 volunteers.[25] By this call the States raised 421,465 men for three years.[26] The caliber of men responding to this call was exceptionally high. The reason for this high type of volunteer coming forward in response to this call is not difficult to ascertain. He had not enlisted in the spring of 1861 because he was bound by domestic and economic ties that were not as easily severed as were those of the less stable elements that were usually found to predominate in the militia units that responded to the earlier calls. Those who were well established in society and who did try to enlist in 1861 were quite often turned away because of lack of arms and equipment had sharply curtailed the number of regiments permitted each State. Domestic and foreign sources had largely remedied these deficiencies and the men could now be accepted. In an article entitled "Recruiting in the City," which appeared July 15, 1862, the New York *Times* described the situation in many places in the North at that time:

> There was a brisker business done at the recruiting offices yesterday than on any day since the issue of the President's requisition. . . . The men who are coming forward are far superior, on the average, to those who have filled up the regiments that went from the State last winter. They are mainly men who seem to be acting, not from impulse, or necessity, or in the belief that they will have an easy time of it, but from conscientious motives of patriotism; volunteering freely, under the full comprehension of the serious nature of the work they will have to do, and with the determination, by this volunteering, to, if possible, end the struggle quickly and effectually.[27]

The Cream of the Crop

The first great outburst of patriotic enthusiasm had subsided. War was no longer romantic. The Federal armies were being depleted by battle casualties and disease; maimed veterans were observed more often in the northern cities and rural areas. One veteran who responded to this July call pointed out that it required a good deal of courage to enlist in the Federal armies under this call. "The men who responded were not Bohemians, nor mere seekers for a better fortune. They were mostly fixtures in society . . . They were men who could not have been bought from wife, children, and the family home of generations for one hundred or one thousand dollars. And such men were the overwhelming majority of the three-years' volunteers of 1862."[28] President Lincoln's call of July 2, 1862, for 300,000 three-year troops was a very severe drain on the North. It absorbed the best fighting element, the grand reserve force of the country. After this reserve force had been enlisted in the armed services no later call ever produced men of equal caliber.

As was so often the case throughout the entire war, however, some States were less co-operative in their support of the war effort than others. This was especially true in the raising of men. In some localities volunteering was not as enthusiastic as it should have been. The Federal government finally decided that a draft would be necessary to provide the requisite number of troops. The Southern victories in this stage of the war can be partially attributed to the fact that the Confederate Congress had passed universal conscription as early as April 16, 1862.[29] The Federal government proceeded slowly along the path of an out-and-out conscription of the manpower of the country. On July 14, 1862, Congress passed a law whereby the President could call out the militia for a period not to exceed nine months with quotas apportioned to each State. By militia was meant all able-bodied male citizens between the ages of eighteen and forty-five.[30] This was merely a revision of the old 1795 militia law and was not a draft administered by the Federal government. States were allowed to draft if they so desired; the main interest of the government was to get the men. The military situation was chaotic; it was becoming obvious that Pope was not going to be able to check Lee. The significance of the Law of July 4, 1862 is that it allowed a draft by the States based on executive interpretation rather than direct legislative sanction. It was also the first step taken by the executive department of the Federal government toward recruiting under authority of this law and the 1795 law.

Sword of Damocles

The War Department issued a call on August 4, 1862, for 300,000 militia to serve for nine months. This number, which was in addition to the quota of July 2, 1862, stipulated that if any State should fail to meet its quota of the additional 300,000 by August 15th, the deficiency in that State would be made up by a special draft from the permanent militia.[31] A general order dated August 9, 1862, listed those who would be automatically exempted, including all telegraph operators and maintenance personnel, engineers, artificers and workmen employed in any public armory or arsenal, members of Congress, the Vice President of the United States, customs officials, postal officers and stage drivers, the merchant marine and all persons exempted by the laws of the respective States from military duty.[32] As yet, however, there was no such thing as an actual draft in the North. The detailed provisions for the draft were without any direct legal sanction and would have been impossible to enforce in unwilling States due to the lack of sufficient troops at the disposal of the central government. The draft was not intended as the main source of manpower but rather as a whip to encourage volunteering.[33] It was intended that the draft should raise 300,000 militiamen for nine months and that it should round out the quotas of the call of July 2, 1862, in addition to providing replacements for the old regiments. This last provision was authorized by an order appearing August 14, 1862.[34] As a means of raising men directly, the 1862 draft was unquestionably a failure. Out of quotas of 334,835 men only 87,588 men can be accounted for by this draft.[35] The draft was valuable, however, in that it acted as a sword of Damocles over certain States, especially in the West, whose leaders in July were dubious about their ability to meet their quotas but who in the end managed to come through with flying colors. The quotas for the calls of July 2 and August 4 totalled 669,670 and the number raised was 509,053, thus showing a deficiency of about 25%.[36] At first glance this deficiency seems quite startling in its implications, but there were about 87,000 three-year volunteers over and above the quota of the first call.[37] That the calls of July and August were so well answered was also due to the fact that the rush season in agricultural regions had passed and there was the usual surplus labor population seeking steady employment. The nine-month call was little more enticing than the three-year call since the majority of the population still believed the war would be of short duration.

In studying the draft of 1862 one is disappointed to note that the futile system of short terms still prevailed. Nine months was not too much of an improvement on three months as far as actual service to the country was concerned. The good features of the experiences of 1862 that carried over and were utilized in 1863 were twofold: only Federal officers should conduct the draft, and military service should be for a period of at least three years. Two especially vicious practices appeared as a result of this draft law of July 17, 1862, practices that were so to alter the entire Northern recruiting program during the rest of the war that the splendid patriotism of the best type of volunteer has been permanently besmirched as a result. These practices were those of Federal, State, or local bounties and the purchasing of substitutes to serve in place of drafted men. In addition to the hundred-dollar Federal bounty, there were numerous State and local bounties. That the Federal bounty was of material assistance in getting men is proved by the fact that there were many more three-year volunteers than nine-month volunteers. Only the former received the bounty. A widely read paper of the day, in discussing the bounty question on August 16, 1862, said in part:

> The system of indiscriminate bounties for recruits to meet the Presidential requisition for 300,000 men to fill up the National armies, is already and none too early recognized as vicious, wasteful and demoralizing. The mistake of attempting to organize new regiments before the old ones are filled up is also recognized, and the plan abandoned . . . Let the conscription be just as Heaven, and inexorable as death. All that is worth living for is involved in the issue of the contest in which we are embarked. Let it spare neither high nor low, rich nor poor, but reach all alike.[38]

No better proof of the lack of unity and purpose in the Northern war effort is needed than to study how completely unrealized was the ideal of universal conscription as advanced in this newspaper article. It is difficult today to understand why Northern leadership could not comprehend the necessity of drafting men by a fair system of selection, that is, to force men to serve rather than to permit them to pay substitutes to serve in their stead. That the war might easily be a long one began to dawn on the more thoughtful statesmen when they heard of the sickening slaughter of Burnside's men before the stone wall at Fredericksburg or when they studied the dilatory tactics of Rosecrans at Stone's River.

For the Duration

Only a week after the end of the latter battle, however, Congressman Buffington of the House Committee on Military Affairs read a majority report which urged authorization to raise 20,000 volunteers to serve for *nine months* in Florida. Fortunately the opposition was unable to discern the wisdom of singling out Florida as the theater of operations for these particular men. Nor could the opposition approve nine months as the term of service for these men when "three years or during the war" was becoming accepted as necessary for enlistment.[39] The House Committee was certainly not cognizant of the general military situation. In the East the morale of the Army of the Potomac was at low ebb due to Burnside's inept leadership at Fredericksburg. Also responsible for this low morale was the famous Mud March of the following month, when in a torrential rain the Army of the Potomac floundered in impassable roads for a few days and returned to its camp completely demoralized. Resignations and desertions became commonplace.

In the West affairs were little better. An officer writing to his wife on January 22, 1863, commented bitterly on the poor quality of the officers and then went on to state that in his opinion:

> Nine-tenths of them enlisted just because somebody else was going, and the other tenth was ashamed to stay at home. As they all pretend to be ill whenever there is anything to do, it is impossible to tell whether anything is the matter of a man until he is ready to die. One lover of his country in my company receives an honorable discharge who has never done thirteen cents worth of work for the government, on account of feebleness and yet who has never seen a day when he didn't eat his full rations, and when he wasn't able to whip two like myself.[40]

Introduction of Conscription

Possibly the largest single factor in this widespread demoralization consisted of the Northern military reverses accompanied by very severe casualties amounting, since the passage of the July 2, 1862 law, to about 75,000 men, killed, wounded, or missing.[41] Unlike the Confederates, who had kept their ranks better supplied by a relentless conscription policy, the Northern authorities had not yet supplied an adequate replacement system. The average Confederate regiment was much more efficient than the average Federal regiment, an inevitable result of the pernicious system practiced by the North of raising new regiments instead of keeping the old ones up to strength. Since the spring of 1863 was certain to inaugurate another campaign in which the losses in manpower were to be considerable, a system to replace those losses had to be found. The idea of conscription began to be favorably received by several important legislators, including Aaron A. Sargent of the House and James A. McDougall of the Senate. Even Horace Greeley, who in the spring of 1862 had been bitterly opposed to the employment of conscription by the Confederacy, could reason in August of the same year that since the South had started conscription it was honorable for the North to follow its example.[42] As was to be expected, however, the antiadministration Democrats opposed the draft from the start and continued to do so throughout the war. Despite this resistance, Senator Henry Wilson, chairman of the Committee on Military Affairs, introduced a bill to enroll and call out the National forces; this bill was finally passed on March 3, 1863. By "national forces" was meant all able-bodied male citizens of the United States and all aliens who had declared on oath their intention of becoming citizens, between the ages of twenty and forty-five. There were three classes of exemptions: first, those physically or mentally unfit for service and persons convicted of a felony;

second, a restricted number of officials including the Vice President of the United States, Federal judges, Cabinet members and State governors; and third, sole supporters of aged or infirm parents or of orphaned children. Those liable to service comprised two classes: first, all men, married or single, between the ages of twenty and thirty-five, and all unmarried men between the ages of thirty-five and forty-five; and second, married men between the ages of thirty-five and forty-five. This second class was not to be called out until the first class was exhausted.[48] To administer the draft a separate bureau of the War Department, namely, the Provost Marshal General's Department, was set up under the leadership of James B. Fry, an officer of exceptional ability.

The enrollment act itself contained some good provisions. Among these should be mentioned the care taken to arrange for as equitable a distribution of the burden of the draft as possible, with only a few exceptions. The drafted men were to receive the same pay and Federal bounty as did the volunteers. All drafted men were to receive ten days' notice so as to eliminate any possibility of their not knowing that they were to be drafted. The men raised were to be used in organizations where they were needed; the old habit of raising new regiments in order to pay off political debts was to stop. Strict observance of regulations governing medical examinations was ordered, but not followed.

The Negative Factors

On the bad side of the ledger we must note, first, the inadequacy of the medical examination, which was to prove almost disastrous in the later stages of the war when depleted regiments received as replacements men who were literally blind, syphilitic, and idiotic.

Second, there were no provisions for industrial exemptions although it must have been obvious that a great determining factor in the outcome of the war would be the industrialization of the North against the agrarian economy of the South. But probably the worst feature of all in the enrollment law was the system of substitution. For varying sums a man to be drafted could provide a substitute, that is, he could pay another man to go in his place. So great was the demand for substitutes that a familiar element in the war was the substitute broker, who has been defined by James A. Garfield as:

> A man who establishes an office and offers to furnish substitutes for different localities. He pays bounties and gathers men in gangs for sale, and when the committees of any town are hard pressed to fill up their quotas they send to the substitute broker and buy his wares at exorbitant rates. He gets men for comparatively a small bounty and sells them at enormous prices to the districts that are otherwise unable to provide their quotas. The result has been that men in all parts of the United States have been compelled to see their sons bought and sold by these infamous substitute brokers.[49]

As if the substitute feature of the law were not bad enough, the law also permitted men who were to be drafted the privilege of purchasing exemption by paying a commutation fee of three hundred dollars. From this source alone the Federal government received fifteen million dollars in the first draft.[50] It was not without reason that the poor could maintain that the war was a "poor man's fight." Of 292,441 names drawn in the first draft only 9,881 were held to personal service. The remainder paid commutation, furnished substitutes, did not report after being drafted, or were exempted for physical defects and similar reasons.[51]

Under the President's proclamation of June 15, 1863, pertaining to militia to serve for six months, the States furnished 16,361 men.[52] This call was made during Lee's second invasion of the North. The seriousness of those weeks preceding Gettysburg was well expressed when the New York *Herald* pointed out that there could no longer be any doubt that Lee's whole army had crossed the Potomac into Maryland and Pennsylvania, that a grand scheme of invasion of the North was now fully developed, and that a decisive battle could not be long delayed.[53] Interestingly enough, the same paper contained the following notice: "How to avoid the draft—a few more good men wanted for Company H, Eighty-fourth regiment New York State Militia, for thirty days. Headquarters Central Hall, corner of Centre and Grand streets, Cap't. Graham commanding."[54] However, the militia's contribution to the victory at Gettysburg was absolutely nil.

Supply and Demand

On October 17, 1863, Lincoln called for 300,000 volunteers for three years.[55] This was followed February 1, 1864, by an order for a draft of 500,000 including the calls of 1863, also for three years.[56] These two calls netted 369,380 men.[57] On March 14, 1864, still another call was made, this one for 200,000 men for three years,[58] which resulted in the raising of 292,193 men for the Federal army.[59] Besides the foregoing additions, between April 23 and July 18, there were furnished 83,612 one-hundred-day militia out of a quota of 113,000.[60] All these and more were desperately needed by the armed forces of the nation, especially in the Army of the Potomac where the casualty lists were assuming alarming proportions due to the "fight it out on this line if it takes all summer" tactics of Grant. In the campaign from the Rapidan to the James, Grant's loss was 54,926 men, a number roughly equal to Lee's whole army. To supply these and other losses a call was issued on July 18, 1864, for 500,000 men (reduced by excess of credits on previous calls to 357,152) to serve one, two, and three years. This call was oversubscribed, 386,461 men being furnished.[61] Although there was the usual poor quality of replacements in this call as in all the 1863 and 1864 drafts, there were some new regiments raised that were of good material. In September, Pennsylvania raised a division of six regiments and the recruits comprising them were a "husky, healthy lot of young men, varying in age from 16 to 22 years . . . drawn from professional occupations and trades, and agricultural life . . . men of intelligence and culture."[62] These men performed very capably in action later due to excellent leadership. The last call for troops during the war was made December 19, 1864, when 300,000 men were called to serve terms of one, two, and three years. By the time military operations ended the following spring 212,212 men had been raised.[63] When Lee's army surrendered, thousands of recruits were pouring in, and men were discharged from recruiting stations and rendezvous in every State. The national military force on May 1, 1865, numbered 1,000,516 men.[64]

(To be concluded)

1. Report of Provost Marshal General. *House Executive Documents*, 39 Cong., 1 Sess., Part I, Document 1, 6-7.
2. Livermore, *Numbers and Losses in the Civil War in America, 1861-65*, 47. Hereafter, this work will be cited as *Numbers and Losses in the Civil War*.
3. Upton, *The Military Policy of the United States*. 225.
4. Adjutant General of Massachusetts, *Annual Report*. 1861. 6.
5. Nason, *Minute Men of '61*, 9.
6. Victor, *A History of the Southern Rebellion*, I, 161.
7. Doubleday, "From Moultrie to Sumter," *Battles and Leaders of the Civil War*. (Buel and Johnson, editors), I, 48-49. Hereafter. this work will be cited as *Battles and Leaders*. The garrison's commander, Major Robert Anderson, was promoted to brigadier general a month later. Phisterer, *Statistical Record of the Armies of the United States*, 262.
8. Peters, ed., *The Public Statutes At Large of The United States of America*, I, 424. (Hereafter, this work will be cited as *Statutes At Large*.)
9. *Ibid.*, II, 215-225.
10. *The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies*, First series, II, Part 1, 322-323. (Hereafter, this work will be cited as *Official Records*.)
11. William T. Sherman to John Sherman, April, 1861, in Thorndike ed., *The Sherman Letters*, 111.
12. *Official Records*, Third series, IV, 1264.
13. *Ibid.*, I, 93-144.
14. *Ibid.*, 145-146.
15. *Ibid.*, 154.
16. Nicolay and Hay, *Abraham Lincoln*, IV, 77-78.
17. Comte de Paris, *History of the Civil War in America*. I. 175-176.
18. *Official Records*, Third series, IV, 1264.
19. Editorial in New York *Tribune*, September 2, 1861, quoted by Shannon, *The Organization and Administration of The Union Army 1861-1865*, I, 263.
20. Phisterer, *Statistical Record of the Armies of the United States*, 62.
21. United States War Department, "General Order No. 33," April 3, 1862, *General Orders for 1862*.
22. *Ibid.*
23. *Official Records*, Third series, II, 109.
24. Phisterer, 4.
25. *Official Records*, Third series, II, 180-168.
26. *Ibid.*, IV, 1265.
27. New York *Times*, July 15, 1862, 1.
28. Buffum, *A Memorial of the Great Rebellion: Being a History of the Fourteenth Regiment New Hampshire Volunteers*, 1-3.
29. Upton, 466-467.
30. Sanger, ed., *Public Laws of the United States of America* (1862), 597. (Hereafter cited as *Public Laws*.)
31. *Official Records*, Third series, II, 291-292.
32. *Ibid.*, 333-335.
33. Shannon, I, 283.
34. *Official Records*, Third series, II, 380-381.
35. *Ibid.*, IV, 1265.
36. *Ibid.*
37. Shannon, I, 290-291.
38. "Common Sense to the Rescue!" in *Frank Leslie's Illustrated Newspaper*, XIV (August 16, 1862), 321.
39. *House Reports*, 37 Cong., 2 Sess., Report 5, January 9, 1863.
40. Samuel Merrill, 70 Indiana Infantry, to wife, January 22, 1863, in Volwiler, ed., "Letters from a Civil War Officer," *Mississippi Valley Historical Review*, XIV (March 1928), 510.
41. Livermore, *Numbers and Losse: in the Civil War*, 87-97.
42. Shannon, II, 299-300.
43. *Public Laws*, 1863, 731-737.
44. Shannon, II, 43-44 citing *Congressional Globe*, 38 Cong., 2 Sess., 1075.
45. *Official Records*, Third series, III, 1178.
46. *Ibid.*, V, 732.
47. Phisterer, 5.
48. New York *Herald*, June 30, 1863, 6.
49. *Ibid.*, 8.
50. *Official Records*, Third series, III, 892.
51. *Ibid.*, IV, 59.
52. *Ibid.*, 1266.
53. *Ibid.*, 181.
54. *Ibid.*, 1266
55. *Ibid.*, 1267.
56. *Ibid.*
57. Embick, *Military History of the Third Division, Ninth Corps*. 1.
58. *Official Records*, Third series, IV, 1268.
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OUR ARMY—177 YEARS OLD

On 14 June 1952 the United States Army will mark its 177th birthday.

The Army is the oldest of our Armed Forces. It is the only element that has existed continuously since 1775. It came into being a year before we became a free nation, established by the Continental Congress following Lexington and Concord.

After the Revolutionary War the Army was cut to 80 men, and it has been cut after every subsequent war in our history.

With the extension of our western frontier the Army was expanded to fight Indians, explore and survey the western lands and build roads and fortifications. In 1812 came another war with the British.

The Mexican War followed in 1846, in which the Army performed in better fashion than before. There followed an interim of frontier campaigning, leading up to the Civil War in 1861. This was our costliest war in lives.

The War with Spain came at the close of the century, and in 1903 came the organization law which is still the basis of our Army organization.

World War I increased our Army to several million and took a huge force overseas, where it turned the tide of victory for the Allies.

World War II took our Army all over the world and its strength totalled over 10 million.

The postwar period brought continued commitment around the world. In 1950 another emergency called American fighting men to some of the toughest action in our history, the Korean conflict.

The history of the United States Army goes hand in hand with our country's history.

The Army's Atomic Gun!*

by SECRETARY OF THE ARMY FRANK PACE, JR.

IN its quest for greater fire power, the Army turned quite naturally to seek atomic weapons fashioned for use against an enemy on the battlefield. But recognizing the need for such weapons and building them were two different things.

The first atomic bomb was clearly a strategic weapon designed to shatter such targets as enemy industrial complexes. And in 1945, there was considerable doubt whether it could be adapted in a suitable form and size for tactical purposes. Fortunately, the Atomic Energy Commission, working in close concert with the Armed Forces, soon dispelled this doubt. Today we have a tactical atomic bomb that can be used against enemy forces in the field.

In addition, we have developed or are developing other atomic weapons to assist the soldier. We have the prototype of an atomic gun, and are training "atomic artillerymen" to use it. This newly developed atomic gun can give the ground commander tremendous fire power at his finger tips and directly under his control. Like conventional artillery, it would be especially effective in defending against attacking ground forces obliged to mass and expose themselves in an assault. Unlike an air-delivered atomic weapon, the atomic gun can function in all kinds of weather, night or day. It is essentially an artillery piece—but with immeasurably greater power than any artillery hitherto known. Carried on a platform suspended between two engine cabs at front and rear, this highly mobile atomic weapon can travel at a speed of about 35 miles per hour on highways. Weighing about 75 tons, it can cross bridges which Army engineers are already trained to build for present heavy divisional equipment. It can travel cross-country, fit into a landing ship designed for amphibious operations. It can fire with accuracy comparable to conventional artillery, and tests indicate it is much more accurate at long ranges.

In short, the atomic gun can, with the sureness of the traditional field artillery piece, hit its target under any weather conditions and give ground troops the kind of devastating close support never before available in warfare.

To propel atomic projectiles still farther by weapons to hit ground targets—in short, to provide atomic artillery that can far outrange our atomic guns—we are developing guided missiles and rockets to receive atomic warheads. We have been training guided missile and rocket units for some time and we are increasing the scope of this training program.

These are the developments, these are the trends. They are most encouraging; but they are most emphatically no reason for complacency. Most of the atomic weapons for Army use are weapons of the future; but while your Army thinks in the future it must be prepared to fight in the present. We have no desire to delude ourselves as Hitler deluded the German people with his rash promises about German "secret weapons." These secret weapons eventually appeared in the form of V-1 and V-2 flying bombs; but too late to assist materially German armies fighting with less advanced weapons.

There is no indication today that warfare of the future would not present a continuing need for many of our current conventional weapons. Push-button warfare that would eliminate the man on the ground exists only in the realm of science fiction. And I emphasize the word "fiction."

That is the reason why your Army—along with its sister services—is today attempting to strike a sane balance between what is immediately attainable in military strength and what we hope to attain. That is why we have continued to improve the weapons and add to the fire power of our Army divisions—the same divisions which are fighting in Korea today. Compared to its World War II counterpart, the Infantry Division of today has half again more fire power. We have made similar increases in the fire power of our armored and airborne divisions.

Meanwhile, I can assure you, your Army has no intention of "preparing to fight the last war again." We are employing our best brains to exploit to the utmost the potential of atomic weapons. In this critical era of world history, we recognize only too clearly the need to keep our thinking and doctrine abreast—or even ahead—of technical developments in atomic as well as other fields. We remember that in World War I, it was the British who developed the tank, but the Germans who exploited it in the opening stages of World War II.

Although it is too early to foresee the ultimate effects which atomic weapons will have on ground warfare, certain influences are already apparent. It is clear, for instance, that the threat of atomic weapons in future ground warfare will necessitate much greater dispersion of both attacking and defending forces. Great concentrations of troops and matériel, such as occurred in the Normandy invasion, would assuredly invite atomic attack. In fact, tactics in an atomic war may include attempts to force an enemy to concentrate so that he will present a remunerative target for an atomic weapon. Meanwhile, other things being equal, atomic weapons could favor a defender who had the opportunity to build strong and dispersed defensive positions, particularly below the ground's surface.

Compulsory dispersion of ground units to present unprofitable targets for atomic weapons would bring problems of control and communication. Dispersion of combat units and supply forces makes both more vulnerable to guerrilla attacks from enemy partisans. Troop organization to meet this type of warfare might take the form of small, but heavily armed and self-contained units. To cope with guerrilla attacks—such as we encountered in Korea—soldiers of the so-called rear echelon would have to be trained and equipped to defend themselves to an even greater extent than in the past.

The availability of tactical atomic weapons would place high premium on alert combat intelligence agencies. Many appropriate targets such as troops massing in the open for an attack, a river crossing, or an amphibious landing would be fleeting in nature. Aggressive patrolling, skillful and speedy interrogation of enemy prisoners, and the intelligent use of undercover agents would help identify and evaluate these targets in time to engage them with atomic weapons.

I have mentioned these concepts in general terms to give some indication of the thought your Army is giving to its role if a general war should ever come in the Atomic Age. Our doctrine is, of necessity, flexible and varies as new technical developments and weapons appear. But we are evolving this doctrine and publishing it in manuals, consistent with security consideration, to keep our soldiers abreast of atomic developments and to accustom them to including atomic weapons in their tactical thinking.

"We have the prototype of an atomic gun and are training atomic artillerymen to use it."

*This article is an excerpt from a speech by Mr. Pace delivered on May 8th, the anniversary of VE Day, before the National Wool Manufacturers Convention in New York City.—Ed.

The Top Command in Europe

United States forces in Europe have been developed from a general occupation mission into an integrated army that holds a significant role in the Western defense structure. While sister forces in the Far East are fighting a hot war, our troops in Europe are "fighting" an equally important cold war. At the present time the strength has been limited to six divisions. Five are on hand, supplemented by the armor units of the former Constabulary, which are considered to be roughly equivalent to an armored division. (ARMOR wants to see these units joined in a reactivated 4th Armored Division, which will provide Seventh Army with two balanced corps of one armored and two infantry divisions each. History supports the mobile requirement.) In the thought that professionals around the would would like to see the command picture rounded up, ARMOR sets out the chain as it stands at the moment. This review of our leadership in Europe is at once an indication of our capabilities in a critical area of the world today and our resolution to join our friends in the common purposes of freedom and peace.—THE EDITOR.

U.S. Army Photos

SHAPE COMMANDER

Gen. Matthew B. Ridgway
Supreme Commander, Allied Powers

EUROPEAN COMMANDER

Gen. Thomas T. Handy
Commander in Chief, European Cmd.

THE DIVISION COMMANDERS

Maj. Gen. Thomas S. Timberman
CG, 1st Infantry Division

Maj. Gen. George W. Read
CG, 2d Armored Division

SEPARATE COMMAND COMMANDERS

Maj. Gen. George P. Hays
CG, U.S. Forces Austria

Maj. Gen. Edmund B. Sebree
CG, TRUST, Trieste U.S. Troops

ARMY COMMANDER

Lt. Gen. Manton S. Eddy
Commanding General, Seventh Army

THE CORPS COMMANDERS

Maj. Gen. John E. Dahlquist
Commanding General, V Corps

Maj. Gen. Withers A. Burress
Commanding General, VII Corps

THE DIVISON COMMANDERS

Maj. Gen. Harlan N. Hartness
CG, 4th Infantry Division

Maj. Gen. Daniel B. Strickler
CG, 28th Infantry Division

Maj. Gen. Kenneth Cramer
CG, 43d Infantry Division

A POTENTIAL ARMORED DIVISION

Col. Creighton W. Abrams
CO, 2d Armored Cavalry Regiment

Col. Howard M. Snyder, Jr.
CO, 6th Armored Cavalry Regiment

Col. Chandler P. Robbins
CO, 14th Armored Cavalry Regiment

FIRST place a large portion of branch articles in a prospectus, and stir briskly to insure mobility. Then put in some general military material and mix to the right consistency. Measure in a book review and a pictorial feature and season with a dash of letters to the editor, news notes and editorials. Pour between covers and place in a press . . .

The ingredients that go into a magazine are of great concern from the editorial viewpoint. How consciously the reader analyzes a magazine is another thing. Probably there is not a real awareness of content unless consciousness is directed to the subject from the editorial side. We thought a little spelling out of what ARMOR consists of, and why, would be interesting.

The broad object appears in the Constitution of the Armor Association, with the stating of the aim and purposes "to disseminate knowledge of the military art and sciences, with special attention to mobility in ground warfare; to promote the professional improvement of its members; and to preserve and foster the spirit, the tradition and the solidarity of Armor in the Army of the United States."

These are many ingredients to a magazine, and many reasons behind each part. Move with us through a copy of ARMOR and let's check the editorial view to see why it is as it is.

THIS is a branch magazine. We are concerned with a specialty—mobile warfare. We don't profess to go beyond that. That's why the meat of the content, the major part of the space, is devoted to branch articles. Article content is the payoff. To proceed to greater coverage than mobility, and in fact to attempt it, would provide you with a smattering of ignorance, as it were, rather than a professional and worthwhile coverage of the subject you're most interested in. So the bulk of the content is articles on mobile warfare.

Backing up the branch articles are several general military items in each issue, by-products of the whole, which have value along the lines of broadening the military man. These serve a purpose of variety and interest, and contribute a lot to the whole product. But they are held down to proportion.

It might be appropriate to take the Book Section next, as a substantial area in the magazine. The feature book review each issue is not only that. It is done by a qualified authority in the subject that is under appraisal. This always has wide appeal. The review is, in fact, an essay in itself, another article of great military value.

AS for the ads here, they constitute the only form of advertising in the magazine. ARMOR carries no paid advertising. All ads cover selected professional items the knowledge of which can be considered of value to you—the professional. Space is proportioned to the importance of the items, and wide intelligence of worthwhile material is given. There is not repeated mention of unsalable things. Service to you is the keynote here. Sales follow that. If an item is considered professionally valuable, it gets a full play whether or not we make a penny on it.

So far as advertising goes, we're happy we don't take paid advertising. It wouldn't do you, the person we're serving, any good to have advertising knock out some of your payoff space. And we'd hate to have you wading through fifty pages of ads trying to locate the first article.

About here we should check off a regular feature of each issue—Sum & Substance. We did a lot of dreaming before we came up with that title, which very adequately tags what we had in mind when we conceived the feature. Here we are able to offer the best and latest word on a controlled subject, and we feel that this lends a lot to the magazine.

Now let's move along to the so-called seasoning. These are the editorial features that make for leavening, for softening and flexibility in the magazine.

LETTERS to the Editor fall in the lead spot in the issue, a conventional placement in the business of magazine making. Now many publications cram this full of self-praise. We lay off that as much as humanly possible, for we'd prefer not to try to influence you into imagining this is a good magazine. We'd rather let the facts and the product speak for themselves. More likely, if any comment on the magazine as such appears here, the negative approach will receive more play than the positive phrases.

This is because the Letters section should be a discussion medium, a place where differences of opinion in the professional field may be aired for the benefit of all. A lot of worthwhile thought can be set forth in a short letter. That's the purpose here.

Editorials provide the medium where the magazine, as a primary instrument, speaks out on behalf of the Association, in a sense, on the subjects of significance to our special activity. It's the place to swing the weight around, but within the bounds of propriety, common sense and fact.

THE pictorial feature is a popular approach to coverage of a valuable and interesting story on some phase of our special or general field. Many stories can be put across in this manner much more suitably than with a block of words. The reader finds this easy to take. It is in keeping with this that you find such liberal (albeit expensive) illustration in ARMOR.

Let's proceed now to News Notes.

During the course of an issue period, some eight weeks flow by. Those eight weeks are filled with happenings of all kinds. This is a magazine, not a newspaper. Thus, we bring you a few notes bearing on your specialty, not much more. It isn't our mission to fill up pages with odds and ends of intelligence about anything and everything relating to the military. If you want that, we refer you to the weeklies which specialize in that approach. *Army-Navy-Air Force Journal, Army Times, Armed Force* and the *Army-Navy-Air Force Register* will satisfy you.

"What Would You Do?" is a training problem. We're proud of the series and the fact that ARMOR has pioneered in this graphic approach in training presentation. This is the last word in the subjects presented, coming right from The Armored School. The art work has been superior.

A single page each issue is devoted to quotes from the past years' pages of this magazine. It is interesting and provocative to note what was set forth and to see how it sounds today, sixty, forty, twenty-five, ten years later.

WE'VE run pretty well down the line to the feature that falls under the heading Reconnoitering. That's what you're reading. The purpose of the column, as we set it up originally, should be at work right now. We designed it to bring you closer to us and us closer to you. We wanted to cover some of the intimate details of operation on the home end of things. In the past we've told you the stories on the Association, the presidents thereof, the circulation, the book department, the winning of an editorial award, a movie premiere, and many other things. We hope it serves our purpose.

In coming issues we'll carry along with this background. For we want consciousness and awareness all along the line. It brings us closer together, so that you have more of a possessive feeling about the Association and the magazine. The resulting interest is to the benefit of our fraternity.

Perhaps this detailed look at the recipe for ARMOR makes it a little more palatable to you. We hope so. When you figure it out, you're really the diner, and we're the chef, even though we do sign ourselves . . .

The Editor

18,000 ENGINEERS

by SECOND LIEUTENANT WILLIAM J. BREISKY

WHEN the men of the 1st Armored Division were running through the ABCs of armored warfare last spring, Major General Bruce C. Clarke, their commanding general, was pondering a problem in Armored Arithmetic: Subtract your engineer support from a reinforced battalion and what is left?

On paper, the answer was simple. The remainder was a task force (—).

On the mud, however, the answer would be spelled in clearer terms: a battalion stalled for hours at a blown bridge site . . . a battalion stymied at a deep crater on a mountain road . . . a battalion less two good riflemen, killed because they had been given insufficient training in minefield probing.

General Clarke knew that his 16th Armored Engineers were well equipped to support the division's combat commands. But his experience also told him that his engineers could be spread just so thin; that there would be times when tank and armored infantry battalion commanders would turn around and call for the engineer support that wasn't there.

The solution to the problem was under construction well before the problem really existed in the newly activated division. Lieutenant Colonel Ralph N. Hale was putting his 16th Engineers to work, setting up a school designed to make every man in the division engineer-conscious.

Principles of instruction were sound: Keep it short; keep it simple; don't assume.

Popularly called "the mine warfare school," the training program was hacked down to eight tightly knitted hours of practical instruction. It is conducted on a permanent county fair-type course that enables each man who wears the 1st Armored Division patch to practice the five basic engineer skills.

During the period from 11 September to 5 October of last year, approximately 18,000 men were trained in the school. Since that time, the scope of the instruction has been enlarged, newly assigned troops have been run through and some units have been reinstructed.

Each of the four sites has a capacity of 250 men; the entire area can accommodate 1,000 men per day.

On Saturday of each week (when the school is in operation), the 16th provides instructors. Each battalion scheduled to attend the school during the following week sends 35 officers and NCOs to the Saturday class. On the following Monday, the tank, artillery or infantry battalion scheduled for the training provides its own instructors from the personnel trained on the previous Saturday.

The 16th provides over-all technical assistance at all times and issues individual lesson plans to the unit instructors. Thus a core of "experts," each proficient in a particular phase of engineer work, is formed in every unit. Instructors from these units repeat the class at their sub-course as often as 40 times a day.

The level of instruction assumes that the most promising student has never been called upon to push anything heavier than a No. 2 pencil. (*i.e.*: The instructor at the hammer site arms himself with a bevy of charts and diagrams to make certain that every student understands that . . . "This is a claw hammer. It is used in carpentry. It has claws for pulling nails . . .")

A seasoned carpenter would find this instruction pretty dull fare. But before his daydream can progress too far, he is whisked off to a nearby area where another instructor is demonstrating the proper method of setting up a cratering charge.

Practical work fills out as much as three-quarters of the 20-minute period: "Don't choke that hammer. Hold it like this. Use your wrist and put your whole arm behind each stroke . . . like this."

A waste of time? Certainly not. The students appreciate the fact that no prior knowledge is assumed. And in constructive work of this type, men with more experience like to demonstrate their adeptness.

At Site A, the hand tools site, 20 minutes each is given the five subcourses—hammer and hatchet, axe, OVM tools, saws, pick and shovel.

If the men are slow to learn, corrections are made during the practical work period. The assistant instructor at the axe site carries a typical check list for quick reference:

U.S. Army

An NCO instructor shows on a terrain board how the six-belt minefield is laid.

"Are the students assuming CORRECT STANCE?
Are they 'PECKING' at the wood?
Are they CHOPPING into the GRAVEL?
Are they using LONG, HARD STROKES?
Do they check the AXE HEAD to see that it's TIGHT?
Do they keep their FEET OFF the log they're cutting?
Is anyone leaving his AXE LYING ON THE GROUND?
HOW ABOUT SAFETY?"

A great deal of stress is placed on practical tips that will save wear and tear on the man and his tools. For instance, the assistant instructor at the axe site takes time to see that each man practices some strokes with the left and some with the right hand leading to prevent tiring.

Classes at the hand tools site generally include a five-minute lecture, with the remaining 15 minutes devoted to practical work. At the completion of each period, tools are loaded on a rack provided and the men move to the next sub-site.

Site B—field fortifications and camouflage—has helped solve a chronic 1st Armored Division problem: Many of the men have never dug a permanent-type foxhole, due to the rocky quality of this rugged central Texas soil. So the engineers hauled an air compressor and a pneumatic clay digger to their training area and proceeded to set up the ideal in field fortifications.

Armored infantrymen had their work dug out for them at this site. The doughboys saw one- and two-man foxholes and a skirmisher trench, a horseshoe emplacement, a double apron fence and a concertina fence.

Men of the LMG squad carefully studied an ideal position for their weapon and those who worked with a 60mm mortar platoon nodded approval at an emplacement that would help protect their often-unhealthy position from enemy artillery fire.

The engineers showed the rest of the division not only how to construct and camouflage protective wire, but also how to breach and cross it as quickly as possible, making the smallest possible target.

Camouflage demonstrations show how a dummy 105mm howitzer may be built and how to use a net in camouflaging a dug-in tank or self-propelled artillery piece. "Make a realistic silhouette" and "Keep it simple" are the only rules offered for this Operation Deception.

U.S. Army

Homemade mine probers force the men to probe at proper angle—not vertically.

First thought of an engineer training school in the 1st Armored Division came in 1944 when "Old Ironsides" began its push across Africa and northward through Italy. A mine warfare school was organized when the division ran into heavy German and Italian minefields for the first time.

The original idea at Fort Hood was to profit by lessons learned and make certain that the newly activated First had trained every man adequately in the essentials of mine warfare.

So the "mine warfare school" was hatched. But before it had matured, Lieutenant Colonel Hale had tacked on so many additional demonstration areas that the school had become "the engineer training school."

Extensive planning went into the preparation of Site C—mines—for this was the school's *raison d'etre*. Description, employment, functioning, installing, arming and disarming of light and heavy antitank mines are topics of discussion at this site.

On a large terrain board, a replica of the mine warfare training area has been set up where an instructor may demonstrate the part each man will play during the practical work phase. When all questions have been answered, the men move out to help lay a six-belt field and in an adjacent area, to probe.

At the last large area, Site D, the men learn the dos and the perhaps more important don'ts of demolition work. Twenty-five minutes each are spent at the four sub-sites.

The students are re-introduced to the subject of demolitions and are familiarized with the types of explosives at the first sub-site. No instruction is given without a sample explosive on hand.

The second sub-site covers special explosives such as bangalore torpedoes and blast-driven earth rods.

Following a demonstration of methods of destruction of equipment, the course ends with a bang when each man ties a ½-pound block of TNT into common series for electric detonation.

When the entire division had been tested, the men of the 16th went over the same sites for a second trip. Only this time, a chain saw was substituted at the hand saw site; an actual equipment destruction job was tackled at the demolitions site; and when the six-belt minefield was laid this time, it was supplemented with trip flares and booby-traps.

The flexibility of the permanent sites had allowed for advanced training in the same area. On the strength of this advanced class, tentative schedules were set up to send the entire division through a similar course.

Very little time elapsed before the effectiveness of the one-day school was being proven in the field. A how-to-do-it picture had been painted in the mind of each individual soldier. In eight hours of instruction, each man in the division had hammered, mined, blasted and camouflaged his way to a clearer understanding of the engineer role. What the men hadn't done for themselves had been clearly demonstrated to them.

The 1st Armored Division's 1,095 armored engineers now had 17,000 sympathetic and better-trained apprentices.

Lieutenant William J. Breisky is a member of Company C, 16th Armored Engineer Battalion, First Armored Division, Fort Hood, Texas.

NEWS NOTES

Effect of an Appropriations Cut on Tank Program

The following is an extract from a statement by General J. Lawton Collins made on May 5th before the Senate Subcommittee on Armed Services of the Committee on Appropriations, concerning a proposal to limit the Army's expenditures during the coming year.—Ed.

Tanks: We have in production a medium tank which we think is more than a match for any other medium tank in the world. If this expenditure limitation is made we shall have to eliminate over 3,000 medium, with the result that we could build only 300 tanks for our Army during the entire fiscal year. This means that we would not be able during Fiscal Year 1953 to support our overseas troops, including those on the front lines in Korea, with any spare modern tanks. We would also be left with almost an 80 per cent shortage in our requirements for our newly developed post-World War II tanks for the active Army in the United States. Furthermore, we could not give a single modern tank to the National Guard or the Organized Reserves for training, nor would there be a single modern tank in any of our depots.

During FY 1951 when the North Koreans used tanks sparingly, we lost over 400 of our World War II medium tanks from all causes—mines, battlefield wear-out, and enemy tank action—twice the number we would have available for combat replacement if we took every modern medium tank out of the hands of our troops in the United States. Of course during the Korean conflict more than 700 Soviet mediums have been destroyed and in direct tank action, we have knocked out the Soviet tanks in the ratio of 5 to 1. World War II statistics show that in violent combat, such as our men in Europe would be plunged into if they were attacked, the tank losses amounted to 14 per cent per month.

Therefore, if this limitation is imposed, we could not support our Army forces on the front lines.

New Korean Campaigns Designated By Army

Two new Korean battle campaigns were officially designated by the Department of the Army recently.

They are:

1. The United Nations Summer-Fall Offensive, applicable within the territorial limits of Korea and adjacent waters between July 9, 1951, and November 27, 1951: and

2. The Second Korean Winter, applicable to the same area between November 28, 1951, and a date to be determined.

The Far East Command will designate Army units entitled to battle participation credits for service in these campaigns. Following this action, personnel assigned to those units during the time limits specified will be entitled to wear service stars on the Korean Service Ribbon.

Eleventh Armored Division Reunion

The Eleventh Armored Division Association has announced plans to hold its Annual Convention in Washington on August 15, 16 and 17 at the Willard Hotel. Members of the Association and all former members of the Division have been urged to attend this reunion which will celebrate the tenth anniversary of the activation of the "Thunderbolt" Division. Michael J. L. Greene, Association president, announces that request for additional information should be addressed to: Eleventh Armored Division Association, 1719 K Street, NW, Washington, D. C.

Maintenance Pennants

Maneuver maintenance "M" pennants, emblematic of a combat crew's incentive to keep its vehicles rolling with a minimum of "deadline" time, are once again flying from tanks and other track vehicles commanded by Major General Bruce C. Clarke. Six hundred and thirty-eight First Armored Division combat vehicles qualified for the awards.

The "M" pennant idea was first crystallized by General Clarke in 1950 as recognition for outstanding maintenance by tank crews in his 2d Constabulary Brigade. The awards were presented to his forces in Germany after the Exercise Rainbow maneuvers.

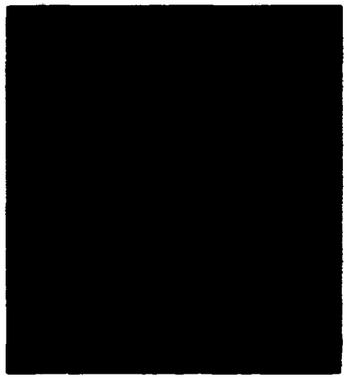
The big change in the Germany versus Texas "M" pennant program is that half-tracks, tank retrievers and self-propelled artillery pieces were allowed to join in the recent Exercise LONGHORN pennant competition.

In order to qualify for the green and gold pennant a vehicle had to clock at least 200 miles during the maneuvers. Another provision informed crews that their vehicles could not be deadlined more than 90 minutes while in a tactical role.

Three hundred and nine half-tracks, averaging 321 miles during the 17-day LONGHORN maneuvers, led the way in easily surpassing the 200-mile minimum. Two hundred and forty-eight tanks qualified, with an average of 268 miles apiece.

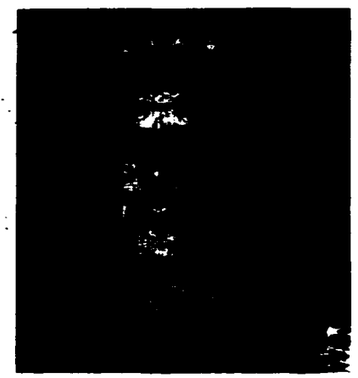
In all, over eighty per cent of eligible First Armored vehicles qualified for the pennants.

Top Command Changes



Bachrach

Gen. Dwight D. Eisenhower
Retiring to enter political field.

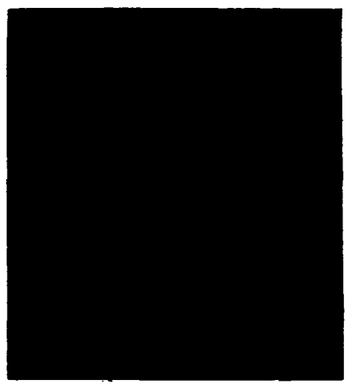


U.S. Army

Gen. Matthew B. Ridgway
Supreme Allied Commander Europe.

U.S. Army

Gen. Mark W. Clark
New Far East U.S.-U.N. Commander



U.S. Army

Lt. Gen. John R. Hodge
New Chief of Army Field Forces.

Top Extension Course Student

Diligent application to his studies has raised WOJG Frank W. Etheridge, Command and Staff Department, The Armored School, to tops in short time completion of subcourses of the Extension Course Department, TAS.

Riding the crest of a 1,500-student enrollment, Mr. Etheridge first enrolled in Armor extension work in May 1950 after having completed the "10 series" issued by the Army General School, Fort Riley, Kans. He was at that time a sergeant first class stationed at Fort Bliss, Tex., with the 16th AAA Group. In less than two years Etheridge has completed the 20, 30 and 40 series and is now working on the 50 series.

According to the Training Literature and Reproduction Department director, Lt. Col. Edward H. Kyle, Etheridge has consistently maintained "high excellent" grades in all the subcourses.

U. S. to Help Britain Expand Tank Output

The United States will ship about $750,000 worth of special machine tools to Britain this year to help expand production of the famed 50-ton Centurion tank.

The Mutual Security Agency in disclosing this said the British tanks, which have been tested successfully in Korea, will come off assembly lines "in increasing quantities during the next 10 months."

Captured Russian Tanks Aid Army Scrap Drive

Russian tanks captured from the Communists in Korea are going into blast furnaces to provide steel for American weapons, the Department of the Army has announced.

The tanks and many other foreign weapons, as well as large numbers of obsolete or worn-out United States military items, are being cut up with torches at Aberdeen, Maryland, Proving Ground.

The Russian tanks were originally brought to this country for study and examination by Army Ordnance Corps officers.

In the current drive for critical scrap, the obsolete and foreign guns and tanks at Aberdeen are sliced into unrecognizable chunks of steel and shipped to steel company mills.

To date, twenty tanks have been cut up.

Before the project is completed over 5,000 tons will be sent to the mills.

Tank Plant Chief

D. E. Ahrens, general manager of the Cadillac Motor Car Division and vice president of General Motors, has announced appointment of Harold R. Bover as plant manager of Cadillac's Tank Plant at Cleveland, Ohio. Mr. Bover succeeds Edward N. Cole, who has been appointed chief engineer of the Chevrolet Motor Division of General Motors.

In 1940, Mr. Bover joined the War Production Board at Washington as Chief of the Aircraft Manufacturing Branch. He joined the General Motors Chevrolet Division in January 1943 as assistant to the manufacturing manager, and in May 1945 was named manager of the Production and Standards Department. On 1 Sept. 1946, Mr. Bover became director of the General Motors Production Engineering Section. Recently, he has been on leave of absence, serving as Chief of Aircraft Production of the Defense Production Administration.

First Tank Engines Leave New Plant

The first shipment of tank engines to be produced at Chrysler's newly acquired Midland Ordnance Plant was delivered to the armed forces recently, 11 months after operations at the New Orleans facility began. This first shipment was consigned to the Chrysler Delaware Tank Plant, Newark, Del., where the T43 is in production.

B. S. Bright, General Manager of the New Orleans Engine Division, said: "There are still quite a large number of critical machines that we do not have yet. In this early phase of our operation, we are building our first engines with the aid of tool room machines and some temporary equipment that has been set up to handle the work."

The man responsible for the layout and illustrations appearing in ARMOR's regular feature, "HOW WOULD YOU DO IT," is Master Sergeant William M. Conn, a 34-year-old Regular.

Sergeant Conn, who heads a 12-man staff of draftsmen and illustrators in The Armored School's Art and Drafting Section, recently received a letter from Lt. Gen. Willis D. Crittenberger, President of the Armor Association, commending him for his outstanding work in connection with this feature.

Sergeant Conn first entered the service at Fort Knox in 1936. During World War II he served in the European Theater as a First Lieutenant, Ordnance. He is a self-taught artist whose enthusiasm for his work and outstanding ability have earned him the respect and admiration of all persons with whom he is associated. Many of his drawings appear in the 17-series field manuals, in Armored School Special Texts, and in various other publications originating at The Armored School.

HOW WOULD YOU DO IT?

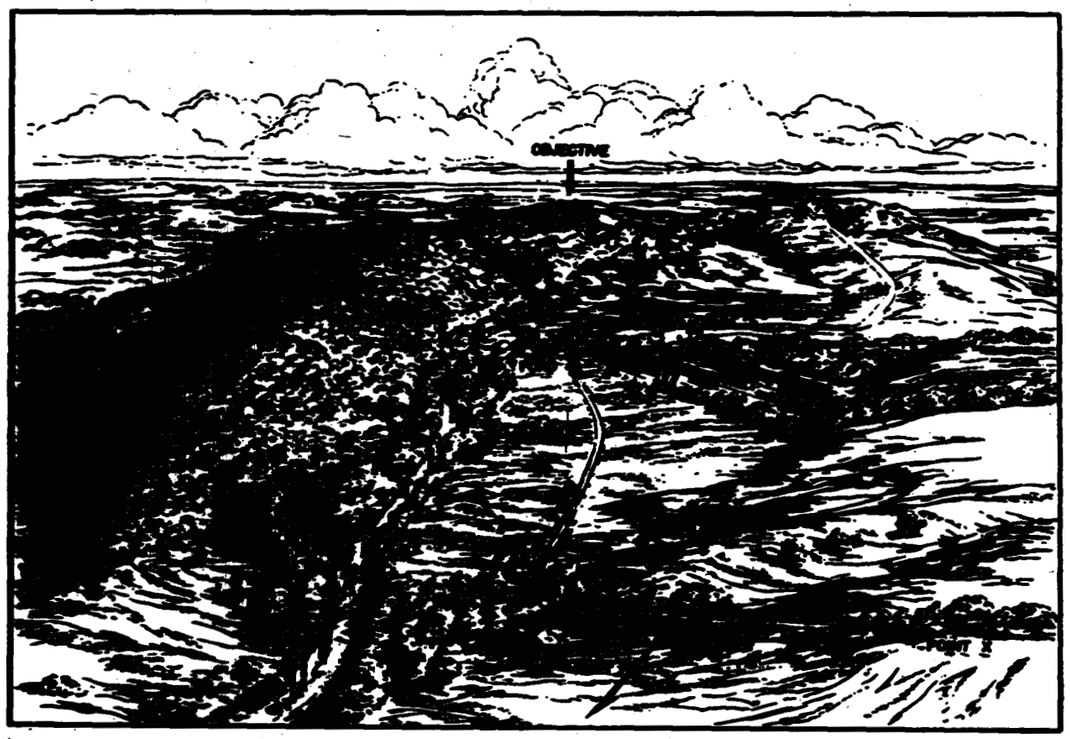
DISMOUNTED METHODS OF ATTACK

AN ARMORED SCHOOL PRESENTATION AUTHOR: CAPT G E KIMBALL ARTIST: M SGT W M CONN

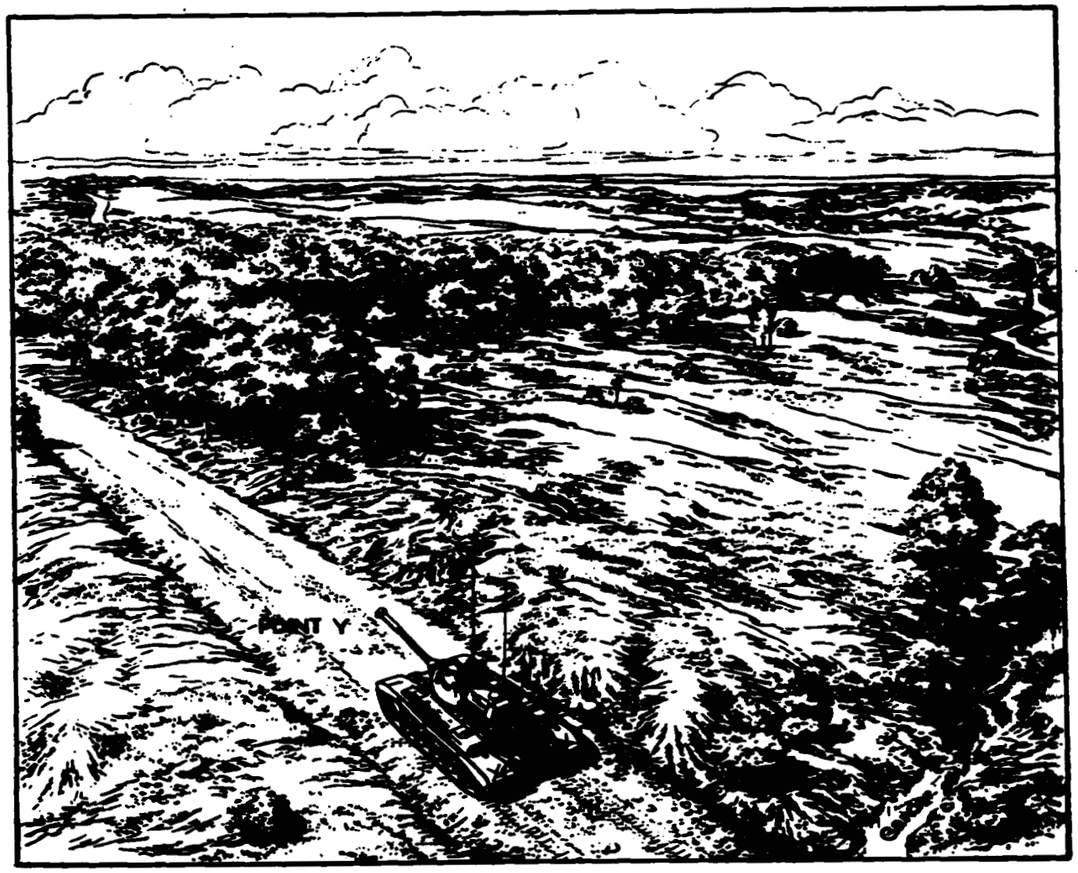
GENERAL SITUATION A. A reinforced tank company is moving generally east on flank guard for a larger force. As the leading elements approach the bridge over OTTER CREEK, the bridge is blown by Aggressor delaying forces. Your tank platoon, reinforced with an infantry platoon, is ordered to move south to the only ford, cross OTTER CREEK, and secure the high ground overlooking the ford. Up to this time your force has been advancing against light resistance. As your reinforced platoon moves to the south, your company commander informs you by radio that Army aircraft has reported an Aggressor force estimated to be a reconnaissance platoon with two tanks now defends the ford. You are now at point X. From the map and sketch below, which of the five following dismounted methods of attack would you employ?

1. Tanks and infantry approach the objective from different directions
2. Tanks follow infantry, pass through to lead as the two closely approach the objective
3. Infantry ride tanks
4. Infantry and tanks move at the same rate together, or one slightly ahead of the other
5. Tanks overwatch infantry

How would you do it?



GENERAL SITUATION B. Your tank platoon, reinforced with an infantry platoon, is the leading platoon of the advance guard of a larger force exploiting generally southwest. You are moving in column. As your lead tank crosses GAINER BRANCH, your company commander informs you by radio that Army aircraft has reported the woods to your right front contains Aggressor infantry. He orders you to clear the woods to the right of the road. Your lead tank is now at point Y. From the map and sketch below, which of the five dismounted methods of attack listed on the opposite page would you employ? How would you do it?



SOLUTION A. DIRECT OVERWATCH. The direct fire of the Aggressor tanks and the obstacle of the creek definitely limit the maneuverability of the tanks; therefore, you should maneuver the infantry platoon around the left, utilizing the cover and concealment of the high ground and the woods. The tanks should support by fire from defiladed positions in the vicinity of point X, firing on the objective and at targets designated by the infantry. The tank fire is lifted by prearranged signal from the infantry. This method is employed when natural or artificial antitank obstacles prevent tank movement to the objective. When the enemy holds the dominating terrain, do not send tanks into a defile which may be mined or is covered by antitank fire.

SOLUTION B. MOVE TOGETHER. You should deploy the tanks and infantry on line and move together through the woods. The infantry may move slightly in advance of the tanks, between the tanks, or immediately in rear of the tanks. As the attack progresses, the relative positions of tanks and infantry are adjusted according to the enemy resistance and the terrain. This method is employed when visibility is limited, in woods, in built-up areas, at night or in fog, and when adverse terrain forces the tanks to move slowly.

FROM THESE PAGES

50 Years Ago

It has often struck me as a remarkable fact that the number of expert pistol shots that can be found either in the service or out of it is very small, or at least very small compared with the number of men who carry this weapon, and who are generally supposed to know how to use it. It is the only arm at present which an officer carries in the field, and the only one which he is likely to be called on to use. Yet I think that in our entire army there are not today more than ten or twelve officers who can justly claim to be experts with the pistol in any kind of shooting. The reason for this is simply that up to the present day their whole attention has been devoted to the carbine or rifle, and the pistol has been almost entirely neglected. What little practice we have had with it, has been done in a perfunctory kind of way.

Since the introduction of pistol matches at department competitions, however, quite a boom has been given to pistol shooting, and we may hope soon to have many fine pistol shots in the service. Practice is all that is required, but quite as much practice is needed to make a good pistol shot as is needed to make a good rifle shot.

Snap Shooting With the Rifle and Pistol

LT. JOHN PITCHER

25 Years Ago

The problem of co-operation between friendly aircraft and ground troops has never been solved to the satisfaction of both. While communication from plane to ground is made simple, rapid, and certain by means of dropped messages, that from ground to plane, by the methods now prescribed, is slower, more involved, and always subject to error.

Especially in co-operation with mounted troops, is some system of ground to plane communication needed which shall be rapid and complete.

With these considerations in view, Major John B. Thompson, 26th Cavalry (PS), with the enthusiastic co-operation of the Air Squadron at Clark Field, initiated at Camp Stotsenburg, P.I., a series of experiments. The experiments covered about three months in the summer of 1926, during which time, the use of flash signals by colored and white lights, alternately exposing and concealing panels, and the pick up method, were all tried out.

Of these, the last method was by far the most satisfactory. It required very little special equipment. It was rapid, in that it involved no tedious encoding, decoding, and alphabetic signal transmission. It was unmistakable, since the observer received the actual material message or map as prepared by the commander of troops on the ground.

Communication—Ground to Plane

LT. JOHN HUGHES STODTER

40 Years Ago

In the Revolutionary War there were all told four regiments of light dragoons, which passed out of existence at the end of that war. The first cavalry of the present government was raised in 1792 and consisted of one squadron with approximately the same number of officers and organization as an infantry battalion of that time and of our squadron to-day.

The first infantry regiment was authorized in 1790 and, except for having no colonel, was given practically the same legislative organization as our infantry regiments of to-day. If we follow the legislative organizations authorized for cavalry and infantry we will notice that the organizations kept practically the same down to the time of the Civil War. Some new regular regiments were then authorized which had peculiar organizations, but these peculiarities were only short-lived. The masses of troops in the Civil War usually had the organization for infantry of ten companies per regiment.

In 1862, all regular cavalry regiments were made twelve troops strong and were given three majors. The volunteer cavalry was required in 1862 to conform to this organization. The infantry continued the ten-company regimental organization down to 1898, when legislation adopted the modern four-company three-battalion regiment. The four-troop three-squadron regiment was legislatively adopted in 1899.

Cavalry Organization

CAPT. H. R. HICKOK

10 Years Ago

The War Department has announced the organization of a new Army combat force—the *Tank Destroyer Command*—with Headquarters at Camp Hood, near Killeen, Texas. This command is part of the Army Ground Forces under Lieutenant General Lesley J. McNair. Camp Hood will be commanded by Brigadier General Andrew D. Bruce, who will coordinate the instruction of tank destroyer units, test weapons and tactical doctrine, and develope technique.

The Tank Destroyer Command received its initial impulse from old Antitank Battalions and an experimental Tank Destroyer Battalion, last August. The second step in its development came in December when a Tactical and Firing Center was set up temporarily at Fort George G. Meade, Maryland.

A number of Tank Destroyer Battalions are now completely organized . . . and they are ready to: *"Find 'em and Finish 'em."*

Tank Destroyer Command

NEWS NOTES

TANK-INFANTRY TEAMWORK

The writer of the following is commander of the 89th Tank Battalion in combat in Korea.

In recent months, the defensive nature of the fighting in Korea has cast tank action in two roles; first, as direct support weapons emplaced on the MLR and secondly, as part of a tank-infantry patrol. Patrols are of most interest to the tanker since this form of action allows the use of one of his most valued characteristics: mobility.

The patrols vary in size, averaging one or two platoons of tanks with a corresponding amount of infantry. The distance of penetration into enemy lines varies with the terrain: usually from 1,000 meters to 5,000 meters in front of the friendly OPLR.

Patrol activity generally entails an advance to contact; an attack; and a withdrawal to friendly lines. It is imperative that coordination thoroughly cover all these phases. This is done by personal contact between the tank and infantry commanders, sometime prior to the patrol, and by use of the ANVRC 3 radio during the actual action.

The mountainous terrain often offers OP's overlooking the entire action and in these instances it is SOP for the infantry and tank company commanders to establish themselves at this point—the infantry commander with an SCR 300 and the tank commander with an SCR 509.

An additional coordination measure is the use of the battalion liaison plane to fly "top cover" for the patrol as long as any element remains beyond friendly lines. By mounting an SCR 509, the aircraft can maintain constant communication with the tank leader through his SCR 508. This air OP proves invaluable on numerous occasions, although sometimes a little hazardous for the pilot and the observer since the plane must be flown at altitudes of less than 1,000 feet. Considerable ground fire may be encountered but the accuracy of the observations is excellent.

All of the standard forms of advance are used but the most successful is for the infantry and tanks to approach the patrol objective from different directions. The infantry takes the most covered route and the tanks use the route most easily and rapidly traversable by armor. Thus the infantry is not harassed by artillery and mortar fire drawn by the tanks, and both elements generally arrive on the objective at the same time.

When the ground OP is able to observe the entire action, "overcoordination" sometimes occurs and far too many people persist in trying to "get in the act." The net result is that the patrol leader, on occasion, spends more time on the radio answering questions than he does in leading his patrol. Although partially alleviated by experience, this situation continues

Lt. Col. Brooks O. Norman

to be a minor aggravation.

The withdrawal to friendly lines is made in the same manner as the approach, with the infantry invariably being pulled back before the tanks; not, however, to the extent that they could not rejoin the tanks rapidly if the need arose. On the longer patrols infantry are mounted on the lead tanks for the return trip. These tanks are kept well ahead of those bringing up the rear since the enemy habitually places mortar, artillery and recoilless rifle fire on the rear tank elements.

If tanks are damaged by mines, battlefield recovery operations are initiated at the start of the withdrawal. During this operation the infantry must remain with the tanks. By taking up hasty defensive positions well to the flanks, ground security is provided for the recovery operations, supplemented by the tanks not actually engaged in the recovery.

Generally speaking, the doctrine and principles taught in service schools pertaining to tank-infantry employment are found to be entirely sound and practical when used in Korea. The key to a successful tank-infantry patrol action lies in thorough coordination and planning beforehand and in the imaginative and aggressive execution by the commanders concerned. Constant training in this basic principle will clearly illustrate to the average tanker and infantryman that each has certain admirable qualities that the other has not, which, when combined, produce a superlative ground combat team.

LT. COL. BROOKS O. NORMAN

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The writer of the following is commander of the 64th Tank Battalion in combat in Korea.

"Keep in touch, tanker." This expression, coined by a former CO, 65th Infantry Regiment, clearly depicts and expresses the effective, functioning teamwork of the 3d Infantry Division combat arms team. This expression illustrates the sincere feeling of welcome and invitation; of common interests in destroying and defeating the Communist forces; of mutual assistance and appreciation of tactical problems and operations—which means teamwork in combat, all parties working toward the same goal. The result is that the blue-scarfed rifleman, the yellow-scarfed tanker, and the red-scarfed artilleryman and engineer work with and for each other aggressively.

Briefly, here is how this 3d Infantry Division "Keep in touch," this teamwork, has functioned during the Korean Winter Line Campaign, with emphasis on the divisional tank battalion aspect during this type of sustained defense.

First, consider the antitank defense and fire support role of tanks during this Winter Line Campaign. Although each regiment of this division is blessed with an organic tank company, the terrain and situation offered ample opportunity to employ additional tanks from the divisional tank battalion along the OPLR and MLR, thereby producing greater quantities of direct tank fire from more and varied positions. From a selfish tanker's viewpoint, an aggressive program of this nature, whereby tank platoons

are rotated to and from front-line positions, enables the divisional tank battalion elements to maintain maximum efficiency of training and also bolsters morale during a prolonged sustained defense. However, from the front-line infantry point of view, these additional tank platoons increase the available automatic weapons and tank gun fire power along the MLR, greatly assist in bunker destruction, lend the infantry additional security against enemy armor and avenues of approach, and also assist day and night patrol actions with the far-reaching, direct fire from the main armament and the .50 caliber. However, at the same time, to the infantry, additional tank units along the OPLR and MLR mean additional heavy traffic moving over poor Korean resupply routes; additional local security responsibilities during hours of darkness; and additional incoming artillery, mortar, and SP fire on front-line positions. Likewise to the engineer, additional tanks mean additional work on repairing roads and drainage ditches, dozing trails and ramps on frozen hillsides, and gravelling icy hill passes, even though already overtaxed in road and bunker construction and repair programs. Nevertheless, the spirit of teamwork, "Keep in touch," prevails: the infantry elements are happy to have additional tank elements, the engineers willingly carry on, and the tankers happily climb to the OPLR or MLR hilltops to do their part in destroying the enemy.

Secondly, consider the role of conducting or supporting raids in force against enemy positions. During the Korean Winter Line Campaign, the subject of enemy intelligence, or lack thereof, has been extremely important. Consequently, company-size raids have become fashionable. From the time of inception of the raid plan, teamwork is the paramount item—ensuring that each man in the combat arms team will thoroughly know his job in the operation. From the division commander all the way down to Pvt. Zilch, the plan is examined in detail to ascertain how the tanks, artillery and engineers can assist the infantry elements, or vice versa. Then terrain similar to the raid zone of operations is selected. All combat arms participants, and forward air controller parties where applicable, rehearse and re-rehearse until coordination and timing are completely satisfactory. The emphasis is on each man knowing and actually doing his part in the rehearsal, exactly as he will be expected to do it in the actual raid. Needless to say, such rehearsals inculcate and enhance teamwork—and especially when the division commander himself attends each one, to ensure that the rehearsal is a thoroughly coordinated display of teamwork prior to approving the raid!

An example of a company-size infantry raid, Operation Destroyer, conducted by the 2d Bn, 65th Infantry Regiment, will serve to illustrate the teamwork involved. The mission was to capture prisoners of war, to inflict

Lt. Col. M. L. Covey

maximum damage on the enemy, to destroy defensive installations, then to withdraw to original defensive positions. In an effort to render maximum support under the restricted terrain conditions, which precluded movement with the infantry, the tanks of Co C, 64th Tank Battalion, fishtailed and zigzagged up hitherto unclimbable OPLR crow's-nests and also up formerly occupied MLR hilltops late on the afternoon preceding the raid, assumed operational control of one platoon of the 65th Tank Company, zeroed in on prominent landmarks, prepared detailed range cards, and generally stockpiled ammunition to support the infantry raid at 0430 hours the next morning.

Under cover of supporting tank, infantry, and artillery fire, the raid was successfully conducted, with minimum friendly casualties because of the teamwork involved. When the infantry assault wire was knocked out by enemy fire, the infantry battalion commander talked to the assault infantry elements over the tank radio. When infantry casualties exceeded available infantry medical evacuation vehicle, the tank company litter peep assisted. When infantry elements required additional grenades and small-arms ammunition, the tanks provided theirs. When the infantry elements withdrew, the tanks covered them closely, all the way back to their defensive positions. When the artillery could not pinpoint enemy bunkers or trenches, the tanks could and did. In return, the infantry provided the tanks with local security and hot messing facilities from their consolidated mess. Upon receiving word that the CCF planned to counterattack that night, the tanks remained in place and increased their fires, prepared to assist in defeating the expected CCF effort. In short, teamwork prevailed prior to the raid, during the raid and after the raid. The result: SUCCESS in combat.

Thirdly, consider the counterattack role of the divisional tank battalion in prolonged defense. Although Korean terrain is definitely not Gen. Patton's or Gen. Harmon's idea of tank or "potato" country, the counterattack possibilities must be exploited to the maximum. Consequently tank-route and terrain reconnaissance as well as tankable-terrain reconnaissances are particularly important to determine enemy information, feasible routes, attack positions, AT mine fields and gaps, timing, objectives, routes of withdrawal, blocking positions, resupply and evacuation routes, first-aid stations, and other pertinent details. In every respect the infantry, artillery, and engineer elements have been cooperative and helpful. For example, one combat team made a detailed program of guiding, orienting, and advising all tank unit commanders and most tank commanders of this battalion to its OPLR positions, thereby ensuring detailed ground reconnaissance and timely information for the counterattacking tank force. Likewise, the division artillery commander has continuously pursued the policy of providing both liaison officers and forward observers, although artillery officer personnel are in short supply, for all tank counterattack rehearsals and reconnaissance trips—to ensure complete teamwork for the day

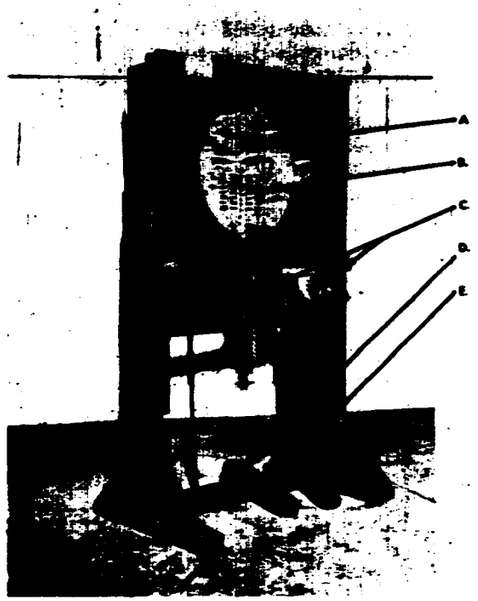
CONDUCT OF FIRE TRAINER

The Conduct of Fire Trainer was developed and constructed by The Armored School to meet the requirements for a realistic device to train gunners in the "Burst-on-Target" method of fire adjustment. It has proven a successful means of teaching the tanker the proper "sight picture" and correct habits of following fire commands. And it provides a means of transition from classroom instruction to the actual firing in the tank.

The procedure used is for the gunner to take his position seated in front of the trainer with his hands on the traversing and elevating handwheels and feet on the foot pedals. The tank commander sits or stands behind the gunner while the loader takes his position to the left of, and facing the gunner. The instructor points out a target on the terrain sketch and tells the tank commander, "This is a (type of target). Take it under fire." At the same time he places the light in rear of a known range mark. Following is an example of this type problem:

Instructor:	This is a tank. Take it under fire.
Tank Comdr.:	Gunner-Shot-Direct Front-Tank-800-Fire.
Loader:	Up! (When he hears ammunition element)
Gunner:	Upon observing the target announces "Identified." Takes sight picture by manipulating the handwheels, announces, "On the Way," waits one second and fires by pressing the foot firing switch.

When the foot firing switch is pressed, the light in rear of the panoramic sketch will indicate where the tracer passes or falls short of the target. (The loader again announces "Up!" indicating that a second round has been loaded.) The gunner notes that point on the sight reticle where the tracer passes or falls short of the target and moves that point on to the target when he re-lays. He again announces.



A. Painted terrain sketch. B. Sight reticle. C. Traversing and elevating hand wheels. D. Firing switch. E. Flashlight battery box.

A small light in back of the trainer moves with the sight reticle. When the sight picture is taken by the gunner and the firing switch activated, the light indicates the burst or tracer. Adjustment may be made by the gunner to move that burst or tracer to the target and "FIRE" again. The terrain picture may be rotated independently of the sight reticle to bring new targets into view.

"On the Way," waits one second and fires. This will ensure a target hit if the gunner has applied the technique correctly. The tank commander will order "Cease Fire" when he feels that sufficient rounds have been fired to ensure target destruction. Detailed plans of this trainer have been forwarded to OCAFF with recommendations that it be accepted as a standard training aid.

that the counterattack is suddenly ordered. Again, without the willing cooperation of the Engineer Battalion, the movement of tanks in this particular sector would of necessity be very seriously hampered by road and AT mine conditions. In return, personnel of this battalion have learned that they must respect and avoid cutting infantry and artillery telephone lines when moving cross-country; must not follow in trace when travelling on throwing roads; must keep from destroying drainage ditches, road shoulders, tactical or protective wire, and defensive positions.

The same teamwork holds true with respect to other roles or operations. Command and staff visits, division unit commanders' meetings, frequent rehearsals of planned operations, and mutual appreciation of and assistance with each other's problems make the "Rock of the Marne" combat elements a true team in the same sense as a championship football team. However, unlike Topsy, this teamwork didn't just "grow"—it took work, and training, hard and continuous work and training. As was proven in training exercises, once the infantry has complete confidence in their tanks, and the tanks have confidence in their infantry, the result is the finest and most feared combat striking or defensive force known to man—an infantry-tank team. The answer, then, to teamwork is to "Keep in touch."

LT. COL. M. L. CAREY

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"IN THE NAME OF THE GREAT JEHOVHA AND THE CONTINENTAL CONGRESS"

RAG, TAG AND BOBTAIL. The Story of the Continental Army, 1775-1783. By Lynn Montross. Harper & Brothers, New York. $5.00.

Reviewed by
F. VAN WYCK MASON

For the military or the general reader desiring an introduction to the history of our War for Independence, *Rag, Tag and Bobtail* is indeed a treasure-trove. The author of this volume has achieved a very skillful blend of analysis, research and appreciation as well as readability rare in works of this nature. All in all this is an excellent description of the various battles fought during our Revolution.

Mr. Montross' analysis of the causes contributing to the success or failure of this long war's various campaigns is as concise as it is lucid. Happily he incorporates just enough detail and the right amount of anecdote and statistics to make his history a vivid, as well as an informative piece of work. The author possesses moreover a firm sense of the dramatic—an element all too often lacking in the writings of the scholarly historian. In my estimation Mr. Montross' method of presentation of his great and varied mass of material is little short of inspired.

On the whole his word pictures descriptive of various important generals in all the armies—as well as of the politicians and statesmen behind them—are cleanly and vigorously etched. One can almost hear Washington's famous tirade at Monmouth, while Moultrie's account of conditions prevailing in Fort Sullivan during the First Siege of Charleston describes both the scene and the man himself.

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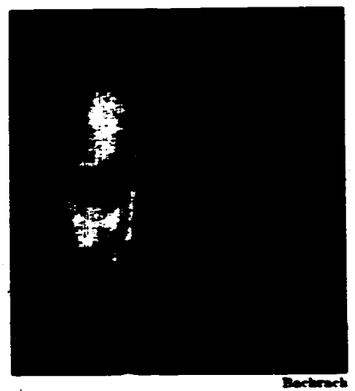
The Author

George V. Brothers

Lynn Montross is a graduate of the University of Nebraska. He served as a private in the AEF during World War I. Newspaperman and novelist, he turned to a study of history, writing books which were to establish his reputation in this field—*War Through the Ages* (1944) and *The Reluctant Rebels* (1950). He is now historian with the Historical Division of the U. S. Marine Corps.

The Reviewer



Bachrach

F. Van Wyck Mason, well-known historical novelist, is a graduate of Harvard and a colonel in the Reserve. He served as a lieutenant with the AEF in World War I and as a member of the General Staff of SHAEF in World War II. Between the wars he served with the National Guard. He is author of many books, including *Valley Forge: December, 1777* (1950) and *Proud New Flags* (1951).

The Persian Corridor and Aid to Russia

by T. H. Vail Motter

This is the official history of United States Army activity in shipment of land-lease aid through the Persian Corridor to Russia during the war years 1941-1945. This book is the 12th volume to be published in the 80-odd volume comprehensive history, *U. S. ARMY IN WORLD WAR II*, being prepared by the Office of the Chief of Military History. The author, Dr. T. H .Vail Motter, spent more than two years with the U.S. Army in the Middle East during the war. He holds a Ph.D. from Yale. The book tells the story of the flow of land-lease supplies through the Persian Corridor to the Soviet Union. All relevant Allied and enemy documents were exploited to tell the story of the problems faced by the Allies in handling over 4 million tons of Soviet Aid Cargo, without benefit of well-coordinated policies to govern diplomatic and military relations.

$3.50

Most useful to the reader are the numerous yet simple and revealing maps with which the author has interspaced this work. By long experience I know how far such maps go to advance a reader's full understanding of the situation and the importance of the part played by terrain in the conduct of a given battle or campaign.

It is with a fine sense of impartiality that Mr. Montross analyzes the worth and *esprit* of the components of the various armies he describes. He gives credit where credit is due—and where it is too often withheld; for example, he awards generous laurels to those historically neglected Continental Regiments which were so staunchly raised and supported by the little States of Delaware and Maryland, also to Dan Morgan's undisciplined but superb riflemen. No less does he prompt his reader to appreciate the long slighted constancy and great fighting qualities of those Americans who elected to fight for their King. Although patronized and neglected by His Britannic Majesty's generals—and heartily hated by their compatriots —these unfortunates—the Tories or Loyalists—he proves to have fought quite as well and as passionately as their brothers under General Washington's command.

It is perhaps in his exposition of the grand strategy of this eight years' struggle that Mr. Montross excels. Painstakingly, he has through research—which must indeed have been exhaustive when one considers the monumental bibliography listed in the back of his book—studiously endeavored to identify the often obscure causes contributing to the success or failure of the campaigns.

It is noteworthy that the author describes and labels what he considers to be "true victories" although these actions often are labelled as "technical defeats." He cites, for instance, the so-called American "defeat" at Bunker Hill and at Guilford Court House. True, in these and other engagements, the field remained in the enemy's possession but the battle marked the commencement of a decline in the British commander's fortunes. Similarly Mr. Montross asserts that claims of American "victories" of Oriskany and Newport were only hollow triumphs from which the enemy emerged practically unscathed.

Of particular use to future historians is the author's appendix in which, among other things, he lists all the General Officers who served in the Continental Army, together with their dates of service and their fate.

All in all, Mr. Montross offers an accurate and enjoyable contribution to our understanding of how our first War for Independence was fought.

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by Chester Wardlow

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As pointed out by the author, there were three main factors in our formula for victory: industrial production, the employment of combat troops, and the transportation of weapons, ammunition, food, clothing, and a thousand other items to the battle front. Since we were in a truly global war for the first time, transportation soon became the most critical of these factors.

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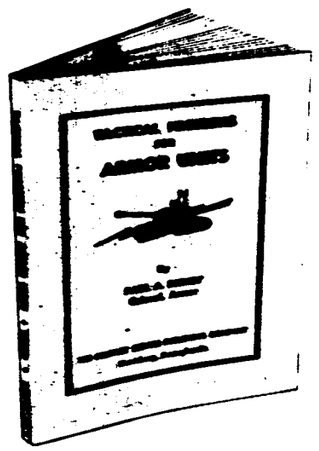

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