

# ARMOR



NIGHT FIRING AT CAMP IRWIN

NOVEMBER-DECEMBER, 1951



**ARMOR WINS AN AWARD**

(See page 4)



## The United States Armor Association

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# ARMOR

Continuation of THE CAVALRY JOURNAL

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Volume LX NOVEMBER-DECEMBER, 1951 No. 6

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# THOMAS JEFFERSON

## A Biography

by Nathan Schachner

A superbly readable narrative, and a triumph of scholarship, Schachner's *Thomas Jefferson* reveals for the first time that incredibly complex and fascinating personality in all its vigor and variety . . . a portrait of Jefferson more complete and detailed than any heretofore achieved. To accomplish this monumental undertaking Mr. Schachner devoted twenty years to research alone . . . making use of much new material only recently available. This vast amount of documentation has been distilled into an endlessly absorbing, scrupulously accurate, brilliantly illuminating historical work.

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## LETTERS to the EDITOR

### Deadlock?

Dear Sir:

Reference is made to How Would You Do It?—Recovery Expedients—published on page 45 of ARMOR magazine for September-October 1951, where the situation of a 2½-ton truck stuck in a mudhole was presented, with the object being to recover the truck by use of snatch blocks utilizing the winch powered by the truck.

The situation has been duplicated by means of a model of the same principle and all that happens is that the weakest material in the problem would break without the truck having moved.

The truck winch tends to pull the truck in a forward motion toward tree Number 6. At the same time the block arrangement at the rear of the truck tends to pull the truck toward tree No. 1. Thus there is a deadlock or a pull on the truck in opposite directions.

I am of the opinion that the solution as published will not work. However, if this problem has been field tested it is requested that the omissions in the solution be furnished.

CWO A. B. CROSSER, USMC  
Engineer Supply Division  
Marine Corps Forwarding Depot  
Norfolk, Va.

and . . .

Dear Sir:

Upon reading the September-October issue of ARMOR I came across the article called How Would You Do It? Two situations and their solutions were given. I do not believe the solution to the Number 2 situation is possible. The winch on the front of the 6x6 would be pulling forward while the snatch blocks and cable hooked to the rear end would be pulling to the rear. This would result in a two-way pull that would have a tendency to break the 6x6 in half.

I am enclosing the copy of the dia-

gram of the problem and have sketched on it the solution of running the cable underneath the 6x6 to a snatch block on Tree No. 1, then to the snatch block on the 6x6, then to an anchor on Tree No. 1. All the pull would then be to the rear and the other anchorage points would not be needed.

That is the solution I think is best to pull the truck out of the mud. The only problem that I can see is that of running the cable underneath the truck. I think some kind of rig should be devised so that the cable on a truck could be run to the rear as well as to the front.

I'm anxious to know if my exception to the problem presented is right.

PFC. RAYMOND A. McCLURE  
3415th Vehicle Maintenance Squad  
Lowry Air Force Base  
Denver, Colorado

• ARMOR, pleased to see evidences of wide readership, has passed these comments along to author Captain Roy Edenfield, instructor at the Armored School. His answer follows.—Ed.

Dear Sir:

Reference C.W.O. Crosser's letter wherein he states that the winch tends to pull the vehicle forward towards Tree Number 6, and at the same time, with the block arrangement on the rear of the truck, tends to pull the vehicle backwards towards Tree Number 1. This is correct. However, he fails to consider the difference of the mechanical advantage of the rearward pull as opposed to the forward pull.

The single pull forward has no mechanical advantage and is therefore in a ratio of 1 to 1. It must be remembered that the cable running through the snatch block at Tree Number 6 is not anchored there. The addition of another snatch block pulling at the rear of the truck increases the mechanical advantage to a 2 to 1 ratio. This comes about by running the free end of the cable through the snatch block attached

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**Rates:** See bottom of contents page.

to Tree Number 1, through snatch block attached to the rear of the truck, then back to Tree No. 1 and anchored there. Therefore, since the pull of 2 to 1 is greater than the pull of 1 to 1, the truck will move to the rear at a ratio of 1 to 1.

Passing the cable around Tree Number 9 keeps the cable free of the truck and provides no mechanical advantage.

Perhaps C.W.O. Crosser's trouble is that he may have taken his running line from the front of the truck without using a snatch block at the rear of the truck to run the cable back to the tree. This would cause a deadlock of 1 to 1 against 1 to 1, and could break the truck in two.

In like respect Pfc. McClure, by running cable under the truck to Tree Number 1, through the arrangement he has indicated in his diagram, does give him the desired mechanical advantage. It would work except the cable being under the truck would damage its undercarriage or cut the cable in two.

His query about the truck pulling itself in two is answered above. I hope this answers the questions that have arisen over this, and so your readers will not think these are "paper" problems you can assure them these problems are field tested and actually used by us here at The Armored School.

CAPTAIN ROY P. EDENFIELD  
Automotive Department  
The Armored School

Fort Knox, Kentucky

### Appreciation vs. Aggravation

Dear Sir:

For the personnel stationed at Camp Irwin I'd like to express our appreciation for the fine coverage given the Armored Combat Training Area in the September-October 1951 issue of ARMOR in the article, "Tankers Get Tougher."

While you might possibly still have the plates on hand, our S-3 Section has requested me to explore the possibilities of obtaining reprints of the article. The story covers our operation here to such an extent that it is desired to use

it as an advance mailing piece to all unit commanders and staffs as they are scheduled for training here.

1ST LT. MILTON ROSNER  
Headquarters, Camp Irwin  
Barstow, California

Dear Sir:

Having read your article on the Armored Combat Training Area at Camp Irwin, in your September-October issue of ARMOR, I was not only peeved, but really aggravated by the lack of mention of the outfit that labored under the hot sun to set up this school. The men of this outfit were selected for the task for comprising the best tank outfit in the States.

There is no mention of the 12 to 14 hours a day put in by the instructors and men. I hope ARMOR will mention the 325th Tank Battalion, which has done the job in setting up this school.

AN INSTRUCTOR  
Armored Combat Training Area  
Camp Irwin, California

● ARMOR is pleased to throw the spotlight on the 325th Tank Battalion for its fine job in setting up and running the installation that is of such great value to the training of our arm.—ED.

Dear Sir:

Many thanks for the fine play given Lieutenant Burns' article "Armor in The Hills" in the September-October issue of ARMOR. To one of the only two Armor ROTC units in New England it is a distinct shot-in-the-arm and we wish to exploit it to its fullest.

For Unit, campus and local release may we request any available material you used in setting up the article? We particularly request proofs, prints, tear-sheets, dummies, covers and/or spare copies that would lend themselves to library displays.

Lt. Burns graduated from this school as a Distinguished Military Student.

CAPT. REINHOLD W. HERMAN  
University of Massachusetts  
Amherst, Massachusetts

# ZACHARY TAYLOR

## Soldier in the White House

by Holman Hamilton

How and why is a man who is in no way a politician elected President? Is a general in office a good thing or a calamity for the country? These are questions Americans are asking today, as they did in 1849, and in the years following Taylor's administration.

Holman Hamilton's first volume on Zachary Taylor was hailed by Samuel Eliot Morison as "An excellent piece of work."

In the second volume of this vigorous and accurate biography, Mr. Hamilton answers controversial questions clearly and accurately, describes North-South tensions vividly and dramatically, and presents, for the first time, an account of the composing of the Allison Letter which won Taylor the Whig nomination.

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### THE COVER

ARMOR's cover for this issue is a sort of double feature. The first of these is the photo of the Patton tank firing on the range at the new Armored Combat Training Area out in the California desert, where one-third of all training is carried out at night. The other feature is that strip along the bottom to beckon you inside to sit in on ARMOR's rhetorical smile (with hands clasped above head), result of winning an award in the Magazine Show of 1951. (Turn page.)

ARMOR has won an award!

Superior on two counts is the story as ARMOR receives a Certificate of Award in the Magazine Show of 1951, sponsored by the American Institute of Graphic Arts.

It took four issues to do it. You may recall that our first issue under the title ARMOR came out in July, 1950, redesigned from cover to cover. It was the fourth number, that of January-February, 1951, that turned the trick.

Until last year there had been no medium for magazines comparable to, for example, the "Fifty Books of the Year." In 1950 the American Institute of Graphic Arts inaugurated the annual Magazine Show, open to periodical publications other than newspapers, printed in the United States, publicly offered for sale by subscription or on the newsstand, and not including house organs, catalogs, sales bulletins or promotional literature. Only issues dated in the period January 1950 through June 1951 were eligible for the 1951 show.

The Institute of Graphic Arts, as the name implies, is devoted to the raising of standards in the graphic arts. It was organized in 1914 to provide a common meeting ground for typographers, designers, illustrators, publishers, print makers, photoengravers, type founders, electrotypers, printers, bookbinders, paper makers and ink makers—in fact, all those whose interests touch the art of graphic expression.

A distinguished panel of judges comprised the editorial jury whose task it was to make the selections from the mass of entries in the 1951 Magazine Show. The members included Mr. Lawrence Lesing, Editor of *Fortune Magazine*; Mr. Alexey Brodovitch, Art Director of *Harper's Bazaar*; Mr. John English, Art Director of *McCall's*; Miss Cipe Peneles, Art Director of *Charm Magazine*; Mr. J.

Belcher, Publisher of *Progressive Architectural Magazine*; and Mr. J. M. Fitch, Architectural Editor of *House Beautiful*.

In his *Note to the Jury*, Will Burtin, Chairman of the Exhibition, set the stage with his statement that "little is known about the ingenuity with which the mechanics of vision (illustration, type, color) are handled, how a visual flow is developed, how the character of a publication is consciously revealed in editorial concept and design.



"It is the purpose of the 1951 Magazine Exhibition to define more clearly than before how those requirements are met in the entries, and to select examples which can be presented as a guide to the understanding of magazine making and as a reward to accomplishment.

"The jury is charged with the task of making those selections, a task which is admittedly difficult and which calls for a high order of discrimination."

While the editorial jury was considering the merit of design, a separate panel of experts judged the quality of reproduction, appropriateness of reproduction method in relationship to editorial design, and other features of reproduction and me-

chanical production. This panel was composed of Mr. William C. Thomas, Production Supervisor of the J. W. Clement Company; Mr. Asher Aron, Assistant Sales Manager of Davis, Delaney, Inc.; and Mr. Howard Knowles, Production Manager of I.B.E.C. Publications.

ARMOR, we're proud to state, was judged superior on two counts, as mentioned above—by the editorial jury for the handling of type and lettering in the creation of attractive patterns and in promot-

York City. It was opened to the public on the next day, and in the coming weeks the display will tour the major cities around the country. Watch for it and see it if you are within reaching distance.

The displays are attractively made up in large frames. ARMOR's sample spread, which is pages 42 and 43 of the January-February 1951 issue, appears in two places in the Exhibition, once for the editorial category and once for the production class.

Although this is strictly a trade recognition, quite apart from the military, we are most happy about it because it bears out our thought that military publications must do as much to market their product and sell their subject as commercial magazines addressed to other types of audience. There is no reason why a service journal should be grim, stodgy, dull or unimaginative in its presentation. By being readable and imaginative it puts its content across. And that applies to the literary angle as well as to design.

Acknowledgment of these thoughts is indicated in this paragraph from the Report of the Jury judging the entries in the 1951 Magazine Show, which notes that "The editorial jury did not attempt to impose uniform design requirements over the entire field of publication, but considered each entry on the basis of the group-readership to which it directed itself, and analyzed how well the entry met the thus developing requirements."

Many, many letters from the field over the course of this year-and-a-half of ARMOR's distribution had led us to hope we were on the right path. It's most rewarding to have the ratification of such a distinguished group as the jury in such a notable event as the Magazine Show of 1951.

*The Editor*



... and pp. 42 & 43, the spread selected.

ing legibility of the magazine—and by the production panel for the physical production of the magazine. Needless to say, we are immensely pleased over this recognition of our editorial efforts. It is also a great pleasure to see the recognition of the physical product, and our appreciation goes out to our printer, the firm of Garrett and Massie of Richmond, Virginia, for their contribution in this respect. Our thoughts go right down the line to linotyper, proofreader, compositor, pressman, folder and stitcher.

The 1951 Magazine Exhibition got under way on November 12th with a special invitation preview at the Gallery of the Society of Illustrators in New

*The military's search for improved means of transporting greater fire power into battle is a never-ending one. The advent of the internal combustion engine and developments in the automotive line have provided a tremendous spurt in a brief span of years. The story of evolution from wheels to tracks and machine gun to Long Tom is intimately related to the history of mobility in war and armor in ground warfare*

# **SELF PROPELLED GUNS**

## **Developments and Trends**

by **RICHARD M. OGORKIEWICZ**



U.S. Army

**W**HILE armored artillery has now come to be recognized as an essential member of the armored team and the use of self-propelled guns has spread to other fields, the story of this development is still relatively unknown and its implications consequently obscured. That this is so is partly due to the fact that the history of armored artillery is so short: it was only during the Second World War, just over ten years ago, that armored artillery, as such, came into being.

However, neither the problem to which self-propelled guns were offered as a solution nor the conception of the equipment was by any means new then. The basic problem, that of the mobility of heavy, crew-operated weapons, has existed for many decades, in fact ever since these weapons appeared on the battlefield.

It was largely with this problem in mind that some of the first attempts to use automotive vehicles for military purposes were made at the very beginning of this century. The first armed autocars were conceived as highly mobile carriages for the then newly developed machine guns. After armoring, these evolved into the armored car, in theory a very advanced, self-contained combat vehicle but in practice of limited utility owing to the limitations of the wheeled chassis. In consequence it quickly became a specialized vehicle, for reconnaissance and patrolling, and lost, outwardly at any rate, the characteristics of a gun motor carriage.

When the trench warfare on the Western Front in 1915 put a stop to the use of armored cars, it brought forth the application of another type of automotive vehicle in the shape of the tank. With its tracks and armor, the tank brought to the battlefield both new means of increased tactical mobility and a measure of mobile protection. Of the two it was the latter, armor protection, which made the stronger impression at first—as shown,

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**Richard M. Ogorkiewicz** was educated in England and holds a B.Sc. in Engineering from London College. He has long studied the history, development and employment of armor, a logical thing perhaps when considered against his background of having been born in Poland in a military family, of seeing his native country overrun by German armor, and of being present in France in May and June of 1940 when the German armor reversed its field. His previous articles in *ARMOR* have covered French armor, armored cars, and weapons and mobility.

among other things, by the common definition of the tank as a "mobile pillbox." Moreover, the early employment of tanks was dictated by the methods and needs of the older arms, the infantry, which they were called upon to support as barbed wire crushers and machine gun destroyers. As a result of all this tanks came to be regarded much more as specialized pieces of equipment rather than a step towards a general increase in the mobility of armament.

After the First World War, tanks, like armored cars, took their place as just another addition to the existing and well established armory and for a considerable time exerted comparatively little influence on other arms. Apart from a small circle of enthusiasts the more general advantages of mechanized mobility met with little understanding. Even where tanks were not regarded as mere auxiliaries to the infantry and were given opportunities for further development, as in the case of the British Royal Tank Corps, this had little influence on the rest of the Army.

#### Initial Efforts

There were, to be true, some attempts, during and immediately after the First World War, to extend the use of the tracked chassis outside the tank field. Their object was to increase the mobility of the artillery within its traditional methods and organization. In 1916 Britain produced, as such, the first tracked self-propelled gun, the Gun Carrier Mark I. It was designed to carry either a 60 pounder gun or a 6 in. howitzer. Forty-eight vehicles were built but they were chiefly used as supply carriers and the development was not continued.

The French started a little later but in 1918 they had no less than eight experimental models, ranging from a 75mm gun on the 8 ton Renault light tank chassis to a self-propelled 280mm gun. Complete mechanization of artillery was advocated by the general inspector of equipment, but such views met strong opposition from other artillerymen and the High Command. Superior cross country mobility and speed in changing position and economy in personnel compared with towed guns were grudgingly conceded. But arguments were advanced against self-propelled guns on the

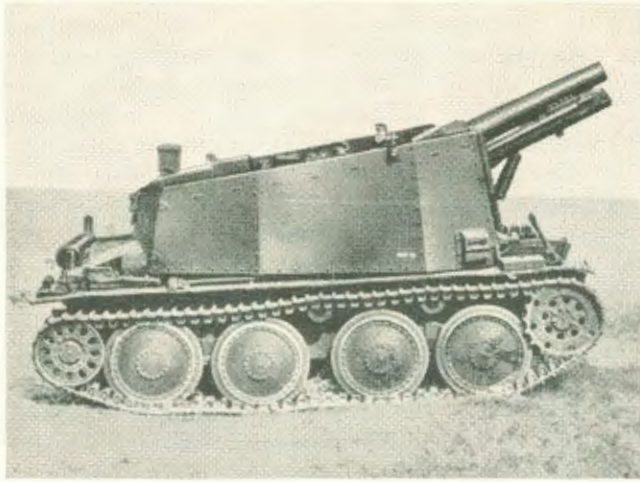
grounds that their reliability and road performance were poor and, above all, thinking in terms of positional warfare, that the gun could not be placed in position without its motor carriage. The result was that after the Armistice of 1918 further development ceased completely.

Following the French example, U. S. Army took up the development of gun motor carriages during the last few months of the war and experiments continued until about 1922. At least 12 different models were built or sponsored by the Ordnance Department, from a light 5 ton 75mm to a self-propelled 240mm howitzer. The Caliber Board (also known as the Westervelt Board), which was established after the war to study the whole problem of artillery equipment and from whose recommendations many of today's guns have originated, laid great stress on the development of self-propelled mounts. It regarded them as particularly desirable for medium and heavy artillery. Again, however, the development was dropped. Much the same arguments were used against motor carriages as in France, chiefly that if the power plant of the carriage failed the entire unit was out of action. Therefore, the arguments ran, tractor drawn artillery was the more logical system.

What in many ways were very promising beginnings thus came to nothing and in the following two decades there was virtually no further progress in this field. A few isolated attempts were uniformly unsuccessful in reviving interest. The artillery saw no tactical need for self-propelled carriages and the armored forces concentrated on tanks.

One example of this, and probably the most interesting, was self-propelled 18 pounders (83.8mm guns) built in Britain by Vickers Armstrongs during the late twenties. They represented an important step forward from the gun carriages of the First to the self-contained, self-propelled guns of the Second World War. Three different models were built, one of them capable not only of field artillery and anti-tank duties but of anti-aircraft fire as well—a degree of versatility as yet unattained by any self-propelled gun of similar caliber. However, this development met strong opposition from the majority of the artillerymen and found no support among





German GW 38 Heavy Infantry Cannon.



American Cavalry Combat Car mounting machine guns.

the tank leaders who were afraid lest this development be at the expense of tanks.

The few experimental vehicles built in other countries were similarly abandoned as a result of opposition by some and lack of interest on the part of others. Such was the fate of self-propelled 37mm anti-tank and 75mm field guns built in Germany in the twenties and of the 75mm Howitzer Motor Carriages T1 and T3 built in the thirties by the Ordnance Department. The French Army was the only one to resume seriously the development before the outbreak of the Second World War. The 1936 defense program authorized the creation of five self-propelled artillery battalions. The development of the equipment was, however, slow and only one or two experimental vehicles were available by 1940.

But while the development of self-propelled guns remained stagnant, artillery did not, of course, remain unaffected by the progress of the automotive age. In addition to mounting guns on vehicles there was the other and in some ways quicker method: using motor vehicles for towing in much the same way as a horse team. The use of trucks and tractors for towing first came into prominence during the First World War and continued to be extended in the postwar period. Apart from being faster than the horse traction which it replaced, this method did not depart in principle from the methods consecrated by at least three centuries' usage—a fact which, incidentally, made it much more acceptable to the conservative minded majority. But because of this it suffered

from the same disadvantages, the chief being that it still required considerable time and effort for going into action, through the necessity of unlimbering and all the associated motions.

#### Mobility For Artillery

Where wheeled vehicles were used for towing, strategic mobility was high but tactical mobility was poor. With tracked tractors the reverse was true and they were in no respect better than tracked self-propelled guns. The real, initial advantage of the towed over self-propelled guns was an economic one since reliable and commercially available vehicles could be used for the purpose, while only minor modifications had to be carried out on the existing stock of guns. This, however, seems to have been completely forgotten when special tracked tractors were developed. These were a necessity when better cross country performance was demanded and their development represents the farthest point reached in the development of the mobility of the artillery before the outbreak of the Second World War.

In the meantime, however, developments were taking place in other fields, notably that of tanks, which were soon to exert a strong influence on the evolution of artillery equipment. Although views on the employment of tanks varied very considerably, considerable progress was made in tank design. At the same time, in the thirties, the numbers of tanks in all armies began to increase steadily.

As was to be expected, one immediate effect of this was a rapid

development of counter measures, principally anti-tank artillery. At that time this meant guns of between 25 and 47mm, miniature versions of contemporary field guns, used defensively. The Germans, who led in this development and who had 75 anti-tank guns per division long before anyone else did, were not, however, long contented with a passive role for their 3.7cm Pak 35/36. They began to stress the mobility of the motorized anti-tank units and the importance of an offensive employment. In keeping with this policy anti-tank units were designated Panzerjager or "tank hunters" and in addition were used offensively in support of the infantry. When the Second World War broke out they moved one stage further towards greater mobility of anti-tank units and in 1940 introduced a few self-propelled anti-tank guns, starting with the Czech 47mm gun on the Pz.Kpfw. I light tank chassis. From there they moved on, introducing increasing numbers of self-propelled guns, particularly in 1942 after coming up against the masses of Soviet tanks. Practically all of them were of an improvised nature but nevertheless they served the double purpose of increasing the mobility of anti-tank artillery and filling the gap until more powerful tanks became available. Typical vehicles of this class consisted of the 7.5cm Pak 40 on German Pz.Kpfw. II, Czech 38t and French chassis of about 10 ton weight. There were, however, many others from the Guerlich, tapered-bore 2.8cm S.Pz.B. 41 on a light armored car chassis to a 128mm gun on an experimental heavy tank chassis (not to be confused with

the much later 128mm Jagdtiger).

Other armies followed the German lead, finding from their own experience the limitation of towed anti-tank guns. Although towed anti-tank guns were previously acclaimed as the best means of defeating tanks, a defense system based on them lacked flexibility and being semi-static was ineffectual once operations assumed a mobile character. In fact its effectiveness depended largely on the chance of hostile armor attacking just where adequate numbers of anti-tank guns had previously been emplaced. However, exactly the same guns mounted on motor carriages, or in tanks, were very much more effective in every respect. Thus after the first few days of the 1940 campaign the French produced an improvised, self-propelled 47mm gun on a 6 x 6 chassis. A small number of these chasseurs de chars was made available to the French 2nd and 4th Armored Divisions and used with considerable effect. The following year, 1941, saw the appearance of British 2 pounders (40mm guns) mounted on light, four wheeled trucks and other, rather primitive forms of self-propelled anti-tank guns in Libya.

The United States Army began with similar improvisations, such as the 37mm Gun Motor Carriage M6 on an ordinary 4 x 4 truck. Although the last to enter this field it developed the mobile, offensive role of anti-tank artillery farthest in creating the Tank Destroyer Command. From the very beginning tank destroyer units were, in the words of the Tank Destroyer Field Manual, "especially designed for offensive action against hostile armored forces." Their equipment in-

cluded such powerful and mobile weapons as 75mm guns on half-tracks, 3 inch M10 and 90mm M36 on M4 medium tank chassis and finally the 76mm M18. The last, which was specifically designed as a tank destroyer, had a maximum speed of 55 m.p.h. and was one of the outstanding armored vehicle designs.

While the desire to increase the mobility of anti-tank guns was partly responsible for the development of self-propelled guns, so was the lack of tanks with effective armor piercing weapons. Although as early as 1916 General Swinton, the father of the tank, stated that the best way of fighting a tank is with another tank, contrary views, that "tanks are not meant to fight tanks" have all too often prevailed since then. In consequence insufficient attention was frequently given to the question of tank armament and when the problem of fighting enemy armor arose, improvisations or special vehicles had to be resorted to. When, finally, the importance of being able to combat hostile armor was acknowledged and adequately armed tanks were introduced the need for special self-propelled anti-tank guns or tank destroyers diminished. This was clearly shown when after the end of the Second World War the attached tank destroyer battalions of U. S. infantry divisions were replaced by organic tank battalions.

The other effect of the appearance of large numbers of tanks on all sides, or more strictly, of the appearance of large armored formations was a partial mechanization of field artillery. In the first permanent mechanized formations, such as the French Division

Légère Mécanique of 1934 and the Panzer Division of 1935, all artillery was towed. This was still true of all the armored formations during the first two years of the Second World War; even in the German Army, which at that time was leading in the technique of armored warfare, and in spite of requests from some of the leading Panzer commanders for self-propelled artillery. The lack of interest, if not actual opposition, on the part of the artillery combined with a shortage of suitable chassis after meeting other demands prevented anything being done about this for some time.

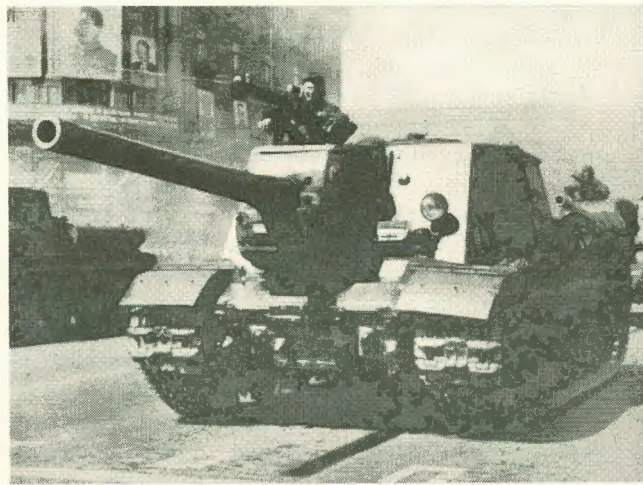
But, although the German three-quarter track tractors were the best vehicles for towing yet built, the use of towed artillery in support of tank units presented unquestionable difficulties. As a result semi-improvised self-propelled gun-howitzers, such as the 105mm "Wasp" and the 150mm "Bumble Bee," began to appear in 1942. Further development was, however, severely restricted by the more urgent calls for mobile anti-tank and close support guns. Not more than one battalion in a Panzer division could usually be equipped with them and the others still used towed guns. At the same time, with the introduction of heavily armed tanks such as the Tigers and Panthers, many Panzer commanders felt that the need for self-propelled guns was less urgent and there was already a tendency to go over to rocket projectors for area bombardment.

Experimental work, however, continued right up to the end of the war and led to the development of the



American Tank Destroyer.

U.S. Army



Russian S.U. 122.

Sovfoto

very interesting Waffenträger series of self-propelled guns. This series was meant to cover a whole range of calibers, right up to 150mm, although only a few of the lighter carriages were actually built before the end of the war. The main characteristic of this series was the use of light, low silhouette, lightly armored tracked carriages, in most cases, including the 8.8cm Pak 43, with all around traverse. In the case of the 105mm howitzers there was the additional feature of a dismountable gun, which could be fired either from the vehicle or from the ground. This removed the old objection that the gun could not be emplaced without its motor

105mm Howitzer Motor Carriage M7, based on the M3 medium tank chassis, and it became the standard divisional artillery weapon from 1942 onwards. It was first used in action by the British Army in October 1942 at El Alamein and served as a model for the very similar British "Sexton" self-propelled 25 pounder (87.6mm gun-howitzer).

Another well known gun, whose development began in June 1941, was the 155mm M12. It saw considerable service in Europe in 1944-45, demonstrating in action a remarkable saving in time and effort over corresponding towed equipment. By the end of the Second World War the United States

a much more powerful and up-to-date instrument. In addition to increasing the numbers of machine guns and mortars and adding regimental anti-tank companies long before anyone else did, they also introduced regimental gun companies of six 75 and two 150mm howitzers. In a way it was the logical outcome of experiments with infantry accompanying field guns of the First World War and also the Germans always believed that a gun on the spot is worth a whole battery later. These guns and the whole departure from the rifle and bayonet principles to which other armies still clung certainly paid dividends in the early Blitzkrieg campaigns, though they were apt to be overshadowed by the much more spectacular accomplishments of the Panzers.

The introduction of infantry guns brought, however, its own problems. The chief one was that of their mobility, particularly as they had to be used well forward. Improvised vehicles based on light tank and half-track chassis were tried as a solution but because of their large silhouette and incomplete and thin armor proved unsuitable. For use well forward with the infantry a more thoroughly designed type was required and in 1940 the Germans, anticipating many of the later lessons, produced their first Sturmgeschütz.

Limited in number at first, these assault guns were used to supplement the existing infantry howitzers, with a view to assuring close support to the infantry at all times, particularly under conditions which made the employment of infantry guns difficult, as, for instance, in assaults against well defended positions. The first two battalions of the Sturmgeschütz were used in France, in 1940, and from then on their numbers grew steadily.

In 1942, in place of the original, low velocity 75mm gun, the Sturmgeschütz received the high velocity 7.5cm L/43. This enabled it to engage effectively hostile armor in addition to affording direct infantry support. It also paved the way for the merger of the two classes of equipment, assault guns and self-propelled anti-tank guns, into a single Panzerjäger class.

The new class, which came into prominence in the closing stages of the war, included such vehicles as the



U.S. Army

American M-7 Self Propelled 105mm Howitzer.

carriage and at the same time it offered the advantage of being able to split up the load for transport, by air for instance. A price had, of course, to be paid for this in the form of somewhat increased complication and total weight. Without this feature the Waffenträger type of vehicle was lighter and, as regards over-all dimensions, smaller than any comparable towed gun and tractor combination, in addition to possessing all the inherent advantages of a self-propelled gun.

It was left to the United States Army, however, to be the first to put the whole of the armored divisions' artillery on self-propelled carriages. Although in 1940, already after the Blitzkrieg in France, there were still some who claimed that horse-drawn 75s were all that was needed, the development of several types of gun motor carriages was begun. One of the first to be standardized was the

Army had a whole range of self-propelled guns, from the twin 40mm M19 and the lighter 105mm howitzer M37 to the 240mm howitzer T92.

Apart from the two main lines of development already mentioned, *i.e.* that of self-propelled anti-tank guns and that of self-propelled field and anti-aircraft artillery, there was yet a third category of self-propelled weapons. These were first introduced by the Germans, at the same time as their first improvised, self-propelled anti-tank guns and howitzers. Their original name was Sturmgeschütz or "assault guns."

The origin of these assault guns can easily be traced to the evolution of German infantry armament. As a result of studies after the First World War the Germans rightly concluded that neither the rifle nor the light machine gun was adequate for the needs of modern combat and they began to transform their infantry into

8.8cm Panzerjager Panther and the light, 17 ton Panzerjager 38t. The latter was to form 61 per cent of the total armored vehicle production planned for 1945 and was intended to be the chief armored support for the infantry divisions.

By virtue of its low silhouette and good, all round armor protection the assault gun type of vehicle was superior to other types of self-propelled guns. Also, at the expense of traverse, it had more powerful armament or better protection, or frequently both, than a corresponding tank type. It was therefore particularly suited to taking over from tanks many of the tasks in a fire fight and it could thus give the tanks greater freedom to maneuver.

This kind of employment was widely practiced by the Russians, who, benefiting from the lessons of the early German assault guns, introduced from 1943 onwards a whole series of vehicles of this type. With the exception of the S.U.76, which resembled the early, semi-improvised German guns and which has been used in quantity in Korea, the Russians have confined themselves entirely to this type of self-propelled gun.

With their addiction to the use of field artillery for direct fire the assault gun type of vehicle appealed particularly to the Russians. At the same time it made possible through quicker mounting of heavier guns on existing chassis considerable increase in the fire power of tank units—and gun power was the thing Russians always regarded as most important in their tanks. Armed with high velocity 85mm guns and 122 and 152mm howitzers Russian S.U.s were used extensively in cooperation with tanks. Together with heavy tanks they formed a mobile fire base on which the mobile medium tanks pivoted. At the same time they were also used for direct support of the infantry. In this role they were often mixed with tanks right down to platoon level, in the ratio of one S.U.85 to two T.34.

The combination with tanks was hardly surprising since in many ways German assault guns and Russian S.U.s were "turretless tanks" as much as self-propelled guns in the sense hitherto understood. That tanks and S.U.s varied only in small degree from one another was particularly notice-

able in the case of heavy types, the Stalin heavy tank and the S.U.152 heavy gun-howitzer. Both relied on heavy, long range fire power and were used in many similar roles.

Unlike the Germans and the Russians, the Western Allies have in the past produced only a few experimental vehicles of this type. And then only of a very heavy type such as the 100 ton T28 and a roughly similar British vehicle. In addition to the orthodox self-propelled guns, tanks armed with howitzers in place of the standard guns were developed to provide support for the armored units. This policy was initiated by the British Army in the late twenties with the so-called "close support tanks" and



U.S. Army

**Russian Self Propelled Guns used by ROK Forces, captured by Allies in Korea.**

one of the latest examples of this category is the U. S. M45. Recently, however, the French have developed an assault gun, very similar to some of the German types, armed with a high velocity 120mm.

In more than one respect the development of the assault gun type of vehicle is interesting and significant. It is particularly so as a clear link between tanks and self-propelled guns and, what is even more important, as a very significant example of a much more direct and aggressive use of artillery equipment arising out of its increased mobility.

Until now artillery has been regarded almost exclusively as a supporting arm since, in fact, other roles were difficult, if not impossible, with towed equipment. The infantry has thus continued to be regarded as the basis of every army, though the rifle has long lost the position it once held as the main source of striking power. In this order of things cavalry, and more

recently armor, have been given the role of a complementary mobile arm.

However, with the introduction of self-propelled carriages the gun became a much more versatile source of fire power instead of being a slow and clumsy supporting weapon. In addition to the more traditional artillery manner, it could be employed as an integral part of a completely mechanized force or as the fire base of the smallest infantry units. The infantry Kampfgruppe, "task forces" and others built round a number of self-propelled heavy weapons, are a clear pointer to future organization and employment.

At the same time tanks have also moved away from the narrow conception of a kind of armored steam roller which would pave the way for the infantry. Or from the other extreme view of lightly armed raiders which could—perhaps—cause confusion in enemy rear areas but which were helpless in face of any hostile armored opposition. Instead they too are slowly being recognized as a much more versatile form of mobile fire power. On the tactical plane mobility is no longer used with the main object of transporting a shield of armor, or for its own sake, but to increase the effectiveness of tank armament.

Thus, in spite of outwardly different approaches, both tanks and self-propelled guns clearly become the means of increasing the mobility and effectiveness of heavy weapons. Outwardly, the differences between the various types of equipment are at the moment very considerable. At one end of the scale are the lightly armored and highly mobile Waffenträger which the Germans developed. At the other end are heavily armored tanks with guns of 155mm or more. In between come such types as the German Sturmgeschütz and Panzerjäger, Russian S.U.s and a whole host of tanks and self-propelled guns, down to recoilless guns on jeeps.

Each type has its peculiar advantages and disadvantages, tactical, technical and logistical, but irrespective of form, all the different types strive to achieve exactly the same thing: to increase the effectiveness of armament through the mobility of the automotive vehicle. And, as a combination of the effective form of fire power and mobility they all represent the truly basic weapons of ground warfare.

"A fool can profit by his own experience but I prefer to profit from the experience of others."—*Bismarck*.

**K**OREA has definitely given us the opportunity to profit by many experiences and to make new studies of our infantry-tank relationships. Combat experience has shown our infantry-tank doctrine to be sound; however, progress is made only by an analytical examination of events to evolve the lessons indicated, along with the integration of these lessons into their proper place in our over-all tactical doctrine. So let it be with the experiences of our Armor units in Korea.

### **Terrain Appreciation**

The lack of an adequate road net, the poor condition of the roads, demolished bridges, bridges incapable of supporting tanks, rice paddies, steep high dykes, and mountainous terrain imposed severe restrictions on tank mobility. However, numerous operations, including those of Task Force Dolvin in the Cheri-san mountains in September, 1950; Task Force Crombez at Chipyeong-ni in February 1951; and Company A, 72nd Tank Battalion at Kapyong in April 1951, indicated the desirability and advantage of employing tanks, even under the most adverse terrain conditions, to obtain their speed, firepower, and demoralizing effect on the enemy. Some terrain is better suited for tank employment than other; but the only change caused by terrain on tank employment in Korea was to lower the number of tanks that could be deployed in any one area at one time. Tanks should still be used "in mass." In Korea a "mass" of tanks may be only a company, if only a company can be employed in that particular area, but the greatest "mass" of tanks should be used that the terrain will accommodate in order to obtain the maximum degree of shock action and destruction of the enemy. The uninitiated employed the old excuse that Korea is not tank country—and it generally was an excuse. However, every commander must make detailed map, ground and aerial reconnaissances to determine the favorable areas for tank employment. Terrain and trafficability reconnaissances and studies are of paramount importance in achieving maximum benefit from

# *Tanks in Korea:*

## *1950 — 1951*



by **LIEUTENANT COLONEL GEORGE B. PICKETT, JR.**

*An analysis of tank operations in Korea over the course of the campaign, by an author who was Armor Officer of IX Corps for 14 months*

All Photos U.S. Army



available armor in any area of operations.

#### **Terrain and Trafficability Studies**

Due to limitations placed by terrain on armored operations detailed knowledge of terrain and trafficability assumed paramount importance in planning for utilization of available armor. It was discovered early in the 1950 campaigns that previous terrain studies apparently had been based purely on relative elevation rather than ground conformation and soil conditions. Early use of armor along the Naktong River (August-September 1950) disclosed that some areas shown in these studies as good cross country trafficability were actually quicksand bars in which tanks bogged down. Also, these studies failed to consider the effect of such obstacles as rice paddy dykes on cross country movement.

Trafficability studies are of material benefit if sufficiently accurate. To be accurate the information must be collected by means of personal ground reconnaissance, aerial reconnaissance, and interpretation of aerial photographs. The information may be distributed in the form of tinted overprinted maps, overlays, or in statistical form. It should be distributed down to and including each tank platoon leader. Tank and reconnaissance unit commanders should be indoctrinated to report trafficability conditions automatically to the next higher headquarters. The information should be collected, published, and distributed by the lowest headquarters having an Armored Section, normally a Corps. However, special trafficability studies should be made by Division G-2's and Unit S-2's prior to each operation where tank employment is materially restricted.

A trafficability study should not be regarded by a unit commander as an excuse not to employ tanks in an area; but as information that more reconnaissance and special measures may enable him to use tanks, even if only a platoon, in that area to obtain surprise and decisive results.

#### **Methods of Attack**

FM's 7-35 and 17-32 prescribe five methods of coordinating tanks and infantry in the attack. Basically these methods apply to Korea; however, modifications have been necessitated due to terrain conditions. There are

four methods that have been most effective in Korea:

The first method consists of having tanks advance rapidly through enemy frontline positions along a high speed approach to inflict maximum casualties, confusion, and destruction in enemy rear areas. The depth of these raids and the size and composition of the force may vary from a tank platoon raiding a close-in enemy reserve position to a Combat Command-sized armor Task Force assigned a distant objective.

The second method consists of having tanks advance rapidly to the flanks and/or rear of enemy positions to cut routes of withdrawal and destroy reserves.

The third method consists of having tanks support advancing infantry by direct fire, destroying bunkers and fixed defenses and neutralizing enemy positions by fire. This method is the least desirable of all and should be used only when tank maneuver to the flank or rear of the objective is prevented by adverse terrain.

The fourth method consists of a combination of methods two and three. When combined, these methods provide maximum tank support for infantry advances.

#### **Attack of Reverse Slope Defenses By Tanks**

The method of having tanks and infantry converge on the objective from different directions is particularly applicable to the attack of reverse slope positions. In Korean ter-

rain there were many opportunities for tanks to move into the rear of the enemy position by advancing up valleys leading into the rear of the position and saturating the objective by fire, while the infantry approached from a different direction, generally along the high ground approaches. In many situations the enveloping tank unit encountered the enemy reserve element and by destroying this force by fire or overrunning it, the possibility of a rapid counterattack was eliminated.

#### **Night Combat By Tanks**

The continuous employment of night attacks by the Reds made it imperative for friendly tank units to increase their night combat efficiency and to be positioned inside infantry defense areas at night for protection against enemy tank hunter teams. The effectiveness of tank units at night was increased by anticipating possible areas of enemy infiltration and possible routes of enemy attack. This technique was employed by Company A, 72nd Tank Battalion prior to the Red Chinese attack on 24 April 1951 and contributed greatly to the successful night action by that unit above Kapyong on 24/25 April. Arrangements should be made to fire on enemy attack routes and infiltration areas during daylight to include assignment of target areas, selection of positions, computation of firing data, and preparations of a night range card.

#### **Regimental Tank Companies**

Based on observation of tank employment in Korea for more than 14 months, I feel that far more effective use of the armor in the infantry division could be obtained by inactivating regimental tank companies and reorganizing the infantry division armor, including the present division reconnaissance company, into an "Armored Regiment," commanded by a full colonel. This would insure adequate training, proper employment, and the required logistical support not now present. In addition, the senior Armor officer would have enough rank to discuss employment on an equal prestige basis with the infantry commanders and would also be available to command armor task forces. To support infantry, units of the armored regiment could be attached to the infantry regiments, but the armor regimental commander would still be available to see that they were employed and maintained properly. The number of tanks in the infantry division would not be increased or decreased by this system.

An analogy can be drawn between the armor regiment commander and the division artillery commander. Each has a command and advisory staff role. Each organizes his forces for combat. If a tank company is required to support the "X"th Infantry, the armor regimental commander would select and attach the company. Naturally the same units would be attached to the "X"th Infantry as consistently as possible in order to foster the team concept.

#### **Tank Maintenance, Battlefield Recovery, and Evacuation**

As a result of experience in South Korea between 23 September and 2 November 1950, IX Corps developed a new method of battlefield maintenance, recovery and evacuation in preparation for the 24 November 1950 UN offensive. The system consisted of pooling the available evacuation and recovery means under centralized control and having this centralized agency, termed the "Division Maintenance Control Agency" (DMCA), coordinate the use of all recovery equipment along pre-designated axes of maintenance. The maximum use of mobile maintenance teams along the axes of maintenance, coordinated by DMCA, was stressed.



Clobbering . . .



Training . . .

The system was employed successfully to support tank units up the Chongchon Valley 23-26 November 1950. It is believed that the drafting of a maintenance, recovery and evacuation plan, based on use of a DMCA, mobile maintenance teams, and axes of maintenance, should be the assigned duty of the Division Ordnance Officer prior to each operation. The DMCA technique is equally as effective in defensive actions and retrograde movements as in offensive combat.

#### Use of Light Aircraft By Armor Units

Light aircraft provided an excellent means of detecting enemy ahead of an advancing armored unit and for immediately reporting this information to the unit. Best results were obtained when the plane was in radio contact with the unit commander. Some tank battalion commanders commanded from their light aircraft on occasion. However, it is believed that a battalion commander should be on the ground and in full control of the situation, using a qualified aerial observer in the plane. If he becomes an observer, his activities as commander are restricted. This applies primarily to a battalion commander. It would not apply to the commander of a combat command task force, since use of a light plane would enable that commander to see more of the battle area personally and make his presence felt to a greater

degree. Also he does not need the degree of close control required by a battalion commander.

#### Tank Employment In Snow and Extreme Cold

Winter conditions imposed a great strain on drivers, crew personnel, vehicles and equipment generally, and the need for proper maintenance was paramount. However, normal tactical principles still applied to operations in the snow and extreme cold of November, December, January, February, 1950-1951. All vehicles required special lubricants and maintenance inspections had to be frequent and

thorough. Maintenance tents were critically needed by all tank units but were not available. The hospital ward type of tent is a fair maintenance tent. There were very few buildings available for maintenance shelters. Tentage had to be the principal solution.

Although spikes can be welded on every third track block to increase traction over hard snow or ice, experience in January-February 1951 indicated several disadvantages of using spikes, such as difficulty of installation in forward areas, lack of steel bar stock when needed, increased engineer road maintenance problems due to spike damage, breaking off of spikes, and the difficulty of removing the spikes when no longer needed. It was found by experiment in February 1951 that straw, obtained along the route, can be spread along icy curves and icy slopes to improve traction. Such straw is normally readily available in Korea.

It was learned that at temperatures above  $-10^{\circ}\text{F}$ . and below  $32^{\circ}\text{F}$ ., engines should be run for short periods every two hours to maintain the tank in readiness for immediate operation. "Preheating" is required below  $-10^{\circ}\text{F}$ . in the majority of cases.

#### Summary of Lessons Learned

Some of the more outstanding lessons learned during offensive operations in Korea were:

1. Tank-borne infantry can not perform the armored infantry role. Infantry units employed as a part of



Supporting . . .



an armored task force for deep penetrations into the enemy rear must be provided with armored personnel carriers.

2. A tank dozer should be included as a part of all armored task forces in Korea.

3. The Communist forces' anti-tank doctrine calls for the maximum use of tank hunter teams employing rocket launchers, pole charges, satchel charges and bangalore torpedoes.

4. Effective infantry-tank communication and methods of target designation from infantry to tanks must be prearranged and understood by all elements.

5. Any armored column containing a company or more of tanks should be supported by a tank recovery vehicle.

6. The shock action of tanks is extremely effective on the Reds. Although their tank hunter teams have been fanatical in their reaction to initial advances, they generally have been content to stay out of sight of the returning tanks.

7. Tank units can penetrate rapidly deep into an enemy position but can not be accompanied by standard infantry. This situation requires the



Receiving . . .

tank units to give up objectives that could be held if the infantry could accompany the tanks at the same rate of speed and with armor protection. Armored infantry is needed for infantry support of tanks in operations of this nature.

Defensive operations indicated that:

1. Tanks should normally be included in the combat outpost when terrain permits. They may serve as the entire combat outpost; however

they must be screened by dismounted personnel at night.

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

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

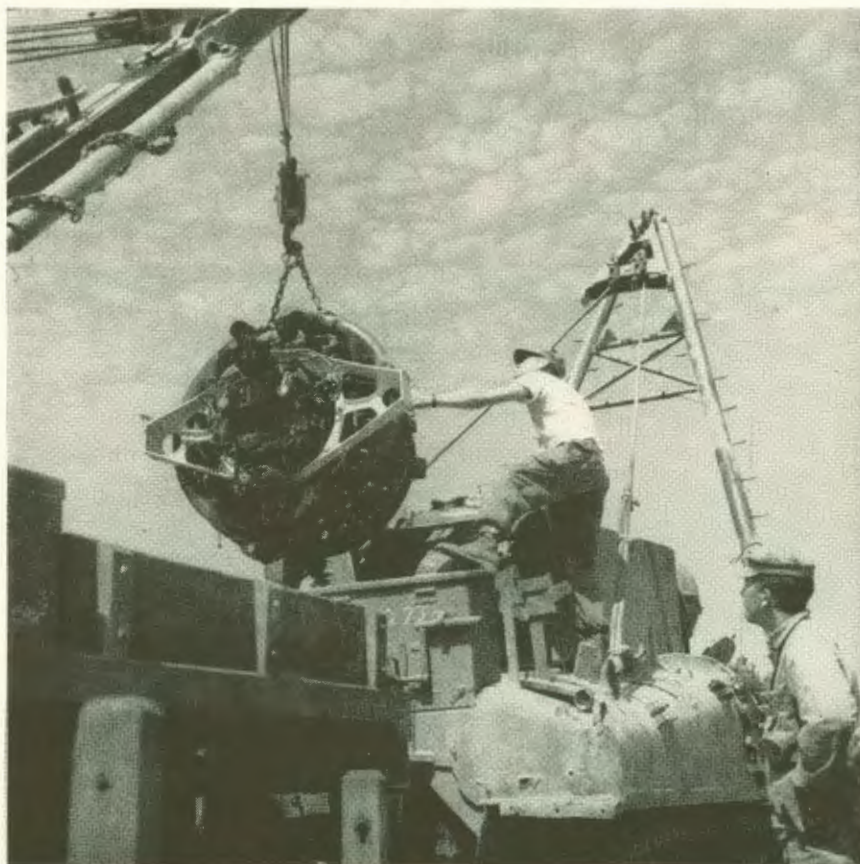
4. Tank unit leaders command by means of their radio net and movement of their tank. A dismounted tank platoon leader is relatively ineffective in attempting to run over the battlefield to direct his tanks.

5. Mutual confidence between tanks and infantry is essential to success. Each must feel that the other will remain and fight when the situation is serious.

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

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

8. The Reds attack principally at night. Counterattacks at daylight have had greater possibility of achieving surprise with Red forces in the rear apparently still in their attack formations or assembly areas.



Maintaining . . .

# SOME IDEAS FROM A JUNIOR LEADER

To the Editor:

Having spent almost two years as a Reconnaissance Platoon Leader (Co. B, 4th Rcn. Bn.) (MOS 1204), I feel that there is no better unit to command in the Armor Branch. It is a small task force in itself. You have mobility, firepower, shock action; and last but not least, it is very easy to employ the principle of maneuver, whether mounted or dismounted.

However, as the result of my experience, there are certain changes I would make in the Table of Organization and Equipment of the Reconnaissance Platoon. Here are my changes and reasons:

## by LIEUTENANT HENRY S. MARCANTONIO

► Equip the Support Squad with a Half Track, in lieu of the two one-quarter ton vehicles with trailers, until the armored personnel carrier is available. The reason for this is that the two one-half ton trailers are not large enough to carry even the squad's basic load. In the event the vehicle with the mortar is knocked out, the squad is useless. Then again, in the setting up of the mortar, there are times when the squad will have to pull off the road to set up and give support to the platoon. There have been many times when one of my vehicles with trailer has bogged down on the way to their set-up position, thus slowing down the arrival of the much-needed mortar fire. A half track can carry at least four times the amount of ammunition that the two one-half ton trailers carry, and the half track can offer some protection to the crew from small arms fire.

► Arm the five men in the support squad with pistols. In the event of a vehicle breakdown while the platoon is moving forward, the mortar is one weapon that I want right behind me. Therefore, the squad would have to carry mortar and ammunition forward. The shoulder weapon would definitely be a hindrance, as the squad is normally in the base of fire, and the only reason for individual weapons is for self-protection in the event of an infiltration.

► Promote one of the support squad leaders to Sergeant First Class, and see to it that he receives training in the use of the M-10 Plotting Board and the Aiming Circle. I would also make the M-10 and the Aiming Circle TO&E to the Reconnaissance Company. The Sergeant First Class mentioned could be in charge of the mortars when they fire in battery.

Another change would be in the

communications system. The two SCR 300's mounted in the tanks are useless. If our company were a tank company I could see their use. But in a Reconnaissance Company, I normally dismount mine and give one to the Scout Section when they work dismounted, and the other stays in the platoon headquarters. I strongly suggest three SCR 536's—one in platoon headquarters, another for the Rifle Squad, and the last one in the Scout Section.

It is well known that the Reconnaissance Platoon at times may have to fight dismounted. There are too many reconnaissance unit commanders who are under the impression that the only way a mission can be successfully performed is by staying mounted. I have found, from past experience, that my platoon has worked just as much on foot as mounted. It seems to be the general policy for the Rifle and Scout Sections to dismount their SCR 510's and convert them to SCR 509's. Did you ever carry an SCR 509 while working as a maneuvering element? Well, believe me, it is a hard task, and slows down the squad considerably. So, it boils down to doing away with the two SCR 300's in the two tanks, and adding three SCR 536's. Other than that, the communications system cannot be beat. Of course, new radios would help.

► I would eliminate some of the many items that are TO&E and which my platoon has not used in our past operations, as executed on problems and maneuvers that covered all sorts of situations and under most of the weather variations.

The first item that would go is the telescope. There are three in the platoon; one in platoon headquarters, and the other two in the Scout Section. I have never used them, and

feel that they are just expensive pieces of optical equipment that the platoon leader and the section leader have to worry about.

Next, the assault boats. I can see one in the platoon, but we have never found use for two boats. Eliminating one would give us that much more loading space on the inadequate one and a half ton trucks that we use in lieu of armored personnel carriers.

I would issue the lensatic compass in lieu of the wrist compass.

The final changes I would make are:

► Designate the .45 cal. pistol as the TO&E weapon for the platoon leader. There are many times when the platoon leader will go with the maneuvering element, and the tank section will be part of the maneuvering element. In firing the reconnaissance platoon in the attack, using live ammunition, I have found the carbine to be a cumbersome weapon. A General Officer who critiqued one of our company problems, once stated: "If I had my way, all platoon leaders would not be equipped with a shoulder weapon. Their job is to employ their platoon and not shoot at the enemy. In an instance where you need a weapon for self-protection, the pistol is adequate."

In the Scout Section, I would change the light machine gun to the A-6. There are times when the Scout Section is used in the maneuvering element, and I should like to have a few machine guns along. However, the A-4 is too cumbersome to carry, whereas if the A-6 were TO&E, there would be two automatic weapons that could be used to lay down some good fire.

\* \* \*

I have given my ideas on the changes I would make in the light of what I have actually learned in the field. I know these ideas are open to criticism, as this is but one platoon out of several hundred. I have employed and worked with this platoon under training and simulated battle conditions. Naturally, platoon leaders in Korea or the States may not agree with me. But as far as my work with this platoon is concerned, I feel that the changes I mention would enable me to set up my base of fire much faster, and my communications with the maneuvering element would be much better.

## THE ANNUAL MEETING

The 63rd annual meeting of the United States Armor Association will be held at The Armored Center, Fort Knox, Kentucky, on Monday, 21 January 1952.

This is a departure from the usual procedure of holding the meeting in Washington, D. C., headquarters of the Association. The entire Council felt that a meeting at the Home of Armor would be of greater professional value to the membership.

The concentration of members at Fort Knox, where many are attending Armored School courses, will insure a substantial attendance of those normally assigned across the country. In addition, the central location of Fort Knox will put it within reach of many members from other points.

A program of great interest to all Armor personnel will be presented. All members who can possibly attend are urged to do so. This will be the largest get-together of professional exponents of mobile warfare in the 66 years of Association history.

The assignment of Army units to participate in atomic tests indicates the advances made in the development of atomic weapons and the focusing of attention upon tactical application. In view of these developments, the moment certainly is at hand for a closer look at the ground combat picture as it concerns atomic warfare.

Considering all of the angles, there are certain conclusions to be drawn in reference to the battlefield. They are conclusions that hold great import for Armor.

The tactical use of atomic weapons will multiply the value of mobility in the combat zone. Mobility will be a primary means of protection, for dispersion will be ever more important should the enemy employ atomic weapons.

At the same time that mobility is essential for dispersion as a manner of tactical protection, so too will it be essential for the rapid concentration of units at decisive points. Mass employment must still be the basis for decision.

Armor is ideally suited for rapid dispersion and rapid concentration.

An atomic blast on the battlefield, of whatever proportion, will blanket a sizable area, an area much larger than that covered by our so-called conventional weapons. It will saturate an impact area, and will obviously require individual protective measures far advanced over those now in use.

We have followed the long series of atomic experiments applied to ships, submarines and planes. As the tests go forward in Nevada, we are seeing this application extended to ground equipment.

The assignment of Army units to the tests was accompanied by the explanation that these troops would set up a battalion position as executed on a battlefield, with foxholes, wire entanglements, and so on. It is said that equipment was placed in the position, including tanks and artillery.

Observer troops were permitted to move into the blast area to see the effects on the positions they had set up, and to examine vehicles. Damage to vehicles was reported as moderate, and the Army stated that "they still could have been used."

Armor appears to be the ideal basis from which to perfect the new defensive measures which will be required for survival on the atomic battlefield. It seems logical to assume that proper protection will be forthcoming only when ground personnel in the battle area are mounted in fully mobile armored vehicles whose characteristics include protection from blast, heat and radiation. Much of the framework exists right in our present vehicles.

Only a force mounted in vehicles combining mobility, properly developed atomic protection and inherent fire power will be able to survive on the atomic battlefield and carry the fight to the enemy. Fundamentally, Armor is such a force.

# OF EDITORS, AWARDS AND ULCERS

This issue marks the completion of a year and a half of publication under our modern title, and ARMOR is happy to be able to announce the winning of an award in the Magazine Show of 1951, sponsored by the American Institute of Graphic Arts. The details of this are on another page in this issue.

Although the editor is duly proud of this recognition within the trade, we also spread the credit around where it should be shared. Such an award would not have been forthcoming without, for example, the complete freedom granted the editor by the governing body of the Association.

Credit goes also to the individual member of the Association. You supply the funds, through your membership, which make a production job possible. Thus, it is additionally pleasing to the editor to know that he is turning out a readable product for you, a magazine which, if the award is an indication, is acceptable to you.

Editors come under a variety of titles—Editor, Managing Editor, Executive Editor, Associate Editor, Assistant Editor, Senior Editor, Contributing Editor, Department Editor, Photo Editor, Book Editor—and any combination of these, plus a number more. Each has a special job to do. Few editors have the privilege, as we do, of being all of these at one and the same time.

This magazine is unique in that respect. Of the tremendous staff of five, each is fully absorbed in one phase of the operation—bookkeeping, circulation, clerical details, shipping, editorial. To one person—the editor himself—must fall the entire job of putting out a magazine every two months. It begins with the conception of a rough prospectus of the issue—and carries through personal typing of letters requesting articles; reading of all manuscripts; all rewrite work necessary on every story; selection of all illustrations; securing of the book reviewer; writing of editorials, special columns, biographical sketches on authors, subheads on articles, and captions on photos; most ad composition; covering of special events such as maneuvers with pen and camera; occasional drafting of maps; complete design and layout of the magazine from cover to cover, including selection of type faces and projection of photos; necessary research and fact checking; and supervision of the final printing of the issue. On the side we run the business end and manage the affairs of the Association as required of the secretary.

As we said above, few editors have the privilege as well as the necessity of handling their product in its entirety from start to finish. Where they do, the product almost inevitably absorbs the individual's personality. But there is a tremendous amount of remuneration to go along with a tremendous amount of work. Not the lesser moments are those marking the receipt of a kind letter of comment from the field—or the winning of an award.

## TWO-WAY RESPONSIBILITY

The press in recent weeks has carried quite a bit of coverage of the gambling and related gouging activities concentrated around armed forces establishments.

The profiteers who take advantage of service personnel are well below the average standard of citizenship and decency. Obviously the gravitation of undesirable elements to centers of service activity is deplorable.

But the tone of most of the coverage has been rather one-sided. No shady establishment or enterprise of any kind exists unless it is patronized. The problem can be attacked from both sides. A concerted effort by organizations and individuals will do as much as a big official investigation.

It's all a part of the moral pattern we've heard so much about lately. Stay away from the joints and you will not lay yourself open to the charge of being a sucker or a mouth breather. And folks will not have to cluck their tongues over you for having been the victim of your own stupidity.

# Sum & Substance

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

One word is the keynote to effective operations by our ground combat arms—teamwork! To have the latest details on the translation of combined effort into battlefield success, ARMOR goes once again to the field in Korea for the expression of representative infantry battalion commanders from each of six U.S. divisions, writing on the important subject of **TANK-INFANTRY TEAMWORK** basis of so much of the action in the months of bitter ground fighting.—THE EDITOR.

*The writer of the following served with the 603d Tank Destroyer Battalion attached to the 6th Armored Division in the ETO in World War II. With many months of combat experience in Korea, he is Commanding Officer of the 3d Battalion, 5th Cavalry Regiment, 1st Cavalry Division.*

The principles taught in service schools for employing tanks and infantry together in combat remain sound and continue to stand the tests of practicability imposed in combat.

The tank still is an instrument of shock and tremendous fire power and, in spite of the very limited road net present in Korea, remains a weapon both of mobility and maneuver.

The terrain in Korea is a restricting factor in the employment of tanks.

However, complete reconnaissance both by air and ground has revealed that tanks can be used effectively in what might appear to be non-traversable terrain.

The infantry, properly trained in the capabilities and limitations of armor, offer invaluable assistance to tanks in reconnoitering routes of approach and firing positions.

On innumerable occasions unit commanders have achieved surprise while fighting the Chinese Reds by employing armor on ridge tops or through valleys latticed with rice paddies over which the enemy thought vehicles could not move.

Many times the key to the success of an attack, especially against fortified positions, is to maneuver the tanks so as to bring their high velocity fire to bear on bunkers and/or automatic weapons.

Communications within the tanks

themselves is very effective. The most difficult communications arrangement is between the tanks and infantry, where the main reliance still is placed on the SCR 300 radio.

The only answer to successful and continuous communication is prior planning, well maintained radios, and alert operators. It has been found that communications checks made the day prior to the beginning of an operation are very valuable and many times pay off at critical moments when communications are needed most.

The lessons of the Korean war with reference to tank-infantry training parallel the general conclusions reached at the close of World War II.

Too much emphasis cannot be placed on one subject—continuous training during lulls in the fighting and actually during the fighting.

Tank crews and the infantrymen alike must be taught the procedures and capabilities and limitations of each other's weapons.

The infantry commander who

makes a strong attempt to see that his personnel are thoroughly oriented in the use of armor and, in turn, employs his armor properly, will be paid off many times over.

Tanks, by the very nature of their bulk and silhouette and their faculty for making a lot of noise, still draw fire from the enemy. Tanks still rip up the roads and cut wire lines.

However, tanks are tremendously effective battle companions for the infantry.

The infantry wire teams must learn to put wire off the road so it won't be cut and to anticipate that when armor operates in their area, communications lines may be cut.

Infantry commanders must learn that armor need not be employed in every battle formation—and that the tanks may be committed several hours later.

These steps are helpful in reducing the amount of enemy mortar and artillery fire which the tanks draw onto the infantry.

Infantry commanders must remember also that, big and powerful as the tank is, it can be destroyed by enemy individuals with the proper antitank weapons in their hands. In areas heavily wooded and in defiles, plans must be made for protection of tanks.

Continuous training of infantry troops in conjunction with tankers will produce the techniques and bases of mutual confidence so necessary in the tank-infantry team.

If these things are accomplished, then the infantry commander will have the shock and fire power and can achieve surprise whenever the tactical situation presents itself.

LT. COL. ROBERT J. DEMERS.



Lt. Col. Demers

*The writer of the following served as a platoon leader and company commander with the 35th Infantry Division in the ETO in World War II. In Korea for over 15 months, he has participated in all of his division's campaigns, now is Commanding Officer of the 2d Battalion, 38th Infantry, 2d Infantry Division.*



Maj. Hodges

Because of the nature of the terrain and the fighting characteristics of the enemy in the eastern sector of Korea, the use of tank-infantry teams has been limited. With very few exceptions, armor has been used in only one of the five methods of attack, that of supporting by fire alone. Even then, the teamwork between the advancing infantry and the supporting tanks becomes of paramount importance.

Prior to the actual attack, tanks are used to knock out known enemy bunkers and emplacements on the forward slopes of the objective. Tank fire is directed and adjusted by direct radio control between the attacking company commander, or platoon leader, and the tank commander. During this phase, the supporting artillery is also brought into the tank-infantry team by firing on the topographical crest and reverse slope of the objective. As the enemy is forced from his positions on the forward slope by the direct fire of the tanks, and moves through the open communications trenches to his mortar and artillery-proof shelters on the reverse slope, he is taken under fire by the artillery, firing VT fuse. This has proven effective.

As the attack jumps off, the tanks place a steady volume of fire from both the 76mm gun and .50 caliber machine guns on the objective. When the infantry reaches the point where fire has to be lifted, all tanks, except the platoon leader's, shift their fire to the flanks. The platoon leader's tank is then used to engage and destroy any bunkers or emplacements still manned by the enemy. Any targets to be engaged by the platoon leader's tank are then directed onto the new target by verbal description, use of tracer, use of colored smoke, or any combination of the above. During a recent attack, the target area was covered by a heavy fog and the tanks were unable to observe the

target area. However, by firing tracers, and by the infantry platoon leader, talking directly to the tank platoon leader, tank fire was brought to bear and several enemy bunkers were destroyed which were holding up the advance of the infantryman. The fog was so heavy that the tank platoon leader was unable to pick up the normal 4-1 machine-gun fire, so solid belted tracer ammunition was used and the target was readily identified.

In using tanks to support by fire, it is highly important to maintain accurate, steady, and continuous fire on the objective, as the slightest lull in the firing affords the enemy an oppor-

tunity for moving back to the forward slope and occupying his old positions. For that reason, it has been found advisable to divide the supporting tank force into two groups. This allows one group to resupply or move to an alternate or supplementary position while the other group maintains the fire. Both support commanders must remain abreast of the situation so that the location of friendly elements and targets is known at all times.

Tank-infantry teamwork is not achieved merely by talking about it. Each new replacement, both officer and enlisted, must realize the capabilities and limitations of both the tank and the infantryman. Most of all, the infantryman must have confidence and a knowledge of what the tank can do for him. At every opportunity, the infantryman should be shown the accuracy and destruction which can be obtained by the 76mm gun. The average infantryman, unless he has been trained, is unaware that he can advance to within fifty yards of the target and still be well outside of the bursting radius of the 76mm shell. This allows him to follow more closely his supporting fires, thereby increasing the element of surprise and shock action. Tank-infantry teamwork is achieved only by training, practice, and experience.

MAJ. WARREN D. HODGES.

*The writer of the following served overseas in World War II with the 6th Infantry Division in the Pacific Theater, remaining on with that organization for the Korean occupation. He returned to Korea over a year ago, in his present post as Commanding Officer of the 3d Battalion, 65th Infantry Regiment, 3d Infantry Division.*

Tank-infantry teamwork, needless to say, is very essential to the success of an operation. When, for example, a tank battalion and an infantry battalion are notified that they are to work together on a task force into enemy territory, it is essential that the two commanders get together at the earliest possible opportunity.

At this time, in addition to making certain that the mission is *thoroughly understood* by both command-

ers, including the plan of maneuver, routes to and from the objective area, timing, etc., it becomes a matter of getting down to the actual mechanics of the operation.

How will the action be controlled once contact with the enemy is made? In other words, how can the infantry commander get the supporting fire from the tanks where he wants it when he wants it?

In order to do this so that the full support of the tanks can be utilized, tank and infantry company commanders who are to work together on the operation are paired off to get down to the fine points—after the task force commander has explained the plan of maneuver of the task force as a whole and the part that the individual tank-infantry company teams will play.

Here is how the 64th Tank Battalion and the 3d Battalion of the 65th Infantry (both of the 3d In-

fantry Division) worked it out on an operation which took them north from Chorwon almost to Pyong-gang, then east on the Pyong-gang-Kumwha Highway during the early part of July, 1951.

The tank battalion CO (also the task force CO) and the infantry battalion CO established their CPs together, moving to and from the objective area on the same tank and remaining together during the operation (close coordination and mutual exchange of information was thus insured between COs).

The two infantry company COs rode with the tank company COs to and from the objective area. (One infantry company rode in M-39's.)

Each CO (battalion and company, tank and infantry) in addition to their own communications within their own battalions, were tied in by SCR 300 radio to the infantry net.

This gave a double system of communication throughout the task force, enabled infantry COs to call for fire quickly from the supporting tanks when not close enough to use the EE8 phones in the rear of the commander's tank, and, at the same time, kept both battalion COs aware of the activities of all concerned.

It was determined that white-smoke grenades (rifle) and WP rounds from 57mm recoilless rifles would be used to mark targets where haste was necessary or verbal description difficult.

It was arranged that air identification panels would be used to mark the foremost elements of the infantry and to further minimize any possibility of tanks firing on friendly infantry troops (which is sometimes unavoidable during the confusion of battle). Small (individual) "cerise" air identification panels were worn by infantry platoon leaders, squad and assistant squad leaders, tucked into the back of their belts.

The use of these individual panels enabled the tankers to quickly locate the friendly infantry and to keep their supporting fire moving just ahead of them, and, where necessary, to bring fire on targets close to the infantry without danger to them.

This system of voice and visual signals was very effective and cut down the loss of time experienced previously in getting quick accurate fire support from tanks.



Lt. Col. Harris

For example, at one time during the operation, very accurate mortar fire held up the advance of the infantry troops and forced the tanks to button up. The mortar position was

located by the CO of Company L, who contacted the CO of Charlie Company of the tanks, which was supporting him, by means of the EE8 phone on the tank. Through a verbal description, fire was brought on the position and the position was knocked out by two rounds from the 90mm cannon.

One other very important item was the offer by the tank battalion CO to have two tanks to transport and provide protection during the operation for the 81mm mortar platoon. This assured us of our indirect fire support and the offer was quickly accepted by the infantry CO.

Tank-infantry teamwork is just as essential as the teamwork necessary in the regiment, battalion and company, and of course, it helps too, if the COs have worked together and especially if they get along together.

LT. COL. JOHN E. HARRIS.

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*The writer of the following served with the 82nd Airborne Division in its European campaign in World War II. In Korea for more than a year he was recently assigned as division G-3 following nine months as Commanding Officer of the 1st Battalion, 17th Infantry Regiment, 7th Infantry Division.*

During the last nine months in Korea I have had the opportunity to directly control tank-infantry attacks on many occasions.

Fortunately, the battalion has operated for the most part in areas in which we had some sort of tank-negotiable trail in our zone. As a result, I have used the entire regimental tank company or parts of it very frequently. In all of our actions we have succeeded in getting at least three tank platoons into the operation.

My approach to a tank-infantry attack, especially in the Korean mountainous regions, is anything but the dashing Patton-type of attack. The fast-moving, crushing potentiality of the tank is used after the objective is taken. The approach is slow and calculating.

In our battalion we feel that control is the key to success for the tank-infantry team. The prelude to control is the minute plan which is worked out with the tank and rifle company

commanders. If at all possible, we rehearse the entire plan in the rear area with skeleton crews and platoons. An unlimited number of briefings are held so that all tank commanders and squad leaders are positive they understand exactly how and when each task necessary for the successful accomplishment of their mission will be performed. The plan and its alternate arrangements are specific but yet flexible enough to compensate for the unpredictable.

In Korea the tanks approach on a valley floor with the main body of infantry on the overlooking hills. This is a cautious approach, and even when anti-tank mines are encountered, the problem of control is routine. Teamwork poses the most serious problem in the actual attack on the objective.

As co-ordinator of the attack, I generally advance with the infantry to an outpost as close to the objective as possible and into a position where both the tanks and infantrymen are visible. The tanks pull into prearranged firing positions, and each tank commences firing at a designated level in the target area on the hill which is the objective.

At the same time, the infantrymen crawl in under this fire with the third man in each platoon trailing a fluorescent panel from his shoulders. As the troops get to a point about 50 yards

short of the bursting area of the tank fire, I notify the tankers to walk their fire slowly up the hill. Upon this movement, the infantry company commanders and platoon leaders receive the word to move in on the enemy. This usually results in brief hand-to-hand fighting before the enemy either has been killed or has retreated over the crest of the hill.

When the enemy riflemen are seen to leave their positions and head for the rear, the tanks move out fast to prearranged positions on the opposite side of the hill and pursue the enemy with fire while the infantry lays down a heavy volume of small arms fire from the crest of the objective.

If this is a limited objective attack with a primary purpose of killing the enemy and not of securing more ground, these tactics work very well because the enemy is more or less trapped by fire from all angles. On the other hand, if a permanent penetration is desired, the tanks and in-



Lt. Col. Sayre and tanker

infantry can have arrangements to refuel and reload ammunition, and then, having already started to rout the enemy, exploit their advantage by continuing down the valley.

Practically speaking, the SCR 300 is the basic means of communication

to tanks and infantry, but its use can be varied. Often, I have found it impossible to contact the tankers on the SCR 300, so I have made it a rule to hold one tank in the rear as a communications tank which is used to relay the messages.

From my outpost, I can contact this rear tank either with my SCR 300, or by telephone if it is practical to run a wire to it.

The use of the fluorescent identification panel trailing from the infantrymen is an invaluable marker for the tankers. In addition to this, the advancing troops have pyrotechnics to signal for lifting fires or shifting the strike from one target to another.

The last but most important element of tank-infantry teamwork is the element of *esprit de corps*. A mutual feeling of trust and confidence is basic in each part of the team, and if this is shared, the battle is well on its way to victory.

LT. COL. EDWIN M. SAYRE.

*The writer of the following served with the 82nd Airborne Division in the European Theater during World War II. In Korea for something more than a year now, he is Commanding Officer of the 2d Battalion, 21st Infantry Regiment, 24th Infantry Division.*

In combat against an enemy who builds his defense around strongly dug-in and heavily reinforced bunkers, the tank with its mobile, highly accurate, direct fire power is a mainstay of our ground combat team.

The Chinese Communist is such an enemy, and though sorely restricted by the nature of the terrain, United Nations armor and infantry have teamed together to exploit the maximum effectiveness from voluminous, mobile fire power and violent shock action in closing with and destroying this enemy.

Korea at its best is not good tank country. Only in a few widely scattered locations can you find an area flat enough with ground hard enough to allow deployment of a task organization including a tank battalion. Even in some of the few "tank areas" the penetration potential is so restricted and objectives that can be gained so limited, that deployment of

even a tank battalion is not profitable. In comparison, it would be somewhat like holding the Memorial Day Auto Races on a football field.

Hence the use of tank-infantry teams has been on a small unit level. Tank-infantry teams consisting of a tank platoon and an infantry company have become highly proficient in digging the enemy out of his honey-combed defenses and destroying him.

But here again, the terrain coupled with a meager road net, has hampered coordinated operation of the team. Often the tanks and the infantryman

must operate at widely separated points; the infantry operating astride a ridge line (heights of 1000 meters are not uncommon), and armor supporting from the base of it. It is difficult for the tanker to pick up the infantry lead elements in the brushy undergrowth predominant on most of the Korean mountain ranges. It is difficult, therefore, for the tanks to render the close, accurate fire support of which they are capable.

To offset these disadvantages, particular attention should be placed on prior planning and coordination by the units involved. The tank unit commander must know every detail of the infantry plan. Multiple means of communications and recognition must be established. Maximum use of identification panels and pyrotechnics should be made. Team training should be stressed, for a mutual understanding of the problems of each element is essential.

In those cases where the terrain and road net have permitted, tank-infantry teams have made coordinated thrusts which exploit the psychological effect of the crushing action of tanks and their tremendous fire power, in destroying, demoralizing, and disorganizing the enemy.

LT. COL. WILLIAM C. MARTIN.



Lt. Col. Martin



The writer of the following has been a Marine officer since 1939. In World War II, he commanded Marines in the Second Division and First Brigade in action at Guadalcanal and Guam. Presently assistant G-3 of the 1st Marine Division on the eastern front in Korea, he commanded the 1st Battalion, Seventh Marines for nearly six months in heavy action against both Chinese and North Korean troops.

Tank-infantry teamwork, as employed by the Marines in Korea, has been pretty much a must because the mountainous terrain where we fight in the east precludes mass use of tanks in the classic concept of armored warfare.

Since tanks operating on the eastern front are denied flat land on which to make slashing and overwhelming power drives, the tanks have had to work in smaller groups and almost always with the infantry as a close partner.

Our tanks did yeoman service in the fighting for Inchon, Seoul and Uijongbu in the fall of 1950 against enemy armor and in the fight to Hungnam to cover the evacuation but this year they have had almost exclusive employment as part of the rifleman's support team.

We have found three principal uses for tanks in the rough mountain country in Korea:

First, teamed with the infantry for patrols. We customarily team a platoon or two of tanks with two or three platoons of Marine riflemen to go trouble-shooting into enemy territory from patrol bases.



Lt. Col. John T. Rooney receives the Distinguished Service Cross from Gen. Van Fleet in presentation ceremony at First Marine Division Command Post.

Second, supplementing ground assault on individual enemy bunkers. We sometimes send two or five tanks to reduce a local objective as a direct support for the infantry but the limited hill-climbing ability of the M-46 and M-26 restricts the flexibility of this role.

Third, to screen the division flank. When the 6th ROK division collapsed on the night of April 22 on the Marines' left flank, the 1st Tank Battalion formed a perimeter at the confluence of three valleys with the Pukhan River and held the rampaging Chinese all one day while the rest of the division made its way to positions where the enemy offensive was eventually blunted.

One use made of tanks last spring was when we were pursuing the Chinese north of Hongchon after their fifth phase offensive was broken late

in May. Heavy rains had swollen the Soyang River and it was in flood. At one crucial crossing, too swift and deep for heavily laden Marines to ford on foot, we used the tanks to ferry the men across to the other side. It was vital that we keep snapping at the heels of the withdrawing enemy and maintain contact so our air could interdict them as they fled.

Trucks and jeeps couldn't ford the stream and there was no time for a bridging operation. Tanks got the Marines over.

At present, on our positions west of Kansong, we are supporting the men in the front-line foxholes by using some of our tanks as artillery.

They are run up on bulldozer-dug mounds of earth to give them a higher angle of fire. They are particularly valuable in the artillery role because of the great range of the 90 millimeter cannon in the M-46.

Our infantrymen are enthusiastic exponents of teamwork with the tanks. That is evident from the number of requests we get for tank support from the infantry commanders. The noncoms and privates are just as enthusiastic.

The mere sound of the treads or the noise those big 90s make when they fire seems to make the riflemen feel better when they go on patrol, or attack a bunker complex, or just when they see the tanks up there on the line with them.

They do the job for us and help us fight in the style we couldn't use without them. The Marines are used to fighting as a team with our own planes and big guns backing the riflemen. The tanks are part of that team.

LT. COL. JOHN T. ROONEY.

from *ARMOR* . . .

Season's Greetings

to all . . .



U.S. Army

# TRAFFIC CONTROL

by HERMAN BURKHART MUELLER-HILLEBRAND

*In this age of mechanized warfare, traffic control is a key to effective operations by ground forces. Good traffic control is assurance of effective logistical support, troop movement and tactical employment. An experienced German commander discusses a subject that lacks glamor but not importance, involving such diverse elements as combat organizations, supply units, refugees, prisoners of war, rain, snow, dust, and mud.*

**T**HE invention of the internal combustion engine brought with it the problem of traffic control.

It is the duty of the civilian traffic control system to keep in movement a complicated stream of innumerable vehicles which are proceeding in all directions. Their movement is controlled by police traffic regulations. As a matter of principle, the regulations treat all vehicle operators on an equal basis, apart from a few exceptions, such as, among others, the fire department. Traffic policemen are employed to enforce the observance of traffic regulations and to keep traffic moving at points of congestion. An alert police force is well aware of possible points of traffic congestion from their observation of traffic and from their general experience.

The military traffic control system is confronted with the same problems.

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Fortunate indeed is the Army that has such ideal traffic facilities as the Autobahn for movement. Here prisoners of war move to the rear as tanks and trucks move forward. Conditions ideal.

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These are made considerably more difficult, however, by the fact that the military traffic control system is not a stationary one. Its men have to follow the army into new territories, often into territories where the capacity of the road net is not very well known and where the roads are subject to constant alterations as the result of destruction, new building projects, and the like. This raises the additional requirement, therefore, of flexible operation, speedy determination of the condition of the road net and the rapid location of possible points of congestion.

In addition to this, however, the military traffic control system is faced with an entirely new type of problem: It has to facilitate complicated march movements by units of all sizes while observing the priorities which result from the missions assigned to these units.

Traffic control thereby becomes an important problem of the field command. The military traffic control agencies must also receive their orders from the field commanders who determine the march movements of the

In addition to this it is absolutely necessary to have very close liaison between the traffic control units and the command headquarters. This can be achieved by regularly assigning a traffic control officer as special-missions staff assistant to the general staff operations officer of the headquarters. His work there will be not so much to receive orders from his unit as to be present at all the planning conferences of the command; this applies particularly to the lower headquarters, such as division and corps. Only in this manner can this officer do justice to his task. He should think things out in advance, be willing to accept responsibility and should not wait for orders, particularly for written ones, which are useful for the war diary and instructions in schools but not for practical operations with motorized troops. The duties of this officer are as follows:

#### **Traffic Control Liaison**

a) To inform the commander of his traffic control unit in sufficient time of the traffic control assignments which the latter may expect to receive.

b) To prepare cooperation with other units and with other agencies of the staff in question. In addition to the commanders of all possible combat teams and combat troops, this also particularly involves the commander of engineers for problems of bridge and road repair, the commander of signal troops for the installation of special signal communications for purposes of traffic control, the director of the cartographic office for the production and distribution of road condition maps, the commanders of medical troops and motor vehicle repair services for the establishment of emergency centers at specific points along the roads, and so forth.

c) To establish close liaison with the proper special-missions staff officers at both higher and subordinate headquarters in order to insure cooperation with the traffic control units, to obtain reconnaissance data, maps, and so forth. It may become necessary to transfer elements of the traffic control units of one's own command sphere to other command spheres for specific tasks, and vice versa.

The strength and equipment of the traffic control units depends on the organization of the other units in the army in question, on the type of ve-

hicles and communications facilities with which it is equipped and on the nature of the theater of war. In estimating their strength the main consideration should be to get along with as few men as possible.

Manuals contain general rules for carrying out the work of the traffic control units, for the use of sentries, patrols, and the like. However, it is by no means possible for the manuals to cover all cases which may arise in actual practice. Therefore, the commanders of traffic control units should be able to adjust themselves easily to new situations, and above all should see to it that their signal communication facilities are used in a carefully considered manner and that they always have traffic control men at their immediate disposal in order to cope with unexpected changes in the situation. It should never be allowed to happen that the intentions of the field commander are impeded by a lack of flexibility in the traffic control system.

The supply officers should be assigned elements of the traffic control units for their own purposes, which are more of a stationary nature. These should not be changed any more than necessary.

In areas which are in a backward state of civilization, such as, for example, the countries in eastern Europe, it is difficult to carry out troop movements. In such countries paved roads, as well as solid bridges and cities with technical facilities, are rare. The expanses are wider. For this reason the forces of nature have a much stronger influence on the mobility of the troops.

#### **The Bottlenecks**

Even if in many places it is possible for four or more columns to drive side by side, they are nevertheless forced to submit themselves to strict traffic control at bridges and other points of congestion, just as under normal circumstances. In such regions the wide expanses, the condition of the ground, which changes so rapidly according to the weather and the seasons, the dearth of technical resources, the often unreliable maps, as well as the foreign languages spoken by the inhabitants, constantly present unexpected difficulties to the troops. Here, as was already mentioned in the beginning, the problem of training and

disciplining the troops, from the commander down to the last driver, not to shrink before any difficulty but rather to overcome it under all circumstances, becomes the most important factor in maintaining mobility and speed.

In regions of this kind the traffic control units have to be equipped with particular care. They should have the best possible motor vehicles, with the greatest degree of cross-country mobility; they should be well armed; they should be abundantly equipped with cold rations; they require a large number of maps, for in these wide expanses they are also information offices and traffic-direction centers for individual vehicles and units which are inadequately supplied with maps; they should also carry along sign-painting equipment and a large number of prepared direction signs.

#### **Special Measures**

In conclusion, traffic control units in such regions are also faced with problems which do not appear to have anything to do with traffic control proper. When road conditions become so bad that traffic can hardly move, the best traffic control system is no longer of any use. However, since the most imperative requirement is still that all troops should be brought up to the front as quickly and efficiently as possible and that their supply system should continue to function smoothly, the additional problem necessarily arises of simply keeping the traffic moving. At such times the officer who has been transferred from the traffic control unit to headquarters becomes a particularly important figure. The traffic control units must then plan for the future and cooperate with other service arms by instigating and directing road repairs on their own initiative. They must also cooperate with towing and repair services, and so forth, and establish bases where individual drivers and casuals can find food and warmth, as well as medical care.

Special tactical situations, such as, for example, river crossings during an attack or a retreat, fighting in mountainous terrain, and similar situations, may compel the commanders of traffic control units, as well as the tactical commanders of troops, to take special measures.

## THE YUGOSLAV ARMY: ANTI-SOVIET FORCE

The United States and Yugoslavia have just signed a military aid agreement providing for the shipment of arms to Marshal Tito's forces. The agreement was prefaced by a visit to this country in June by Yugoslav Chief of Staff General Popovic, and more recently by the inspection trip to Yugoslavia of U. S. Army Chief of Staff General Collins. Thus another link is forged in the mutual security program of the anti-Soviet bloc, in the critical Balkan area and along the satellite front.

At the present time the Yugoslav Army, seen in the pictures on these pages, is equipped essentially with German and Soviet matériel. Under the terms of the new agreement the U. S. will furnish a Military Assistance Advisory Group, to be headed by Brigadier General John W. Harmony, as the connecting link in the major switch to American equipment.



Marshal Tito observing maneuvers.



Yugoslav infantry in action. A large proportion of the Army fought against the Nazis to liberate their homeland in WWII.



Tabu prior to WWII, soldiers are encouraged to read newspapers today.



Tank unit commander prepares to lead armor into the attack. First Yugoslav tank unit was formed in 1944, fought in the homeland, met Allies at Trieste.



Tank leader briefs his men on terrain prior to attack. Yugoslav tankers are well trained, need some modern equipment.



Paratroop units are a recent addition to Yugoslav Army organization. Artillerymen loading a well camouflaged piece.



The tank-infantry team at work. The Yugoslav Army numbered 800,000 at the end of World War II, now numbers 600,000, in some thirty divisions. Principal need is for modern heavy weapons, especially tanks, forthcoming in the aid program.

*The story of the development of mechanization in the British Army is a part of the history of armor's evolution. It concerns a small group of forward-looking soldiers, a wall of conservatism, and the traditional peacetime purse—and also a lesson for all countries in a period when factors in time and space place a premium upon their defense preparedness programs*

## A CASE IN PREPAREDNESS

by WALTER H. BUTLER

**M**OST people are familiar with the story of the obscure French captain, Charles De Gaulle, who attempted in the early 1930's to convince the French General Staff of the necessity for armored units in future warfare, but few are aware that Britain was the scene of a similar drama fully a dozen years before De Gaulle's classic crusade. De Gaulle's British counterpart was Colonel J. F. C. Fuller, an officer in the British Tank Corps during World War I.

Colonel Fuller became an advocate of mechanized warfare as a result of close association with tank tactics and strategy on the Western Front.<sup>1</sup> He was first assigned to the Tank Corps in August 1916, and in December of that year was appointed Chief General Staff Officer of the Tank Corps, a position which he held until 1918.

In 1916 the tactical value of the tank was questionable. As late as April 1918 "the Tank Corps was reduced from 18 to 12 battalions because infantry reinforcements were falling short!"<sup>2</sup> It was not until the victories of mid-1918 that the tank became recognized as a valuable offensive weapon. Only by accident during the action at Hamel in 1918 was the principle of tank-led infan-

try acknowledged. As a result of this discovery, the tank received proper attention in the 1919 Campaign Plan, but unfortunately for the exponents of tank warfare, the campaign of 1919 sank into the realm of the theoretical and untried.

Interest in "mechanicalisation," the term used to denote armored vehicles in the early 1920's, was further discouraged by the return of peace. As soon as the war ended, questions of pension allowances, military awards, demobilization, and rehabilitation absorbed the attention of most authorities. The government saw no possibility of employing a standing army in other than colonial spheres, and for this task a minimum force would suffice. The Army was therefore quickly liquidated, conscription was discarded, and "a gradual return if not to the letter, at least to the spirit, of the old Cardwell system took place."<sup>3</sup> From the War Office, Fuller<sup>4</sup> observed the confused state of post-war planning. Dejected and disheartened by the trend, Fuller inaugurated a one-man crusade for a re-evaluation of the tank as a future combat weapon.

This was the beginning of the verbal battle that was to shake the very foundations of British military thought for more than a decade. No renowned government official or illustrious military leader who was guilty of impeding progress escaped Fuller's scathing tongue. So explosive and successful was the attack<sup>5</sup> that Fuller succeeded in gathering around him several visionary officers who heralded his leadership. Prominent among the early disciples were Colonels H.

Rowan-Robinson and Giffard Martell, both enthusiastic exponents of mechanization throughout the nineteenth, twenties and thirties and authors of numerous commentaries on the subject; Colonel Philip Johnson, celebrated British tank designer; and Major General Sir Hugh Elles, commander of the Tank Corps during the war.<sup>6</sup>

This so-called Fuller School was not without critics. Most of the criticism, however, centered upon the limitations of the existing tank model and cautionary advice against rash enthusiasm. For example, Colonel J. C. Dundas, who served in Tank Corps administration during the war, denounced Parliament and service journals for indulging in a severe attack of "tankitis."<sup>7</sup> On the other hand, Major General W. H. Anderson looked to the broader limitations which were likely to discourage tank development, such as financial stringency, the forthcoming reduction of naval armament, and the unlikelihood of war for some years to come.<sup>8</sup>

As for Fuller, his conception of mechanization had already reached the formative stage. Most military authorities saw the value of the tank in certain limited circumstances, but Fuller envisioned a complete mechanical army, equipped entirely with mechanical vehicles and employed tactically as an independent unit. This theory was formulated in a Memorandum, "A New Model Army," a concrete program for the substitution of machine power for manpower, submitted by Fuller to the War Office in August 1919. The plan called for the creation of a mech-

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anized brigade composed of several types of tanks and mechanical vehicles.<sup>9</sup> In essence this organization was based upon the findings set forth in Fuller's Gold Medal Prize Essay for 1910.<sup>10</sup> Admittedly, there were numerous technical limitations to this plan, but Fuller hoped that an extensive campaign to acquaint public opinion with the tank would alleviate some of the deep-rooted conservatism among the "die-hards" in the War Office.

First to take offense at the new trend was Fuller's own department—the War Office. As a result of winning the 1919 Gold Medal Prize Essay, Fuller was severely reprimanded by his superior, Sir Henry Wilson,<sup>11</sup> Chief of the Imperial General Staff (C.I.G.S.), while General Burat, Deputy Chief of the French General Staff, and the President of the French Republic showered him with academic honors.<sup>12</sup> A second demonstration of prejudice against Fuller's methods was the treatment of the Memorandum dealing with the formation of a mechanical brigade. Although the authorities made a passive gesture in favor of the plan by forming a New Model Brigade in the Aldershot Command, they undermined the entire scheme by constructing the brigade on a summer camp footing, so that the continuity of effort essential for success was sacrificed. Fuller was appalled! He made numerous attempts to prevent the erection of this false front, but it was too late, for the Secretary of State for War had already publicized the project.<sup>13</sup>

Even the future existence of the Tank Corps was a delicate matter among higher echelons. Authorities felt that the tank had served its purpose. Fuller's "egg crackers" were regarded as useful auxiliaries for the infantry, not as battle-winning weapons in their own right.<sup>14</sup> In keeping with this attitude, the Corps was reduced to four battalions, while any decision upon the fate of the organization was postponed for the present.<sup>15</sup> Curiously enough, it was the employment of tanks and armored cars in troubled areas within the Empire that kept the tank before the public.<sup>16</sup> Finally in 1922 a dispute between the Air Ministry and the War Office over the control of armored units in Mesopotamia forced the authorities to con-

sider the peace status of the Tank Corps.<sup>17</sup> The decision favored the Corps, and in November a Royal Warrant officially recognized the new organization, renamed the "Royal Tank Corps."<sup>18</sup>

Despite War Office hesitation, the postwar government was the most serious obstacle to mechanization of the army. Greatly influenced by the increasingly popular cry for economy<sup>19</sup> and the feeling of war-weariness, Lloyd George's Coalition Government refused to be stirred by the radical rumblings and theories of one Colonel Fuller. Winston Churchill, then combined Secretary for Air and War, summarized the government's position in 1920 by stating that he foresaw the coming of the "mechanical army," but he felt that the government would be unwise to engage in an extensive building program since tank development was still in the experimental stage.<sup>20</sup> Consequently, Fuller's hope of equipping the postwar Tank Corps with the new Medium D and Light Infantry tanks,

Footnotes are assembled at the end of this article.—Editor.

which had performed so successfully during the trials at Leeds in 1919 and 1921, was doomed from the start. However, in 1921 Churchill resigned and Sir Laming Worthington-Evans, who was more conscious of the value of armor in modern warfare, assumed command at the "War House."

The new Secretary commenced at once to reshape War Office policy with regard to mechanization. In his first estimate speech, he asked for £500,000 to aid tank research and experimentation. He told Parliament that "the general view is that mechanical means of fighting must be developed to the fullest."<sup>21</sup> In August he set in motion the plan for expanding the existing four tank battalions during the next two years.<sup>22</sup> Worthington-Evans' role should not be over-emphasized, however, since Parliamentary sentiment, especially on the more important military issues, coincided closely with War Office policy; nevertheless, the Secretary showed himself a man who saw the need for a "mechanical army" and was prepared to fight for its development.

Had he continued in office, it is possible that he and Fuller might have been able to hasten the mechanization program during the postwar years. Unfortunately, both men soon departed from the scene. Fuller's tour of duty at the War Office ended in July 1922, and Worthington-Evans was forced to make way for his political successor, the Earl of Derby, in October. It was not until the late 1920's that both men could again resume the fight for mechanization from their respective positions.

Thus far interest in mechanization was largely confined to debate and discussion. Aside from several minor gestures, most of the country's leading military and political figures appeared satisfied with the existing military policy in view of Britain's financial problem and the peace-appearance of world affairs. Therefore a period of military retrenchment was warranted but, at the same time, retrenchment contained one inherent weakness—that of indecision.

Throughout the late twenties and early thirties the tank enthusiasts intensified their attack upon military conservatism. Interest in mechanization reached a new high. Vehement debates took place in the newspapers, on the floor of the Commons, and in the prominent military periodicals. On the surface the results appeared negligible as every mechanical experiment dissipated into half measures; yet the mere existence of mechanical experiments indicated a growing awareness of Fuller's concepts.

This period also witnessed a marked increase in the converts to mechanization. Fuller achieved a major victory in 1925 by the addition to the Fuller group of Captain B. H. Lidell Hart, who was already recognized as one of Britain's leading military journalists. Constant debate and friendly discussion between Hart, who after the war saw the value of the tank but could not completely reject the primary role of the infantry, and Fuller led to Hart's conversion.<sup>23</sup> Other new additions to the group included: Colonel C. N. F. Broad, General Ian Hamilton, Captain Lionel Dimmock, Major B. C. Denning, Captain E. H. Sheppard, Colonel Sir Frederick Pile, Major General Sir J. Burnette-Stuart, and Brigadier General E. L. Spears (retired).<sup>24</sup>

Although Fuller's stay at the War Office ended in July 1922, he continued to be the major generating force behind the fight for mechanization. Before taking up his new assignment as Chief Instructor at Camberley, he compiled his first major work, *Reformation of War*, which soon became one of the foundation stones of the Fuller school. Even his teaching at Camberley was conducted with a view to mechanized war. Old lectures, papers, and old documents were burned as the way was prepared for the new approach. Fuller was fully aware that his manner was unconventional; yet he also knew that unless he took advantage of the opportunity to reorient the future staff officers, there would be no breaking away from the past.<sup>25</sup> Conventionality answered this challenge when Lord Cavan, the new C.I.G.S., refused Fuller permission to publish his Camberley lectures in book form, under the title of *The Foundations of the Science of War*.<sup>26</sup> Cavan told Fuller in a personal interview that he considered it contrary to discipline for officers on active duty to publish books for fear that the younger officers might embrace such works in preference to Training Manuals.<sup>27</sup>

### Economy . . . !

Despite this setback, Fuller continued the relentless attack upon traditionalism. In a lecture to the members of the University of London Military Education Committee in February 1924, he compared British and French policies of mechanization. He showed that the French with forty tank Battalions, as compared to Britain's meager force, realized the potentiality of a mechanical army.<sup>28</sup> Later in November he lectured at the Royal United Service Institution on the "Progress in Mechanization of Modern Armies," again stressing the need to think in terms of tank-mindedness.<sup>29</sup> Finally, in 1931 Fuller wrote his most profound work on armored warfare. *Lectures on Field Service Regulations III: Operations Between Mechanized Forces*<sup>30</sup> was published in 1932, and in this one volume all the bits of his long and varied experience were fashioned to form a unified mechanical doctrine. His mechanical group was organized in two wings or units—a tank force for offensive power

(fulfilling the condition of speed) and an antitank force for protective power (fulfilling the condition of armor).<sup>31</sup> The two forces were mutually dependent upon each other in offensive and defensive maneuvers. The antitank unit provided the base for offensive operations and the protection in defensive fighting; whereas the tank unit was the striking force on the offensive and the reserve for counteroffensive on the defense. Together they were the shield and sword of successful warfare.<sup>32</sup> One other fact worth mentioning in this connection was the role of aircraft in Fuller's scheme. Previously, the relationship of the mechanical army and the air arm was largely overlooked, even by Fuller, but in *Lectures on F.S.R. III* it became an integral part of the doctrine, necessary in both offensive and defensive action.<sup>33</sup>

### Passive Agreement

By 1924 some of these ideas had begun to infiltrate into the War Office. Examination of the records reveals that there was passive agreement among top military officials concerning the ultimate value of mechanization. Discord arose over the question of the rapidity by which the process should become a feature of military policy. The C.I.G.S., Lord Cavan, although a military conservative, did accept mechanization in principle,<sup>34</sup> but did not have the courage to assume sole responsibility for modernization of the Army. Likewise, the Earl of Derby, Secretary of State for War in the Conservative Ministries of Bonar Law and Stanley Baldwin, and his Labour Party successor, Stephen Walsh,<sup>35</sup> declined to accept the challenge of mechanization. In spite of these manifestations of caution, several minor reforms were instituted.

The first military exercises since the war were held in the fall of 1924. In the trials the Mark I Vickers medium tank, standardized and issued to the Tank Corps in 1923, attracted the attention of military and civilian observers.<sup>36</sup> In addition, a tank driving and instructional school was established at Wool and a gunnery school at Lulworth Cove.<sup>37</sup>

Meanwhile, in 1925 two developments took place that changed the military picture. First, Major Giffard Martel revolutionized the technical

field by the completion of a new model tank—the one-man tank.<sup>38</sup> The most attractive feature of this new machine was its low construction cost.<sup>39</sup> The "tankette" was therefore one answer to the economy argument which had long justified military conservatism. However, Fuller was not overly enthusiastic. He feared that the enthusiasm for the midget tank might overshadow the tactical value of the more substantial medium and heavy machines.<sup>40</sup>

The second important development was the change in War Office personnel—Worthington-Evans returned as War Minister and Sir George Milne succeeded Lord Cavan as C.I.G.S. This action was heralded as a move in favor of mechanization,<sup>41</sup> and early deeds tended to substantiate this belief. Worthington-Evans in his first Army Estimate report stated that it was his intention to carry on experimentation and research upon mechanical armament. Included in the Army Budget was £95,000 to be used for Army maneuvers, the first full-scale display since the war.<sup>42</sup> Milne's appointment was extremely significant because he was the first postwar C.I.G.S. instructed to work on the problem of Army modernization.<sup>43</sup> Milne further raised mechanization hopes by making Colonel Fuller his Military Assistant. From the outset it appeared that Milne and Worthington-Evans would supply the courage and audacity that was needed at the War Office, but unfortunately both men found the pressure of Army tradition and financial commitments so overpowering that after extensive research and study only minor improvements were achieved.<sup>44</sup>

### Some Tactical Growth

Tank design and production were substantially curtailed by financial considerations during the 1927-33 period. Before the depression a number of new designs were tested and found promising, especially the "Independent" heavy tank and the Mark II Vickers medium tank. However, by 1931 the M.G.O. department at the War Office was so trammelled by financial restrictions that several projects were discontinued and only inferior models of the original reached the production stage. The plans for the "Independent" tank were



scrapped, and a small number of inferior grade Mark II tanks were constructed. As a substitute, the War Office burdened the Tank Corps with a number of Vickers light tanks for use in a fighting role and not merely as scouts.<sup>45</sup> While the Tank Corps fared poorly with respect to equipment, it made rapid advances in tactical growth.

Since the First World War there had been no program for the study of armored units under battle conditions. Both Milne and Worthington-Evans saw the need of such a program, and as a result, in March 1927, the Secretary of War notified the nation that an Experimental Force was to be formed at Tidworth, composed of completely mechanical units. The purpose of this force was "To gain practical experience of the effect of mechanization on tactics."<sup>46</sup> The Secretary went on to explain that the force was to be commanded by Colonel Fuller.

### **Sabotaged!**

Fuller was aware of the project as early as 1926, but it was not until he returned from an inspection tour in India that he was officially appointed by Milne—his command to become effective on May 1, 1927. When in February he journeyed to Tidworth to inspect his future command, he found not a completely mechanized force but instead the 7th Infantry Brigade and the Tidworth Garrison troops. The only mechanical feature of the entire command was the provision that mechanical units were to be allotted to him from time to time whenever the 3rd Division saw fit!<sup>47</sup> Fuller protested to his superior and suggested changes for increasing the mechanical composition of the force, but Milne repeatedly ignored his requests. Finally, after another futile attempt to alter the C.I.G.S.'s decision, Fuller wrote his resignation, defending his action upon the grounds that it would be a fraudulent act on his part to fill an appointment which in no way resembled the one made public by the Secretary of War.<sup>48</sup> However, after due consideration, he consented to withdraw his resignation upon the condition that another officer<sup>49</sup> would be appointed to command the Experimental Force. Fuller's loss was an irreparable blow to the mechanization

cause, but it is doubtful whether he alone could have overcome the numerous handicaps inherent in the composition of the Experimental Force.

As expected the maneuvers in September repeated many of the mistakes of 1921-22. Burdened by unarmored troops, antitank localities, and non-effective leadership, the Experimental Force struggled through the exercises accomplishing very little. However, one fundamental principle was determined—that armored and unarmored units should not be fused until officers and men were more familiar with joint operations.<sup>50</sup> In other words, reasoned the advocates of mechanization, the composition of the Experimental Force was imperfect, not the concept of mechanization.

On the other hand, the critics of mechanization were prompt in pointing to the experiment as a failure. Leading the procession was Victor W. Germain, the most notable critic of Fuller. Germain was one of the first to refute mechanization on the grounds that the tank possessed only negative tactical value.<sup>51</sup> For Germain the infantry was still the most effective striking force. He claimed that the infantryman equipped with the necessary antitank weapons was superior to the tank. He also advocated dependence upon the "mass army" which, unlike the so-called "mechanical army," can be expanded in time of need without serious consequences.<sup>52</sup> Despite these criticisms of the tank, one cannot help but speculate while reading Germain whether he genuinely disapproved of the tank and mechanization, or whether he berated them because their denouement, the "mechanical army," was contrary to his concept of the "mass army."<sup>53</sup>

### **An Armored Force**

Nevertheless, the Salisbury Plain experiment was followed by subsequent mechanical groupings. The 1928 training season was highlighted by the trials of a newly formed Armored Force. The unit, a by-product of the 1927 Experimental Force, was disbanded at the end of the year, but not without achieving some success. It contributed to a better understanding of the composition of armored units and a deeper insight into tacti-

cal problems. What was required was a brigade or smaller formations made up of similar units. These smaller units could act independently or as a combined force without sacrificing versatility; whereas the versatility of a larger unit was weakened by division.<sup>54</sup> The result was the formation in 1929 of Experimental Infantry Brigades composed of a light tank Battalion and three infantry Battalions with motorized machine gun companies—the purpose being to decide the best composition of infantry and armored units.<sup>55</sup> After the 1929 training season preliminary Tank Brigades were established in 1931, and their successes in 1931 and 1932 led to the construction of a permanent Tank Brigade in 1934, commanded by Brigadier P. C. S. Hobart.<sup>56</sup>

### **Appropriations Cut**

Fuller and the advocates of mechanization were reasonably pleased with the tactical progress and the War Office Manual (1928) endorsing the doctrine of mechanization, but they were not deluded into thinking that complete mechanization would follow. The authorities were not opposed to the revolution of a tactical doctrine; what they objected to was any rash steps toward complete mechanization. Therefore, Milne and the political heads of the War Office—Worthington-Evans and the Laborite War Minister, Thomas Shaw<sup>57</sup>—adopted the policy of gradual mechanization. The chief reason for this stand was the economic situation. This economic argument was strengthened in 1929 by the world financial crisis, the full impact of which reached Britain in 1931. In order to thwart the forces of depression, the government was forced to cut Army appropriations, which meant a drastic reduction of the already insufficient funds available for mechanization.

Thus far the cautious position of the authorities toward mechanization was tenable. Not only were Fuller's doctrines untested by war and sometimes apparently fantastic, but the inherent conservatism of the senior military chiefs and the peaceful appearance of world politics followed by the economic crisis were not conducive to a large scale program of military expansion.

I am not fanatic concerning mechanization, but we have been experi-

menting for ten years, and surely the day must come when we must make up our minds. We cannot go on experimenting forever, otherwise the day is bound to come when we shall be caught napping.<sup>58</sup>

This opinion voiced in Parliament by Brigadier General Spears early in 1934 is the key to understanding the dilemma that faced Britain's military and political leaders in the 1930's.

The early thirties ushered in a series of new factors that disrupted the foundations upon which the military policy rested. In September 1931, Japan invaded Manchuria, and the failure of the League members to present a united front in face of Japanese aggression dealt a severe blow to League prestige. In 1933 hopes for international peace were further shattered when the Disarmament Conference, meeting periodically since 1931, adjourned without reaching any noteworthy settlement. In March Japan answered the League's condemnation by withdrawing from the organization and by continuing conquest of Manchuria. In January Adolf Hitler seized the German Chancellorship, and by November Germany too had abandoned the League.

### Stopgap Measures

The immediate reaction at the War Office to the new conditions was indecision. Officials recognized the need for a re-evaluation of the military policy, but they hesitated to upset tradition. The newly appointed C.I.G.S., Archibald Montgomery-Massingberd,<sup>59</sup> was a staunch supporter of this view. He repeatedly argued that Britain should proceed slowly with regard to modernization and mechanization because of the danger of obsolescence.<sup>60</sup> Other members of the staff seconded the conservative view on the basis of the unlikelihood of war.<sup>61</sup> Therefore, instead of scrapping the old system and constructing a new one based upon modern methods of warfare, the authorities attempted to postpone any decision regarding mechanization by stop-gap measures. Experiments were conducted, and partial armored formations were instituted, but no overall mechanization program was apparent.

The 1934 permanent Tank Brigade exemplified War Office indecision.

The move represented a definite step toward mechanization since the earlier brigades existed on a temporary basis; yet it was not completely equipped with an up-to-date light tank, and had no medium tanks.<sup>62</sup> Also there was no guarantee that this unit was to be the forerunner of future armored units. Attention to mechanization consisted mainly of improving the mobility of the older arms in contrast to the trend abroad of creating a number of "mechanized" divisions composed entirely of armored fighting vehicles.

### Fuller's Retirement

Fuller's military career after 1927 also illustrates War Office disregard for mechanization. After his release from the Experimental Force command, Fuller remained with General Ironside, commander of the 2nd Division, until 1929 at which time he was shuttled off to command the Rhine Brigade at Wiesbaden. His stay in Germany was ended by the evacuation of Britain from the Rhine Sector, and by October he was back in England commanding the 13th Infantry Brigade at Chatterick, a post dubbed the "bloody limit" by common soldiers.<sup>63</sup> These assignments appeared to be a deliberate attempt on the part of the more conservative staff members to rid themselves of Fuller's ravings. However, the tide subsided for a brief instant in September when he was promoted to the rank of Major General, but the promotion was merely a cushion for the blow that followed. In November 1931, Fuller was notified that his next command was to be a second-class military district in India, consisting of an antiaircraft battery, a heavy artillery battery, and one battalion of infantry. The order was dated November 11th.<sup>64</sup> It was ironic that a man who had devoted the major portion of his military career to the study and application of mechanical warfare should receive his most debasing command on the thirtieth anniversary of Armistice Day. Unable to reconcile himself to the latest "choice" appointment, Fuller refused the command, and on December 4, 1933 he was placed on the retired list.

Thus far the strengthening and equipping of the British Army had been delayed while some hope hung

on the Disarmament Conference; but after its collapse the government was forced to take account of the dangers and make a detached examination of their forces. The immediate result was that in July 1934, a five-year plan was adopted for increasing the Air Force. At the same time £4,000,000 was provided for the modernization of the Army, although a large part of this sum was needed to replenish the depleted ammunition supplies.<sup>65</sup>

In March 1935 the government further acknowledged the urgency for rearmament by releasing a White Paper relating to Imperial Defense. Contained in this document were several general remarks concerning the Army's lack of mechanization, modern weapons, and reserve material of all types.<sup>66</sup> Somewhat later came the announcement of another move toward mechanization—the mechanization of the cavalry. This was undertaken in preference to the reduction of the cavalry and the expansion of the Royal Tank Corps.<sup>67</sup>

The first serious effort at rearmament took place in 1936 with the publication of a second White Paper. In this document, the Navy and the Air Force received most of the attention.<sup>68</sup> Regard for mechanization took form in the March Army estimate debates. Duff Cooper, War Minister since December 1935, informed Parliament of the year's plan to combine the existing Tank Brigade with two mechanized cavalry battalions into a Mobile Division. Also three new tank battalions were to be organized apart from the Mobile Division.<sup>69</sup> Now that the government was committed to a policy of mechanization, the important question among tank enthusiasts was how far would this acceptance in principle be carried out in practice?

### Paving for Dunkirk

Mechanization received only secondary consideration following the publication of the White Paper. Officialdom rejected total mechanization in favor of motorization, laying emphasis on light armored machine-gun carriers.<sup>70</sup> For the German panzer divisions, these units were mere matchboxes, and thus the way to Dunkirk was well paved. According to Liddell Hart, Hore Belisha, the new War Minister in 1937, vigorously opposed the new trend. As a

substitute he favored the scheme put forward to establish three armored divisions at home and two in India and Egypt, respectively, but this plan to raise the ratio of armored units to infantry was repudiated in higher military quarters.<sup>71</sup> As a result on the eve of World War II there was only one British armored division at home and another in Egypt, neither fully equipped.<sup>72</sup>

Why had so little been done to fulfill the promise of mechanization? Fundamentally, the answer lies in the way that the tank experts were excluded from influencing its development. In addition to the dismissal of Fuller, in 1934 Major General George Lindsay, one of the early pioneers of mechanization, was sent abroad to command a second-class military district in India devoid of mechanized troops; also Sir Frederick Pile was dispatched to an antiaircraft regiment in the Egyptian Canal Brigade. Symptomatic of the same spirit was the appointment of Major General Alan Brooke, an antiaircraft specialist, to command of the First Armored Force.<sup>73</sup>

Equally detrimental to total mechanization was the growing strength of pacifist sentiment among the politicians and the lack of funds for Army expansion and modernization. Even though pacifism had a strong grip on the general public, especially within the Labour Party ranks,<sup>74</sup> its strength was greatly enhanced by men like Neville Chamberlain, who because of their influential position in the government, made pacifism an integral part of government policy. As Chancellor of the Exchequer in the MacDonald Ministry (November 1931-June 1935) and the Baldwin Ministry (June 1935-May 1937) and later as Prime Minister, Chamberlain devoted much of his energy to restoring the finances of the country. He therefore had every reason to regard rearmament as a frustration of his efforts.<sup>75</sup>

Competition of the services for funds was another serious obstacle since Army Estimates were largely determined by Navy and Air Force demands. Throughout the rearmament period the Navy and Air Force received most of the attention. While

Navy expansion was a traditional matter, the rapid increase of the Air Force undoubtedly absorbed some of the funds that might have been allotted to the Army.<sup>76</sup> Also other military problems, such as defense theories and the debates concerning the necessity of another British Expeditionary Force,<sup>77</sup> arose during the rearmament era which overshadowed, to some extent, the mechanization issue.

In the two decades after 1919 the doctrine of mechanization formulated by Colonel Fuller was one of the major British military problems. The doctrine survived a period of economic depression, international peace, and military repugnance only to be rejected in the 1936 rearmament program. Feeble promises and half-hearted demonstrations were substituted for action, while in Germany and Russia Fuller's theories were being converted into fact. In other words, as late as 1937 the British War Office authorities, like the directors of British foreign policy, were totally unprepared to face the world that appeared in 1939.

<sup>71</sup>In 1919 Fuller wrote, "Before the Great War I was a believer in conscription and the Nation in arms; I was an 1870 soldier. My sojourn in the Tank Corps has dissipated these ideas. Today I am a believer in war machines, that is, in a mechanical army which requires few men and powerful machines." Fuller, *Tanks in the Great War* (London, 1920), xiii.

<sup>72</sup>J. F. C. Fuller, *The Reformation of War* (London, 1923), 116.

<sup>73</sup>Irving M. Gibson, "Meginot and Liddell Hart: Doctrine of Defense," E. M. Earle, ed., *Makers of Modern Strategy* (Princeton, 1944), 375.

<sup>74</sup>Fuller had first hand knowledge of War Office policy by virtue of his position as Deputy Director of Tank Services.

<sup>75</sup>In 1919 Fuller won the Royal United Service Institution Gold Medal Prize Essay. This success was followed by a provocative series of articles appearing in the *Cavalry Journal* which led to a full-dress debate at Senior Officers School in December 1920.

<sup>76</sup>Rowan-Robinson's contribution to the mechanization issue includes: "The Relation of Mobility and Power," *Royal United Service Institution Journal* (hereafter cited *R.U.S.I. Journal*), LXV (August, 1920), 572-79; *Some Aspects of Mechanization* (London, 1928); *Artillery: Today and Tomorrow* (London, 1928); *Security?* (London, 1935); and *Imperial Defence: A Problem in Four Dimensions* (London, 1938). Martel was not nearly as prolific as Rowan-Robinson but fully as informative, especially in the books: *In the Wake of the Tank* (London, 1935) and *An Outspoken Soldier* (London, 1949); and the articles: "Mechanization," *Army Quarterly*, XIII (January, 1927), 291-96 and "Mechanization," *R.U.*

*S.I. Journal*, LXXXII (May, 1937), 280-302. Sir Hugh Elles, "Some Notes on Tank Development during the War," *Army Quarterly*, II (July, 1921), 267-81. Lt. Col. Philip Johnson, "The Use of Tanks in Underdeveloped Country," *R.U.S.I. Journal*, LXVII (May, 1921), 191-204.

<sup>77</sup>Lt. Col. J. C. Dundas, "Anti-Tank," *R.U.S.I. Journal*, LXVII (February, 1924), 106-11.

<sup>78</sup>Summary by Chairman Major-General W. H. Anderson after Lt. Croft's lecture on "The Influence of Tanks on Tactics," *R.U.S.I. Journal*, LXVII (February, 1922), 50-52.

<sup>79</sup>J. F. C. Fuller, *Memoirs of an Unconventional Soldier* (London, 1936), 410.

<sup>80</sup>The subject of this essay was: "The Application of Recent Developments in Mechanics and other Scientific Knowledge to Preparation and Training for Future War on Land," *R.U.S.I. Journal*, LXV (May, 1920), 239-74.

<sup>81</sup>Wilson frequently ribbed Fuller by referring to the tank as Fuller's "egg crackers."

<sup>82</sup>Fuller, *Memoirs of an Unconventional Soldier*, 393-95.

<sup>83</sup>"New Army Plans," *The Times Weekly Edition* (March 18, 1921), 218.

<sup>84</sup>Ivor Aralstead, *The Truth about Our Tanks* (London, 1942), 65.

<sup>85</sup>J. F. C. Fuller, *The Army in My Time* (London, 1935), 176.

<sup>86</sup>Successful feats of British armoured units in India, Arabia, Ireland, Mesopotamia, and Russia achieved legendary proportions in pro-tank circles.

<sup>87</sup>Fuller, *Memoirs of an Unconventional Soldier*, 400-01.

<sup>88</sup>"Royal Tanks Corps," *R.U.S.I. Journal*, LXIX (February, 1924), 152.

<sup>89</sup>The Geddes Committee reductions and other economy drives were a constant obstacle to mechanization in the 1920's. Army Estimates from 1922 to 1928 averaged approximately £45,000,000, some £15,000,000 less than the average Navy Estimates. Of this amount, a very small portion was devoted to mechanical improvement and experimentation. Figures taken from *The Statesmen's Year Book*, 1921-29.

<sup>90</sup>Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 118 (February 10, 1920), cols. 1353, 1356.

<sup>91</sup>*Ibid.*, Vol. 139 (March 12, 1921), col. 1288.

<sup>92</sup>*Ibid.*, Vol. 141 (August 2, 1921), cols. 1148-49.

<sup>93</sup>Gibson, in *Makers of Modern Strategy*, 376; B. H. Liddell Hart, "The New British Doctrine of Mechanization," *English Review*, XLIX (December, 1929), 692. Hart's most valuable works are: *Europe in Arms* (New York, 1931); *Defence of Britain* (London, 1939); *Dynamic Defence* (London, 1941); "Seven Years: The Regime of Field Marshall Milne," *English Review*, LVI (1933); "Contrasts of 1931: Mobility of Stagnation," *Army Quarterly*, XXIII (January, 1932), 235-50; "Mind and Machine," *Army Quarterly*, XXV (January, 1933), 237-50; "Looking Ahead—And Back," *Army Quarterly*, XXVIII (July, 1934), 255-59.

<sup>94</sup>In 1919 Colonel Broad compiled a handbook, popularly known as the "purple primer," which was devoted solely to mechanization. Later he commanded several of the experimental armoured formations. At a dinner in honor of the members of the London Press Club, General Hamilton came out in favor of mechanization. He suggested

that it could be accomplished by cutting the infantry and devoting the money saved to mechanization. "Mechanism in War," *The (London) Times* (February 25, 1924), 7. In the article, "The Problem of the Tank," *Army Quarterly*, VIII (July, 1924), 376-80, Dimmock established himself as an active member of the Fuller school. He wrote: "Since the ultimate aim of fighting is to obtain a decision, and since stabilization is the negation of all decisive fighting, the bold course is to develop the tank." Major Denning's contributions to the argument include: "How to Save £4,000,000 on the Army," *The Spectator*, CXXXIX (July 23, 1927), 127-28; "The Obstacles in the Way of Mechanization of the Army," *R.U.I.S. Journal*, LXXII (November, 1927), 784-88. *Tanks in the Next War* (London, 1938), "The Case for Military Mechanization," *World Today* (December, 1938), and "Seeing Ahead," *Army Quarterly*, XXIX (October, 1934), 106-11 are Major Sheppard's most noteworthy publications. Colonel Pile did some writing, but he was more valuable as a field commander of mechanized units. He and General Burnett-Stuart were closely associated with tactical progress. Brigadier-General Spears assumed the role of chief speaker for mechanization in Parliament. Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 170 (March 4, 1924), col. 1160; *Ibid.*, Vol. 287 (March 15, 1934), col. 705.

<sup>25</sup>Fuller, *Memoirs of an Unconventional Soldier*, 446.

<sup>26</sup>Finally published in 1926 while Sir George Milne was C.I.G.S.

<sup>27</sup>Probably this incident more than any thing else decided Fuller to ask that his four year instructional appointment be reduced to three years. Fuller, *Memoirs of an Unconventional Soldier*, 420.

<sup>28</sup>"Development of the Tank," *The (London) Times* (February 16, 1924), 9.

<sup>29</sup>"Progress in Mechanicalisation of Modern Armies," *R.U.I.S. Journal*, LXX (February, 1925), 73-89.

<sup>30</sup>Hereafter cited as *Lectures on F.S.R. LLL*. These lectures were reprinted in 1943 under the title of *Armoured Warfare* (London, 1943).

<sup>31</sup>Fuller, *Armoured Warfare*, 20.

<sup>32</sup>*Ibid.*, 121

<sup>33</sup>*Ibid.*, 86, 123.

<sup>34</sup>At the annual banquet of the Royal Academy of Arts, Cavan claimed that the War Office was making a move toward mechanization contrary to an earlier criticism of General Hamilton. "The Academy Banquet," *The (London) Times* (May 5, 1924), 20.

<sup>35</sup>The Labour leaders during their ten month tenure of office in 1924 were content to take the armed services as they found them. Lewis Clive, *The People's Army* (London, 1938), 17. However, Walsh did continue the experiments with armoured vehicles begun by Worthington-Evans.

<sup>36</sup>"Army Training," *The (London) Times* (May 6, 1924), 15.

<sup>37</sup>Martel, *In the Wake of the Tank*, 99.

<sup>38</sup>Hart claimed that Martel's invention was primarily responsible for the increasing number of tank enthusiasts in the mid-twenties. Hart, "The New British Doctrine of Mechanized War," *English Review*, XLIX (December, 1929), 693.

<sup>39</sup>The "tankette" cost less than £750 as compared to approximately £2000 for a light tank.

<sup>40</sup>Fuller, *The Army in My Time*, 185.

<sup>41</sup>"War Office Appointments," *The (London) Times* (December 25, 1927), 11.

<sup>42</sup>Great Britain, *Parliamentary Debates*,

Commons, 5th Series, Vol. 181 (March 16, 1925), cols. 1891-92, 1906.

<sup>43</sup>Fuller, *Memoirs of an Unconventional Soldier*, 424, 426.

<sup>44</sup>Worthington-Evans' attitude toward mechanization grew increasingly cautious as his term of office progressed; while Fuller claimed that Milne's instinctive caution always managed to overrule his progressive intentions.

<sup>45</sup>Martel, *The Outspoken Soldier*, 126-27.

<sup>46</sup>Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 203 (March 7, 1927), col. 887.

<sup>47</sup>Fuller, *Memoirs of an Unconventional Soldier*, 434.

<sup>48</sup>Fuller, *Memoirs of an Unconventional Soldier*, 438.

<sup>49</sup>Fuller's successor was an ex-infantry officer, Colonel Phillip J. Collins. "Mechanization," *The (London) Times* (April 28, 1927), 14.

**Maj. Gen. J. F. C. Fuller,**  
frequently mentioned in this article, is recognized as one of the leading military analysts of the day. Watch for his feature review of the book *Cross Channel Attack*, latest volume in the U. S. Army History of January-February issue of **ARMOR**.

<sup>50</sup>Martel, *The Outspoken Soldier*, 67. The one bright spot in the Exercises was the performance of Lt-Col. Frederick Pile's Northern Column whose vehicles moved for a time at 35 miles an hour. "Mechanized Force Pursuit," *The Times Weekly Edition* (September 8, 1927), 260.

<sup>51</sup>Germain's fundamental concept of infantry superiority is found in his book, *The 'Mechanization' of War* (London, 1927).

<sup>52</sup>Victor W. Germain, "Armoured Warfare: A Plea for Common Sense," *Army Quarterly*, XVI (July, 1928), 369-72. Germain also outlined his theory of the "Mass army" in *The 'Mechanization' of War*. He held this view until the Second World War, and some authors felt that he was the "only military author of note who saw the situation with prophetic vision." Gibson, in *Makers of Modern Strategy*, 383.

<sup>53</sup>An indication that Germain's later accepted mechanization by implication is found in Gibson's chapter quoted in the previous footnote. According to Gibson, "Germain was an advocate of all-out continental war

with a new British expeditionary force of sixty divisions equipped with everything modern war requires." *Ibid.*, 382.

<sup>54</sup>Martel, *In the Wake of the Tank*, 124.

<sup>55</sup>Great Britain, *Parliamentary Debates*,

Commons, 5th Series, Vol. 215 (February 28, 1927), col. 2116.

<sup>56</sup>Martel, *The Outspoken Soldier*, 67. The success of the tank operations was also enhanced by the use of radio telephony. The new invention lessened communication difficulties, and was largely possible through the efforts of Brigadier Hobart.

<sup>57</sup>Thomas Shaw held a more conservative view toward mechanization than his predecessor, although Worthington-Evans had tempered his attitude considerably by the time he left the War Office in 1929. "War Secretary's Reference," *The (London) Times* (March 26, 1926), 11. Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 214 (March 8, 1928), cols. 1265, 1270; *Ibid.*, Vol. 237 (March 24, 1930), col. 82; *Ibid.*, Vol. 249 (March 16, 1931), col. 1612; *Ibid.*, Vol. 262 (March 8, 1932), col. 1659; *Ibid.*, Vol. 275 (March 4, 1933), col. 1439.

<sup>58</sup>Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 287 (March 15, 1934), col. 705.

<sup>59</sup>Montgomery-Massingberd succeeded Milne as C.I.G.S. in 1933.

<sup>60</sup>Hart, *Dynamic Defence*, 32.

<sup>61</sup>Hart, *Europe in Arms*, 75.

<sup>62</sup>Of the 1000 vehicles in the 1934 Tank Brigade, only 240 were armoured fighting vehicles. Lt-Col. A. G. Cunningham, "Training of the Army," *R.U.S.I. Journal*, LXXIX (November, 1934), 730.

<sup>63</sup>Fuller, *Memoirs of an Unconventional Soldier*, 446.

<sup>64</sup>*Ibid.*, 447-48.

<sup>65</sup>Liddell Hart claimed that barely a half million pounds were allotted for modern mechanized equipment. Hart, *Europe in Arms*, 87.

<sup>66</sup>"Guarding the Empire," *The Times Weekly Edition* (March 7, 1935), 6.

<sup>67</sup>Hart, *Europe in Arms*, 76; Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 229 (March 21, 1935), col. 1439. Douglas Hacking, Financial Secretary to the War Office told Commons that already two cavalry regiments had been equipped with armoured cars, and that this year a third regiment was to be mechanized which if successful might lead to further developments.

<sup>68</sup>Gibson, in *Makers of Modern Strategy*, 379. Great Britain, *Accounts and Papers*, Cmd. 5107, "Statement Relating to Defence" (London, 1936), 10.

<sup>69</sup>Great Britain, *Parliamentary Debates*, Commons, 5th Series, Vol. 309 (March 12, 1936), col. 2353.

<sup>70</sup>The reasons for this decision will only be clarified when the records of Hore Belisha's administration at the War Office are made accessible for investigation. Gibson, in *Makers of Modern Strategy*, 380.

<sup>71</sup>Hart, *Dynamic Defence*, 34.

<sup>72</sup>*Ibid.*, 35; Winston Churchill, *Their Finest Hour* (Boston, 1949), 31.

<sup>73</sup>Hart, *Dynamic Defence*, 39.

<sup>74</sup>John F. Kennedy, *Why England Slept* (New York, 1940), 20; Clive, *The People's Army*.

<sup>75</sup>Duff Cooper, *The Second World War: First Phase* (New York, 1946), 40-41. Cooper was familiar with Chamberlain's policy because he joined the Treasury Staff as Financial Secretary soon after he left the War Office.

<sup>76</sup>During the 1935-38 period Navy expenditure averaged £70 million while the Army

averaged £51 million. Air Force increase amounted to £15 million in 1935 and £35 million in 1938. Figures taken from *The Statesman's Year Book*, 1939-39.

<sup>77</sup>The debates over the Expeditionary Force and Liddell Hart's theory of limited liability were two episodes which advanced the mechanization issue in the late 1920s.

## FROM THESE PAGES

### 60 Years Ago

Occupying from east to west the broad expanse of a vast continent, stretching north and south from arctic cold to tropic heat, possessing fertile soil, boundless forests, inexhaustible mineral resources, and peopled by a race unexcelled for energy and inventive genius, the United States has no rival.

Separated as they are from all other great countries, war is looked upon as almost beyond the range of possibility.

While all Europe groans with the burden of immense standing armies, which, even in these piping times of peace, shake the continent with their martial tread, the United States rests secure.

But is this security real or apparent? Canada is fast becoming a country, which, if a foe, would be worthy of our steel; Mexico keeps a larger standing army than our own; questions of great moment remain unsolved; the demon of unrest is abroad in the land, and a feverish uncertainty exists.

Who can tell what moment a storm may burst which will call into play the whole strength of our great nation.

Assuming then that the possibility of war does exist—and who after careful thought will deny it—it becomes the duty of the United States to be ready in the hour of trial.

Experience shows that time is necessary for the organization of an army, and that many months must elapse before a raw recruit can be transformed into an efficient soldier.

Organization must, therefore, at all times exist; and its form should be such as to provide the greatest possible security consistent with wise economy.

*The Proper Relative Proportions of the Three Branches of the Service*

W. A. HOLBROOK  
1ST LT., FIRST CAVALRY

### 40 Years Ago

Looked at from the viewpoint of the efficiency of the army as a whole, there has been no legislation proposed in years that promises such good results as the proposition to place all officers of the fighting arms of the mobile army on a single list for purposes of promotion.

All our legislation for years has been dominated by the one idea of promotion, either to get promotion for some one or ones or some branch.

In self-protection, all those adversely affected have had to oppose such bills, with the result that the mobile arms are always unable to agree among themselves as to what is desirable legislation. The efficiency of the service thus comes to be a consideration secondary to personal advancement.

A number of officers have, through the accidents of such haphazard legislation, gained promotion to which they are no more entitled than are those who have in a similar way lost rank. Those who have thus gained naturally desire to keep their advantage, yet many of them are ready and willing to lose such advantage for the good of the service as a whole.

It has been noticed that articles advocating the measure are usually signed, while those opposing it are frequently not so. This has led to a suspicion that some of them are inspired by motives that would be readily understood if they were signed. At any rate it is thought that in discussing this measure we should lend to our views the support of our names.

*One List for Line Officers*

LEROY ELTINGE  
CAPTAIN, FIFTEENTH CAVALRY

### 25 Years Ago

The organization of a Foreign Legion in the Red Army is progressing rapidly. The center of the formation is at Tula, to which place approximately 12,000 foreigners have been transferred from the Red Army. Temporarily the Foreign Legion is headed by an officer of Polish nationality, whose name is Gajewicz. The position of Chief of Staff of the Foreign Legion is occupied by a Czech, named Kryga. The formations organized at Tula are composed mostly of Czechs, Latvians and Poles, who have previously belonged to divisional detachments which are being organized.

In addition to five regular battalions, a foreign school for noncommissioned officers and one Artillery Division have been formed at Tula.

In Perm cavalry detachments are formed which are equipped with arms of Polish type. In Orenburg cavalry detachments are formed composed exclusively of foreigners of the Mohammedan religion. The citizens of the Baltic States form a separate regiment. Another infantry regiment is formed by citizens of Finland; two brigades are formed of Ukrainians coming from Eastern Galicia.

After the organization is completed it is planned to transfer all Foreign Legions toward the Asiatic frontiers of Russia and station them in the Turkestan.

*Foreign Legion in the Red Army*

FOREIGN MILITARY NOTES

### 10 Years Ago

Unquestionably, the 1941 maneuver period, just concluded, was an unequivocal success. It accomplished the purpose for which it was intended. It proved that our expanded army as a whole is *mobile* and rugged. "They can take it." Whoever won or lost the battle is an item of little consequence. The important thing is: *What did we learn?* . . .

In our opinion, the great lesson behind the maneuver lessons is that we have superficial leadership in the platoon, company (troop or battery), and battalion (or squadron). We must crawl before we can walk; and for this reason, we should not expect marked improvement in successive large-scale maneuvers until this noted condition in the lower echelons can be rectified. The success accredited the German Armies is due largely to thorough *basic training*.

The root of this evil began to sprout immediately after World War One. Because of curtailed appropriations for field service, and reduction in size of our Regular Army far below that recommended by General Pershing, a large corps of Reserve officers was created, with resultant undue importance given to academic correspondence work, theory, and map problems. Officers were promoted, with insufficient basic training in the practical combat leadership of platoons. They, in turn, now are not training their subordinates thoroughly in fundamentals. Units are road-bound when they should be well grounded tactically in the "pincher" conception of offensive fighting.

Another cumulative evil is, that in the regular establishment, promotion had stagnated to the point that many officers were held in the same grade for a period of sixteen years or more without opportunity for practical experience in exercising command appropriate to age and length of service—for which we are paying the fiddler today.

*Maneuvers, 1941—In General*

EDITORIAL COMMENT

# GENERAL COLLINS' REMARKS BEFORE THE ANNUAL AUTUMN CONVOCATION AT TULANE UNIVERSITY IN NEW ORLEANS

**L**AST WEEK I returned from a trip around the world, during which I visited our troops in Germany, Japan, and Korea and checked on our military missions and attachés in France, Italy, Yugoslavia, Pakistan, India, Thailand, Indo-China, the Philippines, and Formosa. I spoke with our ambassadors and the ministers of defense and the chiefs of staff in most of these countries, with General Eisenhower and Marshal Tito in Europe; with General de Lattre and Emperor Bao Dai in Indo-China; with Generalissimo Chiang Kai-shek in Formosa and President Syngman Rhee in Korea; and with General Ridgway in Tokyo. Needless to say, I also met and talked with many of our foreign service representatives and members of our economic and military missions and with soldiers, sailors, and airmen of all ranks.

During the past ten years I have had to make many trips to various parts of the globe, but this trip, compressed as it was into one month, brought home to me, as never before, the widespread responsibilities of the United States.

When I left Washington I had no clear idea as to what I might say which would interest this distinguished audience. But as I traveled along, my attention focused more and more on the role of the United States of America as the leader of free men everywhere in the struggle against militant communism which is seeking to destroy all that we stand for, I became convinced that I could do no better than to give you my impressions—as a soldier, and as a citizen—of the vital importance of America's role, as I saw it reflected in the will and actions of other peoples and the growing impact of that role upon our lives.

World leadership is still a relatively new role for the American people. I can still recall the surprise in some quarters when it was announced in 1941 that Turkey was essential to the security of the United States and hence could be made a recipient of lend-lease. Many American citizens at that time had never considered that Turkey was particularly important, one way or another, to the United States. Subsequent events proved that our government was right in aiding Turkey to withstand the approaching menace of Hitler's invidious Nazism. For if Turkey had fallen to Hitler, the militant despotism of Nazism might have spread to the Middle East, India, and Malaya, there to have linked up with its allied despotism of Japan in a cordon that might have throttled the remainder of the free world, including these United States.

Still we might not have entered the war against the fascist coalition if it had not been for Pearl Harbor.

Aroused by the dastardly attack on our fleet there, America bent all of its mighty energy to the defeat of Germany, Italy, and Japan. With all due credit to our gallant allies, who had fought off the threat of the Axis powers before we entered the war, there was no question but that the economic and military power of America decided the outcome. And with the realization of that power came inescapable world leadership and increased responsibility for helping to maintain the peace.

## Bring the Boys Home

But with the end of the war we apparently felt, with typically American revulsion for war and all its works, that our job had been done. In answer to the frenzied cries of "Bring the boys home," we let our emotions dominate our better judgment, and we proceeded to wreck the great Army, Navy, and Air Force that, together with our marvelous industrial system, had brought us victory and, we fervently hoped, lasting peace.

We could have had that peace except for one thing—militant communism. For into the power vacuum created by the destruction of the Axis forces, together with the wanton wrecking of our own, there spread with calculated swiftness the ruthless power of another predatory imperialism—Soviet communism masquerading as a democratic ideology.

There certainly can be little doubt that a mere *ideological* clash between this fraud of communism and our western mode of life would result in victory for true democracy. For who, knowing the truth, would willingly choose the robot-like existence of a slave society? But the Russian communists are not carrying on that kind of fight.

I say fight advisedly because the Soviet Empire has expanded the orbit of its power and forced millions into the slavery of its totalitarian system through propaganda, subversion, infiltration and, where advantageous, by the brute use of military force. Human misery and want merely have served to whet militant communism's lust for power. Supported by the mighty Soviet Army and a ruthless corps of international communists, it has attempted everywhere to push back the frontiers of freedom and to strangle the efforts of war-torn nations to regain political and economic stability.

This planned campaign against human freedom became the established pattern of Soviet activity and has bred fear and insecurity throughout the world. The peoples of Poland, Albania, Bulgaria, Hungary, Rumania,

*Early in November U. S. Army Chief of Staff General J. Lawton Collins delivered an address to the Autumn Convocation of Tulane University, New Orleans, Louisiana. General Collins had just completed a trip around the world which by its very nature indicates the position of world responsibility which is America's today. His remarks, touching upon the East-West differences, the regional defense measures, the interrelationship between economic and military factors, the emergency growing out of Korea, universal military training, and the responsibilities of citizenship, are of such significance that they are presented by ARMOR in their entirety.—EDITOR.*

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and finally Czechoslovakia quickly disappeared behind the Iron Curtain. Small well-disciplined communist minorities seized control aided by the threat of the Red Army or by the insidious penetration of fifth columnists backed by the secret police. Satellite governments were systematically installed and proceeded ruthlessly to suppress all individual freedom.

To the south, as early as 1946, the Soviets attempted to destroy the independence of Iran by subversion and outright military pressure. In China, communist forces, encouraged and aided by the Kremlin, gained political and military control of the country. Soviet military occupation was methodically employed to communize and militarize North Korea.

Greece and Turkey were also prime targets, and beyond them the whole Middle East. And in Germany, the Berlin Blockade was a sign that communism was trying to squeeze the other occupying powers west of the Elbe River.

The peoples of the world, weakened by six devastating years of war, were helpless to stop this creeping menace of communism backed by military might. And because communism probed for weaknesses regardless of their nature and then skillfully shaped its tactics to exploit them, the strengthening of the free world was a problem of strengthening all elements—economic, political, spiritual, and military. And so America, finally aroused, developed an over-all plan embodying: economic assistance programs, regional security agreements—principally the North Atlantic Treaty—the Mutual Defense Assistance Program, and the rebuilding of our own armed forces.

#### **Responsibility of Leadership**

These programs together with strong and continuous support for the United Nations, both in word and action, were evidence that the United States, in its position at the center of power in the free world was beginning to assume the leadership the free world needed.

Greece is an outstanding example of the effectiveness of coordinated military and economic aid in enabling the nations of the free world to withstand Soviet sponsored aggression.

I visited Greece several times and discussed the various aspects of the military and economic problems with our military commanders and other government personnel. It was quite apparent that there had to be much give-and-take between our people engrossed in the details of such a

complex problem, for Greece was an outstanding example of the fact that there is little value in a country's building a prosperous economy unless it has the military strength to preserve it.

The communist guerrillas ravaged and plundered the fertile farm regions and stole the vital food crops needed to feed the Greek people.

Both our military and civilian personnel engaged in the program of aid to Greece had to consider the full impact of Greek requirements. They had to accommodate themselves to the extremely broad understanding of the Greek people, their sensibilities, their capabilities and limitations. They had to use vision and perseverance and good old American horse sense. Their final success in Greece is due in large measure to their fine appreciation of both the military and economic factors involved.

Our aid to Turkey also resulted in contributing to the security of the entire Mediterranean area and the Middle East. There our purpose was to assist in creating efficient, well-balanced modern forces with the maximum capability of resisting Soviet aggression, without constituting an unbearable drain on the Turkish economy. There too our American personnel had to develop a broad understanding of the intricacies of Turkish life and customs, and an appreciation of the fine balance between military requirements and economic capabilities.

One of those rare occasions happened recently when a working newspaperman went out of his way to tell me personally his reactions to the job our military mission is doing in Turkey.

He had been traveling in Turkey and had visited many Turkish outposts where our young officers and enlisted men were assisting the Turks in training. He said that he happened on this small group of American officers in a remote town. These men had not only won the confidence of the Turkish military men, but they had also earned the trust and faith of the villagers by their high standards of personal conduct and their sympathetic approach to existence in that Turkish town, which had few if any of the amenities of modern life. They will probably be snowed in this winter but they will be patiently and effectively carrying for the rest of us a large share of the burden of our world-wide responsibilities.

In Western Europe, where the people live in the shadow of the threatening Red Army, the North Atlantic Organization, under General Eisenhower's brilliant leadership, has brought new hope.

All these programs have called for the closest integration of complex political, economic, and military factors. Our military and civilian personnel engaged in the administration of our programs are well aware of this. They are working hard acquiring a sound background of the problems in the areas in which they work, and are doing a splendid job.

Many of them are working in the undeveloped areas of the world where the inhabitants are eagerly looking for an opportunity to progress. In these areas the people have little choice, and will succumb to the false attractions of communism unless something better is offered. Our mission personnel, in the name of our government, are offering them a workable chance to choose the path of freedom. It takes hard work, creative thinking, perseverance, and broad understanding, but our representatives overseas are facing it with increasing confidence.

Their primary task is to enable the translation of the common aims of all free people into steadfast action against the spread of communism. They are invaluable in fostering mutual understanding between us and our allies; and through them we gain an insight into the culture of our friends and they into ours. Needless to say, such understanding is of utmost importance as we close ranks against the common threat, and would be of even more vital importance if we were ever called upon to fight side by side.

#### **On the Fringe of the Curtain**

There is much we can learn from our friends around the fringes of the Iron Curtain. Their homelands are much closer than ours to the threat of communist aggression, and their long history has given them a great deal more experience in dealing with aggressors. Still there is much they can gain from us. Our military missions, for example, help them by determining what equipment they need and how best it may be used. They are the focal points for the exchange of ideas and for the growth of mutual confidence—confidence that can only stem from a sympathetic and realistic appreciation of the problems of other men.

The great responsibilities of these members of our missions, both civilian and military, are representative of those which rest upon the shoulders of the many other Americans who are engaged in government service both in the United States and abroad. And doubtless many of you will serve your country well in this way in the future as our representatives abroad are serving today. And last year their complex problems were made even more complex.

On June 25, 1950 without warning or cause, North Korean communist forces launched an all-out offensive on the United Nations-sponsored Republic of Korea. The United Nations reacted promptly, branded the action as a breach of the peace, and recommended military assistance to the Republic of Korea. Together with the United States, 52 other nations expressed their support for the United Nations' action and 29 states made specific offers of assistance.

The attack portrayed the true intentions of Soviet militant communism in a way the whole world could understand. The threat was now unmistakable and free men the world over devoted increasing effort to those measures necessary for vigorous self-defense. The attack

also demonstrated that the Soviet rulers were prepared to use the organized military forces of their puppets in an attempt to enslave other free nations.

The character of the free world's reaction to the attack was perhaps even more significant than the actual occurrence. Perhaps more than anything else, this significance lay in the fact that military aggression was not merely condemned, but, for the first time in history, collective military force under an international organization was applied to oppose such aggression. The issue on which the League of Nations had foundered—the issue which peaceful nations had refused to face in Manchuria in 1931, in Ethiopia in 1935, at Munich in 1938—was squarely and courageously met.

But Korea has another meaning in that it has thrown convincing light on that least understood aspect of our national security—our need for a reservoir of trained manpower. Nowhere is this lesson more sharply drawn than in the story of the tremendously difficult problems we faced in providing enough trained manpower to stem the communist surge there. In both World Wars our allies staved off the enemy while we readied ourselves for action. In Korea there was no such respite. The Republic of Korea forces, organized solely for internal police purposes, were about to be overwhelmed by a communist army which was deliberately organized and equipped for aggression.

To meet the aggression we had to send support to the Republic of Korea forces as quickly as possible and had to use those regular forces which were available close by. The American 24th and 25th Infantry Divisions and the 1st Cavalry Division were performing occupation duties in Japan. They had to be picked up and rushed into Korea piecemeal with two-battalion regiments, instead of the authorized three, and with all units greatly understrength.

And the weaknesses of the units in Japan reflected the condition of Army units everywhere. Just prior to the opening of our operations in Korea in June 1950, the Regular Army was 38,000 men under the strength of 630,000 originally authorized by Congress for the fiscal year 1951. We had been struggling for months trying to reach and maintain that strength through volunteer recruiting alone, since we had promised the Congress that we would not ask for authorization to use Selective Service except as necessary to fill that gap between authorized strength and the number of men we could obtain through recruiting alone. But despite the fact that we were required by law to accept enlistments for such short terms as one year—which is a terribly costly and inefficient way of doing business—we were unable to get sufficient volunteers, and our strength had dropped gradually to 592,000 against an authorization of 630,000.

#### **The Pinch of Unpreparedness**

Then, here at home, we had to face the task of building up that early nucleus into what later became the great Eighth Army which we know today. The only trained men immediately available were in our Regular units, which were themselves understrength. We pulled nine battalions of infantry, armor and artillery from those units, and selected individuals from every organization in the Army to obtain trained cadres for six additional battalions. The 2d Infantry Division was brought up to strength by stripping our remaining units still further and was then



dispatched to Korea. The 3d Infantry Division was re-created, though we simply were not able to get it to full strength before it had to sail. Instead, we had to take a regiment from Puerto Rico as the third regiment for this division. At about the same time the 11th Airborne Division was decimated in order to provide General MacArthur a full-strength airborne regimental combat team, the 187th Airborne Infantry.

There then remained in the Regular Army in this country only one division, the 82nd Airborne, in condition to fight. We dared not reduce our last division to impotency, even though the Eighth Army still was desperately in need of men.

### Sources for Manpower

To meet further pressing needs for combat-type units and for essential engineer, signal, ordnance, quartermaster, and other supporting units, we had to order more than 2,000 company size National Guard and Organized Reserve Corps units into active service. But like the Regular Army units, they also were short of trained men. The only sources of manpower with which to fill them—since the Regular Army had already been stripped—were the Selective Service system which had been quickly re-established by the Congress after the North Korean attack, and the reservoir of trained men still remaining in our Organized Reserve Corps and National Guard.

Selective Service had not been operative since January 1949 and would have required two or three months to call up selectees. These men would then have needed an absolute minimum of 14 weeks of basic training before taking their places in units, plus additional unit training before the units were ready for combat.

The only practicable remaining source of relatively well trained men was in our Organized Reserve Corps which has always had two categories of personnel: individuals assigned to units, and those not assigned to units but catalogued according to their specialized skills. Units had to be held intact as far as possible to back up the active Army in the event the conflict in Korea should be broadened. So the only available source was the large group of Reservists not in units. Fortunately, the Organized Reserve Corps was able to meet the pressing demands, and by the end of August, 1951, 200,000 Reservists had reported for active duty to fill vacancies in combat units and to provide instructors for new recruits.

Unfortunately, in the initial rush of trying to meet the emergency, there was not much time to give consideration to variations in individual cases; and there was an immediate and urgent demand for skilled specialists which had to be met. This resulted in some instances in calling up fathers who had had service overseas during World War II, while other Reservists who had never been overseas and had no children were not called. The answer in most cases lay in the fact that the men had different occupational specialties. These inequities have been eliminated as time and conditions have permitted.

The dreadful experience of rushing understrength units into action; of early emergency recalls for combat veterans with family responsibilities; of long delays in training our citizen-soldiers—all these stark deficiencies hold for us a solemn warning which we must not ignore. We must realize that our Army's Regular forces must be kept close to authorized strength, that we must support those forces

with a strong National Guard and strong Organized Reserve Corps made up of both units and individuals. These individuals must be trained men who after a short refresher period of training can effectively fill the ranks of our divisions and other units whether in combat or in training here in the United States.

This struggle against communism may well be a long one, and requires a long-range solution. We must plan ahead for the long pull and not be carried away with short-range crises and the resulting letdowns which always seem to follow. If we are to continue our traditional military policy of placing great dependence on our National Guard and Reserves, then we must make it possible for them to acquire the degree of preparedness which modern war requires.

I cannot stress too strongly the fact that democracies must be defended by citizen-soldiers. We do not provoke wars, and cannot afford large standing forces. It is the enemy who determines when and where we must fight. And such a condition almost compels us to be as prepared as were our early settlers to meet a sudden attack.

It seems to me there is only one solution to the problem; it is one dictated by the lessons of the past. If we continue to rely upon our citizen-soldiers, we must be certain that they are prepared for their roles and must adopt a program that will prepare them. There is such a program and it has already been recommended to the Congress. It is a program of universal military training designed to provide a steady flow of trained young men into our reserve components and to establish an enduring base for our military strength.

I am sure you are asking, "What does such a program mean to me?" "How will students and educators be affected?" "What can we do about it?"

### UMT and the Alternatives

Universal military training means some sacrifices to all of us. We know full well that behind each serial number stands a man; that behind each man stand a family and friends who will be affected. We know too that our colleges will feel the impact, although I can see no permanently disruptive effects. And of course, universal military training would be costly, but its costs would be little when compared to the costs of the two alternatives—huge permanent standing forces or gross unpreparedness. But to all the plan offers an opportunity to give something in return for the blessings we enjoy under a free government.

Our students have a dual role.

We will soon have three and one-half million men under arms, and it seems likely that world conditions will require large Armed Forces for some time to come. The needs cannot be met by volunteers alone, and some of you will be called upon to serve. Many of you are already too old to be affected by UMT, but you may be called through selective service. Those of you who are in the Reserves and those in ROTC may be called in your Reserve capacities. But upon all of you rests a strong moral obligation to contribute what you can to the security of our nation in these critical times.

And your other responsibility is equally important. Whether you serve in the Armed Forces or not, as college men and women you will have a great influence on the

thoughts and attitudes of those with whom you come in contact. It is imperative that you have a thorough understanding of world conditions and the role and responsibility of the United States.

Our educators as always have an extremely vital role which grows in importance as they guide the youth of our nation in the years ahead.

Theirs is the task of developing in those young Americans in their care the selfless desire to put the welfare of the nation above their own individual desires, to inspire in them a deep sense of individual responsibility. They must explain that security is a two-way street that involves a lot of giving, as well as taking.

### Veterans on Honor Rolls

And both students and educators alike can do much to correct existing misunderstandings in regard to our security problems. Many educators in their opposition to compulsory military training have said that any form of universal military training would not only interfere with normal education but would dull the minds and interests of our men, and result in poor performance from the few who would care to take up their studies again after a period of military service. I do not know how many among you have had military service but I am sure that many of you have already answered that objection. You are making good despite difficulties which probably included for some, working half the night after school hours to make ends meet.

I have been told that college authorities agree without question that veterans have responded with a high performance well above the peacetime average. At one prominent university where veterans made up 82 per cent of the total of 12,500 male undergraduates, scholarship reached an all-time high—13.5 per cent above the last prewar year and nearly 9 per cent higher than the best prewar mark. One prominent educator attributed the veterans' good record to their complete seriousness and to their acquired habit of tackling a job promptly and staying with it until it is done. Nationwide the reports have indicated that proportionately more veterans were on honor rolls and deans' list than were other students while fewer were flunking out, and a large percentage were heading their individual sections or classes.

It has also been said that any form of universal military training was in effect conscription and that any form of conscription in time of peace was opposed to our way of life. The fact that our entire legal system does not rest on a voluntary jury system was overlooked. Also, our taxes are not based on a voluntary payment system. And even our educational system is compulsory. Universal military training would simply be compulsory education in defense, a purpose of vaster consequence than the other forms of compulsion I have outlined and which we accept as normal in our way of life.

From time to time you will have to cope with other misunderstandings in regard to our national security. You will encounter those who hold that we can defend the United States from within the United States. I believe that now more than ever before the defense of our nation should be based as far away from our shores as possible. It should be obvious that in these times of supersonic aircraft and missiles, the efficiency of our air defense de-

pends to a large degree on the ability to maintain a defensive perimeter as far out as possible.

Also, there exists today a good deal of misunderstanding in regard to another important aspect of national security. From time to time there is a tendency to believe that the advance of science and its applications to warfare have decreased the requirement for manpower. We are ever mindful of the need for young scientists both in civil life and in the armed forces and doubtless many of you will be contributing in this way to our national security.

But I should like to emphasize that wars are still tough slugging matches—Korea has emphasized that. It has proven once again that we still need men as well as the implements with which they fight. The core of our ability to fight is trained manpower.

We must, however, continue to go forward with our research and development at full speed, for a military force in this atomic age is no better than its weapons. We will add the atom to the Army's arsenal as soon as it is ready.

War is ever-changing in its nature, and we dare not let our defense be outmoded. Every new development in the air, on the land, and above and beneath the sea calls for more men and more training. The more complex the weapons, the greater the need.

So you see the problem of national security is as complex as our role in world affairs. There is much to be studied and understood, and much to be explained.

All of this means that our American universities carry a burden unknown in the past and one which is bound to grow heavier in the future. It is a burden which educators and students alike, together with the rest of us, must shoulder in the realization that it is indeed a great privilege to be living and studying and working under our great democratic way of life. While we widely believe and profess our faith in our system, we must recognize our responsibility to do something about it. Belief alone is not enough.

### The Choice We Face

We face a future in which our military needs cannot be met by voluntary means alone. We face a future in which our global problems can only be met through the broadest understanding. Both require of all of us a deeper knowledge of our government and its role in world affairs. Both require a more thorough appreciation of other peoples and their problems and an awareness of the objectives and techniques of militant communism. And most of all they require a more complete realization of our responsibilities as individual Americans and a willingness to contribute what we can to the security of our nation.

I believe that we all have a great choice to make—a choice between strength or weakness, between freedom or slavery. There can be no compromise; either we fulfill our responsibilities now or we shall surely suffer later.

Your record in the past, in peace and in war, as sons and daughters of a great state and of a great university proves your deep sense of responsibility for the welfare of our nation and your superb ability as defenders of our freedoms. Those who have gone before you here have set a high standard and, as a fellow Louisianian, I join with you in pride at the heritage which is ours. I have every confidence that you here at Tulane will continue to measure up to that standard as you prepare yourselves for the critical days which lie ahead.

## Versatile Cargo Tractor Newest In Army's Light Tank Line

The Department of the Army announced recently that production has begun on the newest member of the Army's family of vehicles, the M8E2 Cargo Tractor.

The fast-moving, quick-turning cargo tractor, now in production at the Allis-Chalmers plant at LaPorte, Indiana, will be used primarily to tow the 75mm "Skysweeper" anti-aircraft gun and other heavy weapons.

In line with Ordnance Corps policy of standardization of vehicles, the new tractor has basically the same chassis as the Walker Bulldog light tank.

The new tractor is powered by the Continental air-cooled engine and the Allison cross drive transmission, a power package which gives the versatile, 22-ton tractor a top speed of 40 miles per hour. It has the ability to cross swamps and small trenches, to climb or descend sixty percent (about 35-degree) slopes, and to travel speedily on improved highways and cross-country roads. The features have been designed into the tractor to permit it to tow guns quickly into positions where troops can blast enemy strongholds.

Further versatility of the machine is made possible by several interchangeable "kits." These kits are actually different types of tractor bodies which fit the vehicle for pulling the Skysweeper, the 90mm anti-aircraft gun, the 155mm gun, or the eight-inch howitzer. In addition, there are wrecker kits, bulldozer kits and stake-body kits. The latter converts the cargo tractor for general purpose hauling.

When used to pull artillery, the cargo tractor carries ammunition and supplies, supplementary equipment and a gun crew.

Two front seats carry the driver and assistant driver. The assistant driver has access to certain dual controls as well as radio controls. He also operates a .50 calibre machine gun, mounted directly above him.

## Plastic Shrouds to Protect Army Ordnance Materiel

Plastic shrouds, developed by the Army Ordnance Corps in cooperation with private industry, are expected to replace scarce and costly canvas tarpaulins, wooden boxes and crates used in shipments of Ordnance materiel.

The packaging materials which they replace are several times more expensive than the lightweight covers.

A vinyl chloride shroud large enough to cover a machine weighing 20,000 pounds will weigh only about 30 pounds, while a waterproof tarpaulin of

the type normally used would be several times heavier and more costly.

Only eight thousandths of an inch thick, the vinyl chloride shrouds can withstand wind velocities of 60 miles an hour and extremes of temperature ranging from sub-zero to more than 95 degrees. They are being used successfully to protect flatcar shipments of heavy war materiel as well as equipment subjected to longer periods of outdoor storage.

Development of the shrouds at the instigation of the Army Ordnance Corps is cited as a typical example of cooperation between private industry and the Armed Forces.

The Monsanto Chemical Company, in experimenting with the vinyl chloride film commonly used in many commercial products, contributed to the research that stabilized the material so that it would retain its original properties and withstand the extreme wind and weather conditions to which open flatcar shipments are subjected.

## Transfer to Combat Arms

Opportunities for officers of the Organized Reserve Corps to transfer to Infantry, Armor or Artillery from other branches of the Army, with concurrent call to active military service, were announced recently by the Army.

Officers up to and including the rank of lieutenant colonel may apply for transfer to the Infantry, and officers in the rank of captain and below also may apply for transfer to Armor or Artillery.

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## Help Fight TB



## Buy Christmas Seals

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Applicants in the rank of captain and above must have had prior commissioned experience since 7 Dec. 1941, in the arm to which transfer is requested.

Enlisted men and warrant officers in active military service who hold Reserve commissions and meet the other requirements also may volunteer for transfer to a combat arm and concurrent call to active duty in commissioned status.

To be eligible under this program, officers must not be over the following ages: Second Lieutenant, 29; First Lieutenant, 34; Captain, 40; Major, 43; and Lieutenant Colonel, 47.

Officers residing outside the continental United States will not be accepted for this program.

Applications may be submitted through the headquarters of the Military District or the Army area in which the individual resides.

## First Armored Tanker Insignia

First Armored Division soldiers at Ft. Hood, Tex., who successfully complete the Individual Tank Combat Course are sporting a new "Tanker" insignia on their uniforms. The insignia, a green diamond-shaped piece of cloth with "TANKER" spelled across the middle, will be worn over the right shirt pocket.

Maj. Gen. Bruce C. Clarke, USA, Commander of the First Armored Division, secured authorization for the patch in recognition of tank proficiency. To qualify as a "Tanker," a crew must have a good maintenance record and achieve a rating of excellence on the complex range designed by the division commander. The tank course includes exercises in fire orders, loading, firing, range estimation, tracking, radio, and combat driving.

## Tubing for Tank Program

A contract designed to make available added facilities for the manufacture of a special type of tubing needed to speed America's combat tank production program has been negotiated between The Babcock & Wilcox Tube Company of Beaver Falls, Pa., and the Army. The special tubing will be used in making tank treads.

Tank tread pin tubing, according to The Babcock & Wilcox Tube Company which has been a prime producer since the beginning of World War II, is seamless, small diameter, heavy wall, cold finish alloy tubing. It is used in the assembly of the tank track for many of the tanks and other types of mobile equipment using tracks, produced under jurisdiction of the Army Ordnance Corps through the Ordnance Tank-Automotive Center in Detroit and other areas.

## IN SEARCH OF A PROPHET

**C**OMPLACENCY has usually been an accompaniment of victory." This statement has been made so often that its truth is generally accepted and yet the warning it implies is still disregarded. Any standard history—choose the period at random—will provide numerous illustrations of nations which were the victims of their own victories. More often cited, because it seems ~~most immediate and pertinent in~~ our own day, is the record of the Allies after the victory of 1919.

Following their narrow and hard-fought victory in the First World War, the Allies, without exception, relaxed to enjoy the glory of that triumph. The principal general officers one-by-one published their excuses and justifications and retired. The leaders of the French Army became complacent in their victory and were extremely patronizing in their attitude towards their own younger officers and those of other armies who were not content with the old platitudes and who were already sifting their experiences in the war and discovering some shining new conclusions. Without examination, the pedantic, recently victorious leaders of the French Army dismissed these discoveries as "Fool's Gold."

The British Army, traditionally conservative, continued to resist change and to be suspicious of innovation. Even so, there were in England eager officers who championed the new theories and earnestly struggled against the older, more accepted tactics and organization. Their struggle was, however, largely futile, due to the complacency that came with victory.

In our own country, the military leaders appear to have followed the politicians into a never-never land of isolation from the rest of the world. They would let Europe fight its own wars and we would make no entangling alliances. The advent of the third dimension in warfare, the airplane, was exaggerated, they thought, and tanks were considered a definitely subordinate weapon of the infantry.

The only army which was wilfully progressive, which encouraged imaginative thinking and preferred new solutions to the old problems, was the supposedly nonexistent German Army. Even among the German officers the new methods were not unanimously popular but, significantly, the conservatives could not point to their past victories as justification of their tactics, there was no complacency to overcome, and the new theories were put to the test of experiment in maneuvers.

When the new ideas were finally exploited in battle, against the very armies which had rejected them as radical (and therefore, per se, impractical) the French Army was destroyed and the British Army badly battered. The American Army was, by the grace of God and the stubbornness of the British, spared the natural consequences of its complacent isolationism.

With this expensive experience to guide us and with the uncomfortable knowledge that since we have guaranteed the freedom of the world, we ourselves have become the primary target for any aggressor, we must shake off our victory in the last war and do some realistic thinking about our problems now and in the future.

It is well to study General Patton's campaign in Europe. But we cannot afford to stop where the last war left off. We cannot assume that circumstances will permit duplication of that campaign in Europe or in Asia. We must project the tactical lessons of the last war in terms of the future—in terms of new and improved weapons and the probable conditions which will exist when war comes.

It is obvious that this country is unlikely to precipitate a war by an attack. In spite of some careless talk about a preventive war—we must accept the *probability* that we will be on the defensive, strategically and tactically, at least in the initial phase of any war. In 1948, General Bradley, speaking for the American people, said, "This government will not assail you. You can have no conflict without yourselves being the aggressor." In the light of this primary consideration we should examine our defensive theory. Our current catch-phrase, "exploit violently" may be premature. It may be necessary first to stop the horde before we have the opportunity for exploitation.

One type of defense now considered practical for tanks is the so-called mobile defense. It contemplates the organization of a series of strong points, linked by armored patrols and covered by a screening force which will delay the enemy during our withdrawal. The strong points should cause the attacker to deploy for battle and the force on the strong point might counterattack if the opportunity presents. In essence, this is nothing more than a method of swapping space for time and is practical only where we have space to spare.

We are taught that the best defensive use for tanks is in a counterattack role, but the conditions obtaining at the start of a war may make even *local* counterattacks impractical for some time. Unless I have misinterpreted the reports from Korea, this is the situation which confronted our forces there.

It would seem that our best chance would lie with a completely armored force, immediately available, which would be capable not only of counterattack, but of a counteroffensive. At any rate, since we will not have unlimited space to swap for time in any theater in which we are likely to fight, the theory of mobile defense as it is now understood needs to be revised.

In studying the last war, in trying to find its real trend and meaning, too many of us are ready to accept the actions of a couple of American armored divisions in Europe in 1944 as the only tank actions on a grand scale of the entire war.

In the Advanced Course at Fort Knox, the German invasion of France is mentioned only briefly. Of that long, shifting tactical struggle over the wasteland of Africa between General Rommel and the succession of British commanders, only the battle of El Alamein is treated in detail, while the great tank battles between the Germans and the Russians on the Eastern front are not covered at all! The German generals considered these battles extremely significant. Certainly we stand to profit from a study of this fighting in Russia. Aside from tactical lessons implicit in these battles, we could learn something of the methods of a potential enemy.

Since the war, our Army has undergone some important organizational changes. Some of these changes are now of questionable value. Perhaps the most interesting change from an Armor point of view is the addition of a tank company to each infantry regiment and a medium or heavy tank battalion to the infantry division. Presumably, this was done to provide antitank protection for the infantry and may have been justified when the antitank weapons of the individual soldier were so very inadequate. With the improvement of these individual antitank weapons—improvements so great that some infantrymen now consider the tank obsolete—there is hardly sufficient need to justify tying up the equivalent of two tank battalions in the antitank defense of each infantry division. The improvement of antitank weapons should release the tanks from the obligation of close support and antitank protection of the infantry.

Some infantry regimental commanders with considerable experience in Korea are quite in agreement that the regimental tank company is a burden which is not profitable. They base their opinions on the inability of the infantry to maintain and supply the tanks. The logistical requirements of the tanks of the infantry division have been too great for supply elements which were not designed to support so heavy a unit. Are the infantry divisions to continue to "make-do" with this organization or will we make the required organizational changes?

The theory of the employment of these regimental tank companies has undergone some interesting changes since we entered the fighting in Korea. When first given some tanks of his own, the infantry commander ignored the advice of tankmen and insisted on splitting his tank company into sections and in some instances single tanks. Thus, dissipated, the individual tanks became close support artillery, and nothing more. With experience, the infantry commander gradually became converted, until now the tanks are more often employed as a unit, the integrity of platoons and companies being maintained wherever the terrain permits their employment at all. The development of this tank sense in the infantry is gratifying and it

leads us to consider the feasibility of combining the regimental tank companies as another tank battalion. With three regiments of infantry and two battalions of tanks, the infantry division commander would actually have *more* tactical flexibility than he has now. These units could then be combined into infantry-heavy or tank-heavy combat teams to fit the mission, the terrain and the enemy situation.

In other words, if the Infantry Division were organized along the lines suggested, the power of the tank units would not be dissipated, nor would the lightly equipped infantry units be saddled with the burden of supplying thousands of gallons of gasoline and tons of ammunition. The tank battalion would be logistically self-sufficient.

Whatever solution to this problem is eventually adopted, it is a problem which must be solved.

We, in Armor have things to do. While we have made improvements in the armored personnel carrier since World War II, we have made little progress toward a completely armored force in which all vehicles will have the cross-country trafficability of our tanks.

The trend of the present and the possibilities of the future have been pointed out with magnificent clarity by B. H. Liddell Hart, who concludes that, "Armored Forces have not 'had their day' because, in the real sense, *they have not yet been tried.*" He points out that, while the combat elements of our present armored division can leave the road and maneuver to avoid obstacles and road blocks, our "wheel-borne tail" cannot. He further contends, and anyone who has seen an armored division on the road would not deny that there is a "fatal disproportion between the number of vehicles in the combat echelons and the supply vehicles." We have had six years to work out a more streamlined organization. We still do not have one.

There are certainly improvements that can and should be made in tank design. These improvements must be worked out now because in time of war the pressure is too great and, for better or worse, we are likely to fight the next war with whatever tank is in production at the time the war occurs.

We still have no planes capable of transporting tanks. When an atomic-powered plane becomes a fact, this problem should be solved and we can develop airborne tank battalions to participate in airborne operations.

We in Armor are badly in need of a prophet of the stature of Chaffee, who, realizing our potential, and confident of our future, can present our case in the counsels of the mighty. Such a prophet will need the patience of Job, the fervent faith of a monastic saint, the stern impregnability of Gibraltar. But the objective is worthy of the effort required, for in saving Armor he may be saving this country.

# HOW WOULD YOU DO IT?

AN ARMORED SCHOOL PRESENTATION

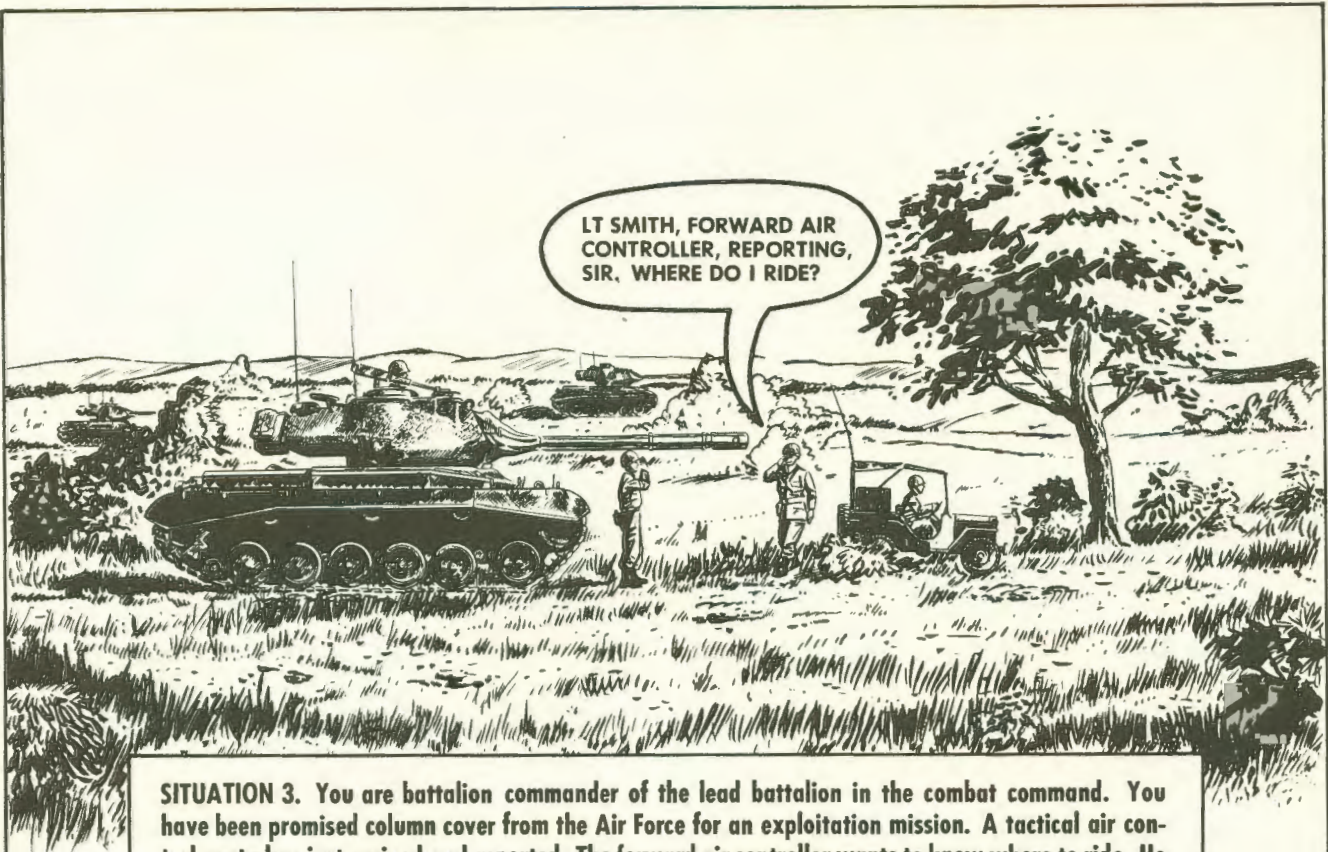
AUTHOR MAJOR G F SAWYER



**SITUATION 1.** You are a tank company commander operating in rolling terrain. You are having difficulty communicating by radio with your platoons from your present location. Communication has been good until you halted in these hills. The platoons should be well within normal range. *What would you do?*



**SITUATION 2.** The battalion is preparing to attack in two hours. You, a tank company commander, are issuing your attack order to your platoon leaders when a radio message is received to withdraw immediately. This is a completely unexpected reversal of plans, and you can't believe it. *What would you do?*



**SITUATION 3.** You are battalion commander of the lead battalion in the combat command. You have been promised column cover from the Air Force for an exploitation mission. A tactical air control party has just arrived and reported. The forward air controller wants to know where to ride. He must have communication with both ground and air forces. *What would you do?*



**SITUATION 4.** You have recently taken command of a tank company at Camp Patton, in southwestern USA. Most of your personnel have only a few months' service. None of them have the necessary training for communication chief or radio mechanic. *What would you do?*

**SOLUTION 1.** Move your tank a short distance to higher ground and try again.

TANKER ONE THIS IS TANKER ABLE—SEND YOUR MESSAGE—OVER.

NOW WE'RE GETTING THEM.



**DISCUSSION 1**

THE TANK RADIO HAS LINE-OF-SIGHT TRANSMISSION CHARACTERISTICS. AS THE PLATOONS ARE BELIEVED TO BE WITHIN RANGE, THE DIFFICULTY IS PROBABLY DUE TO INTERVENING HILLS OR DEAD SPOTS. MOVING THE TANK A SHORT DISTANCE, PREFERABLY TO HIGHER GROUND, SHOULD REMEDY THE TROUBLE.

**SOLUTION 2.** Ask for authentication of originating station and verification of message.

SOUNDS LIKE A PHONY. GET AUTHENTICATION AND VERIFICATION.



**DISCUSSION 2**

THIS MESSAGE MAY HAVE BEEN SENT BY THE ENEMY. WE USE AUTHENTICATION TO DETERMINE WHETHER A STATION IS FRIENDLY OR ENEMY. THIS MESSAGE MAY NOT CONVEY THE ORIGINATOR'S INTENTIONS FOR THIS PARTICULAR UNIT. VERIFICATION WILL REQUIRE THE ORIGINATOR TO COMPLETELY RECHECK THE MESSAGE FOR PROPER ADDRESS AND INTENT.

**SOLUTION 3.** Tell the Controller to ride in the battalion headquarters tank equipped with an Air Force Radio Set, AN/ARC-3.

HOP IN THERE. IT WILL GIVE YOU GROUND AND AIR COMMUNICATION, MOBILITY, AND PROTECTION.

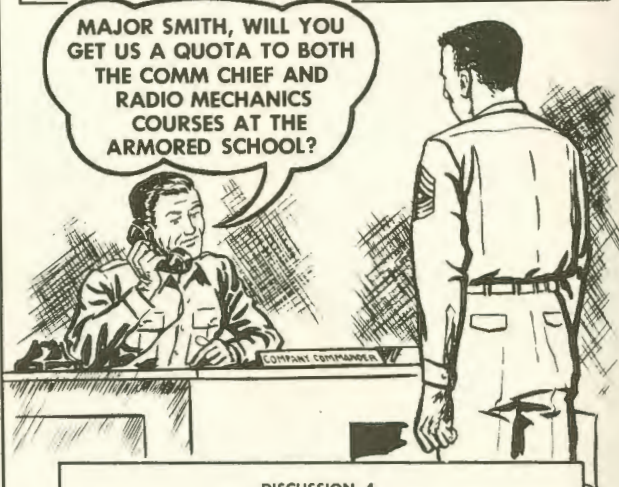


**DISCUSSION 3**

EVERY TANK BATTALION IS AUTHORIZED AN AIR FORCE RADIO SET, AN/ARC-3, FOR INSTALLATION IN ONE OF THE THREE HEADQUARTERS TANKS. IT PROVIDES THE NECESSARY AIR-GROUND COMMUNICATION. EACH TANK HAS A RADIO SET, AN/GRC-3 (SCR-508 AND AN/VRC-3 ARE AUTHORIZED SUBSTITUTES FOR GROUND COMMUNICATION). THESE RADIOS PROVIDE THE NECESSARY COMMUNICATION FACILITIES. THE TANK PROVIDES CROSS-COUNTRY MOBILITY AND ARMORED PROTECTION AND ENABLES THE AIR CONTROLLER TO MOVE WITH THE BATTALION (OR LEAD COMPANY) COMMANDER.

**SOLUTION 4.** Obtain quotas for Communication Chief and Radio Mechanic Courses at The Armored School. Carefully select the individuals to attend.

MAJOR SMITH, WILL YOU GET US A QUOTA TO BOTH THE COMM CHIEF AND RADIO MECHANICS COURSES AT THE ARMORED SCHOOL?



**DISCUSSION 4**

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## CLIMAX OF WAR—DOOM FOR A TYRANNY

**CLOSING THE RING.** By Win-  
ston Churchill. Vol. 5., 749 pp.  
Houghton Mifflin. \$6.

Reviewed by  
**DR. ROGER SHAW**

One simply cannot escape the long-known fact that Churchill is a controversial character, both at home, in America, on the Continent, and in the "colonies." He has had his ups and downs, his special "down" being the first World War. He had another bad "down" in 1945, and now he is "up" again. By and large, the American and Canadian publics like him; Continentals and a considerable proportion of English, including some Tories, like him less; Irish, Indian,

Persian, Egyptian, etc., patriots like him still less; and so it goes.

The Churchill style may have been derived from the really great historian and pungent proponent, Hilaire Belloc; in fact, in part at least, it probably was. It is mannered, highly styled and even distorted, "affected," and most attractive to large numbers of readers, like the man himself. There is a melodrama and brag about this literary and forensic manner, and it is part and parcel of the whole picture. It opens: "Moral of the Work—in war, *resolution*; in defeat, *defiance*; in victory, *magnanimity*; in peace, *good will*." All this reads very well, and the peculiar thing is that Churchill has pretty well lived up to these four precepts. He has certainly been the best sport among the winners; he was the most defiant among the losers. "Theme of the Volume: how Nazi Germany was isolated and assailed on all sides." Contents of Book 1: "Italy won." Contents of Book 2: "Teheran to Rome."

His "Gathering Storm" was somewhat I-told-you-so in tone, and is the first of the long series. His "Their Finest Hour" is a tribute to the English people and aviators of the Blitz, with trimmings and ramifications. "The Grand Alliance" tells of Lease-lending of sometimes questionable memory; of the German invasion of Russia in June and after, 1941; and of the Pearl Harbor operation, about which some people are still groping in the dark and would like to know a bit more than is vouchsafed them. "The Hinge of Fate"—these are all good, flamboyant titles—starts with beatings, and slides cheerfully into victories at El Alamein, Stalingrad, Pacific Midway, and in Morocco—

Allied triumphs for the English, the Russians, the U. S. Navy and its adjuncts, and the military Americans. And so the "crimson tide" turned, as it had at Orleans, at Rocroi, at Saratoga, at Gettysburg, and in July of 1918.

This *fifth* volume, a really stupendous work, coming after all the others, is much better than Eisenhower's book, but perhaps not as good as that model 2-volume military memoir by Ludendorff which came out in 1919. Churchill might, if pressed, admit this, for to serious students of military history the Ludendorff job was, if not literary, yet unsurpassed. "Closing the Ring" goes roughly from June of 1943 to June of 1944, and runs till what is known as D-day. In

— The Author —



Winston Churchill has served in public life for a half century. Member of Parliament in his twenties and a cabinet minister before reaching 40, his fifth volume on World War II appears as he enters his second term as Prime Minister and his 77th year. Perhaps as much as any other man he deserves the title so often awarded him—that of Man of the Century.

— The Reviewer —



Dr. Roger Shaw, political scientist, is Professor of International Relations at Trinity College in Hartford, Connecticut. A former foreign editor of *Review of Reviews* and the *Literary Digest*, he is a regular contributor to European and American magazines, and is author of many books, including *Handbook of Revolutions*, *175 Battles*, and *Outline of Governments*.

## YEAR OF CONFERENCES



this book are included the Sicilian campaign following the German withdrawal from North Africa; the fall of Mussolini and the Fascist regime which had been in power since October of 1922; the Quebec Conference, and then the Italian surrender which sought to "ditch" the plugging German allies (who refused to be ditched and with a will).

Also are included the gathering of the foreign ministers and diplomats in Moscow, where many were taken in or else jumped on the currently fashionable bang-buggy; the Cairo Conference; the initial klanklave of the so-called Big Three at Teheran; and the still mooted question of the Anzio Beachhead in the Italic war. (The morals and methods of Anzio, and of a certain American commander, will be on tap among veterans and commentators many a year from now, and it is senseless for this reviewer to go into it. Somehow, a certain general will live it, or die it, down.)

Churchill's disposition was not improving, apparently, as they all were Closing the Ring. He was perhaps tiring of the Americans, and his sense of doom (in connection with the Russian New Dealers) may have motivated a certain contentious bitterness. Further, Churchill is essentially a man of the Right, and in fighting the extreme Right, he could hardly be expected to feel the same virtuous frenzy as a Left-centrist or extreme Leftist would experience. He had held good opinions of Mussolini, and Blackshirt's chief crime was perhaps in opposing England and France instead of knifing the Germans as he had helped materially to do in May of 1915 (when he still edited the *Popolo d'Italia* up in Milan). But then, it was not really an ideological war for Churchill, who is no hypocrite, and who doubtless realizes that limited wars for limited objectives are far more advantageous than "unlimited" and "totalitarian" crusades for vague and debatable goals which liberate no one except the dead, and which impose the peace of the graveyard.

The American chieftains, it seems, had a great tendency to side with the Soviets against the English, who had declined from being the "only" Ally to being the "least" of the Allies. The squabbles about "Overlord," the unfortunate title for the invasion of



France in June of 1944, are somewhat glossed over in this book, for Churchill—if he did not really oppose the Channel crossing—at least was bearish and wanted the job postponed. He was ever fascinated by Mediterranean and “soft-under-belly” operations, going back to the Dardanelles in 1915; and going back to the Dardanelles, or anything like it, was precisely what nearly everybody among the Yank and Russ bigwigs wanted to avoid—and how, as the expression goes! Just the same, Churchill may very well have been right—this time.

The reviewer somehow gathers that Churchill was not quite as fond of Eisenhower as some would have us believe. Eisenhower’s opponents, who are numerous in some military echelons, often say he was a push-over, but Churchill possibly did not find him quite as “pushy” as he would have liked, especially for operations at the eastern end of Churchill’s *Mare Nostrum*. Churchill well remembered the “frightful” English losses along the Somme in 1916 and 1917, and the “stupid” tactic of always hitting the enemy at his strongest spot: a relic of Clausewitz much relished in American, French, and German circles. Further, Churchill had not fought Stalin and the Russian Revolution for nothing in 1918-21; he did not, presumably, care to open a tailor-made “second front” merely to save pink people he had formerly sought to overthrow and pulverize. It must be stressed again that though Churchill never permits ideology to stand in his way, nevertheless what ideology he has is strongly Rightist and no nonsense about it. He is not one to say that fascism and communism are exactly the same thing when dia-

metrically opposite social classes and forces control them.

Churchill also acts as Cupid in this volume, for he helps engineer the wedding nuptials of the little exile monarch of Yugoslavia, poor petit Peter. For various reasons of “State,” the brass and elite and schemers wished to act out “Eighteenth-Century” dynastic politics in this silly little matter, and good old Churchill would not go along. He says let the kids marry, for Louis XIV is deceased, by golly, and we are living in the “lusty squalor of the Twentieth Century.” Since Churchill’s ancestor, curly Marlborough, worsted Louis XIV, it was Churchill’s atavistic pleasure to worst those who carried on the “Louis XIV” tradition and, in short, pauper Peter wed as he pleased. Here, Churchill uses the American phrase, “So what,” to express flippancy, probably forgetting that it was a Teuto-Judic idiom out of the Bronx and more suited to the North Poughkeepsie neighborhood than to that of No. 10 Downing Street.

The appendix material is really fascinating in this masterful work, and its coverage takes in a great deal of interesting minutiae as well as false starts and grand slams. Also, somewhere between the lines, the Roosevelt affection seems to begin running thin as the left wing of the New Deal gains ground and paves the way to Yalta and the “next war.” Elliott Roosevelt, in his really epic book, epic only in its perhaps accidental disclosures, serves to confirm this half-suspected trend, and England increasingly comes to occupy the position that Prussia had taken at the Vienna Congress (1815) and during the Hundred Days (1815)—least of the Big Four and least regarded.

Many English still smart under this, remembering the English status of late 1940 and early 1941, and it might be suspected that Churchill is among them.

Churchill is good on the war at sea, and in relation to the Battle of the Atlantic and the U-boats. In early 1943, things looked black indeed, with ship losses sky-high; but by mid-year the sinkings had come down (over 500,000 tons in March; circa 20,000 tons by June, 1943). Here was good news for an island so dependent on the alleged Arsenal of Democracy. As to the grim and ugly Pacific war, so unlike that of Europe, Churchill declares in Churchillian manner: “Long may the tale be told in the great Republic.” But the great Republic, alas, has other tales to tell at this writing, and many of them are highly unsavory, as Churchill might be able, if pressed, to help relate.

The best book on the war, to date, is the English Major General J. F. C. Fuller’s modest little *Second World War* (Duell, Sloan, and Pearce, 1948). It is not literature of a sort like the *Naked and the Dead*, nor is it literary like the Churchill memorabilia, nor is it meant to please the reader, blessed be its name. It is merely supreme in its field. But there is something pretentious about these Churchill books, and they are supposed to come from the horse’s mouth, as the expression goes. They are great in magnitude, and by a “do-er” who is also a “Belloc.” Like all memoirs, they approve of their author and disapprove of his opponents, unless these be on the fair field of fight. Churchill deserves much credit for various things, and among them is “Closing the Ring,” opus no. 5 in a meaty and meticulous martial series.

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To create the plan to invade Europe from British bases, and to assemble, organize, equip, and convey an invasion force to Normandy, literally hundreds of planners labored more than two years. Problems complex and petty had to be worked out; long studies had to be made of the enemy-held coast, and searches conducted for adequate equipment. One such search—for landing craft—extended around the globe. Emphasizing the role of the planners who blueprinted the invasion, Dr. Harrison states that the Normandy assault was "as thoroughly planned as any battle in the history of war."

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