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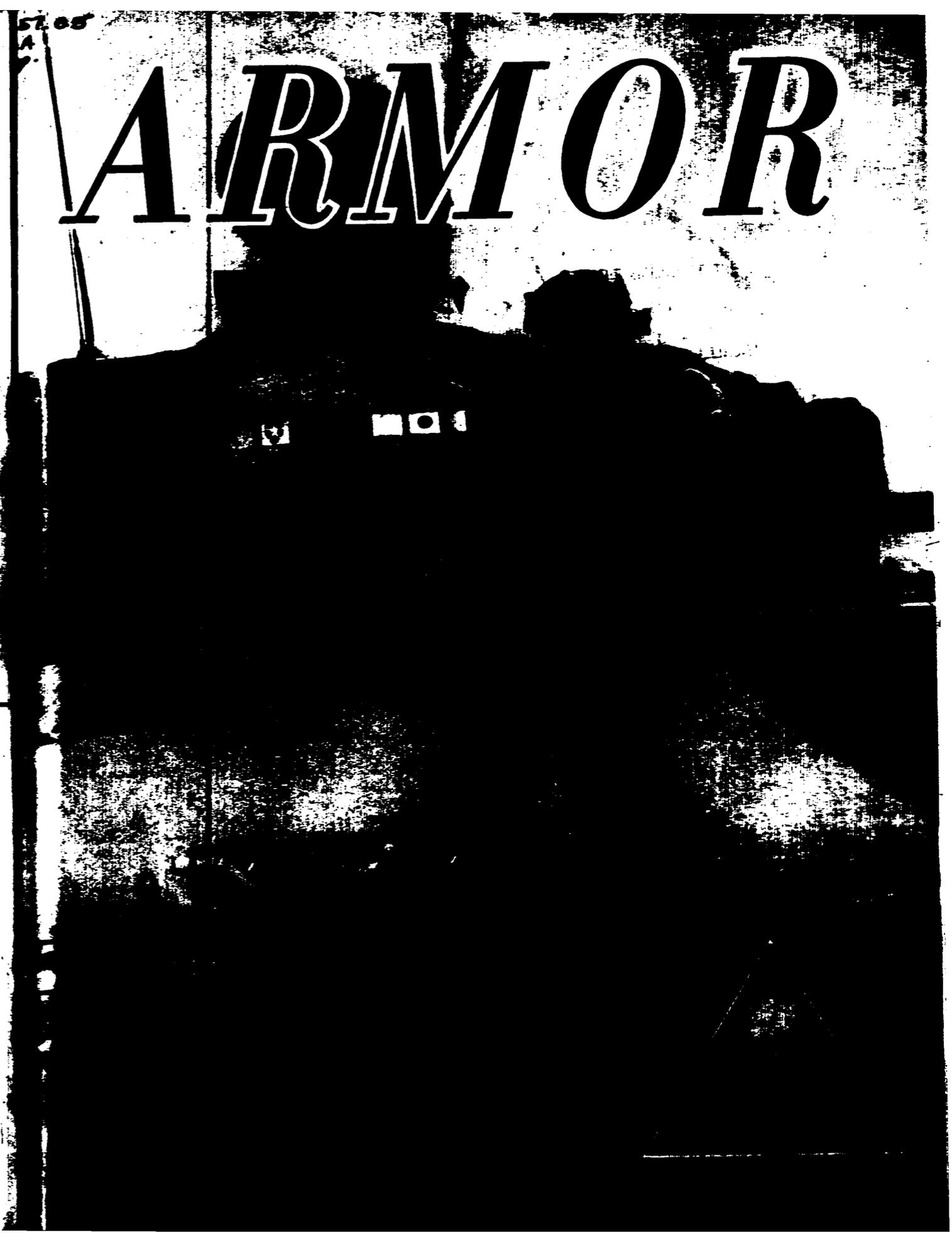
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MR. PRESIDENT

by William Hillman

A text-and-picture presentation of Mr. Truman as man and President. The text, about 75,000 words, is made up of unretouched memoranda, excerpts from the President about his aims, his views of world problems, his own personal responsibilities. The pictures consist of 62 photographs in color and over 100 in black-and-white taken expressly for this book by Alfred Wagg.

\$5.00

LETTERS to the EDITOR

More on Old Bill

Dear Sir:

In your Letters to the Editor column in the January-February issue, you have letters by two Colonel Scherers on Frederic Remington's picture, Old Bill. I am most interested in this, and I send you herewith a copy of a news story which we are running out of this interchange of letters. You see, Frederic Remington was born in Canton (New York) on October 1, 1861, and as a result of that we have quite an interest in him throughout this territory. My father, who died two and a half years ago, was tremendously interested in the Remington pictures, and while he never made a collection of them, I believe that he accumulated considerable in the way of Remington history and information. Our morgue here is full of it, but nowhere have I found any reference to Old Bill. You see, therefore, that we who consider ourselves expert on the subject are most interested in the discovery by ARMOR magazine, and I was particularly glad to see the January-February issue.

JOHN B. JOHNSON
Editor

Watertown Daily Times
Watertown, N. Y.

Tank Regiment Support

Dear Sir:

After two and a half years and six thousand miles in the same M26 as a platoon leader in the best tank company in the U. S. Army, I heartily agree with Col. Pickett's suggestion of a tank regiment in the infantry division. ("Tanks in Korea," Nov-Dec issue ARMOR.)

Lt. FRANCIS E. TIMBERTS
Tank Company, 26th Infantry

APO 1

A Two-way Lesson

Dear Sir:

The November-December "What Would You Do?" is, as always, excellent, and in this case makes two particularly good points: (1) The importance of correctly placing your forward air controller, and (2) The value to be gained from correct use of Army schools.

My observations on recent maneuvers both in Germany and Austria were that the arrival of the air controller at a small size unit usually caught its commander off base. Perhaps his head was so full of classroom jumble of TACC, TACP, FAC, SOC, TADC, that the sudden realization that the FAC was a real, live being was a bit of a shock. At any rate, the air controller can be a pretty valuable fellow, and it's a good idea to plan ahead for his arrival.

Many unit commanders fail, I think, to appreciate the value of Army schools. Either they are ignorant of their existence or they are loath to interrupt or lose the services of a "key" man. School quotas are too often filled by undesirables who are sloughed off by their CO. Of course, Captain Brown in your problem is going to be short a few good men, but the result will repay him tenfold in the end.

Lt. THOMAS B. CORMACK
NCO Academy
USFA TAC COMD

APO 174

Under Its Own Power

Dear Sir:

In Situation 1 of "What Would You Do?" in the Jan-Feb issue I believe that the damaged M46 could be removed to the rear under its own power and by its own crew by replacing the track around

the drive sprocket and remaining road wheels and support rollers and tightening track tension. Then, by swinging the gun as a weight counterbalance, relieving the damaged side to some extent, and by the driver counteracting the drag on the damaged side, the tank could be moved to the rear. This solution seems to me to be practical from a common sense angle, although I have not had practical experience in doing it.

Pfc WILLIAM WUNDUKE, USMC
8th Ord Sup Co
2nd Combat Service Group, FMF
Camp Lejeune, N. C.

Night Firing

Dear Sir:

I have just completed a 17 months tour with the 509th Tank Battalion, Camp Polk, La., and would like to know what others think of the following comments based on observation and past experience.

The present ATP allows adequate training for tank gunnery techniques and practical application through range firing but it seems more stress could be placed on night firing.

It is suggested that a phase of training be adopted to provide for the siting of tank weapons within a perimeter or mobile defense position during daylight hours using the azimuth indicator and quadrant, the targets to be actually engaged by fire at night along avenues of approach or areas of concentration. Fires could be called on order of Platoon Leader with a return to a final protective line on order similar to that of the infantry in the MLR. This problem could be conducted under tactical conditions. The unit remaining in position until daylight permitted examination of targets and a critique.

Another phase of night firing for tanks could be developed around the use of artificial lighting with the gunner

using his direct fire sights. It is believed these methods would instill confidence in the tank crewman by demonstrating the effectiveness of their tank weapons in night firing.

The nearest approach to the above that I have observed in training is the night attack demonstration conducted at Ft. Knox utilizing tanks and infantry.

Providing the benefits derived from this type of training would outweigh the cost it would certainly increase the combat effectiveness of a tank unit to include this as a part of the advanced training of the tank company.

Lt. KENNETH C. LONG
Shreveport, La.

Recoilless Conception

Dear Sir:

In late 1943 while in North Africa with the 112th AAA Battalion, I submitted a drawing to the Army of a recoilless weapon design. Since these weapons are now fully developed and in use I was interested to know if my drawing in any way contributed to the invention of them.

ANTHONY LUCCHETTI
Newark, N. J.

ARMOR could run down no specific names and dates on this, as most development and research goes on over a long period of time, with organizations rather than individuals responsible for the results. Security often holds back public knowledge of advances made in the development of new weapons, leading an outsider to consider that his idea might be the first, when in fact pilots of it might be under test. On the one hand, those with complete workable and original ideas have the protection of patent sources available to them. On the other, all branches of the armed services welcome the ideas of all persons and are ready to extend credit where it is due. —Ed.

The Memoirs Of Herbert Hoover

Herbert Hoover continues the story of a remarkable career, begun in the fine first volume of his reminiscences, *Years of Adventure*. The years 1920 to 1933 were equally full of adventure, but adventure of a different kind. For him they were "The Political Years," when he held public office. As his record, personal and public, of a memorable era this volume will take a place of first importance in the historical literature of our time.

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Editor: See bottom of contents page.



THE COVER

Number 22 is the oldest tank of the 72d Tank Battalion in Korea. Manned by crew members with such names as Brown, Townsend, Fiast and Waldon, hailing from places like Michigan, Ohio, West Virginia and Tennessee, it has gone into battle in company with individuals whose names represent many other countries and peoples. The miniature flags decorating Old 22's turret symbolize the teamwork of nations ready to do battle in support of freedom.

Let's Not Lose Division Vision

It was only a little paragraph, and it was way down near the tail end of the release, on the back page. It could easily have been missed. Perhaps many did miss it. Certainly the title on the release would never have given a clue. It merely stated that the ARMY CREATES REINFORCEMENT CATEGORY WITHIN ORGANIZED RESERVE CORPS. There was no hint of un-creating.

The little paragraph read thus: *All Reserve divisions will be Infantry. Lack of adequate training facilities, and difficulties encountered in the proper maintenance of training equipment of Armored and Airborne divisions were factors influencing the decision to redesignate them as Infantry.*

And so Armor lost three armored divisions—the 13th in California, the 21st in Michigan and the 22d in Texas.

There are many reasons behind this. The main purpose, of course, is to "increase substantially the effectiveness of the Reserve." The simplicity of Infantry organization, equipment and training is more suited to the Reserve mission than Armor's more complex, more specialized, more technical, more expensive and more time-consuming make-up.

However, that very complexity requires a training ground for the commanders and staffs of major armor units—a training ground that should be a continuing thing, insuring the supply of future commanders and staff members to replace those lost in normal attrition, pending a mobilization requirement. For the Reserve field there is no substitute spot for preparing Armor's big-time operators—those who must have division vision, as it were.

It is all very well to treat Armor on the battalion level if our mobilization requirements (or the causes of them) cooperate by holding things down to battalion level (for Armor) as Korea did. But another mobilization might stretch things and bust the seams and stays. And these days you don't have all the time in the world to correct things.

Losing these three organizations pares down a division status that was a minimum as things stood. We have now only two real armored divisions—the 1st and 2nd—fleshed out in organization and equipment and personnel and training. The four training divisions—3rd, 5th, 6th and 7th—are that and nothing more. The personnel are new and the training is basic, except for cadre. The two National Guard divisions—49th and 50th—are by nature framework divisions.

It would take a lot of personnel to handle a sizable mobilization. We can hope that the tankers from the 13th, 21st and 22nd will find their way into tank units of some kind. Their experience and preferences demand that much.

All of this leaves us with a whale of a gap on the east wall of the front office. Perhaps the hole can best be filled with photos of the commanders of the 2nd, 6th and 14th Armored Cavalry Regiments. These are the ones in Germany often described as being roughly equivalent to an armored division. It's pretty rough! We've mentioned several times how we'd admire seeing things smoothed out with the reactivation there of the 4th Armored Division.

Writing American Military History

Military history is the basis for much of our military instruction. Many of us study it periodically, usually under the prodding of the instructional reading requirements.

The writing of military history is something with which we are less familiar. Here again some of us are drawn into the practice, but few of us go beyond the requirements into a voluntary program. Among those who do, perhaps the results might be more uniform and on a higher plane if the individuals knew a little bit more of how to go about it.

ARMOR is in a good position to see the field. The manuscripts that cross the editorial desk, solicited or otherwise, are handled so differently by the various authors that it becomes a major editorial operation to bring them into line for publication. The task involves everything from the organization of the material and the treatment of the subject to the mechanics of current usage in such matters as punctuation, capitalization, abbreviation, designation of military units and geographical locations, and so on.

Against this background, imagine the pleasure with which we greeted the publication of Department of the Army Pamphlet No. 20-200, *Guide to the Writing of Military History*.

Originally intended for special distribution, the *Guide* was published some six months ago. It has now been put on the sales list and ARMOR is happy to report its availability through the Book Department at 35¢ per copy.

We hasten to commend this pamphlet to the attention of those engaged in the study or the writing of military history. If you are preparing a monograph, a thesis, or an article for a service publication, you will find it most useful.

The *Guide* consists of two chapters. The first of these covers research and writing, going into the ramifications such as use of libraries, steps in research, and preparation of material. The second chapter forms a style manual covering usage and format in general. An appendix provides a bibliography intended as a starting point for the researcher.

The military student or writer will save a tremendous amount of time by following the guidance of this pamphlet. Further along the line the editor will save many hours lost in the reworking of articles. The chance of acceptance of an author's material prepared as outlined in this booklet should be proportionately greater, for presentation of a clean and correct manuscript counts high in any editor's consideration. This is particularly so when one editor handles all of the reading and decides on the acceptance or rejection, knowing that he's the one who must put accepted material in final form.

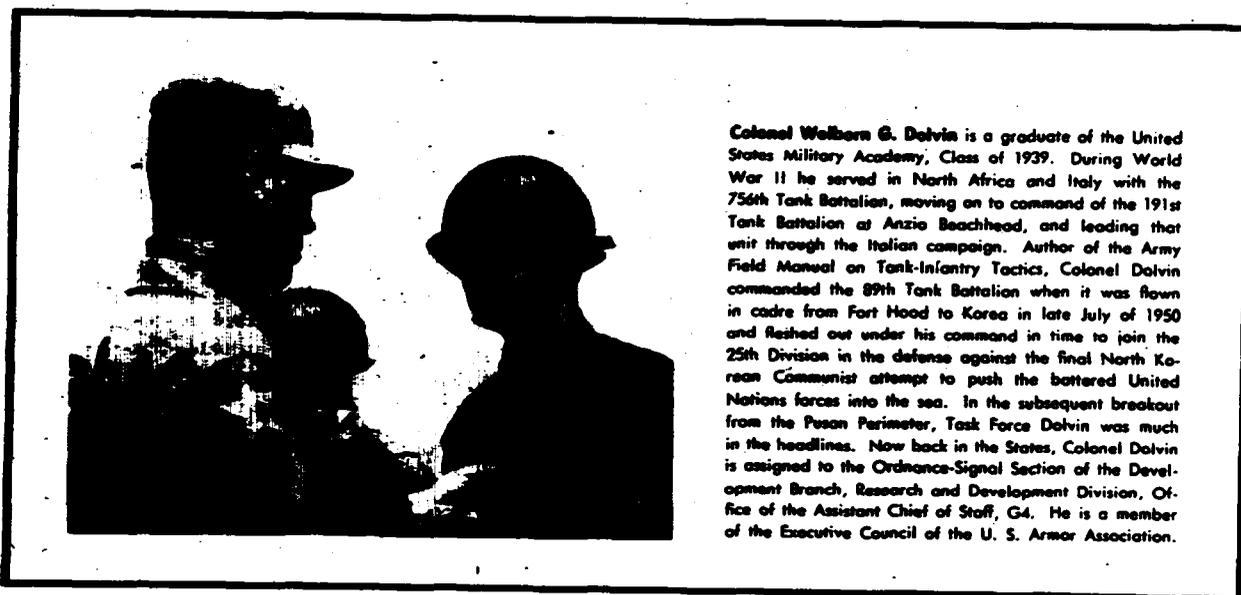
The *Guide to the Writing of American Military History* deserves a wide distribution within the Army. To quote from the introduction: "American military history has been greatly neglected in spite of the fact that it offers unusual opportunities for self-improvement and for original and valuable contributions to the service. A real opportunity exists which should serve as a challenge to military students and to all others interested in military affairs."

The *Guide* has significance in relation to the cultural development of our military personnel.

Although the need for organic armor in the infantry division has been firmly established the form of organization of the tank elements has been a subject of great discussion. World War II and the operations in Korea have kept the matter under continuing review. In this article an Armor officer who fought in Europe and Korea proposes a tank regiment in substitution for the present divisional battalion-regimental company arrangement. Touching upon one of our major assignment areas, this is a subject of interest to all branch members

TANKS in the INFANTRY DIVISION

by COLONEL WELBORN G. DOLVIN



Colonel Welborn G. Dolvin is a graduate of the United States Military Academy, Class of 1939. During World War II he served in North Africa and Italy with the 75th Tank Battalion, moving on to command of the 191st Tank Battalion at Anzio Beachhead, and leading that unit through the Italian campaign. Author of the Army Field Manual on Tank-Infantry Tactics, Colonel Dolvin commanded the 89th Tank Battalion when it was flown in cadre from Fort Hood to Korea in late July of 1950 and fished out under his command in time to join the 25th Division in the defense against the final North Korean Communist attempt to push the battered United Nations forces into the sea. In the subsequent breakout from the Pusan Perimeter, Task Force Dolvin was much in the headlines. Now back in the States, Colonel Dolvin is assigned to the Ordnance-Signal Section of the Development Branch, Research and Development Division, Office of the Assistant Chief of Staff, G4. He is a member of the Executive Council of the U. S. Armor Association.

THE cost of our armor program in terms of use of strategic matériel and dollars is such that every effort must be made to make the maximum use of every piece of equipment. The elimination of unnecessary items and improvements in manufacturing techniques, while vital, are not enough. After the item has been produced, we must fit it into our organizations in such a manner that we obtain the maximum benefit from it on the battlefield. We should examine our T/O&E's in the light of experience gained since World War II, in maneuvers and in Korea.

In case of mobilization many of our tanks will be employed in infantry divisions. This article will discuss the present organization of tank units in infantry divisions and propose changes to make more efficient use of the tanks now authorized by T/O&E's.

It might be well initially to review the background of our present organization. During World War II, armor support for infantry divisions was provided by attached tank and tank de-

stroyer battalions. It was felt that the opportunity for the employment of armor with infantry divisions would depend upon almost ideal conditions of terrain, weather and enemy dispositions. When needed, tanks would be attached to the division to participate in the attack. While this system appeared to be right in theory, it did not work very well in actual practice.

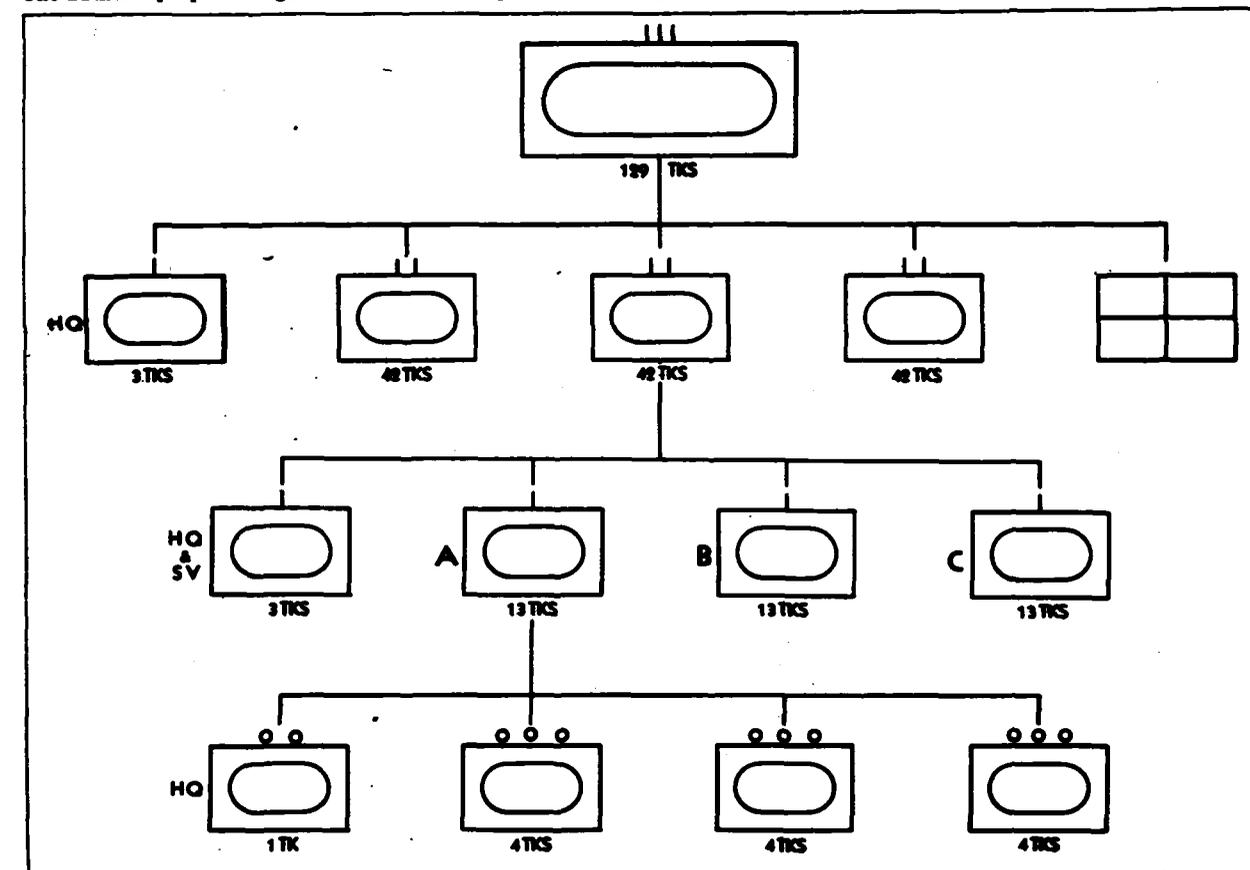
All Conditions Ideal

First of all, instead of being used rarely, tanks were used almost continuously. Ideal conditions turned out to be a myth. Regardless of enemy dispositions, tanks were employed over every type of terrain during all weather conditions, including rain, snow and ice. Teamwork gained through combined training and so necessary for successful tank-infantry operations was lacking. There were not enough tank battalions to provide them on the basis of one per infantry division. As a result, battalions were shifted from one division to another depending upon which division

had the most urgent need for tanks at the time. For example, in Italy during one month, one battalion's attachment was changed seven times. The tank battalions, consequently, felt that they did not have a home. They felt that no matter how hard they fought with one division, as soon as the operation was over they would be transferred to another division where they would start all over again. Strangely enough, the infantry divisions always thought they were getting a fresh tank unit. On the infantry side of the picture, the division could not count on keeping its tank unit. Often, after careful plans were completed for an operation, the tank unit would be detached and attached to another unit. Later in the war this undesirable situation was somewhat alleviated by keeping the tank battalions with the same infantry division as much as possible.

Following World War II, first the European General Board, then the various branch conferences agreed that tank units should be an organic part of infantry divisions. At the in-

The author's proposed organization—a tank regiment replacing the present divisional battalion and regimental companies.



fantry conference this decision was unanimous. However, a wide divergence of opinion developed over the question of where they should be placed in the division. Generally speaking, division and higher unit commanders felt that tank units should be divisional units. Regimental and lower commanders were just as positive that they should be regimental units. The arguments in favor of each system were many and were presented heatedly by many of the delegates. In the final analysis a compromise was reached and a battalion was placed in each division and a company in each regiment. This is still the tank organization in infantry divisions.

The Right Direction

It has been proved that this organization is superior to the World War II organization in many ways. Tank and infantry units train together. The tank units belong to the infantry. Plans can be made without the danger of losing the tanks before the attack is carried out. Most important of all, infantry and tank unit commanders have a much clearer understanding of each other's problems. This organization, coupled with the increased emphasis placed on tank-infantry employment in our service schools, has resulted in far smoother teamwork in Korea than was obtained during World War II. However, Korean experience has not settled the question of whether tanks should be divisional or regimental units. It is interesting to note that there is a great difference in tank organization among the divisions in Korea. Some divisions have had only a tank battalion, while others have had both a tank battalion and regimental tank companies. It appears that the organization in each case proved adequate. However, enemy armor was practically nonexistent in Korea after the first few months of the war. We must, therefore, not base our armor organization entirely on Korean experience.

The fact that variations of our standard organization appeared to be satisfactory in Korea, coupled with experience gained on maneuvers, indicates that we may still improve our organization. Before we consider changing our organization, however, I feel that we should agree that it

will be impossible to increase to any great extent the number of tanks assigned to an infantry division. The problem, then, is to make the best possible use of the one hundred thirty-five medium tanks now authorized in an infantry division.

I would like to propose the substitution of a tank regiment for the present tank battalion and three companies. This regiment would consist of three small battalions of forty-two tanks each, with three tanks in regimental headquarters. Each company would consist of three platoons of four tanks each with one tank in company headquarters. This adds up to one hundred twenty-nine tanks. This is six less than presently authorized in the infantry division.

This organization has many advantages over the present organization. It will provide tanks on the basis of one battalion per infantry regiment. It will eliminate platoon employment, aid training, simplify maintenance, facilitate supply and increase flexibility.

Company Employment Better

At the present time it is more or less common practice to employ one or more tank platoons with each infantry battalion. The effectiveness of this system depends upon always having good tank platoons. Tank platoons to a large extent depend upon the platoon leader. If the platoon is commanded by an experienced, aggressive leader, the chances are good that this method of employment will be successful. However, all platoon leaders are not aggressive or experienced. Casualties are inevitable. One day the platoon may be commanded by a capable leader, the next day by a replacement. This replacement leader may potentially be good. However, he is required to learn the hard way. He does not have the company commander constantly available to give needed guidance. Neither is the company commander able to bridge the gap by putting a heavier load temporarily on the other platoons of the company. In other words, we do not have the leavening effect found in a company employed as a unit.

The proposed organization is capable of eliminating platoon employment. If one of the tank battalions supporting an infantry regiment is further divided for attachment to in-

fantry battalions, a small tank company will be available for each infantry battalion. We will then have the company complete, operating on a relatively narrow front. No matter how the company is employed by the battalion, the tank platoons will be within supporting distance of each other. The company commander can actively control his platoons and provide guidance to the platoon leader. He will also be available to the battalion commander in an advisory capacity.

Combined Training

The present organization has improved training by making tanks available to infantry divisions for combined training. The proposed organization will retain this feature while aiding training in other ways. Whether tanks are organic to the division or to the regiment doesn't appear to make too much difference from a training standpoint. Both division and regimental commanders are interested in training and will see to it that tanks are available as needed for combined training. However, combined training is the final step in welding the tank-infantry-artillery team into an effective fighting unit. The artillery completes its unit training under artillery control before it engages in regimental combat team exercises. Likewise, the armor should complete its unit training under armor control before beginning combined training.

During unit training the new organization offers many advantages. The regimental headquarters will be available to supervise and coordinate the training of all tank units. Therefore, the division will have only one headquarters to deal with rather than four. This is important when we consider the special nature of the training required by tank units. At present, a regimental commander must train both his infantry and tank elements. The training and facilities required are so different that it has in effect duplicated his training problems. Constant efforts are made to reduce training time. This can best be accomplished if similar units are trained under centralized control.

Centralized training will insure also the most efficient use of tank ranges, equipment and qualified instructors. There are few areas in the zone of the interior suitable for tank ranges. The

ranges themselves are expensive to build and maintain. It will not be possible to provide tank firing facilities at all infantry division training camps. Therefore, it will be necessary, usually, for tank units to move to special areas for their gunnery training. All the tank elements of the division will be under control of one headquarters while separated from their parent division. Units in training are not usually issued full T/O&E equipment. This requires that available equipment be pooled or transferred from unit to unit in order to get the maximum use out of it.

Qualified instructors are always in short supply during mobilization. This is especially true of technicians. Those available must be closely controlled if their skills are to be used to the maximum. Finally, centralized training will insure uniformity in the training of all tank units. The division commander can be assured that all his units are receiving the benefit of all the technical and training skill available to the division.

Maintenance Advantages

As tanks become more complex and expensive, the necessity for good maintenance increases. This not only means that proper preventive maintenance must be constantly practiced but disabled tanks must be retrieved, promptly repaired and either returned to service or evacuated to higher echelons of maintenance. This requires parts, equipment, trained personnel and an organization designed to perform the job. While good maintenance sounds like an easy thing to attain, in actual practice it is very difficult. Even if a unit starts out with adequate parts, equipment and personnel, it soon ends up short. The smaller the size of the unit the more any shortage is felt.

For example, at present, the maintenance of approximately one-half the tanks in the division falls on the three regimental tank companies and the tank company sections of the three regimental service companies. The parts, equipment and personnel available to the regimental elements are extremely limited. The proposed organization will provide not only the tank company maintenance sections, but also the tank battalion maintenance platoon and any tank regimental maintenance elements that

may be authorized. A unit of battalion size carries more spare parts and is provided with more maintenance vehicles and equipment. Moreover, due to its size, it is authorized more specialists. It is more flexible in that the entire maintenance support of the battalion can be used to support any elements as the need arises. The net result will be that more tanks can be repaired farther forward. They will, therefore, be returned to action in the shortest possible time. By judicious rotation of battalions, the tank regimental commander can provide those battalions in need of maintenance the necessary time to get it accomplished. Thus, the infantry regimental com-

For complementary material on the author and the employment of tanks in the infantry division, see Sum & Substance in this issue, and in the issues of May-June and November-December 1951. See also "The Infantry Regiment's Tank Company" in the issue of September-October 1951 and "Catching the Enemy Off Guard" in the issue of July-August 1951.—Ed.

mander will get adequate tank support without the responsibility for the administration of the tank units.

Very similar to the maintenance problem is the supply problem. Tanks use huge tonnages of gas and ammunition. This places a heavy load on the infantry regimental service elements. The proposed organization has a supply platoon especially organized, equipped and trained to supply the tank units.

The regimental organization is much more flexible than the present organization. The tank regiment can be used as a unit or the three self-sustained battalions can be used in support of the infantry regiments. The number of battalions used to support any regiment would depend upon the situation. It is often desirable for infantry divisions to form mo-

bile task forces to exploit enemy weaknesses. At present, these must be improvised by using either the divisional tank battalion or one of the infantry units as a nucleus. This takes time when it is least available. The tank regiment would provide a ready-made headquarters to control task forces. It would have the required trained staff, communications facilities, and maintenance and supply capabilities to support mobile forces. Its commander would have a rank commensurate with the size of the unit he would be called upon to command. In this respect he would be on an equal footing with the three infantry regimental commanders. In his capacity as armor adviser to the division commander he would be alert to point out opportunities to use mobile forces and have plans constantly ready for any possible employment. This would result in an increased use of mobile forces by infantry divisions.

Increased Efficiency

The proposed organization will have to include necessary headquarters, maintenance, communication and supply personnel. Without doubt this will require a small increase in personnel. It should be borne in mind, however, that our new tanks have a crew of only four men. This reduction in the crew from five to four was not done because it was felt that four men were adequate to operate and maintain the tank. Space and stowage considerations dictated this change.

In fact, it is generally conceded that the support personnel in tank units will have to be increased without a proportionate increase in the number of tanks. Therefore, if we consider that tank crews have been reduced from five to four, that six tank crews will be eliminated and that the present personnel in the tank sections of the regimental service companies will be available, the over-all increase in personnel will be extremely small. This small increase in personnel will be more than made up for by increased efficiency of operations.

Our present-day tanks are expensive to build. Their manufacture requires time, large facilities, and much matériel. They require skillful, highly trained personnel to operate and maintain. It is vital that they be organized into units capable of doing the greatest possible good on the battlefield.



Bunker Destruction by Tank Cannon

by LIEUTENANT COLONEL CARROLL McFALLS, JR.

POSITION warfare was adopted by both enemy and friendly forces in Korea during the summer and autumn of 1951. The enemy defense system was based on the construction and tactical employment of well built camouflaged bunkers. These bunkers were expertly sited and were extensively employed. Actually, whole hilltops became hollowed-out fortresses of incredible strength. The firing embrasures of bunkers were placed to allow mutual fire support between two or more bunkers in the same system. The bunkers were built to house and protect troops, supplies and weapons. They varied in size from those required for two or three men to those required for entire companies. The gun chambers were designed for the emplacement and employment of weapons from the submachine gun to the field piece.

For background on the author see Sun & Sub-stance.

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Limited objective attacks designed to break the enemy's main line of resistance were launched on the west-central front in Korea during the month of October 1951. It soon became apparent that the success of the attacks hinged upon the ability of the attacking forces to destroy or neutralize the extensive bunkers employed by the enemy in his defensive system.

A systematic bunker destruction campaign was initiated and vigorously pursued through the employment of all available weapons. These weapons included aircraft, artillery, tanks, recoilless rifles, mortars, and finally, demolition charges, flame throwers and grenades. It became clear as the battle progressed, that tactical success was possible in an area only after the defending bunkers in that area were rendered unusable, and kept unusable, through the employment of a heavy volume of fire from heavy caliber ordnance. Because of its armor-protected fire power, its mobility,

and its ability to deliver direct cannon fire, the tank was extensively employed in the neutralization and destruction of bunkers.

Tanks were employed as far forward as the terrain would permit, often closing to within a few yards of the target. Initially, much ammunition was wasted because of the inexperience of tank crews, in the technique of bunker destruction and their lack of knowledge of the gunnery problem presented by a bunker. In some instances insufficient ammunition was expended on specific bunkers for the same reasons. As the battle progressed certain efficient techniques were developed by tank crews through the process of trial and error. During the latter stages of the campaign, tanks were destroying or neutralizing bunkers swiftly and efficiently with a minimum expenditure of ammunition.

To assist in the training of tank crews in the destruction of bunkers by tank fire and to insure maximum

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During the uneasy war occasioned by the dragging truce talks at Panmunjom, both sides have dug in on the mountainous Korean terrain. The long winter has given our forces a chance to develop various methods of reducing Communist positions. Bunker reduction has become a key operation in the months of position warfare.

efficiency in the battlefield engagement of such targets, an analysis of the various techniques was made and a standard procedure developed. This procedure is presented here and is recommended for inclusion in all future tank gunnery training.

In an effort to minimize the effect of friendly artillery fire and air strikes, the Chinese Communist Forces constructed their main line of resistance on the topographical crest of dominant terrain features. Rarely was the reverse slope of a terrain feature organized for defense. However, extensive troop and supply shelters and communication trenches were constructed on the reverse slopes and were often used for defense after the main positions on the topographical crest were overrun.

The forward slopes did not contain extensive emplacements, consisting for the most part of covered foxholes and a few automatic weapon positions employed for the purposes of close-in security of the main battle

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position. The principle of the forward slope defense was followed to some degree, however, by the location of bunker firing embrasures at varying distances below the topographical crest. Little or no tactical wire and few antipersonnel mine fields and booby traps were incorporated into the defensive system. Expert use was made of antitank mines. These mines were laid in profusion and with no standard pattern in all avenues of approach available to friendly armor. Where the terrain would permit, antitank ditches were constructed.

In the construction of his emplacements, the enemy used the technique of tunneling and shoring up rather than the technique of excavation. He did not, as is the normal procedure with the American Army, dig an emplacement from the top down and cover the resulting hole with logs, earth, sandbags and rock. Instead he tunneled through an entire hill, enlarging sections of the tunnel into shelters and firing chambers. He then

reinforced the enlarged sections, and the entire emplacement, if necessary, with layers of logs. (Figure 1) This technique resulted in an emplacement of great natural strength and, since it did not disturb the natural camouflage of soil and growth on the top, one which was well concealed from ground observation. However, the general trace of the defensive system, to include some of the bunkers, could be easily pin-pointed from the air due to the enemy's use of the spoil from trenches as parapets and his failure to camouflage these trenches from aerial observation.

The enemy constructed bunkers and other emplacements of varying shapes and sizes, each designed for a specific purpose. The general method of construction was standardized and the majority of the bunkers generally followed the plan as indicated in Figure 2. Fire and connecting trenches were normally one to one and a half meters in depth and only wide enough for the passage of a

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LEGEND
 A - Trench
 B - Living Quarters & Supplies
 C - Gun Chamber
 D - Embrasure

single soldier. Individual firing positions were located at intervals along a fire trench; some covered, some open. Supplies of grenades were placed at intervals along fire trenches. This was done by hollowing out small spaces in the sides of the trench near its bottom. Since the soil on the west-central front in Korea is predominantly rocky clay, revetment of trenches was seldom necessary. Troop, supply and gun chambers were reinforced by layers of logs, utilizing heavy logs as supporting beams. A minimum of nails was used, the logs and supporting beams being notched to fit and wedged into place. The tunnel from the communication trench to the troop or supply shelter and the tunnel from the troop or supply shelter to the gun chamber was either straight and level or offset, zigzagged and slanted. The tunnel from the troop or supply shelter to the gun chamber

was usually slanted upward. Normally tunnels were wide enough to permit the passage of only one soldier at a time. Some were high enough to allow a soldier to walk normally; some so low as to permit travel by crawling only.

The enemy constructed his emplacements through the use of front-line troops and indigenous labor. He utilized hand tools and explosives for even the heaviest type of construction. Engineer troops and heavy engineer supplies and equipment were not available to the enemy. Even if heavy engineer equipment were available, it would have been next to impossible to get it into position on the tops of the majority of the precipitous ridgelines chosen by the enemy for defense.

Immediately upon occupation of a position the enemy commenced the construction of trenches and bunkers.

If he considered the area vital to his defense, he would accept casualties and continue work under heavy artillery fire. Normally, however, most of the construction work was done at night. The enemy continually repaired damage to his emplacements caused by friendly artillery and tank fire and air strikes; a fact which must be considered by troops engaged in the attack and destruction of bunkers.

The initial problem confronting troops committed to the attack of a defensive system composed of bunkers is the location of the main line of resistance and of bunkers, individually and collectively.

The general location of the main line of resistance in Korea was determined in the normal manner and disseminated to assault troops by higher headquarters. The exact location (and disposition of troops therein) of the main line of resistance in their sector was determined by the troops operating in that sector and accomplished by patrols, both dismounted and tank-infantry, aerial photographs, map studies, aerial reconnaissance, ground observation and prisoners of war. The location of individual bunkers and their firing embrasures was determined almost entirely by ground reconnaissance and observation. Tank crews of tanks employed on the friendly main line of resistance assisted in the exact location of bunkers and their firing embrasures. This was done by observation, utilizing binoculars and the telescopic sight of the tank cannon, and by employing reconnaissance by fire.

After the exact location of bunkers and their firing embrasures has been determined the information should be compiled and plotted on a sketch,

overlay or map. This information is then disseminated to the troops who are to be employed in the area. (Although this last procedure is basic, it was violated or haphazardly accomplished on many occasions. As a result, troops were committed to the attack without a clear knowledge of the location of bunkers in their area, although the information was available at their parent unit headquarters. The obvious fact that the assaulting forces must know the location of bunkers in their area cannot be stressed too much. This information is vital to them.) Concurrently with the actual location of bunkers and the dissemination of that information, a bunker destruction campaign was initiated. This campaign should begin several days prior to the actual ground assault and should continue throughout the operation. On the west-central front in Korea, the planned bunker destruction campaign began after the attack had commenced.

The initial problem confronting a tank crew committed to a bunker destruction mission is the pin-point location of the firing embrasure. Since the embrasure is usually camouflaged, it is first necessary to remove all natural growth from the area in which the bunker has been located. This mission may be accomplished by other weapons. Air strikes from friendly aircraft employing napalm are highly effective as they burn the growth from a large area. Artillery and mortar fire, utilizing HE, fuse quick, and WP shells, is another effective method of removing camouflage. In the absence of these means, tanks can remove camouflage by delivering fire on the suspected area, using HE, fuse quick, and WP ammunition. This should normally be done only if other means are unavailable because of the necessarily large expenditure of ammunition.

After the natural growth or camouflage has been removed and the embrasure exposed the next consideration is the prevention, or the stopping, of fire from any weapon in the bunker. This is accomplished by the delivery of direct tank cannon fire into the embrasure itself. HE, fuse quick, is used initially, followed by a few rounds of HE, fuse delay, or WP to cause casualties among members of the enemy gun crew who may have

withdrawn into the connecting tunnel or troop or supply shelter.

When the enemy weapon has been silenced, the destruction or serious damage of the bunker is begun. The requirement for silencing enemy weapons in other bunkers may delay this procedure but it must be begun as soon as possible to prevent reoccupation of the gun chamber by the enemy. To avoid waste of ammunition, tank crews must be informed as to the enemy's methods of construction and trained in the technique of bunker destruction prior to the operation.

The problem presented in bunker destruction is the collapse of the roof and the undermining of the gun chamber floor with the end result being a mass of earth and logs occupying the space where the chamber was

located. Since shells which are delivered directly into the embrasure may proceed into the tunnel before exploding, the embrasure itself is not the target. Instead, rounds are delivered at the top of the embrasure and from three to five feet below the embrasure (Figure 3). This will weaken or destroy the roof and undermine the floor resulting in collapse of the entire chamber or sections of it. The projectiles should strike the target on an inclined plane to avoid their propulsion into the connecting tunnel prior to impact (Figure 1).

The ammunition to be used is a combination of APC and HE, fuse delay, and is delivered as follows:

One or more rounds of APC directed immediately above the bunker embrasure followed by one or more rounds of HE, fuse delay.

"intense fire from a large bunker."

Second Lieutenant Jerome A. Sudut, Infantry, United States Army, Company B, 27th Infantry Regiment, distinguished himself by conspicuous gallantry above and beyond the call of duty in action against the enemy near Kumhwa, Korea, on September 12, 1951. His platoon, attacking heavily fortified and strategically located hostile emplacements, had been stopped by intense fire from a large bunker containing several firing posts. Armed with submachine gun, pistol and grenades, Lieutenant Sudut charged the emplacement alone through vicious hostile fire, killing three of the occupants and dispersing the remainder. Painfully wounded, he returned to reorganize his platoon, refused evacuation and led his men in a renewed attack. The enemy had returned to the bunker by means of connecting trenches from other emplacements and the platoon was again halted by devastating fire. Accompanied by an automatic rifleman, Lieutenant Sudut again charged into close-range fire to eliminate the position. When the rifleman was wounded, Lieutenant Sudut seized his weapon and continued alone, killing three of the four remaining occupants. Though mortally wounded and his ammunition exhausted he jumped into the emplacement, and killed the remaining enemy soldier with his trench knife. His singlehanded assault so inspired his comrades that they continued the attack and drove the enemy from the hill, securing the objective. Lieutenant Sudut's consummate fighting spirit, outstanding leadership and gallant self-sacrifice are in keeping with the finest traditions of the Infantry and the United States Army.



View of the Communist main line of resistance. Friendly troops attacked from the right. The bunker in the foreground withstood over 200 rounds of 76mm tank cannon fire before it was destroyed. 77 Chinese were killed, mostly by the 76.

One or more rounds of APC directed three to five feet below the embrasure followed by one or more rounds of HE, fuse delay.

This process follows the principle of the "pick and shovel." The APC traveling at terrific speed smashes into the roof and floor and loosens the earth and logs. The following HE blows the loosened material downward and upward along the path of least resistance, the gun chamber. This technique has proven swift, efficient and effective in the destruction of bunkers by tank fire. Note here that only the gun chamber was destroyed. Insofar as assault troops are concerned this is the most important feature of the bunker. The destruction or serious damage of troop or supply shelters, because of their location deep inside the terrain feature, is virtually impossible using the relatively light cannon of the tank. It was attempted on several occasions and despite a tremendous expenditure

of ammunition, was generally unsuccessful.

HVAP ammunition, used in place of APC, is much more effective. Because of its cost, the possibility that enemy tanks may be encountered, and in view of the small number of HVAP rounds carried in the basic load of ammunition of an individual tank, its use should be restricted to only the most heavily constructed bunkers and then only after APC has been used unsuccessfully.

After a bunker has been destroyed and its firing embrasure closed, steps must be taken to insure that it is not repaired, or if repaired that it is redestroyed. Because of the accuracy of tank cannon fire and the armor protection available to the crew, the tank is the best means available for this mission. After bunker embrasures have been closed, either by tanks or other weapons, tanks, in addition to other assigned missions, should be assigned to keep bunkers closed in a

specific area. Since the enemy usually repairs his positions at night, the tank crew must carefully examine the assigned area at first light and reclose all embrasures opened during the night. Often in the course of a violent engagement, the enemy has attempted to repair a vital bunker during daylight hours. Tanks should continue to check and reclose bunkers throughout the day. Tanks should abandon this "watchdog" role only after friendly troops have overrun and either occupied or destroyed the positions.

The tanks that were successfully used in the destruction of bunkers on the west-central front in Korea during the limited objective offensive conducted in the autumn of 1951 were the M4A3E8, mounting the 76mm gun. It was proven (it had obviously been known before) that the 76mm projectile was too light for the task. Although successful it required each tank to expend a heavy volume of ammunition with resultant rapid wear of the gun tubes. The 90mm gun on the M46 tank gave more satisfactory results because of the heavier shell. Both 155mm self-propelled guns and 8-inch self-propelled howitzers were used in the bunker destruction campaign. They were emplaced to allow the delivery of direct fire.

The strength of the enemy's bunker system and the strength of individual bunkers was not realized until the attack had commenced. A terrific volume of fire was necessary to clear away the camouflage and destroy the bunkers. One hill alone was under attack, and received continuous fire from airplanes, tanks, artillery and heavy infantry weapons, for approximately three weeks before it was secured (Figure 4).

To most effectively destroy bunkers, tank crews must have the most detailed information possible concerning the location of the bunker and the enemy's method of bunker construction and must receive specific training in bunker destruction prior to the actual attack. When these two requirements are met, the tank becomes an invaluable weapon in any bunker destruction campaign because of its maneuverability and its ability to provide extremely accurate direct fire from an armor protected cannon.

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Turkey's ARMORED SCHOOL

by **LIEUTENANT COLONEL WILLIAM O. WYATT**

IN Turkey's treeless Anatolian Plain along the outskirts of the Capital city of Ankara, the Turkish Army has located its Armored School. At this school, as with our own Armored School at Fort Knox, the doctrine of employment of Armor units is developed and disseminated to the various classes of commissioned and enlisted personnel in attendance.

The origin of the school dates back to 1943. It was established then as the Tank Training Center and operated under British supervision. In 1946 it was renamed the Tank School, and in 1948 came under the supervision of the U.S. Army Group of the Joint American Military Mission for Aid to Turkey. In 1949 it was renamed the Armored School.

The school is presently commanded by Lt. Col. Tahir Ertan. Some of the British Training Staff are still assigned to it and are rendering invaluable aid to the American Advisory Staff and the Turks.

The American Mission, upon its arrival in Turkey, decided that in order to teach the Turkish Army how to care for and employ the new weapons to be furnished under the Mutual Defense Assistance Pact, it would be desirable to supervise the operation of

all service schools. This was deemed the most efficacious method of disseminating up-to-date information on the tactics and techniques of the new weapons. To the Armor Section, U.S. Army Group, fell the task of directing the preparation of the new Program of Instruction and Lesson Plans for the Armored School, based upon American doctrine. Colonel Louis Hammack, presently on the Staff and Faculty at Fort Knox, directed this initial effort. To assist him were a few American officers, most of whom were former members of the Staff and Faculty at Knox. These officers prepared all units of instruction and delivered them through the medium of interpreters. This required endless hours of toil—preparing units of instruction at night, and spending the major portion of the day on the platform.

As rapidly as possible Turkish Officers were trained to take over the presentation of units of instruction. During the academic year 1950-1951 about 95% of the platform instruction was delivered by Turkish instructors. In the present school year all of the platform instruction is scheduled to be given by the Turkish faculty.

The academic division of the school is organized in a manner similar to that of our own Armored School. There are Automotive, Communications, Command and Staff, and Weapons departments. There are one or more advisors with each department. To coordinate the advisory effort, and to assist the Director of Instruction, is the job of the senior American advisor at the school. Lt. Col. Tokay, the Director of Instruction, just completed a one-year tour as Chief of Staff of the Turkish Brigade in Korea. There are presently at the school seven American officers, one British officer and three NCO's, plus two American civilians. Included among the advisors are representatives of Armor, Artillery, Engineer, Ord-

nance, and Signal Corps. Since the Turkish Armored Brigade is a combined arms fighting team, representation of these arms and services is essential.

As rapidly as it is determined that advisors can be spared, they will be phased out. Thus it is hoped that in the not too distant future, only the advisor to the Director of Instruction will be needed.

The Turkish Armored Brigade, for which the school trains personnel, is about one-third the size of the American armored division. Included among its combat elements are Tank, Reconnaissance, Motorized Infantry, Artillery, and Engineer units. Among its organic service support are Signal, Ordnance Medium Maintenance, Transportation Truck, Medical, and Band units. These brigades are the most modern, mobile troops in the Turkish ground forces today.

The Armored School is presently offering the following courses: Advanced Officer, Basic Officer, Tank Destroyer Officer, Armor Reserve Officer, Armor NCO, Communications Chief, Radio Repairman, Armor Mechanic, Armorer and Artillery Mechanic; and last, but certainly not least, a General Officer's Orientation course. This course is designed to indoctrinate division Commanders and Corps Staff Officers in the employment of Armor.

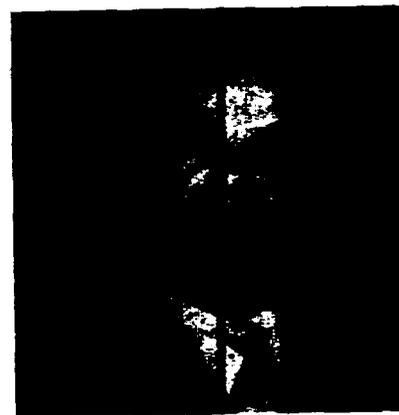
The Armored School has the mission of furnishing tactically and technically trained personnel to maintain the combat efficiency of the Armored Brigades that stiffen the backbone of the Turkish ground forces. It is an important activity of great responsibility.

in the next issue . . .

- A feature article on the ten ages of the tank.
- A feature article on the Military Defense Assistance Program.
- Sam & Substance feature devoted to self-propelled artillery in Korea.
- A feature review of the new book Rag, Tag and Bobtail, story of America's Continental Army.
- A pictorial feature on our top command in Europe.

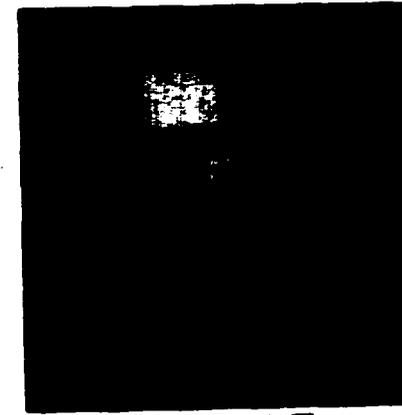
out May 25th . . .

ARMOR



Lt. Col. Tahir Ertan
Commandant, Turkish Armored School

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Lt. Col. William O. Wyatt
Chief, Armor Section, JAMMAT

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.

Armor is a potent part of the ground arm team on the Korean battlefield. The tank battalions employed across the peninsula represent a striking force that means real backbone in United Nations operations. ARMOR turns to the commanders of our combat tank battalions in Korea for the last word on the important subject of TANK-INFANTRY TEAMWORK. Here is a roundup by top professionals whose units have been writing the headlines in day-to-day action.

The writer of the following served in combat with the 30th Infantry Regiment of the 3d Infantry Division through its entire overseas tour in World War II, progressing from platoon leader through company commander to battalion and regimental staff officer. Since mid-1951 he has commanded the 70th Tank Battalion, 1st Cavalry Division, in Korea and in its present assignment in Japan.

Throughout all of its campaigns in Korea this division has tactically employed its regiments as tank-infantry teams. Since this division has no regimental tank companies, these teams were formed by the attachment of one tank company from the divisional tank battalion to each of the three regiments. Within this large infantry regiment-tank company team, smaller teams were formed through the attachment, or the employment in direct support, of tank platoons to infantry battalions. Normally, the tank platoons within the infantry battalion-tank platoon team were employed in general support of the entire battalion by the infantry battalion commander. For special operations, the infantry battalion commander combined the entire tank platoon with one of his infantry companies.

Considering the absence of regimental tank companies, the enemy, weather and terrain encountered in Korea, and the Heavy Tank Battalion organization of the divisional tank battalion, this method of tank-infantry team organization and employment was efficient. It provided for the creation of the greatest possible number of tank-infantry teams with the retention of one platoon in re-

serve within each regimental tank-infantry team. This platoon was used to relieve platoons that had been engaged in operations against the enemy, to allow the relieved platoon time for maintenance and rehabilitation, a vital consideration of all tank unit commanders. The platoon was available and used for special operations, to reinforce the infantry battalion making the main effort, to exploit local successes, to engage in counterattacks, to occupy blocking positions behind the front lines, and to relieve tank platoons which had suffered heavy vehicular and/or personnel casualties.

The tank-infantry team in this division throughout the campaigns in Korea has been engaged in every conceivable method of tactical employment. These teams have engaged in offensive action, in defensive action and in retrograde movements. They have been employed in exploitation. Tank-infantry teams have been used

in counterattacks, in patrol actions and as outposts.

Although tank-infantry teams in this division have reached a high state of efficiency, they have done so through the process of trial and error. Both tank unit commanders and infantry unit commanders have been guilty of errors, some of them habitual. The most glaring of these are as follows:

Failure of the tank unit leader and the infantry unit leader of tank and infantry forces combined as a tank-infantry team to conduct a joint reconnaissance prior to combat. This joint reconnaissance, conducted together or separately by the commanders concerned, is vital to the success of a tank-infantry team mission. It is the only manner in which the effects of the enemy and terrain on the capabilities and limitations of tanks and of infantry committed to operation in a specific area can be determined and a plan of action devised to minimize the effects of the limitations and take advantage of the capabilities of each team member.

The lack of knowledge of infantry officers, particularly junior infantry officers, concerning the limitations and capabilities of the tank and of the tremendous logistical effort required to support even the smallest tank unit in combat. This, despite the attention given to tank-infantry instruction in both Armor and Infantry schools. It indicates that theoretical instruction is insufficient; that actual practical work type training, during which an infantry officer commands a tank unit for an extended period, should be included in courses of instruction to fill the gap between

theory in the classroom and the application of that theory on the battlefield.

Poor communication between individual tanks and infantrymen. Many times in combat individual infantrymen have climbed on the decks of tanks while under fire in order to speak with the tank commander. This despite the fact that an operative external tank interphone was installed on the tank. It is the responsibility of the tank unit leader and of each individual tank commander to insure that the infantrymen cooperating with them know all the means of communication available. Additionally, infantrymen during their basic training should receive instruction in tank-infantry communications and should be allowed to practice those means available to them for communication with individual tanks. Missions have failed because of the absence of communication between infantry and tanks; although the means for communication was present and in working condition. The number of tanks organic to the modern infantry division requires that every individual combat infantry soldier know how to fight with them. Communication is the lifeblood of tank-infantry team operations.

Infantrymen, not knowing the pinpoint accuracy of tank cannon fire and automatically applying the safety distances required by artillery fire, are reluctant to advance close enough behind tank cannon shell bursts to take fullest advantage of the fire superiority achieved.

Despite the errors listed here, most of which have been corrected, the tank-infantry teams in this division engaged in combat in Korea for over a year have proven themselves; if further proof were necessary. If tank-infantry teams can operate so successfully in Korea, a land which contains little or no "tank country," then tank-infantry teams can operate successfully in any part of the world. Tanks alone and infantry alone have their limitations. When combined as a team these limitations are counterbalanced by each unit's capabilities resulting in an unbeatable combination—providing they are well trained in the techniques of fighting as a tank-infantry team.

LT. COL. CARROLL MCFALLS, JR.

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The writer of the following served in the Pacific during World War II, at Guadalcanal, Vella Lavella and Bougainville, and in command of the 3d Tank Battalion, USMC, at Guam and Iwo Jima. He commanded the Marine Tank School at Camp Pendleton, California in 1945-46. In Korea for a year, he now commands the 1st Tank Battalion, First Marine Division.

The history of tank-infantry teamwork in the Marine Corps is almost synonymous with the history of tanks in the Corps. Never equipped nor intended to make slashing armored drives deep into enemy country, our tankers have always been geared to the plodding pace of the infantry. We have learned patience and respect for this way of fighting tanks.

Marines were taught brutal lessons on Guadalcanal and Tarawa and by the time they went ashore at Okinawa, had made an exacting art of the coordinated destruction of enemy bunkers and strong points. Communications between tanks and infantry, formerly carried on by a crude system of colored flags, had developed into a smoothly functioning procedure using the tank-infantry sound power phone or the SCR-300 radio. Infantry units down to squad level, had been drilled in fire and movement maneuver with the tanks. The infantryman was an expert at bringing the tank guns on target using the clock system of target designation.

The greatest factor in the success of tank-infantry teamwork has not been due to technical nor tactical procedure, however, but is due primarily to the cooperative attitude between tankers and the infantry which

they support. In Korea, marine tanks have, almost without exception operated in direct support of infantry units. The infantry commander, from regimental CO to platoon leader, looks upon the supporting tank officer as his personal advisor in matters concerning the employment of tanks. This means, in practice, that the infantry commander tells the tank officer what he wishes the tanks to accomplish and leaves to the tanker the prerogative of recommending how it can best be accomplished.

Operations in Korea have imposed certain tactical limitations on tank-infantry employment. The habitual policy of the enemy of bringing artillery and mortar fire onto our tanks has somewhat diminished the use of the tank-infantry phone. The arrival of such fires in any assault where tanks are employed is a virtual certainty. This factor has widened the gap between tanks and supporting troops. The infantry now advances in rear of the tanks and, at the same time, can be afforded the brief warning given by the shrill whistle of an incoming round of artillery.

When the advance of tanks is prohibited by mine fields or other man-made or natural obstacles, we have frequently found it feasible to place tanks on high ground to the rear to support the assault by direct fire immediately over the heads of our advancing troops. Infantry commanders, at first reluctant to trust the tanks for such fires, now have a confidence born of experience and call for tank fire as close as fifty yards from their own lines.

On occasion, when permitted by terrain and other factors, tanks have pushed well ahead of advancing infantry to bypass enemy installations and take up firing positions to their rear. In every case in our experience the enemy has been surprised and confused by this maneuver and has invariably taken considerable losses.

Tank-infantry teamwork is developed to a high degree in the Corps because our tankers are deeply aware that their paramount job is to support the infantry in the most effective fashion possible, and because infantry commanders ask for and apply the experienced advice of the tankers in executing tank-infantry missions.

LT. COL. HOLLY H. EVANS



LT. COL. EVANS



LT. COL. MCFALLS

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The writer of the following served with the 31st Tank Battalion, 7th Armored Division, during World War II. He returned to active duty in 1950 to serve a tour with the 131st Tank Battalion, school troops, at Fort Knox, moving on to Korea in October of 1951 to command of the 72d Tank Battalion, 2d Infantry Division.

Tank-infantry teamwork in Korea is very difficult to define, as it does not follow the definitions found in the text of either the Armored School or the Infantry School. Though we do not, in Korea, due to the terrain, ride the infantry on tanks, we still achieve teamwork through fire support. Most vital to this teamwork is coordination and communications.

Most of the missions assigned have been a type of fire support known as "walking the infantry up an objective." The coordination in an effort of this type has been of paramount importance and is accomplished through various means of communication such as phase lines, pyrotechnics, radio, or a combination of all.

The infantryman's preference to have the tank fire support him as closely as possible found the tankers spacing their shots about fifty yards ahead of the climbing infantryman. In the case of the ROK troops, it has been even closer, and again by their own preference.

In the Mundung-Ni Valley, during "Operation Touchdown," a very successful tank-infantry team consisting of an infantry company supported by a company of tanks, was employed. In the maneuver, three platoons of tanks passed through the advancing infantry to take up direct fire on enemy machine guns, AW's, bunkers and other obstacles, while one platoon advanced along with the infantry to fire on specific targets designated by the infantry company commander.

Tank-infantry teamwork ceases to be a high sounding phrase at night and resolves itself into downright "friendship." The failure on the part of the average infantryman to understand the capabilities and limitations of the tank, and especially at night, is frequently the cause for uneasiness. The necessity for the infantryman to secure the tank at night by means of outpost and listening post should be taught infantry soldiers in basic training. They were found to be under

The contribution of the CO of the 89th Tank Battalion was received too late for inclusion in this issue. It will appear in the next issue.

the misapprehension that to have the fire support of tanks at night, they must be close to the tank position.

During daylight operations, we have used to great success a maneuver of flanking the enemy and delivering fire on him from the rear. In one operation, two platoons of tanks were used to "walk the infantry up," while two more platoons were dispatched to positions behind the objective. The platoons behind the objective had a veritable field day. They were able to destroy the enemy as he attempted to withdraw down the reverse slope of the objective.

I recommend that greater stress be placed on tank-infantry teamwork during a soldier's basic training. Further I feel that commanders of all echelons in the infantry should be required to undergo armor training.

This training would better qualify them to issue instructions or orders to their organic or attached armor units. That is to say, the infantry commander would be able to more fully utilize the tank as a weapon, as he would have an understanding of its capabilities and limitations.

I would recommend no change in the basic employment of tanks as outlined in FM 17-33. However, in view of the wealth of experience gained in Korea on "Operations in Mountains" I would recommend that this particular section of FM 17-33 be covered in more detail.

LT. COL. JOHN O. WOODS



Lt. Col. Woods

The writer of the following served with the 106th Cavalry in the Panama Canal Zone, and in various training assignments during World War II. He commanded the 773d Tank Battalion of the Louisiana National Guard when it was called to active service. Transferred to the Far East and Korea, he assumed command in September 1951 of the 73d Tank Battalion, 7th Infantry Division.

The battalion which I presently command has been in action in this particular area since March, 1951. This battalion is operating as a direct support unit to an infantry division with the normal breakdown of one company D/S to each infantry regiment. This situation is most unusual in that the battalion has a direct support mission. The reason for such a mission has no bearing on this story.

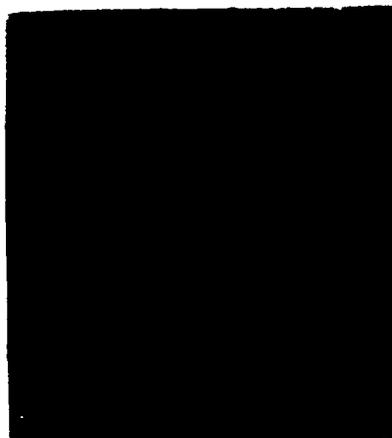
This particular type mission is naturally the answer to a tank commander's prayer. It allows the commander a wide latitude in the commitment of his command not normally found in the usual tank attachments.

When the division Commanding General has decided to use tanks and infantry combined in an operation, the commanders of the particular units concerned are called in for a conference. The projected operation is laid before them and they are requested to submit a plan as to their respective roles. We therefore enter the picture in the planning stage, where each is able to advise at once the most advantageous methods of tank and infantry use in support of the effort. We are not concerned then with tactics but are faced with the problem of technique of employment, which, after all, we find, is of primary importance.

This is the stage when we determine whether the infantry rides the tanks, precedes the tanks, or follows the tanks. We determine what routes the tanks will use, where they meet the infantry, and what infantry units will be with the tanks, or vice versa. Other items of coordination such as signal, telephone and pyrotechnics, are briefly discussed at this time but not in detail. You will note that all this is done in the planning stage which enables the tank-infantry commanders to be consulted before the operation is ordered.

Immediately after being briefed on

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Lt. Col. Turner

the proposed operation, the tank-infantry commanders get together and make a personal reconnaissance of the proposed operations area. They drive over all routes (sometimes with light tanks) and walk over as much of the terrain as the enemy situation permits. These areas are also studied from maps, observation posts, aerial photos, and the battalion L-19 spotter aircraft. Upon completion of these preliminaries, the tank-infantry commanders get together and work out the detailed plans for the operation. This method allows each commander to commit his units so as to exploit their capabilities most effectively. These plans are then studied by the higher headquarters and coordinated and the operational order is issued.

The battalion in all cases follows the field manuals. We operate these tank-infantry teams exactly as taught at the Armored School. The tactics we will not discuss as we are concerned only with the Technique of Employment. Situations determine tactics. The above system works best and is the one most often used, but as I have said, the situation also has a lot to do with it.

I have also seen this method used. The tank commander and infantry commander are standing on a hill. Infantry commander says to tank commander, "We take this territory." The tank commander says, "I can attack there." Infantry commander says, "I can attack through there." Tank commander says, "Let's go!" Planning, coordination and field order, all in the space of five minutes and few words. It worked! They took the objective!

LT. COL. CHARLES G. TURNER

ARMOR—March-April, 1952

The writer of the following served as Executive Officer of the 812th Tank Battalion during World War II. He has been in Korea for the past year, and since May of 1951 has commanded the 6th Tank Battalion of the 24th Infantry Division.

The basic principles for the employment of small unit teams apply equally to operations in Korea as in other theaters of operations. The organization of the teams and the missions vary, terrain and mission being the determining factors insofar as team organization is concerned. Particular emphasis should be placed on prior planning and coordination by the units involved. All members of the team must know every detail of the plan. Team training, combined arms problems and rehearsals conforming to the operation planned are very desirable and have been particularly effective when utilized with ROK units. Experience of the 6th Tank Battalion has revealed that infantry confidence in tank fire effectiveness and accuracy increases immeasurably when rehearsals and familiarization training are conducted prior to the actual implementation of the support operation.

When supporting infantry, multiple means of communication and recognition must be established. This battalion has supported ROK units on several occasions and the problem of communication and coordination was naturally greater under these circumstances than when supporting U.S. units. When supporting ROK units the solution reached by this battalion was to have a liaison officer, with a SCR 509 radio, with the ROK command group and Korea Military Advisor at the regimental O.P. and in communication with the tank unit offering the support. This procedure has also worked satisfactorily when the battalion supported U. S. infantry, however, the liaison officer was located at battalion level. In addition, prearranged signals using various pyrotechnics are used to mark the front lines of the infantry units and to signal for or lift supporting tank fire. All advancing units should also use panels to indicate leading elements.

Conditions in Korea are such that normally infantry units in the attack are advancing on terrain that is mountainous and impassable to tanks. The

tanks assisting the advance, fire from the valleys below. When it is necessary for the infantry to pass beyond the tanks due to the terrain, the tanks should move as close to the objective as possible and still give supporting fire on the forward slope and, if conditions permit, the reverse slope of the objective. Tank fire from the front of the advancing unit to the objective (normally hill or mountain peaks or ridges) is essential and is perhaps the most effective fire support infantry units receive. This is particularly true if the M46 tank mounting the 90mm gun is used in the reduction of mine fields, antitank guns or obstacles. This should be accomplished as taught under current Armor teaching.

Each tank company should have a minimum of one tank dozer when performing missions of patrol, attack or support. On armored reconnaissance patrols, infantry support is not necessary unless the terrain in which the operation is to be conducted is unfavorable for armor employment. Tanks are a primary mortar and artillery target of the Communist forces and unnecessary infantry losses are sustained if they ride, or accompany the tanks on an armored patrol. If it is necessary to take and hold a pass or defile, clear a mine field or reduce antitank defense in order for the patrol to accomplish its mission, infantry is essential.

The primary obstacle to employment of armor on any operation in Korea has been the Russian type box mine which is used by the CCF. In this connection, present detection equipment is not satisfactory. As an alternative, probing by engineers has



Lt. Col. Byers

had to be resorted to, which is laborious, too slow and in many cases not practical.

In the attack, when the final objective is reached, the tank units should, if terrain permits, cover the infantry organization of the objective, preferably in front of or to the flanks of the objective. On defense, part of a tank company may be placed in the main line of resistance. However, in this connection, the integrity of the platoon should not be violated. The balance of the force is maintained as a mobile reserve to be used in connection with any counterattack plan for the sector.

The tank unit should assist the infantry in the evacuation of wounded

wherever possible, providing the tank mission is not interfered with. On numerous occasions this unit has evacuated infantry casualties without loss of tactical efficiency. This has been particularly true when the tanks were withdrawn because of darkness, to refuel or resupply with ammunition.

Experience has revealed that support missions increase the volume of high explosive ammunition expended. Units of the battalion have used as much as 3 to 4 basic loads of HE ammunition in one day, and as a result, attention must be given to selection of ammunition resupply points and stockpiling of HE ammunition prior to the start of the support mission.

LT. COL. HENRY M. BYRONUM

The writer of the following served as a rifle company commander in the 29th Division in World War II, from Normandy to VE Day. A 1948 graduate of The Armored School, he assumed command of the 140th Tank Battalion of the 40th Infantry Division upon its call to active service, taking it through Japan and on to Korea.

Some time ago there existed a popular notion that Korea was not "tankable" country. This idea was promptly expelled after North Korean forces invaded the southern half of the peninsula, and the cry went out for tankers to lend their might in the fray.

The tank-infantry team is yet another victim of negative thinking on the part of some commanders. Many excellent examples of proper teamwork exist, of course, but they usually occur under good to ideal terrain situations. Far too often a tank-infantry team in the attack degenerates into tanks operating in the vicinity of an infantry unit, with a vague mission to fire somewhere.

Since most of the northern section of Korea is extremely mountainous, the only terrain suitable for tanks is the valleys and their branches. The enemy digs in well, with his main positions sited well within these mountains and usually protected by a ring of lesser positions on surrounding hillsides. Many of these positions can be covered effectively by tanks probing into these fortified areas. Tanks cannot seize these positions,

but they can lend material assistance to the infantry and reduce its casualties.

To mount a tank-infantry team attack successfully in this difficult terrain requires more than the usual amount of advance planning, with command attention given to the most minute details. The warning order should be early, giving a tentative task organization, and the mission and area of operation, in order to allow careful study of the terrain by tank commanders and infantry squad leaders. Normally the task organization should be relatively heavy in tanks, with only enough infantry to accomplish the mission. Plans for the attack and the attack itself should be conducted as any normal operation against a fortified position.

Aerial photos and good contour maps should be studied in detail to



Lt. Col. Beeger

develop the plan for isolation of the objective, firing positions for each tank section, and exact routes of the infantry all the way to the objective. Plans should include a primary and alternate means of communications between tanks and infantry, and normally commanders should be together. The objective in the planning phase should be to fix the operation in the minds of all participants so that little or no control is required after the operation starts. Rehearsals are recommended for this purpose when conducted over similar terrain or on improvised sand tables.

A successful operation would consist of three distinct phases, neatly dovetailed to complement each other, and to pave the way for the capture of the objective by the infantry with little effort and a minimum of casualties.

First is the preparatory fire phase, where all available artillery, mortars and air soften the target area, knock out guns and OP's, and carry out the isolation of the objective by fire. This phase may be omitted on occasion, but always use everything you can get.

Under the cover of these preparatory fires the tanks move in and take up the fire. Some support artillery may then shift to defiladed target areas upon which tanks are unable to fire. Tanks should attempt to work well around flanks and rear of the the objective to isolate the battle area further and place fire on all known and suspected OP's, gun positions and bunkers on a prearranged plan. While this isolation and neutralization process is being conducted, tankers must be bold and aggressive, but always remember to have tank cover tank and section cover section.

During the tank neutralization phase the infantry moves forward under cover, using previously selected draws, ravines and ground folds. When the last cover is passed the infantry should proceed with all haste to seize the objective. Often the preparatory fires and tank fire will have driven the enemy from the objective into caves or adjacent concealed positions. Now is the infantry opportunity, and the least delay in the assault can be costly. Tank fire should continue on the objective until the infantry is within hand grenade distance. The CCF

forces open fire with automatic weapons at 30-50 meters, so our forces must be willing to close in under tank fire. The infantry should wear identification panels on their backs so tankers can identify the leading elements readily. Some tanks should be on call to squad leaders to fire on targets of opportunity as they advance. One tank per squad of infantry is a good arrangement in a direct support role.

Lessons from Korea would indicate that when we depart from the norm in operations, we tend to discard proven doctrines, to our discredit. Better that we realize that our doctrines are sound and effective, and that the degree of our success is directly related to the amount of effort we expend in their application to the less favorable conditions we find in Korea.

LT. COL. ELMER C. REAGOR

The writer of the following was integrated into the Army following World War II. He has had service with both horse and mechanized cavalry, and has commanded the 245th Tank Battalion of the 45th Infantry Division since shortly after that organization was called to active service in 1950.

We've all dreamed of being the veritable military genius who has compounded a new set of principles for the employment of tanks with infantry—principles so effective, so clever, so different that they will revolutionize this whole business of the tank-infantry team. But the more I observe and participate in tank-infantry operations the more suspicious I become of the fact that there is a strong likelihood that such a revolution is not at hand. So in this article I am not going to expound new principles, or current ones either, other than to state in passing that tanks in Korea are doing very nicely, thank you, with the plain old issue-type principles available to anyone with access to the manuals.

Rather, I would like to make random notes of a few things that have impressed me, and that I hope will be of at least some small interest and value to the reader. For instance:

Much has been written about the trafficability of paddies with the major



Lt. Col. Throckmorton

emphasis on the lack of traction. In our sector we have another problem—that of wide, deep, vertical walled drainage and irrigation ditches. Bridging them would be no problem if one could get bridging material to them, but one can't. Easily, that is. We simply whittle them down to our size with TNT by blowing the shoulders off to make a negotiable slope for the tank to descend into the canal and another to enable it crawl out. In order to avoid going into a "column of sitting ducks" to cross the canals, we blow as many crossings as possible over each one.

That brings up another point. As the engineers go, so go the tanks, is

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FREEDOM

often the case here. In our case we refer habitually to the tank-infantry-engineer team.

In assaulting steep hills, the tanks, from positions at the bottom, can give the infantry almost unbelievably close fire support as the infantry advances. That is if the tankers know precisely where the infantrymen are. A solution is panels on the backs of leading infantrymen. Can't the enemy see the panels too? Sure he can if he is fool enough to stick his head up in the face of tank fire delivered at 200-300 yards range to look. Generally he isn't. It's sort of up to the infantry concerned. You put on your panels and take your chances.

Frostbite is a real bugaboo to tankers in extremely cold weather when they are forced to remain cramped in an unheated tank for long periods. From a prior over-all record of one superficial case, our cases skyrocketed with ten more during one prolonged operation. For some reason eight of the cases were gunners. The medics had several theories, ranging from the relatively cramped quarters of the gunner in the M4 to the fear complex manifesting itself more violently in the gunner, who couldn't see "what was going on" as well as the other crewmen, with a resultant constriction of the circulatory system. Be that as it may, don't overlook any bets on preventing frostbite.

Rehearsals are a must if time permits. We pulled one operation with infantry of another UN outfit; a non-English-speaking one, incidentally. Communications went haywire, and for a longer time than was comfortable the right hand didn't know what the left was doing. However, the mission was accomplished because we had rehearsed the job with them prior to undertaking it.

By striking from the unexpected direction and at the unexpected place tanks can gain surprise. We got a company right smack into an enemy position that way—but heaven help the next fellow who tries that particular route, because it's no longer a surprise one. A few days later friendly infantry patrols found that during the interim the Chinese had mined it—profusely and haphazardly with those ducky little hard-to-detect box mines they have.

LT. COL. J. M. THROCKMORTON

The Top Command in the Far East

United States forces in the Far East have developed from the weak occupation units of two springs ago into the blooded army of today. In the course of twenty-two months of action, we have seen many changes of command. Much publicity has attended the service of several of the commanders. But while the recall of General MacArthur, the capture of General Dean, the deaths of Generals Walker and Moore, were in the news, perhaps less was known of the command jobs turned in by many more of our outstanding soldiers—Generals Church, Gay, Barr, Ruffner, Soule—to mention only a few. In the thought that professionals around the world would like to see the command picture rounded up for them, ARMOR sets out the chain as it stands at the moment. This review of the command structure in the Far East is in itself an indication of our capabilities in a critical area of the world today.—THE EDITOR.

Next issue:
Top Command in Europe
U. S. Army Photos

FAR EAST AND EIGHTH ARMY COMMANDERS



Gen. Matthew B. Ridgway
Commander in Chief, Far East Cnd.

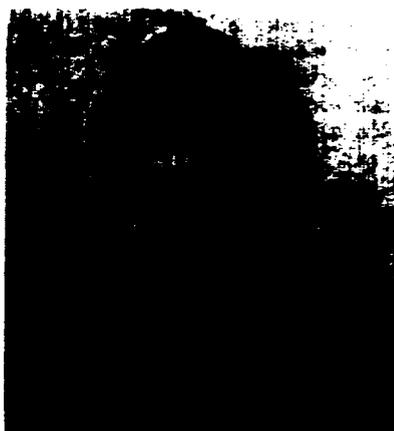


Gen. James A. Van Fleet
Commanding General, Eighth Army

THE CORPS COMMANDERS



Lt. Gen. John W. O'Daniel
Commanding General, I Corps



Maj. Gen. Willard G. Wyman
Commanding General, IX Corps



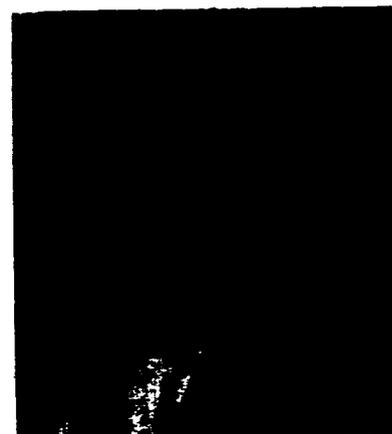
Maj. Gen. Williston B. Palmer
Commanding General, X Corps



Maj. Gen. Clovis E. Byers
Commanding General, XVI Corps

ARMOR—March-April, 1952

THE DIVISION COMMANDERS



Maj. Gen. Thomas L. Harrold
CG, 1st Cavalry Division



Maj. Gen. John T. Selden
CG, 1st Marine Division



Maj. Gen. Robert N. Young
CG, 2d Infantry Division



Maj. Gen. Thomas J. Cross
CG, 2d Infantry Division



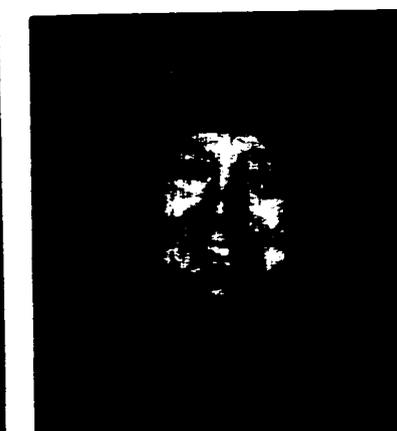
Maj. Gen. Lyman L. Lemnitzer
CG, 7th Infantry Division



Maj. Gen. Henry L. Hodges
CG, 24th Infantry Division



Maj. Gen. Ira P. Swift
CG, 25th Infantry Division



Maj. Gen. Daniel H. Hudson
CG, 40th Infantry Division



Maj. Gen. James C. Styron
CG, 45th Infantry Division

ARMOR—March-April, 1952

SOVIET ARMOR TACTICS

The SEELOW Operation

On January 12, 1945, the Russians launched a major attack along a 450-mile front extending from East Prussia to the Carpathians. With new armor and plenty of motorization, the Russians in three weeks rolled up to the Oder River, last major defense line before Berlin. The Battle of Germany began as they crossed the Oder. Reducing that picture from the strategic to the tactical level, the series of historical examples of Russian armor tactics, launched in the last issue of ARMOR, picks up the German view of action in the Seelow-Kustrin area east of Berlin. The author of this action covering the Panzer Division Muencheberg defense of Seelow is a Captain of the Armored Command who for obvious reasons desires to remain anonymous.—Ed.

PRELIMINARY ATTACK ABOUT KUSTRIN

IN early March of 1945 the Russians concentrated heavy forces both east and west of the Oder River, flanking the city of Kustrin. They had brought forward a large number of tanks and moved them across the Oder on makeshift bridges, assembling on the western bank.

German forces were still holding the inner core of Kustrin, and the recently activated and weak Panzer Division Muencheberg occupied both sides of the Seelow-Kustrin highway with orders to prevent a Russian breakthrough toward Berlin. The German forces could use this highway only at night.

In the Muencheberg's sector, the division's armored battalion, which consisted of one medium and two heavy companies, had been disposed along a broad front for the purpose of fighting off the anticipated enemy tank attacks.

The armored battalion was organ-

ized with a reconnaissance platoon of five Mark IV tanks; a 1st Company with twenty-two Mark IV tanks; and a 2nd and 3rd Company with fourteen Mark V tanks; the total of 27 Mark IVs and 28 Mark Vs gave the battalion a grand total of 55 tanks.

The terrain in the sector was completely level, offering no obstacle for tanks.

Around 0600 on March 22 a vigorous and intense artillery barrage began throughout the sector, lasting approximately an hour and a half. Under its protection the Russians attacked along a broad front. They soon penetrated the weak German front lines with strong armored forces. When they encountered the German armored battalion, the infantry attacking with the tanks were stopped by its defensive fire.

Approximately fifty tanks advancing south of the highway were driven back by the 1st Company. A second wedge of approximately fifty tanks

by-passed Gorgast and was hit in the flank by the 2nd Company.

A similar force further north advanced on Golzow, where the 3rd Company and the battalion staff had withdrawn from the village only with great difficulty as a result of the intense artillery fire. The Russians placed a smoke screen across the eastern edge of the village. German tanks trying to escape this found themselves in action at close range with the Russian tanks.

The Russians broke off the attack after losing about sixty tanks shot out of action. Only the superior command and flexibility of the German armored battalion repulsed the attack.

Lessons

The cooperation between the Russian tanks and artillery was correct and exemplary. The use of the smoke screen was perfectly synchronized.

The combination of all armored forces and their simultaneous advance on a broad front was correct. Whether an echelon in depth had been planned could not be ascertained from the Ger-

man side. Since no breakthrough was achieved, rear echelons could not be brought to bear.

The obvious objective of the tanks—Seelow heights—was the right one.

The attack by the northern elements on the village of Golzow was faulty. It would have been better to by-pass it under the protection of the smoke screen, especially in view of the fact that the Russian infantry had not kept up.

It was wrong also for the German tanks to stay in Golzow. When strong artillery fire is anticipated, tanks must be dispersed over the terrain.

In the type of situation here, and with the open terrain, the broad disposition of the armored battalion was correct. Two companies were up front, with one to the rear, with the staff, as a mobile reserve, either to come to the aid of one of the front companies in an emergency or to fight off a penetration. The tanks were employed as mobile antitank guns, a procedure which best insures a successful defense and saves losses when the enemy has complete superiority.

MAJOR ATTACK EAST OF BERLIN

FOR several months during the early part of 1945 the Russians had been assembling forces in the area about and to the north of the city of Kustrin preparatory to launching a major attack on Berlin, thus striking a decisive blow to end the war. Their combat activity during this period was slight except for the attack discussed in the previous example, aimed at gaining the heights near Seelow.

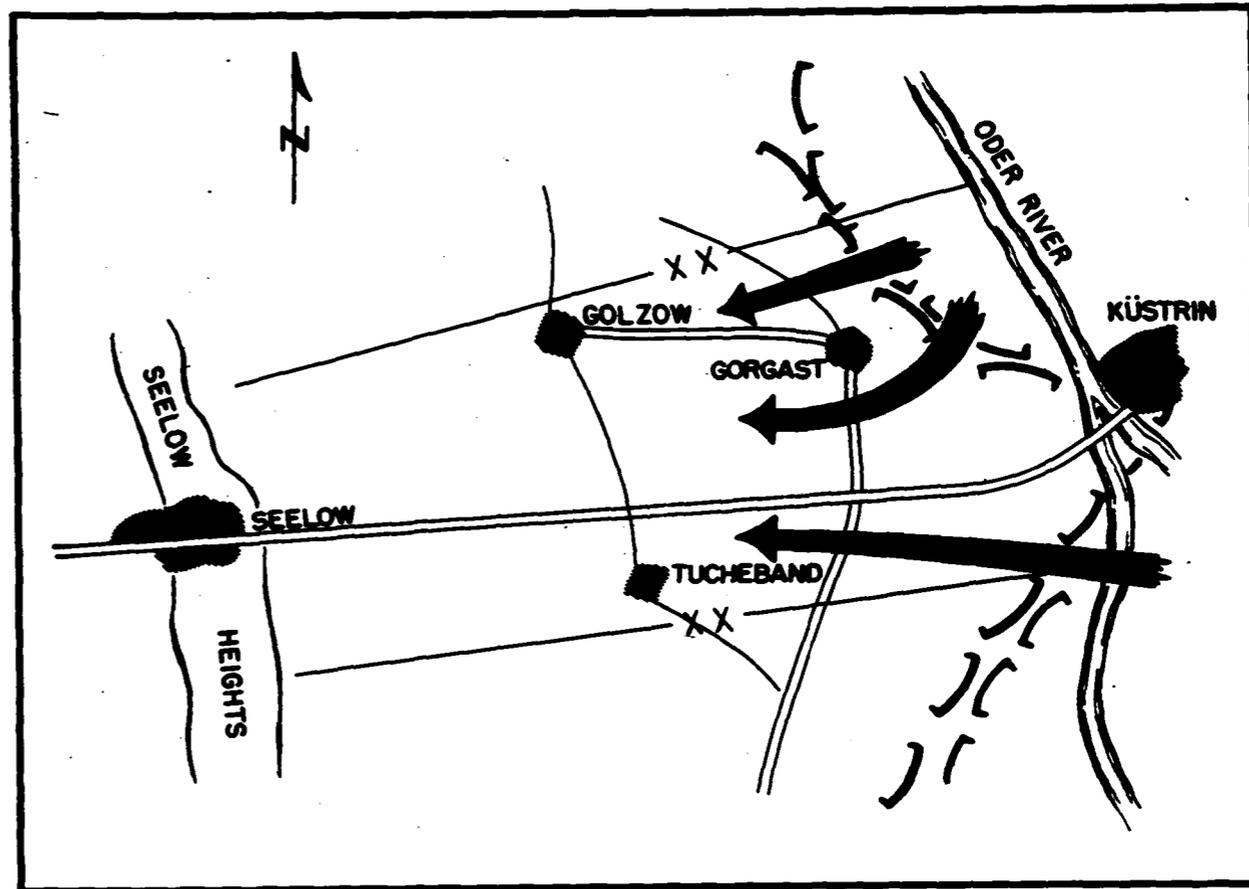
At the time of the attack described here, the Russians had between five and ten times the amount of troops employed by the Germans in the same area. Their superiority of matériel—in tanks and artillery, but even more in planes and ammunition—was still greater. Morale of the Russian units was high as a result of the victories they had achieved. The tactical command was strict and flexible.

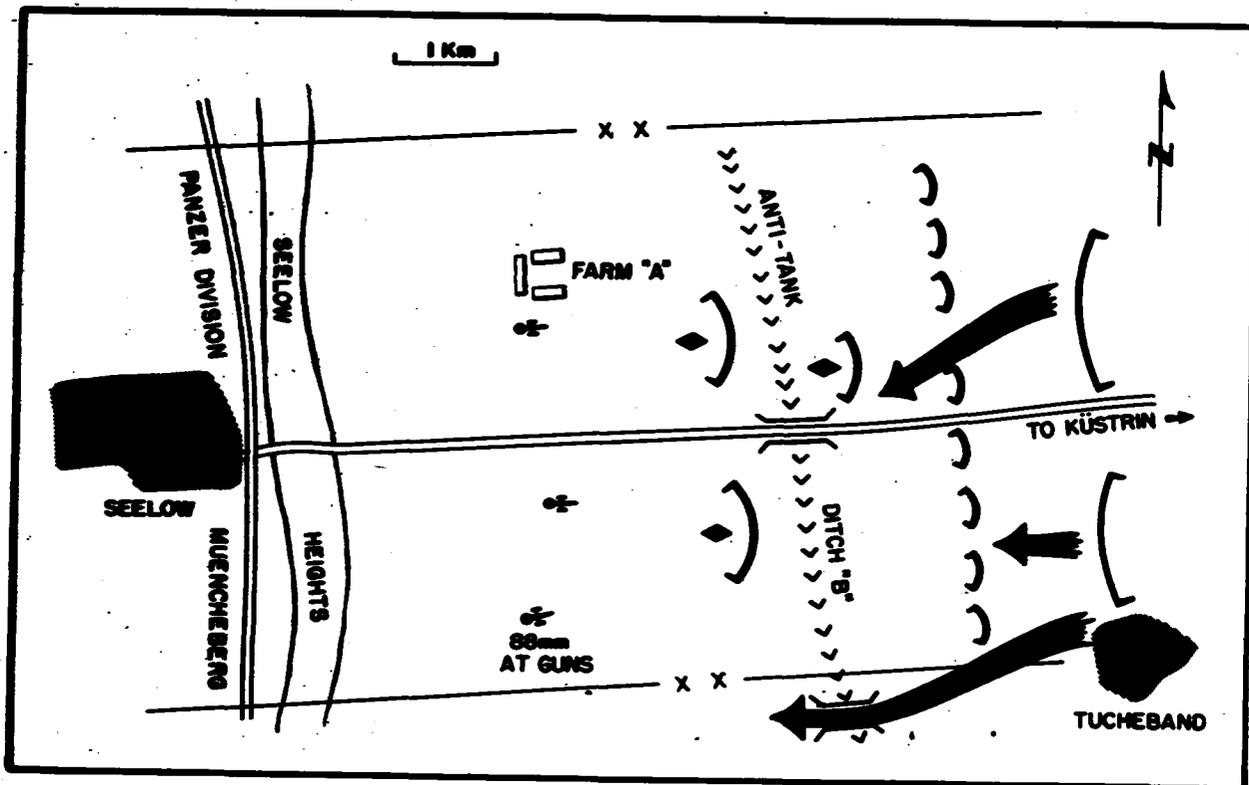
On the German side, the Panzer Division Muencheberg had been activated early in March of 1945. The

organization of the combat elements on the day of the attack comprised two infantry regiments, one artillery regiment and two armored battalions. Of the latter, the 1st Battalion consisted of one Tiger tank company and one Panther tank company. The 2nd Battalion had two Panther tank companies, one of them equipped with night firing equipment. The division had also an antitank battalion, of which one company was equipped with 88mm guns, and two engineer companies.

As a result of previous defensive action and several unsuccessful counterattacks, combat strength had dropped considerably. The infantry was short of machine guns and heavy arms; all units were short of ammunition. The morale of the infantry regiments was not particularly high.

In the corps sector in which the Panzer Division Muencheberg was employed, two Volkssartillery corps were committed in addition to nor-





mal divisional artillery. Observation posts had been established and the firing batteries had completed their registrations. The 2nd Panzer Battalion was in division reserve, while the 1st Panzer Division was in corps reserve. All supply elements had been withdrawn behind the heights at Seelow. Infantry ammunition was in limited supply, while the tanks had full supplies of fuel and ammunition. Wire communication was complete to all command posts and was duplicated by radio down to battalion level.

The terrain in the division area was completely level back to the Seelow heights, with no cover, and traversable by tanks throughout. A ditch had been constructed into an absolute tank obstacle, and bridges across it were tank proof and prepared for demolition. A high water level in the ground throughout the area limited the construction of positions. Outlying 88mm antitank guns could not be dug in.

The Seelow heights dominated the area. Upon them a continuous position had been built, the second line of which was lightly occupied by supply and replacement personnel. On the slope down to the level below, a road block had been set up across

the Seelow-Kustrin highway.

During the night of 14-15 April, the Panzer Division Muencheberg had moved into position. The front line of infantry was about one mile forward of the tank "B" ditch. Backing this up were the tank elements of the 1st Battalion. Of the battalion's two companies, the 1st Company was south of the Seelow-Kustrin highway, with the 2nd Company north of the highway, both behind the tank proof "B" ditch. One platoon of tanks (1st Platoon, 2nd Company) was forward of the ditch. The 88mm anti-tank guns were positioned to the rear of the tank companies.

During daylight hours of the 15th, major movement and improvement of positions was prohibited due to enemy observation of the area.

Around 0400 hours on April 16, a heavy Russian artillery barrage from guns of all calibers blanketed the German lines from the front back to the artillery positions. Telephone communications were immediately disrupted. Visibility was cut by a thick fog and a steady stream of shells. The heavy barrage lasted for about three and a half hours. Observation posts were put out of action. German artillery positions were hit. Russian planes

made American-style raids on the rear areas.

At about 0730, while the artillery pounding was still continuing and the fog prevented all visibility, the Russians opened their attack on the German positions. It was launched along both sides of the Seelow-Kustrin highway with an estimated sixty tanks in the first wave. Infantry followed, echeloned in depth.

The attacking tanks overran the German front-line infantry, which retreated in disorder behind the "B" ditch. The first wave north of the highway then ran into the advanced 1st Platoon of the 2nd Company, comprised of four Panther tanks. At extremely close range approximately fifteen Russian tanks were destroyed by the platoon, and the attack was repelled at this spot. Following Russian infantry also was stopped.

While the platoon was still fighting off the Russian tanks, the bridge in its rear across the "B" ditch was destroyed, cutting off its retreat. To aggravate the situation, the platoon received several hits from the friendly 88s. With the platoon leader killed and in all of the confusion, the Russian tanks knocked out the four German tanks.

Russian units attacking south of the highway and from the town of Tuchebed also ran into the defense positions and the tank proof ditch. The southernmost group, however, in a surprise raid succeeded in capturing the bridge across the "B" ditch in the sector of the adjacent division.

An endless stream of Russian tanks, guns, infantry and trucks began to pour across this bridge, visible in the clearing atmosphere, and moving toward the positions on the heights. A counterthrust by the 1st Company was repelled by enemy tanks covering the bridge. Limited German ammunition supplies restricted the action.

Friendly artillery made no move against this mass target. Radio messages from tanks requesting artillery support were disregarded. The long Russian artillery barrage, the incessant air raids on rear positions, perhaps some Russian infiltration under cover of the fog—all of this brought complete elimination of the observation posts and thoroughly neutralized the numerically superior German artillery.

During the morning the German tanks were withdrawn to positions in the area of Farm "A." By noon the infantry had abandoned the ditch line and had moved back to the line formed by the tanks.

The road block on the slope below Seelow was closed, prohibiting the recovery of damaged tanks.

In the afternoon the enemy in company strength attacked Farm "A" from the northeast. They were repulsed by the tanks.

In late afternoon, division gave orders to withdraw the tanks to positions on the heights, which was accomplished by nightfall.

The Russians had achieved a penetration in the sector of the division to the left and had occupied the heights. The 2nd Battalion, covering the left flank, was ordered to counter-attack after dark, along with the company equipped for night firing. Its action did not materially relieve the situation.

In the early hours of darkness, Seelow, which had been shelled and bombed into ruins by the Russians in a single day, was abandoned as untenable because of penetrations to the north and south.

THE RED ARMY TODAY

by Col. Lewis B. Ely

\$3.50

SOVIET ARMS AND SOVIET POWER

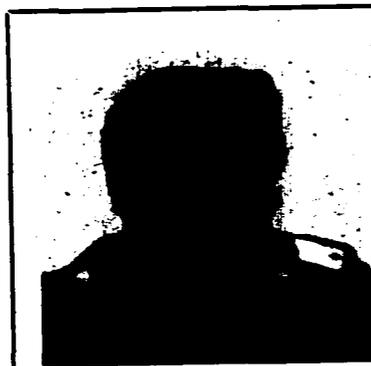
by Gen. Augustine Guillaume

\$3.50

Lessons

In the first phase of the battle, one bridge over "B" ditch was demolished too soon, while the second was not demolished at all. Demolition of a bridge should be executed only on the order of the commander in charge of a sector, who must maintain close contact with all units, and must post a sufficiently strong detail at the bridge under an officer to prevent seizure by surprise action.

German positions in this action were not echeloned in sufficient depth. The Seelow heights should have been prepared and occupied as the main line of resistance, with the bulk of the troops along with heavy arms and tanks positioned on this dominating terrain, leaving light forces forward on the plain for direct contact with the enemy. Even as the action went, battleworthy troops rath-



Hermann Bernhard Mueller-Hillebrand, former generalmajor in the German Army, is the topic chief on this series of examples of Russian armor tactics. He had early cavalry experience in the German Army, and in April 1942 was appointed Chief of the Organization Division of the Army General Staff. In 1944, after a brief tour as commander of the 24th Panzer Regiment, he was assigned as Chief of Staff of the XXXVI Panzer Corps in the Ukraine and Poland, later moving up to CofS of Third Panzer Army. He served in France, Italy and on the eastern front during World War II.

er than supply and replacement personnel, should have formed the reserve.

The 88mm guns would have been far more effective from the heights than in their advanced positions on the plain, where almost all were lost due to premature closing of the road block.

It is difficult to explain the failure of the artillery, despite the tremendous enemy air and artillery action. Probably it had not been echeloned in sufficient depth, no alternate observation posts had been explored and occupied, and radio did not function properly.

Road blocks should be handled in the same manner as the demolition of bridges.

The moment that the Russians succeeded in securing the bridge at Tuchebed was the latest for withdrawing to heights positions. This is an example of flexible tactics. Here the decree that any withdrawal of the front must be approved by higher headquarters instead of the appropriate division or corps commander in the sector is far from wise operation.

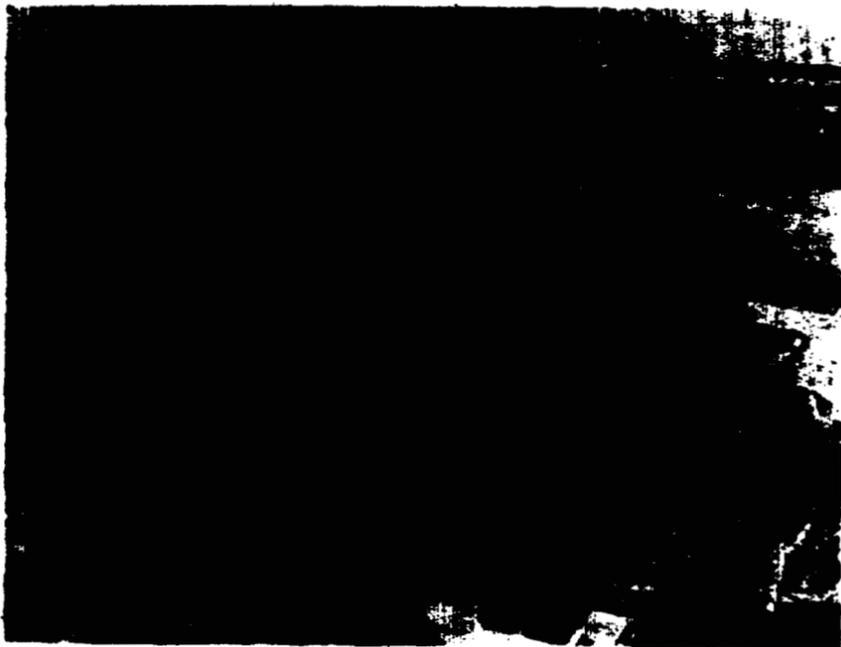
The Russians employed their forces properly in combination. Their flexibility was correct as well, as demonstrated by the immediate exploitation of the successful raid on the bridge at Tuchebed, following which all units were diverted to this path in their attack for the heights.

The Russians made a mistake in committing tanks in the first line during a fog and against a strongly occupied defense position. The principle that infantry should attack in front of tanks and under their immediate protection is particularly valid during fog or darkness.

On the German side, tanks should not have been held across the "B" ditch, but should have remained behind it while infantry security parties maintained direct contact with the enemy. The bridge across the ditch might well have been demolished prior to the Russian attack, with only emergency infantry gangways held open.

As the superiority of the enemy became known, the infantry should have been withdrawn to the ditch and all forces pulled back into the main line of resistance in anticipation of the effort of the enemy to secure the heights as a main objective.

TANK REBUILD . . .



A pile of junk? Shattered Patton tanks shipped in from battlefield recovery in Korea arrive at the Tokyo Ordnance Depot. Rebuilt, they will emerge to fight once again.



In the engine shop at the depot workmen handle a Continental tank engine. Japanese personnel comprise the labor under supervision of Army Ordnance experts.

At the Tokyo Ordnance Depot, a logistical Command, largest Ordnance depot ever established in this area, American mass production "know-how" and abundant Japanese labor are performing production miracles every day. One of these miracles is rebuilding tanks back into action.

When a knocked-out or damaged tank arrives, Japanese workmen and women completely disassemble it. Components and major assemblies are inspected, identified, and sent to the appropriate shop to be individually rebuilt before being assembled into a "new" tank.

Take the engine for example. Subassemblies, such as carburetors, pumps, starters, generators, distributors, etc., are removed from the engine and completely overhauled in the Carburetor and Shop. Parts are cleaned chemically, mechanically, or by hand. The valves are buffed, ground, built-up by metalizing, and then reground to size. Seats are then given an oil coating, while others are painted before being stored in proper bins to await the start of their second life span. The engine block is bored, including reboring or resleeving when necessary, valves are reset, and connecting rods, and crankshafts are refinished and balanced.

At the same time the engine is being worked on, canvas and leather items are being reconditioned, new parts manufactured in the foundry, fire control instruments repaired, and guns renovated.

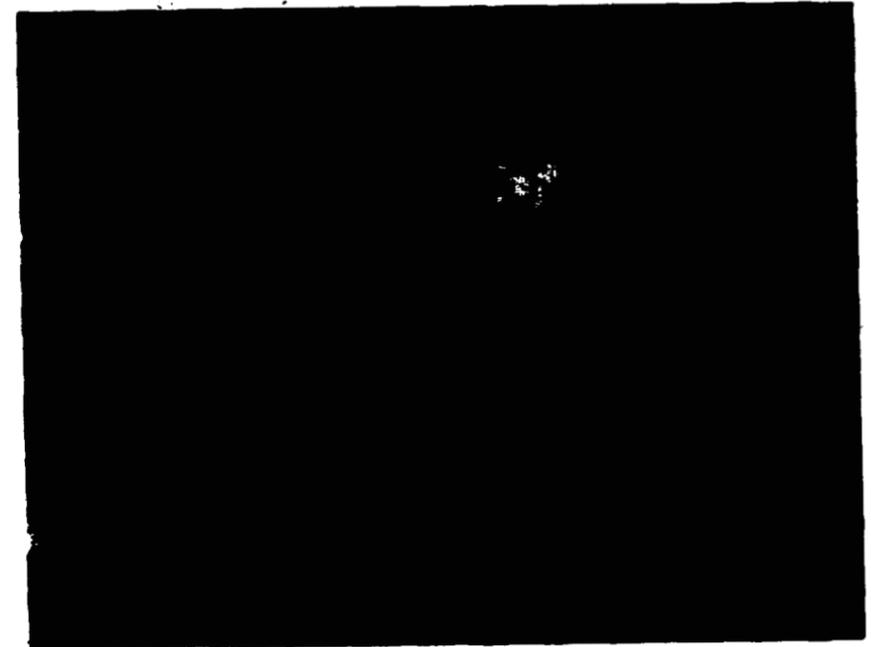
Putting a tank together is just about the same as in Stateside arsenals. As the tank hull moves slowly along the main assembly line, component parts flow in from arterial lines at the sides. Sparks are seen as welders put on the finishing touches.

After a final inspection, tanks are sent out on a rugged test course. When last-minute adjustments are complete, the tank is given a new coat of O.D. paint, accessory and spare parts boxes are mounted on the tank deck—and a "new" tank has been born.

Every day two Patton tanks are completed. And the cost is less than \$700 each. Back in the States a price tag on a new tank would read \$245,000.

When the "JLC Rebuild" nameplate is attached, it means: Another tank is ready to fight again in Korea.—CAPTAIN R. W. RICE, JR.

. . . IN JAPAN



Small assemblies are broken down and component parts segregated into their proper bins. After cleaning and rebuild they will be reassembled by the workers.



Completely rebuilt Pattons with all accessories packaged stand ready at the Tokyo Ordnance Depot for reshipment to Korea to resume their interrupted tank.

The battle effort of the armored division hinges on the teamwork of its combined arms and is the result of the cumulative effect of its many platoons. Here is a story describing the means for attaining the end

Combat Training for the TANK-INFANTRY TEAM

by COLONEL JOHN L. RYAN, JR.

ON 9 October 1951, Major General Bruce C. Clarke officiated at the opening of the 1st Armored Division's "Tank-Infantry Platoon Combat Course." Situated in the rolling terrain of the north portion of the Fort Hood reservation, this unique training device solves one of the many complex problems confronting commanders of armored units—how can tanks and armored infantry train together under reasonably realistic combat conditions?

Designed by General Clarke and constructed with a combination of contract and soldier labor, the course presents a series of tactical situations to a "team" consisting of one tank platoon and one armored infantry platoon supported by artillery and fighter-bombers. Service ammunition is fired by organic weapons of the platoons; the artillery shoots both point detonating and time fire; only for the air strike, in which "bombardiers" of the Division Air Section drop smoke grenades on the target, is substitution used.

Built into the course are several of the situations encountered in combat. Artificialities and umpire control are



Some of the purposes behind the course.

held to an absolute minimum. Any deficiencies in individual training, troop leading, communications or coordination of effort are disclosed automatically for although the course is essentially a training facility it is a natural testing medium; weaknesses in training cannot be hidden.

Average time for a team to go through the course is two and one-half hours. The course itself occupies less

than two square miles of the reservation; however, the required impact area is large. Fortunately there is sufficient area at Fort Hood to permit firing the 90mm tank gun at moving targets. To insure all-weather operation, some 13 miles of trails have been constructed. These trails also provide a safety feature in that vehicular movement is guided in the proper direction.

As background for the exercise, the tank-infantry team is told that it is right flank guard for a Combat Command which is moving to seize a communications center some thirty miles away. Hostile opposition thus far has been light. The advance guard of the Combat Command has been driving back enemy covering forces of infantry and a few tanks supported by intermittent light artillery fire. The exercise opens with a message to the flank guard commander that the main body is halting to refuel; the flank guard is to halt but be prepared to resume the advance on order. The flank guard has reached point "A" shown on the map.

The flank guard commander (the senior platoon leader) after a quick reconnaissance establishes his own local security by deploying one rifle squad and the light machine gun squad on hill "B," and one section of tanks covering the roads leading to

"A." The remainder of the force is halted in the woods at "A." As the rifle squad deploys on "B" it is informed that it is being fired on by enemy machine guns located about midway from "C" to "E."

Inasmuch as the enemy guns appear to be dug in, the flank guard commander decides to have one section of tanks, using high explosive shell, knock out the hostile weapons. The machine gun positions are represented by small mounds of earth. The rifle and machine gun squad leaders are told which particular mound is the target. Two tanks move to firing positions on "B" and the infantry points out the target with tracer. Each tank fires three rounds of HE, and hits are scored. For training purposes two more tanks move up and the infantry marks a new target.

As the tanks are firing, the flank guard commander is ordered to resume the advance. Having been fired on he decides to cover his advance by moving through the woods to his right and advancing to the high ground at "C." The machine gun squad is left on "B" as a base of fire until "C" is secured, and to fire at likely automatic or antitank weapons positions on "C" while the advance gets under way.

The woods through which the flank guard is to move are quite thick so the commander directs the infantry platoon (less the base of fire) to sweep the woods, dismounted, ahead of the tanks. Upon reaching the clearing between "B" and "C" the tanks are to pass through the infantry and move rapidly to defiladed positions on "C." After passing through the infantry the tanks reconnoiter by fire with their coaxial and bow machine guns. The infantry follows the tanks quickly to mop up if "C" is occupied. When the objective is secured the machine gun squad left on "B" as a base of fire rejoins the infantry platoon on "C."

After the tanks arrive on "C" a charge is set off to represent the fire of a hostile antitank gun in position on hill "E." Location of the gun is disclosed by its muzzle blast, so the flank guard commander requests an artillery concentration on the hostile position. Upon being informed by his forward observer that the artillery is committed to another mission the commander asks Combat Command for an air strike on the antitank gun. This request is approved.

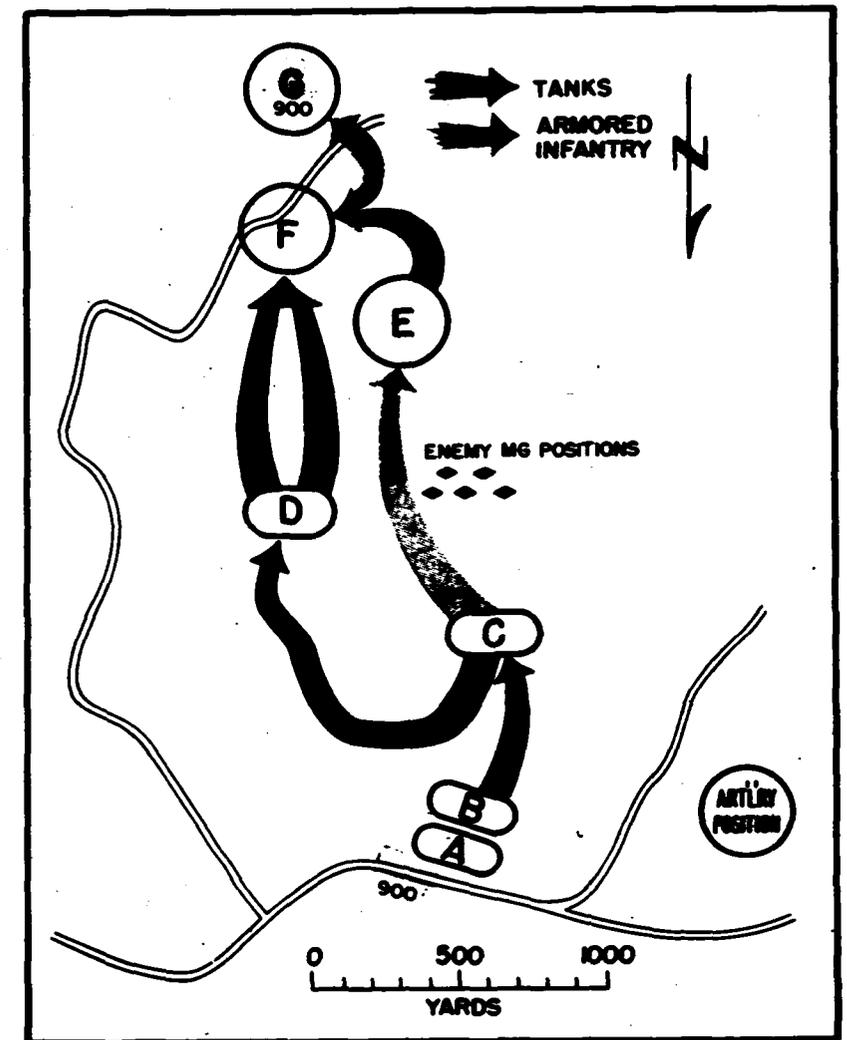
ARMOR—March-April, 1952

The target is designated and liaison planes of the Division Air Section, representing fighter-bombers, dive on the target and drop smoke grenades simulating napalm. The flank guard commander meanwhile has made a study of the terrain and decided that he must secure the dominating ridge at "E." The tanks are to move by a defiladed route to firing positions at "D" from where they will support the infantry assault; this move will serve also to divert hostile attention from "C." The forward observer reports that the artillery can now provide a four-minute concentration on "E" if desired. The infantry, mounted in its personnel carriers, is to move rapidly to the base of "E" under cover of artillery fire and the automatic weapons of the tanks.

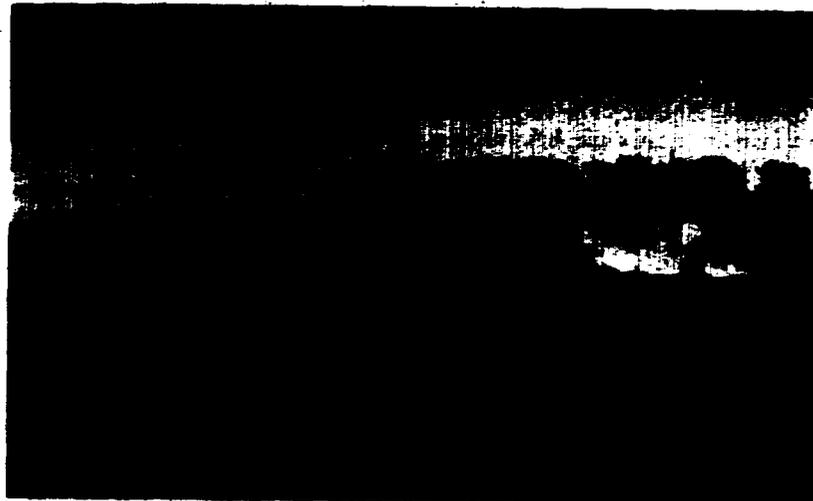
When the tanks move out from "C" the infantry platoon leader calls his

personnel carriers forward and mounts his platoon. As soon as the tanks reach their positions on "D" the flank guard commander, through the forward observer, calls for the artillery concentration on "E." The tanks open fire with their automatic weapons and the infantry, covered by tank and artillery fire, makes a mounted dash from "C" to the base of hill "E."

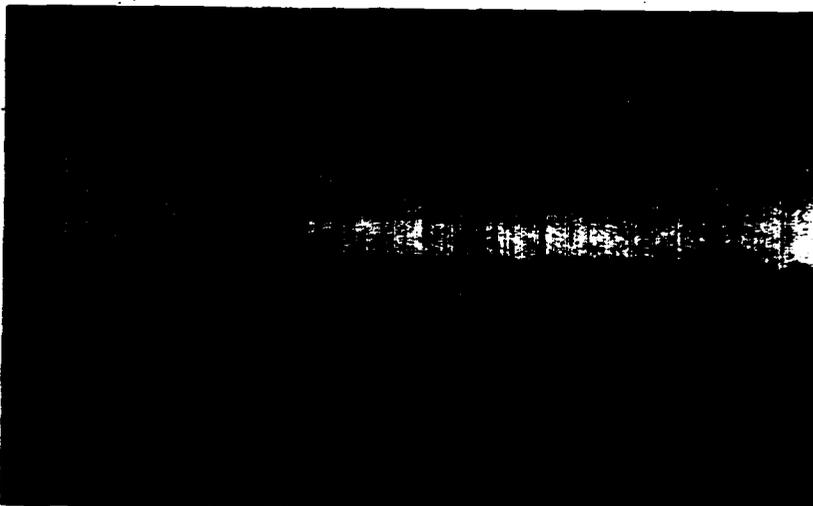
As the infantry moves, in line formation, over the rolling terrain between "C" and "E," the .50 caliber machine guns on the personnel carriers are fired at the objective. Safety regulations require lifting the tank and artillery fire before the infantry reaches the base of hill "E," consequently the infantry platoon bails out of the carriers when the supporting fires cease and, using marching fire of rifles and light machine guns, assaults "E."



Colonel John L. Ryan, Jr., is Chief of Staff of the Armored Center, Fort Hood, Ky., a recent assignment which follows a tour with the 1st Armored Division.



A hostile tank platoon, represented by target sleds travelling about 12 mph, is taken under fire by friendly tanks from D while the infantry assaults E.



Moving to the high ground at F under actual artillery time fire, the tanks use coaxial and bow machine guns for reconnaissance by fire as they move up.



An oriented terrain model of the course serves as a briefing aid for the crews prior to running it and as a critique aid of great value for crews at the end.

During the infantry assault on "E" a hostile tank platoon, represented by tank silhouettes on sleds, moves out of the draw between "E" and "F." These targets, travelling at about twelve miles per hour, are taken under fire by the tanks in position at "D." Each tank is allowed one round of armor piercing shot for each target. Hits and distribution are scored after the targets disappear behind an embankment east of "D."

Having disposed of the enemy tanks, the flank guard commander decides to move his own tanks to the high ground at "F" in anticipation of further enemy action from that general area. To cover the tank advance, artillery time fire on "F" is requested, and is actually put on the objective directly over the tanks. The tanks again use their coaxial and bow machine guns for reconnaissance by fire as they advance. When the artillery lifts its time fire, the infantry mounts and moves to "F" to assist in organizing the position in event of hostile counterattack. As the infantry goes into defensive positions, simulated hostile small arms fire is received from hill "G."

Because "G" is too steep for tanks, the flank guard commander decides to move his infantry, by a concealed route, to an attack position west of hill "G" where the terrain is more favorable for dismounted action. The tank platoon becomes the base of fire. The infantry moves in its personnel carriers behind heavy woods west of the objective, dismounts and moves to the east edge of these woods to launch the assault. The tanks cease firing on signal from the infantry platoon leader. The exercise terminates when "G" has been seized and organized, and the flank guard commander has issued his order for continuing the advance.

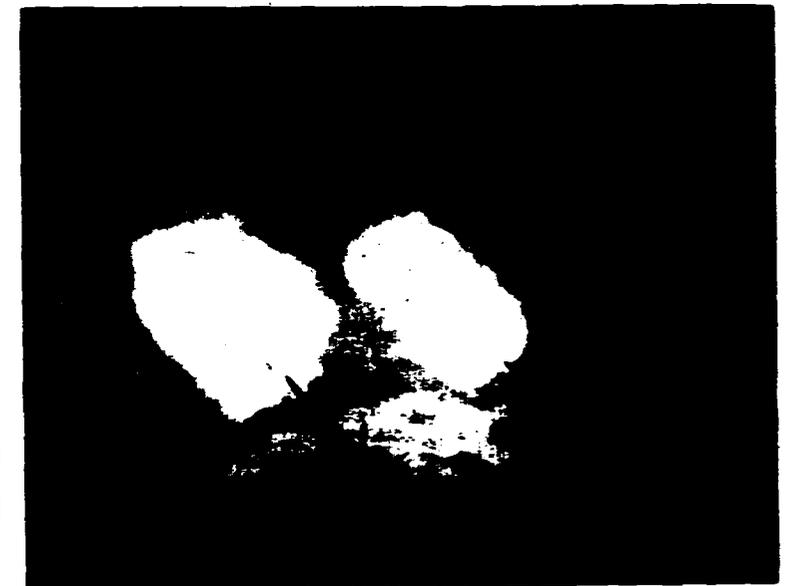
From the foregoing, it might appear that the entire course should be covered in much less than two and one-half hours. The time is consumed by having the platoons do everything expected of a well-trained unit in combat. Reports to the next higher headquarters, coordination of fire plans, disposition of vehicles, plans and orders for the next move are all checked on and recorded. Simulated casualties are not assessed but probable casualties are noted. Platoon leaders are given "situations" and "re-

quirements" at "A," "E," "F," and "C" while the troops are organizing the objective. Every minute of the time is filled with planning or action, or both.

It has been suggested that the course is "canned" and thereby eliminates the exercising of tactical judgment by the two platoon leaders. The purpose of the course is to teach the things shown on the signboard. Basic tactics can be taught in a classroom and in the usual field training periods without firing. The platoon leaders are asked how they would take the next objective, but are then directed to execute the plan on which the course is constructed. This insures proper tactics and safety from the beginning, leaving to the platoon leaders the myriad details involved in executing such a plan. Today's platoon leader must know more about combined arms fighting than did a battalion commander in World War I. This course emphasizes and teaches the technique of combined arms action. It should be remembered that a golf course is fixed but very few ever break par even though they know every foot of it. Very few get superior on this course.

In addition to training in tank-infantry-artillery teamwork, there are several by-products which should be mentioned. En route, from "C" to "D" the tanks have to cross treadway bridges while the crew, except the tank commander, is buttoned up. The personnel carriers in moving from "E" to "F" to "G" have to negotiate several tricky spots and the .50 caliber machine guns are fired while the vehicles are moving. The artillery location is such that the participating troops, and for POR requirements extra men in trucks following the infantry platoon from "C" to "E," are subjected to overhead artillery fire. Time fire is placed directly over the tanks on "F" thus giving the crews complete confidence in their ability to withstand such fire without harm to themselves or their vehicles. There are bayonet dummies on top of "G" that must be attacked in the final assault. All men are given experience in "Battlefield Manners" as applied to handling and firing loaded weapons under stress of simulated but realistic combat conditions. Drop-type small silhouette targets are concealed on all objectives; these are scored to determine how well fire is distributed on likely hostile

Artillery Lacing It In On The Korean Front



U.S. Army Battery B of the 987th Field Artillery Battalion, a unit of the Eighth Army in Korea, fires its Long Toms on Communist targets in support of elements of the 25th Infantry Division. Picture was taken last November.

firing positions. Either platoon leader may be the flank guard commander but the requirements are solved jointly, thus teaching the principle of teamwork.

Safety requirements are enforced through a Chief Control Officer situated where he can see most of the course, an Assistant Control Officer with each platoon and an Artillery FO with the infantry platoon, all linked together by radio. A field telephone connects the control tower on "B" with the bunker where engines are installed to pull the moving targets; incidentally, these engines are surplus captive-balloon equipment and pull the enemy "tanks" at twelve miles per hour. Furthermore at each objective there are four yellow and black "barber poles," spaced twenty-five yards apart, ten feet high and topped by a yellow arrow, which mark the axis of advance; when parallel with these arrows it is safe to fire. Lastly, the platoon leaders coordinate their fire plans and maneuvers before moving to the next objective.

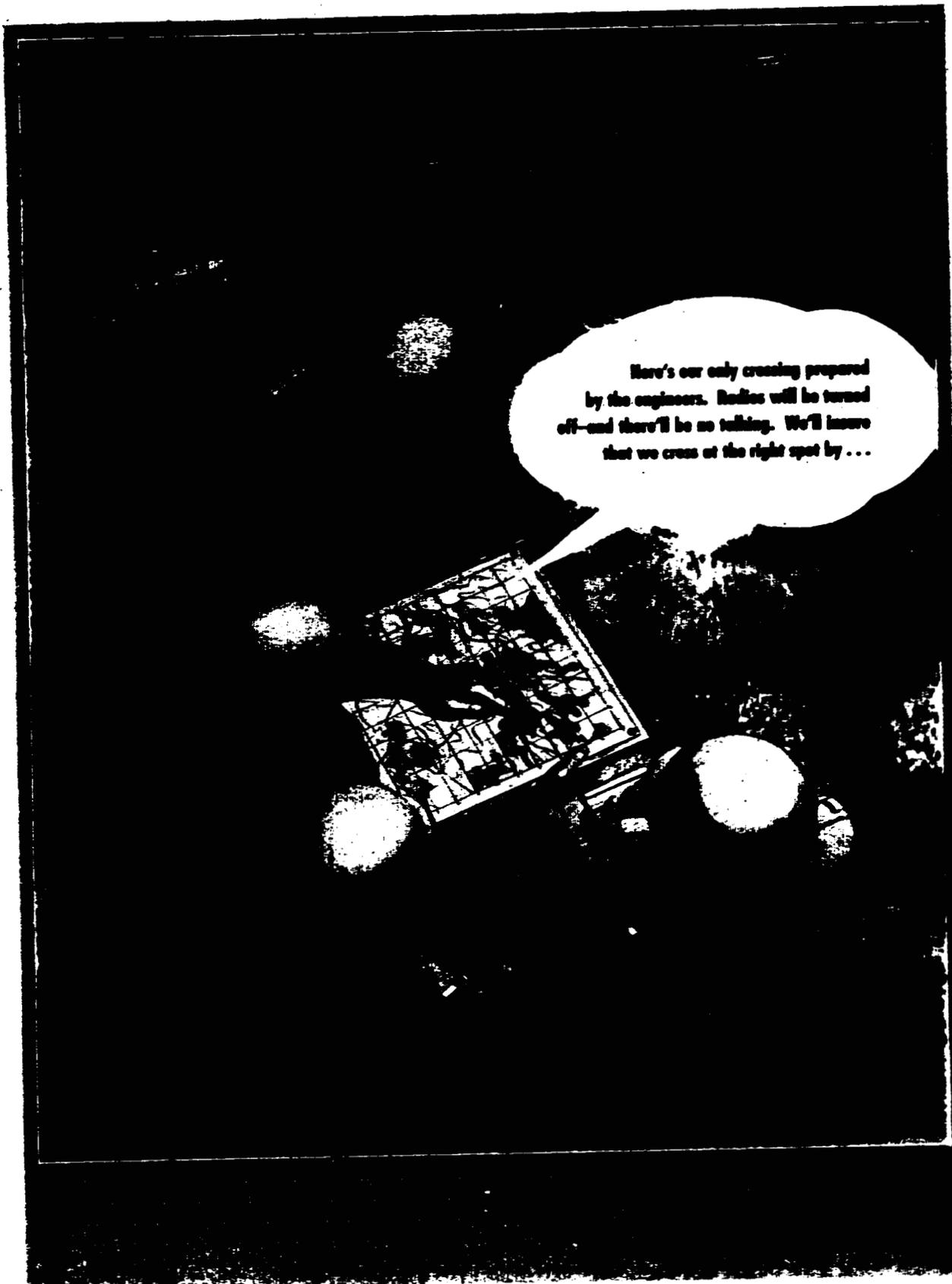
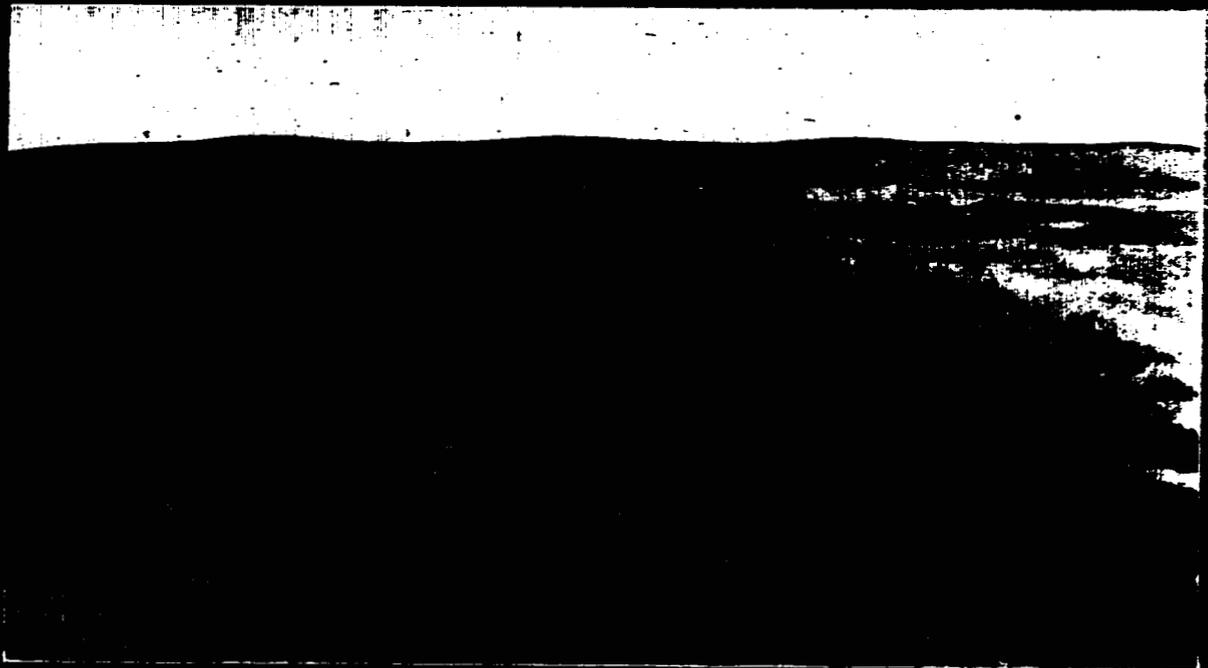
Before starting the course, the platoons are briefed at a terrain model, special emphasis being given to safety measures. As of this writing, 116 pla-

toons have been through this training and, despite the considerable amount of activity and firing, only three men have been injured (none seriously) and one tank periscope destroyed. Immediately following the exercise a critique is conducted during which both good and bad points, and hits on targets, are discussed. Performance of the platoons during each phase is evaluated and an adjectival rating is given. Finally the over-all effectiveness of the "team" is evaluated and rated. The competitive spirit has been high. It will be noted that most all the common methods of tank-infantry cooperative approach to an objective have been built into the course.

Designed primarily for training in combined arms action at platoon level, the course can accommodate a tank company and an armored infantry company simultaneously. Although the initial cost might be considered a bit high by some, if the course saves one-half a tank in battle it will have paid for itself. Officers and men recently returned from Korea have been unanimous in saying, "I wish I could have had this training before going into combat."

FOREWORD

In communication, as in all military matters, success is dependent on a complete utilization of all resources available to the commander. In this respect, effective communication is linked with economy-mindedness, for economy is not a matter confined solely to the preservation of equipment; it depends ultimately on the ability of the commander to make full use of the time and labor as well as the personnel and equipment available to him. Most important, however, are the resources within himself of common sense and a determination not to neglect the tested procedures and principles that are fundamental to his operation. Economy begins with a state of mind, and the following problems will enable you to discover, in part, if you have it.



Here's our only crossing prepared by the engineers. Radios will be turned off—and there'll be no talking. We'll insure that we cross at the right spot by ...

Three Civil Wars of 1934

In reading this account of history in our time it is difficult to conceive that the events described could possibly have happened—yet further consideration leads inevitably to the recognition that equally appalling things can and do happen today. The compensation lies in the fact that today we are awake. An active war against aggression on one side of the world and concerted diplomatic action on the other will go far toward whipping the world's bad boys into line

by DR. ROGER SHAW



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*. He is a regular contributor to this magazine.

INGELBERT Dollfuss became Chancellor of Austria in 1933, and from the very first, showed himself opposed both to the German Nazis and to the socialists at home. This tiny fellow, with the broad face of a peasant, was extremely religious in feeling, and heartily disliked the Marxian city-machine in Vienna. Facing Hitler (also come to power in 1933) abroad and the Viennese "heretics" about him, the wee new Chancellor found himself forced to depend increasingly on Mussolini, the Pope, and Italy. Dollfuss made a fetish of the Austrian independence threatened by Hitler's Germany, but his clerical convictions estranged him from his logical allies, the local socialists.

"The best explanation of why Dollfuss decided to destroy Austrian socialism, wipe out the constitution and republic he had sworn to defend, and accept Italian tutelage," wrote a keen international observer, "was that Mussolini, and Mussolini's Austrian agents, the Heimwehr, forced his hand. If he did not accept Mussolini, he had to accept Hitler. There were other reasons. Dollfuss hated the socialists: their chief spokesman, Otto Bauer, had consistently treated him with intellectual contempt; their citadel in the capital city was a constant reminder that one day an election or a general strike, or even an armed uprising, might push him off the stage. In his hatred of the socialists,

church and party . . ."

In the spring of 1933, the socialist *Schutzbund* militia was outlawed, but the reactionary *Heimwehr* was not. The Viennese could detect which way things were drifting as the Dollfuss central government became increasingly threatening, and tightened its dictatorial grip on what was ceasing to be a republic. By this time they knew their little Chancellor, nicknamed "Millimeternich"—under five feet in height, a former student of theology, later an oversmart lawyer, but with agricultural and banking experience, and a good 1914 war record.

Dollfuss had an able lieutenant for what was coming. He was the Commissioner of Public Safety, and his name was Major Emil Fey. Fey had a hatchet-face, and was an experienced soldier and polished orator. He looked better than Dollfuss. A Paris journalist wrote of the Major, "Though he speaks well—clearly, energetically, soberly—he seems to be doing one a favor by speaking at all. He takes no part in the speech he makes. His mind is obviously on something else. He thinks intensely. It is rare to see so intelligent a face above a uniform—thin, firm lips that scarcely move. The words 'Communist' and 'Bolshevist' fuse into a hiss: the hands remain motionless.

"Suddenly the character before us comes to life. Now, after the expose of cold facts, he must explain the Heimwehr. Fey, the robot, begins to

it is fair to say, Dollfuss was entirely true to the tenets of his own Christian-Social party as conceived by his predecessor, Monsignor Seipel, who never forgot that socialism was an anti-Catholic force and that its program was always achieved at the expense of those Austrian elements which were the backbone of his

live, even to smile. His gestures come back to him. He takes a cigarette, snags a silver case, opens his mouth wide, pusses with delight on certain vibrant words. He is the leader goading his soldiers. With what magnificent pride he enchains at the end: "Without the Heimwehr, Austria is lost." Fey was then a close associate of the extraordinary turncoat Prince Starhemberg, and the pair became the funeral executives of Herr Dollfuss against a doomed Vienna.

For Vienna was doomed, and this time not by the Prussians, but by the professional anti-Prussians. Another Frenchman observed: "Vienna's tragedy was that it had its adversary in its own palaces of government. Almost all the Chancellors, ministers, and prefects of police who lived in Vienna were non-Viennese. Representatives of the provincials and peasants of Austria, they fought to establish a new Vienna, struggling to bring the city into a state of dependence on the countryside, as if to prove that History had abandoned it as a metropolis and made it into a modern Venice that had outlived its day."

So came about the first Austrian civil war, with Mussolini actively approving it, and Hitler neutral. Things moved swiftly.

At the end of January, 1934, the Tyroler Heimwehr began to stir uneasily, mobilizing 8,000 men, and demanding a local dictatorship to suppress "dangerous" socialism. From Tyrol, with its clerical population, the Heimwehr unrest spread through the other Austrian provinces, and the country militiamen started to seize public buildings, to rouse fratricidal feeling, and to isolate "red" Vienna. Dollfuss, at this point, took an official trip to Budapest, saying that he would deal with the Heimwehr on his return.

This left Commissioner Fey in control of things. Among his other positions, he was Austrian Vice-Chancellor. Fey raided the offices of Vienna's socialist newspaper, the *Arbeiter Zeitung*, and closed it up indefinitely. The *Arbeiter Zeitung* was a celebrated local institution, and this high-handed procedure outraged the city workers. The socialists threatened a general strike against Fey and the rebellious Heimwehr, and the perplexed Dollfuss returned from Budapest, where he had been con-

ferring with the sympathetic Hungarian dictators. Said Fey to the Heimwehr: "I have made certain that Dollfuss is with us. Tomorrow we are going to clean up Austria."

"Tomorrow" was February 12, an ironical sort of Lincoln's birthday. The socialists had delayed their general strike, but disorders broke out at Linz in the province of Upper Austria. Here socialists clashed with the local Heimwehr formations, preparatory to the main act.

In the Austrian capital there were four days of fierce fighting. Fey, brain-truster of the attack, mobilized the Heimwehr, the regular army, the police, and peasants from the countryside, with heavy artillery and other siege machinery. The workers, in their great municipal tenement houses, put up a determined resistance with sporting-guns, old World War rifles and machine guns, or even with bricks. Socialist women fought beside their menfolk. Relentlessly, the howitzers shelled the tenements and workers' clubs of Vienna. In vain, socialist leaders tried to arrange a truce as the lethal hostilities continued. Some three hundred were killed, and of these, twenty-two were women and small children. Julius Deutsch, the commander of the Schutzbund, was badly wounded and escaped into Czechoslovakia. So did the radical socialist chieftain, Bauer. The revered Burgomaster Seitz was jailed, with hundreds of others. Fey and Starhemberg kept the hangman and the firing squad busy with the socialist survivors. Here was the bloodiest, nastiest European "incident" perhaps since the Paris Commune of 1871.

Dollfuss said he was "saddened, and surprised." Only 5,000 Viennese workers had taken part in the fighting, but they became heroes to history. The 30,000 Austrian army regulars, twelve-year professionals, later lost at Stalingrad, were disgusted by their task. Not so the Heimwehr, Italian-subsidized, of Fey and Starhemberg. As to the 1,200,000 socialist voters of Vienna, they were unable to express an opinion under martial law.

Austria, and Vienna, received a new form of government, certainly not republican, but based on a papal encyclical of 1931: *Quadragesimo Anno*. It was strongly clerical, and

dictatorial, anti-socialist, and based on the "unified, all-party" Fatherland Front which was to meet, eventually, an unlamented end. The Austrian Nazis laughed at *Quadragesimo Anno*. They could afford to, for they had remained out of the first civil war, and were, so far, unscathed by combat.

The Austro-Nazis had observed a strict neutrality under their Inspector General, an obscure figure named Theodore Habicht, who spent much of his time in exile at German Munich. From Munich he would broadcast over the Austrian frontier by radio. Habicht hoped, frankly, that the Heimwehr and the socialists would kill one another off, and so make way for an Austrian-Nazi regime. One of the Nazi journals declared at the time: "After the guns of Styria, Linz, and Graz, the surround-had ceased firing in Floridsdorf and Simmering (Viennese districts), in ing nations faced a changed situation. The Franco-Czech base in Austria had been destroyed. Whereas Italy, on the one hand, and France on the other had balanced each other in Austria, this balance has been destroyed, and the Austrian problem was further complicated in the eyes of all those powers that were eager to intervene. Domestically, the situation of Dollfuss was more precarious than ever. Before the week of bloodshed the majority of the people had gone over to the Nazi camp. . . .

The bloodguilt of the Dollfuss government was clear and could not be denied."

Although the Nazis had wrecked the strong socialist machine in Germany, they entertained a respectful, and even friendly, feeling for the stout "Andreas Hofers" of Vienna. The situation of Herr Dollfuss was more precarious than ever. His jails were full. An English visitor reported that she "noticed on a prison wall the *Three Arrows*, and asked the policeman innocently what it was. He said, 'Oh, the socialists make that,' but seemed unconcerned. We went into one or two cells full of Nazis and found they had scribbled swastikas and Heil-Hitlers all over them. One noticed the difference between the cheerfulness of the Nazis and the gloom of the socialists." The Nazis were looking ahead; the socialists were "through."

ARMOR—March-April, 1952

II

HERE was once a mythical King of Flanders named Jan Primus. He invented beer, so the story goes, and is generally portrayed astride a barrel, with a stein in his jovial paw. He was the guild-master of the Flemish brewers, beloved by each and every happy tippler, and his name became corrupted into Gambrinus. This ruddy non-Hapsburg monarch was very popular with the Viennese in the spring season, although he had passed on to Valhalla in the thirteenth century. Between bloody February, 1934, and the summer, Vienna people communed with Lord Gambrinus, his bacchic goats, and his carefree malty cult. They tried to quiet their shattered nerves while Dollfuss sweated in the Chancellery. But the Austro-Nazis would not let them forget, despite Gambrinus' best efforts and those of the Dollfuss police.

The Austrian brown shirts, who in reality were in the habit of wearing white socks for a uniform badge, agitated against Dollfuss, threw bombs, committed acts of sabotage, and created disorders in places of public amusement. They behaved childishly, but effectively. They were, in increasing numbers, joining the unfortunate socialists in the Dollfuss prisons, where they were generally better treated than the captured Viennese workmen.

On July 24, 1934, Alfred Frauenfeld—an Austro-Nazi associate of Habicht's in Munich—broadcasted from a German radio station that there would be a civil war in Austria if any one group of seven Nazis held by the Dollfuss government were executed. Next day came the second Austrian civil war.

Some 154 Nazis, four truckloads of them, suddenly seized the Chancellery at lunchtime. They belonged to "Standard Eighty-nine," Section VIII, of the Munich general staff of the Nazi movement, but they were skilfully disguised as Austrian regulars in the uniform of *Deutschmeister Regiment Nummer Vier*. Their leaders were Planetta and Holzweber.

The Nazis captured Dollfuss and Fey in the Chancellery. Little Dollfuss, in terror, reached for the handle of a secret door, but Planetta shot him in the back at a range of one foot. His captors fortified themselves in the Chancellery, refused to admit

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medical aid, and within three hours the "Millimetternich" bled to death on a hideous, flowery yellow sofa. Major Fey attempted to bargain with the Nazis while his chief lay dying and crowds gathered outside in the street. His real attitude toward the July coup has never been perfectly clear.

Meanwhile, fourteen more Nazis, armed but well dressed as civilians, captured the studio of the Austrian Broadcasting Company, killing one policeman, one chauffeur, and one Heimwehr man. They pushed their revolvers into the frightened radio announcer, and ordered him to broadcast that Dollfuss and his government had resigned in favor of Dr. Anton Rintelen, Austrian ambassador to Italy and a Nazi sympathizer. (Rintelen had close business and other connections with Germany, and was the Nazi candidate for Austrian Chancellor.) Then for three hours the Nazis in the station fought the police outside. "It can't be Austria—it must be Nicaragua," cried out a horrified observer.

The Chancellery and radio station were recaptured by Heimwehr and police, and Otto Planetta and others (promised a safe-conduct to Germany) were shot. But the defeat of the Nazis in Vienna was followed by nearly a week of country fighting in the south of Austria. In the capital city it had lasted barely three hours, but in the Styrian and Carinthian provinces the Nazis put up a prolonged resistance. The Styrian Protestants, opposed to the clerical Dollfuss regime, were strongly pro-Nazi, and in some instances their storm-troops were led by the local pastors.

There were active Nazi sympathies among the Styrian iron miners as well, and these grimy strong men gathered in the workshops, equipped themselves there, and produced weapons that had been concealed in mine-shafts, galleries, warehouses, and abandoned blast furnaces. Pro-German Dr. Rintelen was a Styrian himself, and the Styrian mines were closely connected with German capital. In this case, management backed labor, and so did ownership, against the Dollfuss regime.

An English correspondent wrote home: "It had been an open secret for some time that the *Alpine Montangesellschaft* was the focus of the

Nazi movement in Styria, and partly so in Carinthia. This, the most important coal, iron, and steel company of the Austrian Federal State, had been owned for the past ten years by the principal German iron and steel combine. The directors, high officials, clerks, and engineers of the company were Nazis. Miners who were members of the socialist party had been gradually discharged and their places taken by Nazis, and the same thing happened to the furnace and rolling-mill men, and to other workers in the various plants of the company."

The *Alpine Montangesellschaft* enjoyed what tended toward a monopoly on Austrian coal and iron. Its Erzberg iron mountain, thirty miles from Styrian Leoben, was more than 4,500 feet tall, a solid mass of high metallic quality. The Romans mined it when the Danube was their northern frontier and Vienna was Vindobona. As to the magnificent Erzberg, and post-war Germany, "one of its principal defense problems was its lack of iron ore. Even before the 1914 World War, Germany produced only fifty per cent of her own requirements of pig iron; the other half had to be imported from Sweden, Algeria, Spain, and so on. After the war, Germany lost the important Lorraine iron mines (gained by Bismarck in 1870), which had supplied almost eighty per cent of the iron ore extracted in Germany. The loss of the Lorraine mines greatly increased the importance of the Erzberg mines to Germany. In 1924 the United Steel Works, the Duesseldorf combine, obtained the controlling interests."

After the July civil war, the German managing-director of the *Alpine Montangesellschaft* was removed by the Austrian government. His name was Dr. Anton Apold. His successor—"conflicting magnates do not shoot each other, they only expropriate each other"—was a leading Heimwehr man named Joseph Oberegger. He was appointed State Commissioner for the mining company, with absolute powers. The unlucky Apold and his Nazi son-in-law were fined half a million schillings by what was left of the Dollfuss regime. Some 300 Nazi-minded employees were discharged, to be replaced by "reliable" Heimwehr labor. Others were in prison, or safely across the Yugoslav border.

39

For Jugoslavians sympathized with the Austro-Nazis, and offered them a haven from the Stryian theater of civil war. They flocked over the line, as the Nazis from Vienna were trying to escape into friendly Germany. Dr. Rintelen attempted suicide, and went to the hospital with a bullet wound in his head. Germany's control over Austrian iron was virtually canceled, and this made iron-shy Germany exceedingly indignant. Economics were now joined with racial ties in the burning desire for Austro-German union. Nazi, and Essen capitalist, saw alike in the matter.

A good-looking, youngish war veteran succeeded the dead Dr. Dollfus. The new Chancellor of Austria was Dr. Kurt Schuschnigg, son of an old Austrian general, with a religious education, an aristocratic Von —, not a sharp peasant like Dollfus. Schuschnigg was to Dollfus, what Dollfus had been to Seipel. He carried on the Dollfus policies of Austrian independence, clerical rule, and anti-socialism. He was forced to be a trifle antisemitic in order to compete with the vociferous Austro-Nazis, yet some of his loyal backers were wealthy Vienna Jews who feared worse the Austrian annexation planned by Hitler. Although Herr Schuschnigg came from Austrian South Tyrol, taken by Italy after the war, his sympathies were with Pope and Mussolini, rather than with Prussian Germany.

Schuschnigg retained Fey as Commissioner of Public Safety. Fey filled the Austrian concentration camps, kept the executions busy, and in the spring of 1938 committed suicide, first having murdered his wife and child. Schuschnigg was not too fond of Fey. . . . After the first civil war period, Burgomaster Karl Schmitz succeeded Burgomaster Karl Seitz in municipal control of Vienna. They called Schmitz, "the man who stole the capital." He was an anti-socialist administrator in a socialist city, a Jew-hater, pompous and generally disliked. He filled the great city tenements, partially damaged by the February bombardment, with "black" clericals instead of "pink" workmen. Religious education became virtually compulsory in the public schools, to the disgust of "modern" or agnostic parents. Only *Schlesperer*—"sloppiness," native to the soil—mitigated the new Austrian dictatorship.

III

BUT Germany itself was not spared a civil war in 1934, sandwiched in between the two Austrian ones. It was generally called the "blood-purge of June 30."

The issues were confused, but basically it was a struggle as to whether the Nazi storm-troops, in their brown shirts, should control the reorganized Prussian army, or whether the Prussian army should control the brown shirts.

Ernest Roehm, commander-in-chief of the brown shirts, was shot at Munich under Hitler's eye, shouting at the Chancellor to the very last: "There is only one traitor here, you as did Gregor Strasser, who had joined faked, and that is you!" Karl Ernst and Edmund Heines, other storm-troop chieftains, met a similar fate, the Nazi movement even before Hitler. Former Chancellor Kurt Schleicher and his wife, and Dr. Erich Klausener of the Catholic-Action group, suspected as enemies of Hitler, met summary deaths. Prince August William Hohenzollern and Vice-Chancellor Papen were arrested. No Jews or communists were molested in any way, this was a family row.

Apparently Hitler was visiting in Westphalia when Goering, in alarm, phoned him from Berlin. Goering told him that the discontented storm-troopers—many thousands of them were about to be "laid off"—were planning to stage a coup and seize the government buildings in the capital. Hitler leaped into an airplane and flew to Munich, where he settled accounts with his old comrade, the personally disgraceful Captain Roehm. Goering, meantime, had a free hand in Berlin where he laid it on with a vengeance.

But as commander of the storm-troops, Roehm had been eager to secure sway over the regular Prussian army. Hitler and Goering sided with the Prussian Junker generals against the overweening ambitions of Roehm and the result of "June 30" was that the humbled, frightened brown shirts became a servile adjunct of the Great General Staff and the regular soldiers. At the time there were close to 2½ million storm-troopers, some of whom the generals sent home demobilized, while they found others useful material. It was convenient to link the deceased Roehm and Schleicher, him-

self a Prussian general from Brandenburg, with an "international" French plot to overthrow Nazi Germany. The Prussian army, however, had no hand in the shooting of the storm-troopers. That fierce work was accomplished by Heinrich Himmler's special Elite police, wearing funeral black uniforms.

"Roehm died yelling and shrieking, with the uninterrupted cry of 'I am innocent,' without using the revolver thrust at him—even if only against his murderers; he, who had organized political murder a hundred times, ordered it and almost glorified it cynically as a natural necessity, a soldier's trade—he cried, foaming at the mouth: 'What is being done to me is political murder.' But he was frightened by the revolver.

"Ernst who, beaten half-dead and wounded, was brought by airplane from Bremen to the terror barracks in Berlin-Lichterfelde, fell to his knees before the firing squad and begged for mercy; 'Heil Hitler!' he shouted, 'I am innocent.' Heines shrieked so much that he could be heard right through the whole Brown House in Munich. . . . Strasser, while still alive, was trampled to death in the forest of Grunewald, near Berlin. The only 'man'—if one is to believe certain reports—who, faced by the murderers, found words of open protest and fearless retaliation, was a woman, the wife of the non-Nazi General Schleicher; the next moment she was lying with a bullet in her brain."

The above were communist comments. But reading between the lines, June 30, 1934 was a first, indirect victory for the reorganized postwar Prussian army, en route to Poland by 1939. Meanwhile the Hitler purgings continued, and during 1936—an "average" year—the following arrests were made: 864 communists, 417 trade-unionists, 286 socialists, 153 socialist-radicals, 22 opposition Nazis, 141 members of the "Society for the Study of the Bible," 38 priests and pastors, 17 radical Catholics, six storm-troopers, and a motley collection of "race-polluters, and others lacking in pride" as Nordics and anti-semites. There were, in all, sixty concentration camps then in Germany, holding 25,000 political or racial prisoners. Kid stuff, as compared to the Soviet Union in this Year of Grace.

FROM THESE PAGES

60 Years Ago

If accurate and important knowledge has always been necessary for the commanding officer, it is more so than ever at the present time and from a purely tactical standpoint, for the introduction of smokeless powder must prove a very essential factor in conducting an offensive engagement. Hitherto, the commander's personal observation of the progress of the battle, in addition to the important information furnished him, has been sufficient. Upon the basis of the information possessed, and of a personal examination of the enemy's dispositions and observation during the period connecting the beginning of the battle and the attack, he formed his plan of assault. But now with the disappearance from the battlefield of the smoke which so well revealed the dispositions of the enemy's artillery (traced by the line of its fire) and made it possible to see the progress of the battle upon the flanks, the commander can trust very little to personal observation, and must begin the fight and conduct it almost up to assaulting distance upon the basis of information received from the outside. It clearly follows that at the beginning of a battle more than at any other time it is necessary to have a sufficient quantity of valuable, accurate, and precise information; and that during the battle itself, there should be constant observation of the enemy, which, in its turn, is attained by an organized system of scouts and reports.

The Organization of Cavalry Scouts

LT. COLONEL N. KRUSENSTERN

25 Years Ago

As cavalrymen, we must have faith in the cavalry service, and we must have a doctrine which will allow other branches to see how well we keep the faith. To the cavalry itself, that faith must be sacred. The doctrine must be sound, the faith a natural by-product. If we have faith founded on sound principle, we will have satisfactory *esprit de corps*. With enthusiasm in addition, we will then have morale as a natural result. And "morale is necessary to win battles, or for that matter, to survive the perils of peacetime service."

While having faith in ourselves, we must understand the characteristics of other branches. We must make ourselves as cavalry, indispensable to the team of which all branches form a necessary part, each in its proper sphere. We must make opportunity and we must embrace opportunity. We must not be prone to consider a task impossible of execution, simply because someone has said it cannot be done. We must expect to be expended to the last horse and man in the last extremity. Modern automatic weapons, airplanes, etc., may be used to the advantage of all branches, and they can be used to particular cavalry advantage. Such improvements and inventions are to be welcomed. They make cavalry no less indispensable. Rather, they relieve cavalry of certain work, so that men and horses are not expended unnecessarily, and thus save them for their important duty after reaching the battlefield itself.

Faith in and a Doctrine for the Cavalry Service
"ONE OF THE FAITHFUL"

40 Years Ago

Reconnoitering cavalry, either independent or divisional, will profit greatly by the achievements of airships. Where its task is to cross occupied sectors and to drive back hostile advance troops, the airships will show the route to be taken and save the cavalry many a bloody or even useless dismounted action. Based on the results obtained by aerial reconnaissance the cavalry may frequently be able to utilize the night to create for itself conditions favoring an unexpected appearance the succeeding day. The cavalry will be relieved from any onerous reconnoitering duties by aerial vehicles, especially during the march into position, during attack and defense of stream sectors and defiles, attack on permanent fortifications and the reconnoitering of hidden artillery groups and reserves behind the center of the extended hostile battle front. But we must always hold to the maxim that where the decisive operation is to be had, we cannot do without an effective cavalry body which keeps in close touch with the enemy and that at the moment of tactical contact a permanent cavalry reconnaissance of the enemy is absolutely necessary. Aerial navigation can supplement cavalry reconnaissance in the most effective manner; points out the limits to which it can proceed in the reconnaissance profitably, and gives our large independent cavalry bodies an increased importance. The natural consequence of these facts seems that we ought to increase our cavalry and make our cavalry divisions stronger as far as their fighting power is concerned.

Airships and Cavalry in the Reconnaissance Service

CAPTAIN NIEMANN
(Austrian Cavalry)

10 Years Ago

Highly mobile ground troops—such as cavalry, reconnaissance elements, the armored force, antimotorized elements and motorized infantry—are cohesively being drawn together simply because of the strategical missions which they perform in common. They speak and understand the same language irrespective of their respective modes of travel and tactical methods.

The Germans appreciating this pertinent fact already have grouped such units under the heading of (*Schnell Truppen*) Mobile Troops. That they have functioned efficiently under such grouping is beyond question.

Mobile warfare demands decentralization in the execution of mobile missions. Decentralization in combat requires the use of well-balanced combat teams. The character of terrain and the tactical situation usually indicate the necessity for *motors plus animals* in order that objectives can be reached regardless of the incidents of terrain, climate and weather.

Balanced combat teams capable of handling diversified combat situations are the result of long-range planning and training. They cannot effectively be created after the battlefield is reached.

Mobile Force

EDITORIAL COMMENT

The **LITTLE THINGS** that **COUNT!**

by **MASTER SERGEANT JAMES D. MERRILL**

THERE is nothing new or revolutionary in the observations I am about to make. These tricks of the trade are known to most tankers. I set them down only because it seems that in the long intervals of service between combat periods, these practices are either neglected or forgotten so that each new crop of tankers has to be told again these simple, fundamental truths.

▶ In night operations, or when occupying positions of proximity to the enemy, the interior lights in both the driver's compartment and the fighting compartment are a real danger unless crewmen take certain simple precautions. Inside the tank these lights seem small (inadequate to read or write by) but a glimmer of red light on a dark night is often enough to guide an enemy patrol directly to your position or enable them to avoid you and infiltrate to other more vulnerable units. The red light on the driver's instrument panel (which indicates whether the master switch is on and also serves as an oil pressure gauge) should be taped over, leaving only a small portion at the very bottom for the driver's use. Many crewmen will reply that they never use the driver's hatch at night, and in most situations this is true. Taping the instrument panel takes care of the once-in-a-while time when you do. The green light on the radio transmitter is another which should be taped. It is located almost directly behind the gun and sights. If the breech of the gun is open—as it should be for quick loading—the green light is telescoped towards the enemy. If the turret lights have to be used, all periscopes must be pulled to the down position, the breech-block closed, the telescope covered, and the hatches closed. Simply closing the hatches does not black out the tank. But don't worry about this. If you forget, the enemy will remind you.

▶ One of the sleeping positions in the tank is the driver's seat. If the driver has a restless night (and who wouldn't in that position) he is apt to honk the horn accidentally. The sound carries for miles. In my platoon we disconnected the horns on all our tanks to prevent such accidents. Be sure both ends of the disconnected wires are taped to prevent shorting out the electrical system.

▶ If your Motor Sergeant is an eager beaver, he will have painted the regulation white stars on the outside of the turret. In the early morning, or late afternoon, or on moonlight nights, these stars make excellent targets. They should be blotted out with mud, taped over, or covered with a shelter half or poncho.

▶ When you have men on guard in the turrets of the tanks at night see that they drape a shelter half or poncho from the .50 caliber mount to the open tank commander's hatch. This eliminates the silhouette of the guard and makes the enemy sniper's job more difficult.

▶ When your radio must be kept on at night turn the volume down until you can just hear the transmissions or even so low that only the flickering of the amber squelch light indicates that a message is being transmitted. In a night position each tank is essentially a listening post and the radio traffic (which may or may not be important to you) obscures your hearing and may disclose your position.

▶ The speakers on the face of the radio receivers should be reinforced with tape to withstand the constant blast of the tank cannon. The concussion of these heavy guns over a period of time will eventually damage the speaker unless it is reinforced.

▶ When selecting positions avoid prominent clumps of trees and try to find defilade in open terrain. Positions of this sort always offer better fields of fire and the possibility of air bursts is reduced. Enemy artillery is seldom effective against tanks but air bursts will cause your men discomfort. If camouflage is an important consideration I would still prefer to go into positions in open terrain and use cut boughs for cover. If this is done don't overdo it. It is not necessary to make a Mardi Gras float out of your tank to break up its characteristic shape.

▶ Of course you must keep your batteries charged. Make it a part of your daily schedule to charge the batteries just before dark. The "Little Joe" makes plenty of noise so don't wait until things get quiet at night. Many nights you'll be using your radio all night, so be sure the batteries are up before dark.

▶ If you are in a stationary position (covering some other unit, or a road block) never let yourself feel that since the enemy hasn't bothered you he can't or won't. He may be waiting for you to make the first move. The same thing is true if you are advancing and haven't been fired on. The enemy may be waiting behind his mine field or he may have an ambush set for you. Keep your eyes open and try not to let your mind slip into neutral.

▶ When moving in column, stay in the tracks of the tank ahead. Usually you're well into a mine-field before a tank hits one. If you're careful you need not lose more than one tank. If you are not

following the tank ahead you may hit a mine that has been by-passed by it.

▶ Remember, your gun is only muzzle safe so make sure you are not massed by trees, brush, or other obstructions. If it is necessary, clear fields of fire when you occupy the position. A blast caused by trees a short distance in front of the gun wastes ammunition, discloses your position and endangers friendly troops in the vicinity. You can clear a field by using your tracks.

▶ After a period of sustained firing of the co-axial machine gun, see that your gunner unloads the gun then moves the belt only to the belt feed pawl. This is important because when the barrel becomes overheated, a round in the chamber can be "cooked off." Drivers have been killed in this way. While we are talking about the machine guns, tank commanders should rotate the bow and co-axial guns in order to prevent wear on either. And when there is need for plenty of small arms fire the tank commander should command the fire of both guns in such a way that he always has one gun loaded and ready to fire while the other is being reloaded.

▶ Tank gunners should be required to keep an allen wrench handy at all times. On some days when you have been firing a lot of ammunition from the tank gun, the oil in the recoil cylinders will expand under the heat and it becomes necessary to bleed the cylinders to permit the gun to return to battery. There is only one allen wrench that will fit the filler plugs and the gunner should have this wrench easily available all the time.

▶ Each tank crew should make a short handled swab for cleaning out the chamber of the tank gun. After a period of firing, the metal filings, carbon, and dirt that builds up in the chamber will cause a stuck round. With the swab the gunner can easily clean out the chamber between fire missions. ▶ Policing up the turret immediately after each fire mission is just as important in combat as on the range. The gunner should make it a habit to swab out the breech, refill the ready rack, transfer ammunition up from the bog compartment, check the co-ax, and clear the floor of all spent rounds so that the tank is ready to fire again when called on.

As I admitted at the start, these practices are old stuff but they are still the things which distinguish an excellent tank crew from the ones that just go along for the ride. The tank commander who really learns from experience and avoids making the same mistake twice will make out O.K. Common sense in large quantities and a knowledge of his men and equipment are all a tank commander needs to live to a ripe old age. As Bismarck said, "A fool can profit by his own experience but I prefer to profit from the experience of others." I have tried to put this down the way I experienced it in the hope that some, like Bismarck, might prefer to learn from my experience.

A Round Trip That Costs More Than One Way

Al is a big guy, but for all his size he was laboring under the load. His mailbag (Al, he is our mailman) was loaded down. Trouble was, the mail that ran to weight was not original stuff winding up a one-way trip. It was a big jog of returned copies of ARMOR, all of them exhausted from the round trip that did nothing more than bring them right back where they started. Reason??? Some folks forgot to inform us of their change of address!!!! And to top it all off, we had to jack open the cashbox and shell out return postage at the clip of two cents a copy. Adding that up for undeliverable copies on one issue, we'd much rather have spent the dough on another illustration for that article that some of you thought looked a little dead. As for the magazines, they looked a little wilted, although we've tried for maximum protection by wrapping them up in an expensive 28-lb. Kraft envelope. And since we try to put a fresh, crisp product into your hands, like as not we'll toss the limp copy aside and send you a new one out of stock . . . always assuming you've let us know where to find you! More dough, and some of yours at that. We figure we've carried out our end of the bargain when ARMOR goes in the mail. To help you fulfill yours we've put a postage-free return envelope in the magazine for notification of change of address. PLEASE!

**Sharp, Unusual Action
Of Tanks and Artillery
Flares on Korea Front**

By the Associated Press
SEOUL, Korea, Sunday, Mar. 2.
—Korea's 120-mile-long battle-
front showed unusual activity

ARMOR NOTES

**NEW U.N. TANK RAID
JABS AT KOREA FOE**

*Allies Strike Near Pyongyang
as the Enemy Hits Back
With Artillery, Patrols*

*SEOUL, Korea, Sunday, March
2.—The 120-mile-long battle-*

"Impractical" Machine Saving Tank Production Time and Money

An "impractical" machine at Ordnance's Detroit Arsenal is saving the taxpayers \$400 a day, and, at the same time, eliminating a bottleneck in the tank production program, the Department of the Army announced recently.

The civilian chief of manufacturing at Detroit Arsenal, Andrew C. Dickson, is credited with developing a turret broaching machine that engineering experts a few months ago said was impractical. Now, after a year of research and test, Dickson's machine has proven its worth.

The new machine cuts the 294 required teeth in a turret-ring gear in 30 minutes. Former methods took 4½ hours.

The ring gear in appearance is nothing more than a six-foot ring with teeth cut into its inner curve. Fastened to the tank turret, it enables the turret to turn completely around so that a gunner can aim the tank gun in any direction.

In addition to cutting costs and time, the new machine eliminates 75 per cent of the capital outlay and nearly 90 per cent of the machine tools required in the method previously used.

Ordnance officials say the \$400 daily savings will soon skyrocket into thousands of dollars a day, since more of the same broaching machines have been ordered for use by other tank manufacturing plants.

The broaching machine now in use at the Ordnance Arsenal was made by the Colonial Branch Company in Detroit.

T41 Tanks Tested At Drum

More than a score of T41 light tanks have been undergoing rigorous tests for well over a month at Camp Drum, New York. They have been taking part in winter maneuvers as part of the Exercise Snowfall equipment.

These are a model which has had trouble on turret-turning mechanism. As recently announced by the Army Chief of Staff, difficulties encountered

in the light tank are being ironed out in the production line.

Experts from Fort Knox and from Cadillac division of General Motors, builder of the light tanks, have been on hand watching the performance of the T41's.

This is a part of the testing given the tanks as they undergo indicated modifications.

Explosion Rocks Ford Tank Plant

An explosion and fire recently threatened to wreck the 50-million-dollar tank plant being built by the Ford Motor Company at Livonia, a suburb of Detroit.

The fire apparently resulted from an explosion in a paint shop. Flames swept a large section of the plant.

More Armor For Eisenhower

BRITISH HQ, GERMANY—Hard-hitting 50-ton Centurion tanks manned by three British armored divisions—the Sixth, Seventh and Eleventh—today constitute the biggest tank force at General Eisenhower's disposal.

A fourth British division—the Second Infantry—is also in the line, plus one infantry brigade in Berlin.

The presence of these forces is taken here to illustrate Mutual Security Director Averell Harriman's statement to Congress that Britain already is producing more military equipment than all other European signatories of the North Atlantic Treaty combined.

The Centurion tank, standard weapon of the British Army in Germany, has been hailed by American



U.S. Army
Brig. Gen. John C. Macdonald, who recently assumed command of the Armored Combat Training Area at Camp Irwin, California. Gen. Macdonald has a long experience in the mobile arm, having commanded the first Armored Cavalry unit in the U. S. Army, Troop A of the 1st Armored Car Squadron, 1st Cavalry Division, in the period 1942-1943. During World War II he commanded the 4th Cavalry Group Mechanized in ETO campaigns. He served as Chief of Staff of the Armored Center at Fort Knox, Kentucky, from mid-1947 until early this year.

experts in Europe and Korea as one of the finest fighting machines in existence. Main features include: armor plating from ½"-6" thick, Rolls Royce aircraft type motor, 84mm (3.27) gun with special stabilizer, 7.92mm machine gun, smoke dischargers and two sets of phosphorus grenade launchers.

Maj. Gen. John O'Daniel, Commander of the U.S. First Corps in Korea, recently said goodbye to the 8th King's Royal Irish Hussars after their 13 months in Korea and added: "You, in your Centurions, have taught the whole Eighth Army that even the tops of mountains are tank country."

New Tankdozers Built

New tankdozers to fit into the Armed Forces high-speed tractor and tank program are announced by Gar Wood Industries.

The tankdozers are being built at the Mattoon, Ill., plant of Gar Wood Industries, one of the largest integrated plants in the world devoted exclusively to the production of heavy duty scrapers, dozers, and other allied tractor equipment. Models can be made available for every type of tank and high-speed military tractor.

Circulars describing the tankdozer are available as a guide and ready-reference for those individuals responsible for procuring field equipment for the Armed Forces.

British Tank Commander Speaks Up On Tanks

LONDON—A British army officer says American tanks in action in Korea are "made for Hollywood, not for fighting."

Lt. Col. Sir William Guy Lowther, commander of the 8th Royal Hussars armored regiment, declared one British Centurion tank is worth two American Pattons.

He told 3,000 workers at the Centurion plants in Leeds recently:

"In Korea we did not want the Patton, but the Americans wanted the Centurions. They used to say, 'What wouldn't we do with a tank like that?'"

"In one battle 52 Allied tanks—half British and the rest American—were damaged by Chinese mines. All the British tanks got away under their own power. Every American machine had to be towed back.

"The whole world is awakening to

the fact that Britain can produce the best tanks."

Another Hussar officer, one of 14 Korea veterans who toured the plant with Sir William, told reporters afterward:

"It's time people at home realized the truth. American tanks in Korea are no good. They are outclassed by ours in every way. Ours climb better, move quicker and can get in and out of a tough spot before the Americans are half started."

An embarrassed official of the ministry of supply, which arranged the visit to the Leeds plant said, "the visit was arranged so someone from Korea could say 'thank you,' personally to those who made tanks. We did not know Sir William would speak out so strongly against our ally."

A war office spokesman commented that Lowther was "speaking for home consumption, after all."

"I suppose," added the official, "he wanted to buck the workers up a bit."

Newsmen on Tank and Vehicle Test Demonstration Tour

A spectacular tank and vehicle test demonstration was put on recently at Aberdeen Proving Ground for 11 of the nation's leading automotive news writers who are on a 17,000-mile trip presenting the story of tank and automotive equipment "from the cradle to the grave."

The show was conducted by Development and Proof Services and included a review of combat and transport vehicles; automotive instrumentation and tests and a firing demonstration. It was part of a 28-day tour originating at Detroit, which will take the auto news writers throughout the United States, Alaska, Hawaii, Japan and Korea.

The newsmen are getting the story of design, development, testing, use and rebuild of the Army's vital vehicles. The local phase was to show how tanks and trucks are tested before acceptance for use in combat.

COLONEL FRANK TOMPKINS NAMED AN HONORARY MEMBER OF THE U. S. ARMOR ASSOCIATION

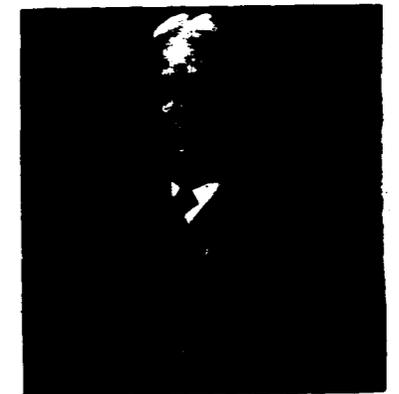
Colonel Frank Tompkins, retired Army officer and veteran of four wars, has been awarded an Honorary Membership in the United States Armor Association. The honor was bestowed by the Executive Council of the organization in recognition of Colonel Tompkins' completion of sixty years of active membership in the Association of Mobile Warfare.

The 83-year-old resident of Northfield, Vermont, joined the U. S. Cavalry Association in 1891. This was at the start of a career that was to take him through four wars.

Colonel Tompkins served in Cuba in the period 1899-1901, and again from 1906 to 1909. He served in the Philippines during the insurrection there, and on the Mexican Punitive Expedition in pursuit of Villa. In World War I he organized the 301st Infantry and took it to France, where he was transferred to the 28th Division and command of the 110th Infantry. In the battles on the Vele River in August and September of 1918 he was gassed, receiving no less than 17 third degree burns, which resulted in his retirement.

Colonel Tompkins is a former commandant of Norwich University at Northfield, Vermont, and is now a member of the Norwich Board of Trustees. He served three tours of duty at the famous military school as professor of military science and tactics, as well as being commandant of cadets.

Colonel Tompkins holds the Distinguished Service Cross among many decorations.



Armor's Military Stakes

Competition is the inspiration behind individual and team perfection in the world of sports. In the military area it serves as a hinge for advancing soldier qualification at all levels and in all stages of the training cycle. This story of competitive training for officer candidates illustrates one method of turning out our champions

U.S. Army Photos

MAJ. GEN. I. D. WHITE, commander of The Armored Center, has instituted an old Cavalry tradition at Fort Knox—the Military Stakes.

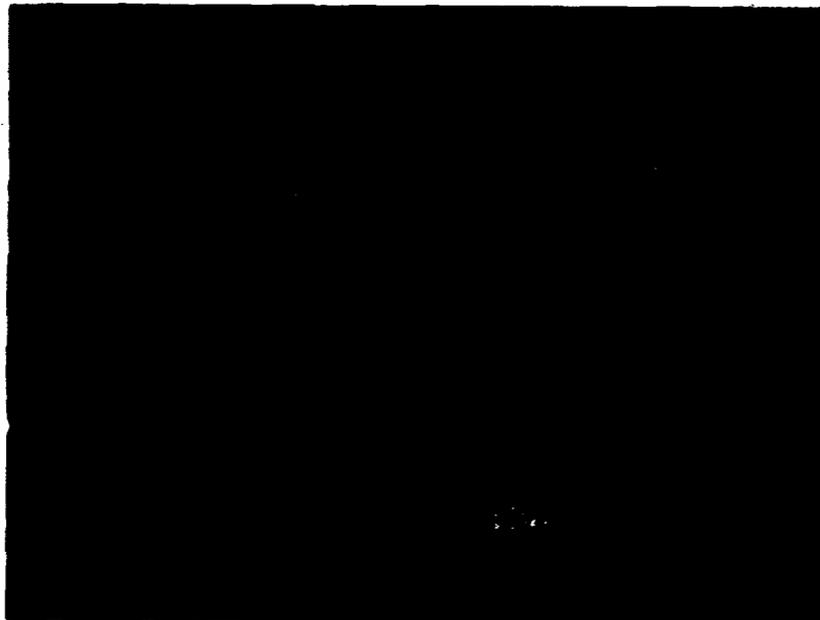
The Cavalry Standard Stakes had been in use at The Cavalry School for 25 years prior to World War II when General White, as Ground General School commandant at Fort Riley in 1947, adapted it as the Military Stakes for the Officer Candidate Course. The first Armored officer candidates since World War II at The Armored Center, for whom the Stakes course was constructed, will compete in March during the 21st week of their 22-week course.

Military Stakes' predecessor, the Cavalry Standard Stakes, was primarily a mounted competition where the contestant, riding a series of horses, was required to negotiate a course of jumps, run a cross-country race, a mounted saber course, and carry a polo ball the length of a polo field. Each contestant had to demonstrate his marksmanship with rifle and pistol and his ability at foot racing. Each entrant paid a dollar entry fee and the Stakes were run on a winner-take-all basis.

The Cavalry tradition was continued in the Military Stakes, opened at Fort Riley in 1947, in one station which required negotiation on horseback. There were a total of 33 problems, or stations, in the two-mile

course which contestants were expected to complete in 45 minutes. Members of Officer Basic and Officer Candidate classes at the Ground General School competed and were scored on a basis of 700 points for demonstrating proficiency at the various stations and an additional 300 points for finishing in 45 minutes. The same scoring basis of 1000 points is being used for the new Armor Military Stakes.

The Stakes at The Armored Cen-



Contestants arriving at this station are required to assemble the M3A1 sub-machine gun, fire ten rounds at two silhouette targets, then reassemble the gun.

ter is a road and cross-country foot race which has been initiated with twenty stations requiring solutions to basic military, tactical, or proficiency type problems. The course is one mile longer than the Fort Riley Stakes of 1947 and contestants lose five points for each minute in excess of a "standard" running time of 105 minutes they require to finish. Additional stations will be added before the first Armored Officer Candidate class competes in March, during the 21st week of their course begun in September.

The Armored School Officer Advanced Class competed in a trial run of the Stakes and made recommendations toward improving the course. At a critique of the Stakes by members of the Advanced Class, General White pointed out that the Military Stakes is "basically a county fair" type of competition and recommended more professional competitions pertaining to military proficiency.

The Armor Stakes has been called somewhat more difficult than its Fort Riley predecessor because of the hilly terrain features of Kentucky. The most difficult terrain feature is the run from Station 11, cross country across Buffalo Creek and up a long incline to Stations 12 through 19 in the Brumfield Range area.

Station One, in the Steeles No. 1 area, requires the contestant to locate a defective wire circuit, to connect field telephone EE-8 or field wire



Meeting a problem in 1st echelon tank maintenance at this station, contestant must determine the correctness of track tension on this M4A3E8 Sherman tank.

lines, and to correctly splice a broken conductor on field wire W-110-B.

At Station Two he must assemble Sub-Machine Gun M3A1, fire 10 rounds at two silhouette targets and disassemble.

Station Three requires him to assemble M1 rifle, load and fire 10 rounds including two rounds tracer, fire at two silhouette targets 125 and 200 yards distant, and disassemble.

The requirement at Station Four is to assemble a .45 caliber pistol, fire five rounds at silhouette target, and disassemble.

At Station Five the runner is asked to solve an attack situation including designation of attack position and routes thereto, a line of departure, the direction of the main attack and formation to be used during the attack.

Station Six requires the reconnoitering of a prepared road block and adjacent area, selection of the areas to be mined and disposition of the reconnaissance platoon securing the road block.

Station Seven requires the contestant to locate and remove two antitank mines in a given area.

Station Eight is a map reading problem where he must determine the grid coordinate reading to the nearest thousand meters of the station, the elevation to the nearest five feet and

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and location of the security elements for a tank company assembly area must be selected.

At Station Twelve the contestant must throw three hand grenades into designated openings.

Station Thirteen, designated 1st Echelon Maintenance, requires determination of correct track tension. M4 Sherman tanks permanently maintained on the Brumfield Range area are utilized at this and succeeding stations requiring the use of tanks.

Station Fourteen is a field message writing exercise where the contestant must properly fill out a message blank, writing a clear, complete, and concise message.

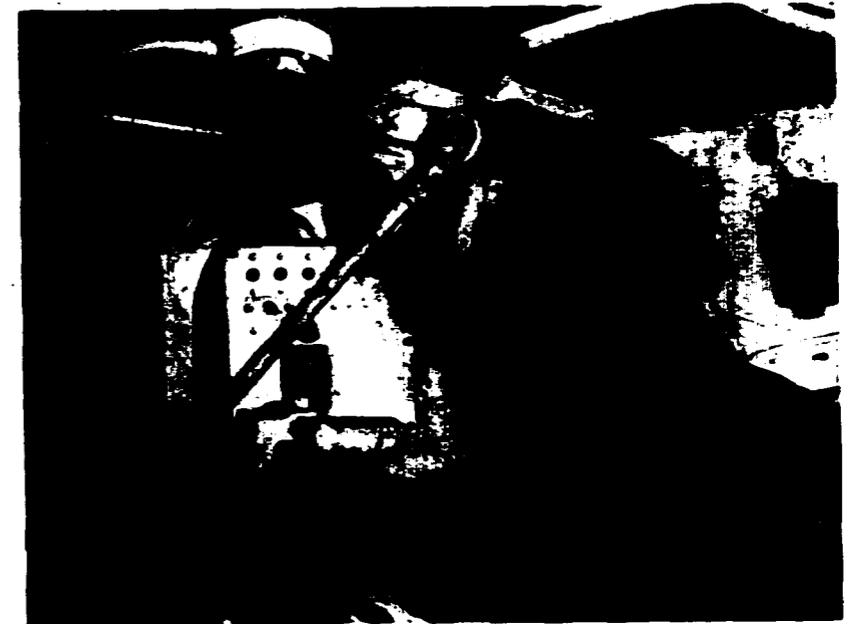
The requirement at Station Fifteen is to prepare and place a demolition charge to fell a tree.

Station Sixteen tests the use of correct Radio Telephone procedure.

At Station Seventeen the contestant must lay a tank gun on designated target. He is to estimate range and have correct sight picture for range and deflection.

Station Eighteen, involving tank machine gun (coax), requires Fire Table III and Manipulation Course FM 23-55.

At Station Nineteen the runner must correct a mechanical deficiency in a jeep and start the motor.



At this station the contestant is required to lay the tank gun on a target and estimate the range, having the correct sight picture for range and deflection.

Station Twenty requires correct identification and a knowledge of the characteristics of radio sets used in Armor.

Points at the various stations are awarded for degrees of demonstrated proficiency, rather than on an all-or-none basis. At Station Sixteen involving Radio/Telephone procedure with a total possible score of 30 points, of the 190 Advanced class contestants, 127 scored 30 to 21 points, 59 scored 20 to 11 points and four scored 10 to 1 points.

Each of the stations is operated by personnel of one of the four instructional departments of The Armored School which teaches the material or equipment involved in the particular problem. For instance, Station Nineteen, vehicle trouble shooting, is operated by personnel of the Automotive Department; the Command and Staff Department set up and operates Station Ten, intelligence; personnel of the Communication Department are in charge and grade the performance of Stakes contestants at Station Twenty, characteristics and nomenclature of Armor radio sets; and Stations Seventeen and Eighteen, involving tank guns, were planned and are operated by the Weapons Department.

This planning and operation ar-



Three simulated targets representing a window, a fence and a door are here to test the accuracy of the contestant in throwing hand grenades.

angement coincides with the instructional plan of the new Armor Officer Candidate Course. The course operates as a new department of The Armored School and candidates receive most of the instruction preparing them for duty as Armor officers from the four previously constituted instructional departments.

The job of planning the stations and mapping the Armor Stakes was assigned to Major John L. Rees, Operations Officer of the Armor Officer

Candidate Department, and was carried out under the direction of Colonel William H. Wood, department director. Planning was begun about October 1 by Major Rees and Captain Leroy G. Ceve and Master Sergeant Charles Clark of the Operations Section. Actual construction of the present twenty stations, utilizing Sherman tanks permanently maintained on Steeles and Brumfield Ranges, required a week.

The trial competition by members of the Armored Officer Advanced Class was held on November 20, shortly after the Stakes course was completed. A previous smaller scale trial was run on November 15 by Tank Leader Course No. 6, but the Advanced Class was scheduled to compete in order that the officer candidates might gain by the opinions and recommendations of the experienced officers, many of whom have had combat experience in Korea.

Captain Norman T. Stanfield accumulated the highest over-all score among Advanced Class officers, of 890 points of the total possible 1000. General White marked the occasion by presenting to Capt. Stanfield an engraved silver plate. Second prize, also a silver plate, was given to Captain William D. Lynch who gained 888 points. General White presented a desk pen and pencil set to Lt. Col. Alva T. McDaniel, holder of the third highest over-all score of 883 points.

The highest station score of the class, 600 of a possible 700 points, was achieved by Major James R. Waldie and the fastest time for the three-mile, twenty station course was 78 minutes, recorded for Captain Harlan G. Koch.

The over-all class average was 691 of a total 1000 points possible. The average station score was 468 of 700 points possible and the average running time was 107.7 minutes.

The officer candidate classes are expected to average a somewhat lower running time after months of physical conditioning as candidates and because of their relative youth. A somewhat higher average station score may be set because the various stations are planned to test in a practical manner the specific material the candidates have been taught in classrooms and tank "laboratories." Appropriate trophies will be presented to candidates who are class winners of Armor Military Stakes competitions.



In a problem concerning the correct location and organization of security elements for a tank company assembly area, three possible solutions are offered.

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A POSTGRADUATE COURSE ON A CONTROVERSIAL BATTLE

LEGEND INTO HISTORY. By Charles Kuhlman. The Stackpole Company. \$5.00.

Reviewed by HERBERT H. FROST

From the day the famous picture was put in place behind the bar until the advent of national prohibition, "Custer's Last Stand" was seen by hundreds of thousands who looked across their 5¢ "largest and coolest in the city." It was as much a part of the saloon as the free lunch and the wet sawdust. Regular customers who drank rye with a beer chaser frequently indulged in heated debate on all phases of the action shown in the picture, and considered themselves military experts and students of the period.



George Armstrong Custer

Judging from the tonnage of lurid and irresponsible accounts of the Battle of the Little Big Horn and of George Armstrong Custer which have been published over the years, some of the drinkers became "historians" and writers on the subject. This does not mean to imply that everything published in the past has been lacking in historical accuracy or earnest endeavor on the part of the author. Books and articles by qualified and serious-minded writers have fallen short of being completely acceptable for a number of reasons.

The first accounts of the incident could hardly have been without prejudice or bias. The writers although responsible, were too close to the subject and the participants to reconstruct the battle objectively. The late and great Lt. Gen. James G. Harbord told me of the many discussions he listened to as a very young and very junior officer. The senior officers put forth many controversial views and conclusions. The junior officers listened.

The second group of responsible

writers produced some excellent material of recognized value. Some included the life of Custer with the Little Big Horn as the most important chapter; others wrote only of the battle, while still others included as background the organization of the 7th Cavalry after the War between the States. None of these writers appears to have had the health, time and money required to make a complete study of this most baffling episode.

Now, 75 years after the event, comes Dr. Charles Kuhlman with his record of findings resulting from years of research, analysis and the use of a progressive plan of evaluation. Regardless of viewpoint, the reader will find that his intensive and painstaking efforts have produced as factual a report of men and events as can be made from records and evidence.

The Reviewer



Herbert H. Frost, a colonel in the Reserve, served in Cavalry in World War I and with the 2d and 13th Armored Divisions in World War II. A vice-president of the Armor Association, he has been a student of Custer and his period since 1923, and has studied the Little Big Horn battlefield from the back of a horse, covering every route of the troops and Indians.

The Author



Charles Kuhlman holds B.A. and M.A. degrees from the University of Nebraska, and a Ph.D. from Zurich University. His career as instructor in the Department of European History at Nebraska was halted by loss of hearing. He turned to farming in Montana, where a visit to the Custer battlefield in the 1930's inspired sixteen years of research, leading to this book.

Legend Into History is a valuable contribution to the historical literature of the United States. I believe it is the first completely objective account of what took place that week in June 1876. Approaching the subject with an open mind, the author makes a study plan wherein all evidence is weighed against established base points and the factors of time, space and topography. Terrain studies were made to insure the accuracy of distances from base points and to account for contour changes resulting from time and the elements. I do not believe this plan of approach can be improved upon. Dr. Kuhlman puts

every piece of evidence available under the spotlight of comparative evaluation, accepting or rejecting on the basis of how it coincides with base points, time, space and terrain. From this has come truth or convincing probability.

The bibliography listed by Dr. Kuhlman includes the best and the worst. He has searched the findings of the responsible writers and the ramblings of the unscrupulous who have produced new and ghastly situations on short notice when the market indicated another Custer book or arti-

cle could be sold.

Perhaps the outstanding single contribution made by Dr. Kuhlman is the analysis and evaluation of the Indians' side of the battle. Controversial stories in the press were front page news for a long time. Stories were slanted pro or con, generally depending upon the political efforts of the editor to uphold or discredit the administration in Washington for the way our Indian affairs had been handled. Statements from Indians were obtained through fear or favor, and each statement seemed to be what the editor wanted.

After the Indian wars came to a close, many Indians found it profitable to make statements for writers, to prove the writers' point. The Indian village became part of the American circus and Wild West Show, each one featuring a great chief who had given Custer his death shot and who then heroically protected the body of the General from Indian mutilation.

Dr. Kuhlman has produced a most convincing Indian pattern in every detail.

Were the Indians on the war path?
Did the Indians want to fight on 25 June?
Did they have any plan of organ-

ized force?

Did their fighting follow any tactical plan?

Where was the village located?

What was the strength of the village?

What was the strength of the force leaving the village to fight?

Why did they fight on foot most of the day?

Who were the combat leaders?

Did all of the Indians have rifles?

Was the arrow more effective?

Did the Indians know Custer was in command?

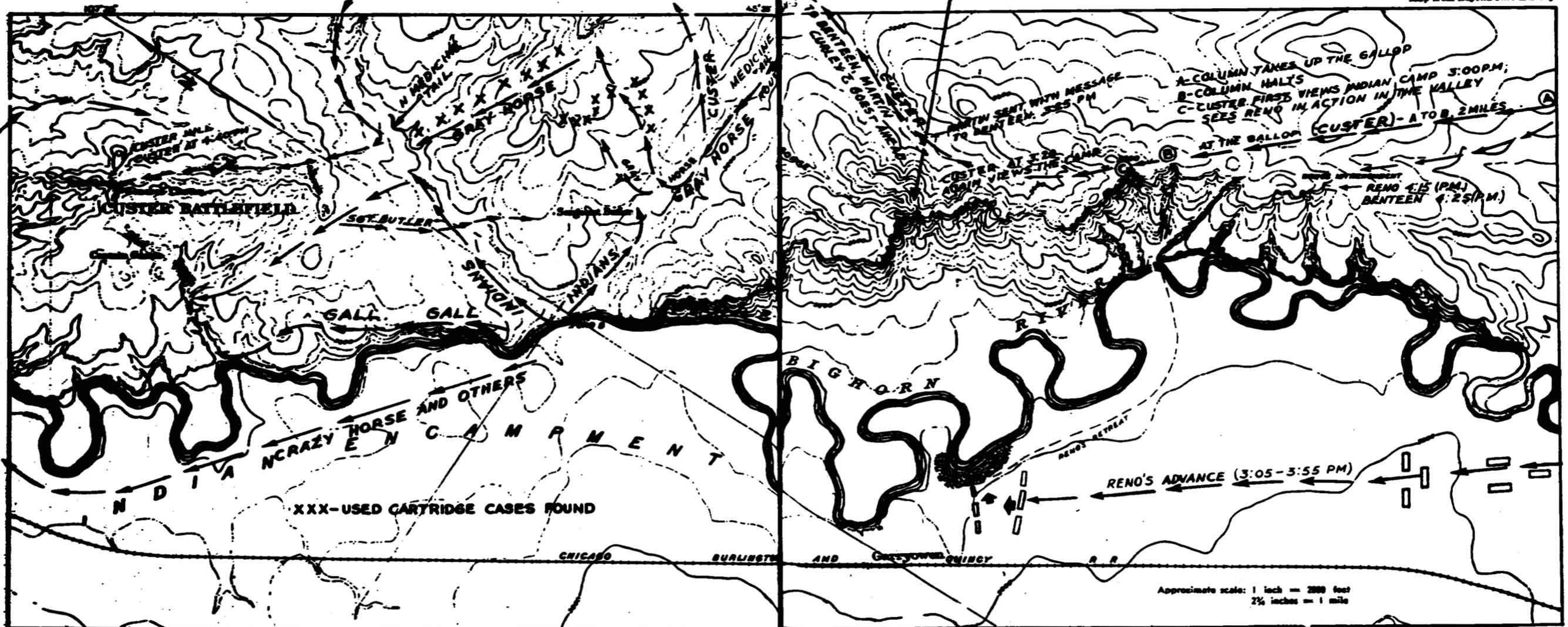
Did the Indians set a trap?

Did Sitting Bull lead them in the battle?

These questions and many more are answered by the author.

The chapter setting the preliminaries is carefully compiled and documented. After the conference on the steamer *Far West*, there was no lack of understanding on the part of Terry, Custer or Gibbon, as to what was expected and the general plan of accomplishment. All concerned with command responsibility were in agreement. Much has been written about the "order" given Custer on 22 June by General Terry through his adjutant, Captain E. W. Smith. How this can be construed as an order seems beyond the scope of understanding of most military men. As pointed out by Dr. Kuhlman, this so-called order was a confirming directive based

U.S. GEOLOGICAL SURVEY
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THE OTHER SIDE OF THE HILL

By B. H. LIDDELL HART

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on the conference and nothing more.

Custer was given the views of his superior, relative to the objective with the statement, "It is, of course, impossible to give you precise instructions in regard to this movement, and were it not impossible to do so, the Department Commander places too much confidence in your zeal, energy and ability to wish to impose on you precise orders which might hamper your action when nearly in contact with the enemy. He will, however, indicate to you his own views of what your action should be, and he desires that you should conform to them unless you shall see sufficient reason for departing from them."

Further in the directive, it is noted that the basic objective is to prevent the escape of the Indians. Background reading on this point will show the press and the public clamoring for action to kill or capture these roving bands of Indians who seemed to be able to outsmart the Army at every turn and remain free marauders. How could Terry have been more explicit or more detailed in what he gave Custer? The whereabouts of the Indians was not known. There was no fixed objective to be reached and it was hoped that as the action unfolded the columns of Gibbon and Custer would be within supporting distance. Communication was, of course, by means of mounted messenger and each day's march by the regiment from the headquarters of the Commanding General meant three days' added time to deliver a message and receive a reply. This is based on the assumption that every courier could get through hostile country without being killed, captured or forced to hide.

Custer had his mission; he was on his own insofar as the tactical employment of his regiment was concerned. He was mindful of the plan to meet Gibbon somewhere and to their mutual advantage.

Immediately upon learning of the death of Custer, someone on Terry's staff or otherwise accredited to his headquarters, changed the words "sufficient reason" to "absolute necessity" in the copy made in Terry's copy book. (Was the forger brought to trial?)

The author makes an excellent case for the reconnaissance in force to determine the location and strength of the Indians. The point is well taken

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that Custer could not have made any plan of attack prior to knowing locations and number of villages and estimated strength. What Custer did know was that any and all escape routes must be covered; the Indians must not get away again.

Much has been written about the command being divided into three separate units and sent on independent missions beyond supporting distance. Dr. Kuhlman brings this into focus by showing distances he measured on the ground.

Contrary to what has been written, Benteen, except for about one-half hour, was never more than 7 miles from Reno, or Custer, not 15 miles. When Benteen arrived on Reno Hill, he was less than 4 miles from Custer's position at that time, not 6 miles as frequently stated. Evaluation of time and space, plus some visual communication and the sound of firing, show how Reno and Benteen could have reached Custer in time to support him and perhaps have turned the tide of battle. There were wounded to be carried and other obstacles, requiring the energy and leadership of an unusual man.

When Benteen arrived on the hill, did he find his superior officer in a state of hysteria, surrounded by panic-stricken survivors of the squadron? If so, was it possible for Benteen to arbitrarily take command and reorganize in time to be effective in moving toward Custer? The answers to these most important questions are given in detail and are supported by the factors of time and distance.

A great deal of factual information might have been expected from the Court of Inquiry. While the Court was convened at the request of Reno to investigate his conduct, the witnesses, of course, included many who had been present at the Little Big Horn. The record shows evasion on the part of the most important witnesses, even to the extent of direct contradiction of statements made on previous occasions.

Legend Into History is more of a report than a story. It is not for the Custer beginner. The author does not ask the reader to accept his findings as the approved solution. What he has written is offered for study by those who will search this great American tragedy during the next 75 years. Dr. Kuhlman has produced a masterpiece.

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By Colonel Paul A. Disney, Armor, USA

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