

The
FIELD ARTILLERY
Journal



IN THIS ISSUE:

Organic Air Observation

JULY, 1942

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and
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by HOMER LEA

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The Field Artillery Journal

"Today's Field Artillery Journal is tomorrow's training regulations."

JULY, 1942 — Vol. 32, No. 7

OVERSEAS UNITS report that mail bearing APO numbers comes through in good shape. We have tried to obtain these numbers for all such units, and have corrected many addresses accordingly, but in general we can change stencils ONLY upon receipt of definite instructions—there are just too many of you, scattered in too many places. So if by any chance your JOURNAL is late in reaching you, check the envelope and advise us of any changes.

PEOPLE ABROAD are not only receiving their JOURNALS in good shape, but are using them more and more in training. Sub-caliber and other training devices are most in demand, and more dope on these will appear in the August issue.

Some members apparently don't realize how much this source of material will mean when they are out of close touch with the mainland, and ask that renewals be held up until they are "settled" and know where they'll be. Remember, APO numbers will bring the JOURNAL wherever you may go and evenings are long whether you are in the tropics or the land of the midnight sun.

CREDIT should be given where it is due. The *Cadre Tests* in the June issue, continued herein, were developed by the S-3 of the Fort Bragg Provisional Field Artillery Brigade, Major De Vere Armstrong, and his assistant, Captain S. K. Eaton.

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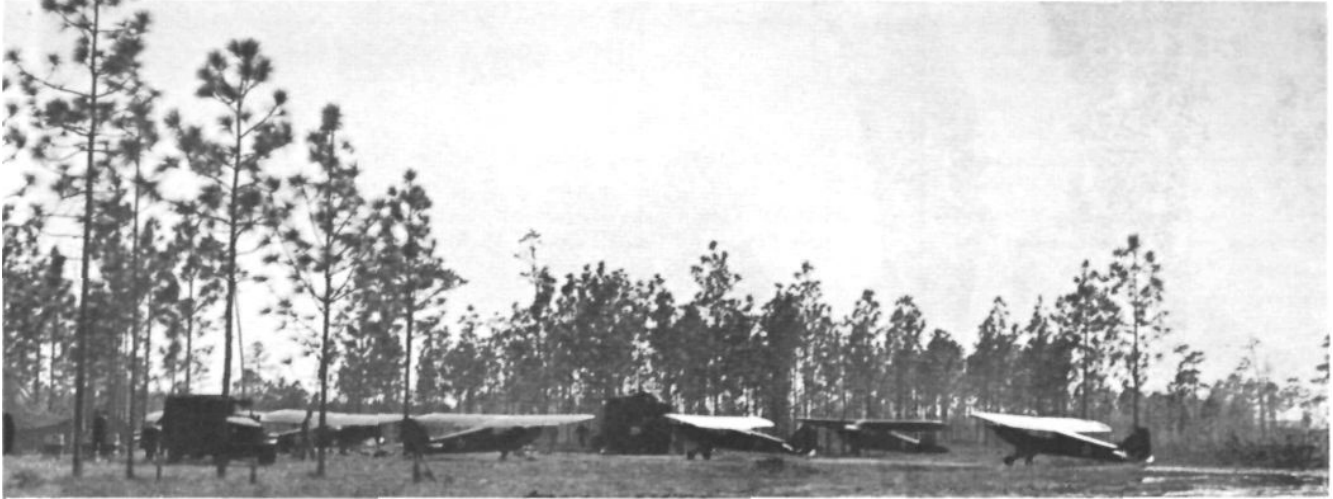
Major John E. Coleman

	PAGE
THE COVER ILLUSTRATION: "GRASSHOPPER" IN ACTION	
ORGANIC AIR OBSERVATION FOR FIELD ARTILLERY	498
<i>By Lieutenant Colonel Lowell M. Riley, FA, and</i> <i>Captain Angus Rutledge, FA</i>	
COMBAT TEAMS	502
<i>By Major Irwin A. Lex, FA</i>	
THE FIELD ARTILLERY BOARD	505
<i>By Lieutenant Colonel G. B. McReynolds, FA</i>	
SOVIET ARTILLERY FIRE	511
<i>By A. Karelsky</i>	
RUSSO-GERMAN WAR: PART II	512
<i>By Colonel Conrad H. Lanza</i>	
ROAD TO DUNKIRK: CHAPTER IV	523
<i>By Henri de la Falaise</i>	
A NOTE FOR THE EXECUTIVE	532
<i>By Captain Ulrich G. Gibbons</i>	
CADRE TEST—2	533
AWARDS OF FIELD ARTILLERY ASSOCIATION MEDALS	538
FIELD ARTILLERY IN THE ATTACK	539
<i>By Lieutenant W. R. Young, M.C., R.A.</i>	
SEVERSKY: "AIR POWER!" NICKERSON: "NOT ENOUGH!"	543
<i>By Hoffman Nickerson</i>	
PERIMETERS IN PARAGRAPHS	550
<i>By Colonel Conrad H. Lanza</i>	
THROUGH THE MILL: II	557
<i>By Lieutenant John Hughes, FA</i>	
SOLUTIONS TO CADRE TESTS	561
CAMOUFLAGE ON DISPLAY	563
DIARY OF WAR EVENTS	567
NOT IN THE BOOK	568
BOOK REVIEWS	569

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Organic Air Observation



FOR FIELD ARTILLERY

By Lieutenant Colonel Lowell M. Riley, FA

The six-week tests which have been conducted at Fort Bragg, Camp Blanding, and Fort Sam Houston with the light Piper Cub plane, L-57, have now been completed. The crews of these airplanes were trained at Fort Sill during February and March. Pilots were selected among commissioned and enlisted flyers who had civilian ratings and most of whom were already accomplished flyers of light planes. At the close of the training period the group was divided into two detachments, one of which was sent to Fort Sam Houston to conduct its tests with the artillery of the 2d Division, the other going to Fort Bragg to work with the 13th FA Brigade and carry on the tests with corps artillery. The writer had the good fortune to be present during the latter tests, which included three weeks of observation work at Fort Bragg, two weeks at Camp Blanding, and some work with marching organizations between Fort Bragg and Camp Blanding.

A new conception of the conduct of air observation for Field Artillery has been compelled by the increased threat of combat aviation against slower observation planes comparatively weak in fire power and subject to attack by enemy pursuit at almost any time. It is no

By Captain Angus Rutledge, FA

Perhaps the greatest single advance in recent field artillery history is now in rapid progress. The "Flying Jeep," the "Grasshopper Plane," the "Flying OP"—a low-powered Piper Cub—is supplanting Knob Hill, Signal Mountain, and Medicine Bluff as vantage points. Field artillery personnel fly the things, field artillerymen do the servicing, make the light repairs, do the observing, handle the whole shebang.

Orders activating the groups and assigning them to units followed shortly upon the completion of tests conducted at widely separated army posts.

Although the idea is not new to field artillery, it has had little official action until recently. Reports from observers and items from the European campaigns brought ORGANIC AIR OBSERVATION for field artillery to the fore. A few experiments were concluded by interested people both in and out of the service. Down at Arkansas State College a field artillery PMS&T arranged a little problem involving some of his ROTC officers who were also CAA pilots in the school. They used a battery of 75's, TD, with SCR-194's for communication, and successfully completed various problems.

On that same basis, field artillery officers and enlisted

Organic Air Observation for Field Artillery Is One of Our Most Vital Interests

VITAL MISSIONS WILL BE CARRIED OUT



By
Lieutenant
Colonel Riley

By
Captain
Rutledge

2 per light and medium Arty Bn; 2 per heavy Arty Hq normally assigned to Brigade; 2 per Div Arty Hq and Hq Btry or FA Brig Hq and Hq Btry.

longer possible for an observation plane to fly a circle above the target at 2,000 feet, or to fly the gun-target line for the periods which have hitherto been necessary to conduct an air observed problem during service practice. The only feasible method involves landing fields close to artillery positions, very brief periods in the air when enemy pursuit is not present, prompt return to improvised landing fields, and careful camouflage of planes to hide them from hostile combat aviation. All of the flying will have to be done over our own lines at low altitudes, probably not exceeding 600 feet, to make it difficult for hostile aviation to discover and shoot down planes which are observing for the artillery.

The brief time allowable for an observation mission makes necessary careful prearrangement between the air observer and the battalion or battery commander and a greatly reduced and simplified radio procedure, including check-in before the plane leaves the ground. In this new procedure, the airplane flies approximately 1,000 yards in rear of our front lines, somewhere over the gun positions, back and forth on a line perpendicular to the gun-target line. The War Department directive for the tests described such a procedure, and it is believed it will shortly be prescribed by a Training Manual on the subject.

personnel fly and observe, fly and maintain for their own units. Field artillerymen perform all 1st and 2d echelon maintenance just as with trucks. The Air Force takes over to perform duties for the "Flying Jeep" that the Quartermaster handles for major repairs on trucks.

The Air Force is also charged with training and providing pilots for field artillery planes, and obtaining planes for the pilots, who do not require combat training. Their job will be to take a low-power plane from an embryo flying field, remain aloft at not more than 600 feet for a few minutes, then duck for cover among the trees. Those men who fly for the artillery will have to depend on skill and good fortune for protection; there will be no armor, there is no armament.

In and out among the trees and hills, over friendly territory, if possible, while observing, away from enemy small arms fire, but always susceptible to fast enemy ships, every pilot is a handyman. He must know how to fly, of course, but that is not nearly enough. He helps with maintenance and repairs, does his own servicing, learns a little radio, has to shoot a picture occasionally. Even that is not enough, for there is camouflage to concern him. When he's in the air and hostile craft approach, like the prairie dog, he dives for a hole. On the ground he bumps along to a hiding place



BY

Lieutenant Colonel Riley

The tests were most successful. Approximately 100 missions were observed at Fort Bragg and Camp Blanding, which demonstrated an increasingly successful conduct of these missions due to the practice obtained and increasing improvement of procedure. The pilot-mechanics of these light airplanes demonstrated conclusively their ability to maintain and operate this type of plane successfully and regularly, often in spite of unfavorable weather conditions. Over 1,000 landings and take-offs were made, none of which were on improved flying fields except en route from Fort Bragg to Camp Blanding.

Improved and unimproved roads, and small fields which were often not entirely cleared, were used, in all cases from one to two miles from battalion positions with telephone connection between the airfield and gun positions.

On the march, the airplanes left at half-hour intervals, checked in with the radio cars of commanders of the marching troops, and the observers were able at all times to report to troop commanders up-to-the-minute information upon the state and progress of their columns. Furthermore, assuming air parity or advantage on our side they could have kept the column commander informed of any enemy threat over a wide area.

One of the experiments was the vertical and oblique photographing of target areas and the terrain inside the enemy lines, using an ordinary Signal Corps camera.

Some advantages clearly demonstrated by the tests were:

- a. The simplicity of operation and maintenance of the light planes used.
- b. The ability of field artillery personnel to operate these planes.
- c. The desirability of having these planes and their crews as a basic part of field artillery organizations.
- d. The possibility of dismantling these light planes, loading each on a 2½-ton truck, and thus transporting

Captain Rutledge

beneath the trees. It is part of his job to know how to hide his plane from enemy air eyes. He uses not only natural cover, but also camouflage paint, and will stretch a net if the problem necessitates it. Obviously, the machine guns of hostile planes will readily riddle the unarmored "Grasshopper." Its only hope is flight and hiding. This is being developed into a master art.

It's true, the pilot hides; but he cannot remain there. When there are problems to shoot, he must be out of his den and into the air.

It is there his value lies — his eyes are sights and directors for artillery, he is an artilleryman with wings. So long as there's light for seein' and targets for shootin', his job is to hit the air for every mission.

No longer will it always be like Bataan (where 21 successive forward observers were reported lost). When observation is needed the battalion commander sends

out an observer, not crawling through the vines with a jingling telephone in his grasp, but above the trees, like an eagle, searching for the enemy from a vantage point that cannot be easily improved.

With two planes per light or medium artillery battalion, there will be one pilot officer, one pilot enlisted man (staff sergeant) and one mechanic. Similarly Division Artillery HQ will get two planes and three pilots. Having a set-up like that should give the Division Artillery Commander almost unheard possibilities with which to work. Under no circumstances should he have to rely at any time solely on ground observation, maps, and ground reconnaissance. A few minutes in a plane will enable him to plan with a facility and design not heretofore approached.

The battalion commander does not have to be an airman to recognize the potent advantage his two planes will provide. They can reconnoiter his position, they can test his battalion for cover and camouflage. On the march into position a few minutes in the air will show much that is not apparent on the map. In actual combat



Base landing field. From the ground . . . nothing to see; from the air, only 'plane shadows



By Lieutenant Colonel Riley

By Captain Rutledge

them from place to place in case of need.

e. The pilot-mechanic principle; that is, having the man who flies the plane repair and service it himself.

The work of the pilots and mechanics of this detachment was admirable, indeed. They flew observing missions hour after hour from and over all sorts of difficult terrain, landing and taking off from difficult fields and roads. They are blessed with no flying pay, no parachutes (very little opportunity of using one at 600 feet), and never declined for any reason to fly a requested mission. They are in it for the love of the game and the satisfaction derived from a good job well done. They deserve great credit for their work.

reliable reports might be had regularly on the location and disposition of supported troops. Too, information concerning flank units might be had. These are not the avowed purposes of the "Flying Jeep"; however, they are latent possibilities that open to the field artillery great fields of almost unexplored opportunity. There is vast room for the innovation of methods, the conception of ideas, the individual experimentation that will make field artillery support more accurate, more reliable, more devastating.

Truly, the field is so new, so large, so undeveloped that it will be difficult for a time to appreciate fully the enormity of the advantages it offers the arm.

Satevepost Aqua-Blitzing

The principles of floating a vehicle across water by wrapping it in canvas, as expounded in the January issue of the JOURNAL, have received sensational corroboration from that automotive expert and salesman extraordinary, Alexander Botts, in the May 16th *Saturday Evening Post*.

Botts (now a captain in the army) credits the JOURNAL for the technique of successfully floating one of his famous Earthworm tractors across a bay, thus extricating the army, the navy and Captain Botts from probable disaster on an island base. "Several months ago," Captain Botts says, "I took part in some very interesting exercises at Fort Bragg, where we took vehicles of all kinds, even large trucks, wrapped them up in canvas, and floated them across lakes and streams. What they can do at Fort Bragg we can do right here."

Faithfully following the technique described by Lieutenant John B. Sweger in his article "Aqua-Blitzing," Botts pulls off his transportation coup. In his report to the president of the Earthworm Tractor Co., Botts concludes: "Note: Probably, Henderson, you and your conservative friends in Washington will be inclined to doubt this. If so, all you have to do is consult THE FIELD ARTILLERY JOURNAL for January, 1942, and you will find a handsomely illustrated article describing the whole procedure."

The JOURNAL congratulates Lieutenant Sweger for this recognition from a high quarter and shares a glow of pride. It would, however, add a word of caution to military readers of William Hazlett Upson's story: using a superior officer's tent as the tarpaulin is in most cases inadvisable.



Combat

By

Some of us, before 1917, had thought of having a team consisting of infantry and artillery where each, in combat, would be dependent upon the other. Most of us took the stand that we as artillerymen knew what, when, and where to fire without any advice from the infantry. I won't mention the "how"—it might be embarrassing. The result was infantry relying solely on infantry, and artillery only on artillery. Then came the war, instruction in the tactics of foreign armies, and the realization that most of us were not such hot artillerymen as we had thought. We lost our 20-yard clotheslines and BC rulers, and had to shoot behind some unknown hills. Perhaps the infantry will also admit discovering weaknesses. We then began to hear of the infantry-artillery team. We were taught that a certain amount of artillery would support a certain amount of infantry, that it was a "team" with each dependent upon the other for successful combat. To accomplish this we brought into being the liaison officer, who was to report to the supported infantry and in effect be the artillery advisor. It was a splendid set-up—so far as intent was concerned.

However, it was generally taken for granted that we had a "team" if we were firing over some infantry and if we had an artillery officer with that infantry unit. I think that in most cases the artillery commander sent to the infantry officers he would not miss. What those officers knew about artillery, infantry, or the Army in general did not matter. Instructions required him to send a liaison officer, so he complied by giving someone that title. The infantry commander received the liaison officer because he knew the detail was required by instructions, but it made little difference to some infantry commanders whether the liaison officer reported or not. It usually did not take long for the infantry commander to decide that the liaison officer knew nothing about infantry and little about artillery, and for the liaison officer to realize that the

infantry commander knew nothing about artillery and would rather not have him around except to complain to him about "short" artillery firing. To the artillery commanders, generally, it made no difference what either one thought. Each commander believed his own branch to be the superior. They were both branch-conscious.

We should not criticize the doubtful ability of these poor liaison officers, usually second lieutenants. It was not their fault. If the artillery commander who sent them forward had been sent on the same mission, it would seldom have made much difference. That condition prevailed through the war, but if the war had lasted longer perhaps it would have been corrected.

Then came a period of some 20-odd years during which we did little, if anything, to improve the relations (combat) between infantry and artillery. We often talked about the infantry-artillery team — but usually at the brass rail and then in the form of an experience story such as that of the infantry commander who did not know the difference between the fragments of a 155 and his own one-pounder. Likewise the infantry told about the dumb artillerymen who thought a barrage was to be in rear of the infantry to keep them moving forward. Many laughs were had over such stories, some true, some fabricated. Time had erased the fact that many of our troops needlessly laid down their lives because of such "teams." Plenty could have been accomplished in those years, but was not.

Then came the period of this present conflict and we began to speak more seriously of the infantry-artillery team. We have even "permitted" some of the other branches to join the team, and called it a "combat" team. That must be a hard pill for some infantrymen and some artillerymen to swallow. However, changing a title does not in itself make a better team. With a baseball team, for instance, the object is to have the members playing

Teams

Major Irwin A. Lex, FA

positions in which they can best perform—if the name were changed the object would still remain the same. There is more to the meaning of the word "team" than just so many units constituting it. Therefore calling it an infantry-artillery team, a combat team, or any other name means nothing so long as the composition and purpose are the same.

In a recent text we read that the term "combat team," in an infantry division, is usually applied to a task force consisting of a regiment of infantry, a battalion of light artillery, and essential units of other arms in suitable proportion. The intent of this article is to cover the team consisting of infantry - artillery, cavalry - artillery, armored units-artillery, so let us just use the term "team."

We learn that field artillery contributes to the action of the entire force through fire support, its principal mission being the support of infantry, cavalry, armored units; also, that the efficiency with which those fires are maneuvered is dependent upon, among other things, close liaison with the supported troops. Without proper liaison the team just does not function as such. Our tables provide for liaison officers, but how far does the artillery commander go in selecting them to perform this important duty? Does he give the same consideration to them as to his S-3 or other important members of his staff? It does not often appear so, although the liaison officer is his representative as an advisor on artillery matters. Isn't it probable that the commanders rely too much on their own personal contact? Is it not true that the planning of artillery fires for the supported unit through this command liaison often depends on time, and that when time cuts in on the planning the burden falls on the liaison officer? Does not the artillery commander fail to appreciate that the liaison officer's duties are very exacting and that proper coordination and cooperation of the team is often dependent upon him? Just as was done 20-odd years ago, artillery commanders are too frequently assigning the job of liaison officer to those they can most spare. The liaison officer should be a highly trained field artilleryman, not the inexperienced junior officer which he usually is. His many duties in addition to his dual responsibility to artillery and supported commander are rather convincing evidence that in combat he is at least as

important as a battery commander. He must be prepared to do not only everything required of a battery commander, but more. He must make more decisions than a battery commander and in many cases can't talk it over first with some other officer.

But if we were to convince artillery commanders that the liaison officer should be as good a field artilleryman as the best he would like on his staff, would that then make a perfect team? Far from it. What about the other part of the team—the supported unit? It is the supported unit commander who is responsible for the success of his attack, and having that responsibility should make the decisions as to the artillery fire which will best serve the mission. Can he make such decisions without knowing something about artillery fires? That is doubtful. If he is ignorant of them, the result depends upon how obstinate or how cooperative he may be. There are those in the "don't know" class who will insist on fires which are clearly improper to the artilleryman, and others who will let the artilleryman make the decisions. There are varied attitudes by supported commanders as to artillery fires, even including commanders who know their own branch from soup to nuts. It is a condition which is bad at its best. Let us take a team where we have for one part an experienced, darn good infantryman, cavalryman, or armored unit commander, and as the other part an experienced, darn good artillery commander who sends forward an experienced artilleryman as liaison officer. Do we then have the perfect team? I would say "no." I suppose I seem now to be rather fussy about this team, but don't we get pretty fussy about a fine point on our pencil to plot something or other?

What then makes the perfect team? Well, in addition to the supported commander's being good in his branch he should have a pretty good knowledge of the limitations and the capabilities of the artillery and its weapons. Likewise, the artillery commander and his liaison officer should have a similar knowledge of the supported arm and its weapons. Why? For one reason, it would be a check, each on the other. Rifles, machine guns, 37-mm.'s, and mortars of the supported unit are intended for certain purposes, just as are the 75-mm. and 105-mm. artillery weapons. They all have limitations. Some may here say that we have rifles, machine guns, 37-mm.'s in the artillery. True, but check and see how much you know about them, and compare the purposes for which we have them with the purposes for which they are issued to the supported arm. We learn that the fire of other supporting weapons is coordinated with that of the artillery, that the other weapons supplement the direct support artillery fire by taking under fire targets in the immediate front where artillery fire might endanger the supported troops, and targets, within range, on which artillery cannot be placed. Who makes the decision as to where the line will be drawn? Let us be reminded here that the artillery commander must comply with the requests of the supported commander to the

limit of his capabilities, subject only to the orders of higher authority.

A good supported commander will not unnecessarily use any of his weapons, principally to conserve ammunition (and a good artillery commander will not use his weapons unnecessarily, for the same reason). They both would realize that ammunition is not limited by the amount that can be fired, but by the amount which can be manufactured and then transported to the front. As a result of that, we as artillerymen don't care to fire on some target or mission which we know could and should be handled by the supported unit. The supported commander feels likewise. There are supported commanders who won't ask necessary assistance from the artillery because they believe it may embarrass them, and there are artillerymen who will give the supported commander anything he requests, just because they don't know where to draw the line. I wonder what sort of reading it would make if a book were published containing the various requests, arguments, orders, lack of requests, lack of orders, and resulting fires of the teams in even the most recent maneuvers. Would there be any red faces? When only one part of the team knows the other part in addition to his own, human nature dictates the course of taking advantage of the ignorant. When neither knows, then it is too bad. When both know, we arrive at proper solutions.

The knowledge of these commanders and the liaison officer should not only cover weapons, but include the limitations of movements, marches, forming for combat, formations for attack and defense, emplacing, displacing, etc. The question then arises as to how this knowledge can

be acquired. We send officers of mixed branches to staff schools to learn staff procedure, to communication schools, to chemical warfare schools, and others. Why can't artillery officers be detailed to supported arms schools, and supported arm officers to artillery schools, for special courses covering the necessary subjects? They could return to their units as do chemical warfare and other graduates, and pass on their knowledge through unit schools.

In even the lowest units the liaison officer should not be below the grade of captain. He would then have had more artillery experience; the supported commander will be inclined to pay more attention to him; a captain would be more inclined to offer suggestions to a higher ranking officer or, to put it in a less polite way, to kick to the supported commander in case of an unreasonable or unnecessary request.

There is much to be done to produce a team which really operates as intended. One big obstacle is our being branch-conscious, particularly artillery, infantry, and cavalry. One good way of overcoming that is in understanding each other's problems; those problems cannot be understood until we get down deep in the other fellow's confidence and we can't gain confidence until we leave our doors open to each other. To have a team there must be unity of effort, full cooperation, a high degree of coordination between units of the team. Let us not have a team which must go to higher authority to settle disputes. That tends to leave a bitter feeling. Let our team be one which, because of the knowledge of each other's limitations and capabilities and because of our mutual confidence, can work out its own problems.

Conditioning Commandos

"Battle culture" is the name applied to the new training program which is making every British soldier a Commando, teaching the co-ordinated use of head, hands and feet. The scheme is being tried on all British troops, and when a soldier has "graduated" he will be able to run cross-country for two miles in full battle-kit in sixteen minutes, sprint 200 yards and then score three out of five hits in 75 seconds in a firing test. This exercise will be followed by a ten mile "forced hike," to be completed within two hours.

Some other feats which must be accomplished during the new training course:

A soldier is expected to carry a man of his own weight 200 yards in two minutes—both wearing full battle-kit.

Starting in physical training kit—shirt and shorts—the soldier will have to complete a 100-yard "alarm" race by running 20 yards, stopping to don full battle dress, then sprinting the remaining 80 yards to a finish: all within 330 seconds of starting.

Soldiers are expected to be thoroughly trained for "unarmed combat," which includes the full knowledge of how best to use fists, knees, thumbs, etc., in personal hand-to-hand fighting. Included in this training is a thorough grounding in Judo.

One of the primary feats which must be mastered is diving into a swimming pool in full battle order from a height of 20 feet. Soldiers must keep their rifles up during the swim that follows.

There follow instructions in how to overcome unexpected obstacles. One mortar team has jumped a ditch 102 inches wide, scaled a six-foot wall, improvised and crossed a plank bridge, then crossed hurdles, trip-wires and wire fences. Such tests are more difficult for these men than for regular infantry troops since the barrel of the mortar alone weighs 70 pounds—and the tests become really hard work when they include scaling a 12-foot wall, or spanning a 20-foot chasm on a horizontal rope with the 70-pound barrel slung over a man's shoulder.

Notes on Some Random Activities of THE FIELD ARTILLERY BOARD

By Lieutenant-Colonel G. B. McReynolds, FA

GENERAL ORDERS NO. 60.
HQ. of the ARMY
ADJUTANT'S OFFICE
WASHINGTON, JUNE 25, 1902.



In addition to the organization of the school of application for cavalry and field artillery at Fort Riley, Kansas, as prescribed for the cavalry and light artillery school in paragraph 541 of the Regulations, the commanding officer of the battalion of field artillery and the captains of the batteries of the field artillery stationed at that post shall constitute a Board to be known as The Field Artillery Board, to which may be referred from time to time all subjects concerning the operations of artillery in the field upon which the Commanding General of the Army may desire its information and recommendations. The adjutant of the artillery sub-post will act as a recorder of the Board.

By command of Lieut. Gen. MILES:

H. C. Corbin,
Adjutant General,
Major General, U. S. Army.

This, then, is the origin of the Field Artillery Board, which has been testing, debating, conferring, concurring, concluding, and recommending off and on for forty years.

Present at the first meeting of the Field Artillery Board were Colonel George B. Rodney, President, Captain Granger Adams, Captain P. C. March, Captain William Lassiter, Captain W. J. Snow, and Captain P. R. Ward, Recorder. Several of these officers were heard from later; in fact, the membership of the Board during its first fifteen years reads very much like a roster of *Who's Who* in the Field Artillery. Snow became our first Chief of Field Artillery in 1917 and March was Chief of Staff, while Rodney and Lassiter were general officers.

In 1903 Wm. H. Coffin became president and C. H. McNeil recorder. George W. Gatchell joined in 1904, as well as J. C. H. Brooks and W. S. McNair, who was to be Chief of Artillery of the First Army in France. Tracy C. Dickson, Ordnance Department (later Chief of Ordnance) is the first name found in the records of any member from that service, although the allotment of one Ordnance officer is now established by regulation.

In 1905 S. W. Taylor became president, J. E. McMahon became a member, and R. M. Danford, destined to be the

last Chief of Field Artillery, was recorder. Later that year we find the signature of Wm. J. Snow as recorder. In 1906 Eli D. Hoyle became president while Ernest Hinds, Chief of Artillery in France, and T. Bentley Mott joined as new members. By this time Snow, Brooks, and Gatchell had left. In 1909 Granger Adams became president and William I. Westervelt, then a captain in the Ordnance Department, was assigned to duty as Ordnance member. After the first World War Westervelt was president of the so-called "Caliber Board" whose conclusions and recommendations governed the development of our field artillery for over twenty years.

On January 19, 1911, a Mountain Artillery Board was appointed under the presidency of Alexander B. Dyer, with station at Fort D. A. Russell, Wyoming. To quote the original orders, "This Board will constitute a sub-board of the field artillery board at Fort Riley, Kansas, and will consider such mountain artillery questions as may be referred to it either by the field artillery board or by the War Department." The functions and records of the Mountain Artillery Board were later absorbed by the Field Artillery Board.

In 1911 Edward T. Brown, president of the Field Artillery Board, was retired on his own application after more than forty-two years' service; he was succeeded by Edward A. Millar.

On October 11, 1912, Captain Frederick B. Hennessy, 3d Field Artillery, and Second Lieutenants Henry H. Arnold (who now commands the Air Forces) and Thomas D. Milling were ordered to report to the President of the Field Artillery Board for temporary duty for the purpose of taking part in "The proposed tests of a system of observing field artillery fire from aeroplanes." It is interesting to note that thirty years later we are still just about as far along in this interesting

The 40th anniversary of the Field Artillery Board, June 25, 1942, prompted a present member to outline its past. The sketches authentically portray its inner workings, having been made by Brigadier General S. LeRoy Irwin while he served as a member.

and novel method of increasing the effectiveness of artillery fire.

In 1913 the Field Artillery Board was transferred to Fort Sill, Oklahoma, where the School of Fire had been established in 1911. At this time Granger Adams was President, while Ernest Hinds, Edward F. McGlachlin, and Ralph McT. Pennell (who was to be president of the Board in later years) were members.

In 1914 Augustine McIntyre, another future Board president, joined as a member, as did Fox Conner, D. W. Hand, and Dan T. Moore, the father of the artillery school at Sill. In 1915 Edward T. Donnelly and Kenneth S. Perkins also became members. In the spring of 1915 we find the name of William Bryden, who became Secretary of the Field Artillery School and ex-officio Secretary of the Field Artillery Board. In the fall of 1915 Albert J. Bowley and Harry G. Bishop, a future Chief of Field Artillery, were designated temporary members of the Board in connection with a revision of the Field Artillery drill regulations.

In 1916 the Field Artillery Board melted away like footprints in the snow, when the army was mobilized on the Mexican border. Its obituary was recorded in the following letter:

Field Artillery Board
Fort Sill, Oklahoma
July 15, 1916

From: Officer in Charge of Office
To: The Adjutant General of the Army
Subject: Inactivity of Field Artillery Board

1. Reference Section II, Paragraph 2, G.O. 53, W.D., 1915, the Field Artillery Board has essentially ceased to exist owing to the departure from Fort Sill of all Field Artillery units and of the entire commissioned personnel of the School of Fire.

2. Unless otherwise instructed all communications requiring action of the Field Artillery Board will be placed on file pending the organization of a new board upon the return of the necessary personnel to Fort Sill.

R. H. Kelly,
1st Lieutenant, 4th Infantry.

The Board was reconstituted in 1919, with a membership consisting of Augustine McIntyre, Dennie H. Currie, Donald C. Cubbison, and Thomas D. Osborne, and Charles J. Brown as Ordnance member. In July, 1922, the Field Artillery Board moved to Fort Bragg.

At the first meeting of the Board in 1902, it was recommended after due deliberation that all batteries of light artillery be supplied with Model 1898 Telescope Sights for the reason that the 1897 Model was useless in high angle firing. However, this recommendation went the way that so many future recommendations were destined to follow. By 8th Indorsement, Office Chief of Ordnance, it was

"respectfully returned to the Honorable the Secretary of War with the information that the Ordnance Department has now in service 150 of Model 1897 sights. These sights cost \$140 each. The Department is unable to replace these sights at present by those of Model 1898 on account of the lack of funds, as it is evident that a very large amount of money is involved. If the sights of the '97 model are replaced by those of the '98 model for one battery, it will be necessary to replace the former in all cases by the latter, which the Department is not at present prepared to do for the reasons stated. The Department is also unable, on account of lack of funds, to supply one

of these sights for each gun of the battery. It is contemplated to endeavor to change the model '97 sights to those of the '98; and if this can be done at a reasonable cost, the model '97 sights will be called in as fast as funds are available and replaced by the model '98, but this cannot be done until the Department has the funds at its disposal for the purpose. (Signed) William Crozier, Brigadier General, Chief of Ordnance."

At a meeting of the Field Artillery Board on September 10, 1902, a letter from Captain T. Bentley Mott, then (as later) our Military Attache in Paris, was considered. Its subject: "Harnessing the Field Artillery team with five horses and abolishing the Postilion Drivers." This revolutionary proposal was supported by a great deal of rhetoric as well as some interesting military logic. It is not amiss today, when we find ourselves involved in a great war and our tactics, technique, and materiel in a state of considerable flux, to quote part of Captain Mott's letter:

"The objections based upon sentiment, conservatism, and fear of change ought not to weigh with Americans. The French have cut loose from many a tradition in their new artillery, with the result that it is the only country today ready to go to War with a perfectly up-to-date field artillery, and all other countries are seeking to get results which France has already accomplished. We ourselves are experimenting with several systems of field artillery in the effort to get a model which will give the polygon results already shown by the French gun; this object is avowed: if something better than we have exists, we must have it. Nothing can be better than this spirit but it should not stop here. The method of laying and the method of getting into action and the method of supplying ammunition made possible and advisable by the new gun, and which constitute a great factor in its battlefield efficiency, should be adopted along with the new system or else something better devised. If our new gun comes up to the standard set by the French way, we should be pleased but not satisfied. If the Field Artillery is moving fast from type to type and improving results come on each year, the artillery is justified for taking audacity for its watchword rather than conservatism.

"After these centuries of our field artillery driven by postilion drivers, it is hard to get used to any other idea but if the changes of the last five years have made possible any improvement and economy in the method of moving Field Artillery, it seems worth a trial. Especially is this true for us now upon the eve of adopting a new field artillery for our army and when a new way of moving that artillery can be experimented with and adopted without additional trouble or expense."

On December 16, 1902, the Board considered the perennial subject of time fuzees which "have acted very irregularly." The recommendation "that the fuze scale be marked at the actual time of operation of the fuze and there be no zero on the scale unless the fuze will burst at zero" was approved by the Board on that date. It is significant to compare this recommendation with the Report of Test O-11-J, dated March 30, 1942, of an Experimental Mechanical Time Fuze, wherein the Board recommended "c. A minimum time of fuze functioning of not less than 1 sec. should be provided," and "d. If practicable, the time setting should more closely approximate the time of fuze action."

On the same date, the Board "heartily" concurred in the recommendation that to each battalion of field artillery there should be attached, for administrative duties, one staff officer not assigned to any battery.

On August 8, 1903, the Board had for consideration a subject which, in its ramifications and complications, is

still the source of almost daily correspondence. It is the first time in the records of the Field Artillery Board that any consideration has been given to "uniforms, arms, and equipment of Field Artillery." The first table of basic allowances drawn up by the Board covered only one page in longhand, but this paper made recommendations of considerable moment. To quote:

"1st. That the saber be worn by officers on occasions of ceremony and official social functions only. That the pistol be the habitual side arm of the officer on other duties under arms.

"2nd. That the saber be discarded for enlisted men.

"3rd. That knapsacks for the clothing kit and haversacks for the mess kit and rations be used by artillery drivers instead of saddlebags.

"4th. That two artillery store wagons of suitable design be allotted as an integral part of each field battery for the purpose of carrying the knapsacks of the men."

Under date of September 20, 1903, Major William E. Birkhimer, Artillery Instructor of the Department of California, wrote the Board on the subject of range finders:

"Would it not be well to make it a great point with Field Artillery to train the personnel, especially the officers and selected enlisted men, to measure distances accurately by eye, instead of depending upon a range finder? If they become competent in this, it greatly increases the battery's efficiency. Allowed time now taken up, from five to ten minutes on average ground, in obtaining a few guesses as to the distance of the enemy is eliminated, or, rather, employed in pouring projectiles upon him; and, with our prospective, or even present, guns, this may and probably would have much influence on the contest."

This may well have been the last word upon the subject of range finders; but, unfortunately, it was not, as the voluminous archives of the Board can testify.

On February 8, 1904, the Chief of Artillery referred to the Board the question of the advisability of establishing a riding school at Fort Monroe, Virginia, for instruction of student officers at the artillery school in equitation and horsemanship. This met luke-warm reception at Fort Riley, the Home of the Horse:

"The Board is of the opinion that such a school is not desirable for the reason that the kind of expert horsemanship described is not a necessary accomplishment to an officer serving with a field battery and much less so to one serving with the Coast Artillery.

"The Board is therefore of the opinion, and so recommends, that efforts be directed toward securing better facilities, such as riding halls, for developing horsemanship at posts where a number of artillery officers are engaged solely in mounted work, since a greater improvement in officers specially selected as suitable for mounted service is deemed more desirable than an attempt to improve the horsemanship of the artillery as a whole."

In March, 1904, Colonel William M. Wallace, 15th Cavalry, raised a sore subject with the Board. It seems that for many years after the Civil War the personnel of field batteries were relieved from the guard and fatigue of a post

where a mixed garrison could provide troops of other arms for these disagreeable duties. Colonel Wallace wrote: "It is understood that this regulation originated with the introduction of Light Batteries into the Regular Service after the close of the Civil War and had for its object the perfection of this infant arm in drill of both horses and men. This necessity having been removed, the question presented to other troops serving with these organizations is, on what grounds are these troops exempted from the necessary guard, fatigue, and police of the Post?"

"At the post of Fort Myer, the duties required of the Cavalry and Artillery are equal, except that the cavalrymen guard the whole post, the prisoners of all organizations, and perform all the police and fatigue duty while the artillery furnish only a stable guard for their horses and guns."

It seems that some of Colonel Wallace's remarks were fighting words to the Board. Their indorsement to the Chief of Artillery included the following:

"The Field Artillery was not, at the close of the Civil War, an infant arm, but one which had been under development since the introduction of gun powder. Indeed, cannon were used before small arms.

"Cavalry and Infantry officers devote their whole service to their special branch. To require the Field Artillery officer to perform the duties of Post Officer of the Day would take him away from the battery two days every tour. To require him to perform staff duties would take him away almost altogether.

"When a cavalryman is absent from drill his horse and equipment are left behind. When an artillery driver is left behind his team must be taken by another man and his equipment goes out. To be efficient, a battery's equipment must at all times be systematically supervised. This supervision can be accomplished only by the definite division of responsibility and

the continual presence of the individuals immediately responsible.

"If a battery should furnish its quota of the Post Guard it would remove from the battery at one time, not only the quota actually on guard but also the quota on old guard fatigue and for four hours after marching off guard, a third quota.

"It has been the personal experience of members of the Board that when the experiment of having a field battery perform post guard duty has been tried, the battery has been so seriously crippled by a shortage of men as to absolutely preclude the drilling and maneuvering of the battery as a fighting unit."

To those in the Field Artillery today who are veterans of the long post-war years of attrition, who saw batteries go to drill day after day with one or two gun sections at the most, and who exercised their animals on a roving picket line behind a caisson, the above comments will have a familiar ring indeed.

In April, 1904, the serious question of trimming the manes and tails of public animals, as required by the provisions of GO 112, AGO, Washington, 1903, was thoroughly ventilated. The Board decided to recommend no change in the regulation, being at that time under the impression that it could be liberally interpreted



"Yes—and no!"

by post and station commanders so as to allow for all special conditions of weather and duty.

In August, 1904, a milestone was passed in the history of the Board. An "Adjustable Horse Collar for Artillery Harness," invented by Lt. Klima of the Austria-Hungarian Army, was referred to the Board for test and never reached Fort Riley. All batteries at the post were searched in case this piece of harness might have been inadvertently issued and put into service. Since 1904, the Board has been continually forced to search Ordnance and Quartermaster warehouses and conduct lengthy correspondence concerning the many items of equipment prescribed for test but lost, strayed, or stolen between the factory and the Board.

A second milestone was reached on January 6, 1905, when a civilian attempted (without the solicitation of the Board) to introduce the greatest step forward since the invention of gun powder, and overcome the resistance of the traditionally hidebound and reactionary military mind. This gentleman wrote:

"I wish to introduce into the United States Artillery a device for quick-release of the horse for getting ready for battle. My device consists of a single-tree simple in construction also cheap to manufacture which will save 4 5 of the time for getting ready for the first shot.

"Also when in battle and a stampede should happen the horses can be released instantly and guns as the men are safe and if pressed by the enemy able for defense."

It is unfortunately necessary to report that this ingenious device met the fate of so many of its successors, and was turned down cold by our body of military scientists.

The year 1905 brought several tests of experimental curb chains, hinged bits, trace support straps, and automatic pole supports. In October a horse brush designed to replace the old currycomb was submitted for test, but the currycomb was destined to survive two more wars.

On March 15, 1906, the Board adopted the method of transacting business that was to last for over 35 years. It was decided that in the usual case of matters referred to the Board for action, the president would assign the subject to a particular member for study and report, and after the study had been prepared the full Board would meet for discussion and decision in regard to the same. It is not unusual, in fact, for a member's brain child to be so mutilated by the Board that its father is unwilling to acknowledge paternity.

On July 4, 1906, the Board drew up for the Chief of Artillery specifications for the purchase of horses for light

and horse batteries, and thereby made the military characteristics of the artillery horse a matter of official record. Later in the month a portable searchlight for field artillery was considered, although our anti-aircraft opposite number had not at that time been contemplated. On December 4 of the same year, the Chief of Artillery directed the "Field Artillery Board to submit a weekly tabular report of correspondence received for consideration and a statement showing progress made or the steps being taken to accomplish the purpose desired of the Board." These reports later became a monthly instead of weekly matter and are issued today.

On December 13, 1906, another milestone was passed: the observation ladder appeared for the first time on the records of the Board, and the project is still active in 1942.

In January, 1907, the proposal of J. Liebes and Co. for "Indication of Position of Target by Flashes" was undertaken. This is the first mention in the records of flash and sound ranging. In June the Board was directed to submit suggestions for a poster depicting the attractive features of the Field Artillery for the Recruiting Service.

On January 6, 1908, a new type horse collar was tested; it was manufactured by the "Humane Horse Collar Company," but unfortunately no record remains of the humanitarian features of this device.

In August of the same year two sample chests for carrying miscellaneous spare parts pertaining to field batteries were received and tested. As the equipment of the Field Artillery has been modified and improved throughout the years, the question of spare parts chests has remained an active project and will never be settled.

In 1909 the "Get-All" nose bags were submitted to the Board for test, as well as an experimental adjustable hameless horse collar and a new military artillery whip. In June of that year the Board wrote to the Adjutant General of the Army "requesting consideration of the War Department of the necessity for the detail of a suitable officer of the Field Artillery as recorder of the Field Artillery Board, who shall not be available for other duty." This correspondence is presumably as yet unanswered, as no record has been found of it later.

In September, 1909, the Field Artillery submitted a report entitled "The Suitability of Mares for Field Service as Determined by Experience" (with 44 inclosures), and in October of that year a new type of nose bag known as the "Perfection," manufactured by the Perfection Feed Bag Company, was tested.



"My baby???"

In March, 1910, a "Device for Determining the Contour of Horses' Backs" was tested and reported on, but, unfortunately, there is no copy of the report in the files. In October the question was raised "as to whether it will be satisfactory to increase the scale of graduation and whether a maximum range of 7,500 yards will be sufficient in changing instruments to adapt them for use with materiel other than 3 inch."

In December, 1911, the Board was directed to "initiate and try out a system of communication between the different units of field artillery in position and the advanced infantry. * * * Also to devise and recommend a system of efficient signalling." It should be unnecessary to add that this project is still active in 1942, although 30 years ago the word "liaison" had not been heard outside the French bedroom drama.

In May, 1912, a paper was submitted with this unusual subject, "Difference in opinion of Field Artillery Board and School of Fire as to certain Field Artillery materiel; and need of a single body whose recommendations may be accepted as definitely representing the Field Artillery." This need was to be met five years later when the Office of the Chief of Field Artillery was organized under General Snow, which fostered the development of our Arm for the ensuing 25 years.

In June, 1912, the first of many papers on the observation and adjustment of Field Artillery fire from the air was prepared, the subject being "information as to number of preconcerted signals which will probably be required from the aeroplane, observing the fall of artillery shells," and on September 27, 1912, we find a report of "Test of Aeroplane in Observation of Artillery Fire."

In February, 1914, two new subjects make their appearance in the records of the Board: the automatic rifle and the motorcycle. In December, 1914, the Board was harassed by a paper on the method of wearing the magazine pocket and first aid packet for officers and enlisted men armed with the pistol. It is amusing to remark here that this subject was raised again in 1941, when it found the Board too busy for its consideration.

In March, 1915, the Board requested information concerning a "Double-Ended Jeffery Quad designed for the United States Army." This is the first record, except for an earlier consideration of motorcycles, of any automotive paper considered by the Board; and later the same month appears an experimental test of motors with heavy Field Artillery.

In July, 1915, as a result of the war then raging in France, an "Inhaler and Respirator for Protection Against Smoke and Poisonous Gases" was tested by the Board, which is the first record of any article of chemical warfare as far as our Arm is concerned.

On January 28, 1916, another milestone was passed with the Board's receipt of a test project for carrying machine guns on the caissons of our standard 3-inch materiel, the first example of any means to protect a column on the march from attack by low-flying aircraft.

With the reorganization of the Board in 1919 at Fort Sill, we find tests involving horse equipment in the great minority; in fact, only two out of 38 projects undertaken by the Board during the first eight months of its reincarnation involved animal equipment. During this period, however, two projects appeared for the first time which were to crop up continually from then on; cannon mounted on self-propelled motor carriages (December, 1919), and the first of a long series of mechanical devices for determining weather corrections of firing data. In December, 1919, we also find an investigation of adjustment by high burst ranging, which was to continue active for many years.

In February, 1920, the Board submitted an "emphatically unfavorable" report on self-propelled gun mounts, but this report was not destined to kill the cat which has been coming to life ever since and is a very important development project at the present time.

During the early months of 1921 the proposed test of a GPF gun on a self-propelled mount was carried as an active project, although the gun itself never reached Fort Sill, but it was cancelled three months later, remained dormant for some years. At the same time a test project was assigned for the German 105-mm. howitzer; this was finally suspended a year later pending re-chambering of the specimen howitzers available and manufacture of special ammunition for the test. In 1922, however, we find for the first time two pilot models of the American 105-mm. howitzer submitted for test as a divisional weapon, one with a box trail carriage and the other with split trail. This development was destined to be carried on for almost 20 years, and resulted in the M2 which is at last in the hands of troops in quantity.

In September, 1922, the progress report of the Board showed only nine active test projects, but early in 1933 this increased to 31, of which only one pertained to animal equipment. We find during the 1920's a constantly increasing number of tests involving automotive vehicles, equipment, accessories, and modifications.

In 1924 a study of the effect of fire was undertaken on a specially constructed effect field at Fort Bragg, a continuing project until the present emergency made it necessary to suspend further investigation. In 1924 we find for the first time an investigation of artillery firing by means of aerial photographs.

In 1925 over 20% of the numbered test projects assigned the Board by the Chief of Field Artillery involved



tests of tractors or tractor equipment, and in 1927 we find motors eventually meeting horses full-circle in a test of the transportation of animals in trucks. In 1928 a throat microphone was first tested, and while this equipment is still a novelty it is destined to become a military commonplace.

In 1929 occurred the first test of mechanical time fuzes, an Ordnance development project ever since; 1929 also brings to light a test of "non-slip rubber horseshoe material." This is a far cry from 1942, when we are putting tractors back on steel tracks to conserve rubber. In 1930 a radio and command post wagon was tested and disapproved, but this was only the first of a long development of mobile command post projects which is still active today.

In 1939 the Board conducted a comparative test of aluminum and glass syrup pitchers which resulted in standardization of an aluminum syrup pitcher which reached the mess hall tables shortly before aluminum became a severely rationed material.

A recent progress report of the Board shows 53 active projects, assigned to 10 members. Of these, 18 comprise Ordnance material, of which four were new or experimental cannon: the 4.5" gun, the 155-mm. howitzer M1, the 240-mm. howitzer high-speeded on pneumatic tires, and the 3" antitank gun on a standard 105-mm. carriage—which last has since been dropped as a development project. The remaining 14 were divided among Ordnance (as contrasted to Quartermaster) automotive tests, fire control equipment, spare parts and accessories, and one test involving Ordnance materiel for cavalry divisions.

Quartermaster equipment accounted for 16 active projects, of which five were automotive and two involved horse equipment. Of the remainder, the majority consisted of clothing and equipage: sleeping bags, service shoes, raincoats, rubber boots, and shelter-halves.

Seven of the active projects comprised Signal equipment, of which only two were concerned with radio. One of the remainder was a test of the Triangle Method of sound ranging, only the last of many items of flash-and-sound development and equipment which have been active before the Board during the last 23 years.

The Chemical Warfare Service accounted for one test project and the Engineer Corps for two; the remainder were miscellaneous studies, many of them originating with the Board, involving such diverse items as driving goggles, methods of bore-sighting, and the marking of motor vehicles.

In 1934, the Field Artillery Board moved into its present quarters, a handsome two-story brick building built for it at Fort Bragg. In the basement there are store rooms and a vault, and also an electrical laboratory where Signal Corps equipment is rebuilt amid the howl of megacycles. On the first floor are offices for the clerical staff, test officers, and the President of the Board, as well as a file room; while on the second floor are a photographic laboratory and sound-proof cells for the more violent members; across one end of the building is the library which serves as a board meeting room and museum. This building should be a shrine of pilgrimage for all field artillerymen who pass through Bragg.

The Board has at its disposal the vast range areas of the Fort Bragg reservation, as well as its own effect-of-fire field, with a heavily protected bomb-proof shelter for observation of projectiles at close range.

Until the war, the Board could take advantage of the large local artillery garrison, which included all calibers from 75-mm. to 240-mm. howitzers in its armament. Since tactical organizations are now subject to sudden movement orders, it was considered advisable in February of this year to organize a test battery at the exclusive disposition of the Board. Battery K, 18th FA, has commendably fulfilled the difficult training mission of excelling in the firing of all types of cannon, as well as in the operation of standard and experimental communication and survey equipment.

It has been the policy of the Field Artillery to separate the Board and the School, in order to free the latter for its primary mission of instruction. With the reorganization of the War Department the Board found itself operating under the Requirements Division of the Ground Forces. To it are still referred questions of field artillery policy and technique, as well as tables of allowances and organization, and items of equipment and materiel. The liaison with other service boards is closer than ever before, and every important test brings representatives of the interested arms together.

While each report is usually prepared by the specific member designated in charge of the project, every effort is made on the part of the entire membership to attend the important phases of each test. When the report is written up, a draft copy is prepared for each member, and the committee of the whole sweats it out round by round. With its membership refreshed from year to year by the detail of new members from troops, the Board remains today a vital artery in the development of our Arm.



The crew of this Russian divisional howitzer scorns the use of loading trays. Boots are standard footwear. Note the data chalked on gun-shield. (Sovfoto)

Formerly, artillery crushed the enemy firing positions on the front line defenses before the tanks and infantry went into attack, and subsequently transferred its fire deeper, accompanying the troops with a wave of fire or rolling barrage. A thousand shells were uniformly distributed over an extensive area. Certain stretches remained untouched, while points of resistance in them often temporarily reduced their activity so as to meet the attacking forces with fire. Enemy infantry hugged the ground until the curtain of artillery fire passed by, then raised their heads and entered the fight again. Thus the power and maneuvering ability of the artillery fire was not used to full advantage. Repeatedly infantry and tanks had to clear their way. This temporarily delayed the advance and during the penetration the attacker was weakened at the precise moment when tremendous effort was demanded from riflemen and tankers for the destruction of new centers of resistance constantly being discovered.

Things are entirely different at the present time. Germans who are dislodged are endeavoring to entrench themselves on every tactically advantageous boundary. They are creating strong support centers with an extensively developed network of fortifications and barriers of various kinds with a complex firing system at inhabited places and commanding elevations. To enable infantry and tanks to

Soviet Artillery Fire

By A. Karelsky

seize these centers it is necessary to have sure destruction of positions (earthworks, dugouts, and trenches) with their garrisons. This responsible job is done by the artillery. The attack is therefore opened by artillery, wherein lie the essentials and the basic principles of artillery attack.

The initial principle is to concentrate artillery in a decisive direction. The distribution of units (divisions and batteries) is not governed by the artillery at the enemy's disposal nor by the length of the front, but by the conception of the force commander. The main artillery forces are grouped where the principal thrust is aimed. Should the enemy attempt to parry the thrust, powerful massed artillery fire obliges him to relinquish the idea.

The second thing required from artillery is the conducting of unintermittent fire throughout the depths of the defenses, and while the battle lasts neutralizing well-reconnoitered objectives. Merely to open hurricane fire will not suffice. All the more important points of resistance must be destroyed. Enemy man power and materiel must be wiped out, not merely crushed. Unceasing fire is achieved by the artilleryman through "labor distribution" and careful timing of the troops ahead. Battalion and regimental artillery closely accompanies the infantry with fire until success is achieved. The principal method is open-sight firing (direct laying) from exposed positions, and if during the attack something bars the advance of infantry or tanks fire is directed at the barriers. If as the battle develops new objectives appear they are immediately fired upon. Heavier batteries insure the concentration of infantry and tanks at their starting points previous to the attack, then direct their fire (usually from concealed positions) on important targets. Their particular use is to concentrate fire on massed enemy troops, reserves, and artillery, and to destroy strong fortifications. Their fire is continuous, and while some units change positions others cover them with their fire. Sometimes strong fortifications blocking the infantry advance require rapid destruction; then heavy howitzers are also placed in open positions, as their shells are warranted to destroy enemy fortifications of any strength.

The third basic element of the artillery attack is the close inter-action between infantry, tanks, and artillery. The ground troops fight the enemy to the accompaniment of artillery and the roar of shells bursting above. This means that the infantry and tank commander should coordinate his plan with the artillery commander and assist him to locate targets. It is essential to seize the objective immediately, when the artillery ceases firing upon it and transfers to another target.

RUSSO-GERMAN WAR

PART II

By Colonel Conrad H. Lanza

SECOND PHASE OF THE WAR—SMOLENSK AND UMAN

Stalin decided that as things were not going well, a reorganization of the High Command was necessary. He assumed that the enemy's objectives were to seize Leningrad, Moscow, and Kiev, with the Ukraine. To prevent these he constituted three commands, viz.:

Northwest Group of Armies under Marshal Klementy E. Voroshilov, to cover Leningrad with 5 armies.

Center Group of Armies under Marshal Semyon K. Timoschenko, who was the cavalry leader who almost reached Warsaw in the war of 1920. His mission now was to cover Moscow with 7 armies.

South Group of Armies under Marshal Semyon Budenny, who had led the Russians at the end of the recent war with Finland. His mission was to protect the Ukraine, including Kiev, with 5 armies.

The German High Command decided to advance eastward. The large number of infantry divisions near Bialystok were to proceed by marching, covered by the Panzer armies already on the Dnepr. Elsewhere the advance was to continue. The objectives were the enemy's troops, wherever these might be found.

11 JULY

The North Group continued its advance into Estonia, meeting considerable resistance from Russian forces in improvised positions. The attack on Polotsk was continued.

Panzer armies of the Central Group, assured that the infantry divisions were to come up in the rear, started forward. They attacked Vitebsk, crossed the Dnepr in the intervals on both sides of the strong point at Mogilev and advanced on Smolensk. They were supported by the air fleet, who located the enemy, advised how to advance without opposition, and warned when the enemy was about to be met. The air force bombed Smolensk, paying particular attention to railroads, CP's, depots, and similar objectives.

12 JULY

The 18th German Army arrived in the vicinity of Dorpat. It was meeting with considerable resistance from troops in prepared field positions.

Panzer troops who had pierced the Stalin Line in the intervals and who were independent of supply lines, which were blocked by the strong points held by Russians, pushed right on towards Smolensk. In the south other



Panzer troops, who had similarly pierced the enemy's main line of resistance, marched on Kiev, fighting local battles.

13 JULY

German troops arrived before Rogachev and Zhlobin, strong points of the Stalin Line on the Dnepr. Panzers were approaching Smolensk.

14 JULY

Panzer troops from the North Group of Armies, bypassing Pskov and Porkhov, arrived at Novgorod.

Panzers of the South Group of Armies were just outside Kiev. Some doubled back to attack the rear of the enemy holding the Stalin Line. The whole of the Line was now invested, and except for the loss of Dvinsk was intact. It blocked all regular lines of communication, but had been pierced in the north, center, and south by armored troops now roughly on the line Novgorod (inc.)—Smolensk (exc.)—Kiev (exc.). The Stalin line had lost its own line of supply, and was being attacked from both front and rear in a series of detached sieges around the several strong points.

16 JULY

The Germans pushed their attack on Pskov. They detached troops to oppose a rescuing force which, coming around Porkhov, advanced towards Ostrov. Polotsk was taken. With Dvinsk already in German hands, lines of communication to the northeast were thereby cleared.

Panzer troops arrived at Smolensk. The Russians destroyed bridges, and as the Dnepr was not fordable, armored vehicles were stopped. Troops dismounted, fought their way into Smolensk. The Russians threw every unit they had into one counterattack after another, and chased the Germans out.

17 JULY

German engineers during the night constructed a tank bridge near Smolensk, and some troops crossed right away. At 3:00 AM a lieutenant with a platoon of tanks arrived at the outskirts of Smolensk. He got into the city and to the north end of a bridge which was demolished

but appeared to be not too badly damaged to be reopened to traffic. German troops poured into the city around 10 o'clock, and this time held it.

The German 16th Army, having taken Polotsk, advanced northeast and attacked a Russian rescuing force assembled near Nevel.

The Center Group in a strong assault took Orsha, thereby opening the line of communications to the Panzer troops far ahead near Smolensk. German infantry divisions, since the opening of this period on July 11, were moving east in prodigious marches of about 40 miles a day, and were approaching Orsha, which had to be opened for them if they were to support the two Panzer armies. This mission was now accomplished, and German engineers constructed or repaired the necessary bridges for the infantry to cross the Dnepr without loss of time and advance on both banks.

18 JULY

Some of the Panzer troops which had taken Novgorod doubled back and attacked the rear of the enemy holding the line Pskov—Porkhov at the same time a frontal attack was launched.

19 JULY

In the extreme south the Rumanians, not equipped with Panzers, had made a conventional advance across Bessarabia and now made several crossings of the Dnestr River.

20 JULY

German infantry divisions were approaching Smolensk. They had come from the Bialystok area, having made in 9 days a remarkable march of about 360 road miles. This march went on day and night over every available road, divisions leap-frogging those at rest, regardless of the hour, for the urgency was such that some had to rest by day.

The north Russian force, scattered from Nevel to near Smolensk, attacked to the southwest, while a south Russian force attacked north from the general line Mogilev (inclusive)—Pochinck, south of Smolensk.

A tremendous battle developed. The arriving German infantry divisions went on right, and on left, into line from the Orsha-Smolensk road, driving the Russians away from their line of communications. The German 16th Army in the north attacked southeast from the vicinity of Nevel, while opposing others of their troops to an advance of the enemy south of that place.

21 JULY

The great battle around the Smolensk salient continued. More German divisions arrived, and as fast as they came up they were thrown into the battle. A part of the Panzers who had broken through east of Smolensk circled and attacked the Russians from the rear. The Germans near Nevel advanced southeast.

In the south Novograd-Volynski was about surrounded; fighting was hard.

22 JULY

Finn armies cut the Murmansk Railroad by seizing and holding Petrozavodsk.

23 JULY

The Russians on both sides of the Smolensk salient attacked everywhere. Notwithstanding all attempts to maintain a connected attack, they began to lose cohesion. The combination of German divisions in front and Panzers in rear began to break the Russians into separated groups. They first began to give way at the flanks. Near Nevel, the Germans took 13,000 prisoners; near Mogilev, 5,000.

27 JULY

Finns northeast of Lake Ladoga started a new offensive.

So many German divisions had by now arrived in the Smolensk area that the Russians were being surrounded in groups and were being attacked from all sides. They had not regained their communications, still cut by the Panzers who were close to Vyazma.

31 JULY

About 45,000 Russians at the east end of the Smolensk area surrendered. Russians south and north of the salient continued to fight. In the south, Panzer troops which had pierced the Stalin Line were on the Dnepr River, south of Kiev.

German GHQ ordered a new maneuver. The Russian 6th, 12th, and 18th Armies were assembling in the general area around Uman. The Panzer Army of Colonel General von Kleist was directed to move south from the Dnepr area, on a front of about 100 miles, and attack these Russians from the north. At the same time, the Rumanian 11th Army, now on both sides of Balta, was directed to force a crossing of the Bug River and attack the same Russians from the south, enveloping the enemy's west flank while the Panzers would be responsible for enveloping his east flank.

1 AUGUST

Advance elements of the Panzer troops marching towards Uman made contact with the Russians in that area. The Rumanian advance guards crossed the Bug and were also in contact. Although these facts must have been apparent to the Russians, they took no particular steps to avoid having to meet the two hostile forces at the same time on the same field. The main Axis forces were closing rapidly in rear of their light advance elements. Their air forces kept them constantly oriented as to the location of the enemy.

2 AUGUST

The German 18th Army broke the Russian resistance west of Lake Peipus and took about 10,000 prisoners. The 16th Army stopped a Russian counterattack which attempted to force a crossing of the Shelon River in an effort to move west.



In the south, German troops were breaking through the intervals of the Stalin Line. They invested Zhitomir, continued the attack on Novograd-Volynski, and arrived both outside of Kiev to replace the Panzers who had gone south, and opposite Belaya-Tserkov.

3 AUGUST

Fighting around the Smolensk salient was continuous. The Russians, who had started to pinch off the salient, had abandoned all idea of this mission and were now trying to get out. They found German troops all around and were themselves separated into several groups. Fighting was severe. Outside of this battle extending north and south of the Orsha-Smolensk road, were new Russian forces trying to break in among the embattled troops to rescue their comrades.

In the south, von Kleist's Panzer army and the Rumanian 11th Army, by timely coordination, attacked respectively the north and south areas and the east and west flanks of the three Russian armies in the Uman area.

4 AUGUST

The Russians in the Uman area, realizing they were surrounded, immediately started counterattacks in all directions. These were conducted quite desperately, but without proper artillery and air support or coordination. Rumanians and Germans attacked toward a common center. The air fleet of Colonel General Loehr arrived and mercilessly bombed the Russians, who appear to have been singularly short of air assistance. German air forces neutralized Russian artillery, followed Russian tanks, blasted assembly places, cut lines of communications.

7 AUGUST

The three-week battle of Smolensk ended with the destruction of the last Russian force within the German lines, a force which initially had started with the mission of driving the Germans across the Dnepr. In this time the Germans claim to have taken in all 310,000 prisoners, 3,120 guns, 3,205 tanks, 1,098 planes and other booty in proportion. The German Center Group of Armies was freed for a new mission.

8 AUGUST

The battle of Uman came to an end. Part of the Russian 18th Army broke out to the south and southeast; the rest of it and all of the 6th and 12th Armies were overcome. The Germans claim here 103,000 prisoners, including the commanding generals and headquarters of the two captured armies, 858 guns, 317 tanks, and more than 5,000 vehicles. This was the third Russian disaster.

In Estonia the Germans reached the Gulf of Finland, driving the remaining Russian forces into Tallin. These Russians were cut off from their base in Russia.

The second phase of the war was now ended.

The Russian High Command was not satisfied with the results. Even allowing for the initial surprise, it was evident that some of their troops had been badly led and that others surrendered before it was absolutely necessary to do so. The first fault had already been corrected by changes in commanders; the second was ordered remedied by a return to the system of Commissars, whose main mission was to improve the morale of their own troops and assure obedience to orders from proper authority. Special attention was given to extolling the freedom of the individual to be found under the Soviet, as contrasted with the slavery existing in Nazi and Fascist countries, with the obvious requirement that to preserve this freedom a very special demand was being made on all individuals to do their best for Russia.

COMMENTS

1. The Russians showed a serious lack of strategical initiative. They resisted tactically, wherever they happened to be. They assembled forces locally for counterattacks, fought savagely, and sometimes obtained tactical successes, but none were important and some, like the attacks around Smolensk, played into the hands of the enemy by bringing up troops into places where they could be readily surrounded by the more mobile German troops.

2. The Russian plan to close in behind hostile armored forces and thus cut them off failed. The Panzer troops lived off what they captured, and got ammunition by air. On the other hand, they cut the Russian line of supply. The Russians were not prepared for this.

3. Russia had large armored forces. They were used tactically to assist other ground forces at Minsk and near Smolensk in counterattacks. They made no attempt to pierce the German line and operate in rear areas. Had they acted in the same manner as the Panzers, with the advantage of being in a friendly country, the results of the early campaigns might have been different.

4. In general, the Germans in the two first phases of the war were continuously on the offensive, both strategically and tactically. The Russians in the same period were continuously on the strategic defensive, only occasionally on the tactical offensive, and within seven weeks lost to the enemy a belt of territory averaging 300 miles wide. With this loss went an extraordinary quantity of war materiel and a notable loss in personnel. It was another illustration of the advantages of the offensive.

9 AUGUST

Russians who had escaped from the Smolensk battle had been driven south, so Russians started assembling troops near Gomel.

Far to the north, the Finns attacked on both sides of Lake Ladoga.

10 AUGUST

To relieve the advance toward Leningrad, a Russian force south of Lake Ilmen futilely attacked northwest

across the Shelon River, around Solsti. The Germans counter-attacked and moved east south of the lake.

Germans around Smolensk reorganized. There was little left of that city, about 90 per cent of it having been destroyed by the Russians. Out of 160,000 inhabitants only 20,000 remained. There had been serious destruction at Minsk and Vitebsk, but nothing to compare with Smolensk. However, out in the country hundreds of villages had not been touched; the peasants occupying them harvesting their crops, which also had not been substantially damaged. In forward areas Russian planes were seldom seen, but German ones constantly worked with ground troops, locating artillery targets, warning of enemy concentrations, pointing out gaps in his lines, and bombing and machine gunning enemy tanks and other moving targets.

13 AUGUST

The southern Russians were withdrawing across the Dnepr. Marine transportation was used to move units from Odessa and Nikolaev, respectively the commercial and naval ports of southwest Russia. The plan was to retain bridgeheads on the west bank of the Dnepr, but not to delay withdrawals. The German advance elements arrived on the line Znamenka—Krivoi Rog toward the east, and on the south were just outside the two ports. Krivoi Rog was the center of an iron ore district which normally produced about 19,000,000 tons. Its capture was the beginning of the effort to deprive Russia of essential war industries and resources.

15 AUGUST

The German Center Group of Armies was now completely reorganized and relieved of its large number of prisoners. The enemy appeared to have succeeded in assembling a fair sized force around Gomel, which if allowed to remain there might develop a strong defensive position. The High Command planned an advance on the line Gomel-Konotop-Kharkov by this group, to meet another moving northeast from the line Cherkasi-Dnepropetrovsk. If this could be accomplished it would place inside the German lines the major industrial and raw material section of the Soviet. It was therefore decided to clear out the enemy at Gomel, preparatory to a larger and more important campaign after the Dnepr had been crossed by the South Group of Armies, whose aid was essential.

16 AUGUST

Germans occupied the naval port of Nikolaev. According to Russian accounts it was voluntarily abandoned; before leaving by sea, they destroyed a considerable part of the town, and most of the navy yard and shops. The Germans found abandoned and damaged

- 1 35,000 ton battleship (not yet completed)
- 4 destroyers
- 2 submarines and
- 1 cruiser, besides some smaller vessels.



19 AUGUST

German forces made contact with the Russians around Gomel, and started the attack. The North Germans enveloped the enemy's east flank and attacked his north front; those from the west attacked that flank and worked around to the south. The Russians were nearly surrounded before they knew it.

20 AUGUST

The battle around Gomel ended unusually early. The Russians had here only the remnants of two armored and 26 infantry divisions. They seem to have made a poor fight; many surrendered. Most of the rest managed to escape southeast toward Konotop. Fortunately, at Gomel they held the bridges over the Sozh River which the Germans from the west had been unable to cross in time. The bridges were limited, however, and not all the Russians could get over, so some escaped eastward. The Germans followed the retreating Russians. In view of this situation, the Russian High Command ordered the troops west of the Dnepr and north of Kiev to retire east of the Dnepr without delay; they moved the same day.

The German 18th Army of the North Group attacked on the front Narva to Kingisepp, and forced the Luga River on a wide front, despite hard fighting by the Russians. A containing action was fought near Novgorod.

21 AUGUST

Finns continued to make slow progress north of Lake Ladoga.

In view of the battle along the Luga yesterday, the Russian High Command ordered the troops south of Lake Ilmen to attack again to relieve pressure on their comrades defending Leningrad. They promptly started an attack around the south end of the lake, but as before, made little progress.

23 AUGUST

The 16th German Army, holding the line from the Lake Ilmen region to the south, made a strong attack across the Shelon River, completely breaking through the Russian position. The Russians now feared that with the strong force advancing north from Kholm, they were apt to be trapped. They directed a general withdrawal to the Pola River, but do not seem to have been very sure about holding this line for they also ordered their troops north of Lake Ilmen to retire from the vicinity of Novgorod further east.

The German force around Kholm did not pursue the Russians with their main body, which turned south to attack the right rear of the Russian 22nd Army in the Velikie Luki area; it consisted in part of armored troops. Another German column started north from the Smolensk area against the left rear of the same Russians. German troops near Nevel were rushed forward to contain the Russians while the enveloping forces got into position to surround them.

In the south, the Russian bridge head at Cherkasi was captured by the Germans, and the Dnepr crossing began. Russia held Kremenchug, another bridge head. Germans got across by barge farther south, where the river was about a mile wide; this operation lasted several days as only small forces could be ferried over each day.

26 AUGUST

Operations against the unlucky Russian 22d Army in the vicinity of Velikie Luki ended. Germany reported the capture of 30,000 prisoners and about 400 guns. Russian dead found on the field were estimated at around 40,000.

In accordance with earlier plans for an advance towards Konotop and Kharkov the forces at Gomel were released and authorized to proceed. To cover their left flank, the 9th and 4th German Armies were ordered to advance eastward from the line Roslavl—Klintsy, as far as the upper Desna. Troops released from the Velikie Luki area would in turn cover the left further north, by advancing to a line through Vyasma.

27 AUGUST

Guderian's Panzers, without great difficulty, captured two crossings over the Desna near Novgorod Severski. Guderian seems to have arranged to have his army "identified" by the enemy on the upper Desna before starting to move south. Far south of Guderian. General Kirponos was assembling, training, and equipping a large army of some 750,000 men; another smaller Russian force was east of Poltava; both were under General Budenny. The Russian idea seems to have been to use these forces for an offensive across the Dnepr to recover the west Ukraine, temporarily abandoned to the enemy. Kirponos with his large force was to make the main effort, debouching via the large bridgehead at Kiev, still strongly held. The Poltava force was to cover the right, crossing the Dnepr at bridgeheads at Kremenchug and further south.

28 AUGUST

In the north, the German 18th Army carried Tallin by assault. It was just in time, for twenty Russian transports had just arrived with reinforcements; together with some escorting naval vessels, these were captured with the troops on board. Paldiski was also taken—a new but very modern harbor west of Tallin. These successes opened all lines of communication through Estonia, although substantial Russian forces remained on the large Estonian islands in the Baltic.

In the south the Russians abandoned the great industrial and hydro-electric center, Dnepropetrovsk. They wrecked the great works and dams as best they could.

31 AUGUST

The general situation at the end of August was:

a. Finn Army: north front—forces opposite Murmansk and Kandalaksha were making no progress; east front—an advance between Lakes Ladoga and Onega was proceeding slowly toward the Svir River; south front—an advance

between Lake Ladoga and the Gulf of Finland was proceeding very slowly; west front—a small force was besieging Hangoe, held by Russia.

b. German North Group of Armies: 18th Army—(1) engaged in operations against the islands of Dagoe and Osel, (2) advancing toward Leningrad, on the front Gulf of Finland-Lake Ilmen; 16th Army—south of Lake Ilmen along the Lowat River, facing the Russian 27th and 34th Armies, which they were preparing to attack. The right of this army was near Seliger Lake.

c. German Center Group of Armies: Left Wing—strictly on the defensive, holding the line from Seliger Lake to Rzhev and Vyasma; center—engaged in an offensive toward the upper Desna, north of Bryansk; right wing—advancing toward the Russian armies near Priluki, and crossing the Desna; liaison group—approaching Zernovo.

d. German South Group of Armies: Left Wing (6th Army) — (1) besieging Kiev, (2) crossing the Dnepr near Cherkasi, preparatory to advancing near Priluki; center (17th Army)—crossing the Dnepr around Kremenchug, still held by the Russians. The advance and right flank of this army was covered by Colonel General von Kleist's Panzer Army. The mission of the center was to participate in the enveloping action contemplated on the Russian main force near Priluki. Right Wing (Hungarian Army) — crossing the Dnepr south of Kremenchug with the mission of containing the enemy near Poltava.

e. Rumanian Group of Armies: 11th Rumanian Army (contained German troops)—crossing the Dnepr south of Dnepropetrovsk, to advance toward the Sea of Azov area, including the Crimea; 3rd Rumanian Army—besieging Odessa, still held by the Russians.

THE PRILUKI CAMPAIGN

The major German mission was the destruction of the very large Russian force in the Priluki-Pyriatin area. As these Russians were passive, for the moment the main consideration was to have the enveloping forces move into position without alarming the enemy until it would be too late for him to escape. As the troops were crossing the Dnepr so slowly, no permanent bridges being yet available, it was necessary to delay the troops moving from the north.

Secondary missions were to capture the Baltic Islands (to open a sea route of supply), and to advance on Leningrad.

Forces defending Leningrad were some distance out. The enemy's advance lay through thick forests and swamps. The Russians took advantage of the terrain and constructed an extraordinary number of bunkers, minor fortifications, tank obstacles, etc., so that the enemy must undertake many separate detailed operations to accomplish even a moderate gain. It was hoped that reinforcements would be sent to assist the local army.

East of Velikie Luki the Germans cleaned out a Russian force holding Toropets, opening the railroad to Kalinin.

The Russian High Command failed to understand that the main German mission lay far to the south of Moscow. On the contrary, they believed that Hitler's

great idea was to capture Moscow. The Germans helped the idea along by bombing Moscow daily and nightly. General Jacob Kreuzer was assigned to prevent the capture of Moscow. He assumed that the main German attack was the advance north of Bryansk toward the upper Desna, which river the Germans had reached, so he decided to attack westward across the Desna to hurl the enemy away from the capital. The South Russians also failed to note the importance of the German marches headed toward the Priluki area.

In Odessa the Russians were defending most actively. They counterattacked frequently, and kept the enemy sufficiently far from the city itself to enable ordinary life to go on. Sea communication was open, and ample food arrived. Cinemas and theaters functioned daily. A considerable force of sailors had been landed and were used to man armored cars and trains.



The Finns used assault boats to reach Soviet positions in the northern lake country. (Acme photo)

2 SEPTEMBER

The Finns completed clearing out the environs of Viipuri, capturing the commander of the 43d Division with his entire CP. Two other Russian divisions appear to have departed hastily, abandoning much materiel.

3 SEPTEMBER

General Jacob Kreuzer's attack to save Moscow started by driving back to the Desna some German forces who had crossed to the east side.

4 SEPTEMBER

In spite of the forest and swamp obstacles south of Leningrad, the German 18th Army made rapid progress and drove in the defending forces. German artillery shelled the city for the first time; the range appears to have been about 40,000 meters, with the targets not visible from the ground.

Kreuzer's attack was stopped on the Desna.

5 SEPTEMBER

Kreuzer was relieved from command and replaced by General Timoschenko. He had the equivalent of about 50 divisions, extending from Rzhev (exc.) to below Bryansk on the Desna. His announced mission was to drive the enemy back on Smolensk and recapture this town. The right of his attack was to be at Dorogobuzh and the left north of Bryansk.

7 SEPTEMBER

Having little opposition, German forces advanced to the line of the upper Volga from Peno to Rzhev with light covering forces to clear the ground for a new concentric attack against the Russian 27th and 34th Armies on the Lovat, north of Kholm.

8 SEPTEMBER

The German 18th Army arrived outside the first of three lines of fortification covering Leningrad, extending from

Peterhov on the Gulf of Finland to Krasnogvardeisk, the key to the line. A very strong air and artillery preparation followed by determined attack resulted in partial capture of Krasnogvardeisk in the afternoon. A tremendous artillery battle started and lasted well into the night.

Operations against the Priluki Russians now reached a stage where further concealment of the German objective seemed unlikely. The German 14th Army crossed the Desna on a broad front near Chernigov and

marched straight on Priluki. The 6th Army crossed the Dnepr north of Kiev and advanced southeast. Germans crossing near Cherkasi and Kremenchug were about ready to move to their encirclement positions.

Timoschenko attacked all along his front. His right made some progress, driving the Germans out of Yelnya. His troops were much encouraged. They partially "identified" Guderian's armored troops as in their front, but Guderian was far away, advancing on the Priluki area. What Timoschenko really encountered was a new Panzer Army under Colonel General Hoth, but Timoschenko failed to make proper identifications.

10 SEPTEMBER

The Germans almost completed the capture of Krasnoye Selo. In the afternoon they took by storm Hill 113, their first OP over Leningrad; later that day they took Ridge 167, which gave more and better OPs.

Germany's 16th Army made a new attempt to destroy the Russian 27th and 34th Armies along the Lovat.

Strong forces attacked south from Staraya Russia and north from Kholm against the Russian flanks. A more important movement was by the Panzer Army in moving the Panzers through woods into the Valdai Hills. From there they attacked the Russian rear.

11 SEPTEMBER

After an intense air and artillery preparation, the Germans took another slice of the 2d (center) line of fortifications before Leningrad. Krasnoye Selo was completely occupied.

South of Lake Ilmen, the bulk of the Russian 27th and 34th Armies made good their escape to the Valdai Hills.

Russians around Priluki consisted of five armies under General Mikhail P. Kirponos. He was in liaison with his troops at Kiev, and was looking for an attack on that city.

Guderian started with a wide enveloping move east down the Sula River valley. At the same time von Kleist's Panzer Army started up the valley from the vicinity of the Dnepr.

12 SEPTEMBER

South of Lake Ilmen, the Germans reached the Valdai Hills, Russians retreating eastward.

In the center, Timoschenko renewed his attack along the upper Desna. Again he "identified" Guderian's Panzers and "9" other divisions, considered himself and his troops small marvels for having defeated such formidable opponents, and issued a glowing communique on having saved Moscow.

Guderian, far to the south, reached Lohvitsa in the Sula valley. He was making a flank march in the presence of the enemy, and was prepared to wheel to his right flank and attack westward. Von Kleist got about halfway from the Dnepr to Lubny. German infantry divisions were now advancing rapidly towards Kirponos's concentrated troops. The roads were so bad that Kirponos and his staff appear to have assumed the Germans could not accomplish major movements. Later in the day information as to the converging and encircling German movements so plainly pointed out the danger that Kirponos issued orders to move the Kiev garrison to Gogolev, while his main force moved south to occupy a position in the vicinity of Pyriatin.

13 SEPTEMBER

In the center, Timoschenko got across the upper Desna in some places.

To the south the Panzer Armies of Guderian and von Kleist established contact with each other near Lubny. The German infantry divisions, some of which were motorized, were now closing on Kirponos from north and south; seeing his danger, he prepared to fight.

14 SEPTEMBER

Timoschenko's attack made further progress. His front ran from Yartsevo (exc.) to Yelnya (inc.) and thence south along the Desna. His most advanced element was only 12

miles from Smolensk. The Russians were much encouraged.

The German attack on Leningrad was making slow progress, reaching the third (inner) line of fortifications, which ran through the suburbs. This was full of steel forts, tank obstacles, mines, etc.

15 SEPTEMBER

The battle in the Valdai Hills was approaching its end. Russia's 27th and 34th Armies appear to have been completely broken up in the swamps and forests. Colonel General Busch, commanding the 16th Army, reported that since the first of the month these Russians had lost 53,000 prisoners, 320 tanks, 695 guns, and much other booty, out of about 20 divisions. The number of guns taken is small for 20 divisions; either the Russians were very short of artillery or much of it escaped.

In the south Ukraine, the Rumanian and German troops which had crossed the Dnepr near Berislav on the 7th had now arrived on the line Melitopol—Perekop, both exclusive.

17 SEPTEMBER

Timoschenko's attack made progress near Bryansk; he still reported defeating Guderian's Panzers.

Far to the south, Axis troops captured Perekop as the initial step to an advance into Crimea.

18 SEPTEMBER

Progressing in their attack between Lakes Ladoga and Onega, the Finns held the area around Petrozavodsk and advanced south towards the Svir River.

In the central Ukraine, the Germans were ready to attack Kirponos's large force. Panzer armies marched west and cleared out minor forces east of the line Priluki—Pyriatin. Infantry divisions attacked southeasterly through Priluki; others attacked northwest against the line Pereyaslav—Piriatin. Kirponos ordered Kiev evacuated, the troops there to join him without delay. The Hungarian Army entered Poltava.

19 SEPTEMBER

German troops west of the Dnepr attacked Kiev. There were not many Russians in the city, and these surrendered without a fight. Germans pushed on to participate in the great battle near Priluki.

Kirponos was now heavily engaged. On the west he held a line on the high ground about 50 miles west of Pyriatin; another line faced north just south of Priluki; a third line was fighting the armored forces advancing across the valley east of Priluki and Pyriatin; and a fourth was astride the railroad to Zolotonosha, south of the Kiev-Lubny Railroad.

The German attack came with great fury from all sides. Two Air Fleets under Colonel Generals Loehr and Strauss located targets and dropped bombs on the enormous Russian crowds. There seems to have been no

Russian defense in the air. Ground troops drove wedges at places where air reconnaissance indicated the fastest and deepest penetration could be made. Five German armies, including two Panzer armies, were taking part in one gigantic battle covering an area of about 75 miles from east to west, 50 miles from north to south.

20 SEPTEMBER

Timoschenko announced that the Germans, instead of capturing Moscow, had on the contrary been driven back 30 miles since the first of the month. Danger to Moscow was now definitely over. Timoschenko found from experience that his day attacks suffered heavy losses with few gains, so decided to make his important attacks at night, when he believed it would be impracticable for the enemy to adjust artillery fire and bombing.



Final food delivery was often bedevilled by soft swamps and flat, exposed terrain. (Dever from Black Star)

In the Priluki area the German attack went forward with great energy. The two German Air Fleets continued to bomb and machine gun the enemy with devastating effect. Ground attacks, heavily supported with artillery fire and tanks, made considerable progress.

21 SEPTEMBER

Timoschenko's south wing ran out of ammunition and supplies. Consequently the Russian line south of the Smolensk-Vyasma railroad was stabilized. Timoschenko reported that his artillery was superior to anything the Germans possessed, that his air forces had complete control of the skies. An American observer confirmed his claims.

The great battle near Priluki continued with extraordinary violence. The Germans drove new wedges constantly into the Russians and split them into fragments. The air force flew over the extensive battlefield taking hourly photographs which were quickly developed for the intelligence sections. Huge numbers of Russians

commenced to surrender. About three Russian divisions broke out and started east for Kharkov. The Hungarian Army was alerted, and Italian troops started north from Poltava to head off and capture these Russians.

22 SEPTEMBER

The battle of Priluki was approaching its end. Thousands of Russians were surrendering. Major groups still fighting were in two pockets, about 25 miles apart and completely separated from each other.

24 SEPTEMBER

Timoschenko launched a very heavy attack along the axis Nikitinka-Smolensk. His south wing was unable to move.

26 SEPTEMBER

The Priluki battle ended after a slaughter. General Kirponos was among the slain. Commanders of the 5th and 21st Armies were captured with their staffs. Prisoners are reported to have been 665,000, which presumably included the wounded. There is no record of the killed. There were also taken 3,718 guns, 884 tanks, and other materiel in proportion. The Germans claim this battle an unparalleled victory and example of a double envelopment.

27 SEPTEMBER

Timoschenko discovered that Guderian's Panzer Army was not in his front and assumed that the enemy was therefore weaker than he had believed. As his south wing had now received supplies, he decided that the time was ripe to exploit his pincer movement around the "trapped" Germans in the Smolensk salient, attacking all along the line, making his major effort southwest from the vicinity of Nikitinka, supplemented this with an attack out of Yelnya, and at some places along the Desna. No substantial advances were made anywhere.

28 SEPTEMBER

The Italians backed up the three Russian divisions from Priluki into a swamp where further retreat was impracticable and took 13,000 prisoners.

29 SEPTEMBER

Timoschenko's pincer attack on Smolensk ended, apparently through exhaustion.

30 SEPTEMBER

The last of the three Russian divisions near Zenkov, about 8,000 men, surrendered to the Italians.

The end of September saw the end of the Priluki campaign. The German front line at this date, inclusive except as indicated, was approximately: Schluesselburg; Soltsi (on the Volkhov River); Volkhovo; Valdai Hills; Peno; Nikitinka (exc.); Yartsevo; Yelnya (exc.); Desna River to Novgorod Severski; Belopole; Zenkov; Aktyrka (exc.); Krasnograd; Dnepropetrovsk; Perekop, German communications were functioning into Smolensk. Some 25,000 kms. of Russian railroads were being operated by German personnel, using German equipment supplemented by cars and engines taken from occupied countries. Supplies had been brought up.

German claims of captures, with the corresponding Russian reports, from beginning of the war to September 30, were:

German Reports

Captured

2,400,000

21,600

17,500

14,200

Prisoners

Guns

Tanks

Planes

Russian Reports

Losses

178,000

8,900

7,000

5,316

The Russian High Command congratulated itself on having saved Moscow. The alleged failure of Hitler to accomplish his mission was construed as showing that the Russian Army could defeat the Germans, the first troops in this World War to do so. At this time, there ended in Moscow an economic conference between the representatives of Great Britain, the United States, and Russia, in which it was agreed that the United States and Britain would underwrite Russian needs and furnish munitions and supplies regardless of payment. Not a word leaked out in Moscow concerning the loss of Kirponos's army in the Ukraine.

To care for the approximately 15 per cent of the Army personnel who require glasses for accurate vision, the Surgeon General's Office has recently developed a mobile unit to make or repair spectacles in the field. Comprised of a 2½-ton truck with 1-ton trailer, it is practically self-contained and carries optical machinery and equipment and a full assortment of lenses. All of the equipment is removable and can be set up in a tent wherever the truck happens to be operating. A generator supplies power for the apparatus. The majority of the lenses have been apportioned to the foci where analysis indicates the greatest demand will develop; a few high foci are stocked to care for bifocal wearers, although in an emergency the latter will have to get along with single vision lenses. One hundred and twenty lenses can be edged and mounted daily by this military optical shop, sufficient to care for the average requirements of a field Army of 300,000 men.

Soldiers wearing glasses will have a copy of their prescription attached to their service record at the headquarters of their respective organizations. When repair or replacement of glasses is needed, they apply through channels and this mobile optical shop does the work.

The rolling optical unit will be strictly limited in its task to the repair and replacement of spectacles. The ophthalmic service of examining, refracting, prescribing, fitting, and servicing will be taken care of by Army doctors in field or base hospitals.



Captain J. B. Harrison, in command of the first of these mobile units, is working with some of the equipment. (American Optical Company photo)



Light tanks of the 4/7th Dragoons crossing the last bridge at Tournai at 15:30 hours, May 19, under heavy aerial bombardment.

ROAD TO DUNKIRK

By Henri de la Falaise

SUNDAY, MAY 19TH

3:30 hrs. We file slowly out of Buissenal, heading for the heights above the Dendre, southwest of Lessines. Moving cautiously and without lights, over dirt roads and tracks, we reach Ostiches just before dawn. The 4/7th Dragoons' R.H.Q. is already established there, and our major reports.

The village is deserted except for a sort of cafe-general-store on the main square. The buxom owner tells me to take anything I want, and serves me a hot bowl of café au lait. She wants all her counters to be empty when the Germans arrive.

6:00 hrs. Our combat troops have left for their advanced positions between Lessines and Papignies; the Dragoons' light tanks are on their right flank from Papignies to Rebaix. HQ Troop, with only two armored cars (the third went to a Troop to replace one lost yesterday), fighting lorry, staff car, and four D.R.'s, moves out of Ostiches towards Wannebeck, a small village two miles east overlooking the Dendre valley. The

Leaves from my diary in Flanders

Chapter IV

The artist, Prince Francis Windisch-Graetz, is a great grand-nephew of the famous Field Marshal Windisch-Graetz, close friend of Wellington and commander, until Waterloo, of the Austrian Armies of the North. He fought on the Italian front during the first World War as a captain in the Windisch-Graetz Dragoons. Later he served as A.D.C. to Prince Stahremberg in the fight against National Socialism in Austria. Before the Anschluss he left Austria, and has been living in the United States for nearly five years.



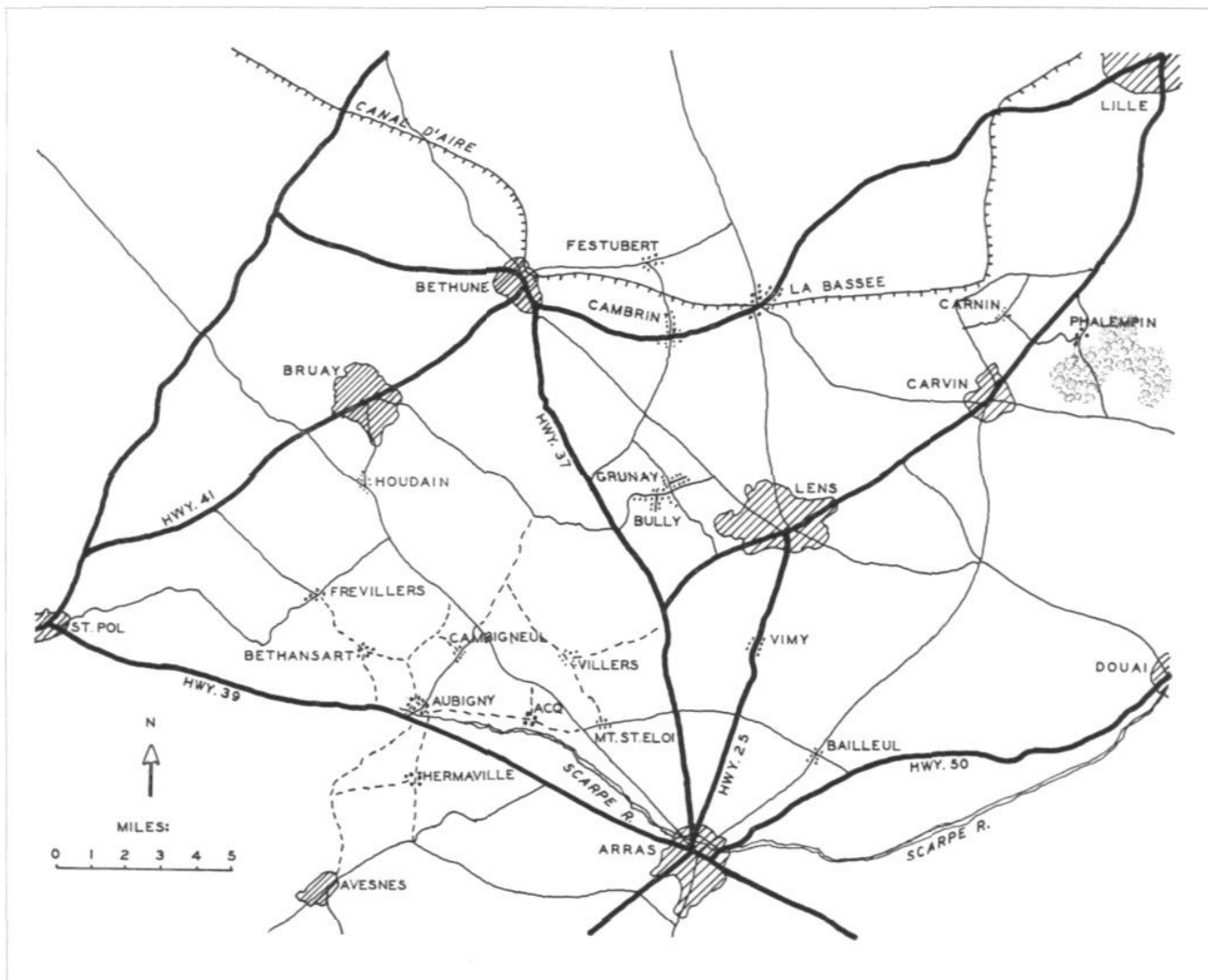
country lane is very bumpy and dusty, so we proceed slowly and by bounds. As we reach the hamlet of Enfer (Hell) we got a report that two enemy tanks have made a crossing at Lessines; as if to confirm it, the sound of heavy gunfire comes from that direction.

We halt in Wannebeck. The major takes one armored car forward on reconnaissance toward Lessines, two miles away. The sun is very hot, so leaving the remaining armored car at the crossroads, we place the truck and staff car in the shade of two large farm buildings and sit on a doorstep awaiting his return. There are no enemy aircraft above us for the minute, thank God, as I am afraid they could spot us easily.

7:30 hrs. Antitank guns are banging away at the enemy all along the front. Unfortunately, they are going to withdraw shortly and we will have to stay here till noon without their help.

The CO returns. The two German tanks have been stopped and for the present all is well on our left flank. The view from here is not very good, so

Editor's Note: The Marquis de la Falaise served as a liaison officer with a British mechanized squadron throughout the Battle of France. With this unit, he was in almost constant contact with the advancing Germans from east of the Dyle.



we are moving to a small farm on the crest of the hill, a mile northwest at Sart.

8:00 hrs. We are at the junction of road No. 60 leading east to Lessines (two miles) and a secondary road going south to Papignies (three miles). The men camouflage the armored cars to make them look like straw ricks; the lorry is hidden under a shed. Bad news from our right flank; the Dragoons are battling heavier tanks at Rebaix.

8:30 hrs. Our colonel confirms the Rebaix report; several German tanks have crossed the river and the Dragoons are slowly falling back. We might be cut off if the enemy succeeds in heading north toward Ostiches and Lahamade on our rear. The last anti-tank unit has just passed by, going west.

10:00 hrs. The major sends me down the Lessines road a few hundred yards to establish a post; I find a good position and place an anti-tank gun in the right ditch and a Bren gun in the left one. There is a clear view of the road for nearly a half mile.

11:00 hrs. The sky is filled with Heinkel bombers. They fly along the valley dropping their high explosives on the

positions which the anti-tanks previously occupied. Wannebeck is heavily strafed and on fire. A group of three dive bombers machine gun our road. The sound of antitank guns and machine gun firing comes now not only from the east and south, but also from the southwest. I have an awful feeling that we are being surrounded.

12:00 hrs. We are ordered to retreat at once. Keeping wide intervals between cars and at top speed we tear down the road toward Lahamade, heading for the safety of the thick woods between that village and Buissenal. We are to reach Frasnes if possible, probably to take up a position behind it. Frasnes is ten miles southwest of here.

Our three Troops are fighting their way out of the German pincer, and fleeing towards the rendezvous. As we approach Lahamade two large bombers fly straight down the road over us, and drop five bombs. Two fall ahead in the ditches, the other three blast a farm house at the entrance to the village. The major's armored car thunders ahead through the town, disappearing in the smoke and dust from the explosions. The lorry

and staff car follow at top speed. I am two hundred yards behind them in the rear armored car with Major E.

13:00 hrs. We have reached Frasnes, crossed it, and halted a mile and a half west of highway No. 58. Our three Troops are there ahead of us. The remains of the 4/7th Dragoons are drawn up under the tall trees on the left side of the road. They have been very badly knocked about. Three of their Bren carriers are loaded with the wounded and dying.

Our Squadron has been luckier than the 4/7th. There are no major casualties and all our cars have returned, though some are badly scarred and have jagged, gaping holes in their armorplate. The remaining tanks and our armored cars are sent to reconnoiter the roads leading south and southwest from Frasnes.

A thick black cloud of smoke rises far to the west over Tournai. Hundreds of bombers are flying over it, circling and diving. The thud of the explosions which are wrecking that lovely town a few miles away, follow each other so closely that they sound like a barrage of big guns.

14:30 hrs. We are told that there is only one bridge left over the Escaut at Tournai, and that German bombers are trying to smash it. The major orders me to leave at once with the staff car and the fighting lorry to cross the river at Tournai and join the regimental rendezvous near Orchies, in France.

15:00 hrs. This road is a mess; huge trees blasted by bombs, burned trucks, and wrecked cars and transport buses bar it at several points. Straight ahead the smoke column rises ever blacker and thicker and bright red flames leap in the sky over Tournai, mercilessly pounded by the savage attack of the Luftwaffe. In the fields by the roadside are parked hundreds of refugee families and the carts carrying their belongings, the men and women huddled together in pitiful groups.

15:30 hrs. We have entered the Tournai inferno and halted not far from the bridge. As far as we can see, there is not a single house left standing. Down the river on my right the railway station is ablaze. All the streets leading to and from the bridge are blocked by crumbled houses. British light tanks are crossing over the bridge and royal engineers are clearing up the heaviest debris to enable them to pass. There is going to be a wait, and I feel very uncomfortable sitting here in the staff car with no protection whatsoever. I jump out of the car and order the lorry to back up a few hundred yards and get under cover till I signal to go ahead.

The bombers have spotted the tanks and are swooping down on them. My driver cleverly heads the staff car practically inside a blasted shop window and in this unorthodox position it probably looks like a wrecked car so that the Germans ignore us.

The tanks are across the bridge now, climbing the narrow street on the other side. There is a lull in the

bombing so I signal to the lorry; we put the staff car back into the road and make for the bridge through the path which the tanks have cleared. As we reach the grande place we get stuck. Live wires from trolley cars are lying on the ground, huge blocks of cement, stones, bricks, steel girders, burning rafters, lie across our way. Only the cathedral with its seven beautiful spires seems untouched, but the ancient and world-famous library which adjoins it and is filled with priceless medieval manuscripts is ablaze. Two women run through the debris, howling. An old man, his white hair caked with blood, stands before what was his home, poking with a stick at the remains of a huge dining room table.

Jumping out of our cars, pushing and pulling, we succeed in getting out of this hell. We are all so shaken by the horror of what we are seeing, by the wanton cruelty of this destruction which is beyond belief, that no one says a word. Our faces are pale and grim, our eyes alone speak. For there is no spoken word which could adequately describe our feelings and the horror of what we are witnessing.

17:00 hrs. We have just reached the French frontier. Long files of refugees so fill the main road that we make slow progress. I have a feeling of relief to be in France again. Here, for the first time since the offensive started, the air is filled with the booming of anti-aircraft guns; German planes have to keep high and they are closely followed by the black puffs of exploding shells. A battery of French heavy artillery, long 155's, rumbles up along the road heading in the right direction, east. A huge anti-tank ditch, camouflaged concrete pill-boxes, miles of barbed wire fill the countryside. There is a feeling of efficiency which is quite a change after what we have just been through.

A regimental D.R. leads me seven miles west to Thumeries, a small village in a district well provided with thick trees to shelter our cars and lorries.

20:00 hrs. The rest of the Squadron have arrived, and orders and fresh news from regimental headquarters. We hear for the first time what the whole world has known for days: the Germans broke through on the Meuse and at Sedan on May 17th and a mechanized army pouring through the gap is heading for the Channel, having already by-passed Cambrai and Arras. We are told about enemy parachutists dressed as civilians, about fifth columnists and communists who have attacked isolated officers. There are strict orders that no officer or trooper is to go about alone or unarmed, that the cars must be watched day and night.

MONDAY, MAY 20TH.

8:00 hrs. The squadron is speeding on the road to Lens, bound for Arras. In the sky on our left, swarms of German bombers are at work over Douai, repeating

the tactics they used yesterday over Tournai. The anti-aircraft guns seem helpless today; some have been silenced or withdrawn and a mile-high column of smoke rises over the city.

We pass through Vimy and by its great war memorial and turn right toward Mont St. Eloi. Two batteries of light field guns of the royal artillery are in position in open fields without any shelter or camouflage. Ammunition trucks, staff cars, motorcyclists speeding to and fro on this country road are raising high columns of dust. It all looks very amateurish, to say the least.

We halt behind a battery and our major steps out of his car to talk to a staff officer who gives him some very bad news. There seems to be some doubt whether the Guards regiment which is defending Arras is still in control there or if the Germans have taken the city, which is only four miles away from where we are standing. We hear that General Weygand is in command instead of General Gamelin, about whom wild rumors circulate. . . .

We move on immediately, and halt at a shady spot where some thick trees provide concealment from two Henschel observation planes which are circling above us and the batteries. Seven Somua tanks of a French D.L.M. pass by, heading east. I stop one and talk to its commander who tells me that they are off to make a counter attack at Bailleul, about six miles from here and near the Lens-Arras highway which we have just left.

12:00 hrs. We receive orders to feel our way around the west side of Arras, to find out what we can about the enemy's exact position and his strength between there and St. Pol.

15:00 hrs. We stop between Hermaville and Avesnes. The narrow country road is deeply embanked and thick hedges surrounding it block our view. Major John E. and I get out and, taking rifles, climb to the top of the hill on the left side of the road to see what is going on beyond it. From the crest we get a good view of the main road from Avesnes to Arras; it seems full of long lines of refugee carts moving southwest, so we run back to the cars and move forward.



The CO's unexpected contact with an enemy patrol, on a narrow country road west of Bethune.

16:00 hrs. Sergeant Knight's armored car has gone ahead to reconnoiter the entrance to Avesnes, we follow, but the sound of shots ahead makes us halt. The armored car returns a few minutes later with a large hole in it. Corporal Chambers is dead. Sergeant Knight wounded in the neck. They fell smack into an enemy tank half a mile from here, and it opened fire on them before they had a chance to know what had happened. The driver managed to back up and turn around in the narrow road, while the

sergeant swung his guns toward the tank and opened fire. He thinks he stopped it; anyway, it didn't follow. The major is all for going after the tank right away, but when he reports the incident to the colonel he gets orders to move back north of Highway 39 immediately, as it is reported that German tanks are coming up this road, moving towards Aubigny.

17:00 hrs. We go through Aubigny cautiously and halt

in the village of Bethansart to bury Corporal Chambers. A shallow grave is dug in a small field under an oak tree; we stand in silence around it for a moment, then move off towards Frevillers.

18:00 hrs. As we enter the village a group of French cavalry motorcyclists catch up with us and shout that they have found one of our rear D.R.'s lying on the road very badly wounded. The lorry is dispatched to pick him up.

Frevillers is occupied by a squadron of the French First Cuirassiers, part of the Third D.L.M. I get in touch immediately with their commanding officer, Cdt. Vignes, and introduce him to the major. He tells us that his division has suffered great losses since the day, a week ago, when they were on our right flank between Tirmont and Jodoigne. Eighty per cent of their equipment has been destroyed and there are only about twelve Somua's left and a few Panhard armored cars, two of which are defending this village. When he sees our wounded he sends for his medical officer to attend to them. The D.R. is too far gone to be helped and he is immediately sent to a hospital in a French ambulance. As for Sergeant Knight and the other wounded men, they refuse to be evacuated after having their wounds dressed and so remain with us. This is the first doctor and ambulance our squadron has seen since the blitz started.

Plans are made for joint defense of the village by HQ Troop armored cars and the two Panhards of the cuirassiers. Our three Troops are spread fanwise to the west and southwest to watch enemy moves and report them.

At nightfall I am sitting in the ditch back of a Panhard. Fifty yards away, the major and John E. are talking by wireless to our colonel and to our Troop commanders. Everything is very quiet, though there is a sound of artillery fire coming from the east. There is a wild rumor that General Corap, who commanded the 9th army on the Meuse and General Gamelin have committed suicide.

24:00 hrs. We are ordered to proceed at once to Festubert near La Bassee, where our B Echelon is waiting to give us some food and refuel the cars.

TUESDAY, MAY 21ST.

4:00 hrs. After two hours sleep we return to Frevillers. The cuirassiers are still there but they expect orders to leave shortly. The armored cars resume the positions they held last night and our three Troops move away for reconnaissance toward St. Pol.

Even at this early hour the sun is quite warm, and the exhausted major, lying in a ditch at my side, has trouble keeping his eyes open. I urge him to sleep a while and sit by him so he won't be disturbed.

7:00 hrs. Colonel De Vernejoul of the First Cuirassiers drives into the village with three Panhards; I wake up the major and introduce him. They immediately get busy with their maps, giving each other much wanted information. The colonel is very interested to know what our Troops have found out about the situation around St. Pol, and we show him on the map where our cars have had contact with the enemy this morning. Lieutenant P. has reported that St. Pol is so packed with refugee carts that no one can enter the town. The enemy is circling it from the south.

8:00 hrs. I spend the next few hours stopping refugee carts which try to go through the village. Once or twice I have to pull out my revolver and threaten the peasants to make them turn back. These unfortunate people are frantic. They have fled southward to escape the Boche and have bumped right into him again. Now they want to get back home and our orders are to stop them.

13:30 hrs. The cuirassiers have left the village. Our Troops report that long lines of German trucks, tanks, and armored cars bearing a wide orange stripe on their hoods are speeding down the highway leading west.

Lieutenant Roddick has run into trouble near the village of Bailleul near the St. Pol road. His forward armored car was put out of action and two of his men are wounded, but he has killed three Germans and damaged the enemy tank which did the mischief.

16:00 hrs. We are withdrawn and move to Mont St. Eloi, four miles northwest of Arras, scene of bloody battles during the first World War. The squadron is gathered in an abandoned farm on a hill a mile west of the village. The CO assembles the men and tells us that an armored division is being formed with the remnants of the various cavalry regiments and a brigade of infantry tanks. This force and the remaining tanks of the two French D.L.M.'s are to make a suicide push tonight and try to clear a path through the German lines. The French army south of the Somme will do the same and if this counter-attack is successful the Boche Panzer units between here and the sea will be cut off. Our regiment is to be in the lead and our orders are to push ahead as far as we can.

We all know what this means: our cars have an armor plate not quite an inch thick and our armament is hopelessly inadequate compared to that carried by German tanks and armored cars. Furthermore, most of our cars are already full of holes. Silently, everyone goes to work refueling, greasing, replenishing the ammunition, cleaning the guns. The sound of heavy cannonading comes from Arras and from the Scarpe River valley east of it, which is held by the dragoons of the French 2nd D.L.M.

18:30 hrs. More than forty Heinkel bombers and twenty-four fighters are flying in a circus over Vimy, Mt. St. Eloi, and Arras, raining bombs and machine gunning. I have found twelve bottles of excellent Pomard wine in the cellar of this farm and distribute them around. We might need them tonight.

20:00 hrs. We have a light meal of biscuits, bully beef, and Pomard wine. The bombing has not stopped but we are lucky; our farm has not been hit, though some bombs have screamed pretty close by and killed some cows in the neighboring fields. We are waiting for orders and trying not to think too much. Our major has gone off to R.H.Q.

21:00 hrs. The CO returns. He assembles the men and tells us that the attack has been called off by the High Command, a preliminary raid by the tank brigade this afternoon having failed. We are to move immediately to Grunay, a faubourg of Lens, and spend the night there.

This is quite an anti-climax after what we had been led to expect for tonight. I watch the faces of the officers and men as they listen to the major's words. They are all terribly pale, but only the tenseness of their jaw muscles shows their emotional strain. I try very hard to look as calm as they do.

The CO explains to me that two British infantry tank battalions have already tried to make a raid today around the outskirts of Arras, but did not get much further than Achicourt and Warlus after encountering strong anti-tank resistance.

21:30 hrs. As night falls, the squadron moves down the hill toward Vimy and Lens. As we enter Grunay and

are about to cross the railroad tracks which separate this town from Bully, three shots are fired at the leading armored car in which I am standing and at the staff car following me in which John E. is sitting. No bullets hit us. The shots were fired from a large factory on the left side of the road; its gates being open, we drive right in and circle the empty courtyard. Two civilians run out of the buildings and speak to us. They seem very excited and perturbed; they, too, have heard the shots and say they can't imagine where they came from. As there is no point in staying here all night and arguing, I warn them that they will be held responsible if any other incidents of this kind happen.

At Grunay we have to knock down the front doors with axes and force our way in through locked gates in order to find shelter for the men and the armored cars. Everything is locked up and abandoned. The owners have fled. After a hasty dinner we all lie down on the floor of the dining room of the small villa which we are occupying, and get a few hours sleep.

WEDNESDAY, MAY 22ND.

Up at dawn. No orders yet, so we shave and have some tea. There is a radio set in the house and I listen to the news from Paris. "Amiens and Abbeville have fallen to the Germans," but the commentator adds the usual line, "the situation is well in hand, the Allied air forces are taking a severe toll of German planes, and important reinforcements are being sent to the front. . ." It is like getting news from another world, yet Paris is only a hundred and fifty miles away; but how and when shall we get back to it?

8:00 hrs. The squadron leaves for Neuville St. Vaast, two miles southwest of Vimy. B Squadron is also in Neuville, waiting for orders, and I have the great pleasure of running into my colleague, Pierre L., who is its French liaison officer. I haven't seen him since the blitz started, and there is plenty to talk about.

From Neuville we drive uphill to a point just north of Mt. St. Eloi, where we find our Colonel waiting for us. He tells me that my friend, Edouard Michel, who was his French liaison officer at R.H.Q., is missing. He went off with Lt. B. on a reconnaissance west of Arras, and as they have not returned they are believed dead or captured.

Our squadron is dispatched to reconnoiter the ground northwest of Villers au Bois along the Houdain-Arras road. The enemy is pushing northward across the Scarpe river between Acq, Capelle-Fermont, and Villers-Chatel, in an effort to turn the Vimy and Lorette heights from the west. We reach Villers au Bois, cross it, and take a small road which according to the major's British map should lead us to Camblain; it is not marked on my French map, however. After about a mile, this road becomes a mere track through open fields with no trees to give us shelter. Our cars raise clouds of dust which are certainly visible

for miles, as we are on high ground. Our marching order is: the CO's armored car, the staff car, Major E's armored car, the fighting lorry, Sgt. K's armored car, and the three motorcyclist D.R.'s.

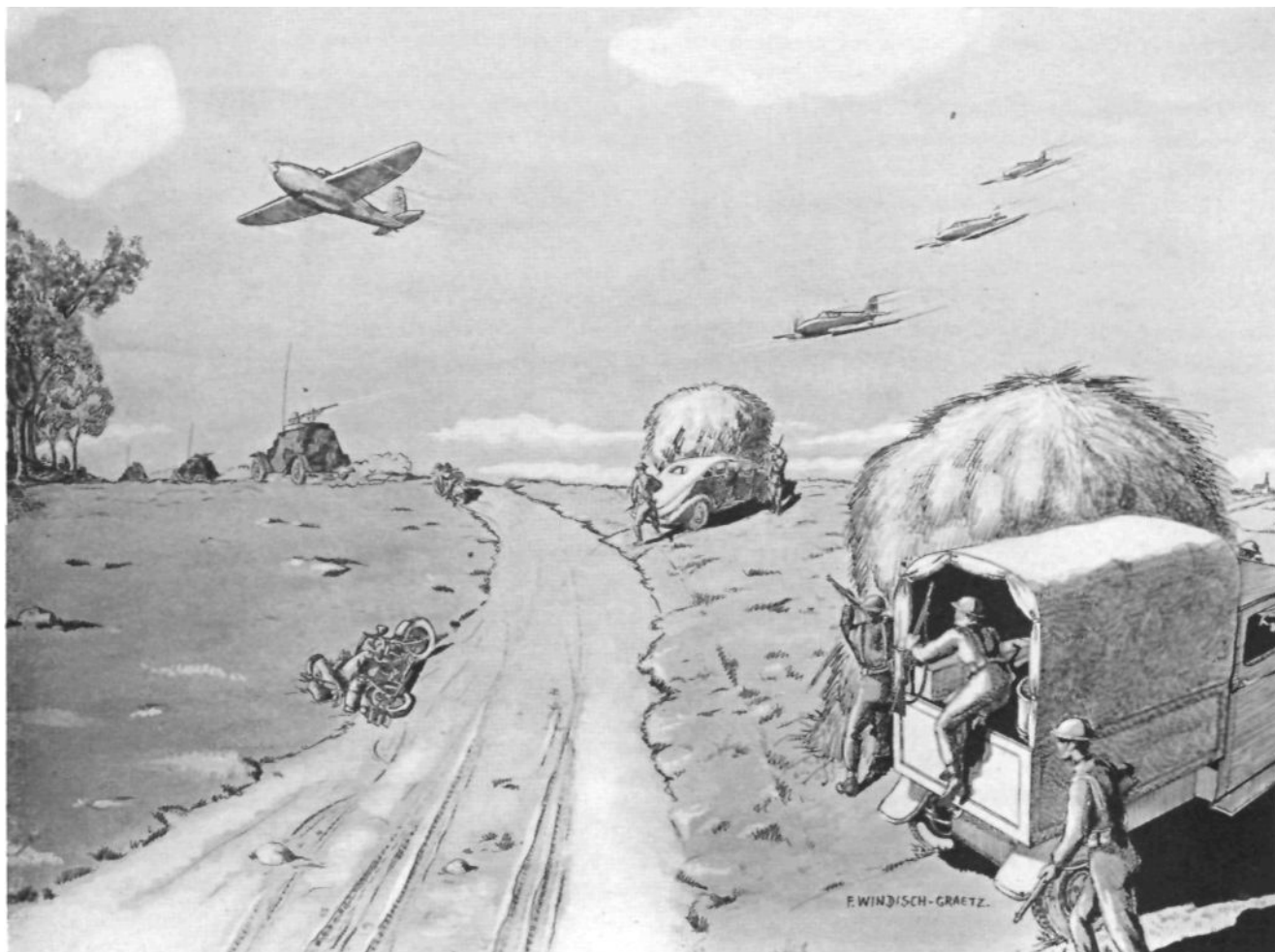
I am in the staff car, trying to figure out on my map just where this track will lead us, when I hear the roaring engines of several enemy aircraft, and a stream of bullets starts hitting down the road ahead of me. Three Messerschmidt fighters are bearing down on us from the north, hedgehopping at about a hundred feet. They flash by like streaks of blue-gray steel, and are immediately followed by three more, which I can see are diving straight for us. There are two large strawricks about a hundred yards ahead on our right, and I tell my driver to plunge the car into the farthest one so that the lorry may take cover under the other. We hit the straw with a bang and bail out. Twenty yards back of me the men in the lorry do the same.

During all this the armored cars and the D.R.'s have sped by us, cutting across the field to the south and heading for a curtain of trees three hundred yards away. The German planes make a sharp rising turn and now come back at us with all their guns blazing. From where I lie on the ground I can see the first armored car reach the trees; the second and third follow at wide intervals, their machine guns spitting away at the German planes. All around me, small white puffs mark the impact of the German bullets as they streak through the dust. Two D.R.'s are shot off their motorcycles, but the third manages to get under the cover of the line of trees. The enemy aircraft form a kind of wheel in the air over us, zooming up and diving down again like hawks.

A Messerschmidt seems to fly straight at me, and I flatten down a little closer to the ground. When I finally look up again there is no sign of the armored cars, though I hear the Bren guns and also what sounds like antitank guns banging away just beyond the line of trees where the squadron disappeared. For ten more minutes the Messerschmidts let us have it, then decide to leave us alone, wheel off to the left, and disappear.

We get back into the cars and follow the tracks made in the soft plowed earth by the heavy treads of our armored car tires. I am worried lest we should not find these other cars if they have moved away. Furthermore I have to get back to some sort of road, as the staff car and lorry are not made for this sort of cross country driving. As we reach the line of trees I see with great relief the silhouette of two armored cars. Our arrival is hailed with equal joy by Major E. and the crews when they find out that we are unhurt. They have not fared so well. One of the cars has been put out of action, riddled by the armor-piercing bullets of the Messerschmidts. Sergeant Johnson has been killed, and our CO has been slightly wounded in the left hand.

John E. tells me that Peter's troop also had an encounter with the enemy and he has been wounded. Six



HQ Troop on patrol is attacked by a flight of Heinkels near Villers au Bois at 11:00 hours, May 22nd, 1940.

other men in the squadron have been wounded this morning, not counting our two D.R.'s. We take the guns off the disabled armored car and blow up its engine before moving off. Shortly we reach a wide lane from which we can observe the valley below us on our left. The enemy is crossing the Scarpe at Acq, a mile south of here, and anti-tank guns are blasting at some armored units which are coming up toward us. They can't see us, as our cars are well hidden behind a wooded embankment. We move on westward and soon are once more in the open fields between Cambigneul and Gouy. We cross a railroad track and move on toward the high trees which form the park of the chateau of "La Haie" to the northeast.

12:15 hrs. We move toward Villers au Bois, and as we turn out of the park onto the road we see two men running across the field, waving at us, so halt. They are two men from Peter's troop. Their car was knocked out of action and they escaped under the very nose of the enemy by hopping from hedge to hedge till they reached a safe distance. Then

they headed northeast, hoping to find their troop, and they are lucky indeed to have found us in time.

13:00 hrs. We have recrossed Villers au Bois and gone on to Carency. Peter's wireless operator has been killed. We are practically surrounded. The enemy is near Vimy to the east and approaching Houdain to the northwest.

16:00 hrs. The Germans are in Villers au Bois now. The CO orders me to go to Festubert and prepare billets for the night. I leave at once, reach Souchez, and turn north on Highway No. 37, only to find the road barred by flames from two large gasoline trucks which have just been bombed. Driving into the fields we skirt around them, our trusty Lincoln-Zephyr going through ditches and plowed fields without a murmur. We make slow progress along jammed roads which are continuously bombed, but finally reach Cambrin on the Canal d'Aire. go over the only bridge which is left there, and reach Festubert after driving nearly two hours to cover less than twenty miles.

Festubert is filled with French troops, but our B

Echelon is there too and has already marked out four isolated houses for us about a quarter of a mile north of the village.

20:00 hrs. A group of more than twenty Heinkels is busy bombing and machine gunning everything around here while I lie flat in a ditch half filled with filthy water, wondering if this hell will ever come to an end.

22:00 hrs. The rest of the squadron has arrived. A red glare illuminates the sky to the west. Bethune is in flames, six miles away. Somewhere among this mass of fire is a hospital where my friend Peter A, lies dying. A tremendous explosion rocks the earth, coming from the direction of La Bassee; it means that the last bridge over the canal has been blown up.

THURSDAY, MAY 23RD.

Up and ready to go at 3:30 AM. The squadron leaves at once for the Bethune area.

12:00 hrs. We are now on the road to St. Omer. Our troops are helping the withdrawal of a battery of artillery west of Bethune. There is heavy fighting in the woods near the Lillers road, two miles south of here, and the sound is getting closer. A French Somua clanks up the road coming toward us, with a huge gaping hole just below its turret. It halts and its commander, a sergeant of cuirassiers, waves to me. He wants our help to carry out of the tank the headless corpse of one of his men. When this is done he and his driver both take a big swig from their wine bottle, wheel the heavy machine around, and speed off toward the enemy to avenge the death of their pal.

13:00 hrs. Our CO bids me to stay here and he and Major Erne go forward with their armored cars for a short reconnaissance. He returns shortly with sad news. John Erne has been killed, three men are wounded.

13:30 hrs. The Somua returns, its sides and tracks covered with dark, bloody stains. The sergeant tells me he has met with enemy infantry and smashed right into them, squashing and grinding them under the tracks till none were left. Now he feels he can rejoin his unit somewhere north of here. We shake hands and he speeds off.

14:00 hrs. Lt. Andrew Roddick, commanding our third troop, has just been killed during a gallant fight with a superior force of enemy tanks which is forcing its way toward us. We get orders to withdraw to Carmin, two miles north of Carvin and about four miles east of La Bassee.

16:00 hrs. The Luftwaffe is still at it. We are terribly depressed and feel like rats caught in a trap. The Germans have dropped leaflets asking us to surrender and showing a map of northern France which outlines their front up to the sea, proving that we are completely surrounded. Some of our men who have picked up these

messages just laugh at them. They don't understand and refuse to believe that we are cut off from the rest of France—which is just as well.

17:00 hrs. German bombers have just succeeded in blowing up the ammunition dumps which were in the Phalempin Woods, three miles east of here. The air is filled with smoke and the explosions shake the houses.

FRIDAY, MAY 24TH.

2:00 hrs. Ordered to pack up and get ready to move forward in the direction of Lens and Vimy.

New orders. We are to withdraw northward instead, and go to Bois Grenier, three miles south of Armentieres. We spend a quiet day in that small village. Everyone washes up and sleeps. The few armored cars which we have left are serviced. The men of the fighting crews rest.

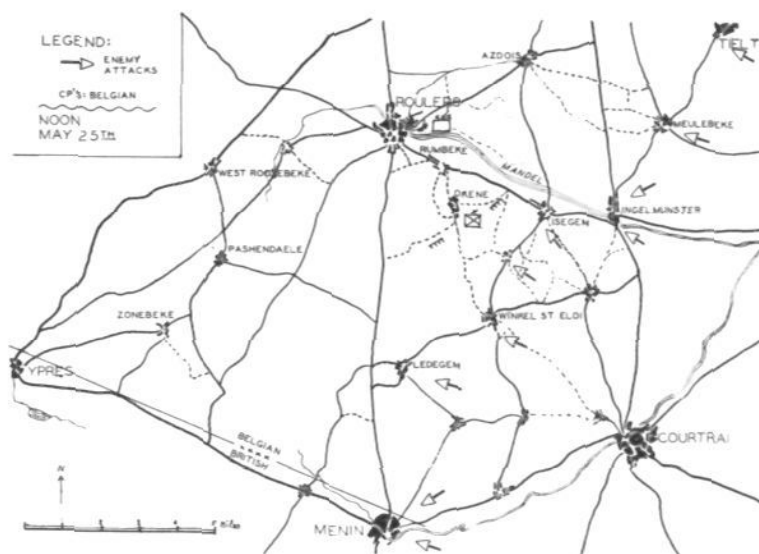
Besides myself, there are only the CO, Lt. Phil S., and Lt. B. left in the combat echelon, and we can't help but think of Lord Erne, whose father was killed too, in the last war; of young Peter Arkwright, always so gay and carefree; and of Lt. Roddick, the nephew of our colonel. They were all so full of life only a few hours ago, and now they have left us forever.

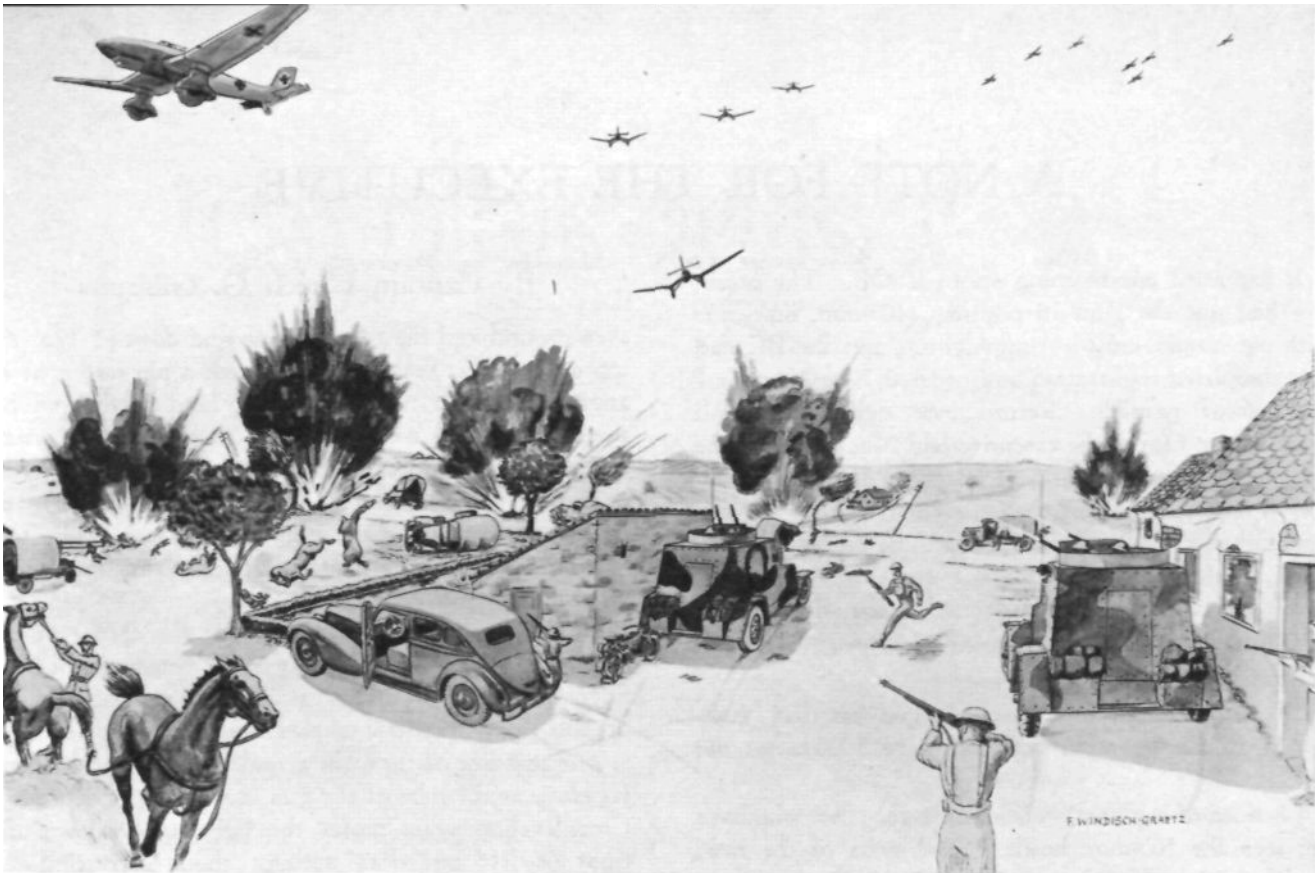
SATURDAY, MAY 25TH.

We receive orders to leave for Ypres at 7 AM. The enemy has broken through the Belgian lines south of Bruges and north of Courtrai.

8:30 hrs. We cross the Belgian border at Le Bizet, with orders to make a reconnaissance east of Roulers within the Belgian sector and make certain of the enemy's positions.

11:00 hrs. The Major and I leave Roulers in the staff car to contact the Belgian infantry brigade which is holding a line between Ingelmunster and Winkel St. Eloi. The road we travel on is being shelled at intervals by 105 Howitzer HE.





Belgian supply echelon and our Squadron HQ under attack by dive bombers, north of West-Roosebeke.

We go through Rumbleke and halt. Number 1 Troop is under heavy artillery fire and has just had a car put out of action. We return to Roulers. A French captain who is liaison officer of the French First Army Group, stops his car and introduces himself. He is looking for information about the Belgian position and the whereabouts of the Belgian Army Corps HQ. We tell him that he will find it at Aardappelhoek, one mile east of here. We also give him all the information we have collected from our troop leaders.

My talk with Captain L. confirms a feeling which I've had for a long time, that there is a definite lack of liaison between the Allied armies at the lower echelons. The French army long ago envisaged what might happen in such cases and had inaugurated, during this war, a new system whereby French liaison officers were assigned to the fighting forces not merely as interpreters, as in the last war, but as active parts of combat units. These liaison officers were not to be content to stay with the transport echelons, only to be used for feeding and billeting purposes. In some regiments, such as mine for instance, the colonel made use of his liaison officers in their proper capacity, the result being that we always had the closest and friendliest cooperation with the French and Belgian units we were called to support. But in too many instances the French liaison officer was regarded as a nuisance and was even treated with suspicion. He was often not advised of tactical moves, with the result that there were instances

where the French shot at the British, and vice versa. These most regrettable occurrences certainly would have been avoided if the French liaison officer had been placed in a position to do his job properly.

16:00 hrs. The major and I go forward in the staff car to contact the colonel commanding the Belgian infantry at Okene, west of Isegem. The shelling is severe but the Belgian artillery near Devinke is laying down a barrage on Winkel St. Eloi which the Germans are attacking heavily at this minute. As we reach the CP we learn that the enemy is in Isegem, a mile distant, and it is clear that the troops now fighting at Ingelmunster will have to retreat or they will be cut off. We return to Roulers as the Major wants to report this to the Colonel immediately by wireless telephone.

17:00 hrs. The Belgians are withdrawing toward Roulers and we get orders to proceed to West Roosebeke, five miles west.

22:00 hrs. It is getting dark and we receive orders to drive to Wijtschate, about six miles south of Ypres. The road is blocked by the traffic of French and British units moving north. We drive against a stream of trucks, guns, and infantrymen which fills the road and leaves us practically no room to pass. It takes us more than two hours to cover the twenty miles. When we get to Wijtschate we remain in the cars, waiting for further orders. No food, no sleep.

(To be concluded)

A NOTE FOR THE EXECUTIVE

It happened one morning on an RSOP. The executive had put the guns in position (105-mm. howitzers with panoramic, cross-leveling sights), and the BC had just completed registration and ordered "On Number 1 form sheaf parallel. Record base deflection." All according to Hoyle, the executive had Number 1 lay the aiming circle, and from there he proceeded with laying the battery. But about then the chief of the first section threw a monkey wrench when he reported, "Sir, when I referred back to aiming stakes my deflection wasn't the same as on the last round of the adjustment."

"Then you must have traversed when you referred to my instrument."

"No, sir, the only thing that changed was that Number 1 ran the elevation back down to 3000 after the problem."

(A word of explanation is apropos for those who have not seen the 105-mm. howitzer and some of the new, modified 75-mm. carriages. The 105-mm. howitzer carriage contains an equalizing device for uneven terrain, so that both trails are always on the ground. Simply, it consists of fixing the trails, top carriage, and howitzer rigidly together, then attaching the whole combination to the center of the wheel axle by a horizontal bearing which permits the whole top carriage to rotate independently of the wheels as the trails are tipped up or down.)

The executive ran over to the piece to see for himself. The sight was accurately cross-leveled, but the deflection to the aiming stakes was 30 mils out. He referred to the aiming circle, and the deflection was precisely what the gunner had given him to lay! Then he ran the tube up to the elevation of the last round of the registration, cross-leveled the sight, and referred to aiming stakes; the deflection was that of the last round fired, but when he referred to the aiming circle the deflection differed from the previous aiming circle deflection by 30 mils, and the error was in the same direction as had been the error in referring to aiming stakes.

Here was a quandary. With trails not level, the cross-leveling of the sights was disturbed as the tube moved, the executive knew, but if he relevelled at the new elevation the only effect was to move the sight from one true vertical plane to another vertical plane, the two planes differing only by the amount of displacement of the sight base in rotating on a skew axis, a difference which was negligible. Just to be sure the executive measured the amount of displacement by a plumb bob; it was less than two inches. And the firing tables specifically state that cross-leveling the sight makes corrections for cant negligible!

The executive finally got the answer, but to spare you the details of his mental writhings, here is a home-made experiment to show what happens when trails are on uneven ground and the tube goes up and down: Tear the

By Captain Ulrich G. Gibbons

top off a pocket match box and stick a pin into it at an angle other than normal. Then, holding the pin between the fingers so that the match box top is vertical and edge-on toward you, you have a simplified picture of the relation between the sight (match box top) and the axis about which the gun tube rotates. The top, horizontal edge of the match box represents the 0-3200 line of the sight.

Now sight the 0-3200 line against the corner of the room and rotate the pin away from you between your fingers. Note what happens. Zero of the sight moves up and right; the 3200 mark moves down and left.

The zero line of the sight actually rotates in a horizontal plane as the tube of the gun is elevated or depressed. Cross-leveling again moves the sight up or down and right or left but does nothing about correcting the rotation which has occurred.

Why, then, doesn't this rotation affect the laying? Because, as the gun tube rotates about that skew axis it undergoes an angular displacement from a true vertical plane which is practically the same value and is in the same direction as the angular rotation of the sight. The executive proved it out by bore-sighting the tube on the edge of a vertical water tower and referring his sight to an aiming point. Then he elevated the tube, and, as expected, sight and tube were off, but when he traversed back to his aiming point, the tube moved back to the water tower edge.

Now a couple practical applications and lessons for the executive: When you lay the battery parallel after registration of Number 1, you must be certain that the tube remains at the elevation of the last round until after the gunner has measured the deflection to your instrument. An enthusiastic No. 1 cannoneer who runs the range down to 3000 while the gunner is referring can move your whole battery 30 mils off base deflection, a big enough error to call for explanations from the OP with observed fires and to move your effect the complete width of a sheaf with unobserved fires—effect 0%.

Secondly, upon going back to aiming stakes, the gunner should *re-lay* with deflection of the last round, in order that, regardless of the elevation the tube then has, it is still pointed at the base point.

And lastly, when you lay the other sections parallel to Number 1, they must not change the elevation of their tubes between the time they lay on your instrument and the time they refer to or put out aiming stakes, else they will no longer be parallel. Watch this particularly in the case of 3d or 4th sections, which usually have to run their tubes to zero elevation to give the gunner a line of sight over the tube to your aiming circle.

CADRE TEST-2

(For solutions, see page 561)

Prepared by the Fort Bragg Provisional Field Artillery Brigade

FIRST SERGEANTS

Part "A"—Wt. 15.0

(Answer all questions)

(Forms omitted)

Wt. No.

- 10 1. There is attached hereto a mimeographed Morning Report form with sample entries through _____ 15th. *Requirement:* Make the appropriate entries in the strength and remarks section on the attached form for the 16th and 17th for the following incidents:

16th

Capt. Whalen, your battery commander, is ordered to Fort Sill, Oklahoma, on detached service by Paragraph 1, Special Order No. 65, Hq. Fort Banks, Washington, D. C., dated _____ 9, 1942. 1st Lt. Dodge is next senior officer.

Pvt. First Class, Spec. 5th Class, Kelley, Selective Service, returns from Cooks and Bakers' School, Fort Bragg, N. C., at 3:00 PM.

Pvt., Spec. 5th Class, Dugas, Regular Army, went to the Finance School, Washington, D. C., and left at 4:00 PM.

17th

Sick book shows Pvt. William R. Jones, Selective Service, was admitted to the hospital at 9:00 AM. Line of Duty status was marked doubtful. Pvt. Spurgeon Hines, Regular Army, has been Absent Without Leave for over a period of 30 days. You will drop him in desertion. 2d Lieut. Hoffman has been placed on Special Duty as Post Exchange Officer by Special Order No. 86, Hq. Fort Bragg Provisional F. A. Brigade, dated _____ 16, 1942. Through error, you were not notified that Sgt. Clifford Smith, Regular Army, went from sick in Post Hospital to sick in hospital at Lawton General Hospital, Atlanta, Georgia, on _____ 11, 1942.

- 5 2. There is attached hereto a mimeographed Duty Roster form with sample entries already made. *Requirement:* Make the appropriate entries on the attached form to show the following:

- a. Show Pvt. Jones on Detached Service for ten (10) days from 5th to 14th, incl., and for duty on 15th.
- b. Give Pvt. Kelley credit for Kitchen Police on the 7th and credit for fatigue on the 9th.
- c. Sgt. Smith was on furlough from the 6th to the 11th, incl.
- d. Cpl. Dugas sick in hospital 5th to 12th, incl.
- e. Pvt. Coan was in confinement from 7th to 11th, incl.

Part "B"

(Answer any seven (7) questions) — *Weight, 35.0*

- 5 3. Where would you look to find:
 - a. The enlisted men's grades and ratings that are authorized for your battery at the present time?
 - b. The number and types of optical equipment that are authorized for your battery at present?
- 5 4. Your battery commander tells you to explain the Army custom of soldiers saluting officers to a group of recruits. Outline briefly what you would tell them.
- 5 5. List what you consider to be five (5) important duties of a First Sergeant in the field.
- 5 6. Why is the Morning Report probably the most important record in the Army?
- 5 7. All NCO's in your battery, except yourself, are inexperienced. One Chief of Section reports an AWOL at reveille formation. What would you do about it, and what would you have others do about it?
- 5 8.
 - a. Who gets the profits that are made by Post Exchanges?
 - b. What influence or control, if any, do enlisted men have in the operation of Post Exchanges?
- 5 9. Your battery has recently moved into a semipermanent tent camp. Your battery commander calls you to the orderly tent and says. "We've just been skinned on that latrine again. Dig a new one, and fix it up and make some arrangements for keeping it clean so we won't be skinned again." What would you do?

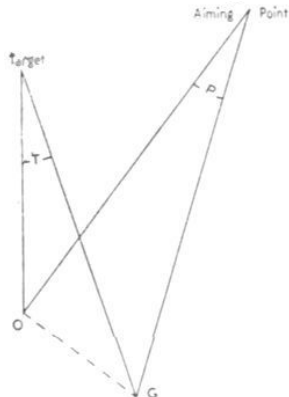
- 5 10. Your battery has just received a brand new gasoline field range. Your battery commander calls you in and says, "See that the Mess Sergeant takes care of that new range." What would you do?
- 5 11. Your battery clerk is sick in the hospital, and the battery commander calls you in and says, "You'll have to make up the payroll, and believe me, it has got to be right." How would you go about making up the roll?

Part "C"

(Answer any five (5) questions) — *Wt. 50.0*

Wt. No.

- 10 12. List the important points with regard to the accounting, care and storage of ammunition in the field.
- 10 13. List the important points with regard to the storage of chemicals and other photographic supplies in the field.
- 10 14. Describe the organization and operation of a battalion Fire Direction Center.
- 10 15. You are acting as battery executive, and the aiming stakes get out of alignment in one section. The section chief does not know what to do about it. Explain how you would get them realigned.
- 10 16. Draw a diagram showing the normal (SOP) communications net in your battalion.



- 10 17.
- TOP = 290 *m*
- OG = 400 yards
- OT = 3000 yards
- OP = 4000 yards

From O, the site
to the target is + 12 *m*
to the guns is - 5 *m*

Calculate:

- a. The initial deflection.
- b. The initial site.
- 10 18. Your battery arrives in a wooded bivouac area beside a stream. Just as you arrive, the Battery Commander, the only officer present, is knocked unconscious in an accident. Draw a picture of the battery bivouac area you would lay out, and list the things you would do before going to sleep.
- 10 19. Name and describe the functions of all the platoons in an Observation Battalion.
- 10 20. Name the communication agencies in an Observation Battalion and list the unit responsible for each.
- 10 21. How many survey parties are there in an Observation Battalion? Name the men, by job, in a survey party.
- 10 22. Things have not been going well in your stables. The battery commander calls you in and says,

"We've got to have some stable orders. Give me a list of the things you think ought to go in such an order." Draw up such a list.

- 10 23. Things have not been going well around your motor park, dispatcher's office, etc. The battery commander calls you in and says, "We've got to have some orders on motor management. Give me a list of things that you think ought to go in such an order." Draw up such a list.
- 20 24. Your battery commander calls you in and says, "Our NCO Charge of Quarters are not doing a proper job. I think it is ignorance more than anything else. I want to draw up some orders. Give me a list of things that you think the Charge of Quarters ought to do." Draw up such a list.
- 10 25. Explain briefly the first aid treatment for any two (2) of the following:
- Simple leg fracture.
 - Sunstroke.
 - Freezing.
 - Gas victims.
- 10 26. List, *in order*, what takes place at a dismounted inspection under arms.
- 10 27. Explain what any five (5) of the following are:
- (A conventional sign.)
 - Class "D" ration.
 - Persistent gas.
 - Normal barrage.
 - Y-azimuth.
 - Representative fraction, such as 1/20,000, for example.
 - Base angle.
 - (A conventional sign.)
 - Cats cradle.
 - 4½ Second Base.

BATTERY CLERKS

Situation: On July 10, 1942, you are sent as a battery clerk with a cadre of twenty (20) men to Fort Blank, N. C., under the command of Captain John H. Doe. This detachment forms the cadre for Battery "C," 14th Field Artillery Battalion (105-mm. Motorized), commanded by Lt. Col. David S. Black. Captain John A. Williams is the Personnel Officer. You were last paid on July 2, 1942, at Fort Bragg by Lt. Col. L. M. Maddox, FD, Finance Officer. The Finance Officer at Fort Blank is Major Henry M. Smith, FD. In the questions that follow, you are given certain problems concerning a clerk's duties to solve on the blank forms furnished you. Where typing would be necessary, print in your figures. In each case, state on the form furnished how many of

the blank forms you would have to make out and state their disposition. Pertinent data as to the cadre you went with is attached to this examination.

The following blank forms are needed for the conduct of this test:

2 copies	QMC Form No.	400
11 copies	QMC Form No.	424
2 copies	QMC Form No.	480
1 copy	QMC Form No.	409
2 copies	QMC Form No.	434
1 copy	QMC Form No.	221
1 copy	QMC Form No.	487
1 copy	WD, AGO Form No.	36
2 copies	WD, AGO Form No.	32
1 copy	WD, AGO Form No.	35
1 copy	WD, AGO Form No.	15

Wt. No.

- 15 1. Prepare the first page of the pay roll for your organization for the month of July, 1942.
- 10 2. On July 25, Cpl. Long requests and is granted a 10-day furlough, effective August 1, 1942, to visit his home at 32 Green St., Columbia, S. C. He is 21 years old, 6' 1" tall, is heavy set, and has brown eyes and hair and a fair complexion. He takes his furlough and rejoins at the proper time. Complete the furlough certificate through his return and make the proper entry on the furlough insert to his Service Record.
- 25 3. On July 23, 1942, Pvt. Farmer goes AWOL and returns on August 4, when he is placed in arrest in quarters by the battery commander. He is tried by Summary Court Martial, Captain Richard S. Jones, case No. 15, the same day and is sentenced to forfeit \$10.00 of his pay. Prepare the charge sheet, showing all entries until the case is completed, and make proper notations as to sentence and entry in Service Record insert.
- 10 4. Pvt. Hollmer enlisted on August 6, 1939, and is about due for discharge. On August 2, Captain Doe orders you to prepare his final statement and extract from Service Record. The battery was paid on August 1. Pvt. Hollmer was born August 1, 1919; his mother, Mrs. Mary Hollmer, is his nearest relative and the person to be notified in case of an emergency and she lives at his home, 48 Wilson Street, Raleigh, North Carolina.
- 10 5. Pvt. David has been carrying \$5,000.00 National Service Life Insurance and his allotment expires on August 31, 1942. He wants you to extend this allotment for 2 more years. Prepare the necessary form(s).

- 10 6. Pvt. Cooper was transferred to "F" Battery, 79th FA, Fort Bragg, on August 15, his first transfer, per Par. 1, Special Orders No. 15, Headquarters, Fort Blank, North Carolina, and left the same day. Prepare the Service Record indorsement.
- 10 7. On August 20, 1st Lieut. John A. Smith, O-218574, was transferred from Headquarters Battery to your battery and reported for duty. Make the necessary report of change on him.
- 10 8. Prepare an example of a Battery Order, promoting Pvt. Grady to Private First Class on BO No. 3, August 22, 1942, in an original vacancy.

UNIT SUPPLY SERGEANTS

The following blank forms are needed for the conduct of this test:

1 Copy	WD, AGO Form No.	366
1 Copy	WD, AGO Form No.	81
1 Copy	WD, AGO Form No.	24-5
1 Copy	WD, AGO Form No.	115
1 Copy	WD, AGO Form No.	24-7
1 Copy	WD Form No.	370
1 Copy	WD, AGO Form No.	25
1 Copy	WD, AGO Form No.	29-3
1 Copy	WD, AGO Form No.	24-2
1 Copy	WD, AGO Form No.	303

Situation: On July 1, 1942, you are sent as a member of a cadre to Fort Blank, N. C., to be the Supply Sergeant of Regimental Headquarters Battery, 14th Field Artillery, commanded by Colonel David S. Black (105-mm. howitzer regiment, motorized). You report to your battery and meet your battery commander, Captain John H. Doe. He tells you that you have a completely new outfit, organized only that day, and that the job of supply will have to start from scratch. Lt. Col. James B. Jones, OD, is Ordnance Property Officer. You will have to start your stock record accounts, and all of your records, since you have not been attached to any battalion for supply, and will have your own unit supply. On the same day, Special Orders No. 2, Headquarters, 14th Field Artillery, appoints Capt. Doe the supply officer for Headquarters Battery. The regimental Medical Detachment is attached to you for supply. In the questions that follow, you will be given certain situations which you will have to solve on the blank forms furnished you. *All* of the information you will need to solve these questions will be contained in some part of this examination. Fill in the blank forms as you would, correctly all the way. *In any case where typing would be necessary or advisable, print in your own figures.* In *all* of the following situations, you will fill in *all* of the blank forms necessary to complete the transaction and keep the necessary records in your office. Sufficient forms are furnished

PART II, SECTION VI		105-mm. How Bn—T/O 6-85					RHQ Btry		105-mm.	Remarks	
ORDNANCE EQUIPMENT	Item	Batteries					Btry		How		
		Bn Hq	Serv	Fir	Att	Med	T/O Hq	6-22 Att	RHQ and 2 bns		
	Telescope, BC, M1915A1, Comp.	2		2			8	1	17		
	Thermometer			1			3		6		
	Watch, pocket, 15 or more jewels, complete	1	1	1			5	1	11		
	Watch, wrist, 17 jewel, complete	10	4	4			26	6	2	60	
	Grinder, bench, hand-power, with chest	1					*1	1		1	*Per Sep or Det Bn only
	Gun, 37-mm., M3, and carriage M4, complete	6					6			12	
	Gun, machine, cal. .50, Browning, M2, flexible w/tripod mount, cal. .50, M3, complete	6	2	2			14	2		30	
	Howitzer and carriage, 105-mm., M2, complete			4			12			24	
	Mount, machine gun, cal. .50, truck pedestal, M24, for ½ ton weapon carrier	6					6			12	
	Mount, machine gun, cal. .50, truck pedestal, vehicular (development type)		2	2			8	2		18	
	Pistol, automatic, cal. .45, M1911A1, complete										1 Per O, WO and NCO of 1st 4 grades
	Rifle, automatic, cal. .30, Browning, M1918, complete with 9 spare magazines	12	4	4			28	4		60	
	Rifle, light (Carbine, US, cal. .30, M1) or										1 Per EM except NCO's of the first four grades and men armed w/auto rifle
	Rifle, cal. .30, M1903 or M1917, complete except for bayonet and scabbard										

for all needs. Consider that you open your stock record accounts with the action that takes place herein. In every case, state on the form used how many copies you would make, and what disposition is made of each copy.

Extract and consolidation of Tables of Organization 6-22, War Department, Nov. 1, 1940: Summary of grades, FA HQ and HQ Btry, Regt, Light or Medium, Truck: Officers—col. 1, lt. col. 1, major 2, captain 3, 1st lt. 1; enlisted men, mr. sgt. 2, 1st sgt. 1, st. sgt. 3, sgt. 5, corp. 8, privates and pvts. 1 cl. 57. Note—1 corp., chap. asst., is not armed.

Wt. No.

- 20 1. On July 2, 1942, you requisition and draw all of the Ordnance property (except ammunition and C and P materials) authorized your battery. Prepare this requisition and fill in the necessary form(s) to account for it after it is drawn. (Extracts of T/O and T/BA are printed above.)
- 10 2. Requisition, as of July 8, the full allowance of the following items of clothing for the entire battery: Handkerchiefs; neckties, cotton, black, and tan. (The allowance should be considered as four (4) handkerchiefs per man and two (2) ties

- of each color per man.)
- 10 3. On July 15, 1942, Captain Doe draws the following articles from you for his personal use: 1 ea. pistol, automatic, cal. .45, stock No. 5-F, No. 458730; 1 ea. blanket, wool, OD, stock No. 3-D; 1 ea. compass, watch, stock No. 7-E; 1 ea. case, dispatch, canvas, stock No. 62-F; 1 ea. belt, pistol, stock No. 64-D; 1 ea. holster, pistol, stock No. 63-G. Fill in the necessary form(s) for his signature.
- 20 4. On July 19, 1942, you had 4¼-ton 4×4 and 3 ½-ton C&R trucks and Captain Doe orders you to transfer to the Supply Officer of the 2d Bn the following items: 1 ea. Truck, Reconnaissance, ¼-ton, 4×4, USA 405675, Chassis No. 158743, Engine No. 309462; 1 ea. Truck, C&R, ½-ton, 4×4, USA No. 508734, Chassis No. 197382, Engine No. 402537; 2 pr. Binoculars M3; 1 ea. Circle, aiming; and 2 Firing Tables. Accomplish the necessary form(s) for this transfer of property and to relieve yourself from accountability. 1st Lieutenant Henry B. Johnson is the Supply Officer of the Battalion.

- 10 5. On July 20, 1942, Pvt. John M. Smith, 34078423, comes in and tells you he has lost a wrist watch, value \$12.37, which was issued him to use for recording at service practice. He did it through carelessness and is willing to pay for it. A survey is not necessary. Accomplish the necessary form(s) to account for this property but do not requisition to replace it.
- 10 6. Make out the necessary form(s) to issue the following property already on hand on July 23, 1942, to Sgt. Henry R. Williams, 756903, and Cpl. William J. Henry, 34086942: 1 pr. of shoes, size 9E; 4 handkerchiefs; 1 necktie, black; 1 belt, waist, size 34; 1 blouse, size 36R, and one complete set of field equipment (individual).
- 5 7. The very next day Sgt. Williams needs one raincoat, size Large. He has never been issued one. Fill in the necessary form(s) to draw and issue one raincoat to Sgt. Williams.
- 15 8. On August 1, 1942, after returning from a night march on the range (the battery had been out all night in the pouring rain) it was discovered that one pair of binoculars, value \$35.75, had been lost. The glasses were in the custody of Sgt. Williams (above), who had been hurt in an accident and had to be taken to the hospital during the night. Captain Doe decided to survey the glasses, and Captain Henry B. Jackson, the Adjutant, swears the affidavit. Accomplish the survey form completely, until after it leaves the Regiment, without the action of a survey officer. Requisition and replace the lost article, and consider that all the action, from the time of the loss until the glasses are replaced, takes place in one day.



"BLISSFUL" BUYING

This snapshot shows how the ladies of the Division Artillery, First Cavalry Division, are saving "tires and gasoline" and are thereby cooperating with the Nation's War Savings plans.

A few facts:

The mountain-wagon, after it has hauled laundry, etc., for the batteries, has a scheduled trip to the QM Commissary twice a week. This scheduled trip on Tuesdays and Fridays picks up the ladies on the "officers' line" and transports them to and from the commissary.

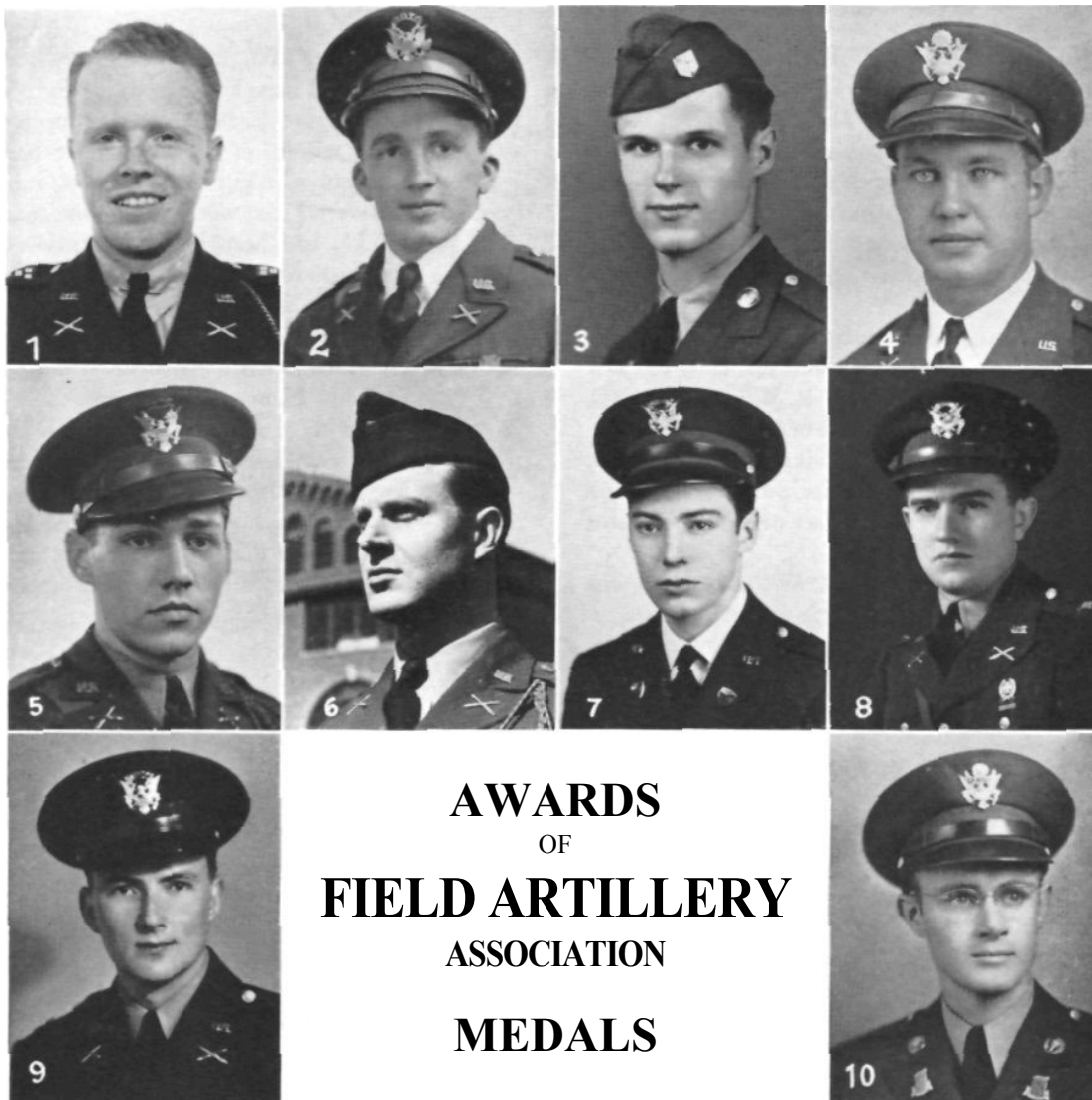
The round trip is approximately two miles.

The average number of families represented each trip is ten.

Therefore we have 52 weeks times 2 trips per week 2 miles per round trip times 10 family or car representatives, or 2,080 miles of transportation saved during one year.

ADDED ATTRACTION! All the above saving is further enhanced by the fact that a tiresome shopping chore has been changed to a social Cook's Tour.

LT. COL. ARTHUR E. SOLEM.



**AWARDS
OF
FIELD ARTILLERY
ASSOCIATION
MEDALS**

THE FIELD ARTILLERY JOURNAL extends its heartiest congratulations to the 13 prospective officers whose names appear on this page. They are all winners of the U. S. Field Artillery Association medal for R.O.T.C. students, presented annually to the cadet completing his first year of the Advanced Course Training at each college who is considered best to exemplify, in outstanding soldierly characteristics, the high standards of the Arm.

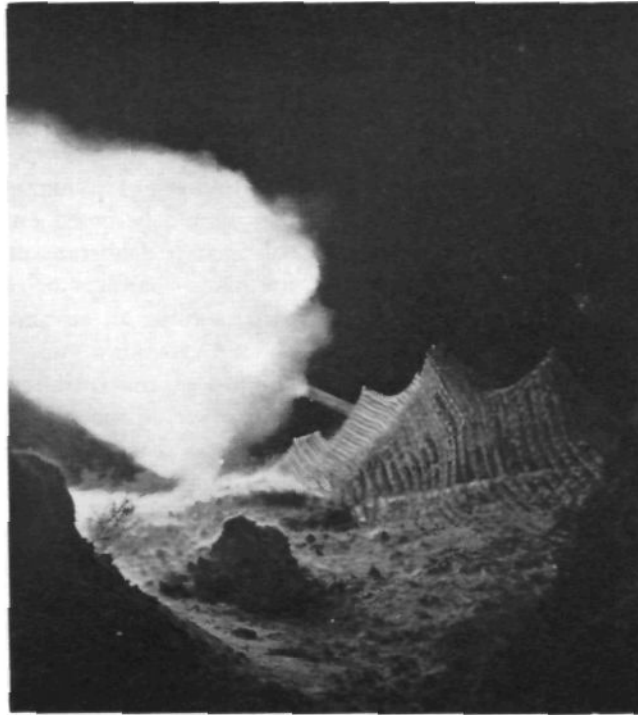
1. *Harvard University: Cadet First Sergeant Niles Chubb. Born in Davenport, Iowa, a graduate of St. Mark's School. Southboro. Mass. A member of the pistol team for two years, captain this year. Student in the field of Government.*
2. *Yale University: Cadet Corporal Lee C. Fielden. Member of the Yale Political Union and the 150-pound football squad.*
3. *Cornell University: Paul M. Kelsey. Student of Wild Life Conservation and Ornithology in the College of Agriculture. Captain-elect of the cross-country team, member of the Varsity Track team.*
4. *University of Santa Clara: Cadet Technical Sergeant Frank E. Osmer. Student in the College of Arts and Sciences; member of the Scabbard Society.*
5. *Arkansas State College: Cadet Second Lieutenant Richard F.*

Adams. Member of Pi Omega Pi, national commercial honor fraternity; secretary-elect of the senior class.

6. *Michigan State College: Albert Henry Smith, Student of Engineering; member of Pershing Rifles, Alpha Phi Omega, American Society of Mechanical Engineers.*
7. *Duquesne University: Cadet Sergeant Joseph Edward Van-Horn. School of Business Administration; member of Scabbard and Blade and Duquesne Cannoneers.*
8. *Saint Bonaventure College: Cadet Major Noel Gray Smith. Student of Chemistry; member of Saint Bonaventure Debating Team.*
9. *Stanford University: Cadet Lieutenant Colonel Glenn W. Johnson, Jr. Honor student, member of Scabbard and Blade.*
10. *Colorado State College, A. and M.: Cadet Master Sergeant John M. Allen, Member of Scabbard and Blade, Agronomy Club: president of Interfraternity Council.*

In addition, these won awards: University of Florida: Woodford Hamilton Hayes. Texas A. and M.: Cadet Master Sergeant William Jefferson Galloway, Operations Sergeant, Corps Staff. University of Illinois: Cadet Second Lieutenant Marvin Russell Janssen, member of Scabbard and Blade; first class gunner, pistol marksman.

FIELD ARTILLERY IN THE ATTACK



4.5" guns firing at night in the Libyan Desert.

A Plea for the Offensive Spirit—with Some Practical Points*

By Lieutenant W. R. Young, M.C., R.A.

1. Artillery is called a supporting arm. This suggests that its function is in some way secondary—to back up action initiated by the infantry. It may be argued, however, that in fact, artillery is the main and infantry the supporting arm—that infantry merely occupies the ground which the artillery has conquered.

A compromise between these half-truths is achieved by using the word co-operation. And the idea of cooperation does not exclude friendly rivalry between the arms.

2. *Initiative.* Artillery has a greater power of initiative than infantry because:

- (a) it can strike at the enemy from positions far back within our lines—probably with impunity;
- (b) it can carry the battle deep into the enemy lines, far beyond the range of infantry weapons;
- (c) it can produce a big punch;
- (d) it can land this punch in a variety of places without moving its own positions;

(e) it can use the weapon of surprise better than any other arm—not excluding the R.A.F.

It follows that artillery should take the lead in the attack and should exhibit a ceaselessly offensive spirit.

3. Artillery in action is a formidable thing. Artillery on the move is a column of mechanical transport—rather more awkward than ordinary transport and just as vulnerable. Artillery should aim, therefore, at being continually in action. This is, of course, impossible, but the aim can suggest the policy.

4. *General principles of artillery policy.*

- (a) There should be the maximum number of guns in action, the minimum number on the road at any given moment.
- (b) It is not sufficient for guns to be in action—that is, with trails on the ground. They should be active. There should always be some shells falling in enemy country. If observation or communications are temporarily suspended use should be made of predicted shooting. Such "blind" shooting should normally be on areas remote from our

*Reprinted, with permission, from *The Journal of the Royal Artillery*, April, 1942.

own leading troops; not so much for safety reasons as because close shooting may prevent our infantry from patrolling or filtering forward.

- (c) A move, when it becomes necessary, should not mean a diminution of artillery activity. Some guns should remain at the old positions while others move to the new. The guns remaining behind should increase their average rate of fire.
- (d) When a new position is occupied fire should normally be opened at once—i.e., as soon as the first gun is ready. The others will be ready by the time the first gun has finished ranging.

5. *The early opening of fire.* By ranging on a target as soon as his first gun is ready the troop* commander:

- (a) harasses the enemy and may cause casualties;
- (b) improves his ability to engage effectively any opportunity targets which present themselves;
- (c) maps the landscape by establishing intersections between gun bearings and OP bearings (no other arm can do this);
- (d) discloses the enemy's dispositions, since a few rounds fired at a house, a banked lane, or a hedgerow will often provoke movement;
- (e) discovers the weather correction of the moment.

6. *The enemy's reply.* The Germans are credited with a counterbattery service which is technically efficient and well organized. This need not deter us. It is only in static warfare that destructive shoots are likely to be staged. Most of the counterbattery work will be in the nature of neutralization by bursts of fire at irregular or, since we are dealing with Germans, regular intervals. Such neutralization should be accepted and the men withdrawn for the 15 or 20 minutes necessary, *unless an urgent task is at hand for the guns.*

When quiet reigns again the troop commander should resume shooting in the sure belief that his enemy battery will be now engaged on another C.B. task, for there will always be more guns engaged on a field artillery role than there will be counterbattery guns allotted to deal with them. He should, however, have an alternative position ready in the neighborhood, and should occupy it by stages if he is convinced that he has been marked down for destruction. The enemy's C.B. staff may as well be given a new job. In any case the more guns and shells the enemy uses against the artillery, the less he will have for use against the infantry.

7. *Ammunition supply.* A policy of continuous activity depends on a continuous supply of ammunition. It is impossible to forecast in figures what the requirements will be, but the general principle that every round fired should be replaced with the minimum of delay covers all eventualities. But it should be emphasized that that replacement must be *at the gun.*

*Corresponds to our battery.

A table which read something like this:

1 round in the tray	=	6 in the box
1 round in the trailer	=	12 in the Quad.
1 trailer at the gun	=	2, 4, 6, etc., at the wagon line (the number varying as the distance)

would have some practical value if it could be compiled. But unfortunately ammunition supply is not an exact science.

If figures of minimum requirements must be given they should be based on the probability that the firing will include deliberate, observed shooting and occasional fire plans—barrages or concentrations. A short barrage plan to cover an advance of 600 to 700 yards will use about 45 rounds a gun. That number will suffice for 15 minutes of concentrations at normal rates. For deliberate observed shooting 25 rounds a gun should be sufficient. So that 70 rounds a gun—*at the guns*—is a fair ideal to aim at.

8. *Economy of effort.* This is not the same thing as economizing ammunition, though it has that effect. It consists in, among other things:

- (a) not using four guns when two or one will do;
- (b) not using hundred-pound shells when twenty-five-pound shells will do;
- (c) not continuing to fire on a target after it has been destroyed;
- (d) not trying to destroy when disablement or neutralization will suffice;
- (e) not moving guns forward when the enemy is still well within their range;
- (f) not having to do the same job twice.

Economy of effort is achieved by thought in making the plan, care in drafting the orders, and intelligent cooperation of all concerned in carrying them out—with one additional proviso, *that the object must be a worthy one.*

9. *Waste of ammunition—with some remarks on prediction.* Observed shooting—starting with one gun ranging and stopping when fire for effect has had effect—is the form of artillery activity which wastes least ammunition. "Concentrations" of long duration carried out at short notice probably waste most. There is bound to be some waste with unobserved predicted fire, but this can be minimized by careful survey and meteor corrections.

It is often objected that predicted fire from a one-inch map can never be worth while. This is a pessimistic view, since the map spottings should always be within 100 meters of the correct positions and may be within 20 or 30 meters. A measure of search and sweep may be included in the program to allow for the doubt. It should be remembered, moreover, that if only one round out of 20 or 30 is a hit or near miss, the remaining 19 or 20 will harass the enemy, i.e., will add to his discomfort and affect his movements. Therefore they are not entirely wasted.

Night firing or firing on back areas must be predicted, but it is important that the *enemy* should not be able to predict it. If we put down a burst of fire on a cross roads regularly every quarter of an hour, the enemy's transport can be passed through in the quiet intervals. Eccentricity and irregularity should be our system in all harassing fire programs and area shoots.

In general the rule about wasting ammunition is "Don't." But see par. 4 (b).

10. *Infantry as the supporting arm.* (This sub-head is not written in a spirit of paradox, but rather to emphasize that "support" is a mutual obligation between the arms.)

(a) Artillery can conquer but cannot occupy the ground. Infantry should support by following up the artillery attack closely, and by *leaving no ground uncleared*. "Islands" of resistance *can* be dealt with by artillery, but that means that the work has had to be done twice. Close following up obviates this necessity. This function of infantry will be predominant in a steady methodical advance against organized defences.

(b) In warfare of a more fluid type, where "mopping up" is never complete, infantry should be responsible for protecting artillery on the move by picketing the crests and flanks generally of roads by which the artillery—that column of helpless M.T.*—is advancing. After all it was regarded till recently as axiomatic that artillery required infantry escort. Today artillery undertakes its own all-round defence when in action. It asks for help only when on the move.

11. *The last war and this.* It is a traditional gibe against the British Army that it always tries to fight a new war with the tactics of the old. We can laugh this off by

*Motor Transport.

pointing out that the Germans also are using their tactics of the last war—infiltration and the attack in depth which nearly defeated us in 1918. Moreover the new weapons which the Germans are using are weapons which we used against them in the last war. It seems, then, reasonable to suggest that we also might profitably revive some of our methods of the last war—which we won.

Readers of Ludendorff's "War Memories" cannot fail to be struck by his continual complaints of the superiority of the British Artillery to the German. (And this was not merely superiority in weight of metal, but also in skill. For instance, the German Artillery gave up using shrapnel in 1916 because "such delicate work was unsuited for untrained soldiers." Our "untrained gunners" continued to use it to the end.)

The quotations given in the Appendix refer only to the tactics of the big offensives, but last war gunners will recall that from 1916 onwards our artillery was seldom inactive. Registration, sniping at Huns wandering in the open, methodical shoots at loop-hole plates, bursts of fury against mortars or mere knocking about of parapets from excess of spirits and ammunition—these activities occupied our days. And for the nights Brigade used unflinching to send round harassing fire programs.

To win this war let us, by all means, adopt what is good in German methods. But do not let us forget the power of attack which lies in our artillery.

APPENDIX

Quotations are from Ludendorff's "My War Memories 1914-1918"—2 vols.

1. *The Battle of the Somme. 1916.*

"We had heavy losses in men and material. At that time the front lines were still strongly held. The men



"It can produce a big punch." This German 88-mm. AA and AT gun was on the receiving end in Libya. Like nearly all AA guns with the field army, it is fitted with a shield for protection during AT action. The prime mover is the standard medium half-track used for many different purposes.

took refuge in dug-outs and cellars from the enemy's artillery fire. *The enemy infantry, coming up behind their barrage, got into the trenches and villages before our men could crawl out from their shelters. A continuous yield of prisoners to the enemy was the result.*"

Vol. i, p. 244.

Note.

It was after this that the Germans produced their tactics of defense in depth, the principles of which were embodied in the manual "The Defensive Battle." (See Vol. i, p. 386.)

Ludendorff perhaps attributes too much credit to these tactics for the comparative failure of our creeping barrage at Paschendaele. Other factors were (i) the state of the ground, which made it impossible for our infantry to keep up with the barrage, and (ii) the concrete pillbox, which enabled machine gunners to continue firing even when the shrapnel barrage was beating on its roof.

However the next quotation shows that Ludendorff did not consider Paschendaele a failure.

2. *Paschendaele. 1917.*

"The enemy's onslaught on the 20th (Sept.) was successful, which proved the superiority of the attack over the defense. Its strength did not consist in the tanks; we found them inconvenient, but put them out of action all the same.

"The power of the attack lay in the artillery, and in the fact that ours did not do enough damage to the hostile infantry as they were assembling, and, above all, at the actual moment of assault." Vol. ii, p. 488.

Note.

Ludendorff's disparaging reference to the tanks is unfair since the ground was quite unsuited to their operations. It is nevertheless true that Paschendaele was won by artillery and infantry alone.

3. *German artillery in the attack—Spring offensive of 1918.*

"It was necessary to bring up 20 or 30 batteries, about 100 guns, to each kilometre of the front to be attacked. These were indeed massed effects! And yet the battle area was so vast that even these quantities of steel did not destroy all life; *the infantry always found far too much to do.*" Vol. ii, p. 577.

Note.

Ludendorff describes on page 578 the German plan of artillery support. It includes "to put down a barrage in front of the infantry and then pave the way for it like a gigantic roller"—which is a fair description of the creeping barrage tactics. But a comparison of quotations 1 and 3 brings out the fact that the Germans were not so successful with these tactics as we were.



For desert use the Italians have developed a stubby staff car with a high degree of flotation. The boxed-in running boards form lockers for tools or equipment. Crank and high position of gas tank indicate that self-starters and fuel pumps are unessential luxuries. (British Press Service photo)

Seversky: "Air Power!"

Nickerson: "Not Enough!"

The dangerous fallacy of Major Seversky's book* is that he concentrates on the instrument, the plane, by which his results are to be accomplished, and insufficiently considers the results themselves. Thus putting the cart before the horse and confusing means with ends, he not only misunderstands the general nature of war but also the particular objects which strategy seeks to achieve. Since both misunderstandings are widespread, and since both, if unchecked, would hinder and might even prevent the success of the vast effort in which we are engaged, positive and complete refutation of both is an urgent public duty.

Precisely because the plane is already a primary instrument of war, with still more gigantic possibilities looming in the future, it is important to use its great power to the best advantage. If anyone claims that it is already the primary instrument, so much the more should it be wisely employed. Similarly, just because Major de Seversky is not only a gallant flyer but also a distinguished designer of planes whose opinions on technical matters should be heard with respect, it is all the more necessary to protect the public from his errors in the general field of military policy.

In so doing we shall by no means enter into aeronautical controversy. Instead of taking advantage of his own disapproval of "childlike faith in . . . experts" (p. 184), we shall on the contrary go a long way with him in admitting the possibility of the future air developments which he predicts. Assuming that his technical assumptions are largely correct, we shall merely ask: Does this concession prove his case?

* * * * *

De Seversky's initial error is that he takes victory for the true and final objective of war, whereas victory is an intermediate objective, a means toward a better peace. As Sherman put it: "The legitimate object of war is a more perfect peace." By definition all wars are political acts, for all are acts of organized violence between human groups pursuing contradictory policies. Hence every declaration of war implies the belief that the game is worth the candle, that the policy for which one is about to fight is materially or spiritually worth the efforts and sacrifices which may be

**Victory Through Air Power*. Simon & Shuster. \$2.50.

necessary to maintain it.

Our air enthusiast is not wholly blind to the truth that wars are political acts in which the object to be achieved influences the means chosen to achieve it. His chapter on "Possession or Elimination" shows a partial understanding of that truth, but he has not sufficiently asked himself Foch's tireless question: "De quoi s'agit il," what's it all about? What are we trying to do?

Any genuine peace must be one of reconciliation or of destruction. When we seek a peace of reconciliation we will not try to crush or disarm our enemy completely. We will try only to defeat him partially and will then offer generous terms which he will be largely free to accept or refuse and will accept because it is worth his while. He may then become friendly, as Spain became friendly after the generous settlement which followed the American victory of 1898. For two thousand years practically all wars known to European history have ended in peace settlements with at least an element of reconciliation about them. In point of physical destruction, perhaps the only town in Christendom known to have been permanently destroyed was Therouanne in Flanders. Turning from actual destruction to the milder matter of political destruction, for centuries before 1939 the only attempt to destroy permanently the political existence of any considerable European nation was made against Poland—with conspicuous success.

The first reason why so few attempts have been made to destroy powerful opponents is the difficulty of the job. A human group threatened with great evils resists more fiercely than another threatened with lesser ones. Besides being difficult, wholesale political or physical destruction is usually unprofitable. Insofar as the victor is a part of the same economic system as his victim, all physical destruction which he inflicts damages his own future. He may permanently lower his own standard of living by ruining a good customer. Next, physical destruction in its extreme forms, for instance the killing of men, women, and children after resistance has ceased, soon disgusts the killers themselves. Finally, even in the exceptional cases when "a peace of destruction" is the object, the destruction should cost the victor as little as possible, lest he fall lifeless on the body of his victim. In other words, whatever kind of peace is desired, the

By Hoffman Nickerson

means by which it is sought should be as economical as the case permits.

On the contrary, what do we find in "Victory Through Air Power"? In the first place, the exceptional and horrible goal of a peace of destruction is taken as normal; secondly, it is to be sought by a fantastically expensive means.

De Seversky recognizes only two variants. In the first, which he calls "possession," the object is to destroy the political independence of the enemy, in which case, as he justly observes, the victor will "find the acquisition of an area intact, for its resources or industry or other economic values, more desirable than its destruction" (p. 101). In the second case, when the moral difficulty of turning an "advanced" people into willing subjects is thought insuperable, enemies "must, if possible, be reduced to impotence beyond easy recovery, through the annihilation of the industrial foundations of their life" (p. 101).

Let us assume that our airman is correct in believing either in political or wholesale physical destruction as the normal objects of future wars. Even on that assumption, he seems to have little idea of the effort which would be necessary for such physical destruction. By his own definition, his proposed victim is industrially strong and so determined upon independence that no effort at permanent conquest is thought worth while. Consequently there will be a colossal effort at resistance, which will require a still more colossal effort for victory by de Seversky's side. Since, as we have seen, such efforts cannot be indefinitely prolonged without collapse—the examples of France in 1814 and '15, of Russia in 1917, and of Germany in 1918 are conclusive—it is mere self-preservation to apply them as economically as possible. And yet our author, after blandly telling us that Lightning War, with its rapid occupation of territory at small cost to the attacker, ". . . becomes uneconomical and unnecessary in the war of total destruction," recommends the least economical strategy known to man, a war of cross-raiding. By cross-raiding we mean a contest in which both sides merely try to damage each other without either attempting a decision over the organized forces of its enemy. Further, this wasteful strategy is to be conducted by the conspicuously wasteful means of "pure air warfare" without surface forces, although destruction from the air is enormously costly compared with destruction from the ground.

Let us go into detail a little. The determined and highly industrialized victim is necessarily inferior in the air, otherwise it would be the destroyer rather than the destroyed. It presumably has, however, a considerable air force together with powerful means of protecting its air bases, factories, communications, etc., by fighter planes, anti-aircraft guns, and all the different forms of passive defense. It is true that all the victim's "soft spots," the vulnerable cities and other targets in his rear areas, cannot

be perfectly protected, but neither can the corresponding soft spots on de Seversky's side. Consequently future struggles for air superiority will presumably be long. Only great inferiority of force plus inadequate passive defense on one side could shorten them.

Having mentioned fighter planes, I here digress for a moment to note a strange confusion in de Seversky's thought as between them and bombers. On page 312 he admits that ". . . bombing capacity must be sacrificed for combat power or vice versa." This is only common sense, familiar to naval architects since the beginning of human record. Surely it is obvious that no "watership" or airship intended to carry heavy cargo can be as fast or as heavily gunned as another not so intended. In the surface ship the limiting factor is the displacement, in planes it is called, I believe, wing-lift; the principle seems identical. Nevertheless, about halfway down page 316 our author turns a somersault, saying "Usually . . . the pursuit will find it difficult to penetrate the long-range fire of the superplane close enough to use its own guns." Six lines further down on the same page he turns another somersault, this time landing on his feet with the admission: "This (the large future plane), of course, will lead inevitably to enlargement of defending aircraft commensurate with the growing size of the attacking aircraft."

Returning from this digression to his failure to appreciate the general nature of war, there are many obvious reasons for believing that future races between great powers for an air superiority sufficient to begin the quasipermanent physical destruction of an enemy's communications and industries will be lengthy affairs. The intended victim may emphasize fighter planes as England successfully did. He may put his hangars underground. He may take great precautions against fire and provide many buildings with formidable overhead cover. Above all, while de Seversky's side is bombing him, he will undoubtedly be bombing back. Cross-raiding by horsemen or fast surface ships is as old as war and has never proved decisive. Both sides are more or less damaged, and neither is much nearer to victory by this means alone.

* * * * *

But suppose that cross-raiding has, at long last, achieved definite and final air superiority. Even then one could hardly imagine a more wasteful way of using that superiority than the attempt at physical and lasting destruction of any great country by bombs dropped from the air. We need only consider the necessary characteristics of such bombs. They are dropped from either great heights or low altitudes. In the first case their cone of dispersion is enormous. A distinguished English officer, so far from ultra conservative that he is well known as a military "futurist," recently estimated in a private letter that this dispersion exceeds half a mile,



when the bomb is dropped from a height of more than ten thousand feet, a lateral error of more than a quarter of the vertical distance. On the other hand, bombs dropped from low altitudes have so little velocity that they tend to burst on the outside of any solid object without penetrating it.

By contrast we need only note the greater effect of shells fired from guns, which projectiles tend to penetrate the object struck and to burst inside its surface, and most of all the effectiveness of blasting charges set into the structure to be destroyed and well tamped down by demolition parties or engineer troops on the ground.

Assuming for one moment that lasting physical destruction of an entire country has been made the object of a war, and that cross-raiding has achieved definite air superiority, even then the attempt at total destruction from the air seems about as wasteful a method as could be found.

Although on page 327 our author shows some slight appreciation of the enormous potential power of passive defense, nevertheless on page 104 he writes: "When the skies over a nation are captured . . . the job of annihilation . . . can be carried out . . . efficiently . . . from overhead." At this point he brings in an oddly twisted moral argument; ". . . the kind of large-scale demolition which would be looked upon as horrifying vandalism when undertaken by soldiers on the ground can be passed off as a technical preparation or 'softening' when carried out by aerial

bombing." Let him be comforted. Should the wholesale physical destruction of an opponent ever become the war aim of any great power—and should the alleged necessity of that war aim be vigorously propagandized, then probably a number of nations might recruit enough degenerates willing to go beyond demolition into massacre and even torture until the mood wore off. On the other hand, practically all universal human experience shows, in the famous phrase by which Talleyrand characterized a much lesser abomination, that any such attempt would prove not only a crime but a blunder.

It is submitted that the foregoing proves the first charge against de Seversky, that he misunderstands the general nature of war.

* * * * *

We now turn to the second charge, that he also misunderstands the particular objects which strategy seeks to achieve. He does not see clearly the great desirability of the military "destruction" of an enemy's organized forces, as opposed either to blockade or to any form of raiding. Nor does he sufficiently grasp the effect of occupying territory as a result of the partial defeat of those forces.

All acts of war, as we have seen, are intended to make the enemy give up the policy which has brought about the conflict. In a sense this would be true even in a war intended to end in total massacre; in that case the winning

side would do well to try to numb its enemies' determination to go on living, so that at least the last stages of the massacre might take place without resistance. In all the more normal cases, which include practically every war known to history, the truth of the proposition is obvious; each side tries more or less forcibly to persuade its opponent that he had better give in, thus every use or threat of force is aimed at the enemy's opinion. Rearranging very slightly Clausewitz' familiar classification of objectives, strategy may take one or more of three forms: we may attack opinion directly by threats or by various forms of propaganda, we may try to "destroy" his organized forces. The word "destroy" is put in quotation marks to emphasize the distinction between military destruction and actual physical destruction. A force is destroyed in the military sense when it is no longer an effective instrument of war in the hand of its commander; the killing and other forms of physical destruction through which this is usually accomplished are only incidental. Ideally speaking, a perfect weapon would be one which wholly disabled the enemy and permitted his capture without any casualties, such as a temporarily powerful gas of no permanent effect.

Over direct attack upon opinion we need not linger, except to note that the threat of Italian air attack in the Mediterranean influenced British policy during the Ethiopian War of 1935, and also that the German air threat helped to cause the Franco-British abandonment of the Czechs at Munich in '38. Nevertheless the direct attack upon opinion, when not backed by potential force, is feeble. Nor can propaganda long remain effective when not based upon truth.

What is important for our present purpose is to understand the greater effectiveness of operations which succeed in "destroying" any considerable part of the enemy's organized forces as compared with attempts to deprive him of resources by means of raiding or blockade. The distinction between the two objectives is essential to the debate about pure air strategy.

It cannot be too often repeated that man is a land animal whose every warlike act is aimed, directly or indirectly, at the control of some land area with the people on it. All voyages by sea or air start from the land and are made in hope of affecting events on land. Thus the ultimate strategic question always is: How can we most effectively and economically control this or that territory sufficiently to destroy the effective opposition of its inhabitants to our policy?

Since the pure air strategy people admit the logic of the matter as regards the Old Wars before men could fly, we may begin from that common ground. From immemorial time, armies could either assault or blockade by cutting land communications. Navies could blockade by cutting sea communications and could make possible assaults

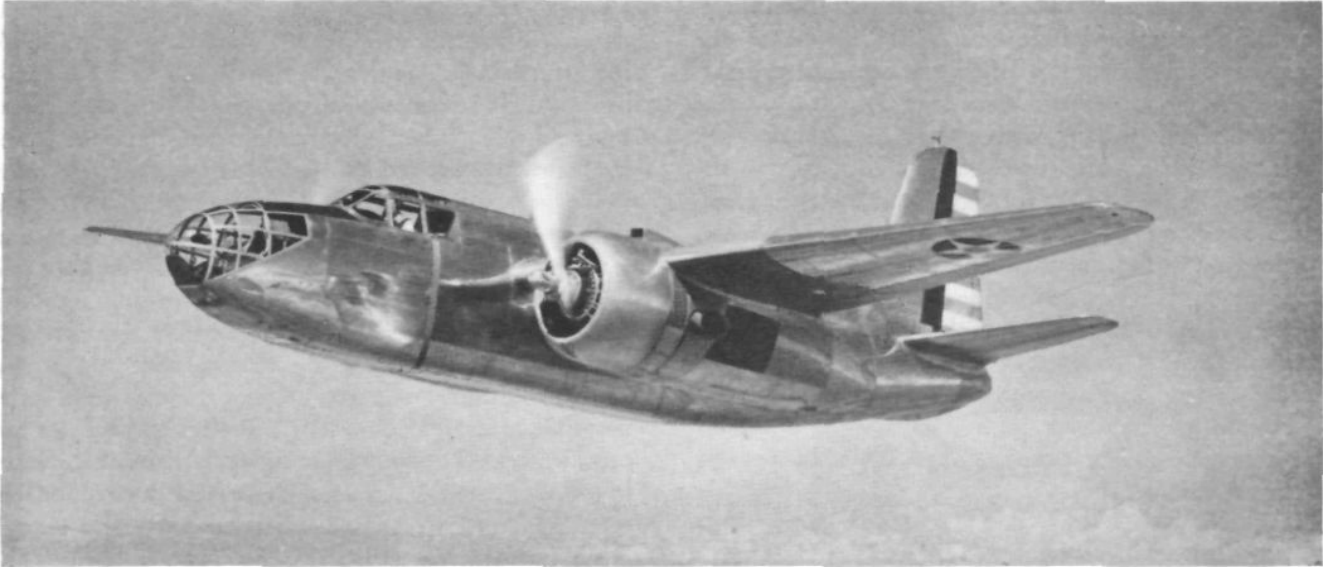
upon a land enemy by ferrying friendly troops overseas. On the other hand, their power of injuring land enemies by bombardment was always slight. There was indeed a short period in the eighteenth century when naval guns had some success against fairly strong fortresses, but in general land-based weapons have always been superior.

The importance of battle in the Old Wars was obvious. After a decisive victory on land you did what you liked. If your enemy did not promptly surrender you moved on his capital city, paralyzed his government, and occupied as much of his country as your numbers permitted. At sea until you had decisively defeated your enemy's battlefleets, your ability to deny sea communications to him and to use those communications yourself was threatened.

Equally obvious in most cases was the superior effectiveness of successful land assault followed by occupation as compared with raiding, or even blockading. Special circumstances might make you choose to blockade rather than to assault, but whenever successful assault without ruinous loss seemed possible it was always to be preferred because it "killed the cat." In other words the "destruction" of the enemy's principal army ended active operations. By contrast, blockades act slowly and raids seem never to have been decisive.

A raid meant an operation of which the primary object was pillage or destruction of undefended or of lightly defended objects, rather than engagement of the enemy's organized forces. Usually land or sea raiders trusted in their speed to escape contact with those forces. In the decay of the Roman professional army system during the Dark Ages, Viking and Magyar raiders plundered the disarmed countrysides of Western Christendom as freely as planes will ever fly over the territory of great powers, perhaps more freely. They practically destroyed Irish civilization. But elsewhere when, at long last, appropriate measures were taken, when our ancestors organized the feudal militia system under a military aristocracy, and when strong castles whose function was not wholly unlike that of our air raid shelters were built everywhere, then the heathen raiders soon found it expedient to naturalize themselves into Christendom via baptism.

In modern times raiding by sea was more important than by land. In the Anglo-French wars of the eighteenth and early nineteenth centuries successive French governments, after the defeat of their battlefleets, tried again and again to bring down England by sending out fast ships to prey upon her merchantmen. It looked so cheap and easy! Invariably they failed. More promptly than the Christians of the Dark Ages, the English took appropriate measures. Under the direct or indirect cover of their battlefleets, they grouped their merchantmen in convoys. They blockaded the ports used by the French commerce destroyers. Those commerce destroyers did cause damage, sometimes much damage,



but every time that the French stopped sending battle-fleets to sea England won the naval war.

Up to 1914 the increasing size of armies and the increasing rapidity of communications tended to restrict raiders both by land and sea. In '14-'18, however, the appearance of two new instruments capable of tridimensional movement, the submarine and the plane, opened up new possibilities of raiding and then evading pursuit. In '17 the submarine nearly decided the war, but just in time the Allies turned the scale as it had always been turned against raiders. In that war air raids on cities had a considerable diversionary effect. They caused numerous absences from work for several days after each attack, thus retarding production. They also compelled the "locking up" of appreciable numbers of defending planes, anti-aircraft guns, and personnel at home, which would otherwise have been available on the fighting fronts where a decision was being sought. Indeed, diversion has always been the effectiveness of attacks upon an enemy's rear areas by sea or land. Axiomatically, detachments are always justified if although they can lead the enemy to divert a larger force from the main theatre.

The years 1919-1939 saw the multiplication of military aircraft and the appearance of the new school of pure air strategy of which the Italian General Douhet was the principal theorist and General Mitchell the best known American exponent. These men held that surface armies and fleets should henceforth be considered as mere defensive components and therefore subordinate to air forces. These last would be the offensive arms and should therefore be organized independently of army or navy commands and also receive the greater part of the funds appropriated for the armed services. To this school of thought de Seversky belongs.

The Germans, however, were by no means of this mind. They did indeed set up a nominally separate air force, but

in practice the prestige of their army subordinated this air force to the army command. Moreover, their planes were built primarily for cooperation with German surface forces.

In the present war up to the time of writing (May) the achievements of cooperating aircraft have shaken the world. The principal effect of air work upon grand strategy has been to push much further out to the sea the zone within which land-based weapons should dominate sea-based ones. Without discussing how far future naval vessels may adapt themselves to resist air attack, we may note that in land campaigns the chief use of planes has been as immensely long-range and mobile artillery. They have of course other uses, reconnaissance and transport, as we shall see in a moment. Nevertheless they have been chiefly flying gun-mounts, dropping bombs instead of shooting them.

Just as in former wars the first object of attacking artillery was to silence the defender's guns, so the first objective of the German air force has been to defeat the air forces supporting the hostile armies. Understanding thoroughly the desirability of "destroying" the enemy's armed forces and then occupying his territory, the *Grosse Generalstab* has not allowed its ground forces to stand idly gazing across land frontiers while the *Luftwaffe* alone sought to bomb hostile countries into submission. On the contrary, the planes have made it their business to facilitate the advance of the armies, and those armies have rushed forward with all possible speed. Instead of waiting for bombardment alone to produce results, prompt assault has capitalized the effect of each successful bombardment as it did before planes were known. The principles that the task of the longer range weapons is to facilitate the advance of the men who take and hold the terrain, is as old as war.

Now de Seversky and the other theorists of pure air strategy ask us to believe that this familiar principle is

invalid just at the moment when it has been overwhelmingly sustained by events. In the teeth of the German conquests, most of them accomplished at lightning speed and with minimum loss, they tell us that future decisions will be more economically achieved by the attribution of aerial bombardment than by the "destruction" of the hostile organized forces, that the maximum development of one weapon, the plane, will henceforth prove more effective than the combination of all arms into a balanced team. Immediately after the earthshaking German offensives on the ground, our author maintains with Douhet that "Our task is to hold the enemy on land and sea with minimal forces, . . . and to channel our main energies . . . for massing in the air for a decisive all-out offensive" (p. 348). Never was stranger reasoning.

As if this were not enough, we read on page 72: "Just as the scientist learns from an unsuccessful experiment how to achieve success in the next day, so the Battle of Britain has given aerial strategists *proof* (italics mine) that nations can be wrecked and forced to surrender from the air alone." In other words, the failure of an experiment conducted in a certain way *proves* that said experiment would have succeeded if otherwise conducted!

Further on (pp. 174-5) he asserts: ". . . It is quite conceivable that the Germans, having few battleships . . . and being . . . conscious that many enemy battleships no longer constitute an offensive threat against German-held areas, were not . . . eager to sink them from the air." Why convince the Allies of the fallacy of the psychological dependence upon sea power? In short, it would not have advantaged the Germans to sink hostile battleships as the Japanese have done. Believe it or not, such is the reasoning.

Still another curious weakness of strategical thinking is his treatment of range in relation to a war of bombardment and counterbombardment. On page 137 we read: ". . . In relation to the huge distances which will soon be compassed by aviation, it will make literally no difference whether a force takes off from the American mainland or from some island outpost a few hundred miles off the mainland." On the next page he says the exact opposite: "Since range and load-carrying capacity complement each other, the striking force of aircraft is in inverse ratio to the distance." Then on page 139 he abandons this second reasonable statement, saying: "As soon as aviation exploits its full technical potentialities of fighting range, intermediary points will be abandoned . . . like so many obsolete outer fortifications." Surely the truth of the matter is plain and the second statement correct. Probably planes will continue to increase in range; if they do, distance will no longer limit their activities as much as it does today. For instance, no spot on the earth's surface would be wholly out of reach of a plane which could

girdle the earth and return to its starting point without assistance. But even if we assume such an increase in air range as this, and if we further assume that the attribution of aerial bombardment and counterbombardment will be decisive in war, still common sense tells us that range and therefore the ability to seize and hold intermediate territorial bases would be vital. Imagine two contending powers A and B with a land frontier about equally distant from the vital centers of each. Let the total distance between the two sets of vital centres equal four units of distance. If A advances, seizes and holds a zone half way between the common frontier and B's centres, then A's planes will have to travel only two units of distance from their new base to drop a bomb on B's centres and then to return, whereas B's planes must travel six units of distance in order to bomb A's centres. Thus A's planes can make three round trips—less only the time needed to reload bomb racks—while B's planes are making one. This will be true irrespective of the extreme range of the planes; they might be able to fly to the moon or the furthest stars, but intermediate bases which diminished appreciably the distance to be flown to an objective would still have enormous value.

On page 31 we have an error concerning recent history. We are told that the Maginot Line was "cracked," whereas the essence of its fall was that it was turned. It was not assaulted at all until the French counterattacking troops had been drawn off by the German turning movement.

On page 329 is a howler as to ancient history: it is stated that in "the Roman Empire at the apex of its glory . . . every Roman was a soldier." The exact contrary was the fact. The Roman Army became professional a century before the Empire replaced the Republic, and the military policy of Augustus and his successors was to disarm systematically the mass of free citizens and employ a professional army which was for centuries so small as to be little more than a constabulary. In commenting on a book concerned chiefly with the present and future, we should not overstress an inaccuracy about ancient affairs, but if historical illustrations are used they should bear some relation to historical truth.

We turn with relief to an error of a lesser sort which can be explained on the ground of mere looseness of statement. On page 95 de Seversky writes that the German conquest of Crete proved ". . . the reality of pure air strategy as the basic component for conquest and victory in our epoch." In fact it was not "pure air strategy" at all, as can be simply proved. Suppose that the Germans who landed on Crete had been transported by sea instead of by air, and that their artillery support had come from guns on ships instead of from machine guns fired and bombs dropped from planes. Clearly, such an operation would not have been the work of "pure sea power" but of sea power and land power combined, for without land troops it could not have taken

place. Whether the troops come by and are supported from the sea or from the air does not affect the truth that their success or failure after landing is the test of victory or defeat.

It is pleasant to find de Seversky correct on one important point. On page 63 he notes that in the British air victory over England military quality defeated quantity, the German superior numbers. Indeed he might have gone further and included the ground as well as the air in his general statement that, as compared with numbers, the value of high training is increasing. It seems to be the unanimous decision of informed observers that the German Army of about three hundred divisions expects its elite of about sixty-five divisions—Panzers, Mountaineers, Parachutists, and Air-borne Troops—to do most of its heavy work. If nations in arms more and more become nations in arsenals, the average man will no longer fight even in a maximum military effort.

* * * * *

We conclude: insofar as the nature of war depends upon the nature of man, it will continue to swing to and fro like a pendulum, seldom if ever touching the extremes of extermination or of mere policing. Essentially, its variations have nothing to do with planes or with the other

weapons used; I venture to repeat the obvious truth, which I have written elsewhere, that two bodies of men armed only with hands, feet, and teeth, could kill each other off until one side was wholly massacred, if they chose.

The application of strategic principles will of course change with each new material instrument. From time to time what has seemed a principle may turn out to have been no principle at all, but a mere rule of thumb covering certain cases and not others. If so, that will mean only that real thought and living tradition have been lost, sunk into dead routine. The task of military thought will continue to be the testing of old principles and either their rejection or their restatement in terms of new conditions.

We may be morally certain that the influence of the plane upon war, already enormous, will greatly increase. No one can tell where air developments will stop. The time might conceivably come when surface forces of all kinds would logically be commanded by airmen. Even then, control over land areas would remain basic, and a separate air force would be justified only if it could be shown that the chances of achieving such control would be increased by an increasing unity of command. It would seem hard to prove that three is closer to one than two is to one.





PERIMETERS in PARAGRAPHS



By Colonel Conrad H. Lanza

Finale—*BATAAN*

Last January the American troops in Bataan withdrew from the upper part of the peninsula to a line about halfway down, extending east and west about through Abucay. The Japanese remained at the head of the peninsula, blockading it with a force estimated at 20,000 men, while their security detachments pushed forward to within one to six miles of the American lines. The Japanese totalled about 5 divisions, the bulk of which were consolidating the occupation of Luzon.

For some three months the American troops, numbering about 50,000, had a comparatively quiet time. Patrol encounters occurred in the wide No Man's Land and the enemy made occasional raids, some of them by sea, but only a part of the troops were in line. A considerable number were in rear areas, training, improving roads and communications, or building field fortifications. Nevertheless the condition of the troops materially declined during this period, due to lack of food, medicines, clothing, and recreation.

The troops were on half-rations beginning the middle of January, with two meals a day—breakfast around 8 AM and dinner about 4:30 PM. There was little variety. Vegetables and fruits were non-existent after January. Meat was issued only about twice a week, and consisted of carabao, QM mules (preferred by the soldiers), horses (cavalry and artillery), monkeys, and some beef which arrived in ships which occasionally ran the blockade. Rice and sugar in diminishing quantities were available to the end, but the men tired of the constant rice diet. A limited amount of bread was available.

Due to short rations and deficiencies in certain food elements, there was a decline in health, very perceptible after March first and increasing daily. Beri-beri, hookworm, and similar nutritional diseases were present, and the men grew weaker.

Tobacco, the great solace of the soldier, had all but disappeared. A very small supply could at rare intervals be found in the black market, where a package of

cigarettes sold for \$3.50. There were no movies, no stores, no exchanges, but there were radios. What the men heard over them came from Manila, where the Japanese daily broadcast special programs for their benefit, expatiating upon the uselessness of resistance. These broadcasts infuriated some of the soldiers, but amused others as illustrating the Japanese conception of American mentality.

The men had lost a large part of their clothing in constant travel through the jungle. What was left was in tatters. There was none for replacement.

At the beginning of the siege the troops looked forward to being rescued. They were certain the attempt would be made, and that it would be successful. They discussed what they would do when this happy event occurred. By the end of March they were convinced that there would be no rescue, and that it was hopeless to expect it.

When the Japanese attack came it found the American forces weakened, not by fighting, but by lack of resources needed to preserve good health and condition.

About March 25th Japanese reinforcements arrived in line, and there was increased patrol activity. At the same time the enemy air force began to subject rear areas to daily bombing, special attention being given to presumed places of food storage. It was correctly assumed that these measures presaged an attack. The Americans had no air force to meet that of the enemy, but they did have efficient anti-aircraft artillery.

On March 26th the Japanese announced the completion of the organization of occupied Luzon. They concentrated their troops at the north end of Bataan. On the 27th Japanese planes bombed forward areas almost continuously, especially in the mountainous center. At this time, the Americans had two corps in line: I Corps, Major General George M. Parker, Jr., on the left; II Corps, Major General Albert M. Jones, on the right. Major General Edward P. King commanded all troops in Bataan.

Late in the afternoon of the 28th, the enemy launched

a serious attack against the American right center (II Corps). The outposts were driven in, but a counterattack restored the position. This attack may have been made to secure identifications or information.

On the 31st, the Japanese made a night attack starting at 8:30, again on the right center. Infantry mortars were freely used to support vicious thrusts. Savage hand fighting lasted all night in the mountain jungle. The enemy reached a position in front of the main line of resistance, and held it.

Next day the Japanese artillery violently shelled forward areas and presumed sensitive points in rear areas. They then made another night attack, this time near the center of the line, in the densely wooded mountain crest at the junction of the I and II Corps. This again penetrated the outpost line and reached the main line of resistance, in front of which it was stopped after an all-night fight.

On the morning of April 2d the American artillery fired a strong preparation, which was followed by a counterattack near the center of the line which drove the enemy back and restored the old outpost line. While this fight was going on, the enemy at 10:00 AM launched a new attack against the left center (I Corps), on the China Sea side of the mountain crest. This attack found the troops partly exhausted by two successive nights of alerts and fighting, and the Japanese went through the main line and on into the rear area. During the afternoon American counterattacks, delivered from both flanks of point of penetration, closed the gap in the line. By nightfall, Bataan Headquarters considered that the situation was satisfactory, that the position was practically reestablished, and that the enemy in the rear area, being cut off, would be rounded up and suppressed.

During the night of 2/3 April the Japanese delivered several light attacks at various points, which kept the troops awake and prevented rest. In the afternoon of the 3d, the Japanese shelled the American lines violently for three hours. This was taken as a preparation for another attack, but none developed. The enemy's artillery mission was presumably to cause still further lack of rest to the besieged troops.

At daybreak on April 4th another violent Japanese artillery preparation began. This time an infantry attack did follow, and was delivered against the right at Manila Bay side (II Corps). Shock troops assaulted time after time all day long. The Japanese made some gains. After dark a Japanese force, including one or more 75-mm. batteries, all mounted on barges, approached the east coast of Bataan in rear of the forward areas. It was driven off by our own artillery, and appears to have been a diversion to cause the withdrawal of infantry and artillery from the front line.

On the 5th the enemy renewed his attack on the right center (II Corps). This section included more or less cultivated country. A new artillery preparation was succeeded by a tank attack supported by numerous dive-bombers. Fighting lasted all day, with the enemy making no material advances. There is no report as to what happened to the Japanese who had broken into the rear areas of the I Corps, and it is presumed that they were still there. After dark another barge attack came against the rear of the II Corps and as before had only nuisance value.

On the 6th, for the third successive day, the Japanese strongly attacked the right center. They had continuous artillery and air support and this time made substantial gains. Rear areas were very heavily bombed. For the first time, our casualties were reported to be heavy.

On April 7th a new enemy attack, stated to have been with fresh troops, was delivered against the center of the line (junction of I and II Corps). It made considerable progress and again heavy American casualties were reported. All available Japanese air forces were apparently supporting their ground troops, for there was a marked decline of air activity over our island forts during these days. Fighting appears to have continued on the left with Japanese still in our rear areas, and on the right against the enemy still pressing in that vicinity. At the end of the day the American position was confused and there was little certainty as to just where the front was.

General King appears to have decided that it would be dangerous to try to maintain the original front. He issued orders to withdraw during the night to a new line, which appears to have been Aglolomo River (on the China Sea side) —Mariveles Mt.—Orion River (on the Manila Bay side). This formed practically a beach



Radios gave momentary respite. (Signal Corps photo)

head for the base at the tip of the peninsula. General King felt that this could be held in case a withdrawal to Corregidor became necessary. He thought this might become necessary, and so advised his immediate commander, Lieut. General Wainwright, whose CP was on Corregidor. The withdrawal to new positions was made in the night, without interference.

On the morning of April 8th the Japanese attacked the new positions with great vigor. Tanks, artillery, and planes supported the infantry. Dive-bombers assaulted the front lines continuously. Other planes bombed and machine gunned rear areas. The enemy artillery shelled the front without cessation. Infantry attacks succeeded one another at frequent intervals. The Japanese broke through the right of the II Corps close to Manila Bay and advanced onwards into the rear areas. There were no local reserves, so the I Corps was ordered to furnish the troops for a counterattack. There are no details of this counterattack available, but it was made and it did not restore the situation.

Recalling the condition of the troops at the commencement of the battle of Bataan, after a week of intense fighting the men were nearly exhausted. General Wainwright, apprised the day before of the withdrawal of the line and the consideration being given to transferring the command as far as possible to Corregidor, apparently believed that further resistance could not be longer continued. He had the choice of fighting on to the bitter end; withdrawing to Corregidor, using the marine transportation at his disposal; or surrender. He sent a radio to the War Department, which has not yet been published. According to his reports there were on Bataan 36,853 troops, exclusive of about 5,000 men from the Air Corps, of whom some 2,000 were serving as infantry; about 10,000 Philippine Scouts of all arms; about 1,000 men of the U. S. Navy, also serving as infantry; and an unstated number of Marines. In all there were about 53,000 combat troops, of all arms and services. There were also 6,000 Filipino laborers and 18,000 to 20,000 other civilians, whose status is not known. The ration strength was about 78,000.

President Roosevelt's reply, which was made public, authorized continuing the battle or surrender, as the commanding general thought best. As the President does not seem to have mentioned withdrawal to Corregidor, he was apparently convinced that this course was impracticable or undesirable.

General Wainwright exercised his option by deciding to surrender so much of his command as remained in Bataan. In the meantime, General King's headquarters and the CPs of the I and II Corps, with subordinate commanders down to include regiments, worked all the night of 8/9 April, planning withdrawal to Corregidor. On the morning of the 9th instructions to surrender reached

General King. This was shortly followed by a second order forbidding transfer of troops to Corregidor.

General King must have keenly felt his position. Like a good soldier, he fulfilled the most disagreeable duty a soldier can perform. He took the unusual method, one that in his long and honorable career in the Regular Army he never could have believed would arise, of going himself to the Japanese lines at about 8:00 AM, in a little jeep car under a flag of truce. At 11:00 AM he met the local Japanese commander in front of the Lamao Agricultural Station and surrendered his entire command. The Japanese thereupon occupied the remainder of the peninsula. So ended the battle of Bataan.

Those who escaped to Corregidor only a very few, who had not received the order prohibiting their going there. These included 68 members of the Medical Corps, including all nurses; 107 members of the 200th Coast Artillery—apparently the anti-aircraft battery posted at Mariveles Point; the detachment from the Ordnance Depot at Mariveles; and an unknown number of stragglers, some of them completely naked, who managed to cross the channel individually by swimming or by use of small boats.

Japanese reports as to totals of prisoners taken correspond approximately to the War Department figures as to troops on Bataan. They do not agree on some details. Japan's reports indicate that between 4,000 and 5,000 killed were found on the field—there are no American figures as to this—and that about 1,600 prisoners were sick in hospital. This latter figure is out of proportion to the number claimed killed, and is only about one-third of the War Department's figures as to sick in hospital.

The Japanese troops in Bataan were stated to have been commanded by Lieut. General Homma. This officer had been previously reported as having committed suicide on account of alleged chagrin for failure of his attacks to capture Bataan. It now appears that he did not commit suicide, and that there had been no serious attack, prior to the commencement of the battle on March 28th.

Since the fall of Bataan, Corregidor and its three islet forts have been under intense air attack and daily shelling from batteries, including 240-mm. howitzers on Bataan and on the south shore of Manila Bay.

This was undoubtedly foreseen by General Wainwright, and must be considered as part of the reasons for prohibiting withdrawal to Corregidor. There were enough troops on that island to man its defenses. Additional mouths to feed would reduce the time the existing food stocks would last. The technical difficulties of withdrawing from Bataan, with the enemy master of the air, would have been considerable, and the most that could have been hoped for would have been the transfer of men without arms. These would have been of no use to the garrison.

On the same day that Bataan fell, a Japanese division landed at three separate places on the island of Cebu. Three U. S. Navy motor torpedo boats attacked the enemy naval escort and torpedoed a cruiser. One of the MTBs escaped; one was forced ashore by hostile action; and the remaining one is unreported, presumably sunk by its own crew to avoid enemy capture.

On April 11th thirteen U. S. Army planes arrived at a "secret" base in the Philippines, where they refueled. Of three large bombers, one was sent on the 12th to Batangas, where it sank a steamer, and one was sent on a similar mission to Manila. Finding no shipping at Manila, this plane dropped its bombs on Nichols Field. Of ten medium bombers, all went on the 12th to Cebu

and sank three enemy transports. Later that day, and again next morning, five of them went each to raid Cebu and Davao, inflicting damage on enemy installations. In the meantime, the enemy repeatedly raided the "secret" base. The American planes thereupon returned to Australia. According to Japanese sources, the "secret" base was in Mindanao.

On April 15th Japanese troops occupied the island of Guimaras without opposition. On the 16th they landed at three separate places on Panay.

As April closed, American troops in Cebu and in Panay had been driven into the hills where they were resisting. Other American detachments were operating at several places in Mindanao and in Luzon.

CORREGIDOR

With our loss of Bataan, the Japanese gained Mt. Mariveles, on the south top of the peninsula overlooking the entrance to Manila Bay and the island of Corregidor. Siege batteries were installed at once and opened fire on 10 April. At first only one or two batteries fired about four hours per day. Japanese OP's were much higher than Corregidor and only 5,000 to 7,000 meters away; they consequently had an excellent outlook over their target. Air observation was available if desired. Except for about two hours in the afternoon during which tropical downpours may be expected, visibility at this season is usually of the best and there is no reason why the Japanese firing should not have given good results.

In addition to the batteries on Bataan, others were firing from Cavite Province on the south side of the bay. This was a more favorable location as to both range and observation for fire against the two islet forts on the south side of the bay. The Jap Air Force daily attacked our forts, without air opposition. No reports are yet available as to damage at Corregidor, but no claims were made that our antiaircraft batteries brought down enemy planes during the last half of April; it is therefore presumed that these batteries had been put out of action by either enemy action or lack of ammunition. In view of this situation, the Japanese, using mostly dive bombers, came over about hourly all day long, averaging some 13 raids a day, day after day. Notwithstanding this intensive bombing, it later appeared that the most damage to our defenses was caused by enemy 240-mm. batteries in Bataan.

Commencing on April 29th, the Japanese started an artillery preparation upon Corregidor Island. Batteries, in

increased numbers and firing all day from both the north and south sides of the bay, shattered target after target. The defenders fired back. They had 12" mortars available, and American reports state that our targets were truck columns, parks, etc.; occasionally they refer to counterbattery, but not during the final days. There is some doubt as to the description of our targets, as Bataan is heavily wooded and targets would be hard to see from the ground; also there is no explanation as to why the enemy would park, or march in columns, motor



Even before December 7th antiaircraft guns with their alert crews were constantly ready for emergency. The crews lived in emergency quarters near their batteries and two guns of a battery were always ready to go. (Life photo)

trains in the daytime. In any case our fire did not stop the enemy artillery preparation, which continued uninterruptedly to include May 5th.

Due to shortage of supplies, the garrison of the Manila Bay forts were receiving only a 15-ounce ration. It was also deficient in quality, there being no vegetables or fruit and very little meat; the lack of vital food elements had caused various nutritional diseases and a marked physical deterioration among the men. As this condition had existed to some degree since early in January, been acute for the past two months, and been aggravated by the presence of tropical diseases, it was nearly impracticable to withstand the long artillery preparation and the fighting which followed it.

On May 5th the artillery preparation was directed primarily against the landing places selected by the Japanese on Corregidor Island. These were on the north side of the island, situated about a cove containing the island's usual landing place and wharf, QM warehouses, a small village, and a road leading westward up to Topside, where the coast artillery batteries and main post were located. Eastward were trails and paths leading to a lower part of Corregidor. Immediately opposite the landing cove was an isthmus connecting the west and east sectors of the island.

This isthmus had been fortified by the garrison, and the beaches prepared for defense by erection of wire and other obstacles and the installation of machine gun nests and light artillery. It was impossible to conceal these works from the enemy OP's on Bataan. Under terrific fire from the Japanese 240-mm. guns, during the day the wire was blown away, trenches were leveled, and machine gun posts largely destroyed.

About 10:30 PM on the 5th, Japanese troops started from Bataan. According to American reports they crossed in steel barges, the standard Japanese practice. Troops on these barges have some armor protection, and light weapons are mounted so they can be used from the barge decks. During the crossing enemy artillery placed a very dense barrage along the beach, blowing away a great deal of what was left of the defenses.

Japanese accounts state that their first troops landed at 11:16 PM, and that they then went forward through the wire, found to be generally broken up, and attacked with bayonets and sabers. The barges went back for another load, while the artillery extended its range to box around their men on shore. Before daylight two more waves of Japanese arrived, and a sizable beachhead was in their possession.

On the morning of the 6th the Japs advanced up into Topside, climbing the steep slopes. Their artillery had enfilading fire on the Americans, and the Japanese Air Force bombed the defenders and advised their own side as to the best method of approach. Flame throwers were used to overcome machine gun nests. Due to the rough nature of the approach to Topside, there were many dead angles

permitting close approach to the positions held by the Americans.

There are no definite details of this fighting. The Japanese advance progressed against the physically weakened Americans, and some time during the afternoon the white flag was raised and terms were asked of the attackers. The Japanese required that as a condition to cessation of their attack, the American commander, Lieutenant General Jonathan M. Wainwright, should transmit orders to the outlying islands, directing American forces still in the field to surrender. As General Wainwright acquiesced in this demand, it seems that his position was hopeless and that a refusal would have resulted in a massacre.

According to Japanese newspaper photographs, General Wainwright personally broadcast a farewell message to his entire command, explaining the situation, announcing his surrender, and advising his subordinates elsewhere that they were included in the articles of capitulation and should lay down their arms.

Having thus complied with the Japanese demand, General Wainwright went to the Japanese CP, apparently on the Corregidor isthmus, and at 11:00 PM, May 6th, formally surrendered his command.

The last return from the Manila Bay forts was dated 15 April. Total military forces were then 11,574, naval forces 3,845, making an aggregate of 15,419. There is no information as to losses since, except through Japanese sources. They show 12,000 prisoners taken, with 700 killed. This makes a difference of about 2,700 men, who may be the wounded. Evidently a fierce resistance was made by our troops during the short battle of the 6th. Considering that they had no air support, no field artillery, were weak from malnutrition and disease, while the enemy had full artillery and air support, the showing made by our troops was most creditable, however much the loss of the Manila Bay forts may be regretted. The Manila Bay forts held out through five months of warfare, or just double the time that Singapore did.

There is no use concealing the fact that undisputed possession of Manila Bay is of considerable advantage to the enemy from all points of view—military, naval, air, and economic. It is, however, to be expected that the Manila Bay forts, which he has just captured, can not be again placed into commission for some time, and that pending the accomplishment of their restoration they will not be able to defend the entrance of Manila Bay against attacks from the sea.

During the attack on the Manila Bay forts, minor campaigns were in progress elsewhere in the Philippine Islands. There is but meager information as to these, and most of it is from Japanese sources.

The smallest campaign was in north Luzon, where mixed American and Filipino forces had maintained themselves in the mountains east and north of Baguio. On May 5th the Japanese announced that they had

cleared the country up to and to include Bontoc, about 40 miles north of Baguio.

In Panay there had been organized resistance to the Japanese. However, by the middle of April this was confined to Antique Province, on the west side of the island. The enemy had landed and was based on San José, directly west of and across the island from Iliolo. According to our own reports, after an engagement on April 21st the Americans withdrew into the mountains to the east. Two days later the Japanese estimated this force as under 600 men, stating that there were no other U. S. troops at large in Panay. The Japanese decided to blockade this small group, and commenced to withdraw their main force for service to the south.

A similar situation existed in Cebu. As of April 27th, the Japanese commenced to withdraw their men. They reported that so far in Cebu, 400 Americans had been found killed on the field and 61 prisoners taken. There is no information from either side as to the size and composition of the American force, which presumably included Filipinos, but whatever its strength it organized a strong point of resistance in the mountains and continued to hold out. The Japanese left a force to blockade it.

The Japanese military and naval forces withdrawn from the Cebu and Panay operations were sent south, and are next reported on April 29th, when they commenced a series of landings on Mindanao where they had previously held only Davao and Zamboanga. A considerable American force was on Mindanao, with its main body east and southeast of Lake Lanao. It was commanded by Major General W. F. Sharpe. The only information as to its size comes from the Japanese, who at this date estimated the united American and Filipino troops at about 30,000 men. The coasts appear to have been only under observation by our troops, and no attempt was made to oppose landings.

The Japanese plan was:

Force A: Land at Malabang on south coast and proceed to east side of Lake Lanao.

Force B: Land near Iligan on north coast and advance to north side Lake Lanao.

Force C: Land near Tagoloan, east of Iligan, and advance up the valley of the Rio Ganay, utilizing steel barges for advance parties. This column to join Force A.

Force D: Land near Cagayan, on Macajalar Bay, about 20 miles southeast of Force C, and advance toward the headwaters of the Rio Grande, east of Lake Lanao. Protect the left of Force C.

Force E, already at Davao, was to prevent any American withdrawal across the mountains to the east or south.

The Japanese in Panay and Cebu had been previously reported as one division on each of these islands. This was



"Topside" on Corregidor. (Life photo)

probably the force used to invade Mindanao, less detachments left to blockade the small American commands still holding out.

There was no opposition to the landings, but they were observed by American detachments. Present with these on the north coast was General Sharpe's chief of staff, Colonel Wade D. Killem, who got close to the front and was captured.

General Sharpe seems to have decided to hold his central position. There is nothing to indicate that he tried to maneuver, or that he had means, supplies, and ammunition to enable him to take a vigorous offensive against the converging Japanese columns.

By evening of May 3d the Japanese, not having met much opposition, reached Lake Lanao. They had identified 4 US regiments, who are reported to have retired as the advance progressed. A strong force of Americans was reported to be at Dansalan on Lake Lanao, the capital of the island, and was supposed to be the CP of the entire American force. During the night of 3/3 May an attack was launched against Dansalan. No great resistance was met, and the Japanese entered the place at 4:00 AM. The Americans had set fire to the town and then retreated toward the mountains and jungles to the southeast. The lack of determined resistance by the allegedly considerable number of Americans in Mindanao would indicate that they were out of ammunition, and possibly of food. As far as is known the Americans had no artillery, while the Japanese had at least that of two divisions. There is no information as to the physical conditions of the American troops, but judging from experiences in the other islands their health and powers of resistance probably were low.

On May 6th the Japanese announced that all the forces engaged in this campaign had reached their objectives and that the lake Lanao region was clear of the enemy. They had not succeeded in capturing General Sharpe's command, which was yet in the field. Late that night came General Wainwright's radio message announcing his surrender of the Manila forts, and advising his subordinates to surrender also to avoid unnecessary losses. Neither General Sharpe nor the detachments holding out in Panay and in Cebu acted on this message. The Japanese waited until May 8th, when their advances were met by fire from our troops.

The Japanese applied to General Wainwright for a liaison officer who would go to the outlying forces and assure them that the General's broadcasted message was genuine; Colonel Jesse T. Traywick was detailed for this duty. He seems to have been flown to Mindanao. He may have stopped at Panay and at Cebu en route, but he was reported in Mindanao on May 10th and passed over to the American lines without delay. He convinced General Sharpe that surrender was advisable, and capitulation followed that same day. The Japanese announced that all other American detachments in the Philippine Islands surrendered also, and that all resistance had disappeared.

On May 20th, having previously raised all blackout orders, a grand celebration was held by the Japanese at Manila to commemorate the fall of the white man's rule in the Far East.

So ends, temporarily, American history in our former Philippine dependencies.

* * * * *

The following is a partial, incomplete statement of American losses in the Philippine Islands.

<i>According to Japanese Reports</i>	<i>Entire U.S. Force Official Returns</i>			
	<i>Killed Prisoners Total</i>			
In Luzon, prior to 1				
January	?	9,200	9,200	
Bataan	5,000	53,400	58,400	52,853
Manila Bay forts				
.....	700	12,000	12,700	15,419
Cebu	400	61	461	
Panay	? about	600	600	
Mindanao	no reliable information			
North Luzon	no reliable information			
		-----	-----	-----
Partial totals	6,100	75,261	81,361	

It would seem that the entire American loss was around 100,000 men.

Conditions, and not individuals, determine national expansion. Individuals, and not conditions, determine the manner and degree of its propulsion. When conditions productive of expansion occur during the lifetime of an individual whose genius grasps their significance and whose position in the state permits him to make use of his discernment, then occur those tragic epochs in national life when out of the wreckage of one state another is created. Such was the combination between Peter and Russia, Napoleon and France, Bismarck and Germany. To this combination the genius of such men is its soul.

Ordinarily this soul is transient.

In Germany it is otherwise.

The spirit of Bismarck has departed only to diffuse itself into the genius of his race. While other nations must await the suitable adjustment of conditions to human genius, Germany waits only for opportunity.

The British Empire, in its relationship to German expansion and the consequent dissolution of the British dominion, has not to deal with the German people, but only with conditions that determine Germanic expansion. The German nation waits only as Bismarck waited for conditions to shape themselves. So imbued is this race with his ideals that it can do without his genius. It has become Bismarckian. His heavy spirit has settled upon it. It wears his scowl. It has adopted his brutality, as it has his greatness. It has taken his criterion of truth, which is Germanic; his indifference to justice, which is savage; and his conception of a state, which is sublime.

This nation has forgotten God in its exaltation of the Germanic race.

LEA, The Day of the Saxon.

THROUGH THE MILL



"Hold it, hold it! Now back left a bit."

Second of Series

By Lieutenant John Hughes, FA

About four months of my rather varied duty has been spent in the field, either on maneuvers or on road marches which lasted from overnight to two weeks. In those jaunts I picked up an assortment of little things that help spell the difference between success with your men and forcing your outfit to do your bidding, between comfort and discomfort.

Once a new BC *took over*. Shortly, everything was in a turmoil. He insisted on being in on the most trivial details, attempting to run the outfit without delegating authority to any of his juniors. Once we were to make an overnight march, including a camp. It was to be the first night out for a large number of our recruits. The BC took the mess sergeant and me out to reconnoiter an area for the camp. On what should have been an hour's work, we spent the entire afternoon. We drove and tagged stakes where picket lines were to be installed, another stake for the kitchen, yet others for latrines, tents, etc. The mess sergeant was an old timer. He knew his business and could set up his kitchen under almost any conditions, but the new BC showed him where each installation was to go.

"Set the stoves here, put the garbage pit there, dig it such-and-such dimensions. Put the officers' table under that tree, be sure that there is sufficient hot water."

I think you see what I mean. That officer dwelt long and profusely on the duties of men who knew those duties better than any officer is likely to learn them. My point then is this: Don't be afraid to tell a reliable man to do a job and leave it to his ingenuity to do that job better than you expected. Tell him minutely what to do and he'll do that sloppily, and not a bit more. Never think that the insignia

on your shoulders give you a free pass to exclusive knowledge.

Along that same line, I recall another incident. Late one afternoon the battery reached a bivouac area and the BC immediately "took over." The first sergeant was relegated to the position of messenger boy and the Old Man gave so many diverse orders so fast that no one could keep up. He personally inspected every stake that went in the ground. If it was slanted in a little "off," out it came to be started in another place under explicit directions. Finally, it ended with all the junior officers leaning among the trees talking among themselves and the first sergeant sitting morosely on the sidelines now bereft of even his role as messenger boy.

That evening the first sergeant said to me with also-lute respect, "Lieutenant, when you get to command a battery and start to make camp, just turn to your first sergeant and say, 'Sergeant, there's our area. Make camp. If you need me I'll be in the shade of that big oak.' And I'll guarantee the camp will be pitched, and well."

And you know, somehow I believe him.

As BC or a battery officer you will have to decide whether you can give a weekend pass or whether you should take a church-going lad off Sunday KP so he can't charge you with smothering his religious aspirations by refusing to allow him to worship as he pleases. You might not be the BC, but you'll be asked to intercede. What to do? What kind of answer will you give?

Perhaps you are the steam-roller type who smashes all such things with blanket orders. Maybe you will prefer to deal with each case separately. Or you might slip out

of it by telling the first sergeant you don't want to be bothered with such minor details, that he should take care of such items. Sometimes, however, you cannot sidestep, but are cornered and have to make a decision. What to do?

Just before going to maneuvers last fall, one of my men informed me that he attended church every Sunday and hadn't missed in four years. He said, "Lieutenant, what will I do on maneuvers? I'll go over the hill rather than miss church."

He didn't realize how thin was the ground on which he walked, talking to an officer of "going over"; but I skipped over that part of his statement and explained that if, on maneuvers, we were reasonably near a church of his faith I would make every effort that every man in the outfit would have a chance to attend, provided we were not in active warfare at the time. He subsided and I heard no more of it. We were so far in the woods on maneuvers and everyone so tired that Sundays were like Fridays. There were no repercussions.

Then there was a young fellow who confided in me that the first sergeant had it in for him and was giving him an undue portion of Sunday KP's because he was of an unpopular religious sect. "It's religious discrimination," he said.

I checked the records and found that such was not the case. True, he had been on fairly often, but so had the other available privates. He stayed on KP.

A PROBLEM FOR YOU

Regardless of the organization to which you are assigned, you will find therein NCO's of widely divergent capabilities and willingness to perform. Sometimes you will find it very difficult to know just what to do. Suppose you are out with the battery on an RSOP and after selecting your OP, you give a corporal in the instrument section an order to "Set up an aiming circle, field of fire northeast." You move over to the plane table for a little computation, return to the aiming circle. Here's what you find: circle about waist high, vertical shaft not raised, circle not level, not set on zero, line of sight to the west.

Now, that in itself is not a major catastrophe. You can easily straighten the thing up, level the bubble, raise the shaft, measure your angle, and forget the incident. You might assume that the corporal didn't know better. You might find he was called away on some more important duty. Then, if you're lax and don't give a particular damn anyway, you might let it slip your mind.

Don't do that. Try a little investigation. If you find that it was lack of knowledge, it's your duty to provide instruction. Perhaps some other officer called him away before he was finished (certainly, that happens). Or maybe it was his slipshod, don't-care attitude. In any case don't let him get by with it. You might contend that it's a minor point. Granted that in itself it will make little

difference in the outcome of a major conflict, but here is what it will lead to. First, you will have little confidence in that man whose good work is necessary to your section's smooth functioning. Second, there will be men of lower grade in the group who will take immediate advantage of your attitude and your section will deteriorate rapidly.

Then the question comes, "what action should I take?"

First, some *don't's*. Don't berate him before the privates in his section. I remember that once one of my senior officers told me before the entire battery that I was entirely wrong and dismally dumb. Every man in the battery heard what he said and I knew it. Even though his analysis was correct, being a sensitive soul I deeply resented his insults, and I saw old NCO's turn their heads (not to hide a smile, but in disgust). Don't forget about it and don't ignore it. Don't report or tell it to the BC until you have tried to correct the situation and have failed. The BC doesn't need to know, not the first time.

You might try this: "Sergeant, does Corporal Ennis know how to set up an aiming circle properly?"

"I'm not sure, Lieutenant, but certainly he should."

"While I'm gone to the gun position, take every man here for a short session on properly setting up the instrument."

If that sergeant chief of section is worth his salt, he'll straighten things out in a hurry and when you get back to the OP the corporals and privates will have had a going over from a man who's expert at the job and your section will move along well enough.

Or you might try this: "Corporal, what are you doing after duty this afternoon?"

"Why, nothing particular, Lieutenant."

"Well, report to me in the office at five; I've a little job for you."

He'll report and you tell him privately man-to-man what he did, what you think he should do (wearing chevrons) and appeal to sense of duty. If he has the right sort of stuff he will turn over a new leaf and you'll have won a valuable man. Attempt to avoid arousing his resentment. If you make him antagonistic he will do all he thinks he can get by with in order to cause you discomfiture.

Only in serious breaches such as insubordination or the like do you need to step in.

Say to your instrument chief, "Our OP is on the hill by that tree, direction of fire east. Radio communication." I'll bet you even money that you will have a section willing to do more than their regular job.

LEARN BY DOING

No matter how hard you try to learn by reading training literature, it is not until you hit the field that you get your feet on solid ground and began to feel confident of your ability to perform your duties. It is in the field that the great shakedown comes. There the shackles

of the classroom are removed and you function or fail. Because field work is essential and maneuvers are our present closest training approximation to the real thing, we have maneuvers to teach that part of combat impossible to learn in the confines of a polished office.

Before my service was two months along, I was in the wilds of swampy, mosquito-infested Northern Minnesota, a battery executive. There I first learned what it meant to stick on the job day and night, hour after hour, no rest, no relief, lost in the woods. There I was disconcerted when I sat on a stump in the midst of a dense wood to write a letter and suddenly was aware that I had no idea of where I was.

It was there I saw and heard a brigadier issue orders to his subordinates while standing in the center of a crossroads (beautiful for an artillery target). His orders were the essence of the fragmentary:

"We're goin' north, boys. Jim, you take your outfit up the left branch here, and, George, you try it up the right. I'll see you later."

Approximately 80% of the officers in my battalion were Reserves with little active duty, so the few Regulars and the veteran NCO's had their hands full.

My experience in reading stories and history of battles, particularly the Civil War, had led me to believe that war was mass against mass, a combination of Picketts and Light Brigades charging and counter-charging. It was rather hard on my expectant senses that during the 4 or 5 days of active combat, I saw no enemy, heard no gunfire—except a single blank from my own battery. My part of our mock war consisted in marching forward one day and retreating the next, fighting mosquitoes and worrying about going into position off the leased areas.

Newspapers had announced that great fleets of airplanes would be swooping about like ducks. Of course, I wanted to see the things in action and looked forward to that; however, the sum total of planes near us was a single flight of three scouts on the third day of the scrap.

WHAT TO TAKE

When preparing for the maneuvers one of my greatest problems was "What to take along, what will I need, and what can I do without?"

If I had taken every item that various officers suggested I

would find indispensable, I would have been forced to use a weapons carrier for transport. Finally I boiled it down to uniform equipment, leather preservative for shoes, extra shoelaces, writing material, toilet articles, the inevitable fishing tackle (hook, line, sinker). A good flashlight is an absolute necessity, a pocketknife useful, reading material in great demand, clip board or notebook not bad, a folding canvas chair a pleasant thing, a radio handy if allowed and there is room. Actually there was little need for other items. One of the most laughable sights I've witnessed was a junior officer blossoming out in polka dot pajamas one evening, miles from civilization.

Because it's almost impossible to stay in clean uniform, you get to the point of somewhat overlooking outward appearance and spend most of the available time trying to make yourself a comfortable tent and bunk. Wherever you sleep, you must be under cover, away from prying eyes of the airman, so that must be your first consideration. After that first, many things come simultaneously. "Will it be dry here? Is this so near the kitchen that the cooks will keep me from sleep? Can I look over the battery area without leaving my tent? Am I far enough from roads, so that dust will not drive me out?"

Those are some things to think about when you contemplate a stop of more than a few hours. If you are one of those who fear the bugs and snakes of our southern wastelands and the countries where we may fight, certainly you will want to sleep (provided you have time) well off the ground. Cots may not be allowed to officers below field grade. If so, take the top off a cot; using the end pieces, string rope through the thing and you have a comfortable and workable hammock. So long as you're in or near trees or parked vehicles you can suspend your bunk at any desired height. If it rains, stretch a wire or string slightly above you and drape half a pup tent 'cross it. You won't drown. I have found the hammock more comfortable and much more satisfactory than the cot.

BATTERY IN ACTION

Being a mere beginner I had to learn a lot as battery executive. The officer who held the post before me was expert, so the firing battery was functioning smoothly. We went in and out of position without a hitch.



"Put your hat on STRAIGHT, Lieutenant"

Somewhere in the battalion there were several rounds of blank ammunition. For some reason it was not issued to the firing batteries (except for one which was detached). About daybreak one morning I got a hurried call from FDC, "Concentration 79 . . . Fire Blanks."

"I have no blanks."

"Get some, and fire them on the next problem."

A few minutes later I had several rounds at the battery. Just as the sun moved over the treetops, a mission came for the outfit. About half the men were sleeping, everyone was tired, so I didn't give "Post," just loaded up No. 2 and let 'er go. During my short stay I've seen many funny reactions, heard lots of loud explosions, but nothing to compare with that. Men came tumbling and crawling from the undergrowth rubbing sleepy eyes.

"Cease Firing," came loudly from Battalion. The Battalion RO came storming up from his sleep; "What the hell?" he wanted to know, "what you shootin' at?"

"Nothing," I replied tartly; "just waking the men." (I ranked him two files.)

Mosquitoes tormented us day and night. There was no peace outside the net. One night I told the battery to get some sleep (each section in rear of its gun). I had my net stretched near the center of the position and crawled under, dragging the telephone inside. Occasionally throughout the night the phone jingled near my ear and I woke drowsily with "Baker, GP."

"Fire concentration 75."

I'd look at my watch, wait 4 or 5 minutes, "Battery has fired. Rounds complete."

Back would come the inevitable "Cease firing, mission accomplished."

And back to dreamland.

From 12:15 to 3:45 one night the operator at the battalion switchboard called me seven times, "Line test, sir." I got so unhappy about 4:00 o'clock that I seriously considered breaking the line, so that I could get some much needed rest.

One night we went into position in a swamp, dense with underbrush and mammoth mosquitoes. The only way I

knew about to lay the battery parallel was with the aiming circle. I set the thing up and started the process. The pain from bites was almost beyond endurance. Insects swarmed in clouds to pester me; after the battery was laid, men crawled between heavy tarps for protection although the weather was hot.

Off to my left about two hundred yards I saw a light flickering about 50 feet from the ground. I fought my way over to investigate and found the executive of another battery in a tree, aiming circle tied to a limb, trying to "lay his guns." He had found it impossible on the ground because of brush and undergrowth.

I recall that one night I was called to the phone by a shavetail S-3 who ordered "Fire concentration 81, right away."

"I have no idea what 81 is."

"Well, fire it, that's orders."

"Listen," I answered, "I have no overlays, no idea where I am or where 81 is, nor do I give a damn." (I ranked him too, a little.) "If you want me to fire some concentrations, send me an overlay."

It didn't help much, though, for all through the night he'd send down, "Fire No. 31, 54 rounds"; "Fire No. 119, 112 rounds."

Next morning I was relieved for a couple hours and passed that embryo S-3.

"Listen," he said, "don't take offense at my calling you so much last night, I was doing it for the colonel's benefit."

Madness must have shown in my eyes; I almost clipped him.

There is little time for rest on maneuvers, there will be still less when the real thing comes along. You will continually labor to improve your gun position, camouflage your pieces, select alternate positions, build dummy batteries. You'll find that there is little rest, but you do have the pleasant task of watching your outfit perform under stringent conditions so you can see the fruits of your training, whether good or bad.



"When drilling men, exercise dignity and consideration!"

SOLUTIONS TO CADRE TESTS

(See page 533)

FIRST SERGEANTS Part "B"

3. a. Table of Organization for my battery.
- b. Table of Basic Allowances for my battery.
4. The hand salute is a form of military greeting. It is as old as the profession of arms. To be able to salute is one of the privileges of soldiers—you could not salute before you got into the army. When you salute an officer, you are saluting the properly constituted authority represented by his insignia of rank; you are not saluting him as an individual. Let the smartness of your salute demonstrate that you are proud to be able to salute.
5. First sergeants have many duties, of which the following are only a few:
 - a. Act for the BC and battery officers in their absence.
 - b. Organize and take charge of the rear echelon (limbers, motor park, etc.).
 - c. Keep M/R, sick book, and duty roster, and handle other details.
 - d. Do all possible for the comfort, welfare, and morale of the men.
 - e. By exemplary conduct and performance of duty, set a high standard for the other soldiers to aim at.
6. The M/R is WD AGO Form No. 1, and properly so for it is the permanent, day-to-day record of the official status of not only the organization itself, but also of every officer and man in it. The data in the M/R is the source of many other reports, and may be of vital importance many years after the entries are made. Great care must be exercised in its daily preparation and in its preservation.
7. Make sure the man is not in the area. Report the matter to the BC. Have the Chief of Section collect the man's clothing and equipment and turn it in to the Supply Sergeant. Drop the man on the M/R if he is not back by reveille the next morning.
8. a. The organization funds of member organizations get the bulk of the profits; certain post activities normally get a small portion.
- b. Although enlisted men have no actual control, there is an NCO Council which makes recommendations to the Post Exchange Council.
9. Dig a deep pit. Build a tight latrine box with hinged seat-covers. Provide a "venereal" seat, properly marked. Spread sawdust, clean sand, or other material around the box. Provide separate urinal trough. Provide orderly to scrub box and trough daily. Use crude oil, lime, or other suitable substance to keep flies away and kill unpleasant odors. Improvise an overhead cover. Have a suitable receptacle for toilet paper. Erect fly around latrine.
10. Get an instruction book and give it to the mess sergeant. Caution him to have only *one* man clean and adjust the range. Warn against tinkering, or over-tightening nuts and bolts. See that the range is cleaned after every using.
11. Copy last month's roll for form. Study AR 345-155 and keep it handy for reference. Check names, length of service, etc., against service records. Check "Remarks, Financial," in service records against morning reports, special orders, and battery orders, for changes in grades and ratings and loss of time. Check totals of grades and ratings against T/O after roll is completed.

Seek help from the BC, a neighboring clerk, personnel of the local finance office, etc., if necessary.

12. Sort and store by lots. Keep in original containers as long as possible. Keep in paulins or raise off ground. Protect from weather. Place in trenches or pits if possible. Stack ammunition of less than 8-inch calibre. Spread in groups. Care for powder charges, fuzes, and primers in similar fashion, but separated from projectiles. Keep record, by types, of all receipts and expenditures.

13. "A" solution and "B" solution may be made up and kept for a period of two weeks in brown glass bottles. They should be kept separate until just before using. Fixing solution may be made up beforehand and kept in glass containers. For good results chemicals should be above 60° F. when developing and fixing. Film should not be removed from original container until just before use. Care must be used in loading the camera to prevent exposing the film.

14. The Fire Direction Center consists of the gunnery and communication personnel, together with their equipment, at the battalion command post. The FDC permits the centralized preparation, correction, and control of the fire power of the battalion. The S-3 is generally in charge. The horizontal-control operator (HCO) may prepare the firing chart, and he reads and announces the deflection corrections, ranges, and measured shifts. The vertical-control operator (VCO) also keeps a firing chart, and computes and announces sites. Each battery has a computer who, under S-3's direction, prepares and sends firing data to his battery. Computers keep ammunition records for their own batteries.

15. Lay on far stake. Refer to the near stake. Lay on far stake with new reading. Record new base deflection (if one has been previously recorded). Realign stakes (by having near stake moved).

$$\begin{array}{l}
 17. \text{ Target Offset} = \frac{300}{3} = 100\text{m PLUS} \\
 \text{AP Offset} = \frac{400}{4} = 100\text{m MINUS} \\
 \text{Initial deflection therefore remains 290.} \\
 \text{Target is } 12 \times 3 = 36 \text{ yds ABOVE OP} \\
 \text{Guns are } 5 \times .4 = 2 \text{ yds BELOW OP} \\
 \text{Target site is therefore } \frac{38}{3} = 13\text{m}
 \end{array}
 \left. \begin{array}{l} \\ \\ \\ \\ \\ \\ \end{array} \right\} \begin{array}{l} \text{Deflection} \\ \\ \\ \text{Site} \end{array}$$

18. Sketches might well vary widely, but should show latrine downstream, animal watering, bathing, etc., upstream. Should also show installations scattered with *security* measures, including slit trenches for personnel. First Sergeant should inspect entire area, check on comfort of men, security measures, latrine dispositions, camouflage, etc. Camp should be so organized as to permit orderly departure before daylight and without lights, if necessity arises.

19. a. *Headquarters Battery*: (1) *Meteorological Section*: Obtain meteorological data for sound-ranging and for Corps

Artillery. (2) *Topographic Platoon*: Furnish survey control to survey sections of sound and flash batteries and to all field artillery units of the corps upon request. (3) *Service Platoon*: Normal separate battalion supply and motor maintenance functions. (4) *Communication Platoon*: Install, maintain, and operate battalion wire and radio net.

b. Observation Battery: (1) *Communication Platoon*: Install and maintain the wire systems of the sound and flash platoons and install, maintain and operate the battery wire net and radio station. (2) *Flash Ranging Platoon*: Install and operate flash ranging base. (3) *Sound Ranging Platoon*: Install and operate sound ranging base.

20. (1) Telephone: See chart page 58, FM 6-120. (2) Telegraph: Radio Section Headquarters Battery. (3) Radio: Battalion Radio Section. (4) Messengers, batteries concerned.

21. (1) Twelve parties. (2) Men by job. 1 instrument man and at least 2 tapemen, 2 rodmen, 2 axemen, and 1 computer.

22. Battery stable orders would normally, among other things, contain specific instructions relative to:

The times for feeding and watering animals.

Current ration and instructions for the care of forage.

Personnel to sleep in stable area.

Personnel to be on duty at various periods (during weekends, etc).

Specific police, property, and other responsibilities of stable personnel.

Prescribed records to be kept.

Instructions concerning animal sick call and relationship between stable sergeant and battalion veterinarian.

Instructions for enlisted men's privileged riding on holidays.

Fire orders for stable area.

Special instructions for saddler, horseshoers, wagoners, and other personnel who normally work under the supervision of the stable sergeant.

23. Such orders vary widely depending on the degree of regimental and battalion control, but may contain the following:

Detailed instructions covering authority for dispatch of vehicles, records to be made out, checks by dispatcher, etc.

Instructions for control of vehicle keys.

Detailed instructions for drivers in care, warming-up, washing, inspection, maintenance of vehicles.

Specific responsibilities of motor sergeant and mechanic concerning police, property, etc., of motor park.

Specific instructions covering the preparation of prescribed motor records.

Specific instructions concerning prescribed periodic inspections.

Instructions for fire prevention.

24. Orders for the battery Charge of Quarters will vary widely in different organizations, but should include the following:

Inspect and instruct guard.

March sick, and take sick book, to hospital.

Inspect squad rooms, latrines, and day room for police, sanitation, and ventilation.

Get lights extinguished on time.

Preserve order in barracks.

Supervise mail delivery.

Keep pass cards.

Inspect men going on pass.

Be responsible for certain organization property.

Make written report in CQ Book.

Do such special work in barracks area as Battery Commander may require.

25. *a.* Handle gently. Straighten limb gently and apply two splints, one on inside and one on outside of limb, extending beyond the foot. Seek expert medical assistance.

b. Remove patient to a shady, cool place, if possible, and loosen outer clothing. Lay patient on back with shoulders raised. Apply cold to head and body. Brisk massage of limbs and trunk will help. Do not give stimulants.

c. *Slowly* thaw frozen part by using extra clothing, or wrapping it in cloths soaked in cool water. Do not expose to hot stove or radiator. Do not rub with bare hands or with snow. If patient is unconscious, carry to cool room, cover well, and move arms and legs gently. When conscious, give warm drinks, and have patient lie quietly.

d. Remove victim from the gassed area, to high ground, if possible. Do not let him talk or walk. Remove equipment and loosen clothing. Do not let victim rub eyes, mouth, or body. Do not bandage eyes.

26. Battery forms as ordered. Battery Commander orders PREPARE FOR INSPECTION. Platoon leaders cause ranks to be opened, then place themselves in front of right flank of platoon. Battery Commander then inspects officers and either inspects battery himself or directs certain officers or NCO's to make certain inspections. Platoon leaders bring platoons to attention as Battery Commander approaches. Each man executes INSPECTION ARMS (Pistol) as Battery Commander approaches and ORDER ARMS (Return Pistol) after being inspected. Platoon leaders cause ranks to be closed and platoons to be at REST after being inspected. When inspection is ended, Battery Commander will normally turn battery over to 1st Sergeant for dismissal.

27. *b.* A non-perishable ration consisting of three 4-oz. bars of concentrated chocolate.

c. A persistent gas is one that will remain in an area for more than ten minutes.

d. The standing barrage which a battery fires for the local protection of a supported command. Battery is kept laid on the normal barrage when not on other missions. It is generally fired on call or signal from supported unit.

e. Y-azimuth is the clockwise angle from grid-north to a selected point.

f. A representative fraction shows the relation of map distance to ground distance. For example, an RF of 1/20,000 means that 1 unit on the map represents 20,000 similar units on the ground.

g. Base angle is the clockwise angle between the base line and the orienting line.

i. The name given the polygon of error caused by the intersection of rays plotted on a sound plotting board.

j. A sound ranging base either straight or curved, on which the microphones are placed so that it would take a sound originating on the base or prolongation of the base $4\frac{1}{2}$ seconds to pass from one microphone to another.



CAMOUFLAGE ON DISPLAY

The FARTC at Fort Bragg has constructed a demonstration area to assist in giving the new soldier basic instruction in hasty concealment and protection, primarily against observation and small arms fire from enemy air and ground forces. Examples of antimechanized defense measures have been included, but no attempt has been made to demonstrate large-scale or deliberate battery installations because of limitations on training time and on overhead personnel.

Congestion or conflict are avoided by having units reserve the use of this area through the Headquarters S-3. Before conducting men through, the officer-in-charge visits the area himself and refreshes his recollection of the subject matter by reference to FMs 5-20 (*Camouflage*), 6-130 (*Reference Data*), and 5-15 (*Field Fortifications*), TC No. 42, 1942, and Sections IX, X, and XI of TM 2180-5 (*Topography and Surveying*).

A guide to the Demonstration Area has been prepared, with both a map and an excellent list of "Do's" and "Don'ts."

DESCRIPTION OF DEMONSTRATIONS

No. 1.—Light field piece, 75-mm. gun or 105-mm. howitzer, is here in position to fire during a fast moving situation. The choice of position makes it possible to break up the form and shadow of the piece by placing it properly in position and by obscuring work around the trail log. This position is concealed from observation from fast flying enemy planes and from enemy ground forces. While firing, the piece will not be concealed because of muzzle flash; this is the case with any heavy weapon.

No. 2.—At this position a 37-mm. gun emplacement



FARC Photo by Sgt. John Bushemi

A more deliberate type of concealment of the above position.



FARC Photo by Sgt. John Bushemi

A 105-mm. howitzer crew in action under a hasty camouflage net installation with the gun in a position to allow high angle fire.

has been prepared for firing at vehicles approaching on roads to the east. It has been concealed against observation and emplaced for protection. Fox-holes in the emplacement accommodate the gunner and the assistant gunner. Low silhouette of the gun considerably facilitates concealment.

No. 3.—The proper type of frame with which to support an artillery net is here demonstrated. The artillery net is thirty-six feet by forty-four feet. With garnishing, this net will weigh close to three hundred pounds after heavy rain. For these reasons, the net cannot support itself; a strong frame support is absolutely necessary. The net must be flat. A flat-top with center pole support is more revealing to air observation and especially in air photographs than an uncamouflaged position. Center or interior pole supports are not to be used.

No. 4.—Light field piece, 75-mm. gun or 105-mm. howitzer, is here in a position which might be occupied for a half day or longer. Slit trenches for crew have been dug and a flat top has been erected over the position. The piece itself is concealed, in part by natural foliage, while fortification efforts and organization of the position are concealed by the flat top as garnished. (Note: The officer in charge should have the net hooked to the frame before the demonstration and should see that it is unhooked afterward. This must be done to prevent distortion of frame by wet net, there being no overhead personnel to undertake maintenance of the area. Camouflage nets shrink as much as ten per cent when wet.)

No. 5.—A medium field piece, 155-mm. howitzer, is here in position which might be occupied for a half day or longer. This installation is larger than that for a light field piece to accommodate a heavier weapon and a larger crew. Here a howitzer is shown with the tube elevated in the firing position and the net thrown back to permit firing. On cessation of firing the tube would be lowered and the net restretched on the frame.

No. 6.—Ammunition is dispersed to make the presence of large number of rounds less apparent and to prevent destruction of the entire supply by a well-placed shell or bomb or by a lucky hit. When the situation permits, ammunition pits are dug for additional protection, the principle of dispersion being followed.

No. 7.—A battery command post takes full advantage of cover from available natural foliage for personnel and for circulation. The principle of dispersion is followed.

No. 8.—A battery command post installation in this instance takes full advantage of available natural cover, is dispersed, and has been dug in for protection from strafing fire, long range machine guns and shell and bomb fragments.

No. 9.—Antimechanized Defense Measures.

(1) *Post Obstacle*.—The purpose of post obstacle is to lift the tank from the ground, and foul the belly so that tracks are incapable of propulsion or traction. Thus the tank is made helpless and presents a good target for antitank weapons.

(2) *Antitank Mines*.—To the flanks of post and like obstacles, antitank mines are planted so that if detour is attempted tracks will be blown off and the tanks disabled. East of the obstacle, antitank mines have been left exposed so that approximate size and planting technique may be seen. West of the obstacle, antitank mines have been planted and thus are concealed.

(3) *Antitank Ditch*.—Along narrow routes, i.e., road through a narrow defile or a swamp, an antitank ditch may be built to good advantage. The ditch is so designed that the tracks of a tank cannot climb the vertical wall of the ditch after the tank has pitched forward into the ditch. When natural barriers do not exist, supplementary lateral protection such as antitank mines is necessary with this obstacle. The ditch should be camouflaged.

(4) *Log or Timber Crib Obstacle*.—Against wheeled vehicles this obstacle is effective. Tanks are, however, able to surmount the block without difficulty.

(5) *Log Wall Obstacle*.—When placed on a confined route this obstacle is effective against assault from light and medium tanks. Flank protection from antitank mines, swamps or steep banks is necessary to prevent detour. Protective fire from automatic weapons is necessary to prevent removal of the obstacle by tank crew or dismounted troops.

No. 10.—This machine gun emplacement provides protection for gun and crew and requires little camouflage because of overhead cover and low silhouette. This

emplacement has been so located that machine gun fire from it could cover the antimechanized defense measures and prevent their removal or destruction by dismounted troops.

"CAMOUFLAGE DO'S"

1. DO choose your position carefully. A proper "estimate of the situation" will make your work easier and avoid impossible camouflage problems.
2. DO use common sense: "To outwit the enemy common sense is very uncommon."
3. DO avoid the skyline when concealing against terrestrial observation.
4. DO make full use of natural cover. The cover of a spreading tree is worth truckloads of artificial materials.
5. DO utilize ditches, hedges, edges of woods, folds in the ground, etc. These "accidents" of the ground will prevent accidents to you.
6. DO avoid conspicuous landmarks. You don't want to be at a focal point of enemy observation.
7. DO keep in the shadows. The enemy can't see or take pictures of something in the shade.
8. DO remember that shadows move. Although shadows as a rule fall toward the north of an object, the length and direction of such shadows change throughout the day.
9. DO avoid all regularities of line or spacing. Nature has no straight line and the enemy is looking for unnatural signs.
10. DO remember that anything unusual catches the eye of the enemy observer. Try to blend into the background; you want to be inconspicuous.
11. DO garnish carefully. Natural garnishing must look NATURAL, so use material similar to that in the vicinity and support it as it would grow.
12. DO thin out garnishing at the edges. A regularly garnished net casts a regular shadow which is obviously out of place in the surroundings. It will look like a stamp and we don't want to pay postage on our own death bombs.
13. DO change dead vegetation. Forget it and something (or somebody) else will be dead.
14. DO keep turf or top soil when digging in. It can be used to cover your spoil on the parapet.
15. DO make bold patterns, in garnishing or painting. You can't see a two-foot "break" in the outline from a distance of a mile or two.
16. DO "look before you leap." Plan and lay out your position in detail before moving in and trampling down promiscuously. Signs of activity lead to enemy activity which reduces the possibility of further activity period.
17. DO observe camouflage discipline in making a reconnaissance. Signs of activity before occupation are just as disastrous as signs afterward.



FARC Photos by Sgt. John Bushemi

Figure 1.—A 37-mm. antitank gun crew in action, concealed by hasty natural camouflage.

Figure 2.—Rear view of the 37-mm. gun position shown in Figure 1. The shallow type emplacement is employed.

Figure 3.—Front view of gun position shown in Figure 1.

Figure 4.—A 155-mm. howitzer position concealed by a net garnished with natural and artificial material. Artillerymen keep their rifles handy.

Figure 5.—Top view of the position shown in Figure 4. Note how the camouflage blends with surrounding foliage and covers all equipment and personnel.

Figure 6.—Another view of the position shown in Figure 4.

18. DO restrict movement when the enemy is observing. A motionless object may escape detection; a moving one will attract attention.
 19. DO take extra care when tired. Fatigue leads to carelessness.
 20. DO work in the shade or at night. The enemy is looking for you at all times, but his eyes are not as good as a cat's. He can't hit what he can't see.
 21. DO keep your flat tops FLAT. Sagging nets are worse than baggy knees.
 22. DO use existing roads and paths. Traffic here will not leave noticeable signs.
 23. DO conceal the entire layout. If one tent or truck is seen it makes no difference that the rest of the installation is perfectly covered.
- "CAMOUFLAGE DON'TS"
1. DON'T be careless and give away your buddies. They're depending on you just as you are depending on them.
 2. DON'T look up at airplanes. The enemy is looking for you too and you are easier to hit than he is.
 3. DON'T move unless you have to; then think first how you can move to cover most unobtrusively.
 4. DON'T use artificial materials unless the natural cover is insufficient. Natural cover blends best with Nature.
 5. DON'T be regular in your layout. Regularity is a military attribute and the enemy recognizes it as such.
 6. DON'T take shortcuts over the open or step outside cover. Every time you put your foot down you attract forty-eight square inches of enemy attention.
 7. DON'T walk around the outside of a net to fix the camouflage. Where you walk will be light in a photograph; the camouflage will be dark. Do you think the enemy will miss such a bull's eye?
 8. DON'T hide your installation and leave your spoil and belongings in the open. Remember the ostrich.
 9. DON'T let your flat tops sag. They will photograph like a wet blanket laid out on branches and they are not a bit safer.
 10. DON'T lower the sides of your camouflage. Your commanding officer cannot see what you are doing, but when the enemy sees the shadow thrown by these sides he will be even more severe.
 11. DON'T hide under matted camouflage. It is as conspicuous as a bad haircut.
 12. DON'T end a road at an installation or make a lot of trails to a position. Did you ever lose your way to a Canteen?
 13. DON'T leave things near the edge of your camouflage. The edge of your camouflage isn't—and shouldn't be—opaque.
 14. DON'T put up bad camouflage and think it is a magic veil. There aren't any in war.
 15. DON'T crowd around an installation. Dispersion reduces the likelihood of conspicuous trampling.
 16. DON'T clean up an old position; it won't look natural to the enemy. If you're moving out, it will remain as a dummy; if you're moving in, you don't want to change the appearance.
 17. DON'T expose lights or make a great deal of smoke. The enemy is looking for such beacons.

A battle is not entirely fought on the day it is fought, nor the ensuing victory or defeat wholly due to the efforts of that day. A war with its campaigns and battles bears the same relation to the preceding peace that a battle does to the period of war that preceded it. A battle is a part of war; war a part of peace. We cannot determine where one ends and the other begins. A battle is but a moment of violent human activity, and is the result of innumerable other conditions and activities that have preceded it in regular sequence. So a war is only a battle prolonged in time and space. A battle in its relationship to war is analogous to war in its relationship to peace. In a battle, those factors that determine the success or failure belong to the combat only in a limited sense. Months of war may precede the battle, yet toward and for that battle the nations have been constantly preparing for every contingency. This attitude of a nation toward preparation for a battle during the months of war that precede it must, in a greater sense, be the same toward war during the years of peace that go before it. To deny preparation for war during peace is a greater folly than to refuse to prepare for battle after war has begun.

LEA, The Day of the Saxon.

Diary of War Events

MAY, 1942

- 1st Japs advance on two Burma fronts, to within 20 miles of Mandalay and 50 miles from China's Yunnan border. 30 grounded Jap planes bombed at Lae, New Guinea.
- 2d Mandalay falls to Japs, British retreat north. Corregidor under continuous bombing and artillery fire. U. S. Navy lists 5,486 dead and missing in first 4 months of war.
- 3d Japs within 30 miles of China border in Burma Road sector; their Lashio base bombed by Chinese and A.V.G. fliers. Japs renew New Guinea advance, seeking air bases.
- 4th British naval and military force arrives off French Madagascar. Large naval battle off Solomon Islands as Jap fleet pushes south toward Australia. 8 Jap ships sunk, including cruiser and 2 destroyers. U. S. subs sink 3 Jap merchantmen. U. S. bombers attack Rangoon; Chinese and British retreat slowly in north Burma. Corregidor shelled heavily, bombed 13 times. Germans sink British cruiser and 4 transports in Baltic convoy. British bomb German sub bases in France and Norway.
- 5th Japs land on Corregidor; garrison of 10,000 surrenders. Madagascar garrison resists British advance. Japs penetrate China-Burma border, bomb Yungchang, 120 miles beyond; U. S. bombers raid airport near Rangoon. R.A.F. raids Czech factories; Germans bomb British coast. 3 merchant ships sunk off our Atlantic coast.
- 6th Japs advance 50 miles in Yunnan province, across Burma frontier, against increased Chinese opposition; Kunming, eastern end of Burma road, bombed heavily by Japs. British gaining, despite strong French resistance on Madagascar. R.A.F. continues active over Germany, France, and lowlands. One more merchant ship and enemy sub sunk off our Atlantic coast.
- 7th Japs checked in heavy fighting in China, above Burma border. British capture Diego Suarez, Madagascar naval base. Russians make small gain on Leningrad front.
- 8th Jap heavy cruiser and aircraft carrier sunk in 5th day of Coral Sea battle, between Solomons and Australia. Japs capture Bhamo, Burma, closing half of trap on retreating defenders of Mandalay. Bad weather halts air battles over Europe.
- 9th Australia-based planes aiding naval units in Coral Sea. Jap advance columns heavily attacked in north Burma and inside China; several units trapped. Japs twice bomb Chittagong, India, gateway to Bengal province. British lose 19 bombers in mass raid on and near Rostock. 3 ships sunk in Gulf of Mexico and off our Atlantic coast.
- 10th Toll of Jap ships sunk or damaged in Coral Sea battle put at 19 as Japs retreat north; 500 planes took part in battle. Malta shoots down 20 Axis planes, damages 51 in 2 days. Chinese attack Mandalay, also push back Japs inside China; Japs threaten British line of retreat to India.
- 11th Germans attack on Kerch peninsula in Crimea. Chinese still pushing Japs back down Burma road. Japs report end of all fighting on Philippines. Jap destroyer and 2 more merchantmen sunk by subs. Axis planes downed over Malta put at 101 in 72 hours.
- 12th German planes sink 3 British destroyers in Mediterranean. 3 merchant ships sunk off our shores, 1 in St. Lawrence River.
- 13th Russians beaten back on Kerch peninsula, but start offensive against Kharkov. Reinforced Japs, advancing again inside China, reach point 50 miles above Burma border. 3 merchantmen sunk, another in St. Lawrence; ship toll in last 3 months put at 180.
- 14th Russians advance within medium artillery range of Kharkov outskirts; both sides using tanks. Russians retreat again near Ketch. Chinese resistance grows as Jap advance up Burma road threatens Kunming, capital of Yunnan province.
- 15th Russia continues advance on Kharkov; Kerch lines holding. Burmese British reach India; Japs capture town in Yunnan; 2 Jap Burma bases bombed. Sub torpedoes U. S. merchant ship in mouth of Mississippi.
- 16th Germans gain on Kerch, but Russians advance on Kharkov. Japs move north from southwest Burma to make 2nd Yunnan entry. R.A.F. bombs German shipping in North Sea.
- 17th Russians flanking Kharkov, moving toward Krasnograd, rail junction; Kerch fighting continues. R.A.F. loses 8 planes over Europe against increased German opposition. Chinese repulse Japs working north of Burma road; A.V.G. fliers bomb Jap concentration on China-Indo-China border.
- 18th Violent tank battles as Russians press on Kharkov in 100-mile arc. R.A.F. bombs cruiser *Prinz Eugen* off Norway. Japs on Thai-Burma frontier attempt new entry into Yunnan, meet stiff resistance. Largest convoy yet brings U. S. troops to Ireland.
- 19th Germans start counter-offensive south of Kharkov; Russian Kerch resistance dying out. Japs send reinforcements into Burma; fighting heavy on new Yunnan front. 2 merchant ships sunk in Gulf of Mexico.
- 20th Neither side gains in fierce fighting at Kharkov. Chinese smash Jap column on Burma road, but new Jap attack succeeds below Shanghai.
- 21st Hand-to-hand fighting replaces tank attacks on Kharkov front as Russians advance slightly. Jap attack on Chekiang and Fukien provinces grows as they land troops from 12 transports near Foochow. 2 merchant ships sunk off our coasts.
- 22d Jap landing force in Fukien repulsed, but 2 columns in Chekiang, to north, advance. German counter-offensive at Kharkov stalled. 3 ships sunk off Atlantic coast.
- 23d Russians abandon Kerch peninsula; heavy, inconclusive fighting on Kharkov front. Japs capture island off Foochow; Chinese gain slightly in Burma Road sector. 3 U. S. merchantmen sunk in Gulf of Mexico.
- 24th Russians on defensive south of Kharkov, but advance in other parts of front. Japs attacking Kinwha, capital of Chekiang province, with 100,000 troops, strong air support. R.A.F. attacks Jap-held airport at Akyab, Burma.
- 25th Germans, counterattacking at Kharkov, attempt encirclement of 3 Russian armies. Japs attacking Kinwha from several sides. U. S. planes sink Axis sub off Brazil; 3 more merchant ships sunk in American waters.
- 26th Russians, stalling off encirclement south of Kharkov, push ahead in north; tank action increasing. 3 of 5 Jap attacks on Kinwha repulsed; Chinese still pushing Japs back on Burma road. U. S. destroyer damaged by sub 10 miles off French Martinique. Another Axis sub sunk off Brazil coast.
- 27th German armored columns moving east in Libya. Germans concentrate on southern Kharkov sector where they claim to have trapped 3 Russian armies. Japs press attack on Kinwha despite 15,000 casualties in force of 100,000. 6 United Nations ships sunk in American waters.
- 28th 2 German Libyan columns advance, one getting within 15 miles of Tobruk; British, defenses intact, dominate air. Russians batter reinforced Germans on Kharkov front, remain on defensive for 3d day in southern sector. Brazilian plane sinks Axis sub in home waters. U. S. subs sink 2 enemy ships in Far East, damage heavy cruiser.
- 29th British, Axis tank forces battle 30 miles southwest of Tobruk; British repulse thrust 15 miles from Egyptian border. Russians still on defensive below Kharkov. Chinese still holding Kinwha and Lanchi in Chekiang province despite repeated Jap assaults. R.A.F. fires 4 ships in Axis North Sea convoy.
- 30th British counter-attacking in Libya; battle's center 19 miles from Tobruk. Kharkov battle subsides; Germans claim 240,000 Russians captured, as many more killed or wounded; Russians say 90,000 Germans killed or captured in move to forestall German drive on Rostov, not capture Kharkov. Japanese capture Kinwha and Lanchi.
- 31st 1,000 R.A.F. planes drop 3,000 tons of bombs on Cologne. British repulse Axis attacks near Tobruk. Chinese attack Jap positions in Anhwei province, 200 miles west of Shanghai; Japs make new landing in Chekiang. 3 U. S. merchant ships sunk in Caribbean; 1 Norwegian ship in Gulf of Mexico.

Not in the BOOK

ANTITANK TRAINING

In THE FIELD ARTILLERY JOURNAL, March, 1942, Lt. Col. Bell described a recording device to be attached to the 37-mm. antitank gun tube to be used for tracking exercise. Sergeant James O. Quick, 143d Infantry, simplified this idea, by using a 2 × 2 by 5 inches long as shown in Figures 1 and 2. No change was made in the use of this gadget, as described in the original article.

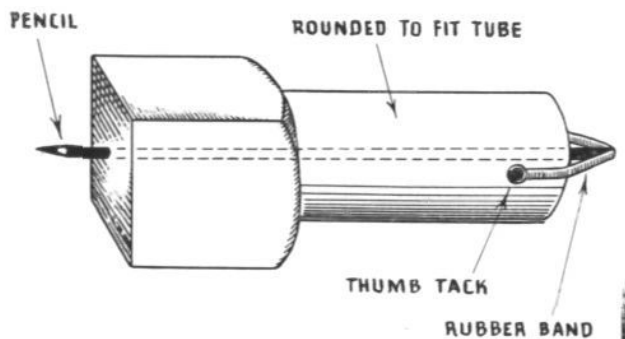


Figure 1

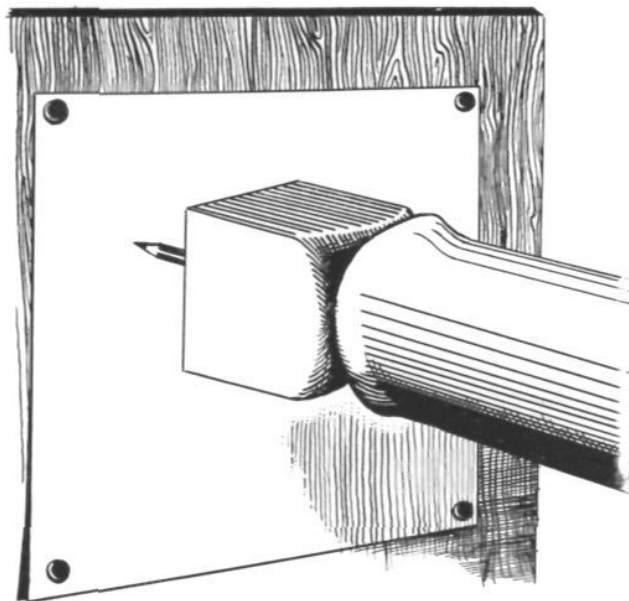


Figure 2

To further develop skill in tracking with this gun, we have attached a second telescope sight, as shown in Figure 3. Figure 4 shows this attachment in operation; the coach stands in rear of the gunner, out of his way, and can make corrections all the time the gunner is tracking. Figure 5 shows the simple construction of this bracket.

With these two gadgets we have taken the word "Dry" out of "Dry Shooting," and have developed much interest in preparatory marksmanship.

MAJ. GEN. FRED L. WALKER

EDITOR'S NOTE: This feature is devoted to ideas sent in by our readers describing methods or devices which, though not specified by official literature, have proved useful in service.

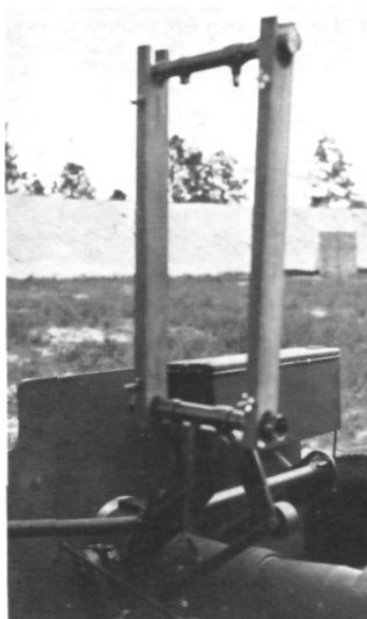


Figure 3

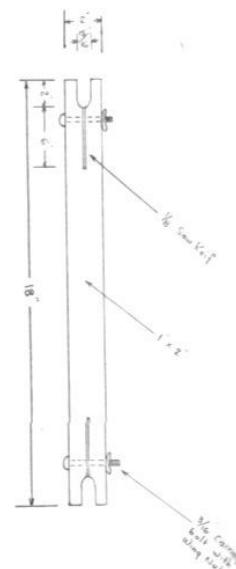


Figure 5



Figure 4

NO COLANDERS, PLEASE!

It costs twelve dollars to waterproof the body of the ¼-ton 4 × 4 truck. Recent inspection at a large Army post revealed that thirty out of the first hundred had holes punched in the floor by screw drivers, cold chisels, or otherwise. If operating personnel will inspect the job there will be found removable plugs for draining water after the vehicle is washed. Further than that, if they will look in the tool compartment, a cap for covering the drain hole in the sump under the gasoline tank will be found. Install this cap over the drain hole whenever the vehicle is maneuvering in deep water.

LT. COL. C. C. DUELL

BOOK REVIEWS

VICTORY IN THE PACIFIC. By Alexander Kiralfy. John Day Company, New York. \$2.75.

Ever since Commodore Perry opened Japan to the Western world, Japan has learned from us, 'til now she teaches the teacher.

In this unusual book, Alexander Kiralfy covers myriad possibilities, explores a galaxy of theories, asks lots of straightforward, simple questions, answers most of them realistically.

His work quite obviously is intended to wake us up to our peril, show us that Japan did not intend to carelessly commit Hari-Kari when she began the shooting in a war which (according to Kiralfy) started about a decade back.

Correctly and meticulously the author pursues the long-present, unrealistic viewpoints of the American and world Democracies. "Our Navy, by its very size and gunpower, represented a strong diplomatic pawn, but the American people had time and time again proclaimed that they would not shoot." And a little later, "When there is a promise that it will not shoot, a dreadnaught becomes a floating hotel for government pensioners."

Not only does he pursue the subject closely, but he lambasts us heavily for our incorrect thinking. He goes to great trouble to show that our enemies will not fight "by the rules," that the Marquis of Queensberry is far from an idea of theirs. Every time there was a conference and we propounded the notion of making war humane, killing as nice as possible, and giving our enemies written notice of our intentions to fight, the Japs nominally agreed, all the while laughing at us and building armies to exploit our weaknesses.

Kiralfy pleads for reality and common sense in his "When

pacifism can no longer avoid war, it still tries to make it as unwarlike as possible.

"Militaristic war is murder, but none the less the intended victims tried to condone and make murder comfortable."

Victory in the Pacific deals long and harshly with the inconsistency of our views (mostly the civilian view). "Japan," it cries repeatedly, "is not a secondary front, it is a second prime front."

We must get over the idea that the Japanese people do not want war. They have taught war, practiced war, condoned war for generations. It is a high honor to die for the immortal Hirohita. The Japanese people know whom they are fighting and why. Author Kiralfy contends ". . . war is a conflict of peoples, not of armies."

Again he writes, "There can be no peace in a world that does not accept the simple truth that a people must be held responsible for the acts of its government."

The Japanese "mind" is explored to great depths. Japan does all her thinking at "twelve inches to the foot." She prepared her armies to fight a war in the East. Her equipment is made for the job, her men are well trained, her officers follow a plan relentlessly, and make a plan complete to infinitesimal detail. ". . . Tokyo's pillar of strength was its land power. . . . At no time has there been any justification to believe that the Japanese Army was not well equipped."

The Eurasian Triangle is discussed elaborately. He calls Europe the "fuse," Asia the "charge," and fears the Axis will get control of Eastern manpower, 1,600 million strong. The apex stands in Portugal, but Japan controls the central third of the triangle's base, which reaches Singapore and Bering Strait.

Kiralfy discusses our Navy, Japan's, and Britain's,

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with consummate ease. Very apparently he is widely acquainted with ships, tactics, fire power, strategy, navies, men. He fights an interesting, though wholly theoretical, naval engagement between the main fleets of Japan and the United States, while all the time asserting dogmatically that such a battle could never occur. He explains that Japan's fleet will keep off the high seas, avoiding a feature encounter, while attempting to whittle down our forces with planes and submarines.

However, he gives us hope and a good chance when the American mind starts functioning: "The war in the Pacific will be half won by the United Nations on the day when it can be shown that they have purged their minds of the last wishful, unrealistic theory."

There are those who hope to push toward Japan over the southern route, back up the coast, landcreeping; others who want to go directly to Japan proper; and still others who incline to the north. Author Kiralfy does more than incline to the north, he leans to that direction passionately, calling for attack via Russia and the Kurile islands. "As the key to victory lies in the north," he stoutly maintains, "so does the key to the north lie in Sakhalin," which is very near the Japanese island Hokkaido and might provide a suitable base for the much predicted offensive. Kiralfy not only advocates an offensive, he wants to go directly to the heart of the trouble, Tokyo.

When we take those advanced islands for bases and start an offensive we need no longer fear a Japanese invasion by Alaska or Hawaii and can use the troops from those outposts to augment our drive.

A dynamic book.

A. V. R.

MILITARY LAW AND DEFENSE LEGISLATION. By A. Arthur Schiller. West Publishing Co., St. Paul, 1941, 647 pages. \$5.00.

Students at the Command and General Staff School have often been impressed with the apparent confusion and multiplicity of laws and legal decisions governing the application of military or martial law. A commander forced to take action during times of domestic or international disturbance may easily commit serious errors unless he (or a competent member of his staff) is familiar with the laws governing his authority in such exigencies. This is especially true in the "hair-line" cases. Consequently commanders and their staff judge advocates should welcome a volume which collects and sets forth the pertinent statutes and decisions. Prof. Schiller's work is a text for schools now offering courses in military law, and will be useful to teacher, student, and

judge advocate alike. The subject matter includes The Constitutional Extent of Military Power; Army of the United States (all ramifications of its legal status); Military Law Proper; the Soldier's Civil Right; and is brought up to date by the addition of the Selective Training and Service Act of 1940. Foreword by Col. E. C. Betts, Professor of Law, U. S. M. A.

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MILITARY AND NAVAL RECOGNITION BOOK. By Capt. J. W. Bunkley, USN. D. Van Nostrand Company, Inc., 1942. \$2.50.

Originally prepared in 1917, this extraordinarily useful book was brought up to date and republished in January, 1941. A year later it was extensively revised, and is the most complete work of its type which has come our way.

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Compact and crammed with information, this reference book should be in every headquarters and dayroom.

MAP AND AERIAL PHOTOGRAPH READING SIMPLIFIED. By Col. W. F. Heavey, CE. The Military Service Publishing Company, 1942. \$1.00.

Like the excellent *Officers' Guide* issued by the same publisher, this popular book runs rapidly through numerous editions. The 4th Edition, published in May, is as useful as its predecessors. All essential elements are carefully explained and thoroughly illustrated, and are followed by practical exercises. Special maps, protractors, etc., are furnished to facilitate study.

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THE PHILIPPINES, A STUDY IN NATIONAL DEVELOPMENT. By Joseph Ralston Hayden. The Macmillan Co., New York, 1942. \$9.00.

The accidents of history have temporarily converted this massive work, which was intended as a definitive critical study of the United States' oriental ward on the eve of its independence, into a finely inscribed tombstone over the grave of the Philippine nation. Its detailed history of the growth of the modern nation, however, and of the development of its institutions during the years of American leadership toward independence can serve as a blueprint for the commonwealth that will exist when the invaders have been driven from its soil. Dr. Hayden's picture of the maturity and strength of these institutions after forty years of our imperialistically unique experiment in educating a dependency which we acquired with a quick flurry of arms up to a state capable of independence, makes it all the more certain that the Philippines will be resurrected and will be free.

The complacent trust of free-minded men in the fairness of all their neighbors and their ostrich psychology when that trust begins to waver is once more illustrated in the pages of this book. The defense of the Philippines was the responsibility of the United States until 1946, when independence was to be assumed, but this trust is clearly shown in the policy of the Commonwealth of the Philippines toward the Japanese immigration into Davao and in the MacArthur-Quezon plan of defense for the islands once they were independent. In the case of the former, President Quezon stated "there is nothing in the so-called problem that should cause serious alarm." Davao, however, has been used as a base by the Japanese from the early days of the war.

The MacArthur-Quezon defense plan seems to have been complete and thorough in regard to the training and equipping of a land army, and provided for the participation of all Filipinos in the defense of their land. Starting with the assumption that the Philippines were economically unable to support a naval force of any considerable size, it relied for the protection of a coastline longer than that of the United States on a force of small torpedo boats operating in conjunction with bombing planes. The best military opinion at the time when the plan was placed in operation held that it would be more than adequate for the foreseeable future of the independent Philippines. "I am more than certain that no Chancellery in the world," General MacArthur said at this time, "if it accepts the opinions of its military and naval staffs, will ever willingly make an effort to wilfully attack the Philippines after the present development has been completed." Hindsight reveals that before a determined aggressor who does not stop to reckon costs, even such forces as we had in the islands were insufficient.

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the political, institutional, economic, and social organization of the Philippines. The author weighs the chances of the Commonwealth of 1941 to survive and prosper, cut off from the economic and military protection of the United States, and finds doubt in both American and Filipino minds. The Philippines after our victory will be a new and even more difficult problem.

L. B. C.

WAR AND NATIONAL POLICY. A SYLLABUS. Edited by Grayson Kirk and Richard Poate Stebbins. Farrar & Rinehart, Inc., New York, 1942. \$1.00.

The ever increasing awareness of the universities to the complex problems of war is well demonstrated in this excellent syllabus, the joint effort of Columbia University and the Institute for Advanced Study, Princeton. The book has fourteen chapters grouped into three comprehensive sections, respectively entitled "The General Setting," "Military Organization, Technique and Policy" and "National Organization for Total War." The chapters in turn are broken down in detail, so that the result is a searching outline which penetrates into every phase of war. The bibliography at the end of the book includes a very large share of the books, pamphlets and periodical articles of modern military literature.

QUARTERLY DIGEST OF DIRECTIVES. The Adjutant General's School, Fort Washington. \$1.50 per year, 50c per copy.

This paper-bound pamphlet will be a great aid to administrative officers, particularly in view of its comprehensive index. Vol. 1, No. 1, covers the period December 1, 1941, to March 31, 1942; subsequent issues will be quarterly, as the title implies. Contents include digests of War Department Letter Directives; list of subjects contained in War Department Circulars and Bulletins; and lists of recent Army Regulations and Changes. Restricted, confidential, and secret material is not included, and radiograms, telegrams, and cablegrams are given only when they have been republished in letter form. Compact and comprehensive, the *Digest* will remove many complexities from the work of adjutants or adjutants general.

SAN ANTONIO, CITY OF MISSIONS. By Claude B. Aniol. Hastings House, 1942. \$1.25.

San Antonio has a warm and personal charm, especially in its older quarters. Mr. Aniol has caught this spirit in his delightful photographs. Well he might, as he is a resident of the city as well as an outstanding photographer. Most of the views are of the missions and the Alamo, with some scenes of nearby posts. It is an excellent gift volume.

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THE NAZI UNDERGROUND IN SOUTH AMERICA, By Hugo Fernandez-Artucio. Farrar and Rinehart, Inc., New York. \$3.00.

Señor Fernández-Artucio develops a real case against the Nazis and Japs in South America. His work covers a vast array of espionage, counter-espionage, revolutions, trials, murders, intrigues that is an eye-opener to the unwary.

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BOMBS AND BOMBINGS. By Willy Ley. Modern Age Books, Second edition, 1942. \$1.25.

The editor of *PM's* weapons page covers considerable ground in a lucid style which should clear up many mistaken notions for the layman. Both ends of the trajectory, both attack and defense, are covered. Mr. Ley's discussion of the principal types of bombs well ties in comparisons with artillery projectiles in a way that clarifies both. Appended is a short list of recent books which are both reliable and reasonably available, but publications of the Office of Civilian Defense are not mentioned. Readers desiring to pursue the subject are invited to place additional book orders through the Association.

A HISTORY OF OKLAHOMA. By Grant Foreman. University of Oklahoma Press. 1942. 366 pages. \$3.50.

Grant Foreman has specialized in Oklahoma history for forty years, and therefore has at his finger tips all material needed to write a complete history of the state. Similar works have been produced in past years, some of them very comprehensive. However, new data are continually being unearthed, so it is quite proper that Oklahoma history be rewritten from time to time. No one is better fitted to do this than Grant Foreman, and no one can do a better job of publishing it than the University of Oklahoma Press. This combination has again scored with a volume which will please the many serious students of western Americana.

W. S. N.

THE NORTHERN GARRISONS. By Eric Linklater. Garden City Publishing Co., Inc., New York, 1941. 50 cents.

This is a reprint of an official publication of the British War Office which discusses in a general way garrison life in Iceland and in the Faroe, Orkney and Shetland Islands. In Iceland, says the author, "loneliness and hard weather" together with "lack of communications, lack of mail, lack of news, lack of amusement and lack of beer" combine to make the soldiers' life a tedious one. With regard to the lack of beer, the author feels that, since mobile laundries have been set up, the army might also consider establishing mobile breweries. There is included an interesting description of the difficulties which the British forces faced in overcoming the Icelanders' prejudices in favor of things German.

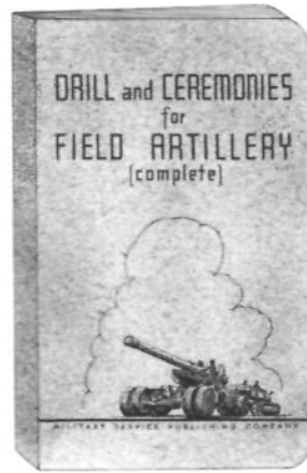
CONCISE CHARTED SPANISH GRAMMAR WITH EXERCISES AND VOCABULARIES. By Edwin Schoenrich. N. E. H. Hubbard and Company, Publishers, New York, 1942. \$2.50.

Within the last two years several excellent Spanish grammars and vocabularies have appeared on the market. There is need for books of this type because many officers are studying the language either voluntarily or "by order." This book provides an excellent handbook for the translator or for any other student of the Spanish language. The arrangement is somewhat different from the ordinary book of this type, but it is very clear and easy to follow. The verbs, which usually constitute the most difficult part in learning the language, are grouped in an unusual manner which undoubtedly will help the student. The printer has contributed considerable assistance, too, by printing in bold-faced type the principal words in each section, thus leading the eye directly to that which requires emphasis. The arrangement of the book makes it especially useful as a reference work.

HOW WE ACQUIRED OUR NATIONAL TERRITORY. By Robert R. McCormick. Chicago Tribune, 1942.

The author of this primer of America's geographical history has the avowed purpose of culling evidence for the theory of an isolated Middle West in the middle of an isolated America. His short book is liberally sprinkled with quotations and unsupported arguments tending to uphold the author's view that an America miraculously disentangled from the world is the birthright of the Middle Westerner. This is so, he believes, because of that section of the country's devotion to "uncompromising nationalism."

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Apparently the book was quickly prepared, hastily edited, and rushed to publication; nevertheless, its good factors offer some inducement to the public, and much to the technician.

A. V. R.

SOUTH DAKOTA IN THE WORLD WAR, 1917-1919. By Joseph Mills Hanson. South Dakota State Historical Society, 1940.

Authorized by act of the South Dakota legislature in 1919, this history of a midwestern state's military and civil part in that war effort has been 21 years a-borning. With this country deeply involved in a much more taxing struggle, the facet of our first modern war described in this book has an interest of comparison which it would not otherwise possess. South Dakota had 900 National Guardsmen in 1917 and the author records the story of their somewhat painful absorption into the National Army and the addition of some 30,000 drafted troops. They served chiefly with the 32nd, 88th and 89th divisions, and Mr. Hanson tells in great detail the history of these units in the St. Mihiel offensive and the Meuse-Argonne operation. The problem of the state government in unifying the state's war effort and dealing with German-speaking minorities are also treated.

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