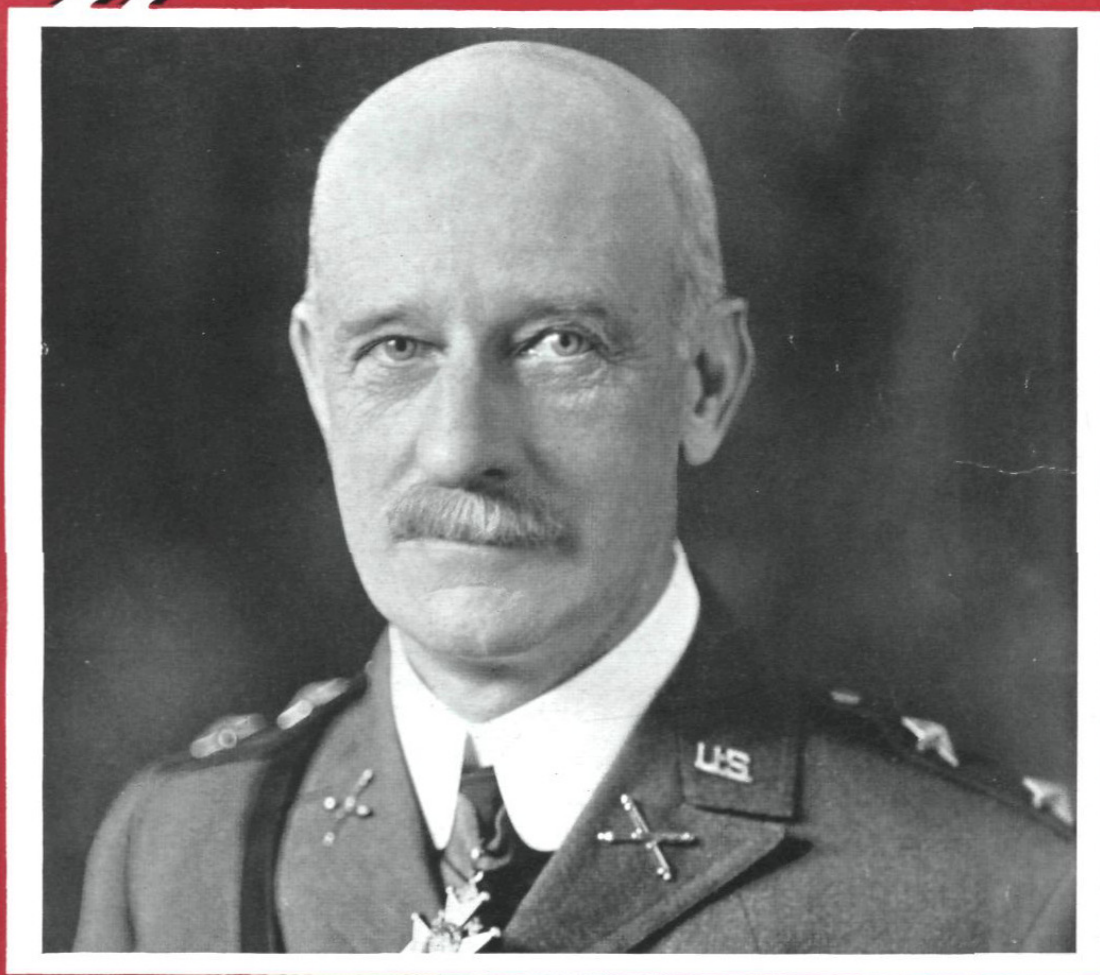


*The*  
**FIELD ARTILLERY**  
*Journal*



IN THIS ISSUE:

*Gen. Snow's Memoirs—Conclusion*

SEPTEMBER, 1941

*A New Handbook for the FIELD ARTILLERY!*

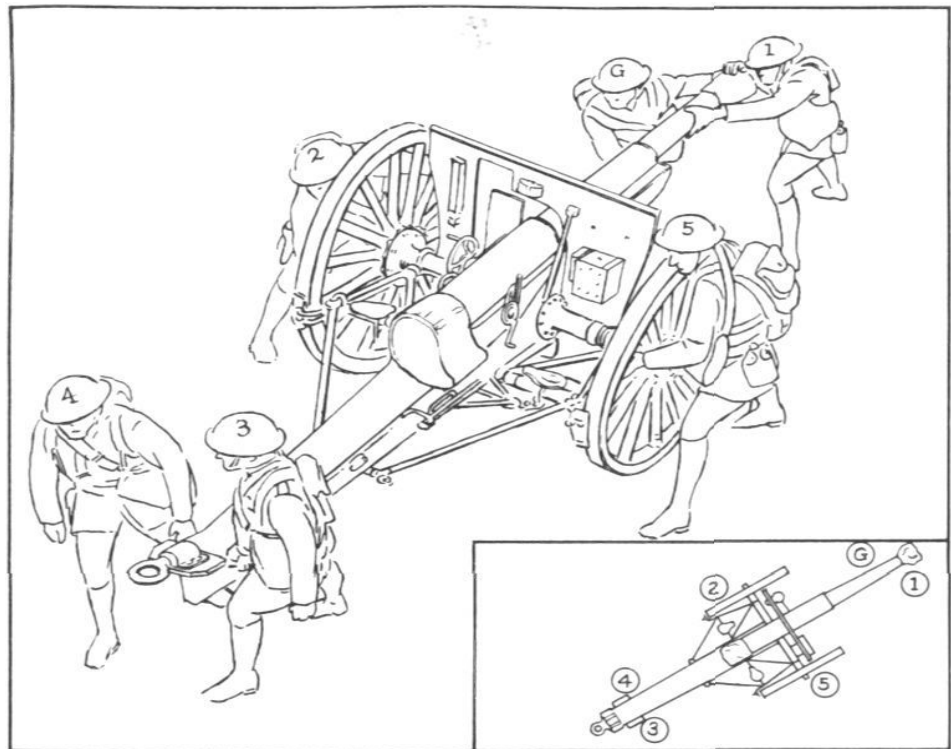
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•  
This is the type of illustration  
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•



## TABLE OF CONTENTS

DISMOUNTED DRILL

SERVICE OF THE PIECE

Section 1. 75-mm Gun, M1897 (Horse-Drawn) and 77-mm Gun, 1897A4 (Truck-Drawn)

Section 2. 155-mm Howitzer, M1918A1 (Truck-Drawn)

PISTOL

EQUITATION

THE MOTOR DRIVER

DRIVING AND DRAFT

## MOUNTED FORMATIONS AND MANEUVERS

Section 1. The Truck-Drawn Battery

Section 2. The Horse-Drawn Battery

Section 3. The Battalion, Regiment, and Brigade, Truck- and Horse-Drawn

STANDARDS AND GUIDONS

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# The Field Artillery Journal

A Publication for the Field Artillery of the Army of the United States

**SEPTEMBER, 1941—Vol. 31, No. 9**

IN THIS ISSUE we present the final installment of Gen. Snow's World War memoirs. This important series has been appearing in THE FIELD ARTILLERY JOURNAL for over a year and a half. During that time our readers have learned how the Chief's Office was first established in 1918; how this placing of responsibility for field artillery training and other matters brought order out of chaos—the step was so successful that other arms and services were also given Chiefs; how the Chief's Office evolved and put into operation a comprehensive, efficient Training Program; and finally how the Chief maintained close watch over procurement and test of materiel. Gen. Snow's serial has been read with interest in many lands; enthusiastic comments have been received from British officers who are faced with similar training problems. Gen. Snow's work is unquestionably the most important single book dealing with the development of the U. S. Field Artillery, although it covers only the World War period in the United States itself. In addition to its great significance as a historical work—and it will be a standard reference work for future researchers—it provides numerous "signposts of experience" whereby we can avoid the errors which beset our national defense effort in 1918. For that reason alone its value to America is incalculable. THE FIELD ARTILLERY JOURNAL is happy to announce, therefore, that arrangements have been completed whereby Gen. Snow's World War Memoirs will be published soon in book form under the title *Signposts of Experience*. We know that every field artilleryman will want a copy for permanent reference in his own library. Definite announcements as to date of release and price will be made later, but we can promise that the cost will be modest.

PRELIMINARY REPORTS from the titanic Russo-German conflict indicate that a somewhat different style of warfare is being waged from that which was conducted in the west. The heavy German infantry divisions seem to be carrying the ball, and great masses of artillery of all calibers are being employed. The wild-eyed boys who have been proclaiming that the tank-plane team has displaced all other arms, especially the infantry-artillery team, must now come back to earth.

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	PAGE
COVER ILLUSTRATION: MAJOR GENERAL WILLIAM J. SNOW	
CAMPAIGN OF FLANDERS, 1940 .....	634
<i>By Captain Leo Framery, French Army</i>	
FIELD ARTILLERY—1941 .....	643
<i>By Major W. B. Palmer, FA.</i>	
SIGNPOSTS OF EXPERIENCE .....	646
<i>By Major General William J. Snow, USA-Ret.</i>	
MOUNTAIN DIVISIONS IN BLITZKRIEG .....	655
SUBCALIBER .....	661
<i>By Major David Larr, FA; Captain Harry E. M. Mikkelsen, (FA) O.D.;  Lieut. Col. F. B. Prickett, FA; and Lieut. Col. Ralph Hospital, FA.</i>	
INCIDENTS FROM THE WAR .....	667
NOT IN THE BOOK .....	671
<i>By Corporal Crane</i>	
ARTILLERY IN THE RUSSO-GERMAN WAR .....	672
THE MAPLE LEAF FOREVER .....	674
<i>By Captain T. L. Crystal, Jr., FA.</i>	
FORT BRAGG, 1941 .....	681
<i>By Private V. H. Polachek</i>	
THE GUNS OF BRAGG.....	686
<i>By Fairfax Downey</i>	
WITH THE OTHER ARMS AND SERVICES: IV—ORDNANCE .....	687
AN AMATEUR'S FIRST ATTEMPT AT STRATEGY .....	691
<i>By Colonel Conrad H. Lanza, FA.</i>	
ARMORED FIELD ARTILLERY IN THE TENNESSEE MANEUVERS.....	698
<i>By Major Laurence Collins, FA.</i>	
TYPES OF ENLISTED OFFICER-CANDIDATES.....	700
<i>By Major Burgo D. Gill, CAC.</i>	
WITH THE ARMIES OF FOREIGN NATIONS .....	702
THE OLD STRIKER .....	704
<i>By Captain Robert Falconer, FA.</i>	
PROBLEMS IN GUNNERY.....	707
FROM THE CHIEF'S OFFICE .....	708
BOOK REVIEWS .....	711

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# CAMPAIGN *of*



## FLANDERS, 1940

By Captain Leo Framery, French Army

Beginning an Important Source-Document of Contemporary  
History, with Timely, Vital Lessons for All Artillerymen

### PART I



## FOREWORD

It is May 10th, 1940. Very early, at daybreak, the French forces, after an eight-months' watch along the Belgian border, are alerted. The German Army has crossed the frontiers of Holland and Belgium and gone through Luxemburg. The great spring offensive of the *Wehrmacht* has begun.

The French Cavalry Corps, including the 2d and 3d Light Mechanized Divisions, had received at 3:30 AM the order to prepare for action. At 6 AM the expected call for help from Belgium reaches the French G.H.Q. At 7 AM the fast reconnaissance elements of the Cavalry Corps cross the border. By nightfall, after a west-east run through Belgium, they are in contact with the enemy, not far from the Albert Canal. They are now among the Belgian forces, and 120 miles from the cantonments they had left the same morning.

What was this Cavalry Corps on which, as spearhead of the French forces, devolved the task of retarding the onrush of the *Panzer Divisionen*? What were the two Light Mechanized Divisions which composed it? An answer to these questions, followed by a description of the actions in which I participated as a member of the 2d L.M.D., and particularly a description of the missions which the divisional artillery had to fulfill, are the objects of this article.

## ORGANIZATION AND ARMAMENT OF THE FRENCH ARMORED CORPS

*The Cavalry Corps*: In spite of this glamorous name, not a single charger or even a dray-horse was to be found in the property of this corps. It included mainly:

- 2 light mechanized divisions—the 2d and the 3d
- 1 regiment of corps artillery
- 4 battalions of motorized machine guns

and the usual contingent of engineers, signal corps detachments, quartermaster units, etc.

The Cavalry Corps, from its formation, was commanded by General Prioux, who was succeeded by General Langlois when Prioux became C.G. of the First Army.

*The Light Mechanized Divisions*: They were the most modern units of the French Army. Unfortunately, on May 10th, only four were in existence—as against the 12 Panzer divisions of the *Wehrmacht*.

As successors of the old cavalry divisions, their regiments still bore the historical names of Cuirassiers and Dragoons, even though they drove to action in tanks, armored cars, Bren-gun carriers, tractors<sup>1</sup> and motorcycles.

The 2d Light Mechanized Division, formed in 1936, had replaced the 1st Cavalry Division. It included:

- a. Three tank regiments (1st, 13th, 29th Dragoons), armed with three types of vehicles: (1) the Renault M35 and Hotchkiss M35—light tanks weighing 10 to 12 tons, armored with plates and turrets



*French 105-mm. howitzer*

16 to 22 millimeters thick. The armament consisted of 37-mm. guns and 13.2-mm. machine guns; (2) the medium Somua M35, 20 tons; body and turret of 38-mm. thick cast steel. Armament: 47-mm. guns and 13.2-mm. machine guns. Protected tracks.

- b. One armored car regiment (8th Cuirassiers). This reconnaissance regiment preceded the columns, sometimes 80 miles ahead of the main forces. The cars were 4-wheel-drives, with two drivers placed back to back to enable them to move to the rear as easily and as rapidly as forward. Protection was afforded by 12- to 16-mm. plates. Armament: machine guns and 25-mm. guns.

- c. One regiment of dragoons (the 1st "Dragons Portés") carried on side car and solo motorcycles and on six-wheeled scout cars. This unit included over three thousand men and was possessed of considerable fire power. Its armament was varied and complete: the repeating rifle 1936, Bren guns, heavy machine guns, 25-mm.

<sup>1</sup>A tractor in the French Army (as in the British) is a 4- or a 6-wheel-drive truck.—Editor.



*The invasion begins: chenillettes (apparently towing gasoline or water trailers), part of L.M.D., moving to front.*

guns, 37-mm. guns, 65-mm. mortars, etc. It was a modern, motorized infantry brigade, able to travel 40 to 50 miles an hour on roads and scatter across fields, woods and villages at high speed. The *Dragons Portés* were omnipresent on the battlefields of Flanders; whenever a portion of the front was hard pressed, a platoon or a section would be rushed to the spot. One could see them riding single file, on powerful motorcycles and sidecars, never under 50 miles per hour, along the narrow, winding country roads, Bren guns poised for action, men oblivious to bombs or shells. With their vizorless steel helmets and goggles, they had the appearance of beings from another world. These were the men whom we, divisional artillery, were supporting. Orders to fire in most instances came direct to us from one of their battalion commanders with whom we were securely connected. Actually our forward command post was located as closely as possible to the Dragoons' CP and the two battalion COs—the Dragoons' and the artillery's—were, in tense circumstances, often together. Thus we knew within few minutes what was happening all along the line; we lived the hard battles of these men who bore the brunt of the assault, attacking and counterattacking at night with pistols and hand grenades. Casualties ran high in their ranks—50 to 60 per cent in some battalions. They are the unsung heroes of these times.

d. One tractor-drawn<sup>2</sup> field artillery regiment (the 71st FA) composed of three battalions of field pieces, and one antitank battery of 8 47-mm. guns.

The two first battalions were armed with the usual 75-mm. guns; the third had 105-mm. howitzers, split-trail type.

The prime movers had six driving wheels with independent suspension to insure smooth going across country. On normal roads, with six men on board, a load of 72 rounds of 75-mm. ammunition, and the gun or caisson in tow, they could attain 40 to 45 miles an hour.

I was in one of the 75-mm battalions, which had a complement of 479 men (including 61 noncommissioned officers) and 20 officers, divided as follows:

*Battalion staff:* 6 officers, 10 NCOs, 60 cannoneers

*3 Batteries (each):* 3 officers, 12 NCOs, 84 cannoneers

*1 Supply column:* 5 officers, 15 NCOs, 97 cannoneers

The materiel included: 12 guns, 18 caissons, 52 six-wheel tractors, *one observation tank*, 65 cars and trucks, 20 motorcycles.

I am giving this dry numerical description before entering into the narrative so that my readers, artillerymen, may visualize more easily and have a truer picture of the battalion on the road or in action. One may realize how

<sup>2</sup>That is, "truck-drawn" in U. S. parlance.—Ed.

unwieldy the unit was compared with the fluidity of the battalion of the horse or mounted field artillery which most of us have known in the past. Unwieldiness is the ransom divisional artillery has to pay for speed.

In the approach march, when the division goes cautiously forward expecting to encounter the enemy at any moment, the artillery battalion has its reconnaissance parties riding ahead of the main body, among the vanguard. The three batteries are back with the main forces. I have known cases, in such circumstances, when the "reconnaissances" were 10 hours ahead of the firing batteries. The battalion commander, who in many instances personally conducted the reconnaissances, was confronted with a hard dilemma: When hours ahead of his three batteries, how was he to command them? When with the batteries, how was he to maintain a personal influence on the reconnaissances?

Keep in mind that in blitzkrieg, many events may occur within few hours. The orders issued to the batteries by the battalion commander when he leaves to head the reconnaissances may be totally obsolete when the time arrives for the 12 guns to reach the selected emplacements. Quick decisions may have to be made on the spur of the moment. In short, the battalion commander runs the risk of never being at the right place when he is most needed. The solution which we gave to this problem was to provide the battalion staff with an executive called "staff captain," who was a sort of alter ego of the battalion commander. He could be at the head of the batteries when the major led the

reconnaissances, or vice versa. The executive is at the advanced command post with the CO of the supported Dragoons when his chief elects to stay at the battalion rear CP close to the guns. In other words, he takes matters in hand wherever and whenever the chief is not personally present.

#### THE BATTALION ON THE MOVE

During the approach march as well as during action the battalion is divided into several echelons. Ahead are the three batteries, preceded when necessary by the reconnaissances. At a variable distance back of the firing batteries is No. 1 combat train carrying ammunition and fuel, ready to re-supply the batteries at short notice whenever needed.

Farther back is No. 2 combat train, also transporting ammunition and fuel; the rolling kitchens are placed in it.

Far to the rear is the "base" carrying the baggage, and having the repair shop and other heavy trucks.

Each one of the three supply-train fractions just mentioned is generally grouped with the similar units of the accompanying forces—all combat trains No. 1 are together, combat trains No. 2 farther back, and so forth. Each group thus constituted is provided with an escort and antiaircraft and antitank means of defense. Light mechanized divisions are called upon to work alone far ahead of friendly forces and consequently all their elements have to be able, when left alone, to fight off attackers.



*Infantry heavy weapons carrier (18 per regiment)*

Generally speaking, the combat trains No. 1 are stationed a few miles back of the batteries—the combat trains No. 2 some 15 miles farther back. As for the "base," it is stationed 80 to 100 miles back.

To enable the reader to have a clearer picture of the battalion moving to action, I must draw attention to the fact that the cars, tractors, trailers and trucks composing a column on the road have to keep a certain interval between each other to avoid mishaps. At night, in the total blackout, they are 5 to 20 yards apart. By daylight, to limit the damage an always imminent bombing might cause, the space between vehicles is extended to 25, 50, or even 100 yards on the main roads, when the sky overhead is infested by swarms of noisy Stukas scattering bombs all over the landscape. The three firing batteries plus the battalion staff include close to 100 vehicles; this means a column of 3 to 5 miles in length. Imagine the CO in the lead; he has back of him this long, lumbering column over which he has to keep strict control in spite of any happening. Where are his combat trains? The problem of keeping contact with them is ever present in his mind: Are they not carrying the food for the guns, the engines and the men? Without them, after a few hours of action, the twelve pieces may very well have no more value than their weight in steel.

## NARRATIVE OF EVENTS

### THE ALERT

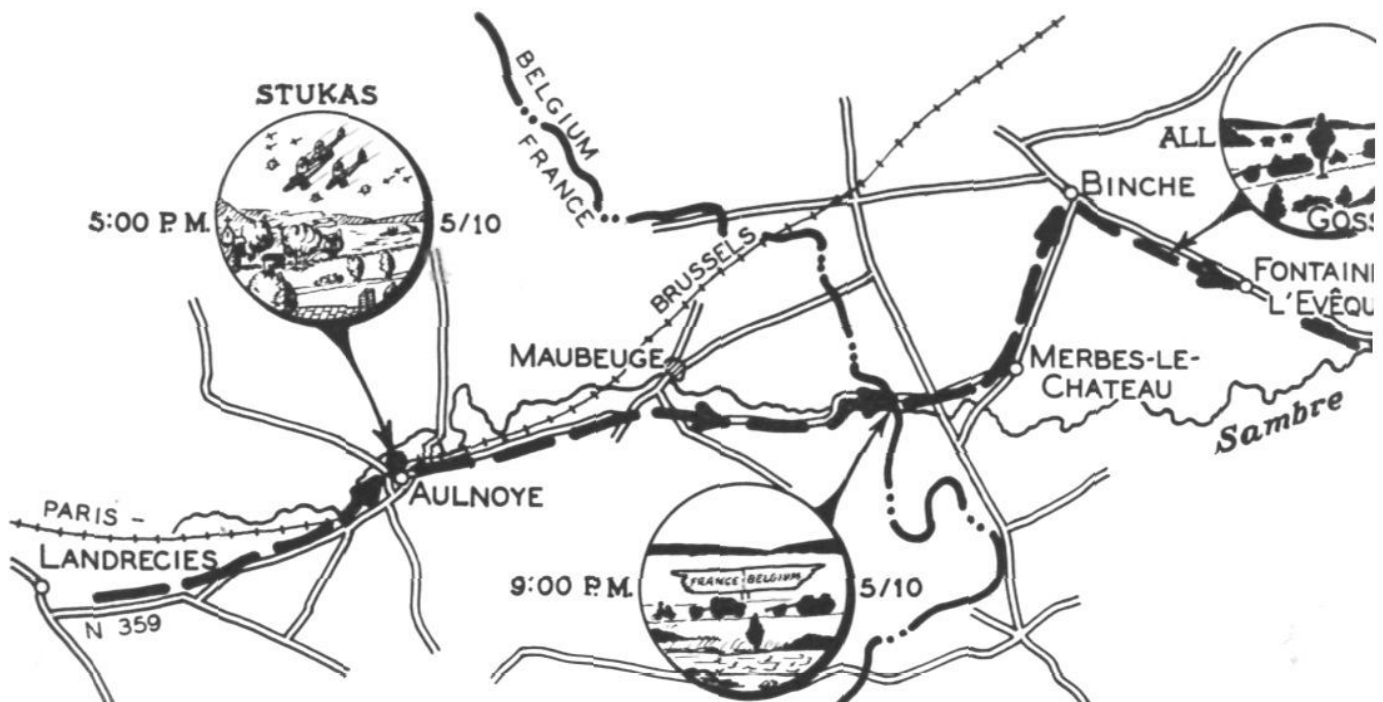
Since August 28th, 1939, one week ahead of the declaration of war, the 2d L.M.D., a Regular Army outfit, fully mobilized, was concentrated in Northern France, occupying billets and cantonments close to the Belgian

border. It was ready to move forward on short notice. Prior to May 10th, 1940, we had had two such notices and had driven ahead full of anticipation. First, on November 11th, 1939, while we were commemorating the Armistice of 1918. Then on January 14th, 1940, when the temperature was zero Fahrenheit, we headed east to be stopped (by orders) but few miles from the frontier.

This explains why the third and last alert order, in its terseness, did not inordinately stir us up. It was worded about as follows: "Alert No. 1: The German Army has forced the border of Holland and Belgium. D-day is today, May 10th . . ."

It is 3:30 AM when a sergeant from battalion headquarters hands me the fateful slip of paper. I may mention here that the regiment was just coming back from rather extensive maneuvers in the Camp of Sissonne which we had left at 10 PM the previous evening, May 9th. We had returned to our cantonment, 80 miles to the north, at 1 AM, May 10th. Therefore, much has now to be done before taking the road. The usual maintenance work on cars and pieces; filling up with 5 fuel units—i.e., enough gas, grease and ingredients to enable the battalion to cover 500 kilometers.<sup>3</sup> We have to load up 5 fire units of 200 rounds each per piece (12,000 for the battalion) in the caissons and tractors of the firing batteries and in the ammunition trucks of the combat trains; complete the small-arms ammunition for the machine-guns, Bren-guns, rifles, pistols, rocket-guns, etc. We have to make a careful check-up of "iron rations," issue to men of staff and firing batteries fresh

<sup>3</sup>For the battalion this meant 5,290 gallons of gasoline.

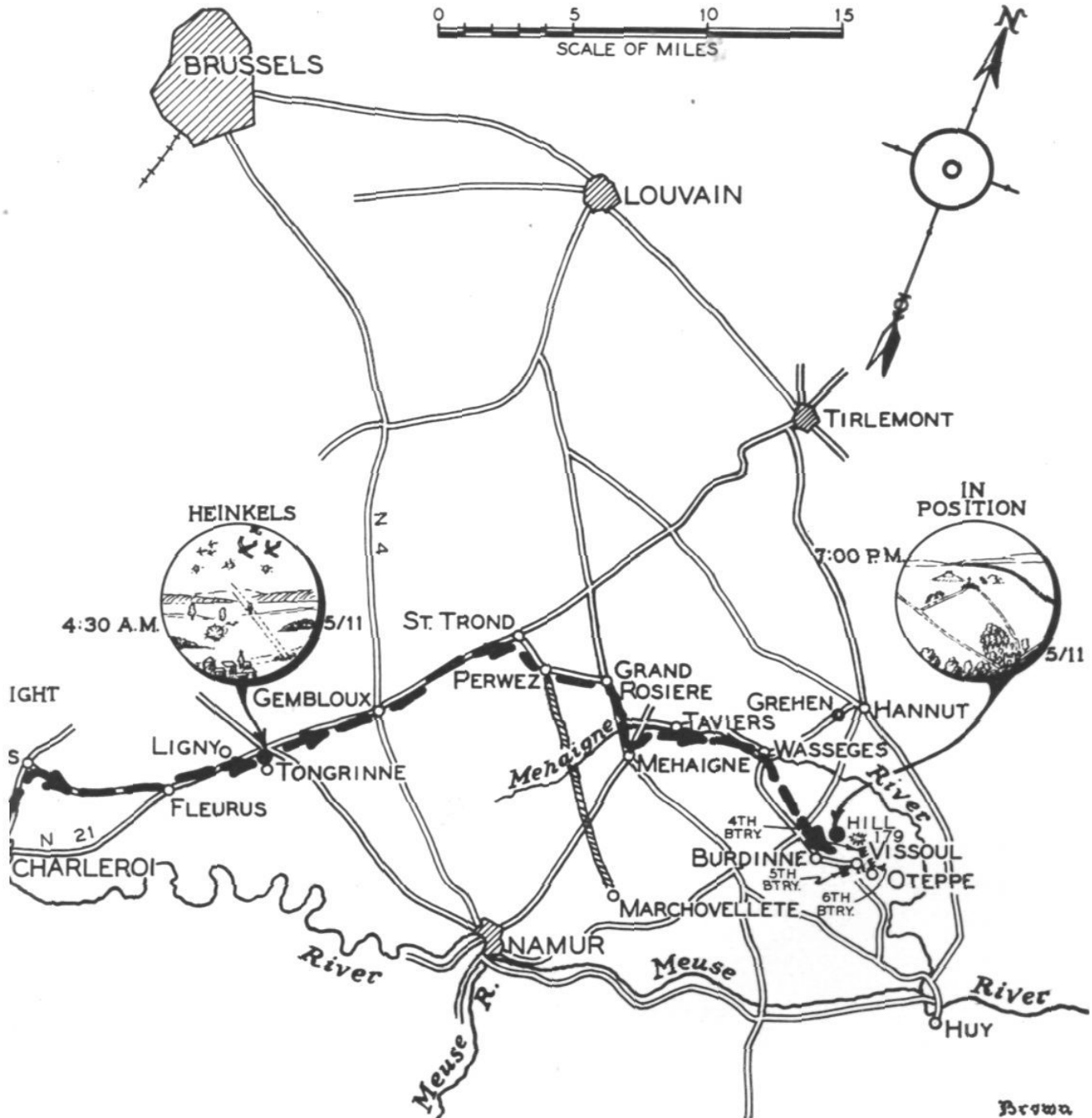


rations for three days; remember that the field kitchens are with Combat Train No. 2, far away, and probabilities are great that we may not see them for days.

Meanwhile, detailed orders arrive concerning the itineraries and march schedules. Maps are issued: road maps 1/200,000 scale; and operation maps, which include the 1/40,000 Belgian military maps, the 1/50,000 French maps and a few British 1/50,000 maps.

The staff work involved in determining the itineraries to

be followed by the various columns of the division as well as the timing of their movements had been completed during the winter months. The final solution was the outcome of careful and extensive studies of the various lines of action open to the enemy. The countermove to each of these possible German plans was prepared very thoroughly. When the D-day arrived, the general orders had merely to specify the number of the plan or hypothesis which had to be carried out.







*Laffly artillery tractor, used by 71st FA. It is powered by a Hotchkiss engine, 100 HP., used as reconnaissance vehicle and prime mover. Photo by Leo Framery.*

On May 10th, the plan adopted called for the deployment of the division on a front parallel to Tirlemont-Huy.

#### THE ADVANCE

The 2d L.M.D., divided in several columns following six itineraries, general direction of march parallel to the valley Sambre-Meuse, moves eastward. The vanguards, including mostly armored cars of the 8th Cuirassiers, cross the Belgian border in the morning, at various points, in the vicinity of the River Sambre.

My battalion takes its place in one of the columns on the main road N 359, just east of Landrecies. Ahead of us is a company of pioneers in six-wheeled cars, whose work is to clear all obstruction or obstacles from the road; back of us is a battalion of the 329th FA, corps artillery sent as reinforcement.

The interval between cars, 50 yards, is soon reduced, by repeated stops, to 25 yards.

The pace<sup>4</sup> is very slow. The roads are already encumbered by a heavy flow of traffic moving in the opposite direction. The Divisional Road Circulation Detachment has a busy time. To handle the increasing fleets of civilian cars surging from the Netherlands and Belgium, a stern and pitiless discipline is imperative, but who has the ruthlessness to impose it only a few hours after the beginning of the German onrush? At the time nobody blames the men of the R.C.D. left at each crossroad, for their leniency and good-naturedness, although major traffic jams are the inevitable sequence.

At 5 PM we are at Aulnoye, and cross the trunk railroad line Paris-Bruxelles. We now have the opportunity to watch the Luftwaffe at work: 50 German planes are

<sup>4</sup>The speedometer on my car seldom exceeds 25 kilometers per hour.

bombing the important railroad station of Aulnoye. They fly in triangular formations, protected by three Messerschmidts zigzagging around the squadrons of bombers, much like shepherd dogs busy with their flock. To our dismay, the bombing goes on unchecked save for the desultory firing of an antiaircraft battery scattering the white puffs of its burst in the blue sky.

We cross the Belgian border at 9 PM. Night has fallen; the blackout is very thorough save for the few dim electric lanterns laid by the R.C.D. on the right side of the road to mark the itinerary. Each driver has to watch attentively the rear of the preceding car to avoid bumping into it at unexpected stops—which are frequent. The unfortunate motorcyclist dispatch riders have a hard time of it. They are almost undistinguishable in the darkness. Out of the 20 we had in the battalion, all but one are knocked down at least once during this first night. [I must add that they reappeared one after the other the next morning following a hasty "first aid" applied to themselves and their machines.]

Our route goes through densely populated districts: Merbes-le-Chateau, Binche, Fontaine l'Évêque, the northern suburb of Charleroi, Gosselies, Fleurus. We finally arrive in the small village of Tongrinne, end of this first stage, at 2:30 AM, May 11th. Tongrinne is just off the main road N. 21, two miles east of Ligny, where Napoleon defeated Blucher in June, 1815.

The distance covered from Landrecies is 65 miles; time 11 hours; average speed 6 miles per hour. A very disappointing result, considering that on normal roads we easily averaged 25 miles an hour on 100-mile runs.

There is much to be said concerning this important issue: our first night on the move demonstrated fully that a very "matter of fact" 4th Bureau<sup>5</sup> plus an efficient and adequate Road Circulation Detachment are imperative requisites for mechanized units. Peacetime "war

<sup>5</sup>G-4—Ed.



*Crossing a river on a raft buoyed by Haber bags filled with straw.*



*French armored car—8th Cuirassiers*

games" and maneuvers are very misleading in this respect.

Our stop-over in Tongrinne is to be of few hours, at most, so after a hasty reconnaissance made cautiously with flashlights, the hundred-odd vehicles of the battalion are expertly scattered in the village. They are parked so as not to be discernible from the sky, though disposed in such a way that they may swing back to column formation rapidly.

At three-thirty, quiet prevails except in the barns, where the ever-active maintenance crews are at work. At four-thirty, with the sun, appear in the clear sky the first German scout planes, the Henschels. They are slow, ungainly craft painted in dark color, flying low. Our machine gunners let go at them and the rattle of musketry fire soon awakens the villagers.

Then, squadron after squadron of Heinkels, coming from the east, show up. The singularly rhythmic roar of their engines fills the air, punctuated by the reports of exploding bombs. Antiaircraft batteries begin to bark. Our second day of blitz has started.

#### OUR FIRST COMBAT ORDERS

Dispatch riders are already crowding around the battalion office, which is precariously established in a row of empty stables. Orders of operation for the day are soon received.

We learn that the enemy has succeeded in crossing the River Meuse at Maastricht; Fort Eben Emaël, 4 miles south of this city, on the western bank of the Meuse, and one of the strong points of the Belgian first line of resistance between Liege and Maastricht, is surrounded. It is further stated that the enemy holds three bridges on the Albert Canal, west of Maastricht.

The 2d L.M.D. is to take a defensive position on the front Tirlmont-Huy. The battalion is attached to the brigade in charge of the south sector, under the command

of General Lacroix. We are in direct support of the "Battalion B—" of the 1st Dragoons, and our mission is to oppose any crossing of the Meuse, a small tributary of the Meuse, which it joins just west of Huy. Battery positions are to be selected in the vicinity of Vissoul, a small village 4 kilometers east of Burdinne.

Reconnaissances to leave at 12 noon, the column of batteries at 2 PM.

The movement, though made in broad daylight under swarms of enemy planes, is completed without mishap. We follow highway N. 21 and pass by Gembloux, which had been heavily bombed in the morning. We now have to stop a long while, north of Gembloux, where N. 21 crosses the main road N. 4, Namur-Bruxelles, while the pathetic and endless crowd of refugees files by. Our route then goes through St. Trond and Perwez, where we cross the large antitank defenses of Perwez-Marchevelette, part of the Belgian main line of resistance. Then Grand-Rosière, Meuse, Taviers, Wasseiges, Burdinne. We reach the latter city at 6 PM and are met by a small detail of noncommissioned officers sent back from the reconnaissance parties to guide the battalion to the chosen emplacements. The occupation of the positions is accomplished at nightfall. The 4th Battery is 1 kilometer northeast of Vissoul. The 5th Battery is west of the village, well defiladed by a small bank oriented N-S, with thorn bushes conveniently located. The 6th Battery has the best position of all, at the edge of the woods surrounding the castle of Oteppe. The observation post is obviously—too obviously, as future events will show—on hill 179 north of Vissoul, which affords a good view east of the Meuse Valley. The battalion CP is in a house on the road from Burdinne to Oteppe.

In a short time telephone and radio connections are

ready. The orienting<sup>6</sup> officer has done a good job during the reconnaissance and the coordinates of the base pieces have been determined long before the positions are occupied. The fire-direction center is thus able to start working with little delay; the plan of fires is established, typewritten and sent to the batteries within half an hour after arrival on the position.

(It may not be amiss to draw the reader's attention, here, to the fact that the battalion, not the battery, is the firing unit in the French divisional artillery; very seldom is a battery called upon to fire alone; the great majority of fires are concentrations. Hence the importance of the fire-direction center to insure homogenous firing data to the three batteries.)

Before nightfall the town of Burdinne, back of us, is heavily bombed. The weird Henschels hover awhile above us, observing, but our men are already wary and no one stirs.

Though ready for anything, we do not expect to have to fire during the night, as the 8th Cuirassiers have not come back in and are still far forward beyond Tongres. Darkness prevails now everywhere and the blackout is complete. Nevertheless a continuous crowd tramps the small road by the battalion CP. It is an uncanny scene: Thousands and thousands of beings are fleeing west to escape the invading horde; they do not speak and one hears mostly the rain-like, muffled patter of their multitudinous feet. Now and then troops of horses and carts pass by, heavier shadows, parts of the withdrawing, hard-pressed Belgian divisions. A few stragglers stop to ask our men for a drink of water. They stare a moment at the insignia, strange to them, on our helmets and blouses, then resume their retreat with a cheerful remark: "Les Francais."

This lasts the whole night and part of the next morning.

In the meanwhile our men have been digging narrow trenches as a protection against air attack; the telephone connections have been established; the gun emplacements have been carefully camouflaged. When the sun rises in perfect blitz weather, on May 12th, we are quite confident that the Henschels will detect neither our twelve pieces nor the tractors. At daybreak columns of Belgian infantry coming back from Liege and Huy appear on our small road, heading west.

Information arrives from headquarters to the effect that in front of us our units have contact everywhere with the enemy; the Belgians have departed, with the exception of a thin screen of cavalry. Our Cuirassiers, early in the morning, are still fighting on the line Tongres-Liege, slowly retreating.

<sup>6</sup>Survey officer. The French were trained to execute mostly map fires, accurately prepared; observed fires were a minor matter. Fire direction was highly centralized.—Ed.

The Luftwaffe in mass soon peoples the sky, mostly Stukas, flying in formations of twelve, and to all appearances fulfilling long-range and fleeting missions assigned formerly to artillery. When a squadron has sighted its objective, the 12 planes circle above it, then dive, one after the other, each letting go its stick of ten bombs when 200-300 feet from the ground. Each plane, after unloading, goes in a steep climb, firing its rear machine gun at the target. The bombs falling in rapid succession sound, when exploding, as would a 10-piece battery firing "battery right" at 1/2 or 1/3 of a second interval . . . a very noisy performance, if you add to the explosions and the machine-gun rattle the shrieking of the sirens and the roar of the engines racing at top speed. The few inhabitants who, so far, had had enough fortitude to stay, abandon their farms and flee in a group. Burdinne is bombed continuously. It shelters the division headquarters, and we learn that General Bougrain, the CO, was bombed out of his successive CPs—the first time, fifteen minutes after arriving. The Fifth Column is alert and efficient in the neighborhood.

The enemy is exerting a considerable pressure on our cuirassiers, who fall back on the line: Tirlemont-Hannut-Huy, which is reached in the afternoon; the dragoons then take a hand. Hannut, bombed since early in the morning, is an untenable heap of rubble. The enemy concentrates masses of tanks to reach south of Hannut, towards Grehen. Each thrust forward is announced by a swarm of Stukas which precedes it and prepares the ground by a thorough bombing. Our dragoons counterattack; one can follow our platoons of tanks (S35 and H35) across country by watching in the sky the infernal circus of dive bombers trailing after them as so many birds of prey.

At three PM the enemy begins firing with four 105-mm. guns on our "too obvious" observation post; after a few salvos to adjust, fire for effect follows with vicious bursts continuing for more than one hour—until our observer and his crew decide to move 100 yards sideways to a quieter spot.

Our colleagues of the 329th FA, placed in orchards just east of Burdinne, with a base deflection of 0—straight north—fire breathlessly for several hours during the afternoon, supporting the counterattacks around Grehen.

I receive our first order to fire shortly before eight PM, after sundown. The attacks have not subsided. Many planes are still in the air. Enemy trucks are reported crossing a small village in our sector. We are called upon to stop them with a good concentration.

Thus begins the night May 12th-13th.

[TO BE CONTINUED]





During a great part of its most honorable history, artillery has fought in line with the infantry. Perhaps the developments which culminated in World War technique were on a sidetrack, for today the artillery once more finds itself in the thick of personal combat.

The front line today is a rather deep line. The tank and the airplane have little respect for the foremost scattering of infantry. The first tank objective is the

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## FIELD ARTILLERY--1941

By Major W. B. Palmer, FA.

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zone of the artillery, the reserves, and the command posts. The artilleryman at any moment must be ready to repel the attacks of aircraft, tanks, and infiltrating infantry. The attack may come from any direction, for the tanks may have penetrated far to the left or right and turned against the flanks and rear of our own positions.

Direct fire is once more a highly important technique. Artillerymen must be ready to fight with auxiliary weapons in the positions of their guns. The battery position needs all the help it can get from tank obstacles: natural, such as canals, streams, and heavy timber, or artificial, such as tank mines and constructed blocks. Camouflage and concealment are still of great importance, to hide the guns from aircraft and from tanks. The danger always exists—

on the march and in bivouac as well as in battle positions. Artillery is back in a front line which is several miles deep from the outpost. As in the old days, the guns are rallying positions for the troops around.

### SELF-PROTECTION

It is reported from the Flanders campaign that one unit of British artillery, properly trained, actually organized a counterattack and repulsed a serious German penetration. But the British artillery as a whole was not so capable; like ourselves, they had tended to ignore their auxiliary weapons. They have told us with regret that in most batteries only a few men were trained at all with the weapons of self-defense, and these few were not well trained, often had not even fired them. Now they are training everybody to use them.

We believe that the tank's strongest weapon is the fear it can inspire. We must train our men not to scare easily. A tank which is kept under fire must keep its ports closed, and then it is almost blind. It must to a large extent blunder along. Rifle fire and machine gun fire will do this much to the tank.

We find ourselves training with good dependable tools. Our Springfield rifles are good rifles. We are not interested in beaten zones and clouds of lead. The enemy we find around our gun positions will be coming in by two's and three's. We want our men to know the value of the aimed shot, the single shot.

In the Fort Bragg Field Artillery Replacement Training Center, we are going to make the artillery "rifle-minded." Wherever the man goes, the rifle goes—to

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A succinct statement of what we have learned from the war so far

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gun drill, to service practice, to calisthenics, to parade. We are back in the front line, and we intend to see to it that the front line never gets behind us.

#### THE REBIRTH OF DIRECT FIRE

With the cannon, too, at least in the lighter calibers, we are back to the single shot, the aimed shot. The 75-mm. gun, lately a weapon of massed fires, is now entirely devoted to direct fire. The gun squad against the tank crew, the single aimed shot, and it had better be a good one. Infantry cannon, which the Germans find so useful, are weapons of direct fire and the aimed shot, and some of them are pretty heavy guns. The artillery is back in there, swapping punches alongside the infantry, at every stage of the game. Hit and move forward, with your rifle always handy.

#### THE ANTITANK ARTILLERY

We need, and we are creating, two kinds of antitank artillery units. The first consists of platoons (perhaps they'll soon be batteries) which are organic minor parts of regiments. They are intended to give their regiments some protection against tank surprises. However, these small elements scattered about the battle zone cannot possibly cope with large-scale tank attacks. Therefore, we may expect to have battalions and groups of antitank artillery, assigned to Army or GHQ reserve, with the idea that many such battalions can be moved in to defend especially dangerous sectors.

It is probably true that the ideal antitank gun is the antiaircraft gun, with its expensive laying devices and terrific muzzle velocity. It can blow the tank apart. It is true, also, that an antitank gun should have a high muzzle velocity, an armor-piercing shell, great mobility, and great maneuverability. It should have an armored tow vehicle or a self-propelled mount; rather definitely the latter, if it is to chase tanks around the battlefield.

The guns, the muzzle velocities, the prime movers, even the ammunition that we may expect in the near future are far less than ideal. Nevertheless, we believe that they can hurt tanks badly. It is not necessary to blow a tank apart to stop it. You need only break its tracks. If we stand our ground, if we stay there and swap punches, we shall stop lots of tanks. And so long as we hold our ground, a stopped tank is a lost tank. And so again, we return to this: we must teach our men not to scare easily.

Indeed, that is very important. Individual men, and small hardy gangs, have often licked the tank, in Spain, in Poland, in Finland, in Flanders. Not with their bare hands, of course, but with various kinds of tank-medicine: grenades, dynamite, Molotov Cocktails, landmines. It is an easy bet that one product of American ingenuity is going to be a very neat, handy package for the single man to use against the single tank. We know, and we must teach him, that he is less likely to be hurt if he sticks tight than if he exposes himself running away. We know, and we must

teach him, that his safest act is to get the tank before it gets him. He'll be better tough and cocky every time.

#### THE INFANTRY CANNON

The Germans have gone far beyond ourselves in developing infantry cannon. Their infantry regiments contain several 75-mm. and 150-mm. cannon and the numbers are increasing. Reports from abroad indicate that these cannon frequently are used at point-blank range; that the tendency is to mount them on self-propelled mounts and to give them armor. The tremendous booty which the Germans have taken gives them thousands of vehicles to adapt for this use. Naturally, these guns have losses, but they give the infantry a lethal punch.

In our field artillery the idea is growing that we must have similar assault guns. They may be manned by "infantrymen" or they may be manned by "artillerymen," as judged by the piping on a cap, but a gunner is a gunner, whatever his disguise.

#### DEPLOYMENT OF THE FIRING BATTERY

That constant danger of attack, and the wide shifts in fire as the modern battle leaps along, are developing some new ideas about placing the guns of the field battery. One formation that proved useful in Flanders was the diamond:

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      x
     x  x
      x
  
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From this formation one can fight readily, one can shift readily, and the executive can control his guns readily.

Another, with similar virtues, is the semi-circle or half-moon:

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      x  x
     x  x
  
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The two flank guns are about ten yards behind Nos. 2 and 3, all being roughly twenty yards apart laterally, depending on the cover.

In the Replacement Training Center, we want to stress these irregular formations, combined with the use of concealment and obstacles. We cannot afford to train "gunpark artillerymen"; we must teach the men how to *fight* their guns.

#### AIR OBSERVATION

The overwhelming predominance of German aviation in Poland, Belgium and France made it possible for the Germans to adjust artillery from planes whenever they desired, while at the same time their enemies found air observation entirely impossible. The Germans exploited this advantage fully. Their adjustments by air observation were rapid and accurate.

In the United States Field Artillery, there is a very strong trend toward the development of an airplane completely under control of the field artillery in order to assure that the field artillery will be able to send up its own air observation the minute it is needed. For this purpose we need a relatively slow, stable plane, with short take-off and landing characteristics, capable of



operating from improvised flying fields near the front. It is not necessary for this artillery observation plane to fly very high or to pass the hostile front line: it is more like an O. P. lifted high enough to overcome the handicap of defilade. It is inherent in such a development that the observers will be artillerymen, and it probably will be found eventually that the pilots will be artillerymen, much as the artillery operates its own communications and its own motor transportation.

#### GROUND OBSERVATION

The artillery observers who have seen anything and have conducted effective shoots in this war have done so from the front line. Where is that hill-top from which things are seen? Alas, it is a fiction of the Gunnery School. When you go out to a field exercise in the blackjack and broken ground of Fort Bragg, don't talk about "poor artillery country." Pretend that you are in the front line, with the enemy right before you, and you'll be getting the right sort of training to play for keeps.

We do not mean to rule out entirely the OP on the hill. "Commanding observation" has always been important. If you have it, the other fellow has to stay out of sight, and that cramps his style. But there are so many places where nobody has it, and the job still has to be done.

#### RADIO COMMUNICATION

Radio, wire, and visual communications were used by artillery of both sides in Belgium and France. Radio proved to be the most useful and dependable. The Germans in particular used radio with great freedom, sending messages in the clear in order to secure quicker results. The Allies hampered themselves with radio silences which impeded their own operations without impeding the Germans. Even so, it has been reported that British higher headquarters for days at a time had no information regarding their own front lines except that which the artillery front line observers radioed back to their batteries. Such information was transmitted by dispatch riders to the higher headquarters, which otherwise would have been completely ignorant. While radio was never completely reliable, it proved more reliable than wire.

#### WIRE COMMUNICATION

One British battery reports that wire lines even within the battery were repeatedly cut by fifth columnists. The rapidity of recent campaigns limits the use of wire by the smaller artillery units. The German style of bombing roads, by dropping bombs on each side of the road while sparing the pavement, is a highly efficient method of disrupting wire communications. There is no intention to abandon wire as a means of artillery communications, but it cannot be considered the surest of instruments.

#### VISUAL SIGNALING

The usefulness of visual methods of communication within smaller artillery units needs no argument. It is a

time-saver which is always useful in the artillery battery and battalion. With the tendency of artillery today to push closer to the front lines, many opportunities will occur for transmitting firing data by visual signaling.

#### TRANSPORT

The British, like ourselves, largely abandoned horses as a mode of transportation before the war. The whole British Army in France was motorized. (The British habit of clinging to traditional names gives rise to misunderstanding: for example, the Royal Horse Artillery is fully mechanized; similarly, the Twelfth Lancers is an armored unit.) British officers have stated that with the German air superiority which prevailed in Belgium, horse-drawn artillery would have been helpless, whereas most of the trucks were able to survive air attacks on their columns.

However, the Germans continue to use horse-drawn artillery in the foot divisions which make up the vast bulk of the German Army.

Motorized artillery must be prepared to do pioneer work such as improving roads, bridges and crosscountry passages. Officers selecting routes of artillery movement, especially across country, should always take with them pioneer parties.

The problem of ammunition supply is made more serious by the rapid pace of recent campaigns. Moreover, while the 105 shoots practically as fast as the 75, its ammunition is almost twice as heavy. Ammunition supply will continue to be one of the major concerns of all artillery commanders.

The transport driver, the man in the ammunition column, must be as good a rifleman as the cannoneer, and he must be just as hard to scare. He too is practically in the front line.

#### COMBAT ORDERS

Our service has tended for several years to use brief fragmentary orders. This type of order becomes absolutely essential in rapid movement.

In order to handle troops rapidly, giving only the briefest orders, without losing control of the situation, it is necessary to have trained them to a very high order of teamwork and also to a very high order of technical proficiency.

#### SUMMARY

When all the smoke blows away, it will probably be found that the overwhelming superiority of the Germans in recent campaigns has depended very largely upon a state of training far superior to that of their opponents. In discipline, in physical hardening, in battle technique, and in morale, the Germans have set the pace. We had better fix even higher standards for ourselves.

(NOTE: This survey has been compiled from information at the disposal of the public. Surmises and predictions of future developments are merely "educated guesses," not based on any confidential or secret knowledge.)

# SIGNPOSTS of EXPERIENCE

## Training–Personnel–Promotion–Conclusion

By Major General William J. Snow, USA-Ret.

### TRAINING SPECIALISTS

In addition to the training covered by the General Training Scheme in 1918 and embracing the four principal classes of Field Artillery Activities (Replacement Depot, Firing Centers, Officers' Training School, and School of Fire), there was considerable training for the Field Artillery in certain specialist schools outside of these activities and outside of the divisional schools. Some of these specialist schools were in the army but in branches other than the Field Artillery, and some were in civilian universities. I had to seize facilities wherever I could find them. An example of the former was the Signal Corps Radio School at College Park, Maryland, to which in April I arranged to send four field artillery officers from each brigade in this country for radio instruction. These officers were to take a course of 10 weeks in length. Later 50 privates per week were sent from the Zachary Taylor Replacement Depot to the Air Service Radio School at Austin, Texas; and, again, 50 officers and 500 men of the Field Artillery were instructed in motors at the Ordnance School at Raritan, New Jersey. An example of the civilian institutions was the use we made of the Air Service School at Columbia University in New York City for radio instruction. Here 10 field artillery officers, graduates of the Sill School of Fire, were sent weekly for a four weeks' course. There were other schools which now escape my recollection.

The only kind of specialist training that I want to mention in detail is that of field artillery observers, and my reason for so doing will appear later.

### ARTILLERY OBSERVERS

In the School of Fire Chapter I mentioned the fact that at the time the Armistice was signed Sill was graduating 100 artillery observers per week. An artillery observer is the passenger in an airplane who "spots the shots" for his battery, when the latter is adjusting its fire upon a target. Artillery observers offered a vexed question during the entire war. I took up the matter early in March, 1918. At that time the Tables of Organization of Field Artillery Regiments included officers belonging to the regiments and carried in these tables as Aerial Observers. They really were not that but were actually replacements for aerial observers. The tables were corrected. The idea was

that each field artillery brigade would thus contain a reservoir from which these replacements could be drawn as circumstances required. But the Aviation Section of the Signal Corps, like the rest of the Army, needed replacements at once. Therefore, these men left their regiments, received the necessary training at Sill, and did not return to their regiments. This irritated regimental commanders, who said they would send no more good men for this training, as it merely meant the loss of such officers. To correct this I proposed that brigade commanders select the men for this training from the *attached* but not *assigned* officers. This was approved.

At that time 25 field artillery officers per week were being sent to Sill to take the course for aerial observer. Lieutenants volunteered for this duty and were given a special aviation physical examination. I do not know whether a spirit of adventure or the reward of 25% extra pay provided for in an Act of Congress of the previous year led these men to volunteer. But in any case there was no dearth of them, and they were not limited to field artillerymen.

In a short time trouble again cropped out, for as soon as these replacement officers were used, thus becoming aerial observers in reality, they were commissioned in the Aviation Section of the Signal Corps. Many of them did not want to be thus transferred from their old arm. Then a decision was obtained from The Judge Advocate General that these aerial replacement officers could retain their commissions in their old arm and be detailed to the Signal Corps. Under this decision, such officers as had previously been transferred to the Aviation Section of the Signal Corps could transfer back to their old arm if they so desired and be detailed to the Signal Corps. After a short time this was modified so as to provide that all such detailed officers be relieved, but that "officers relieved from such detail, in compliance with the preceding paragraph, be assigned to a unit and returned to duty therewith, or be attached to the Air Service for duty as aerial observers, as the Director of Military Aeronautics may recommend."

I think this was the nearest we came to a satisfactory solution of the problem. And at that we were nearer to it than we are now, 23 years after the war, when artillery

observers are, I think, still officers of the Air Corps. They should be field artillerymen, unquestionably.

#### COMMITTEE ON EDUCATION AND SPECIAL TRAINING

This was a committee of civilians, organized in April, 1918, about which but little is known in the Army. It was one of the many agencies which contributed to the success of the war and which was rapidly increasing its efficiency and was really just coming into production at the time of the Armistice. As originally contemplated, I think, it was to train specialists for the Staff Departments and the Coast Artillery in vocational training in the various schools, plants, etc., in this country.

I appeared before the committee in May or early June and set forth the needs of the Field Artillery, and of course it came as a surprise to them, as to most people around the War Department, to learn that this arm could not function without a large percentage of highly trained men. With some difficulty I convinced them that the Field Artillery must have its share of the Committee's product. On June 10 I secured our first allotment of 2,186 mechanics and sent them to the Camp Jackson Replacement Depot, where they were given basic, elementary training as soldiers and then developed to a greater degree of skill in their specialties.

Altogether this Committee furnished the Field Artillery with the following up to the Armistice:

Auto drivers, chauffeurs .....	1,646
Auto and motor mechanics .....	3,443
Blacksmiths and horseshoers .....	387
Carpenters, cabinet makers, and woodworkers .....	11,113
Clerical workers .....	3
Draftsmen .....	65
Electricians .....	1,011
Gas engine locomotive men .....	143
Leather workers .....	24
Machinists, expert .....	188
Mechanics, Battery .....	75
Mechanics and machinists, general .....	350
Millwrights .....	13
Miners .....	245
Musicians .....	1
Radio operators .....	627
Telegraphers .....	285
Telephone linemen .....	46
Telephone troublemen .....	46
Truck operators .....	175
Truck drivers .....	2,090
Truck masters .....	565
Wheelwrights .....	11
	<hr/>
	22,552
Other vocational specialists not specifically required by FA .....	486
	<hr/>
	23,038

Included in these figures were 1,627 colored men.

In the early days these specialists were sent to the Replacement Depots, but by midsummer when we were going faster and faster in creating new units, these men were sent by the Committee directly to the new units to form part of the nucleus. This was not satisfactory, for the men still needed considerable specialist training, notwithstanding most of them had some experience in their particular vocations before the committee started on them. In addition, they especially needed training as soldiers. But time, time, time, was pressing!

On July 23, 1918, my office furnished the Committee an estimate of the specialists that would be required to complete our program to June 30, 1919. After certain changes were made in the program, a revised estimate was furnished the Committee by me on November 5, 1918, showing our needs month by month, both for overseas replacements and for the creation of new units.

In the meantime, since this Committee was now training specialists for all arms, representatives of the various arms, including the Field Artillery, inspected a number of the schools where the Committee was conducting the vocational training, and suggested certain changes. These changes were gladly made by the Committee, who then, in conference with officers from my office, revised their schedules for surveyors, draftsmen, telephone men, radio men, general mechanics, battery mechanics, and carpenters. In addition, in order to give the Committee on Education and Special Training a clear idea as to just what was needed in the way of special training, the Director of this training and 36 Regional Directors were taken to Camp Knox, Kentucky, where they watched the actual work in the field of a Field Artillery Brigade and of the Firing Center. The demonstrations at Knox were most useful, giving the Committee a clearer conception of the amount and character of training I wanted. Had the war continued, the product of this Committee, with its now clearly defined idea as to just what the Field Artillery wanted, would have been of great assistance in preparing the 108,000 specialists<sup>1</sup> they undertook to provide for us by June 30, 1919.

#### FIELD ARTILLERY BRIGADE COMMANDERS

When shortly after I had become Chief I had finished reading the Inspector General's Reports on the Field Artillery Brigades and had thereby learned of their almost hopelessly inefficient condition, I naturally looked up the question of brigade commanders. Who commanded these units and had therefore permitted them to become or to remain in any such disgraceful condition?

I found that of the 33 Field Artillery Brigades, then

<sup>1</sup>This is the number of Field Artillery specialists in one field army.



in this country, the brigadier generals commanding them had come from the following sources:

- 6 from the Engineer Corps.
- 15 from the Coast Artillery Corps.
- 1 from the National Guard.
- 2 from the Cavalry.
- 1 from the Ordnance, and only
- 8 from the Field Artillery.

These varied sources explained in part where the trouble lay. The brigade commander had insufficient knowledge of field artillery technique to train his brigade. It was truly a case of the blind leading the blind. Some of these generals were excellent officers, but were square pegs in round holes. Some of the pegs were hopeless in any kind of a hole!

These latter I got rid of, and the good pegs among them were placed in holes where they fitted, and they did excellent work during the remainder of the war. The assignment of these generals to the Field Artillery was simply a case of the War Department trying to maintain parity of promotion among the different arms and branches of the service, irrespective of the needs of the particular arm itself. It so happened that most of the senior colonels of the Army belonged to arms other than the Field Artillery, and consequently they were promoted to brigadier generals ahead of the colonels of Field Artillery. Then, many more brigades having been created in the Field Artillery than in the other arms, these new generals were assigned to command these new field artillery brigades. It may have looked all right theoretically, but of course it did not and could not produce efficiency.

Had these field artillery brigades been well-trained units at the time the brigadier generals took command, efficiency might not have been entirely lost thereafter, provided the brigadier general were a good soldier. Or, had such of these brigadier generals as were good soldiers but devoid of field artillery technical knowledge been sent to the School of Fire for a few months' instruction before assuming command of their field artillery brigades, they might have acquired sufficient field artillery knowledge to train their brigades. But neither condition prevailed. These commanders were simply promoted from colonels in the arm in which they had spent most of their lives, and then immediately assigned to command untrained brigades of a different arm. Failure was inevitable. As far as field artillery technique is concerned, both the brigades and their commanders were wholly devoid of knowledge. Such a procedure was bound to lead to failure and it cost months of lost time.

Without being too prolix, I would like to approach the problem of training brigades from a somewhat different angle; and to do so we must go back to the summer of 1917. At that time, as it was seen that under the division organization prescribed by General Orders No. 101, War Department, August 3, 1917, there was an excess of

cavalry and a deficiency of field artillery, eight regular army regiments of cavalry were provisionally converted into an equal number of field artillery regiments. The 18th to 25th Regiments of Cavalry became the 76th to 83d Regiments of Field Artillery.<sup>2</sup>

As soon as these cavalry regiments thus became field artillery, their commanders quite naturally and very commendably applied to us at Fort Sill (where we were trying to start up the School of Fire) for information as to how to train these new regiments in the technique of their new arm. They wrote to us at Sill because there was no Chief of Field Artillery to whom they could apply for help, and we were the next best authority. The overworked staff at Sill thereupon laid out more or less in detail the most helpful and practicable plan they could devise, and hurriedly wrote the necessary literature, and printed and distributed it. The colonel of one of these regiments was Guy H. Preston. Later he became a brigadier general and one of the field artillery brigade commanders I have just referred to. About a year later, he made the following report:

"The theory that all of the 212 officers of the brigade can qualify to conduct fire directed at Germans over the heads of our own infantry is fallacious. The best I hope for is to be able to trust this function to 18 officers with 18 batteries, and to have 18 others as hopeful understudies to replace casualties. This is the greatest educational result to me of my year of field artillery experience. Only a few can become competent battery commanders in the first year."

General Preston was a graduate of West Point and a distinguished regular army cavalry officer of over thirty years' continuous service; his opinion is entitled to much consideration. In fact, it is illuminating. He had wrestled with this training problem for a year, and this, coupled with his thirty years of experience in training and handling troops, gave him sufficient background to know what he was talking about. Moreover, not all his service had been confined to the cavalry; he had commanded infantry in the Philippine Insurrection days. So, in the first place, his opinion confirms my previous statement as to the folly of the War Department assigning brigadier generals knowing no field artillery to the command of field artillery brigades. In the next place, it shows a realization of the magnitude of the task of properly training battery commanders, a realization it seemed almost impossible to inculcate in the National Guard. And, finally, it shows the lack of progress inherent in the system of training field artillery brigades in division camps, that being where General Preston had spent his year. Contrast this lack of progress, or rather limited progress, in a year's time, with the results of four months' training directly under the Chief of Field Artillery!

Let us go back again to the heterogeneous collection of brigade commanders with which I started. The heads

<sup>2</sup>These regiments of cavalry must not be confused with the 15 regiments of National Army cavalry converted into field artillery July 31, 1918.

of the War Department were in such a complaisant attitude that when I took up the question of remedying the trouble I got nowhere. They still insisted on parity of promotion in all arms. I had to wait until General March became Chief of Staff. I then gave him a Memorandum, explaining the condition, and stating that I was responsible for the training of the Field Artillery, that I accepted full responsibility and would produce results, but that to do so I must have a free hand. I further pointed out that it was unjust to handicap me by placing in command of field artillery brigades men in whose selection I had had no voice and who were incompetent to train them; that such a procedure, at its best, divided responsibility, and at its worst negated any measure I might take to secure progress; and that, therefore, I must have the right to submit names of colonels to be made brigadier generals and field artillery brigade commanders for units still in this country. I added that I had not the slightest objection to the promotion to brigadier general of any colonel of any arm of the service, who was then in France and whom General Pershing recommended, to command a field artillery brigade then in France. Also, I had no objection to any field artillery brigade commander whom he (General March) might select and assign, for March knew the personnel of the Army as well as I did and he knew the qualifications necessary for a field artillery brigade commander. March, who lived, breathed, and slept efficiency, saw the point at once, and gave me the authority to make recommendations thereafter. I of course never recommended any officer who was in France at the time; neither did I ever make any recommendation to promote an officer then in the United States to fill a vacancy in France. The promotion of officers there and the filling of vacancies there were entirely beyond my prerogative, and it would have been presumptuous on my part to interfere. What action March took on General Pershing's recommendations, I do not know. March, however, never forced on me a single general officer whom I did not want. He occasionally disapproved the promotion of some man I recommended, though very, very rarely; at the present moment I can recall but one case. In this as in all other matters where March held a man responsible for results (and he held me accountable for the field artillery), he delegated sufficient power to produce the results.

In my recommendations to General March of colonels to be appointed brigadier generals and assigned to command field artillery brigades here in the United States, I confined myself to such field artillery officers as were continuing their excellent reputations, and to such officers of other arms as had passed through the School of Fire at Fort Sill and had afterward shown that they had acquired sufficient technique to successfully train a field artillery brigade. The number of colonels of arms other than the Field Artillery who were willing to go to the School of Fire was, however, limited. Most of them shied off, hoping they would get an

infantry command. But of those who did go to Sill a large proportion were recommended by me for brigadier generalcies and were so appointed. It can be readily seen, however, that the great majority of men I recommended necessarily came from the Field Artillery. I took them according to seniority as far as efficiency would permit; but, even so, ultimately some permanent captains became brigadier generals, and here I want to state that there were no better brigadier generals in the United States Army than these. One day I was going along the corridor of the War Department with a list of some twenty-odd men to be made brigadier generals when I met General Graves, Assistant Chief of Staff, who asked to see the list. He read it over and then said: "My God, Bill! Are you going to make these kids brigadier generals?" I replied: "Every damn one of them, Doc!" Then we parted, and March made the entire list.

The following statistics pertain to general officers appointed from the Field Artillery during the World War:

Permanent grade	Number appointed to grade of general	Age	Years of commissioned service
Colonel .....	13	53.1	29.3
Lt. Col. ....	9	47	24
Major .....	10	44.6	19.7
Captain .....	19	40.6	16.3

So these "kids," with an average age of 40.6 years and an average length of commissioned service of 16.3 years, were not such "kids."

The following statistics pertain to general officers appointed from the grade of captain in all arms of the service:

Arm from which appointed	Number	Age	Years of commissioned service
Field Artillery .....	19	40.6	16.3
Infantry .....	9	43.4	19.2
Cavalry .....	6	43	19.2
Coast Artillery Corps .	2	39	17
Engineers .....	1	34	13

#### PROMOTION OF OFFICERS

No paper on the Army, either in peace or war, would be complete without some reference to the question of promotion of officers.

At the time I came in as Chief of Field Artillery or shortly thereafter, the promotion question had become so complicated that it took me some time to understand it and to propose a remedy for the inequalities that existed and were daily getting worse in the field artillery. I doubt whether I can make the situation clear without writing so much as to weary the reader. A very rough picture is as follows:

In the A.E.F., promotion by selection was in force.

In the United States, the Army consisted of three component



parts: The Regular Army, The National Army, and The National Guard, all more or less separate.

In the Regular Army, two promotion lists were, in *general*, being maintained, one to fill permanent vacancies and one to fill temporary vacancies *in the regular army* produced by the creation of new regular units. In addition, officers of the regular army were being given commissions in higher grades in the National Army; and, in turn, these National Army commissions in the line could be vacated, in order to give the holder higher grade, temporarily, in the Regular Army. Excluding regular officers holding commissions in the National Army and assigned to staff duty with it, officers detailed in Staff Corps or Departments, including the General Staff, were to be carried up in promotion by the man immediately below.

Regular officers, holding commissions in the National Army and assigned to staff duty with it, were to be promoted until they reached the maximum grade provided by Tables of Organization. In the field artillery brigades I had to secure an extension authorizing brigade adjutants of artillery brigades to become lieutenant colonels, notwithstanding the Tables of Organization provided the grade of major for this position. Then again, in the Regular Army, Infantry and Cavalry officers were on one list for temporary promotions and Field Artillery and Coast Artillery officers were on another list for such promotions. But I had in the Field Artillery some Cavalry officers as well as Field Artillery and Coast Artillery officers.

In fact, we had officers in the field artillery (below the grade of general) from the following sources:

- Regular Army Field Artillery.
- National Guard Field Artillery.
- National Army Field Artillery.
- Field Artillery Reserve Corps.
- Regular Army Coast Artillery Corps.
- Regular Army Cavalry.

Coast Artillery officers were popping into the Field Artillery, and then, by promotion, going out again. Cavalry officers were doing this to an even greater extent. Although we desperately needed, with the Field Artillery, every one of the inadequate number of graduates of the Fort Sill School of Fire, yet it happened several times that a Cavalry officer, after completing the course at this school, was carried by his promotion to an Infantry Replacement Depot.

As if the situation just set forth were not bad enough, there were two additional complications. In 1917, some Infantry officers who were to be used only for staff duty in the National Army were given Field Artillery commissions. About the same time, some graduates of Cavalry officers' training camps were transferred to the Field Artillery, commissioned in that arm, and then transferred back to the Cavalry, but still retained their Field Artillery commissions.

In practically all National Army Divisions in the United States there was a surplus of National Army

officers, commissioned from the First and Second Training Camps, and these were attached to the divisions. But division commanders were recommending the promotion of officers assigned to their divisions and ignoring the attached ones who already held the higher rank involved. The same was true of National Guard divisions, attached to which were a number of National Army officers. In the National Guard there was a further complication in some cases, where the division commander recommended the filling of vacancies in the lowest grade by appointment of National Guard enlisted men, again ignoring the National Army officers attached. There was much feeling in some divisions among the National Guard officers against attached National Army officers. In one division this was so strong that the Guard officers would not even have the National Army officers in the same mess with them, much less absorb these officers in vacancies. Busy as I was with vastly more important matters, I had to go down to that division camp and straighten out the row.

The above in brief is a statement of the salient features of the situation, in which there were many ramifications. And in all this involved situation the War Department was attempting to maintain parity of promotion among the different arms. Finally, about April, the Coast Artillery having been directed to organize new units of that arm, the Acting Chief of Coast Artillery, designated as colonels of these new units Coast Artillery officers still under his control but junior to some Coast Artillery officers whom I had in the Field Artillery holding the grade of lieutenant colonel. Upon learning of this, I immediately went over to see him, both in the interests of justice and to protect the morale of these Coast Artillery officers on duty with the Field Artillery who were then being jumped or penalized for serving with the Field Artillery. The interview was long and unpleasant. I even offered to give him back senior lieutenant colonels of Field Artillery (majors of Coast Artillery) for the purpose of his appointing them colonels of Coast Artillery, National Army. He declined to take them. I took my troubles to General March, and although nothing happened immediately, yet inside of a month the Acting Chief of Coast Artillery was relieved and Colonel Frank W. Coe appointed permanently as Chief of Coast Artillery. My relations with General Coe during the war were perfect.<sup>3</sup>

The Field Artillery was expanding and thus creating

<sup>3</sup>General Coe and I had been Cadets together at West Point and, following graduation, had been stationed together at Fort Hamilton, New York. Here we occupied opposite sides of the same house, frequently visiting each other by way of the second story windows and the porch roof. He was on duty with the Coast Artillery and I was with the Field. It is a strange coincidence that we two second lieutenants, so closely associated together and on such friendly terms, should, twenty-five years later, each be Chief of his arm with the rank of major general, and particularly strange when it is realized that in the Hamilton days the positions of Chief of Coast Artillery and Chief of Field Artillery did not even exist, and I am certain that no one at the post thought we were "bright and shining lights."

vacancies faster than any other arm. In trying to carry out the various promotion decisions in force, I found myself in a hopeless morass, so much so that I submitted a Memorandum on May 21, 1918, stating among other facts that there were then vacancies for 8 colonels, 19 lieutenant colonels, and 18 majors in the Field Artillery, only 3 of which could be filled in this country under the rules of the War Department; and that field artillery regiments were actually sailing for France with no field officers whatever. This memorandum was addressed to The Adjutant General in the hope that he and I could reach some sort of an agreement before presenting the matter to the Chief of Staff. The Adjutant General replied with a memorandum, dated June 2d, proposing certain changes in the then existing rules governing promotion, but these changes failed to correct the troubles under which the field artillery labored. I therefore determined to cut the Gordian knot, and so submitted a memorandum to the Chief of Staff, June 14th, explaining the situation and recommending that all officers serving with the Field Artillery, irrespective of the source from which they had come, be placed on one list and be promoted thereon by selection. The idea evidently appealed to the Chief of Staff, for some time later he issued his famous order extending to the whole army what I had recommended for the Field Artillery. This became known as the "One Army Order." It did away with the three separate classes of Regular Army, National Army, and National Guard, and for the first time enabled me to straighten out field artillery commissioned personnel.

It is General Orders No. 73, War Department, dated August 7, 1918, and reads in part as follows:

"1. This country has but one army—The United States Army. It includes all the land forces in the service of the United States. Those forces, however raised, lose their identity in that of The United States Army. Distinctive appellations, such as the Regular Army, Reserve Corps, National Guard, and National Army, heretofore employed in administration and command, will be discontinued, and the single term, The United States Army, will be exclusively used.

\* \* \* \* \*

"6. Except as otherwise provided by law, promotion in The United States Army shall be by selection. \* \* \*"

The presentation to the Chief of Staff of our difficulties in the Field Artillery either caused the issuance of this order or at least brought matters to a head.

#### EXCHANGE OF OFFICERS WITH THE A.E.F.

As soon as the four large field artillery activities provided for in the General Scheme for Training had gotten started and I thought I had provided the necessary means for keeping them coordinated with each other, my mind turned to the question of keeping them coordinated with the field artillery activities of the American Army in France. It seemed to me that the best way to accomplish this would be by a full exchange of information by courier

between General Hinds, Chief of Artillery, A.E.F., and myself, and by bringing back from France for duty as instructors here field artillery officers who had had experience there. My first attempt to thus obtain instructors was not encouraging, as the six (as I remember) officers who came back and were sent to Sill to be used in that capacity had to be put in the class as students instead! I suppose it was perfectly natural for the A.E.F. to want to keep its good men, and certainly it was only human that good officers in the A.E.F. should use every effort they could to remain there rather than come back to the States; but sending poor officers did not help me in my problem. I, therefore, varied my request by asking, on June 28th, that one officer be returned per week from each field artillery *regiment* in the A.E.F., and that one noncommissioned officer be returned per month from each battery in the A.E.F. This called for a continuous flow of officers and noncommissioned officers from the A.E.F. to the United States and also called for far larger numbers than I had previously asked for. This expansion of my previous modest request was due to the fact that I had learned, informally, from Operations Section of the General Staff, that several new divisions would soon be ordered organized and I used this advance information to get ready for them. The actual date the Chief of Staff directed their organization was one week later, July 5th.<sup>4</sup>

After initiating the organization of the six Field Artillery brigades directed on July 5th, it became apparent that the assignment of officers of the higher grades thereto would result in the promotion of juniors in this country over seniors in France and these seniors were in many instances officers who had had combat experience. This same condition obtained in arms other than the field artillery. On the other hand, the organization and training could never be completed here if we simply left the higher grades as well as other vacancies to be filled after the units got to France. The solution evidently was to bring back officers from France to fill a part of the vacancies being created.

Accordingly, on July 12th, a cablegram was sent to General Pershing directing him to select and return at once \* \* \* "From officers of Field Artillery, Coast Artillery, Cavalry, National Guard, National Army, or Reserve Corps, who have been performing duty as field artillerymen, fifteen lieutenant colonels, twenty-one majors, fifty captains, two hundred first lieutenants, and three hundred second lieutenants."

All of these were to be promoted one grade upon arrival in the United States. All were furnished, promoted, and assigned to units here. I think the same cablegram also called for officers for units other than the field artillery. The exchange of officers ran along in

<sup>4</sup>I made it a part of my daily routine all during the war to visit "Operations." In this way I frequently picked up advance information, and so had a few days extra to prepare for a coming event; and, in the enormously expanded program the field artillery was following, every additional day helped.

this way until October 11th, when General Pershing recommended by cable that:

"Beginning at once, a monthly quota of seven hundred second lieutenants of Field Artillery be sent from the United States to France; upon arrival, each monthly quota in France, a monthly quota of experienced officers will be sent back to the United States as follows: six lieutenant colonels, fourteen majors, fifty captains, two hundred first lieutenants, and three hundred second lieutenants. All these officers to be promoted one grade upon arrival in the United States.

"This plan will provide either a colonel or a lieutenant colonel for each regiment and each ammunition train for five divisions per month, the vacancy of lieutenant colonel or colonel in each regiment to be filled from the AEF upon arrival in France. In order that the AEF may be enabled to send back these experienced officers without depleting the number of commissioned personnel of organizations at the front so much as to lower their efficiency in too great a degree, it is essential that the second lieutenants should arrive here before the officers above referred to are returned to the United States. So far as possible, the second lieutenants, sent to France, should be graduates of the Fort Sill School of Fire. Approval of plan is requested by cable."

In order to avoid jumping A.E.F. officers in promotion and to give me senior officers to fill vacancies, and to give each regiment here a colonel *and* a lieutenant colonel, I explained to the Chief of Staff that Pershing's figures must be raised from 6 lieutenant colonels to 13 and from 14 majors to 18, and that but few Sill graduates could be furnished from here but that we would send him graduates of the newly created School at Camp Zachary Taylor. Accordingly, on October 16th, the Chief of Staff cabled as follows:

"Reference P 1782 your request that 700 second lieutenants Field Artillery be sent monthly from the United States approved and will commence at once. Impossible to have many graduates of School of Fire but as many as practicable will be included and all will be graduates of Central Officers' Training School for Field Artillery.

"Your plan to return here monthly quota experienced field artillery officers is approved with following modifications: Send thirteen lieutenant colonels and eighteen majors; other numbers and grades as per your cablegram.

"It is desired that you submit recommendations so as to apply this automatic supply to the Infantry and other Arms and Staff Corps based on a program of five new divisions per month.

March."

The first contingent of 700 second lieutenants had been assembled at the Jackson Replacement Depot and were awaiting orders when the Armistice was signed. Here again the Field Artillery, having a Chief, was enabled to point the way to the other arms, as shown by the last paragraph of the cable quoted above.

#### POST WAR PERIOD

I am aware that continuing this story beyond the Armistice is something of an anti-climax, but there is one occurrence that took place in December, 1918, that I want to record on account of its far-reaching effect, and then I am through.

Following the Armistice, there was, of course, a letdown feeling throughout the entire world. Secretary Baker directed that all officers on duty in the War Department who could be spared should take a few days' leave. I personally did not take any leave, as there were too many problems in the office to be solved. In point of fact, the amount of work increased rather than decreased, though of course there was an absence of the nervous strain under which we had all been working for months.

During the war the whole United States had been organized on a maximum production basis, with a flow of war supplies from west to east. Everybody had been keyed up to a high pitch of solidarity and self-sacrifice. With the Armistice all this changed overnight.

It was a gigantic task to stop production without throwing everybody out of work, to stop the west-to-east flow of war supplies, to relieve congestion at the ports, to bring back from France over two million men and to demobilize these and the over one million soldiers here, to settle contracts, to inventory stocks on hand, to determine what to dispose of and what to retain, and to settle a thousand other questions. To some extent, the Office of the Chief of Field Artillery was involved in all of these matters. In addition there were of course innumerable minor questions pertaining exclusively to the Field Artillery, such as adequate representation of this arm on the General Staff, now that I could spare some officers for this work; completing the purchase of Camps Bragg and Knox; deciding how far construction should be completed there; bringing officers' war records up to date; deciding on permanent stations for the Regular Field Artillery; working in new peace-time school policies, and so on. It seemed as though the questions arising daily would never end.

And in the meantime everybody who had come into the Army for the war only was clamoring to get out. Even my office was going to pieces. The burden of cleaning up after the war, therefore, fell on the Regular Army, and as usual the Regular Army did a magnificent job; but this ran far beyond 1918, the only period I am considering in this book.

In considering, just after the Armistice, what we could salvage for the Field Artillery, my mind ran not only on tangible physical things but also on ideas and intangibles. It occurred to me at this time that the experiences of the arm, in so far as they would be of value in the future, should be collected, and not only our experiences but those of the Allies also; and not only the experiences of all but also their conclusions as to Field Artillery use in future wars, their ideas as to how the arm would develop, what kinds and calibers of guns would be needed, etc. I was not at all interested in making a historical study; somebody else could do that at some future time. What I had in mind was knowledge that would be useful in future wars. Somebody else could attend to the recording of the past.

I also realized, that as the whole world was rejoicing over the end of the war, that as the United States was still lending money to nations freely without a thought (on their part) of repayment, and that as the prosaic and drab problems of life had not yet been taken up, and national jealousies were still submerged, it was the psychological time to secure from all nations the information I wanted. My first idea was that I would ask the Chief of Staff to send me abroad personally to collect what I wanted, and that, having gotten over there, I could pick up such assistants as would be necessary. But there were too many problems in the office for me to get away. One day, while turning this difficulty over in my mind, Brigadier General E. H. De Armond, who was on duty in my office, suggested appointing a board of officers for this purpose. Upon thinking it over I concluded that this really was the solution. If I went abroad personally I would have to utilize a number of assistants to collect the information I wanted, and such utilization would be, in effect, the same as appointing a board with myself at the head of it. So in any case it really amounted to utilizing a board of officers.

General De Armond had recently returned from France, where he had been on duty in the Office of the Chief of Artillery, A.E.F. He brought to my office, therefore, not only a wealth of detailed knowledge on field artillery matters in France, but, even more important, he proved to be a man with a fine creative mind, capable of doing original thinking. Such men are rare. He remained on duty in the office for five years and his services in solving post-war problems were invaluable. I adopted his suggestion gladly and told him to prepare the necessary memorandum and other papers to be submitted to the Chief of Staff. General De Armond then drew up the following memorandum, together with other necessary papers to make the memorandum effective. General March approved them, and this is the origin of what has since become known as the Caliber Board:

"December 5, 1918.

#### MEMORANDUM FOR The Chief of Staff:

Subject: Organization of a board of officers to make a study of the armament and types of artillery materiel to be assigned to a Field Army.

1. I recommend that a board of officers be appointed to make a thorough study of the armament and types of artillery materiel to be assigned to a Field Army.

2. The reasons why this study should be made at this time are:

*a.* The need for rapid production after our entry into the war made it necessary to adopt existing designs, which, in many cases, were known not to be the best.

*b.* The existing emergency has made it impossible to pursue a thorough study of this question during the progress of the war.

*c.* The experiences of war have pointed out certain defects, duplications and deficiencies in our armament and materiel which may be overcome by the improvements that have been suggested.

*d.* The present time offers the best opportunity to make this study.

3. Some of the important questions that have come up for consideration are:

*a.* Our present organization for divisional artillery includes no light howitzer. The need of a howitzer of greater mobility than the present 155-mm. howitzer should be studied.

*b.* The motorization of the 155-mm. howitzer on a caterpillar mount and its use as Corps Artillery should be studied.

*c.* From available information, it is believed that none of the present types of heavy howitzers, 8-inch, 9.2-inch or 240-mm., is entirely satisfactory as a permanent type for our army. Furthermore, for the sake of uniformity and simplification of ammunition supply, it is highly desirable that these heavy field howitzers be replaced by a single type.

*d.* The great advance which has been made in motor transport indicates that a more suitable mount and means of transport can be developed for the 75-mm. guns, both for divisional and army artillery.

*e.* Another field gun of greater power and range than the 155-mm. gun G.P.F. is necessary. The need for this was recognized by the introduction of the 194-mm. gun. This project should be taken up again and developed.

*f.* A thorough study should be made of the motorization of our field artillery. The advantages of caterpillar over tractor or horsed artillery are so great that a general study should be made to determine whether caterpillar traction cannot be applied to all artillery.

4. The board should, therefore, be instructed to make a study in particular of the following questions:

*a.* Type of light field howitzers for use with divisional artillery.

*b.* Type of heavy field howitzer suitable for use with army artillery.

*c.* Type of mount and method of transport of light field gun for use with divisional and army artillery.

*d.* Type of medium field gun for use with corps artillery.

*e.* Type of heavy field gun in caterpillar mount for use with army artillery.

*f.* Suitability of caterpillar mount for all motorized artillery.

*g.* Improvements in construction and design to insure greater power and range.

*h.* The feasibility of motorizing all artillery assigned to a field army.

5. This board should be convened at once in France, where it will be in a position to make a first-hand study of our armament and artillery materiel, learn the experiences of those who have used it in the field and at the same time make a thorough study of the materiel in use in all the allied armies. It will also be in a position to make a study of such materiel as was in a stage of development abroad, but which had not yet been supplied to the armies. It is more probable that our allies will accord us this opportunity at this time, rather than six months or a year hence.

6. After completing its investigation in France, the board should return to the United States and finish its work at our ordnance and other plants, where it will have opportunity to observe the developments in this country and the completion of the subject.

7. The following officers, each of whom is specially fitted for this work, are recommended for this board:

Brigadier General William I. Westervelt (now Assistant to the Chief of Artillery, A.E.F.), who has specialized in artillery materiel and was on duty for many years in the Ordnance Department.

Brigadier General Robert E. Callan (now commanding a brigade of heavy artillery in France), who was on the staff

of the army artillery and has specialized in heavy artillery materiel.

Brigadier General William P. Ennis (now commanding 13th Brigade, Field Artillery, Camp Lewis, Washington), who organized the Materiel course at the School of Fire for Field Artillery and has specialized in both horse and motor transport.

Colonel James B. Dillard, O.D. (now in charge of Engineering Bureau, Ordnance Department), who has specialized in gun and carriage design and construction.

Colonel Ralph McT. Pennell, Field Artillery (now commanding 34th Field Artillery, Camp McClellan, Alabama), who was in charge of materiel matters in the Office of the Chief of Field Artillery.

Lieutenant Colonel Walter P. Boatwright, C.A.C. (now in charge of materiel, Heavy Artillery Section, Office Chief of Artillery, A.E.F.), who has specialized on heavy artillery materiel.

Lieutenant Colonel Webster A. Capron, Ordnance Dept. (now in charge of Motor Equipment Section, O.D., and at present in France), who has specialized in motor transport.

8. It is, therefore, recommended:

a. That an order be issued appointing a board of officers to consist of the above named officers, this board to meet at A.P.O. 706, France, at the earliest practicable date.

b. That upon the assembling of this board, a letter, substantially as per annexed draft, be transmitted to the president of the board.

c. That a letter be transmitted to the Commander-in-Chief, A.E.F., France, with instructions substantially as per annexed draft.

9. The Chief of Ordnance (Major General Williams) and Chief of Coast Artillery (Major General Coe) have been consulted and concur.

WM. J. SNOW,  
Major General, U.S.A.,  
Chief of Field Artillery."

The approved proceedings of this board have ever since been the development and building program of the Field Artillery. Under it more progress has been made in research and development than in any other equal period in the world's history in any nation. The work is continuous and should never be stopped. If so continued, the United States will never again, at the outbreak of a war, present the pitiful spectacle it did in the last war, of scrapping its own guns and howitzers and ammunition and adopting

those of a foreign nation, taking at times what we could get and not what we wanted, and under either condition wasting untold millions of dollars and, even more important, having a delay of months and months of invaluable time before coming into production. Lost time in war is the one thing that can never be made up. Of equal importance is the loss of prestige a nation suffers by such a procedure. But of paramount and outstanding importance is the loss of human lives involved in such a delay.

#### EPILOGUE

As a result of digesting the lessons of the World War in the years following its close, and among the many daydreams I had as the first Chief of Field Artillery concerning the heritage I wanted to leave to my arm when I ceased to be Chief, there were three that were outstanding:

First—The idea of research and development of materiel in time of peace in order to keep abreast of the rest of the world so that never again would the country be exposed to the devastating necessity of adopting an entirely new and foreign system of guns upon the outbreak of war. This ambition was accomplished through the Caliber Board.

Second—The institution of a system of schools that in time of peace would result in the thorough training along sound lines of field artillery officers, in all grades from second lieutenant to brigadier general, in the tactics and technique of their arm. This desire I also accomplished, though several years after the war it was somewhat emasculated through constant pressure for economy.

Third—The formulation of a sound workable war plan for the field artillery, to be put into effect when the necessity thereof might arise. In this I was largely, but not entirely, successful. The facts I have set forth in this book are statements of actual experience — than which there is no better teacher.

I earnestly urge with all the force that in me lies that careful and thorough consideration be given to the experiences of the last war as I have attempted to set them forth in this series. Then, in formulating our plans for the future, we at least start where we left off in 1918.

*Editor's note: This concludes Gen. Snow's Memoirs as published in THE FIELD ARTILLERY JOURNAL.*





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# MOUNTAIN DIVISIONS IN BLITZKRIEG

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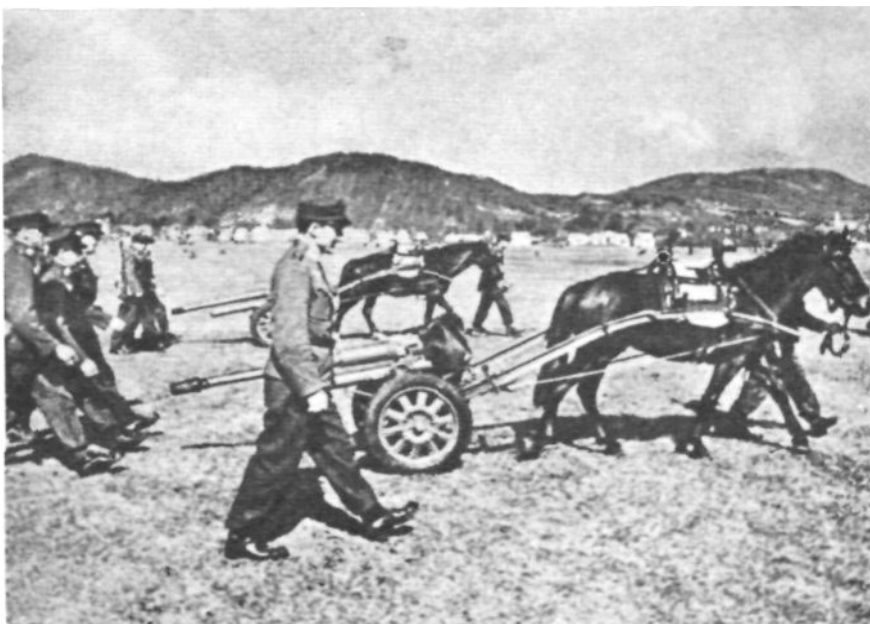
Mountain troops were used at the vital part of the Balkan campaign to outflank the British position in Greece. Further, the conquest of Crete was accomplished by air-borne mountain divisions acting in concert with parachutists. All this has again directed the attention of discerning military observers to the fact that the mountain division is an essential part of any well-balanced major military force. A recent issue of the *Artilleristische Rundschau*<sup>1</sup> carries an article which shows that mountain troops also played a valuable, if relatively obscure, part in the breakthrough operations along the Meuse in May, 1940. It has not previously been known that mountain jaegers, supported by pack artillery, were engaged in the blitzkrieg across the flat portion of France.

The lesson to be drawn is that in close wooded terrain, and in river crossings where only narrow improvised bridges exist, wheeled traffic will be so delayed that foot troops and pack artillery can actually get into action more quickly than animal-drawn or motorized units. It proves again the truth of the old saw that the race is not always to the swift.

In the German article referred to are several examples of how mountain artillery proved its worth in France. On May 15 a German mountain division was preparing to attack across the Meuse north of Revin. On

<sup>1</sup>The *Artilleristische Rundschau* has been quoted so liberally in this magazine that our readers deserve a brief estimate as to the credibility and reliability of this source. The *Rundschau* is edited in Munich by Major Karl Deuhninger. Many of its articles are prepared by instructors at the German artillery school, and most of the material is instructional, of the same character as our FAS Instruction Memoranda. More recently there have been included war reminiscences, but drawn so as to point artillery lessons rather than for morale or historical purposes. The periodical is not propagandistic, and is strictly for German consumption. It has consistently maintained a high professional standard.

**There are occasions when foot troops, supported by pack artillery, can reach the critical portion of the battlefield more quickly than motorized or armored forces.**



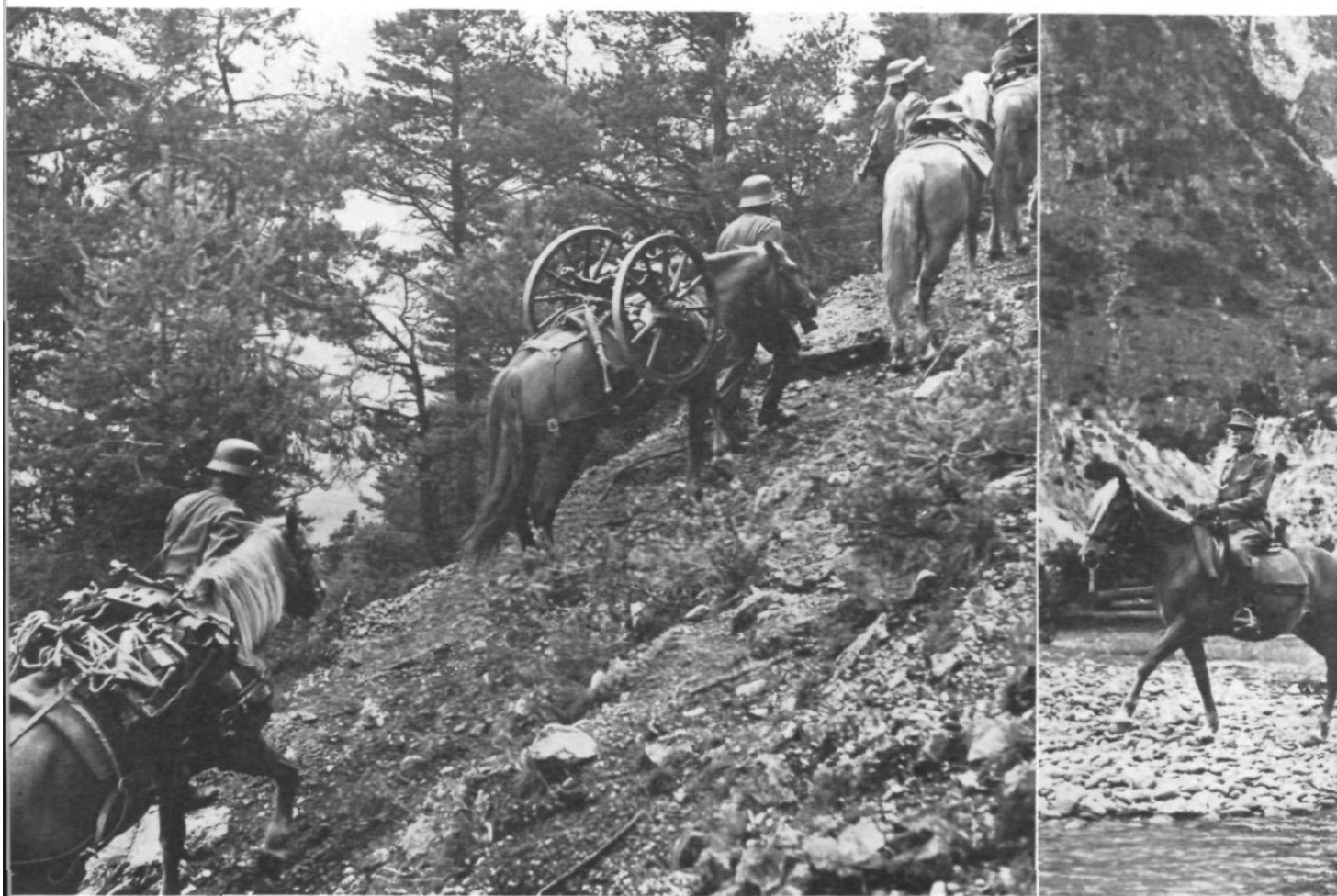
*German mountain troops during training exercises just before the outbreak of the war. These pictures show that these units are equipped with an antitank gun which can be towed or packed. It is useful also for airborne troops. This "Pak" is a 47-mm. It has an elevation of 55°, traverse 45°, weighs 517 lbs. in position, muzzle velocity 1900 f/s, range 9000 yds.*



the division's left flank was Gen. Erwin Rommel's panzer division which was crossing at Monthermé, and on the right were infantry units which were crossing south of Givet. Maj. Langrock, commander of one of the battalions of pack artillery, reported in Haut Fays, 23 km. NE of Hautes Buttes (see Sketch 1), at 6:45 AM for orders. Here the divisional artillery commander explained the situation, according to which it was expected that the French would defend the strong Meuse position in the sector of the division. The preparations for the attack, therefore, had to

Monthermé (Sketch 2), but found it completely blocked by motorized convoys, heavy motorized artillery, and tanks in columns two and three abreast. He had to dismount and make his way to Bans Jacob on foot.

At Bans Jacob it was learned that the artillery battalion had been attached to a mountain jaeger (infantry) regiment. The order of the infantry regimental commander, issued here, disclosed a change in the situation. Not only Rommel's tanks advancing past Monthermé, but neighboring divisions at and to the west of Givet had gained so much ground west



*German mountain troops during training, which is conducted in the mountains, not in the lowlands. In this unit, horses are used; but in most mountain artillery the mule is the mainstay as a means of transport for the guns.*

be concealed. Battalion commanders were released to make reconnaissance for positions from which to support the attack. They were to meet the regimental commander later at Bans Jacob (Sketch 2).

The underbrush and woods were so thick on the heights east of the river that the reconnaissance, difficult and lengthy, was not completed until 1:00 PM. At that time, the battalion commander (who had a motor car) drove back along the little road from Revin to Les Hautes Buttes. He wished to turn north into the highway that runs north from

of the Meuse that the French forces in front of the mountain division were not making the expected strong resistance. According to reports of aerial reconnaissance, the retreating French were south of Rocroi and Mezieres.

The immediate problem for the artillery battalion was to follow the already advancing jaegers in the direction of the crossing point at Revin. In the meantime the battalion had been placed in a position in readiness to the east of Bans Jacob, as shown by the symbol on Sketch 2. In order to get to Revin, the battalion had to cross the

main highway. This artery was absolutely packed with the panzers, who sat motionless in several columns in the road, jammed tightly together in both directions. To make matters worse, the road had been demolished at Grand Croix by a huge mine crater. The country was heavily wooded on both sides of the road.

It should now be explained that the German pack artillery is so equipped that it can be drawn in draft, or packed. The pack saddles are made so that trace chains and

easily negotiated terrain impassable for motorized troops or for wheeled vehicles. They soon overtook their infantry.

In the late afternoon of the same day, the 2d Battalion, which had been placed under the command of a mountain jaeger regiment, was waiting in readiness on the rim of the heights that descend steeply from Revin to the Meuse, for the order to cross the river.

The battalion commander reported to the commander of the mountain jaeger regiment, who was stationed at the



*Note the method of assisting the pack animal down a steep slope. Plate courtesy of "Cavalry Journal."*

breast collars can be attached, the trails of the guns used as shafts, and the weapons towed. Harness is carried with the unit. Draft is frequently employed in level terrain, and where roads or wide trails exist, for it is easier on the animals. Carts are provided for impedimenta and ammunition. Nevertheless the unit is trained to make quick shift from draft to pack. This was done in this case. The battalion was packed up; leaving the vehicles behind, the batteries filed through a little gap in the motor column, crosses a roadside ditch, "took to the woods" and with very little loss of time were on the way. Thus the pack artillery

crossover point. The crossing was being accomplished by means of rubber boats and rubber raft ferries, without interference from the French. There he learned that a bridge for the pack animals, about 1 meter wide and constructed of makeshift materials, would be completed around 9:00 PM, and that the battalion would be able to cross over on it after the heavy weapons of the forward battalions.

The bridge (Sketch 3) was built by the jaeger pioneers alongside a weir, where a row of small concrete pilings led across the river. Doors and window shutters from the nearby houses served as a flooring.



Sketch 1

Starting at 10:30 PM the first battery—inserted in with the jaegers—could cross over, while the last pack animal arrived at the other side in good shape at 6:00 o'clock the next morning. The battalion ascended a steep, narrow, winding path over the high riverbank on that side and reached the road. The crossing, favored by the moonlight, had been accomplished without mishap, even if one or another of the battalion's 300 animals had occasionally broken through the thin boards, thus requiring a concerted effort to haul it back up again.

After an hour and a half's rest at night in Revin, the battalion was able to rejoin in full fighting strength the further advance of the regiment through the wire-entangled woods to Rocroi — with a lead of many hours over the other troop units of the division that had been directed to use the military bridge at Fumay. Thus it came about that the command to follow up the enemy to Hirson found the jaeger

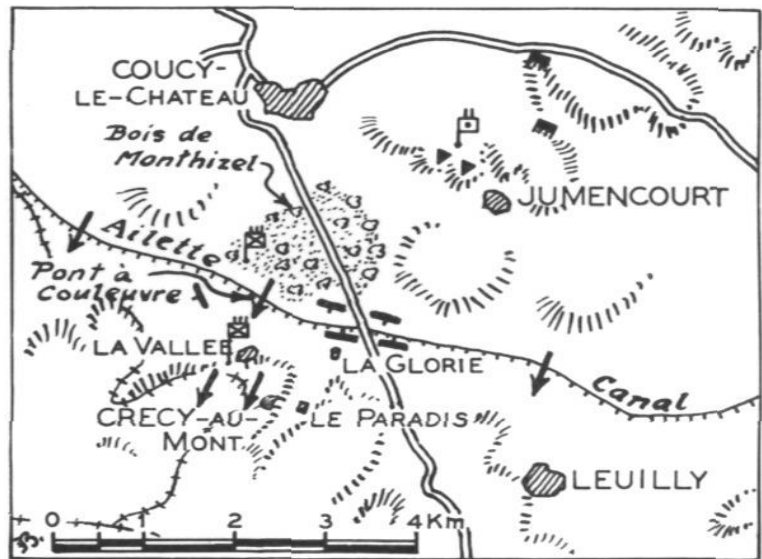


Sketch 2

regiment and its artillery battalion at the front of the division by a good margin.

In the night before the start of the attack across the Aisne on June 5, the battalion had taken up position south of Jumencourt (Sketch 4) on a plateau sloping toward the enemy, with observation posts there where the plateau dropped sharply off toward the Ailette valley. The battalion participated in artillery preparation as part of a combat group designated to cooperate with a mountain jaeger regiment of the forward line; this preparation provided for a lengthening of fire—after the start of the attack at 5:30 AM on June 6th—on the slope and later on the summits of the steeply ascending heights of Crecy-au-Mont on the other side of the canal.

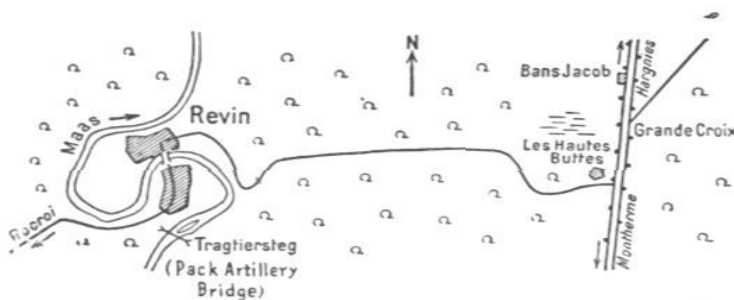
After an impressive running-off of



Sketch 4

the first act—nothing at all could be seen after a short time because of the smoke and mist—at 8:00 AM a battery was ordered to reach the Bois de Monthizel,<sup>2</sup> lying alongside the canal, under cover of this fog, and to follow the foremost infantry battalion, which had been able at this time to force a narrow break in the enemy's position. By 8:30 AM its foremost units had reached Crecy-au-Mont after hard fighting, while on both sides the enemy still stood his ground on the canal bank. At La Glorie and Le Paradis the French artillery was still laying down a strong barrage, while

<sup>2</sup>The large forest 2 km. south of Coucy-le-Château.



Sketch 3

there was violent curtain-fire in the woods of Monthizel and on both sides of Jumencourt. The battalion was subjected to a flanking fire from the left, and to the right the situation had not been reconnoitered.

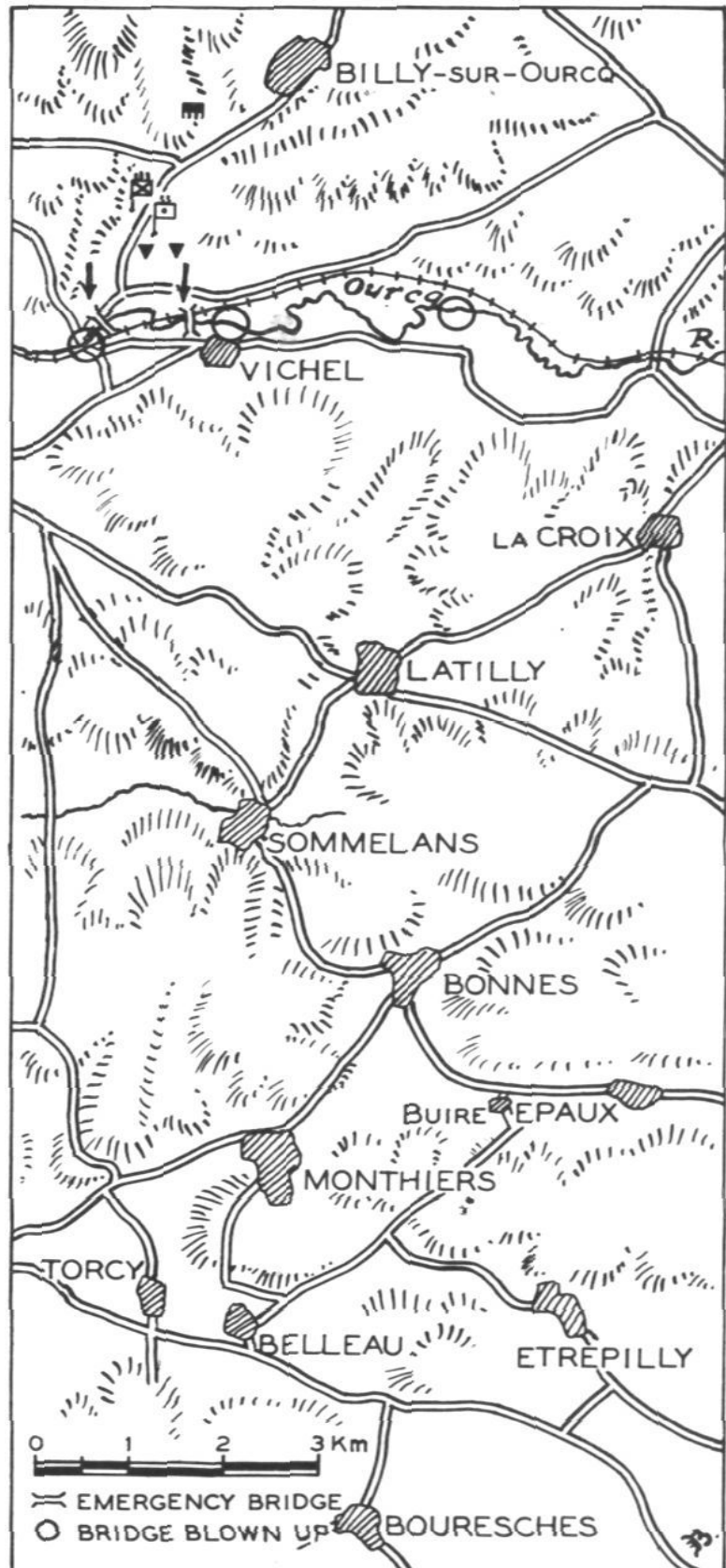
The detached battery reached the Bois de Monthizel without any losses. The battery commander had hurried ahead to the canal to find the crossover point and the CP of the infantry battalion or regiment. He was ordered by the jaeger regimental commander to proceed across an improvised bridge in the vicinity to the north of La Vallé and to put himself under the command of the foremost infantry battalion. At 9:30 AM he reported to its commander in Crecy-au-Mont and got orders that he was to take up position directly north of the farm of Crecy-au-Mont in such a way that he could help the battalion advance farther south and protect against any flanking movement from the east.

After reconnaissance of firing positions and observation posts, the battery commander hurried back to the crossover point. There the first animals of the battery in pack were just going over the canal. Shortly before this the battery had suffered its first losses by shell fire. They were scarcely across the bridge when the pack animals broke through into the boggy ground. Enemy fire finally forced the battery commander to the decision to turn back. At 12:30 PM, while further crossover possibilities at Pont à Couleuvre were being reconnoitered—they proved to be still not usable because of strong enemy occupation of the other bank—the battery was placed under violent mortar fire in its assembly position and suffered losses in men and animals.

The battery was made ready for action again, but on account of the nature of the terrain (which did not permit clear visibility) and the utter confusion of friend and foe, it did not actually enter the combat.

Despite this, however, in the late afternoon it succeeded with the aid of an improvised bridge in being the first battery to reach the south side of the canal. Meanwhile the situation had been resolved by the rapid retreat of the French behind the railroad embankment and to the south of Crecy-au-Mont.

On the 10th of June, 1940, the battalion was lying ready for action near and to the south of Billy-sur-Ourcq (Sketch 6), with observation posts immediately east of the road to Vichel in order to support the jaeger attack across the Ourcq that was scheduled

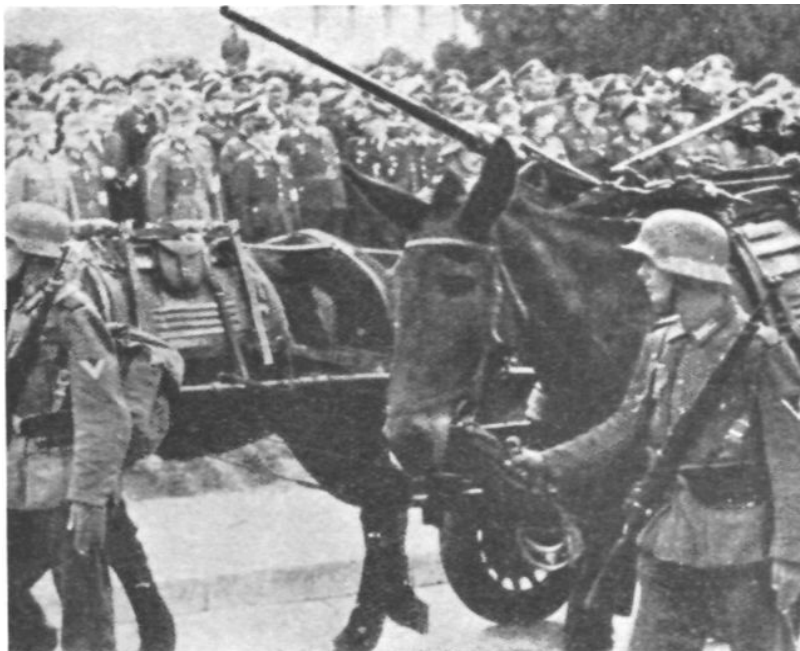


Sketch 5



to begin at 9:00 AM.

Already at 7:45 AM it could be reported that individual units had crossed the river with little resistance from the enemy. Between 11:00 AM and 1:00 PM the batteries were able to cross the narrow but deep Ourcq over emergency bridges. After reaching the first objective, the regiment rested south of Latilly over the noon hour. At least until 4:00 PM the mountain artillery was the only artillery south of the Ourcq. While the battalion



German mountain troops in Athens, 1941. Note how the pack saddle is adapted for harness, so that the weapons may also be drawn in draft.

was still at rest, the battery that had arrived at the resting place first was set on the march again by the commander, with order to accompany the foremost infantry battalion. After a short time this battalion left the road to advance diagonally across the hilly terrain toward Etrepilly. In order to be able to follow along, the battery commander gave orders to shift to pack transport.

After 4:00 PM, when the battalion was taking a short rest on the hill 1 km. south of Buire, their position was hit

by light caliber shells from the right flank. The neighbor to the right was still hanging far back. While the jaegers evacuated the endangered terrain, the battery commander, with quick decision, moved into position and opened fire. He hit in the flank an enemy battery which was in action, and was then able to take a whole series of worthwhile objectives under fire. Unfortunately the range of guns was not sufficient to reach enemy troops

that were marching in retreat farther to the west.

The foregoing examples illustrate cases where the transportability and flexibility of the mountain batteries could be utilized to advantage even in flat country. They indicate just what demands can be made on mountain batteries in unfavorable terrain and where bridges that are practicable for artillery in draft are not available; and it shows how soon the command can justifiably order a follow-up by mountain artillery.

*Mountain Artillery—Characteristics of Weapons Used by the Principal Armies of the World. from "Der Schweizer Artillerist."*

Model	Countries	Caliber	Length in Calibers	- 0	Elevation + 0	Traverse	Weight in Lbs. Firing Position	Weight of Projectile Lbs.	Muzzle Velocity /Sec.	Range Yards
<b>Guns.</b>										
K.M. 65/17	: Italy	: 65	: 22	: 10	: 20	: 8	: 1,200	: 10.8	: 1,150	: 7,440
Schneider M. 06	: France, Jugoslavia, Poland	: 65	: 20.2	: 9	: 35	: 6	: 880	: 8.4 - 9.8	: 1,100	: 6,015
Schneider	: Portugal	: 70	: --	: 10	: 20	: 4.5	: 960	: --	: 1,100	: --
Schneider M. 08	: Italy, Spain	: 70	: --	: 10	: 20	: 4.5	: 1,100	: 11.7	: 1,000	: 5,470
Japan F.	: Japan	: 75	: 19.2	: 8	: 25	: 7	: 1,500	: 15	: 1,100	: 5,580
Ansaldo M. 34/35	: Italy	: 75	: 18.3	: 10	: 65	: 50	: 1,765	: 14	: 1,450	: 10,280
Bofors M. 33	: Switzerland	: --	: --	: --	: --	: --	: --	: --	: --	: --
Konksberg M. 27	: Norway	: 75	: 20.5	: 5	: 47	: 5	: 1,325	: 14.3	: 1,296	: 9,625
Krupp M. 05	: Bulgaria	: 75	: 14	: 10	: 24	: 4	: 840	: 11.7	: 1,000	: 5,030
Krupp M. 08	: Japan	: 75	: 19.2	: 8	: 25	: 7	: 1,500	: 15	: 1,100	: 5,580
Meiji 41	: Japan	: 75	: 14.5	: 10	: 35	: --	: 1,210	: 12.1	: 1,450	: 7,110
Schneider M. 19	: France, Greece, Poland, Sp.	: 75	: 19	: 10	: 40	: 10	: 1,450	: 14.3	: 1,500	: 10,500
Schneider M. 07	: Bulgaria	: 75	: --	: 10	: 20	: 4.5	: 960	: 11.2	: 1,100	: 4,375
Schneider Danzlis M. 06/09	: Greece	: 75	: 16.67	: 7.4	: 20	: 4.3	: 1,325	: 14.3	: 1,150	: 7,110
Skoda M. 15	: Italy, Jugoslavia, Hungary	: 75	: 15	: 9	: 50	: 7	: 1,350	: 13.9	: 1,300	: 8,200
Skoda M. 28	: Yugoslavia	: 75	: 18	: 10	: 40	: 7	: 1,540	: 13.9	: 1,500	: 9,730
Schneider M. 09	: Finland	: 76.2	: 16.5	: 10	: 35	: 4.5	: 1,380	: 14.1	: 1,243	: 7,765
K. M. 09	: Russia	: 76.2	: 16.5	: 6	: 28	: 4.5	: 1,375	: 14.1	: 1,250	: 7,765
K. M. 27	: --	: 75	: 20.5	: 5	: 47	: 5	: 1,325	: 14.3	: 1,400	: 7,765
K. L/22	: Germany	: --	: --	: --	: --	: --	: --	: 14.5	: --	: 10,720
<b>Howitzers.</b>										
M. 11 Ehrhardt	: Norway	: 75	: 17	: 7	: 39	: 5	: 1,100	: 11.7	: 1,150	: 6,900
M. 1	: United States	: 75	: 19	: 5	: 45	: 5	: 1,270	: 15	: 1,250	: 9,190
Skoda M. 15	: Italy	: 75	: 15	: 9	: 50	: 7	: 1,350	: 13.9	: 1,300	: 8,650
Skoda M. 16	: Poland	: 100	: 24	: 5	: 70	: 5.5	: 2,820	: 35.2	: 1,400	: 8,300
Skoda M. 916	: Italy	: 100	: 19	: 8	: 70	: 5	: 2,660	: 29.8	: 1,300	: 8,750
Skoda M. 914	: Italy	: 100	: 19	: 8	: 48	: 5	: 3,120	: 27.6-34.2	: 1,300	: 8,750
Schneider M. 19	: France, Italy	: 105	: 12	: 0	: 43	: 9	: 1,650	: 26.5	: 1,150	: 8,300
Skoda M. 16	: Jugoslavia	: 105	: 19.3	: 8	: 70	: 5	: 2,720	: 35.2	: 1,150	: 8,750
L/28 Rheinmetal Borsig	: Germany	: 105	: --	: --	: --	: --	: --	: 34.1	: 1,550	: 11,480

# SUBCALIBER

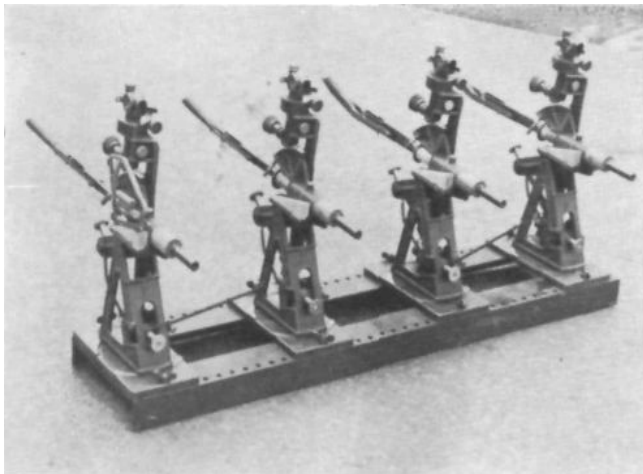
## A. USING AIR RIFLES

By Major David Larr, FA

In adapting the FA Trainer for indoor use no essential change in method of handling is involved. Lost motion in the mount is taken up by springs. Six, of the ordinary screen door variety, cure the ills of a four-gun battery nicely. The firing mechanisms supplied with the Trainer are removed and replaced by Daisy air rifles mounted in hard wood adapters. A large shallow box of sawdust serves as a range. The total cost, including two flood lights for the range and thirty thousand rounds of pellets, is about twenty-five dollars. The piece used, Daisy No. 25, is the pump type familiar to small boys the country over. Far from being toys, these guns with only ordinary care have shown little loss in accuracy after many thousand rounds. If required, replacement of working parts is prompt and inexpensive.

Like most contrivances, this installation is not the answer to all prayers. It will not simulate time fire. Neither will it illustrate the trajectory of the light artillery piece except at the point of impact. The pellet does not drift. And while the battery and miniature range have been used in connection with the calculation of data for unobserved fires, the artificial assumptions involved go far toward nullifying the realism which constitutes the true mission of the set-up.

On the other hand, with this mount the student can actually shoot, in the classroom, by artillery methods, practically any type of observed fire except time fire. Fire for effect is delivered at a rate equalling that of the real battery. Due to the flat trajectory the mount must be



*The battery*

## THREE METHODS OF RAISING YOUR GUNNERY STANDARDS

### I. Adapting the FA Trainer for indoor firing

EDITOR'S NOTE: In an effort to overcome the excessive dispersion of the FA Trainer, two officers have evolved adaptations which permit the device to be used with satisfactory accuracy on indoor ranges.

#### A. USING AIR RIFLES

By Major David Larr, FA

#### B. USING AN AIR COMPRESSOR

By Capt. Harry E.M. Mikkelsen (FA) O.D.

### II. The .22 rifle as subcaliber for the 75-mm. gun

By Lieut. Col. Ralph Hospital, 3d FA

elevated and plunging fire employed. It has been found, to the delight of the instructor, that within the ranges permitted by the classroom used (360-520 inches) the range probable error follows closely enough that of the 75-mm. shell Mk. I, normal charge. Both Long and Short Fuze Firing Tables may be employed at a scale of approximately one inch to ten yards.\* While the variations of both "c" and the slope of fall are inverse to those of the 75-mm. due to the plunging fire, it does not require too great a distortion of ground measurement to use the tabular values. And with the exception of drift, the values found in the tables for the other functions required in the types of fire permitted by the set-up are sufficiently accurate for all practical purposes in elementary training. This is of considerable value in familiarizing the young student with the use of the standard firing tables. (Drift may be kept in mind by assuming it to be one mil in all cases.)

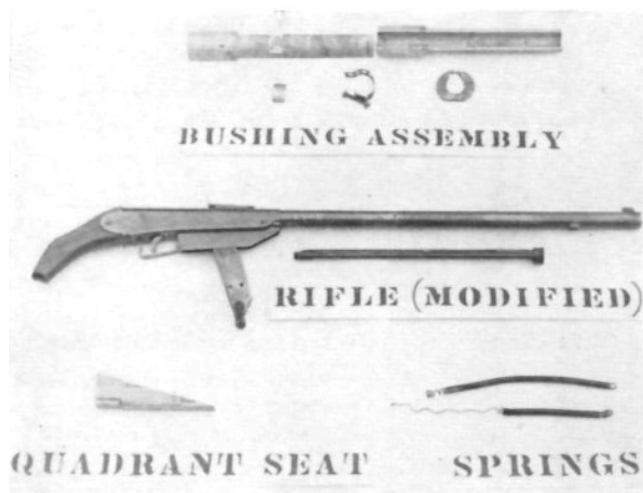
As to the time factor, when students are familiar with the panoramic sight it has been found that problems by Trainer take about one third longer than the average

\*With the panoramic sights at a convenient height (eye pieces 58" from the floor) the battery may have to be tilted slightly to get the shorter ranges.

Beyond about 480 inches the probable error increases and the value of "c" decreases with marked rapidity due to the decreasing angle of impact. Firing may be conducted with satisfactory results up to 600 inches, and perhaps beyond. However, it is necessary to adopt a relationship for range of about one inch equals five yards, and it is convenient to use an auxiliary range strip superimposed on the regular one; "c" must be adjusted accordingly.

Range (inches)	360	390	400	420	440	510	600
EpR (inches)	1.02	1.42	1.85	2.24	2.54	6.05	9.45
EpR (inches)	.38	.44	.45	.58	.68	.80	1.10





*Material required: the bushing can be turned on any wood lathe.*

elapsed time of problems by blackboard. Against this may be balanced the fact that students are acting as executives, gunners, recorders, etc., and are kept involved in the progress of the problem with consequent increased interest. The additional training acquired is considerable. Real firing points are operated, and the fire conducted actually uses the data calculated on the real, if miniature, terrain. Elaborate set-ups for officers' classes have been used. Fire by air and forward observers has been realistically simulated employing all the accessories except the plane and the command car! However, these may be classed more or less as stunts. The value of the battery lies in the long up-hill job of instilling axial and small-T precision and bracket into youngsters who have seldom if ever witnessed the firing of anything larger than a shotgun.

Ballistics and dispersion can be brought to life for even the sub-goats of a class. A group of about fifty rounds is fired by the students onto a paper strip, from a gun securely clamped in a vise. The center of impact and probable error are determined, then the angle of impact measured by fire through two small vertical screens. After solution by the students of one of the traditional problems, using these values and the dimensions of a small wood block, the block is properly placed at the center of impact. The required number of additional rounds are then fired. As strange as it may seem, the demonstration seldom varies materially from the calculation!

The mechanics of mounting the gun on the Trainer are shown in the accompanying photographs. The hand grip, guide rod, front lug and front element of the cocking mechanism are discarded. A small cross-bolt, padded with friction tape, enables the cocking lever to be easily and quickly operated. The magazine is 50-shot, tubular, force feed, such a system being made necessary by the downward inclination of the gun barrel at normal

elevations. The stock is cut to a short pistol grip for use in steadying the piece while reloading. An adapter or bushing is turned, in halves, from hard maple to fit the gun barrel to the inside of the housing for the firing mechanism of the Trainer. A small metal plate set in one side of the bushing permits use of the set screw on top of the housing to prevent longitudinal movement. Movement of the gun within the adapter is opposed by friction and, at the muzzle end, by the base of the front lug which is left for the purpose. Forward movement is prevented by a washer and an ordinary hose clamp fixed on the tube at the rear end of the bushing. The Trainer itself is not modified in any way.

An auxiliary quadrant seat is necessary to permit use of Firing Table elevations. In preparing the battery shown in the photographs, each gun was carefully adjusted on a target in the approximate center of the miniature terrain at 440 inches. Then a wedge-shaped piece of  $\frac{5}{8}$  inch hardwood was mounted on the regular quadrant seat. This block was carefully dressed with a rasp to give a quadrant elevation of 155.8 mils, the elevation for 4400 yards, fuze long, in Special Text 101. This is the table issued the students.



*Number Four: note use of springs to eliminate lost motion.*

A block similar to the elevation block could be used for angle of site. However, it was considered sufficient to give the angle of site mechanism a depression of minus 130 mils, quadrant, and assume this to be site zero. An index, marked on a piece of adhesive tape, was next placed on the range strip so located as to permit the range variations desired.

An efficient target design follows the principle of the rubber "flapper" stop signs sometimes fixed to the pavement at street intersections. The silhouette is cut from ordinary sign painters' cardboard, a projection left at the bottom is bent at 90 degrees and a wire pin about four inches long fixed to this base. Hits are unmistakable but many are required to destroy the target. Sawdust makes an excellent range material, impact producing a good puff which disappears at once. This inculcates the habit of prompt sensing—or else.

## B. USING AN AIR COMPRESSOR

By Capt. Harry E. Mikkelsen, (FA) Ord. Dept.

Suspecting the powder charge and the fouling in the bore to be the main sources of erratic results in the present F. A. Trainer, I decided the use of compressed air would eliminate the fouling in the bore and at the same time furnish a more constant firing pressure than that obtained by the .22 cal. powder charge now in use. The result

desired is that each round during a practice be fired under as nearly identical conditions as possible.

After a few months of thought and experiment, the solution, a compressed air attachment, outlined below, was evolved. This method has the primary requisites lacking in most "gadgets." It is simple in design and operation. It is relatively foolproof and easy to operate. Utilizing standard pipe fittings, the cost to modify one F. A. Trainer is less than the cost of one round of 75-mm. ammunition. Results using compressed air will be taken up later.

Fig. 1 shows the necessary equipment to operate a battery of Field Artillery Trainers adapted to compressed air. The same portable air compressor which furnishes air to inflate tires while on maneuvers is the source of compressed air. The tank is connected to an air regulating valve by a length of  $\frac{1}{4}$ " rubber hose. An air regulating valve from paint spray gun equipment furnishes the constant air pressure to the guns. Upon the constancy of the air pressure regulated by this valve depends the accuracy of the trainer. From the regulating valve a length of  $\frac{1}{4}$ " rubber hose leads air to the  $\frac{3}{4}$ " pipe shown at the base of the battery. This pipe has four outlets which are connected by rubber hose to the small tanks paralleling the gun tubes on the compressed air attachment.

The left side of Fig. 2 shows a completely assembled compressed air attachment. At the right the disassembled unit shows the parts in their proper relation to one

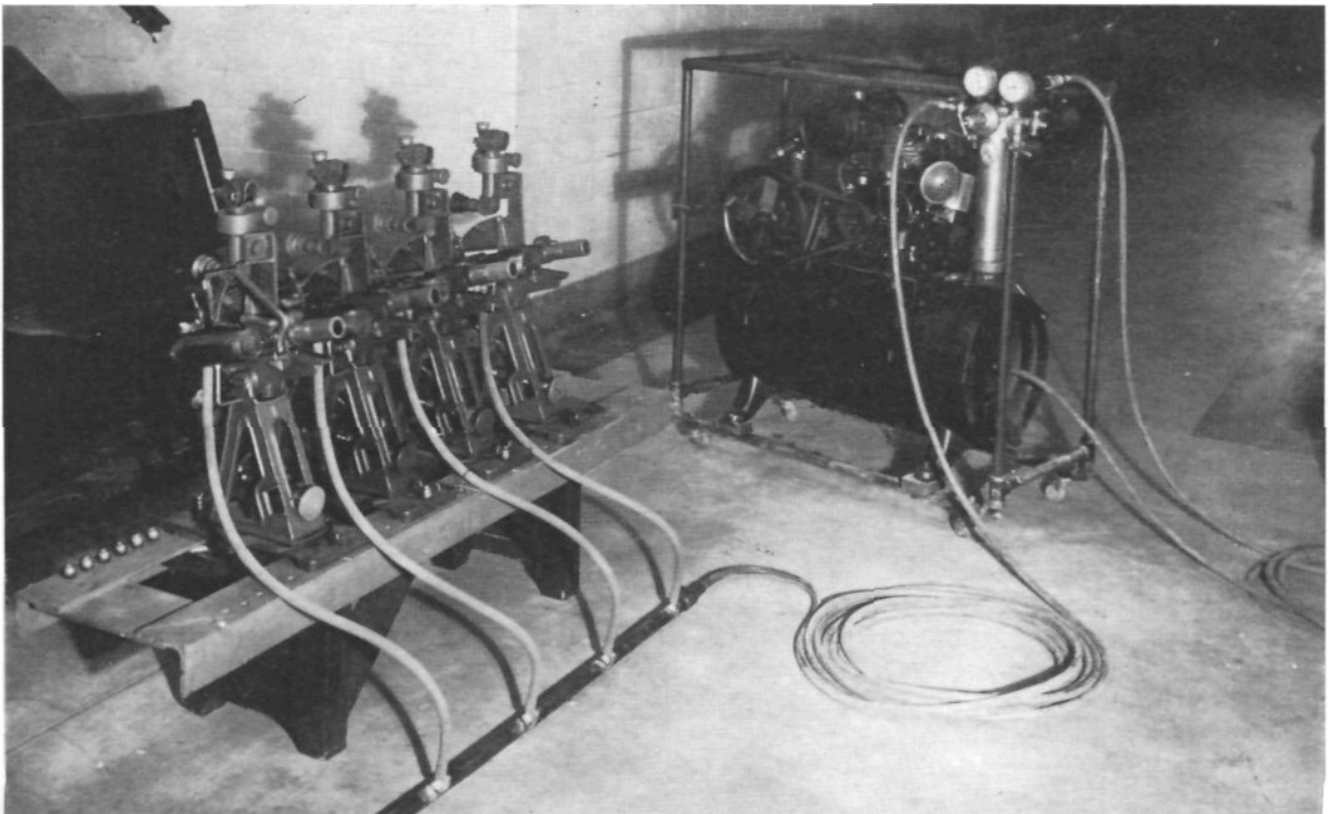


Figure 1

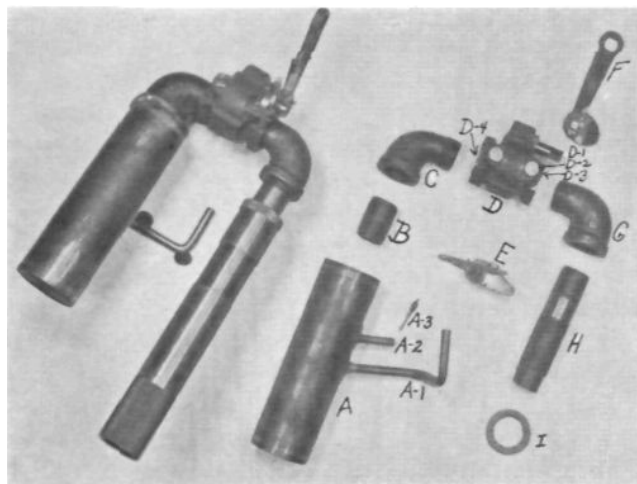


Figure 2

another. Parts B, C, and G are standard  $\frac{3}{4}$ " pipe fittings. Part D is a standard  $\frac{3}{4}$ " quick opening valve. Part A is a small tank made of 2-inch seamless tubing 6 inches long. Each end has a steel disc  $\frac{1}{4}$ " thick brazed to it sealing the tubing. The disc nearer part B has a tapped hole to accommodate the  $\frac{3}{4}$ " short nipple (B). A-2 is an automobile inner tube valve stem brazed to tank A to furnish the air inlet. A-3 is a Schrader inner tube valve which screws into valve stem A-2. Thus air once it enters tank A cannot escape through the inlet valve. A-1 is a support brazed to tank A. It rests against the side of the Field Artillery Trainer frame. C is a  $\frac{3}{4}$ " Street-L which leads the air to the quick opening valve D. F, the hand lever for valve D, fits on shaft D-1. To insure that the valve is opened at the same rate each time the gun is fired, a trigger arrangement E is mounted on valve D and is securely held by bolt D-2. The trigger arrangement is not absolutely essential, inasmuch as satisfactory results are obtained opening and closing valve D manually. When the trigger is pulled a spring (shown on the complete unit at left) pushes down the lever (F) opening the valve. As soon as the gun has fired, the hand lever is manually pushed up to close the valve again. After opening valve D, the compressed air that was trapped between A-2 and D is directed by another Street-L (G) into tube H. H is a hollow steel tube 4" long with a  $\frac{3}{4}$ " inner diameter and a 1" outer diameter. The end of tube H nearer Street-L (G) has standard pipe threads while the other end which screws into the brass gun tube of the Field Artillery trainer has 20 threads per inch. "I" is a knurled steel ring of 1" interior diameter and  $1\frac{1}{4}$ " outer diameter. It locks the brass gun tube of the Field Artillery Trainer to tube (H).

Figure 3 shows the complete unit mounted on a Field Artillery Trainer. The trigger is shown at the top of the quick opening valve. The lever is in the firing position. The spring shown halfway up the lever pushes it down to open the valve when the trigger is pulled.



Figure 3

I feel that the compressed air attachment is still in the experimental stage. After hard usage some of the No. 7 quick opening valves (shown in photographs) made by the Walworth Co., N. Y., started to leak. A No. 9 quick opening valve made by the same company was obtained for trial. So far, a model using the No. 9 valve has been fired approximately 12,000 times and is still in good condition. Experiments are now in progress on a three way valve which may further simplify the design of the attachment and also economize on compressed air.

Concerning accuracy, advantages and disadvantages of the compressed air attachment, I have asked Lt. Col. Prickett, commanding the U. S. M. A. Field Artillery Detachment, to add a few lines based on his experience using 32 Field Artillery Trainers equipped with compressed air attachments.

#### COMMENTS

BY LIEUTENANT COLONEL F. B. PRICKETT, FA

The Field Artillery Detachment at West Point uses from six to ten batteries, field artillery trainer, for cadet instruction in gunnery. The expenditure of .22 caliber ammunition is about 60,000 rounds per year.

These weapons do not have the comparative accuracy of the 75-mm. gun. Too many mixed or bracketing

salvos are obtained when within 200 to 400 yards of the target. No method has been found to keep a battery calibrated for any length of time. Various combinations of reaming and cleaning have been tried without success.

We experimented with springs and were starting in on an electric gun when Captain Mikkelsen arrived on the post with his idea of using compressed air. The test firing with the pilot model showed that the dispersion had been reduced materially. The tests with the pilot battery proved that the battery could be calibrated and would remain calibrated. We are now using eight batteries equipped with air attachments with excellent results. It should be noted that no modifications of the trainer are required. The air attachment simply screws into the gun tube of the trainer. Calibration is obtained by screwing the tube in or out.

After experimenting with air pressures from 30 to 70 pounds we found that a pressure of 45 pounds produced the best results. Proof firing with one gun at ranges varying from 15 to 40 yards produced an average total dispersion of less than two feet. No such results can be obtained with .22 caliber ammunition.

In precision fire the air gun is almost too accurate. Too many hits are obtained on targets two inches square. It is rather difficult to convince the cadet that the trial elevation should be changed after sensing four targets and two shorts.

The range scale is used for firing bracket adjustments. Angle of site levels from the 75-mm. gun, model 1897, have been bolted to the angle of site bracket to speed up the fire. A site of 300 is always used. Since the muzzle velocity is less than when using .22 caliber ammunition, a greater range setting is required. A change in 100 yards on the range scale produces a change of about two feet in range. Many salvos have been observed with a total dispersion of not more than six inches. Normally the total dispersion of a salvo is less than a yard.

The air gun is ideal for direct laying. Using a gunner, a range setter, a loader and a man to fire the gun, the rate of fire is between 25 and 30 rounds per minute. A surprisingly large number of hits can be obtained on a miniature tank moving at a scale speed of 50 miles an hour.

The air gun has sufficient accuracy to be used for lateral and forward observation, K transfers and for use with the fire direction center.

The photograph shows one of the two batteries in the gymnasium. The portable compressor delivers sufficient air for these two batteries. We use six batteries in the stables. Each battery has a pit so that the muzzles of the guns are only six inches above the floor. An electrically driven compressor on the second floor automatically delivers air between pressures of 120 and 140 pounds per square inch to the reducing and regulating valve. Due to the large volume of air used by six batteries we found it necessary to install a tank with 25 cubic feet capacity

between the regulating valve and the guns. Small leaks in the line do not affect the accuracy of the guns.

Manually operated valves do not work due to the personal equation of each gunner. We have had trouble getting the proper spring tension on the trigger attachments. It is necessary to have the four quick opening valves in a battery function exactly the same. With 32 air attachments we have been able to segregate the guns by battery to obtain good results. Our trainers have a considerable amount of lost motion both in elevation and traverse due to hard usage. Probably a pistol grip would be better in order to take up this lost motion. Possibly there are better quick opening valves on the market than the type we are using. We have obtained more accurate regulating valves than the paint spray gun valve shown in the photographs. These valves do not require continual adjustment to deliver a constant pressure to the guns.

After testing the pilot models we were so pleased with the results that we demanded eight batteries for cadet instruction before Captain Mikkelsen was ready to go into quantity production. Improvements still can be made but the results to date have demonstrated that we have a gun far superior to one using .22 caliber ammunition.

## II .22 RIFLE AS SUBCALIBER FOR THE "75" By Lieut. Col. Ralph Hospital, 3d FA

The brief description which follows is that of the equipment which permits outdoor firing on a miniature range using the full complement of battery materiel, thereby giving practically all members of the gun squads an opportunity to perform their normal duties incident to *Service of the Piece*. The ammunition used is the .22 caliber long-rim rifle. Major W. D. McNair, formerly commanding Battery "A" 3rd Field Artillery at Fort Riley, Kansas, and 1st Sergeant John H. Morley, also of that organization, are the individuals responsible for the development of the idea and the construction of the equipment which enabled this idea to become a practical training feature.

### DESCRIPTION OF MODIFIED CARTRIDGE CASE

Four holes of appropriate size are drilled into the base of an ordinary brass cartridge case (Figure 4). Into the open end of this case is seated the forward supporting ring, and a tapered sleeve is fitted into the center of this ring. The four adjusting screws are now made part of the assembly by inserting each through one of the holes in the cartridge case base, each extending through a corresponding hole in the forward supporting ring. These adjusting screws are made secure by attaching lugs at the forward ends and sockets on the base ends, the latter being accomplished by the use of the socket wrench.

An ordinary Remington .22-caliber rifle barrel, with

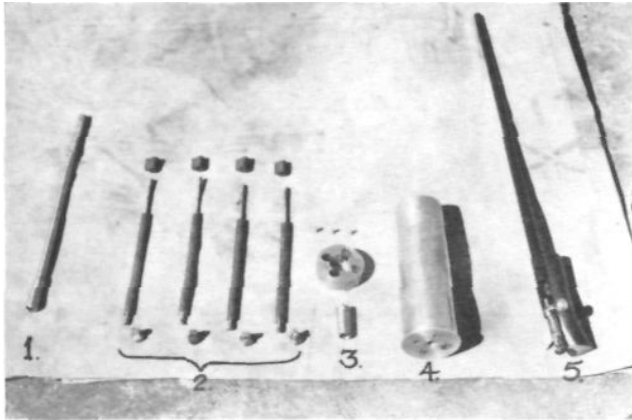


Figure 4

1. Socket wrench.
2. Four adjusting screws with accessories.
3. Forward supporting ring with accessories.
4. Brass cartridge case, with four holes bored in base.
5. .22 cal. rifle barrel.



Figure 5

part of the stock attached, is inserted through the center of the cartridge case and secured therein by the adjusting screws (Figure 5).

The above described cartridge case permits the rifle barrel to be adjusted in such a way that, when the gun is fired with the same data, practically every shot hits within a very small area.

#### DESCRIPTION OF TARGET AREA

The target area does not differ from any other miniature range, inasmuch as various types of targets can be placed in position and moved about at will. The nature of such targets is of course unlimited.

One pipe (Figure 6), equipped with two 8" pullies installed at right angles to each other, is placed on each flank of the target area, these permitting introduction of moving targets. A long rope, of the clothes-line variety, extending from one flank of the battery through the pullies of the pipes on the flanks of the target area and thence back to the opposite flank of the battery, is used to make a target move (Figure 7). The motive power is a couple of men pulling the end of the rope toward which the motion of the target is desired. The target is fastened to the rope at one of the pipe locations and may be pulled the entire width of the range.

In addition to firing on the target area above described, firing against moving targets (tin cans) has been conducted

with satisfactory results. These targets are thrown into the water (upstream from the guns), and a 2½-mile an hour current provides the moving force. This affords excellent practice for the gunners, as it necessitates rapid traverse from extreme right to extreme left when the battery is placed on or near the stream bank.

#### CONCLUSION

The important part of the equipment is the construction of the complete cartridge case with its accessories, to correctly adjust the position of the .22-caliber barrel. It is impracticable to describe in detail just how this is done, but should anyone be interested enough to pay the transportation charges, this entire assembly will gladly be sent to any organization for inspection.

It may be added that this set-up affords excellent practice for the gun crews in both direct and indirect laying, as well as giving them unlimited practice in firing upon moving targets, the importance of which cannot be overestimated during any training period. Almost any terrain having a suitable back stop can be used, a target area of about 100 feet by 100 feet being sufficient.

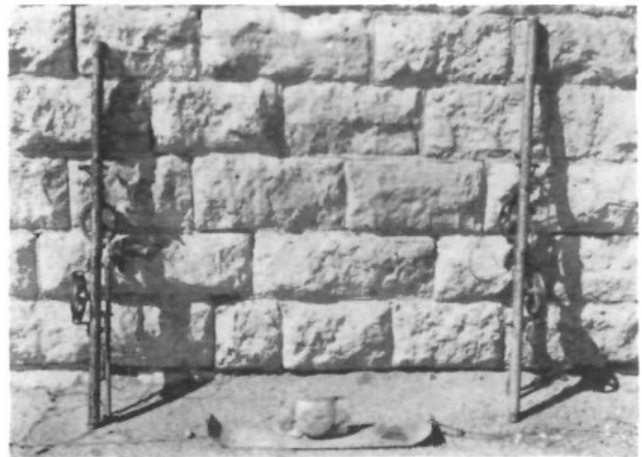


Figure 6

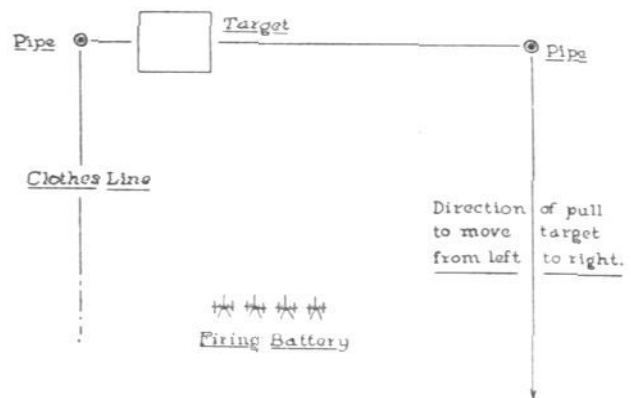


Figure 7

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# INCIDENTS FROM THE WAR

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## Experiences of a Dutch Artillery Detachment During the Invasion of Holland

Fears of a German invasion were rife in the Netherlands after the autumn of 1939. It was known that the German force opposite Holland was being built up during the winter and early spring. It was also learned that numerous air fields, munitions dumps, and other installations were

being prepared in northwestern Germany. Finally, the rapid conquest of Denmark and Norway in April convinced many Dutchmen that an assault upon their own country was imminent. The Netherlands were placed under martial law, all army leaves were suspended, and additional areas were flooded. Steps were taken to suppress subversive elements. Thus, when the German attack came at dawn on May 10, the Dutch were not entirely unprepared. Nevertheless, such preparations as they had been able to make were soon proved wholly inadequate.

Dutch airports, barracks, and forces covering bridges were subjected to intense bombardment by the German air force during the morning of the 10th. German parachute troops attacked Waalhaven, the chief airport of Rotterdam, and soon were masters of the field. Seaplanes landed on the Maas River and disembarked troops, who seized the approaches to a nearby bridge. At the same time parachutists and air infantry arrived at the great Moerdijk bridge in time to prevent its destruction by the



*The American Consulate at Rotterdam, May 14, 1940*

Dutch. Others took the bridge at Dordrecht. The Dutch counterattacked everywhere, but fruitlessly. Thus, within a few hours the Germans had seized vital links in the chain of communications from the Fortress

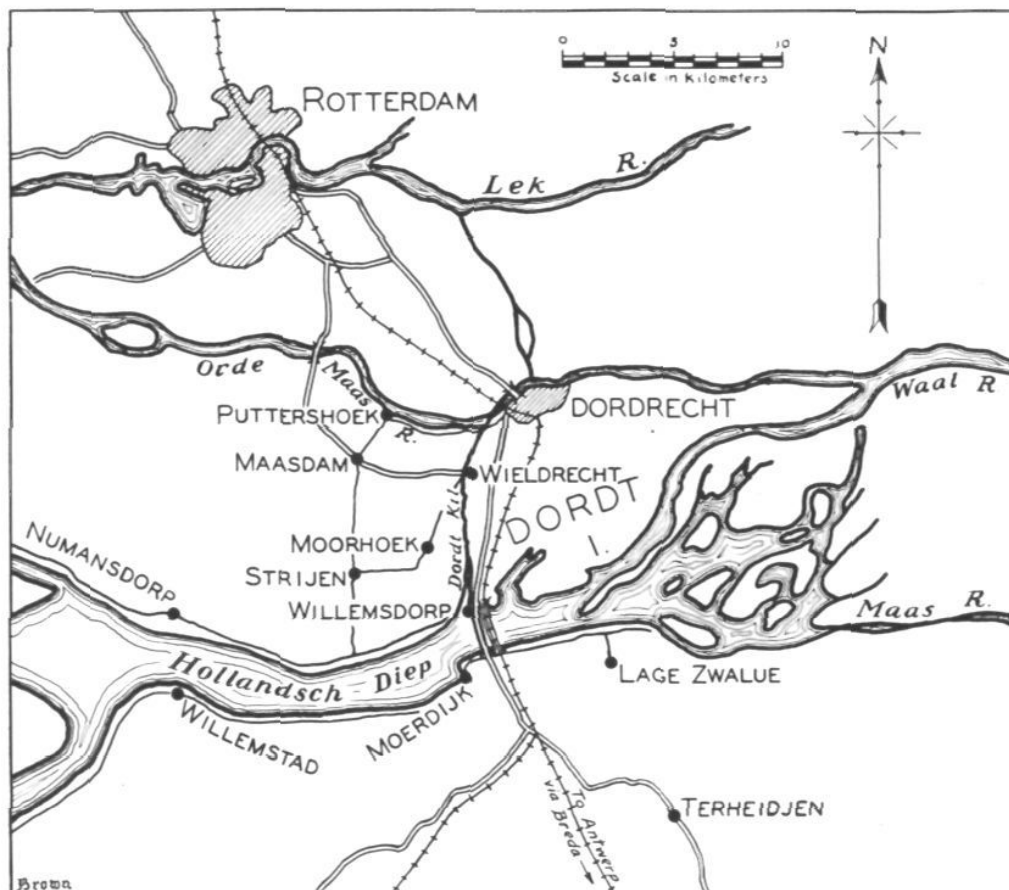
of Holland to Belgium and to the Allied armies that were then pushing northward. Throughout May 11-12, German transport planes brought troops to Waalhaven, troops who reinforced the advance detachments at the airport and the bridges. At least a division of air infantry was thus thrust into the heart of Holland. Meanwhile, French armored and motorized troops had reached Breda, south of Rotterdam,

but found their route of advance already cut by the Germans. On May 13, German armored units broke through the Grebbe position, some fifty miles to the east, and by late afternoon reached Dordrecht. The rear of the Fortress of Holland had been turned, and the Dutch were trapped.

The following paragraphs record the experiences of a Dutch artillery detachment stationed near the Moerdijk bridge during those critical days. It is one of the very few Dutch accounts of the fighting to have reached the outside world.\*

\*Translated from *De Militaire Spectator*, November, 1940.





The artillery strength of the Dutch Army was, as no doubt everyone now knows, small in comparison to our infantry strength, or to the strength of the army ringing us about. Here again, economy deceived wisdom. The result was that the army command was compelled, at the time of mobilization, to bring ancient pieces, no longer fit for artillery service, back into use.

This was a measure taken, among others, with a group of fifteen L. 24's, position guns dating from 1880. Three detachments were formed with them in November and December, 1939. One of these detachments, the 25th Artillery, was stationed in the Kil Group on the south front of the "Fortress of Holland," near the village of Strijen. The detachment consisted of a staff and 3 batteries of four pieces each, with buffer bedding. The guns were originally meant to command the southern bank of the Hollandsch Diep, in the vicinity of Moerdijk. The bridges at this point having fallen into the enemy's hands, the northern bank of the Hollandsch Diep near Willemsdorp was also brought under fire. An attack on the Moerdijk by a Dutch battalion, coming out of the south, was supported in part by this detachment. Thus, the strange situation arose of an infantry attack being supported by artillery in the enemy's rear. The line of communication between the infantry and artillery in question ran via the Kil Group command post over the civilian

telephone system between Terheijden, Puttershoek, and Strijen.

The detachment was in action from about 6:30 AM, May 10, to about 3:30 PM, May 13, and in doing so fired some 2,500 high-explosive shells. Because of the old materiel, and the long-continued fire, there were many interruptions. The guns were patched up as well as possible under the circumstances by smiths living in the vicinity. When the Dutch infantry finally fell back, the artillery personnel evacuated its positions. The pieces still intact were first made useless. Six of the twelve guns had already been put out of commission, either by the enemy or by defects.

The batteries withstood two bombardments from the air and one by enemy artillery emplaced east of Kil, not far from Moerdijk. Despite all this, the detachment suffered hardly any casualties. Its morale was admirable, with not a single case of neglect of duty. Taking it all in all, this detachment did admirable service.

Here follows the report of Sergeant G. Verheul, commanding gun No. 3 of the 2nd Battery:

On Friday, May 10, at about four in the morning, we were awakened by the fire of antiaircraft guns. We soon became aware of German planes flying low in the vicinity of the Moerdijk bridges and dropping parachutists. There were some attacks too by dive bombers on objectives in the neighborhood of Moerdijk, though it was impossible for us to see them clearly. We understood at once that we were at war. The detachment commander gave the order to man the positions.

Our position had been prepared only the preceding Saturday, with shelters, munitions niches, breastworks, etc. The camouflage material was at hand, and we fell to covering the position of each of the guns with gauze stretched over wires and putting grass on the gauze.

At about 6 AM we received our first order to fire, in the direction of Lage Zwaluwe. Our battery commander, Sergeant F. De Braal, had noted the various firing orders



in a little book, so that the cannoneers were able to bring their guns quite rapidly in the right position. Meanwhile we learned that more parachutists were being dropped in the vicinity of Dordrecht, Wieldrecht, the Dordt-Breda railway, and of Moerdijk. An anti-aircraft battery was emplaced back of our position, in the direction of Maasdam, but it was quickly silenced by dive bombers.

We were surprised to see both of the Moerdijk bridges still intact, and we all concluded that the defense detachment had joined battle with the enemy, especially because we heard rifle and machine-gun fire in that vicinity. I later learned from our observer that he had seen through his binoculars the enemy standing by the barracks at that point, and that he supposed the defenders to be either casualties or prisoners.

The fire continued steadily, and nothing new developed. At night we fired for an hour, about thirty rounds. Then there was a pause while we waited for new orders. The enemy had entrenched himself behind the east dike of the Kil, that is, on the Island of Dordrecht. The river bank was defended by Dutch infantry detachments with light and heavy machine guns.

About two kilometers in back of us there was a 75 field gun from the 23rd R.A. On Saturday morning it went into action, its object being, as we understood it, to place the enemy behind the dike under fire. Apparently the distance had been calculated short of what it really was, and two of our infantrymen were struck by fragments, as well as a nearby house. Our battery commander at once telephoned this detachment, and the fire was stopped, to be resumed later when its range was corrected. As soon as he noticed

that the house had been hit, our "doctor," the stretcher-bearer Kleynen, went to it, taking with him Drafee Van Hoorn and Drafee Polak, in order to render whatever help might be needed to the occupants. This they did at the risk of their own lives, for they came within reach of the enemy's fire. They found a woman and a child slightly hurt and an old man seriously wounded. He was taken to the first-aid station at Puttershoek, a task in which Drafee Salden assisted. The infantrymen had already been taken off by their own men.

Toward noon there was a horde of airplanes, most of them three-motored. We had to seek cover repeatedly because some of them were flying very low. Our detachment was discovered, and about 1:30 PM a group of about fifteen planes approached from a northeasterly direction and pointed at our position. For a moment we went into our shelter. But when the sergeant saw that they were dive bombers, he ordered us to fall back to the command post, where there was better cover. It was possible for our middle battery to do this without being seen, for its position was at the edge of a ditch, with willows bordering it clear back to the command post. This naturally gave us good cover against observation from the air. Each plane dropped four bombs of a very heavy caliber. They hit the left battery. One gun was knocked out, and the shelters in front of it were destroyed. A number of fragments fell near the munitions depot, without, however, doing any further damage. There were no casualties. Communication with the detachment command had been disrupted by the attack, and Drafee G. Vos attempted to re-establish it, despite the fact that



*A memento of the fighting—memorial to German parachute troops in harbor of Rotterdam.*

the planes were not yet out of sight and a new attack was a real possibility. No bombs struck our battery, only some machine-gun fire.

We went back into action, aiming at points where parachutists had assembled. We fired regularly during the night of Saturday-Sunday. What struck us now was the number of yellow flares that were being fired in the rear of our positions. Sometimes there were white lights too, and these bathed our battery in a bright glow of light. Planes continued to fly overhead all the time. Toward morning the bombing attack was repeated. Our battery suffered no dead or wounded, nor any loss of materiel; but I can say nothing about the right battery.

A French armored column was expected this Sunday at the Moerdijk. When it failed to appear, we opened fire on the Moerdijk, but without success. We only succeeded in destroying some of the pavement. Perhaps we would have had more success with armor-piercing shells.

We had hard luck during the night from Sunday to Monday. No. 2 gun was put out of commission, a primer breaking off and lodging in the breech casing. All attempts to repair it were in vain. Later the planks of the No. 3 gun's

bedding gave way, and it was out, for it is impossible to fire without bedding, the recoil after firing being too great.

Monday morning, around ten or eleven o'clock, enemy tanks and other motor vehicles came into sight, proceeding serenely toward Dordrecht, over the bridge across the Hollandsch Diep. We opened fire on them, and I think we may have hit one truck. The fact that the road was destroyed did not seem to bother them. Whether it really was destroyed or not was impossible for us to find out, the road lying too high for our observation post.

During the afternoon, the enemy started to cross the Kil, and the infantry had to retreat.

With that we also were finished, and we received the command to fall back, which we had to do under cover because we were being fired on by machine guns. I have forgotten to mention that from early morning until we started our retreat we were under the fire of enemy artillery. Two of our men silenced one of the guns by aiming along the axis of their cannon pointblank at the German gun, which was visible. Let me be permitted to add that, if we had had some antitank guns at our disposal, there would have been a lot less enemy troops crossing the bridge.

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## 18th Field Artillery Insignia

The 18th Field Artillery is now a School Regiment at Fort Sill.

The regiment was organized at Fort Bliss, Texas, in June, 1917, from the 5th Field Artillery. It served overseas as the 155 Howitzer regiment of the 3rd Division and took part in 4 major offensives in France and served as part of the Army of Occupation in Germany.

The very interesting insignia is a shield of sky blue with three white bars drawn diagonally across and crossing the white bars is a solid gold bar flanked on each side by a parallel gold bar in crutchlike figures.

In the upper left hand corner as the observer faces it there is an approximate rectangle in red. In the rectangle is a white fishhook surrounding a star.

The blue and white is in honor of the 3d Division and very similar to the 3d Division Insignia. The fishhook is the eventual shape of the battle line of the Union Army at Gettysburg. Batteries A and D, 5th Field Artillery, fought at Gettysburg in the 12th Corps and the star is the Corps Insignia.

The regimental motto is: "Per aspera ad astra" (Through difficulties to the stars). This motto is an extract from the citation received by the regiment from the French for its service at the Marne.



COL. ALBERT S. FUGER, U.S.A.-Ret.

# Not in the BOOK

## 1. HOW TO MAKE A MIL MEASURER

A good detail man will acquire for himself a few gadgets not listed by the Army.

One of the most useful of these is an ordinary 6-foot folding carpenter's rule. Properly used, angles may be measured with this simple tool more accurately and more quickly than any of the more usual methods of hand calibration.

A mil, like an old soldier's lie, becomes greater in ratio to the distance from the point of origin. At 10 feet 5 inches from the eye, the mil subtends an angle of  $\frac{1}{8}$  of an inch and at 5 feet 2½ inches this angle is  $\frac{1}{16}$  of an inch.

By turning the last foot of the rule at right angle to the remainder, and holding the long section 5' 2½" from the eye (a rule with a 6-inch telescope extension will eliminate guessing even this distance) each division on the rule ( $\frac{1}{16}$  of an inch) equals one mil (Figure 1).

A paper clip placed on the short arm will permit measurements to a fraction of a mil.

If you can mooch a hypo vial from the Medico, this filled with oil or water and attached to the long arm of the rule by rubber bands will enable you to level the rule and measure perpendicular angles above and below the line of site.

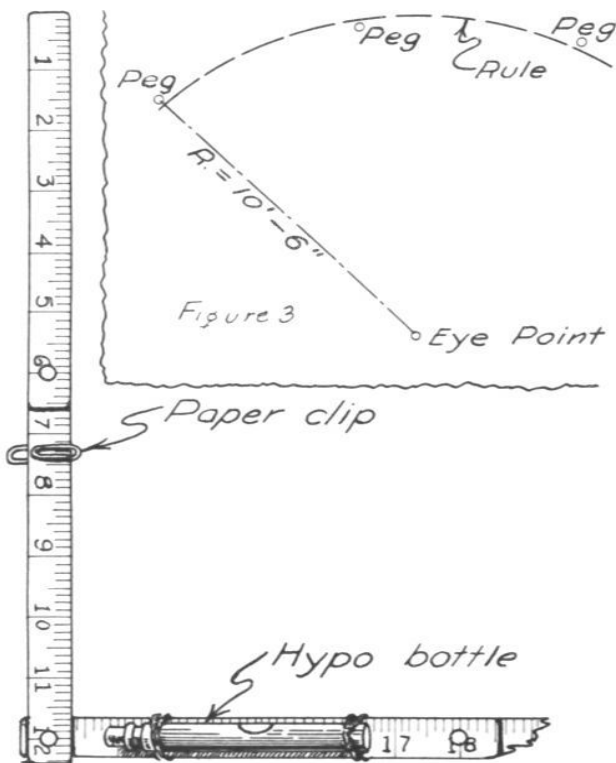


Figure 1

## By Corporal Crane

EDITOR'S NOTE: *H. H. Crane's short feature in the July issue, "Not in the Book," proved so popular that we have decided to run this title as a regular feature. This will be dependent, of course, on the number and quality of the contributions received for inclusion in this column. In acknowledging our remittance for his first manuscript, Mr. Crane wrote: "Your check for "Not in the Book" enabled me to perform the trick of the week. By endorsing it to the USO I became the first man to discover how to pay for this war with money earned by the last one." Other artillerymen, old and new, are hereby invited to send in their suggestions for this column. Make them short and practical—no Rube Goldberg inventions, please.*

An excellent station for lateral observation may be set up in the following manner: Lay off on the ground from the observation point an arc with a radius of 10 feet 5 inches (Figure 2). Place three pegs along this arc in the direction of the target and about 2 feet 8 inches apart. Place the flexible rule in front of the center peg and behind the two outer pegs. It can be easily read at this distance and a mil has a value of  $\frac{1}{8}$  of an inch on the rule. Use your paper clips for increased accuracy, placing one on the target and two others to check shorts and overs.

## 2. HOW TO LEVEL A PLANE TABLE (FIG. 3)

"So, you butterfingere dope, you gotta go drop the alley-dade and break the bubble. . . ."

Save it, Sergeant, leveling a plotting board is no trick for an old timer.

Hold a triangle perpendicular to the board, slip a thread noose over the upper point and hang a small rock on the thread.

Now slip a match under the thread so that it will stand out the width of the match from the edge of the triangle. Tilt the board until the thread hangs parallel to the edge of the triangle (this can be checked by holding a second match at the lower part of the triangle until the thread touches it).

Perform this trick in two or more directions and the board is level.

OK, Sergeant, git goin' on that Eytalian resection if you ain't forgot how since yesterday.

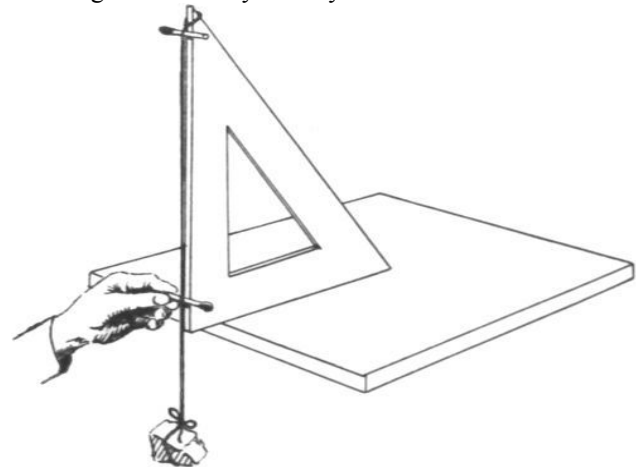
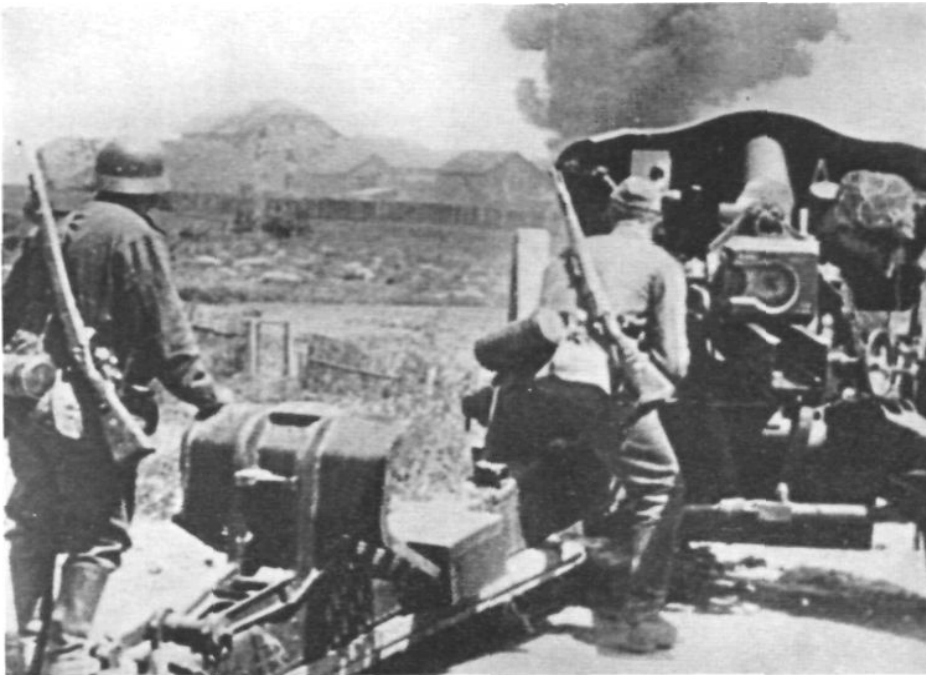


Figure 2



# ARTILLERY

Photos from *Acme*

Above: German 105-mm. howitzer firing on the citadel of Brest-Litovsk. In most of the photos of German artillery firing in Russia it is to be noted that the battery positions, while they have masks in front of them, usually are some distance in rear thereof. This is not always for the purpose of getting a good minimum range. In the view shown here the howitzer is sufficiently elevated to indicate that the range is not short. The real reason is that the German artillerists always attempt to secure a reasonable field of fire in case they are attacked by Russian tanks. Note also that the German cannoneers are all equipped with rifles and gas masks. You never see a battery in action with the small arms stacked in rear. They are always at hand for instant use. The German 105 howitzer "LFH 18" is similar to our own, except that it fires fewer charges, has a more generous shield, and is equipped with light alloy wheels with solid tires. There are two trail spades on each trail, one small sharp one for use in hard ground or on macadam pavement, and the large one (shown folded back) for use in soft ground. The small sharp spade is useful in street fighting. German antitank gunners have commented on the difficulty of holding the 37-mm. AT gun in place when firing from the pavement.



Left: Artillery of a panzer division rolling through a captured and burning Soviet city. The piece shown is the famous LFH 18, which is built for motorized or horse transport. The prime mover is a standard German tractor which has front wheels for steering. This vehicle appears to have been covered on the sides with armor plate bolted on, which in turn is concealed with cloth. Extra gasoline containers may be seen on the near fender. Note also the motley conglomeration of vehicles in column. This is characteristic; the German armored and motorized divisions march in mixed but short serials, each of which may consist of small quantities of motorized infantry, artillery, tanks, and pioneers.

# in the RUSSO- GERMAN WAR



Captured Russian field piece. This position must have been evacuated very hastily, as the gun was not damaged before being abandoned, and even the ammunition was left intact for use by the captors. This Soviet weapon appears to be of a more ancient model than the fine-looking materiel which they have been accustomed to display on May Day in the Red Square. The position seems to have been occupied for but a short time; there has been no attempt at camouflage, and no trenches appear to have been dug for personnel. The breech cover has been removed, a few boxes of ammunition opened and scattered about, and the trail imbedded as if the piece had been fired several times. The sponge and rammer staff, however, has not been removed from the trail. Note that the ammunition boxes each contain two complete rounds, with the powder cases in the center, the projectiles on the outside, and the fuzes and primers in small compartments at the end. The caliber appears to be about 150-mm.; possibly it is the 152-mm. light howitzer.

Battery of German 150-mm. howitzers firing at the Russo - Finnish border. Note that the battery is in line, but with irregular intervals, and that the pieces are in the open rather than clustered around the buildings. In this manner they are less apt to become targets for air attack. Bombers always attack farms and villages. During the actual firing the camouflage nets are lowered, and may be seen on the ground beside the nearest piece. War pictures are always distinguished by the large amount of ammunition and ammunition containers on the ground in the vicinity. Combat is never as orderly as peacetime maneuvers and service practice.





IN THE composition of the British Empire are "autonomous communities . . . equal in status, in no way subordinate one to another in any aspect of their domestic or foreign affairs, though united by a common allegiance to the Crown, and freely associated as members of the British Commonwealth of Nations."\* Of all these communities Canada is the largest. It is, in fact, approximately 700,000 square miles larger than our continental United States. It has a population of eleven million, of

which half is basically English, and one third French in origin.

#### POLITICAL SET-UP

Canada is divided into 9 provinces, and the Northwest and Yukon Territories. Ottawa, with a population of 130,000, is the capital. Montreal has about 800,000 inhabitants, Toronto over 600,000, and Vancouver, Winnipeg, Hamilton, and Quebec are all more populous than the capital city. The personal representative of His Majesty, accredited to the Canadian people, is the Governor-General. The selection of the Governor-General is the prerogative of the King but as a natural courtesy the appointment is made in collaboration with Canadian authorities. The powers of the Governor-General are, by statute, as wide and in practice as limited as those of the King. He acts always on the advice of his Ministers and as a consequence his personal power of veto is not exercised. The Earl of Athlone fills this appointment at present. The Federally conceived union of Provinces acts through a senate (whose members' term of office is for life) and a House of Commons. The executive body of the Parliament is, as in the English system, a Cabinet headed by a Prime Minister (The Right Honorable W. L. Mackenzie King, M.P., who has held this appointment since October 23, 1935).

It might be pointed out that Newfoundland is not a part of Canada, and has steadfastly refused to join the Dominion. In fact, this island of approximately the size of Virginia was itself a Dominion until 1933. A severe

\*Quoted from the Statute of Westminster which formally ratified the declarations of the Imperial Conferences held in 1926 and 1930.

financial crisis made it suspend this status and only "for the duration" of that financial difficulty. Being the oldest English Colony, it has, with typical English stubbornness, fought to maintain its integrity. It won over 100,000 square miles of territory from Quebec in 1927. I believe we have much in common with them.

#### WAR ORGANIZATION

The "War Committee of the Cabinet" is the senior directive agency of the combat effort of Canada. Its chairman is the Prime Minister, with whom are associated the three "Ministers of National Defense," Navy, Army, and Air, and other senior Cabinet members. The "Defense Council" is the technical agency that supervises the war effort. Its members include the three defense Ministers, the Chief of the General Staff, the Chief of the Naval Staff, and the Chief of the Air Staff.

Before the present war broke out, the official title of the Army was "The Canadian Militia." This was subdivided into the Permanent Active Militia (Regular Army), commonly called the Permanent Force; the Non-Permanent Active Militia (National Guard); and the Reserve Militia (Reserve Corps). When mobilization was decreed, those portions mobilized were called the "Canadian Active Service

Force" (CASF). Recently this has all been consolidated into the Canadian Army (Active) and (Reserve). In the opinion of the writer, the war did one good thing in that it did clear up the nomenclature puzzle. For military purposes, Canada is divided into 11 Military Districts, corresponding to our Corps Areas. These are numbered from 1 through 13, excluding 8 and 9.

#### BRASS HATS

The General Staff Branch does not include the Adjutant General, the Judge Advocate-General, the Quartermaster-General, or the Master General of the Ordnance. The Chief of the General Staff is, however, charged with their coordination.

The General Staff Branch is organized in somewhat a similar fashion to our own. The whole is headed by a Chief of the General Staff who has two deputies, a Vice Chief of the General Staff and an Assistant Chief of the General Staff. The first mentioned has charge of training, communications, and the production of munitions and tanks. The last named deputy has charge of military operations and military intelligence, organization, mobilization and planning. Underneath the Chief of the General Staff are four directors: the director

of Military Operations and Intelligence, the Director of Staff Duties, the Director of the Military Training, and the Director of the Historical Section.

The Director of Military Operations and Intelligence has six sections in his division. Three are concerned with military operations, one with military intelligence, one with censorship, and one with geographic matters. The three military operations sections have the following duties: Section 1, home defense, internal security, and troop movements; Section 2, coast defense, antiaircraft, and policy planning of the Armament Joint Planning Committee; Section 3, overseas operations, liaison with press and radio censors, and policy and coordination of maps and surveys. The duties of the Military Intelligence Section are similar to our own. It has normal intelligence duties, codes and ciphers, censorship, and liaison with the Royal Canadian Mounted Police. The other two sections of the Military Operations and Intelligence Division deal with telegraph censorship, the production of military maps and the training of survey personnel.

The Director of Staff Duties has four sections in his Division. The first (A) is a general coordinating section that supervises joint effort by the General Staff. This is subdivided into two sections (SD1 and SD2). The first supervises the organization of units, personnel records, and overseas preparations, while the second is an inspector of training and, believe it or not, is charged with the "disposal of suggestions for winning the war." The second (SD3) is a financial and statistics section. The third (SD4) is a communication section dealing with all phases of communication problems. The fourth, SD (B), has supervision over both (SD5), organization and replacements, and the last (SD6) is a general policy section concerned with materiel.

The Director of Military Training subdivides his division into four sections, each of which deals with various arms and services. His supervision also includes the training of civilian technicians and reserve officers, the setting up of libraries, preparation of training manuals, translations and tactical training of combat and service units.

The Director of the Historical Section conducts general historical research, prepares reports of past campaigns, and collates war diaries and general historical data.

The Judge Advocate-General corresponds to our own. No further elaboration is necessary.

The Quartermaster General Branch includes what is called in our Army both Quartermaster and Engineer functions. It is subdivided into these two sections. The setup within each of these sections is, I believe, not worthy of detailed scrutiny, inasmuch as it corresponds very closely to our own. It is interesting to note that the Quartermaster General is aided by a deputy and has under him two directors: (1) the Director of Engineer Services, who is a Colonel, and (2) the Director of Supplies and Transportation. In decoding Canadian abbreviations it might be of interest to note the prevalent use of the term Deputy. The Director of Engineer Services has an assistant whose title is D.A.D.E.S. — "Deputy Assistant Director of

Engineer Services." The Director of Supplies and Transportation has a similar assistant whose title is D.A.D.S.T.—"Deputy Assistant Director of Supplies and Transportation."

The Master-General of the Ordnance corresponds to our Chief of Ordnance.

#### TACTICAL STAFFS

Throughout, organization, terms, duties, tactics, etc., correspond to British practice. Tactical staffs and the functioning of combat units are confusing to Americans, but a superficial explanation will, at least, give an American officer a limited comprehension of Canadian — and British—practices.

Tactical unit staffs are grouped, by functions, in similar fashion to our own G-1, G-2, etc. The "G Staff" (G-3) comprises, normally, one GSO1, two GSO2's, and three GSO3's. The GSO stands for General Staff Officer, while the numeral indicates his grade. First, second, and third grades correspond to Lt. Colonel, Major, and Captain respectively.

The "A" Staff (Exec. and G-1) and "Q" Staff (G-4) are normally combined in one head—the Assistant Adjutant and Quartermaster General (A.A.&Q.M.G.). Grades in this branch are not numerical, but are specifically "Deputies" and "Assistants." There may be several assistants to the A.A.&Q.M.G., one of whom in the "A" branch is a Deputy Assistant Adjutant General (D.A.A.G.), and the other in the "Q" branch is a Deputy Assistant Quartermaster General (D.A.Q.M.G.).

The "I Staff" (G-2) includes the Intelligence Officer (IO), and the Cipher Officer (CO).\*

The remainder of a staff will be, as is our own, a

\*The abbreviation for Commanding Officer is OC and he is referred to as the "Officer Commanding . . ."

## CANADA and her MILITARY ESTABLISHMENTS





*Top: Battle Dress, Army*

*Top: Second Lieutenant in Drill Uniform, Summer*

*Top: Sub-Lieutenant, Royal Canadian Naval Volunteer Reserve*

*Bottom: Flying Officer, R.C.A.F.*

*Bottom: Piper, 48th Highlanders*

*Bottom: Cameron Highlander*

hodge-podge of a Camp Commandant, and representatives of the Chaplains, Medical, Ordnance, and Provost Marshal Sections.

As a comparative figure, a division headquarters includes approximately 40 officers and 225 other ranks (OR).

Caution is hereby given that the comparisons I have made above between, for example, the "G Staff" and G-3 are to be taken only as general indications of similarity and *not* as even good classifications. The duties within each may vary tremendously, but I believe this generalized concept will aid in understanding the other Staff.

#### TABLES OF ORGANIZATION (WAR ESTABLISHMENTS)

Great difficulties are caused the American officer by Canadian unit designations. A Canadian brigade, for example, at times corresponds to our regiment, a battery to our battalion, etc. In the brief explanations which follow, only the more important dissimilarities between their and our organizations are noted.

#### INFANTRY

An infantry "brigade" corresponds to our regiment, it being composed of "battalions" and "companies." The men are armed with the .303 bolt-action Lee-Enfield magazine rifle; the Bren light automatic .303 machine gun; and the Boys .55 caliber antitank rifle. Included also in the armament is the .38 caliber "pistol-revolver" (as differentiated from the "pistol-automatic" in which class our Colt falls) and the Thompson sub-machine gun.

#### ARTILLERY

A "field regiment" of artillery corresponds to our regiment, but right here things suddenly run amuck. The "field regiment" is composed of "batteries"—which correspond to our battalions; and "troops"—which correspond to our batteries; and "sections"—which correspond to our platoons; and "sub-sections"—which correspond to our sections. To get some comparative order out of this chaos, the results of the above scrambling are tabulated below:

<i>United States</i>	<i>Canadian</i>
Regiment	Field Regiment
Battalion	Battery
Battery	Troop
Platoon	Section
Section	Sub-section

The basic weapon is the 25 Pounder. This is a 3.45 inch gun-howitzer with a maximum range of approximately 13,000 yards. It uses semi-fixed ammunition with 4 possible charges. It corresponds tactically to our 105-mm. howitzer.

#### ROYAL ARMORED CORPS

<i>United States</i>	<i>Canadian</i>
Regiment	Brigade
Battalion	Regiment
Company	Squadron
Platoon	Troop

The squadron is the final (basic) tactical, administrative and supply unit.

#### CAVALRY

After all the difficulties with the other branches, it is a pleasure to report that cavalry units correspond to our own. I regret to report further, however, that there is no cavalry.

#### SERVICE MINUTIAE

The Canadian Army has many customs and practices that are alien to our own. Some of the more obvious are listed below.

In Canada, as in Great Britain, the Navy is the senior service. Within the Army, first in order of precedence come "The Gentlemen Cadets of the Royal Military College of Canada," followed by:

2. The Royal Canadian Horse Artillery
3. The Royal Canadian Dragoons
4. Lord Strathcona's Horse (Royal Canadians)
5. The Governor General's Horse Guards
6. Regiments of Cavalry and Cavalry (Armoured Car), etc.

These are certainly more inspiring than our "281st FA."

Warrant officer and noncommissioned officer grades correspond to our own, with the exception that warrant officers have a specialty which normally applies to combat units. That is to say, in addition to being band leaders or quartermaster property clerks, etc., a warrant officer, class one, might also be a master-gunner, 1st class; a farrier sergeant-major (horse shoer); regimental sergeant-major; topographic surveyor sergeant-major; etc. These men hold the rank of warrant officer with an appointment qualified under the specialties indicated. In addition to the noncommissioned grades there is one which is not officially recognized in our Army, but which certainly could apply, namely the rank of "Boy."

Their attitude towards marriage is more practical than ours. "No subaltern officer may marry unless he has four years' service as an officer in the Permanent Force, has obtained his qualifications as a Captain and has satisfied his commanding officer that he has private means sufficient to supplement his pay and allowances to an amount equal to the total emoluments at the lowest rate of a Captain on the married establishment. He will not, however, be entitled to be placed on the married establishment until he is 28 years of age or becomes eligible under any of the other provisions of this paragraph." These restrictions are not, however, applied in wartime.

BADGES of RANK AND  
DISTINCTIVE BADGES for OFFICERS

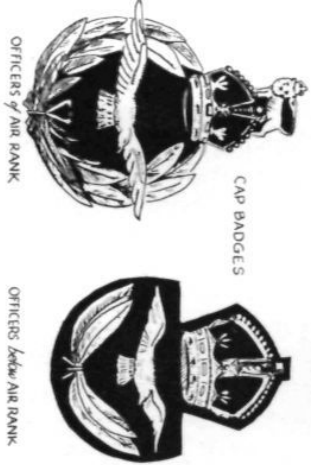
# ROYAL CANADIAN AIR FORCE

NON COMMISSIONED OFFICERS  
AND AIRMEN

OFFICERS PEAKS



CAP BADGES



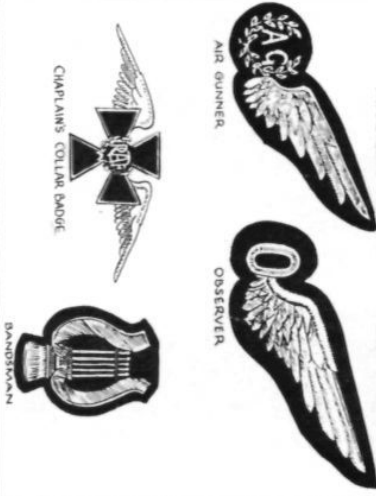
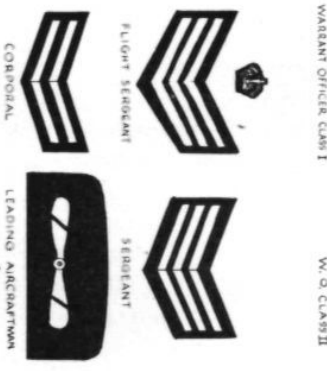
PILOT BADGE



CHAPLAIN'S CAP BADGE

Showing Corresponding Ranks in Royal Navy, Army & R.C.A.F.

ROYAL NAVY		ARMY		ROYAL CANADIAN AIR FORCE	
<p>THROUGH OFFICERS RANK : ROYAL AIR FORCE : : : : :            THROUGH OFFICERS RANK : ROYAL AIR FORCE : : : : :            THROUGH OFFICERS RANK : ROYAL AIR FORCE : : : : :</p>					
	ADMIRAL OF THE FLEET		FIELD MARSIAL		MARSHAL OF THE ROYAL CANADIAN AIR FORCE
	ADMIRAL		GENERAL		AIR CHIEF MARSHAL
	VICE-ADMIRAL		LIEUTENANT-GENERAL		AIR MARSHAL
	REAR-ADMIRAL		MAJOR-GENERAL		AIR VICE-MARSHAL
	COMMODORE		BRIGADIER		AIR COMMODORE
	CAPTAIN		COLONEL		GROUP CAPTAIN
	COMMANDER		LIEUTENANT-COLONEL		WING COMMANDER
	LIEUTENANT-COMMANDER		MAJOR		SQUADRON LEADER
	LIEUTENANT		CAPTAIN		FLIGHT LIEUTENANT
	SUB-LIEUTENANT		LIEUTENANT		FLYING OFFICER
COMMISSIONED GUNNERS, BOATSWAINS, AND THEIR EQUIVALENT RANKS (DISTINCTIVE BADGE AS SUB-LIEUTENANT)			SUB-LIEUTENANT		PILOT OFFICER



Discharge character ratings are quite different from ours in that they go from Exemplary through Very Good, Good, Fair, Indifferent and Bad, to Very Bad. Thus Very Good character corresponds to our Excellent in that their Exemplary would correspond to our Superior.

Their attitude towards strikers and orderlies is extremely realistic. Soldier-servants may only be selected from those who have done duty in the ranks of a dismounted corps for one year or of a mounted corps for 18 months. While doing duty as a soldier-servant they mount and perform their share of guard duty. They are required to qualify each year in musketry and are liable to such other training as the commanding officer may deem necessary. Most unusual to American minds is permission for soldier-servants to accompany their officers "whilst" on leave. During this period the soldier is carried on his morning reports as "servant to officer absent." No expense, of course, is permitted to devolve on to the Government. Warrant officers and squadron and battery quartermaster-sergeants, sergeants and farriers of the mounted services pay their orderlies 50c per week, while trumpeters are required to pay only 25c per week.

Uniform regulations include permission for all ranks, when not on duty, to wear national flowers or emblems on their uniform headdress on the days specified hereunder:

<i>Occasion</i>	<i>Emblem</i>	<i>By Whom Worn</i>
Dominion Day	Maple Leaf	All.
St. George's Day	Rose	Personnel of English descent.
St. Andrew's Day	Thistle	Personnel of Scottish descent.
St. Patrick's Day	Shamrock	Personnel of Irish descent.
St. David's Day	Leek	Personnel of Welsh descent.
St. Jean Baptiste Day	Maple Leaf	Personnel of French-Canadian descent.
Remembrance Day	Poppy	All.

Documents and correspondence are qualified with different categories from our own. In general they compare with those used by our Army as shown below:

<i>U. S. Army</i>	<i>Canadian Army</i>
Secret	{ Officer only Most secret Secret
Confidential	Confidential
Restricted	{ Not to be published For official use only.

RANK

Rank in the Royal Air Force and the Royal Canadian Air Force has caused great difficulties with most Americans. The following table gives the corresponding ranks of all three services. It is pertinent to point out that a proper rank in both the Canadian and British Army is that of Brigadier. It is not properly called Brigadier General, even though it corresponds to that rank, and persons holding the rank are never correctly addressed verbally as "General."

<i>Army</i>	<i>Navy</i>	<i>Air Force</i>
Field Marshal	Admiral of the Fleet	Marshal of the Royal Canadian Air Force
General	Admiral	Air Chief-Marshal
Lieutenant-General	Vice-Admiral	Air Marshal
Major-General	Rear-Admiral	Air Vice-Marshal
Brigadier	Commodore (1st and 2d Class)	Air Commodore
Colonel	Captain	Group Captain
Lieutenant-Colonel	Commander	Wing Commander
Major	Lieutenant-Commander	Squadron-Leader
Captain	Lieutenant	Flight-Lieutenant
Lieutenant	Sub-Lieutenant	Flying Officer
Second-Lieutenant	{ Acting Sub-Lieut. Commissioned officer from warrant rank }	Pilot Officer, Acting Pilot Officer (but junior to army and navy ranks).

The Air Force is very touchy on abbreviations, and insists that anyone addressing a Squadron-Leader as "Leader," or a Group Captain as "Captain," etc., is discourteous. After the newness has worn off, I believe they will accept such shortcuts as have the other services. It is *not* correct, however, at present. Flying Officers and Pilot Officers are addressed as "Mister."

THE WAR RECORD

In active service in the British Isles today are 80,000 Canadian soldiers, sailors and airmen. The total in uniform today both in Canada and abroad is 420,000. If the United States had as proportionately great a number under arms we would have an army of 2,750,000.

Canada is spending about 40 per cent of its national income on war. The United States' equivalent appropriation for this year would be over 30 billion dollars.

Canada is not fooling about this war any more than she was about the last. Vimy Ridge is a tradition that Canada will live up to. She has never yet failed—and does not intend to.

GLOSSARY OF ABBREVIATIONS

A.F.V.	Armored fighting vehicle — tank, armored car, or what have you
Bde.	Brig.
Bty.	Btry.
C.C.S.	Casualty Clearing Station
Code Names	Used always in sending messages. Think of the advantages of addressing a message to "BLOOM" instead of to "The Officer Commanding. The Green Howards (Alexandria, Princess of Wales Own Yorkshire Regiment)."
Coy.	Company.
Cruising Speed	The speedometer speed over open sections of road and is expressed in miles per hour.
Dates	Written as ours, e.g., 19 Jun 41, except that months are abbreviated by using the first three letters only.
F.O.O.	Forward Observation Officer (Artillery)
G.O.C.-in-C.	General Officer Commanding in Chief
Imprest	An advance of public money, e.g., payment of troops or local purchases.
Meteor Report	Meteorological Message
Mobilization Store Table	Table of Basic Allowances
Petrol	Gasoline plus lubricants
P.M.	Provost Marshal
P.P.	Petrol Point—Gasoline and lubricant dump
Pro. Coy.	Provost Company
Pte.	Pvt.
R.C.A.S.C.	Royal Canadian Army Service Corps (QM Maint. & amm)
R.V.	Rendez-vous

Signals	Communication (referred to as "Signals" in the same manner as we say "Communications Officer" or "Signal Corps"; Thus "ComO, 3d Bn" is "Sigs 3 Bty"; also synonymous with the word "Message"; Thus the expression, "I have just received a signal from . . .") L/T—Line telegraphy and telephony W/T—Wireless telegraphy R/T—Radio telephony V/T—Visual telegraphy DRLS — Despatch rider letter service (regular msgr, routine service) Types of Priority of messages MOST IMMEDIATE—Used only by C-in-C of Army (No U. S. equivalent) EMERGENCY OPERATIONS (URGENT) IMMEDIATE (URGENT) IMPORTANT (PRIORITY)	Sjt. Sortie Speed Time: Tps. W.E. X. rds.	Sgt. (written "Serjeant" tool—but being replaced by "Sgt.") Performance of one task by one aircraft. Average speed of a motor column over a route including time spent for short halts. It is expressed in (m.i.h.) "miles in the hour." Corresponds to our "rate." The 24-hour system, as used by our Navy, e.g., "0001 hrs" one minute past midnight. "1200 hrs" noon. "1640 hrs" 4:40 PM. Troops War Establishment—Tables of Organization for Mobilization. CR
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During a march one Christmas a section of R.H.A. had to cross a drift which, in normal times, was easily fordable. On this occasion, owing to recent rain, the water had risen almost to the flaps of the saddles.

Having reached the far side successfully, the section halted to check numbers. One gunner was reported missing. The Section Commander and a No. 1 went back to the drift and met the gunner, very wet, leading his horse.

*No. 1:* "What happened to you—did you come down?"

*Gunner:* "No, I was afraid I might get wet, so I walked through and led my horse!"

—*The Gunner.*

### Proposed Amendments to the Constitution, U.S.F.A. Association:

TO THE SECRETARY, UNITED STATES FIELD ARTILLERY ASSOCIATION, WASHINGTON, D. C.

1. *Amendment to the Constitution.* The committee appointed by the President at the annual meeting December 16, 1940, proposes that the Constitution of the United States Field Artillery Association be amended as follows: (suggested changes are italicized)

ARTICLE V. Combine sections 3 and 4 to read: *Active and associate members shall be entitled to receive the JOURNAL without payment other than the annual dues.*

ARTICLE VI, Section 1—The Executive Council shall be composed of nine active members, five of whom shall be officers of the regular army, two officers of the *National Guard* and two officers of the Field Artillery Section of the Officers' Reserve Corps, to be elected biennially for a term of two years by a majority vote; *such majority vote to consist of a majority of active officers present or represented by written proxies at a meeting of the Association.* The Council shall hold its meetings at the headquarters of the Association, which shall be in the city of Washington.

ARTICLE VII, Section 1—The regular meetings of the Association shall be held annually at Washington, D. C., or at such other place as may be designated by the Executive Council, who shall also prescribe the time of meeting and *give at least thirty days' notice of same, by publication in THE FIELD ARTILLERY JOURNAL or by such other means as the Council may prescribe.*

ARTICLE VII, section 3—Special meetings may be called by the Executive Council, upon written request therefor signed by twenty members. At least thirty days' notice thereof shall be given in THE FIELD ARTILLERY JOURNAL, or by mail, to active members. The object of the meeting shall be stated in the request and in the notice.

ARTICLE VII, Section 4—*The number of active members present at a meeting or represented thereat by written proxies, shall constitute a quorum, except as provided in Article IX.*

2. *Reasons for the amendments.*

a. Sections 3 and 4 of Article V should be combined as indicated to permit the Association to augment its income by publishing books or pamphlets (if so desired) for profit.

b. The reasons for the other changes are as follows:

(1) It has now become practically impossible to obtain a quorum, which, according to the Constitution as now written, must consist of fifty per cent (by proxy) of all active members in the United States. This failure to secure a quorum arises because erroneous mailing addresses or frequent changes in address prevent proxy cards from reaching many members; and also because many members fail to return signed proxies.

(2) The proposed changes will obviate the necessity for sending out proxy cards. This will save the Association \$100 (or more) annually. No member who desires to vote will be deprived of his vote; he still will receive due and timely notice in the JOURNAL, and will still have the privilege of sending in his proxy if he so desires.

(3) In effect, and in brief, the changes will merely mean that all members and proxies on hand at a meeting will be counted, and a majority of this count will constitute a majority vote.

(4) There is no change in the authority of the Council, which will still continue to administer the affairs of the Association as in the past.

3. In accordance with Article IX of the Constitution, we (members whose signatures are appended below) accept the report of the committee, and propose that the foregoing amendments be made to the Constitution.

R. M. Danford; W. C. Potter; I. T. Wyche; Thomas North; J. V. Phelps; M. McClure; Rex Chandler; J. A. Stewart; J. F. Uncles; Rex W. Beasley; Stuart L. Cowles; John B. Anderson; David S. Rumbough; J. A. Lester; L. M. Riley; H. E. Maguire; Townsend Heard; B. M. Sawbridge; C. G. Helmick; I. Spalding; B. M. Bryan; A. W. Waldron; J. W. Mackelvie; A. F. Kibler; I. L. Foster; A. C. McAuliffe; F. A. Henning; John H. Hinds; L. Whitlock.

# FORT BRAGG, 1941

**Major General Jacob L. Devers, who commanded Fort Bragg and the 9th Division during their period of expansion.**



**By  
Private  
V. H. Polachek**

Not long ago I reread George Kaufman's "You Can't Take It With You" and its tale of the Sycamore family with its whirling dance girl, its explosive chemist, its prating grandpa, and pie-eyed scribe. It seemed to me that this household was strikingly like Fort Bragg, 1941.

For, when you think of it, Bragg's mixture of automatic rifle units, antitank and pack-howitzer units, motorized and horse-drawn artillery units, infantry alongside 240-mm. gunners, and blimp operators alongside Spanish teachers is not far less uproarious than that Sycamore mixture.

And the similarity goes farther. A close-up view of Bragg shows you that Fort Bragg units have the essential Sycamore quality: They are interested in their own doings, and oblivious of their neighbors.

But do not misunderstand this. The Sycamore family were nuts; Fort Bragg units are not. Fort Bragg units are all specialist-enthusiast groups. That is their peculiarity. Like the playwright's household, Fort Bragg's doors are open to any military specialist group. Yale University psychologists were here last week studying "night vision." In November two Armored Divisions will be here with their tanks.

Fort Bragg welcomes their entrances, but never notices their departures.

The truth of the matter probably is that the Fort Bragg of today is closely similar to what an entire modern army must be nowadays: an assembly ground for groups of doers and thinkers in a hundred dissociated lines of activity—where each group minds its own business!

But you should know something of Fort Bragg's size and background if you are to understand the monster thoroughly.

Two brothers who came here recently from South Carolina landed in different regiments. After a deal of vain searching, one of them wrote his mother to ask how to locate his brother.

Such things happen here daily, for good reason. Fort Bragg today is the third largest city in North Carolina; and nobody at Fort Bragg knows which are the other two cities.

Fort Bragg lies in the upper Cape Fear River country, whose history is a series of footnotes to troubled eras. The first settlers were Scottish adherents of Bonnie Prince Charlie who fled Britain after the 1745 uprising. To this day Scottish names dominate the country. Fighting of a fiercely disorganized kind caught up with these Scotsmen near Fort Bragg during the American Revolution. Yet the name of nearby Fayetteville, in memory of Lafayette, testifies that organized Revolutionary armies also came this way.\* As the Civil War was closing, Sherman burned the Fayetteville arsenal and skirmished near Fort Bragg. That much is for the book.

Camp Bragg opened as an army post in 1918. It took its name from Captain Braxton Bragg, history-book artillery hero of Buena Vista, and one of the eight full generals of the Confederate States. At first Camp Bragg was little more than a grouping of rickety barracks on a huge artillery firing range. Later it became a medium-sized

\*Cornwallis retreated through what is now part of the reservation, in 1781 after the Battle of Guilford Court House.—Ed.

army post, beautiful with wisteria and dogwood, imposing with substantial barracks, and charming with homes as delightfully landscaped as in a country club setting.

Today Fort Bragg is menacing! It is menacing in size. It is menacing in the consciousness of that size; and in the grim realization of what its great size and potential may mean in a world like today's.

Even though you have heard before of Fort Bragg's turbulent five months of growth last winter, see this story again! See it now in the simple way it was written recently in the eyes of an 80-year-old native who trudged over one of the new streets of the new Field Artillery Replacement Training Center.

As he viewed the endless rows of glistening white barracks, the trim red clay of the drill fields, the motor parks bristling with guns, trucks, and munitions carriers, he stopped a selectee from among the crowds who scurried by him in the street. "Son, this is the first time I've seen any of this," he said. "Does it mean to you what it means to me?"

That was all this old dotard said to the young soldier. But, when he raised his thin arm towards the guns, barracks, and drill fields, the selectee could see a pale film cover his eye. It seemed to mirror all the scrubby black jacks, pines, and hills which had so recently preceded our modern military city. It told the story of the old man's pure wonderment, so the young soldier reported, better than ten thousand words could have done.

In a different tone, one disgruntled enlisted man of the 17th Field Artillery complained last week of losing a pair of socks in his bundle of wash which had just been returned from Fort Bragg's new Quartermaster Laundry. It so happens that this new laundry is one of the largest in the world. At full tilt, it will handle over 50,000 bundles each week for Fort Bragg. That is what Fort Bragg sees: that the laundry is here, that it operates—and that it operates many hundred miles away from any similar mass production. Fort Bragg says damn to the lost socks. Fort Bragg is proud of the many mountainous achievements like

this which lie everywhere over this landscape.

Other things here provoke different damnations. If you want quarters "on the post" nowadays, the billeting officer eyes you like a naive young schoolboy. As likely as not, your wife, children and you will soon be ensconced some 25 or 50 miles away. Tourists may find Southern Pines and Raleigh slightly out of Bragg's way. But that is where you had best consider househunting if you work here nowadays.

Or you may not like what Bragg's boom has done to Fayetteville. Its prices are higher. Red and green neon has made lovely old Hay Street look tawdry. And the city's charming outskirts have dirtied with the mushroom appearances of cheap squatters' camps.

Or Fort Bragg's heavier traffic may annoy you. Through our area runs the Fayetteville-Sanford Highway, today the most heavily traveled thoroughfare in North Carolina. With all its fine cement, you often feel it is leading you backwards.

But the good and bad here must be taken together for what they are: evidences that we have provided for nearly five times our last year's number of people, some 60,000 in fact! And evidences, also, that these people are already with us!

What are they doing? What is Fort Bragg doing?

The whole answer to this question presents the most starkly serious narrative which is now being lived in contemporary American life.

In the *Fort Bragg Post* a recent headline asked: "Who is graduating, the selectees or the colonels?" Written as a piece of would-be humor, that headlined question pointed to the very nub of what we are attempting here. The question was asked for the sole reason that even before the first training period had ended at the Replacement Center, nine lieutenant colonels were being sent away. Eight of them were going to other locations on the Fort Bragg reservation. All these eight were to staff either enlarging or newly formed artillery units at this post. . . . Yes, that is why we were moving high officers: to create more Army at Fort Bragg. And that is why the



*Brig. Gen. R. E. D. Hoyle, 9th Division artillery officer, acting division commander.*



headline hit such a bull's-eye: because the creation of more Army is Bragg's 1941 purpose.

Was Fort Bragg once simply an artillery post? Well, in every sense of the word it is still a very powerful sort of artillery post today.

Its new 16,000 strong Replacement Training Center is completely artillery. Its two new regiments of 105-mm. howitzers which have just been activated will also be

officers and men; and you know the variety of fighting units which such divisional staffs carry.

Besides this, there are two complete medical regiments, and a field general hospital.

Also, Fort Bragg has a general service regiment and a separate battalion of engineers.

Moreover, Fort Bragg's air corps at Pope Field is not exactly negligible. It has one of the only squadrons of



Life

completely artillery. The artillery here also has:

- 3 complete motorized regiments of 155-mm. howitzers and guns
- 1 motorized regiment of 240-mm. howitzers
- 1 regiment and 1 battalion of 75-mm. guns, horse-drawn
- 2 battalions of pack artillery
- 3 observation battalions

Also, Fort Bragg has three regiments of anti-aircraft guns which classify as Coast Artillery.

But let me tell you: much more than artillery can today be seen in this village of fire power.

There is the complete Ninth Division, some 15,000

observation balloons in America. It also has a squadron of twelve observation planes. And, by the time you read this, Pope Field will have six new barracks. These will house two flying tow-target squadrons.

Yet, more interesting than their assorted designations is the variety of chores all these different organizations perform. No longer does Fort Bragg artillery simply shoot field guns; nor does Fort Bragg infantry limit itself to marching and firing rifles. There are camouflage maneuvers, gas maneuvers, moving target problems, tank barrier rehearsals, anti-tank firing drills, night anti-aircraft searchlight problems, radio-conducted convoy tests, blackout night driving, pontoon bridge building, machine



### INSPECTION OF FULL FIELD EQUIPMENT

*The top soil of Fort Bragg is sandy, because the terrain is part of the Atlantic coastal plain, which thousands of years ago was under a shallow sea. The reservation is forested with several varieties of pine, many of which have been left standing to provide shade in parts of the cantonment areas. The new wooden buildings have all been painted white, and the grounds are neatly kept; this post should present an attractive appearance for years to come—in pleasant contrast to the old cantonments after the World War.*

Life

### FROM JEEP TO JUMBO

*Major Kurtz (in the Jeep):  
"How's the weather up there?"*

*The prime mover towing the 155-mm. gun is one of the many experimental vehicles tested by the Field Artillery Board.*



Life



Life

salvaging, and at least a thousand other exercises in modern military dexterity. To picture the true 1941 Fort Bragg, you are asked to visualize all these countless activities in simultaneous progress on the reservation nearly every day of the year. Picture observation planes testing the camouflage attempts of a gun battery in the field. Picture signalmen, in rehearsal of a communications breakdown, relaying their fire orders by flag. Then multiply this impression by any three-figure number you choose.

Perhaps the image of Fort Bragg's throbbing beehive of steel can best be grasped in terms of space. Our reservation occupies some 450 square miles. Settled areas fill less than one-twentieth of that ground. The rest is all play-field for fighting

units. Still, had you driven with me into Fort Bragg's south woods last week you might not have believed your eyes. Four hundred and fifty square miles might seem enough ground for the entire American Army. Yet, enough

congestion existed in those south woods to remind you of 5th Avenue and 42d Street. Only here was congestion of prime movers towing 8-inch howitzers, of tractors towing the 155's, of 75's moving behind "four by fours," and of "jeeps" plowing through with 37-mm. guns on behind. The sight would have gladdened the heart of the most ardent militarist.

The fact is, Bragg's boundaries come nowhere near accommodating our energies. As this is written, the Ninth Division's 60th Combat Team is 250 miles away in Bowling Green, Va., in



*At Bragg (so we understand) they are mounting 8-inch howitzers in jeeps. Even the balloon appears surprised.*

combat maneuver with Ft. Dix's 44th Division. Our 67th Coast Artillery is down in Windy Hill, South Carolina. Every day some outfit pushes off to some destination. Some move for the day to the large Overhill Section of the Rockefeller Estate to the north of us. Others lug their work kits to the pines of the Carolina seashores. Officers are touring the countryside at this very moment begging the Carolina farmers for trespass rights to their property. This summer we plan to play even more widely than we have done before.

Of course this is only part of Bragg's story. The troubles of those old Western pioneers who used to beat their supplies to camp by two months have been partly ours. And sometimes we have thought our advancement might have been greater had there been fewer illiterates to dilute the first selectee batch



### THE GUNS OF BRAGG

"Fort Bragg is named for the U. S. captain, not the Confederate general."

General Zachary Taylor On Buena Vista's field

Watched the Mexicans come on, As  
"Charge!" the bugles pealed.

Where on the ridge a battery Unlimbered,  
took its stand,

Young Braxton Bragg, a Southerner, Heard  
Old Zach's sharp command.

"A little more grape. Captain Bragg,"—That's  
what the textbooks tell—

But what he roared was. "Double-shot Your  
guns and give 'em hell!"

Out blasted grape and cannister, Sweeping  
the charge away.

On stormed the blue-clad battle line To win  
that hard-fought fray.

Along the Rio Grande, Enmity we forget.

The U. S. A. and Mexico Face firm a common  
threat.

Healed is the rift between the Blue And the  
Gray Bragg later wore.

His name is on a far-flung fort The Stars and  
Stripes waves o'er.

There pack artillery, howitzers, Mortars, and  
field guns mass,

Ready to shell a foe from woods Or hold a  
mountain pass.

In time of need artillerymen, Like Bragg will  
hearken well

To a brave echo: "Double-shot Your guns  
and give 'em hell!"

FAIRFAX DOWNEY

poured in to us. But on the whole we haven't complaints.

The 450 - mile haven of specialist enthusiasts which Bragg is becoming is what we wanted it to be. And, in case you think one sweet dream which army men have had for years is impossible of fulfillment, let me tack this final spike to the record.

The only outcry of "too-little-to-do" which this modern military post has had has come from our trainee-clerks! Yes, this 1941 Fort Bragg must be moving away from its desks, up on its legs, into the fields — and onto its toes! And that is something real!

For, to my mind, the sight of the paper men all caught up with their work, and finally idling, is the one true sign we may really be making armies at Fort Bragg.

# WITH THE OTHER ARMS AND SERVICES

**Editor's note: Here is the fourth of a new series, each of which will describe one of the other arms and services. The complete series, together with articles on the War Department, General Headquarters, etc., will constitute a valuable hand book on the Army as a whole; so we suggest that readers preserve each issue of the Journal containing this series.**

The Ordnance Department, with its large force of technical experts and specialists, furnishes and keeps in repair the tools with which the Army fights. In all its work, the Ordnance Department cooperates closely with the fighting arms to give them the best and most powerful tools of war. The important part that mechanized units and superior firepower are playing in the war abroad indicates how necessary it is that the Army of the United States be adequately equipped with efficient weapons in ample quantities. The Ordnance Department is charged with this great responsibility, and is furnishing the required materiel in ever-increasing quantities.

This materiel includes rifles, pistols, machine guns (for troops, tanks, and airplanes), trench mortars, hand grenades, antiaircraft guns, antitank guns, cannons, bombs, ammunition, tanks, armored cars, scout cars, instruments for controlling and directing the fire of weapons, and pyrotechnics for signaling purposes—a total of 1,200 separate items.

It is the responsibility of the Ordnance Department to design, develop and obtain (either by manufacture or procurement) these weapons and the ammunition for them. The Ordnance Department also stores, repairs, and maintains the large amounts of Ordnance materials kept on hand in peace and in war, distributes them to the various arms and services, and helps the fighting arms to take proper care of the weapons in their hands. The work of improving old weapons and developing new ones is another important function of the department.

## ORGANIZATION OF THE ORDNANCE DEPARTMENT

Two of the principal groups of the Ordnance Department are Industrial Service and Military Service. The Industrial Service, which includes the arsenals and district offices, is charged with the designing, developing, producing, procuring and inspecting of ordnance materiel. Military Service supervises and controls the storage, issue and maintenance of ordnance materiel as well as rendering technical advice and testing.

### INDUSTRIAL SERVICE

*Manufacturing Arsenals.* The Ordnance Department maintains six manufacturing arsenals as follows:

FRANKFORD ARSENAL, Philadelphia, Pennsylvania: Besides turning out small-arms ammunition, Frankford makes shells and precision fire-control instruments for artillery. Its acoustics laboratory is working on the development of antiaircraft listening devices.

PICATINNY ARSENAL, Dover, New Jersey: Specializing in the development of explosive compounds and substitute explosives, Picatinny also had the huge job of planning in advance the government's tremendous munitions-plant program.

ROCK ISLAND ARSENAL, Rock Island, Illinois: This arsenal serves as the principal control laboratory for materiel - acceptance tests and for solving production problems, in addition to developing and making such items as tanks, mobile artillery carriages, and gun mounts.

SPRINGFIELD ARMORY, Springfield, Massachusetts: Specializes in small arms such as pistols, rifles, and machine guns. It is also the home of the famous Springfield rifle and the

new semi-automatic Garand.

WATERTOWN ARSENAL, Watertown, Massachusetts: Here the Ordnance Department maintains its metallurgical research laboratory and makes railway, seacoast, and antiaircraft cannon and carriages.

WATERVLIET ARSENAL, Watervliet, New York: This arsenal makes cannon ranging from 37-millimeter to the gigantic 350,000-pound 16-inch seacoast guns.

These arsenals have operated on a skeletonized basis since the end of the World War, but today are at their all-time peak. On July 1, 1938, the total number of employees at the six arsenals was approximately 10,000. Now there are more than 40,000.

The major part of the Ordnance equipment and ammunition authorized by the Congress during the "lean" years was produced by these arsenals. This production, though small, served to keep alive the knowledge and skill required in Ordnance manufacture.

The arsenals have played an important part in educating private industry to produce highly technical items of equipment and ammunition. Descriptions of manufacture for the use of prospective wartime producers were prepared by the arsenals and by industry. These descriptions graphically portray the equipment and



## IV—ORDNANCE

methods necessary to produce various items of Ordnance materiel. In the present emergency they have proved of inestimable value in speeding up the change-over from the manufacture of standard commercial products to specialized Ordnance materiel.

In 1940 and again in 1941, funds were made available for new arsenal machinery and equipment. This machinery is installed and in production.

*New Manufacturing Facilities.* The Ordnance Department has long recognized that new production facilities would be required for certain highly technical items and processes for which facilities are practically non-

Districts. These districts cover the entire country, their areas varying with the amount of industry located within their boundaries. The districts were reactivated shortly after the World War and were operated on a skeletonized basis continuously until the spring of 1939, when expansion began. They have been of inestimable aid to the Department in maintaining contact with industry and in assuring that the Ordnance Department and industry were in accord in planning for the procurement of materiel in an emergency. Today the districts form the basis of the Department's far-flung procurement efforts.

The armament requirements of the prospective wartime



*The 75-mm. cannon makes the new medium tank M3 a formidable weapon*

existent in civilian industry. These include such critical materials as smokeless powder, TNT, ammonia, and small-arms ammunition, as well as plants for loading artillery ammunition. For years plans have been made for the production of these critical items and materials in an emergency. In July, 1937, special sections were established for speeding up the preparation of plans for the production of smokeless powder, ammonia, small-arms ammunition and TNT, as well as for shell loading. The construction and equipment of these new manufacturing facilities has been rushed.

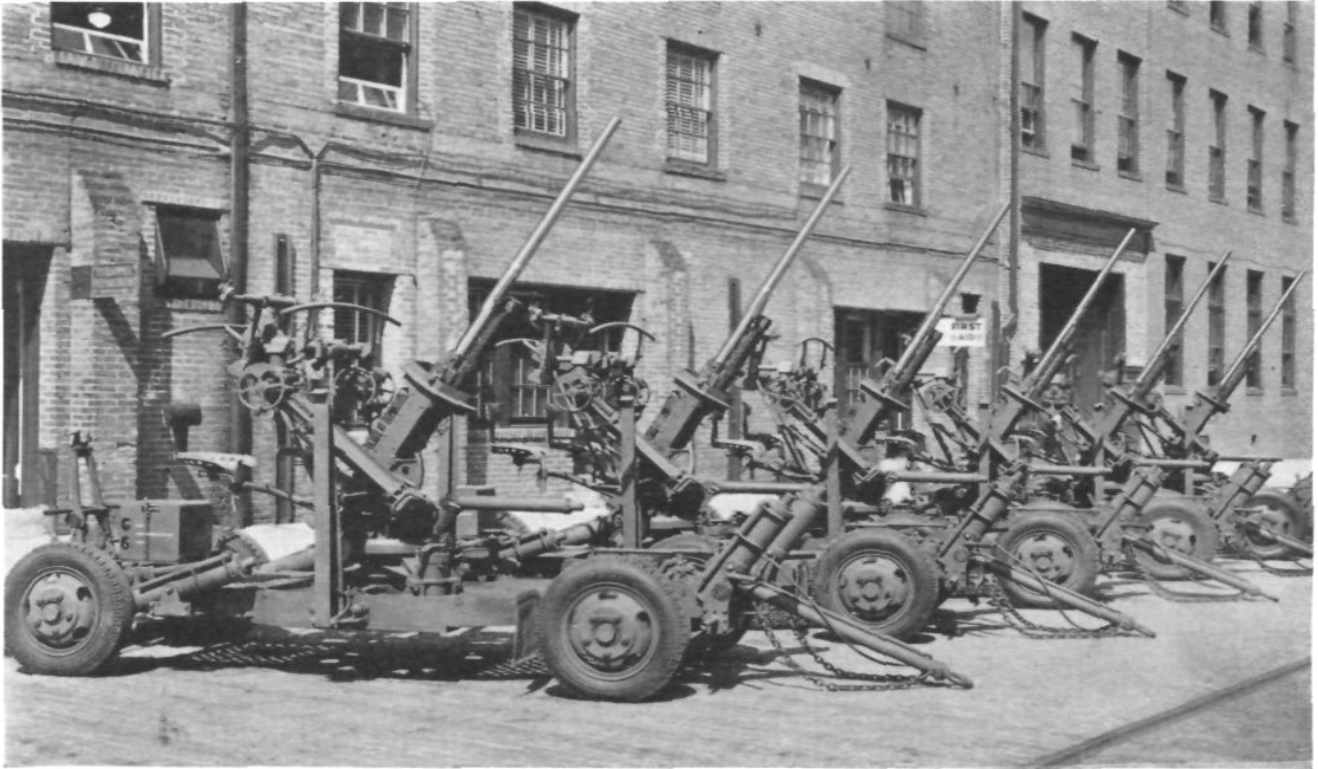
*The Ordnance District System.* During the World War the Ordnance Department's procurement plan for private industry was so vast that it was found necessary to decentralize procurement to Ordnance Procurement

Army were apportioned to the thirteen districts, paralleling industrial activity located within the District boundaries. This apportionment of load was followed by surveys of plants to determine those best adapted from the standpoints of equipment and management to meet production requirements. These selected plants were then allocated to the Ordnance Department by the Under Secretary of War.

District Chiefs and their Assistants are selected because of their intimate knowledge of industrial conditions within the Districts' boundaries. They, with their advisory boards, have served the Government ably during the planning years and are carrying on today, not only in planning but in the great procurement, inspection and production activities.

The increase in Ordnance appropriations for 1939 and





*Air defense and attack are major considerations in industry's rearmament effort. Above are 37-mm. anti-aircraft guns on carriages manufactured by the Bartlett Hayward Division of the Koppers Company at Baltimore, Md. Harrisburg Steel Company is making 100- and 500-pound aircraft bombs for the Army—part of its 100-pound bomb line is shown below.*





1940 required the arsenals to replace orders with industry in greater quantities. As a result, the inspection work involved (which up to this time had been carried out by the arsenals) was placed in the hands of the Districts in order to start building a corps of District Inspectors, so important if any emergency should develop.

#### MILITARY SERVICE

*Field Service.* Ordnance personnel are stationed at the general depots of the Army (where supplies of all kinds, including ordnance materials, are kept), at the manufacturing arsenals, at the proving grounds, and at supply depots of the Ordnance Department. An ordnance service company is stationed at each corps area headquarters and at the United States Military Academy. There are ordnance companies with the armies, army corps, and divisions at the various Army posts, including the overseas stations. Ordnance service is also provided for the Army Air Force and Armored Force.

There are three principal types of Ordnance companies: (1) Ammunition companies, trained in the storage and handling of ammunition; (2) Depot companies, trained in the operation of storage depots for general ordnance supplies; (3) Maintenance companies, trained in the repair and salvage of ordnance materiel. Maintenance companies are equipped with machine tools, welding equipment, and repair materials.

In peacetime the ordnance companies are assigned to divisions, corps and armies. An ordnance battalion, consisting of three maintenance companies is included in each Army corps, while an ordnance maintenance and supply battalion, consisting of three maintenance companies and a depot company, is included in each Army. In addition, there are two ordnance ammunition battalions, consisting of three ammunition companies each, included in each field Army.

In wartime, the ordnance companies in the theater of operations are employed in maintenance work and in operating the various depots and distributing points for general ordnance supplies and ammunition. They are assigned as special troops in the Army organization, down to and including the division.

Companies are trained, and, in so far as is practicable, operate in the performance of ordnance service along the lines that would be required in the field in time of war.

The Ordnance Training Center at Aberdeen Proving Ground, Maryland, provides the United States Army with trained men and companies of men to maintain and handle the supply of ordnance equipment and ammunition for all branches of the service, wherever they may be. Two other smaller Unit Training Centers are located at Raritan Arsenal, Metuchen, New Jersey, and at Savanna Ordnance Depot, Proving Ground, Illinois.

The Ordnance Training Center at Aberdeen consists of three separate and distinct units (the Replacement Training Center, the Unit Training Center, and the Ordnance School) training up to twelve thousand men at a time.

The process of training begins when the Trainees who have been earmarked for the Ordnance Department arrive from the reception centers. These men are placed in the Replacement Training Center, where they receive intensive training in the basic school of the soldier and then general training in the special work of the Ordnance soldier.

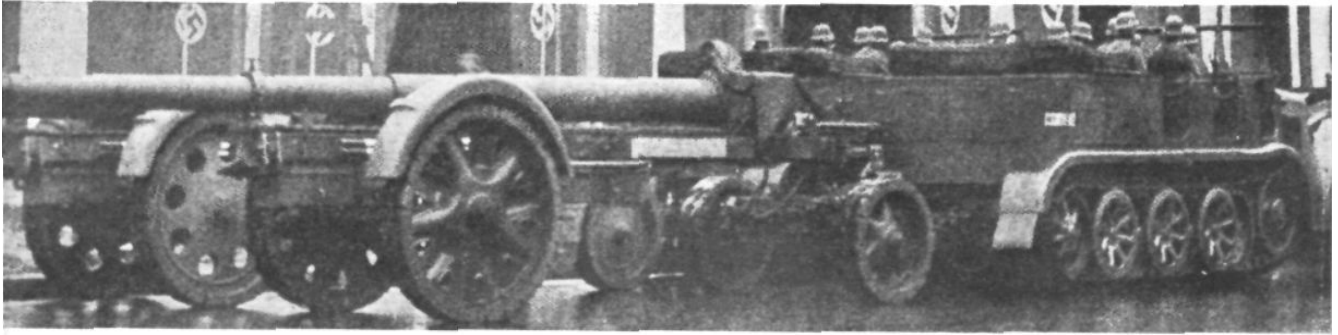
After the first thirteen weeks, the Ordnance Replacement Training Center supplies replacements of trained men to the Ordnance troop units in the field, and also supplies fillers for newly activated companies at Ordnance Unit Training Centers.

In the Ordnance Unit Training Center, new Ordnance companies are formed about trained cadres, and are given three months of intensive training as an organization, before being ordered out to serve as a group with one of the field armies, or with the Air Corps.

The third section of the Ordnance Training Center—The Ordnance School—provides individual instruction in refresher, basic, and specialist courses. The student body consists of specially selected officers, members of the Regular Army Reserve, enlisted cadres and noncommissioned officers. These are drawn either from the Field Army personnel, the Corps Areas, or from selectees at the Replacement Training Center. The courses offered are quite intensive and are from one to three months in duration.

*The new scout car. M3A1*





German 15-cm. long-range gun. This weapon was seen for the first time at the Hitler birthday parade in 1938.

# AN AMATEUR'S FIRST ATTEMPT AT STRATEGY



By Colonel Conrad H. Lanza, FA.

On 20 April, 1934, a birthday party was given by a German civilian, then not so well known or understood outside his own country, but quite well known now. He was Adolf Hitler, who then had been Chancellor of Germany for a little over one year. This was long enough to have gotten a good start on the policies that he had laid out for himself. On this particular festive occasion, and after appropriate refreshments had been served and consumed, Hitler in his customary manner addressed his assembled guests. He talked about the hopes of his government as to rearming Germany, notwithstanding the prohibitions of the Versailles Treaty, and the possibility that the signers of that Treaty might intervene forcibly to prevent the accomplishment of his purpose.

Among other things he said: "In the listless irresolution of England lies our chance. The spineless passivity which has characterized the British Government since 1919 will enable us to pass unscathed through the danger zone which we deliberately entered with the victory of the Nazi idea. . . . In two years at the latest we shall have achieved our aim."

The great Powers had known that Germany was secretly rearming by increasing her trained forces and materiel. They had not known many important details, and did not know to what extent the rearmament program had been planned, nor when it was to be completed. No one paid any special attention to the birthday speech. No one appeared alarmed at the possibility that the rearmament of Germany would be completed in two years, *at the latest*, and that then, in the spring of 1936, Germany presumably would be ready for war with her neighbors. Like other Hitler

speeches, it was assumed to be for popular home consumption, *and to contain much idle boasting*.

In 1934 the democracies did not take Hitler seriously. The democratic press was accustomed to portray him as a not very creditable imitation of Charlie Chaplin in his well-known comic character role. Hitler's book *Mein Kampf*, in which he clearly exposed his views and expectations, was unfavorably reviewed by critics. They claimed that it was poorly written, obviously by an uneducated person; was redundant; and was full of completely impracticable and half-baked ideas. Hitler's speeches were laughed at as being antics of a demagogue. It was said that there was nothing to them except yelling and shouting. Nobody was afraid of Hitler; people wondered only that the intelligent German nation could stand him.

Two years later, Germany under Hitler's leadership made her first military move in open violation of the Versailles Treaty: The Rhineland was reoccupied. No war resulted. Here was the spineless passivity which Hitler, in his birthday speech, had predicted. The democracies still did not take Hitler seriously. Most people thought he was bluffing. Articles were written then and later alleging that if there had been armed resistance, Hitler would have withdrawn from his venture. Germany was believed to be entirely too weak to risk a war with the democracies. Later evidence indicates that perhaps there was, even on this early occasion, no bluff. Perhaps Germany might then have accepted a war had it been insisted on. Perhaps Hitler had achieved his aim

as to rearmament. But in the spring of 1936 Germany was generally believed to be far from prepared for war, and it was thought better to humor her along, than to antagonize her to still greater efforts. War wasn't insisted on. Germany was given three and one-half more years to proceed with preparations for war. During most of this period the democracies, believing that their reserves and resources were so superior to those of any possible hostile combination that they would not be really challenged, made few preparations.

In September, 1939, war did come. The democracies got two surprises. First was blitzkrieg, a new and generally unforeseen tactical method of warfare. Second was a campaign in May and June, 1940, which was based on an attack in strength and in direction which surpassed anything the democracies had suspected. Yet there was nothing secret about either blitzkrieg or the German plan for the 1940 attack. How, then, did they succeed?

The word blitzkrieg originated with the English in 1939. It so well fitted the military operations referred to that the Germans adopted the word at once. The foundations for blitzkrieg are in the German Field Service Regulations,<sup>1</sup> dated 17 October, 1933. This was not a secret publication, but was on sale at book stores throughout Germany at the low price of about 40c in U. S. currency. Anybody interested, who had 40c, could get a copy. All foreign nations, through their military attachés, were informed as to this book.

The essence of the new system can be summed up briefly as:

1. No rules for military operations. To solve situations use common sense, and act with *audacity* and *speed*.
2. Information is absolutely necessary, and must be sought for. It is the basis of all military actions.
3. Security means not only to avoid being surprised, but to obtain surprise. But action and *audacity* before protection.
4. Meeting engagements: Surprise is no longer possible. If enemy is in position, attack immediately and in great force. Use aircraft, armored forces, artillery, anything available. Do not hesitate. Take risks. Above all, attack before the enemy can realize what has happened to him.
5. Offensives: Decentralize! no lengthy orders to subordinates. Once started, attack incessantly; no rests; no intermediate objectives. Continue to assault, day and night, until mission is accomplished.
6. Mechanized forces: The original edition of 1933 was rather vague, but has been amended since to prescribe use in masses, carefully coordinated, and under one commander, with the air forces, artillery, and other arms.
7. The main idea of the German FSR is BOLDNESS, audacity, attack, complete coordination of all forces on the battlefield.

Illustrating the idea of these regulations, no type formations are prescribed for such common military formations as advance guards, etc. The German viewpoint



*Narvik after the fighting*

is that nothing should be prescribed. It all depends upon where you are, what opposes you, what forces you have, and what you are trying to do. Their rule is use your common sense, instead of trying to follow a rule which might or might not be applicable.

German FSR do not require uniform organization of troops. For example, a division may have any number of infantry or artillery units. It all depends on the theater of operations and the probable opposition. What might be very suitable for a division operating in France, where the country is over large areas, open, flat, and well traversed with roads, would be entirely out of place in Greece, where the country is mountainous and has comparatively few roads.

There was no lack of warning in other countries that changes in their military doctrines were necessary. One of the first foreign writers to sound the danger signal was General Charles de Gaulle, of the French Army. He foresaw that blitzkrieg would be the logical result of the new German FSR. As early as 1934, he published a book urging the need to adopt regulations similar to those of Germany. In his opinion a mechanized force of 100,000 men, using the German method, could easily defeat a force several times its size, but not equipped or trained as the German Army was.

The French General Staff did not favor radical changes. Principles of war, they recalled, were immutable. Undoubtedly tactics must be changed, but it was better to do this after proper investigation and trial than to jump at conclusions which might not work out in the next war. De Gaulle was not exactly squelched, but he got nowhere. Seeing what happened to him, other officers, whose promotion and assignments depended on the good opinions of their superiors, kept quiet.

Much the same thing happened in other armies. Except for Italy, the other General Staffs did not take the new German FSR very seriously, and none saw any necessity

<sup>1</sup>The essentials of German tactical doctrines were set forth in the FIELD ARTILLERY JOURNAL, June, 1941, pp. 399-402.—Editor.

of changing their own regulations in the same direction.

The German FSR were partially tried out in war in Ethiopia in 1935 and 1936. The doctrines worked well. Other nations attributed no particular importance to this, as it was believed that any regulations would have worked against the Ethiopians. A broader and sterner test occurred in Spain in 1937 and 1938. Germany and Italy sent materiel and trained forces to fight on Franco's side in that war. Russia and France furnished similar assistance to the other side. Numerous and important lessons were learned (by the Germans). For example,

- a. The small tank was found to be unsuitable for battle. Very good against the Ethiopians, it could not stand against the more heavily armored and gunned tank, such as Russia provided.
- b. The use of the Air Force to prepare an attack was repeatedly demonstrated. Some of the tests made, such as at Guernica, aroused great indignation among the democratic nations at the time. (But this lesson was not properly evaluated outside of Germany.)
- c. The essential blitzkrieg principles of continuous action, with no rests, was tried out in the final campaign around Barcelona. It was fully reported on at the time (but also was not taken fully to heart by military experts outside of Germany).
- d. The necessity for coordinated action between ground and air forces was brought out.
- e. The replacement of infantry on foot, in attacks, by infantry mounted in armored vehicles, following behind a barrage of either artillery or bombing, or both, was indicated as the future standard method of attack.

Starting in 1938, Germany and Italy lost no time in applying the lessons from Spain. Tanks on hand were largely replaced by larger and better ones. Great increases were made in mechanized forces, partly brought about by decreasing the infantry components elsewhere. Coordination of ground and air troops, by operating under a single commander, and by direct communication between units on the ground and in the air, were prescribed. Great increases were made in the air forces. The FSR principles of audacity, of attack without intermediate objectives and, above all, of using common sense instead of printed rules, which had been found fully justified, were impressed upon leaders.

While Germany and Italy were preparing for a blitzkrieg which was later to be launched on the unsuspecting and unprepared democracies, the latter calmly continued studying their own regulations. Warnings were not wanting. There was no dearth of military writers to point out what had occurred in Spain and the need to take action.<sup>2</sup> General Staffs were interested. They were in favor of experimenting, by providing small mechanized forces to be "tested out" on the maneuver field. Need for changes was acknowledged, but time was believed available to verify what was

reported to be lessons from Spain. Perhaps what had happened might have been due to special circumstances, which might never occur again. The Field Service Regulations of the great democratic Powers were based on mature experience and were believed to be in accord with the principles of war, long established and known to be unchangeable.

War came on 1 September, 1939. Blitzkrieg started at once in Poland. It had an astonishing success. Still the democracies were not alarmed. The German victory in Poland was ascribed to special and unusual circumstances. The Poles had been outnumbered; they were lacking in modern equipment; their leadership had been atrocious. What had happened in that far away country wouldn't happen in France. Here the magnificent French and British Armies were waiting behind the impregnable Maginot Line for the time when the Germans, weakened by the blockade, and seeing their inevitable end approaching, might despairingly try to break out from their surrounded country.

No, there was no fear of the result. Six years had passed since the German FSR had been published. Three wars had been fought in which the new principles had been tried and tested. Numberless articles had been written about the need for new tactics and new materiel. But the general staffs of the democracies were not convinced that decisive changes were necessary. When blitzkrieg fell upon the joint British and French Armies in May, 1940, the latter were unequally matched and went down to disaster.

Let us now examine the *application* of blitzkrieg to the campaign which started on that fateful 10 May, 1940. According to a speech delivered by Chancellor Hitler on 19 July, 1940, he was the author of the German Plan for the conquest of France by an advance through Holland and Belgium.

The Plan has a long record. It first came to light during the summer of 1932. At this time General Ritter von Epps, German Army retired, and living in Bavaria, appeared at the War Department in Berlin. He submitted a plan for an attack on France by going around to the north of Liege through Dutch territory, and to the south of Namur through Belgian territory. Von Epps explained that he had worked out this plan in conjunction with Adolf Hitler, at that time a rising politician, also living in Bavaria, but without official position. Von Epp's idea was that the von Schlieffen plan used in 1914 was a good plan but that it failed to accomplish the results expected due to the delay caused by the resistance of the fortress of Liege, through which ran the main roads and railroads absolutely needed for communications and supplies. Since 1919, Namur had been converted into a permanent first-class fortress, and the entire area between Liege and Namur had been organized into a vast strong point. If Liege alone had in 1914 defeated the von Schlieffen plan, the new fortifications were much more likely to do so.

<sup>2</sup>Included among many was one in this JOURNAL on *Lessons from Spain*, published before the present war.

In the von Epps Plan Germany would defeat the combined armies of France, Belgium and the Netherlands by going around the fortified area on both flanks. This would be done on the north by passing through Holland, through what had been supposed to be an impracticable terrain of rivers, canals, and inundations. On the south the movement would be through the Ardennes, also heretofore *supposed* to be impassable for large bodies of troops, on account of mountains, forests, and few roads. Notwithstanding previous opinions as to the impossible nature of these countries, von Epps thought a turning movement through them by large forces was possible, and that it would be equally possible to maintain lines of supply across them for the size of the forces to be used. His plan provided for this. He estimated that only 42 days would be required to completely defeat the combined armies of France and the Low Countries. His plan covered all details needed to make it effective.

Von Epps had no connection with the German General Staff. He was not even on active duty. Nevertheless his plan was accepted for consideration. It was referred to the 1st Section of the General Staff (corresponding to our G-3), for investigation, report and recommendation.

After a preliminary survey, the 1st Section thought that the von Epps (Hitler?) Plan appeared to promise favorable results. They detailed a general officer to make a reconnaissance of the ground through Holland and the Ardennes to verify the possibility of marching and supplying large bodies of troops through these areas. The general officer spent the entire autumn going over this territory. The more he studied the situation, the better he liked the von Epps Plan. During the winter of 1932-1933, the 1st Section completed its examination of the plan and submitted to the Chief of Staff a favorable report, recommending it be approved and adopted.

Nothing further seems to have been done about the von Epps (Hitler?) Plan until late in the following year. It lay in the office of the Chief of Staff awaiting approval or disapproval. One of the explanations given was that if approved, a large amount of preliminary field work would be required, which it would be impossible to conceal from foreign observers. At this stage, Germany being largely disarmed, it was thought best not to attract attention of possible enemies by undertaking to start a program which might antagonize the British and French.

On 30 January, 1933, Hitler became Chancellor of Germany. For some time he got no action on the "von Epps" Plan. During the summer he relieved the Minister of War and the Chief of Staff. In their place he appointed, respectively, General von Blomberg and General von Fritsch. Their first official action was to APPROVE the von Epps Plan. They ordered the necessary preliminary work to be carried out, regardless of foreign observation or opinions.

Within a short time, labor companies, corresponding somewhat to our CCC companies, were on the job. They

went to work opposite Holland and opposite south Belgium. The personnel of these companies were carefully selected as to loyalty to the Nazi cause. They constructed underground airports and approaches, new railheads and roads, depots, antiaircraft battery positions, and other appropriate facilities suitable for assembling large bodies of troops and launching them in an attack westerly across the frontier.

Notwithstanding that this work was conducted in an unostentatious manner, it was impracticable to conceal it. The London press published numerous articles during 1940 describing the new German military works, and pointing out that the only explanation was that they formed the base for a future invasion of the Low Countries, all in violation of Germany's obligations under the Versailles Treaty.

At this time there was in Germany quite an active minority to the Nazi party, bitterly opposed to Hitler and his associates. Their feelings were returned in kind, and some of the influential members of the minority became refugees or fugitives from their own country. After they were safe in foreign lands, believing that Nazi theories were but a passing phase contrary to the true interests of the German nation, they talked and wrote freely. Among these was Helmut Klotz, who in 1934 published in London a book in English in which he gave a fairly good outline of so much of the von Epps-Hitler Plan as related to the advance through Holland. He listed rather accurately the list of public works authorized to further the plan.

Undoubtedly since 1934 the von Epps-Hitler Plan was elaborated and perfected, but the main features seem to have stood the test of repeated war games and to have remained essentially unchanged. The preliminary construction appears to have been completed by 1936, as there is a dearth of reports after that date.

It would seem that the future Allies had ample warning both as to blitzkrieg and as to the particular application of it to the west German frontier. What did they do about it?

One day after Hitler came to power, or on 31 January, 1933, M. Daladier became Premier of France. With short interruptions he remained in office, either as Premier or as Minister of War, for some seven years. He was at the head of his government during the first part of the present war.

On 1 February, 1933, desiring to acquaint himself with the military situation, Daladier consulted General Maxime Weygand. The two men had a consultation lasting several hours, at which no one else was present. They issued no communiqué as to what they had discussed, or as to what conclusions they had arrived at. However, Daladier, a few days later, had a conversation with the editor of one of the leading Paris journals. This editor has reported that on this occasion Daladier gave him the substance of what Weygand had told him.

Weygand advised Daladier that he had a high opinion of the ability of the German military leaders. They were extremely competent men. He knew about the German rearmament being under way, or thought he did, but estimated that it would take about ten more years before Germany could reach the 1914 stage of efficiency. Germany was very deficient in trained officers and in reserves, and without these he did not consider that Germany could wage war against a first-class power.<sup>3</sup> Besides, by next year (1934), the Maginot Line would be completed to cover the French side of the German frontier,<sup>4</sup> and then France would be impregnable to any attack from the east.

Regarding France's allies, about which Daladier particularly inquired, Weygand considered that Poland, due to poor leadership and lack of proper equipment, should be classed as an international nuisance, of no special military value. Of Czechoslovakia he had a high opinion—the Czechs were well armed and could be depended upon to fight well. Belgium was half French, half Fleming, the latter largely favorable to Germany; consequently he would not trust Belgium. The British Army was not dependable in a crisis; but Weygand believed that the British Navy was most efficient, and that British sea power was of outstanding importance. In general there did not seem to be any danger of a general war during the next ten years.

Based on the foregoing estimate of the situation, the French government, with the consent of the War Department, postponed some contemplated increases in the French Army and in military equipment, in order to reduce the budget and thereby have more funds available for desired social measures.

In the same month of February, Marshal Pilsudski, the Polish Dictator, in his capacity of an ally, wrote a letter to the French Government, stating that he was informed that Germany was rearming at a prodigious rate, contrary to treaty stipulations. He suggested that the proper solution to this problem was to declare a *preventive* war on Germany before she became too strong. Pilsudski received a nice letter stating that his communication had been received, and would be given due attention.

Hearing nothing further from France, in the following month Pilsudski wrote a second letter on the same lines as the first one. He accompanied the letter with an annex, quite long, listing alleged German incidents regarding rearming. As far as the record shows, Pilsudski never got an answer to this letter. He appears to have lost confidence in France. He turned to Germany, with whom early the next year he concluded a 10-year non-aggression pact, as the best way out of the difficult situation which he foresaw would arise as soon as Germany had completed rearming.

<sup>3</sup>This was an important point in the arguments of many other experts who made faulty estimates of the situation prior to September 1, 1939.—Ed.

<sup>4</sup>Actually, the Maginot Line never was fully completed. As late as May, 1940, the flank fortifications were only shallow field works.—Ed.

In 1934 France heard about the von Epps Plan, and received reports as to work being done by Germany on her side of the border apparently in accordance with this plan. No great weight seems to have been given to this information. Who was von Epps? What had he done to warrant belief that he was a strategist of the first order? France had military experts who had made good in the past war. They considered a German attack a remote possibility, unlikely for a long time to come. True, Hitler's name was associated with the von Epps Plan, and Hitler was now Chancellor and virtually dictator of Germany. Hitler was a civilian. He had served in the last war for four years, and had not risen above the grade of corporal. Who would classify him as a military expert? Certainly no one among the Allies.

Hitler had written a book, *Mein Kampf*. He clearly laid down in it a program for isolating France, and then overwhelming her in a blitzkrieg. The then French Foreign Minister had read *Mein Kampf*. He considered it a joke. Who had ever heard of guiding the foreign affairs of a great nation by following rules out of a book? After Hitler had been in office for a while, he would understand what an ass he had made of himself.

The British and American press at this time generally agreed in the French low estimate of the worth of the German Chancellor. None saw any danger in his being the head of a great state; it seemed just too impossible that such a character could wage a real war against the democracies.

On 29 January, 1934—three days after the signing of the German-Polish non-aggression pact—Great Britain published a long memorandum, which she submitted to the other powers for consideration. The substance of it was that it was well known that Germany was rearming in direct violation of Article V of the Versailles Treaty, but that the time had now arrived when it seemed best to legalize this situation. She suggested that steps be initiated to do this.

Germany at once accepted this point of view, and entered into direct negotiations with the British as to terms. On the following 28 March, Great Britain issued a new memorandum supplementing the preceding one by concrete proposals for legalizing the new German war preparations. It suggested that Germany be authorized to maintain a Regular Army of not exceeding 300,000 men, instead of the 100,000 maximum allowed under the Versailles Treaty. Semi-military formations, such as the SS and SA troops, were not included in this total. As an inducement to Germany to formally accept this limitation as to the strength of her forces, France was to agree to make certain reductions in her colonial army, part of which was stationed in France. For her part, Great Britain announced that if these propositions were put into effect, she would give a guarantee to the parties to a treaty, to aid any one who was attacked by another. An early reply from France was requested.

As far as can now be ascertained, the figure of 300,000 men for the German Army was arrived at by Germany's own report that this was what she then had. The memorandum was an effort to prevent any further increase. The new German blitzkrieg Field Service Regulations were known, and information as to the von Epps-Hitler Plan for an invasion of France was just beginning to be known; that work on preliminary works opposite Holland and Belgium was in progress had also been reported.

In view of this situation, the French government hesitated as to the proper action to take. The Cabinet was divided as to whether to accept or reject the British memorandum. Finally on 17 April, 1934, a reply by letter was sent, signed by M. Louis Barthou, the French Foreign Minister. France declined to accept the British proposition to legalize flagrant treaty violations by Germany. It pointed out that on the same date that the British note had been received, the German budget had been made public. An examination of this indicated that the amounts allotted to the German Army indicated that there must already be at least 300,000 men under arms and that there might be more. France considered that authorizing any such figure as 300,000 was illusory and would be of no value; Germany would not hold to it, probably had already exceeded this number. France held to the Versailles Treaty and to the principles she had previously submitted to the Disarmament Conference held under the auspices of the League of Nations. She had no suggestions to offer.

According to M. Wladimir d'Ormesson, French author and diplomat, he had dined with M. Barthou on the evening before the latter signed the above note to Great Britain. At this dinner, Barthou brought up the subject of the note, stating that it was on his desk awaiting signature. He expressed his disapproval of the note and announced he would submit his resignation rather than sign it. Barthou's reasons were that the French reply was negative instead of constructive. He was well aware that Germany was rapidly rearming. He did not feel that it was longer possible to stick to the Versailles Treaty. Some modification was obviously necessary. To refuse to "recognize" German rearmament, because it was illegal, and because it was desired not to condone such illegal action, in no way altered the facts. In his opinion it was idiotic to decline to face the situation. He preferred to undertake some kind of negotiation with Germany with a view of arriving at a satisfactory solution of a very complicated question.

Next morning the French Cabinet, under direction of M. Gaston Doumergue, met to decide on the French reply. Barthou expressed his reasons for objecting to it, and offered to resign. Thereupon the remainder of the Cabinet, who favored the reply as drafted, begged him to reconsider. The Cabinet was a National, not a party, Cabinet, formed expressly to guide France through a

domestic emergency. If Barthou, with his high reputation, resigned, the Government would be broken and a political crisis would arise. For the sake of patriotism, Barthou was asked to remain, notwithstanding his personal views on this isolated action. Barthou accepted this appeal.

Three days later Hitler made the speech quoted at the beginning of this article and in which he referred to the "listless irresolution" of Great Britain as ground for believing that he would have the two more years which he needed to complete the military preparations of Germany.

The French reply of 17 April, 1934, had serious consequences. The British, feeling that the French were not willing to follow their policy, went ahead alone and proceeded to negotiate further with Germany. The results appeared next year when a naval pact was signed between the two countries, authorizing Germany roughly to maintain a sea force equal to about 35% of the British sea power. This was a unilateral violation of the naval provisions of the Versailles Treaty.

On her part, Germany felt that the French would not agree to any revision of treaty limitations as to German strength. She felt reasonably certain that France would not start a war over this question without the consent of Great Britain. It was therefore only necessary to carry on the discussion with the British, and maintain them in the state of "listless irresolution" until the required two years' time had passed.

France during these two years, although aware of German rearmament, felt that the stage of acute danger was still distant. No action was taken except to refuse to "recognize" any German increase of army or navy forces in excess of that prescribed by the Versailles Treaty. To Germany, it was immaterial whether the French "recognized" the situation.

The two years asked for by Hitler expired in the spring of 1936. He took a rather prompt advantage of this by making his first move: The reoccupation of the Rhineland. This was necessary to the von Epps-Hitler Plan, for until this was done, the preliminary work opposite the Ardennes had had to be partly limited to the crossings of the Rhine and to construction on the east bank of that river. It could now be completed by further works on the west bank. Many people thought that Hitler was bluffing when his troops crossed westwardly over the Rhine, and that he would have withdrawn had he met military opposition. This is surmise. Perhaps he would have fought it out. Probably he was relatively as well prepared to fight the British and French then as he was three years later. However, there was no war, only a protest, which bothered the Germans not at all.

It would needlessly expand this article to refer to the many occasions when, during subsequent years, the democracies had their attention pointedly directed to the German preparations for war.

On 1 September, 1939, the test was at hand. The democracies were confident of the outcome. A few weeks



later, in spite of the success of Germany in Poland, they still could see no chance of the British and French Armies being defeated in west Europe. General Weygand had been right in his estimation of the Polish Army. It was now clear that they had been poorly equipped and badly led. This explained their quick defeat. But it was said that an entirely different situation existed on the French frontier.

There was no lack of information as to the probability of Germany attempting to carry out the von Epps (or Hitler) Plan for an invasion of France by proceeding through Holland and Belgium. After the fall of Poland, Germany during the ensuing autumn and winter concentrated large forces opposite Holland and Belgium, minor forces opposite the Maginot Line. The Allies knew this.

On 16 December, 1939, the Allied C-in-C, General Gustave Gamelin, commented on the positions of the German Armies. He expressed the opinion that they would attack through the Low Countries, and that this would result in a quick decision. He thought the attack might be launched as early as February, 1940, but considered this improbable. March was a more likely month, and May the most probable.

Mr. Winston Churchill, at the time First Lord of the Admiralty, in a speech in the House of Commons on 20 January, 1940, invited attention to the large German forces opposite Holland and Belgium and the danger to these two little countries. In the same month the Belgians captured two German officers who had in their possession so much of the von Epps-Hitler Plan as related to the proposed invasion in south Belgium. On 30 March, 1940, Mr. Churchill again in the House of Commons repeated his warning as to the danger from the very large German forces lying on the frontiers of Holland and Belgium.

The great democracies by now had had years of notice of German intentions. Since 1934 they had known of and discussed both the German Blitzkrieg FSR and the von Epps-Hitler Plan for applying it to France. Up to the last moment, intelligence reports on German positions and intentions confirmed General Gamelin's expressed opinion that a blitzkrieg attack through Holland and Belgium would be launched in May. It came exactly on time. Eagerly the Allied troops rushed forward to meet it. They rejoiced that the hour of victory for their cause had arrived—the enemy had come out of his shell. His destruction, in their eyes, appeared to be certain. Never did an army so quickly see its hopes shattered and replaced by a cruel total catastrophe.

Why did this happen? With all the advance knowledge of German methods and intentions, which had been available for years, why were better defense measures not ready?

The High Command in France and Great Britain had erroneously believed until the last moment that blitzkrieg would not be dangerous for them. It had had some measure of success in Ethiopia, Spain and Poland. Without doubt this had been due to the very poor quality of the troops, to

their lack of suitable equipment, and particularly to bad leadership. This was not the case with the magnificent British and French Armies united together in east France. These armies were splendidly equipped, at least according to prevailing ideas of modern warfare. The leaders of these armies were highly trained officers, with competent staffs. It simply couldn't happen that blitzkrieg could overthrow them.

Another reason was that the Allies, also erroneously, had assumed that Germany was short of supplies. In January, 1940, distinguished statesmen in the House of Commons, representing the government, explained that looking behind the scenes into Germany, which they said they had means of doing, they could see that both in quantity and quality German production was deteriorating, that German councils were divided, and that they were, under the pressure of the Allied economic warfare, approaching the period when they would be no longer able to wage war. As late as June, 1940, after the loss of Dunkerque, the French Premier appealed to his troops to stand but just a little while longer. According to French calculations, the rate of gasoline and oil consumption of the German Armies during May had been so terrific that the end of their supplies was at hand. If the Germans could only be held for but a short time more, they would be immobilized for lack of motor transportation.

Of course, the High Commands were wrong. They are now engaged in revising their own Field Service Regulations, and providing armored and mechanized equipment suitable for blitzkrieg.

What should be said of what appears to be Hitler's first attempt in strategy? His 1940 statement that he was the author of the plan for the May, 1940, campaign may be correct. In 1932 Hitler had no reputation as a strategist. He might have thought it desirable to obtain the signature of General von Epps, personally known to him, to his plan in order to induce the War Department to give it consideration. There does not seem to be any good reason why von Epps should have mentioned Hitler as a collaborator, if he had not in fact been so. The name of von Epps stuck to the plan for but a few years, not to reappear in later years.

It seems obvious that Hitler planned long ahead. He allowed no obstacles to prevent the carrying out of his plan. He waited for the proper time. There have been reports that Hitler acted only under pressure of emergencies, but the evidence indicates that this is by no means always the case. It must have taken some time to work out all the details of the von Epps-Hitler Plan to cover the 42 days expected to be needed to complete its execution. It must have been started well before 1932.

For a first attempt in strategy, Hitler's plan for the conquest of France was, unfortunately for many countries, a masterpiece. Let us hope that General Staffs will profit by the lesson so disastrously imposed.



*A gun crew goes into action as a halftrack pulls its load off the road. The organizations pictured in these photos are the 14th Field Artillery Regiment and the 78th Field Artillery Battalion of the Second Armored Division. 161st Signal Photo Co. Photos.*

## Major Lawrence Collins, FA, Reports on

The maneuvers from June 16th to June 27th in middle Tennessee afforded the first large-scale test of armored units in the history of the American Army. The 2d

Armored Division from Fort Benning, Georgia, was the unit participating in these tests; the 14th Field Artillery and the 78th Field Artillery (Armored) were the artillery units which took part in these exercises as a part of that division.



*Halftracks were used in large-scale maneuvers for the first time when the Second Armored Division entered the Defense Tests in Tennessee in June. This striking picture shows the choking dust of the woodland roads as one of the hybrid vehicles pulls a 75-mm. gun into "battle."*

For these problems the two artillery units were organized as an artillery "brigade" under division control exercised by Colonel J. S. Wood, Division Artillery Officer. The 14th Field Artillery operated as two battalions, each with two six-gun batteries; the 78th Field Artillery operated as two battalions with three four-gun batteries in one battalion and two four-gun batteries in the other. The second battalion of the 78th was formed from the eight-gun antitank battery of this unit.

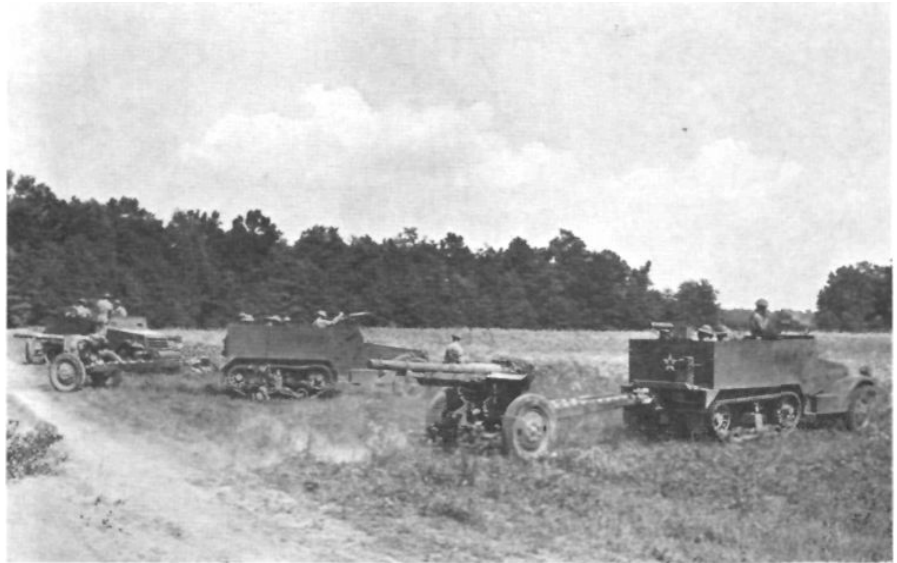
Just prior to the maneuvers the artillery units received 74 of the new half-track prime movers. These were used all during the exercises. The pictures accompanying this article show them in use. They proved very satisfactory and valuable on the type of terrain on which these problems were held.

The artillery was kept well forward in all combat movements, generally moving at the head of the main body in the tank units. This permitted the guns to support the tank attacks promptly.

These maneuvers led many officers to feel that a gun on an armored and self-propelled mount would be an improvement in this type of action and such a mount is being worked on at the present time.

*Three guns swing into position to support the tanks in attack.*

# ARMORED FIELD ARTILLERY IN THE TENNESSEE MANEUVERS



In almost every problem the artillery of the division operated as five separate batteries, each one attached to either a column of tanks, the armored infantry, or to the reconnaissance battalion. Forward observers from the artillery, riding in tanks or armored vehicles, were with the advance elements in almost every case. This plan enabled fire to be placed where needed, and with a minimum of delay. The forward observers in contact with their units by radio, transmitted much valuable information. They also were able to adjust the fire on targets expeditiously.

Airplanes were used in most problems for fire adjustment, and for discovering targets. This method offers great promise in armored unit attacks and should be worked on so as to perfect its technique.

## SUMMARY

1. The use of all artillery under division control is an improvement over the method of having some under the armored brigade and some directly under division control.

2. The use of half-track prime movers with the armored division is very satisfactory.

3. The development of a self-propelled mount for the artillery of an armored division should be encouraged.

4. The use of forward observers in tanks or armored vehicles is recommended.

5. Artillery should always be well forward in all movements into combat.

6. The use of airplane adjustments with armored units will be necessary in a great number of cases; the technique therefor should be developed further.



*Another view of halftracks plunging into leafy concealment in Tennessee*

# TYPES of ENLISTED OFFICER-CANDIDATES

By Major Burgo D. Gill, CAC.

By the time this article is printed, almost two thousand enlisted men will have entered Officer Candidate Schools. Besides this fortunate group of ambitious soldiers, the War Department has announced that approximately eight thousand more will be so trained before the end of the fiscal year.

The purpose of this article is threefold. One, to discuss the method of selecting the candidates. Two, to discuss the question: what is the best type of candidate and what should be his qualifications? Three: What sort of a newly commissioned officer is to be produced; and to the enlisted man, what should he strive for in his work and studies to fit himself to be chosen?

It must be remembered that the various Corps Area and Department boards, one of which I was a member, do not have the final say when it comes to making the selections. That is to be done by the various corps areas and the branch service schools. However, it is the board's duty to do all the personal interviewing of the candidates and to make recommendations for principals and alternates. The final selections are made from these recommendations of the boards and the collected papers of the applicants.

It was my good fortune to have interviewed almost two hundred applicants as well as to study and discuss with other members of the board over five hundred more cases. While I am not familiar with the results and conclusions of other boards, I do strongly believe that ours represented a cross section that will not differ much from others.

Most racial and national descents were found among the candidates; some's forebears were colonials, and others were naturalized. Educational qualifications ran from Ph.D.'s to attendance at a grammar school. A great number of trades and professions were encountered. All

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Editor's note: Major Gill was a member of a Corps Area's Examining Board

sections of the USA were also accounted for. In fact, the board went into the complete history of every candidate except for his family background and religion, two items which our board believed should not be touched upon.

The candidates appeared to fall within the following groups:

*a.* Older noncommissioned officers with a number of years' previous service. While their educational background varied, the average consisted of high school plus the successful completion of an enlisted specialist school.

*b.* Younger noncommissioned officers, and soldiers with little previous service, but who were bright, and had shown definite leadership qualities by their rapid advancement. Their educational qualifications as a class were a little better than those of the first group.

*c.* The hopeful youngsters, which appellation might appear to be a weak attempt at humor. This was quite a large group, although not as large as the first two. They consisted mostly of soldiers with little army service. They appeared to believe that the main requirements for a commission were to have had six months' service and to have graduated from high school. Those who had been college students were even more convinced that they were qualified.

The board gathered the impression that latrine gossip had it that all one needed to become a successful candidate was to have met this requirement. Which was partially true; that is, insofar as the six months' service was concerned.

*d.* The misfits. Fully a fifth of all applicants were rejected for consideration by the board because of age (both over and under the 21- to 36-year limits) or because of physical disqualifications. The physical rejects fell mostly into three groups: the overweights, those with bad eyes, and those whose teeth were poor.

A surprisingly large number of applicants withdrew. While isolated cases stated their reasons, the number of replies was insufficient from which to draw conclusions.

At this point, it might be well to state what the War Department's directive was upon the subject of choosing and recommending applicants as officer candidates. I have already stated the age limits and length of service required. The physical qualifications are the same as for any reserve officer. The main qualification was leadership qualities. While there were other points such as

education, tact, and force, above all it was this leadership quality and ability.

Right at the beginning of its meetings, the board of which I was a member ran into two sets of possible candidates who undoubtedly had all the qualifications, but whose futures might differ radically. For example, a staff sergeant, or first sergeant of the line who had about ten years' service, but with little educational background, would undoubtedly make an excellent combat platoon leader in a very short while. However, would his group be able to advance many grades before he would be stymied by his lack of educational background?

At this point, it might be well to bring out that mere graduation, or lack of same, from a school was not the only basis the board used in arriving at educational backgrounds. Some candidates show through discussion and questioning that by means of their own readings and other study that they were better qualified educationally than others who had had more schooling, but who had forgotten it, and had made no attempt to advance themselves intellectually or scholastically.

The next group of possible candidates that attracted the attention of the board were those younger noncommissioned officers and soldiers who had better educational backgrounds, and whose youth made them better fitted to meet the rigors of the field, but whose service experience was very limited. This group might not make as good platoon leaders in such a short period of time as the older, more experienced group. However, because of their better mental qualifications, and age, one could expect them in the long run to reach higher officer grades.

In other words, does the army want combat platoon leaders now, or does it not mind waiting to develop them later?

There was another class that attracted the attention of the board, and in some instances its sympathetic regret. This was the "extreme" specialists. For example, an applicant might be considered superior in all respects by the board except for the fact that his work in his branch was so specialized that he had learned but very little of the arm of which he was a member. One infantry applicant was a college graduate and well qualified in all respects, but his total army experience (and position in

which he could display or develop leadership qualities) consisted of being an interviewer in a Reception Center.

The conclusions appear to be that the present method of choosing applicants is a just one, and undoubtedly will produce excellent platoon leaders. The system as a whole should not be changed until there has been a sufficient number of graduates actually observed on duty.

However, I do strongly feel that certain minor changes can and probably will be made. The War Department already hints that it might have a written preliminary examination. This will eliminate those mentally unqualified.

The board found that the indorsements of the applicants' CO's was valuable in arriving at their conclusions. In many cases, the board interviewed applicants' immediate company commanders. This produced humorous results in some cases. Some CO's took a parental attitude, with the consequential high praise that their man should be the one and only. Others went to the other extremes.

The democratic principle that every soldier should be permitted to appear before the board is a healthy one, and good for the morale. However, it did entail an extra amount of work on the board's part in eliminating the physical unfits, and the overage and underage ones.

The personal appearance before a board of officers is deemed vital and by all means should be retained. The system of choosing members from as many branches as possible, I believe, tends to lend a broader viewpoint to the board.

In view of the great number of candidates, which will undoubtedly be larger next time due to the fact that the number of ex-Guardsmen (or rather, the N.G.'s who are in the Federal service) plus the selectees who will have had six months' prior service by the time the next group of candidates are selected, local post boards might well be appointed to meet in preliminary hearings to weed out those who are disqualified at the outset. However, the above-mentioned democratic principle should be retained. Applicants should have the right to appeal to the high board.

By fall, this first group of candidates will be graduated and commissioned. By New Year's, the results will begin to be evident. I, for one, am intensely interested.

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### THE E'S HAVE IT

*It is very bad, we are told, to call the new soldier a CONSCRIPTEE; and you must never, under any circumstances, use the word DRAFTEE. He is officially to be known as a selectee. However, once he is selected he can scarcely be anything but a trainee. And after he is trained what is he? Furthermore, should men who enlist be called enlistees? We think that matters would be simplified if the whole lot of them were called SOLDEES.*



## WITH THE ARMIES OF FOREIGN NATIONS



### How Can Rapidity of Fire and of Preparations to Fire be Increased?

Lieut. Frölich, in *Artilleristische Rundschau*, May 1941

This is an extraordinarily comprehensive question, because it really touches on the entire matter of artillery training. In the scope of this treatment, therefore, it will be possible only to pick out certain phases for closer examination.

#### GENERAL APPROACH TO THE TRAINING OF A BATTERY

As early as the second period in the recruit's training the battery commander must consider how he can increase performance *per se* and achieve speed in individual performances, in order later to raise the total efficiency of the battery. Especially in a war of pursuit, speed is the most important factor. The one who fires the first shot has already gained a "moral" advantage. One principal means of achieving this is to appeal to ambition by means of competition, perhaps even setting up prizes for the fastest gunner, the fastest gun crew, etc.

Obviously, a certain amount of drill has to precede this, until every movement is completely mechanical. Despite this, however, in every appraisal of speed, the higher aim of precision should be held up to the men, and judgment must follow accordingly.

Even in the battalion, moderate competition should prevail among the batteries—to the benefit of their speed in getting ready to fire. Each battery must endeavor to be the "lightning battery." Above all else, however, a healthy spirit of emulation must be awakened in the individual groups of the battery—gunners, gun crews, telephone details, etc. This spirit, the will for speed and accomplishment, is probably the chief basis of all training and improvement.

Now, how does the battery commander succeed in making his battery the "lightning battery" of the battalion?

Following, in as short a form as possible, are suggestions for achieving this in individual phases of the training:

#### (a) *Training gunners:*

Special training! Frequent work with stopwatch. Post precise lists of gunners trials, with time made by each. Check on performance improvement from time to time.

#### (b) *Gun crews:*

Check with stopwatch limbering and unlimbering. Fastest crew released from practice early.

#### (c) *Aiming circle NCO's (instrument men):*

Practice drill on aiming procedure. Carry out competitive trails among all aiming circle NCO's getting special training. Stopwatch!

#### (d) *Telephonists:*

By sections (2-3 sections divided) practice putting up lines with cue to begin (competition). Hold up to telephone troops as goal: "Connections in before guns are ready to fire!"

#### (e) *Motorcycle messengers:*

Training in reconnoitering roads and finding one's way. Practice trips in finding the way!

#### (f) *Complete personnel of firing battery:*

With personnel of the firing battery only, drill 3-4 times on occupation of same fire position. Time with stopwatch from first arrival until ready to fire. General announcements of improved time. Set up as a goal for everybody: "Firing battery ready to fire before telephone communication is available and before observation post has even completed preparing firing data."

#### (g) *Complete personnel of observation post:*

Divide two battery commander's parties<sup>1</sup> (personnel of observation post). Give command to go into action jointly and take time to first fire command. Maintain as goal: "Fire command must be transmitted to firing battery before guns are even ready to fire."

#### GOING INTO ACTION

*Preliminary commands:* Make greatest possible use of preliminary commands. The battery commander must not let anything take him by surprise. Surprise leads to deliberation (stopping to consider), which slows up action and costs time.

<sup>1</sup>Batterietrupp. Glodkowski. ". . . part of the battery. It consists of observation officer, scissors-telescope officer, 2 aiming circle NCO's, 2 dispatch riders, 2 horse-holders, commander of intelligence section, normally 2 mounted telephonists with pack-horse, radio squad (mounted)."

*Occupying a position in readiness:* A good position in readiness<sup>2</sup> should not only give the battery good protection, but also the troops must be able to evacuate it with all equipment at top speed. A position in readiness in which 30 or more minutes are spent in clearing away trees so that the equipment can be got out does not fulfill its purposes. Hence, use foresight and reconnoiter a route of withdrawal.

*Command to go into action:* In case the battery commander has already received the order to go into action, he must, if possible, intercept the battery even on the march and have it brought into a firing position. Every minute is precious. Even in the best position in readiness, time is needed for occupation and withdrawal. Hence, as early as possible, send back runners to get the gun echelon<sup>3</sup> into firing position immediately.

The battery commander must strive — taken for granted that he has a well-trained battery—for a condition where he as commander does not first have to visit the firing position. He is more important at the observation post, since from there he directs the battery's fire.

If the battery commander does visit the firing position, however, to get at least a general view of the situation, then he must be satisfied with giving brief orders. With some, a wave of the hand is enough; others must be told more precisely.

*Occupying firing position of heavy motorized battery:* As many members of gun echelon as possible should be acquainted with the firing position before occupation. No halt before driving into firing position; rather the guns must go in in one continuous movement.

Chiefs of section in position! This saves the crews much time and endeavor.

First emplace the base piece. As soon as this gun is ready to fire, the adjustment can begin. Immediately furnish report of position to observation post. The rapid making up of report of position is only a matter of training.

*Communications:* First communication regularly by radio. If possible, at same time lay telephone lines from observation post to firing position.

*Occupying observation post:* Order to go into action to be given to as many of personnel as possible at same time. Further, do not wait until the aiming circle NCO No. 1 has arrived; he may (example) have remained only 200 meters away from the observation, at the car. Hence: Always adapt oneself to the situation.

#### FIRING

*Work at observation post:* Immediately draw up firing chart with approximate coordinates. First study the terrain. Determine base deflection from terrain, then the targets.

<sup>2</sup>The German term, *bereitstellung*, is a tactical one rather than technical. For German artillery it may mean anything from our conception of the term up to complete readiness to fire.

<sup>3</sup>*Geschutzstaffel*. Glodkowski: ". . . part of the battery. It consists of the executive with dispatch rider, 2 platoon commanders, 4 guns, each with chief of section and crew, and 1st sergeant."

Divide terrain into zones of observation and allot to various observing personnel. The battery commander must be able to place under fire immediately any objective that may put in a sudden appearance. Co-operation of all personnel at observation post is important. The gunner firing is not firing alone; the entire OP detail works to ascertain the initial command as rapidly as possible. The command takes shape from the contributions of all the workers.

*Shunting apparatus:* Use shunting apparatus<sup>4</sup> whenever possible. The relay station is thus far eliminated, at least at the observation post.

The telephonist must be trained in cooperation and in transmitting commands in a clear voice. He doesn't wait for orders, but rings through to firing position himself and announces: "Fire command!" Return questions should be avoided; they only waste time and delay the fire. Every gunner must clearly realize that the best training for the telephonist is his own distinct voice in giving commands.

*Aiming points:* The best method for the rapid designation of targets is by use of aiming points. Get designation of aiming points to the firing position on time. Indicate which data are to be computed urgently.

*Naming objects in terrain:* In order to be able to call out quickly any targets that come into view suddenly, it is beneficial to undertake a so-called "christening of the terrain"; thus: "Machine gun at the edge of the Kastenwald! Infantry field gun by the tall tree! etc." Such terms facilitate the designation of objects not only for the ordinary observer, but for the scissors telescope NCO and the aiming circle NCO.

*Firing of volleys:* When firing, if the intention is to fire several volleys or several bursts of fire, get the ammunition ready ahead of time. The command: "Lay out five volleys!"

*Provisionment of firing position:* As battery commander consider what supplies might presumably be needed suddenly by the firing position in the course of battle.

Have a second target (firing data) table made out in the firing position, suitably by the commander of the calculating section. As soon, therefore, as one objective has been fired upon that the battery commander thinks may suddenly have to be fired on again, he communicates to the firing position: "That was command for infantry gun at objective 208. Hold command!" (Record data?) Without retransmitting the command, then, fire can quickly be directed on that point at any time. See also under "christening of the terrain."

In closing it should be mentioned that there are many other possibilities for constantly increasing speed. It is necessary in this regard that the battery commander continually test himself and his battery with the thought of how he can be even more brief, and how they can all, working together, become even faster.

<sup>4</sup>The meaning here is obscure.—Ed.



# THE OLD STRIKER

A character study from "the old Army" of two years ago

A clean breeze came in from the broad, blue reach of Lake Ontario to the northwest, moving over slack canvas gently with a light thrumming sound and raising the red guidons at the head of each battery street lazily from their staves. The C.M.T.C. camp was neat and quiet in mid-morning during the absence of the cadets at the training classes in other parts of the Army post.

A Reserve lieutenant, the adjutant of the camp, sat under the extension fly of the headquarters tent and tried to concentrate on a copy of Training Regulations 420-20, "Dismounted Ceremonies," a text very important to his present duty. However, the summer morning was no atmosphere for such exacting study and he found himself gazing with lazy pleasure at the sunlit charm of the waterside and his ears caught snatches of the talk of the few attached "regulars" at their daily routine duties about the area.

Headquarters tent was one of a row of officers' tents at the head of and facing the battalion area and the officers' strikers were busy at their housekeeping chores. The lieutenant realized that it was their voices he heard now. One voice, husky and humorously garrulous, dominated the continuous chaffer and argument over such important matters as who would take which end of what in order to move it where. The adjutant chuckled to himself and listened more closely. It was almost an official duty to collect and report to his fellow officers Head Striker Cooney's daily output of blarney.

Private Cooney and his crew of three other strikers were busy with the installation of the effects of a certain reserve major of Chemical Warfare Service who had been attached for duty with the camp to demonstrate and report on a new type of gas mask. He seemed to have such an amount of equipment that Cooney and his men were engaged in an epic task of its kind.

Cooney went on something like this: "My Gawd, we musta made five trips already, the four of us, an' we still



By  
Captain  
Robert Falconer, FA.

ain't lugged in them two blankety trunks an' that loada masks. Why hell, if ya ask me I think this here Major Laughin' Gas musta been run outta his flat in the city an' he's gone an' brought all he owns up here. The only thing missin' is a grand pi-ana. It sure beats me why them ranks in the fancy branches like this here Comical Warfare Service always puts on so much dawg. They get ordered out on active duty fer two weeks an' ya might think they was goin' hunt-in' in Africa, 'n' the closest they ever gets to a hoss is a swivel chair 'n' they never stand a formation. Three pairsa boots an' five paira shoes—more gawddam footwear'n the whole gawddam battalion. It sure beats me. Hell yes."

The adjutant, being an artilleryman, listened gleefully to this discourse on the oddities of "fancy branchers" and leaned forward a little

to catch a glimpse of the scene.

Cooney's "uniform" was enough to bring the tears of rage to a martinet's eyes. Only a privileged and shortly retiring old soldier could have gotten away with that outfit, day after day, on any normal duty around troops. He was never seen to wear a complete uniform around camp. He wore a shapeless pair of "fatigue" pants, an underwear shirt and, to cap it off, the ridiculous round headpiece issued with the Army work clothes which he perched with the floppy all-around brim rakishly cocked up in front and down in the back, campus style.

As one of the Regular instructors was heard to say when this unmilitary sight was called to his attention, "Cooney is a highly informal soldier,—but he's a darn good man."

Cooney's hairy-chested, stocky figure swaggered like a pirate in this ensemble. The heavy muscled, tanned, tattooed arms swung ape-like as he moved and his sun-seamed, thick featured face shown under the funny hat in constant good nature enlivened by the shrewd glint in his bright, blue eyes. No one had ever seen him without

the hat, so whether he had any hair or not was a question. Guessing his age was more a matter of reckoning up his years of service than anything that could be deduced from his looks, strength and activity.

As the lieutenant watched this familiar figure tolerantly he recalled the incident told at mess by his commander, who, of course, had drawn Head Striker Cooney as his personal orderly.

The colonel came upon him for the first time on the morning of his arrival as Cooney was getting his tent in order. Cooney had introduced himself briefly in his capacity and went on with his work. The colonel, seizing the opportunity of having several personal matters attended to, ordered, "Cooney, take my blouse to the tailor and have it back in time for evening mess." Cooney went on making up the bed and never even looked up. The colonel in some surprise at this apparent disrespect continued, "give my leather a good going over too; it's been in storage most of the winter." There was still no response and, with justifiable sternness, the colonel shouted, "Cooney,—are you deaf?"

Cooney straightened suddenly at that and said, blandly, "Yes, sir."

The colonel had stared speechless for a moment, then in some confusion realized that the man was simply stating what was at least partially a fact. This no doubt accounted for some of Cooney's seeming obtuseness and lack of military courtesy but not all. As a matter of fact, he displayed a wholesome contempt for the overdoing of the regulations governing the relations between officers and enlisted personnel.

He caused some indignation among the younger and least experienced officers when, on their first arrival, he conducted them properly enough to the adjutant for directions as to quartering and introduced them by placing a fatherly arm about their shoulders and saying to the adjutant, "Lootenant, this man ain't on my list an' I don't know where to put him." The adjutant soon came to enjoy the look of consternation that appeared on the face of the officer thus introduced. It wasn't military, but it did more good than harm, and it was funny. Cooney was the breezy comedy relief that is so often necessary in an atmosphere that can so easily become a stuffy travesty of natural human relations.

In addition to his duties as major-domo of the officers' quarters, Cooney blew the bugle calls for the camp, which happened to be set up at a far end of the regular post. The sight of him in his usual getup, nonchalantly unhooking a battered bugle and blasting out the calls during the day would have passed unnoticed in that busy camp if it had not been for the ever-present spirit of devilry in boys of high school age, many of whom were up there for a month's vacation at government expense, but to their profit. There was no doubt that Cooney blew with vigor and some talent, whatever it was that he blew, but his accuracy in regard to some of the calls was soon

put to the test by his hecklers. One lad in a tent near to Cooney's bugle post began it by poking his head out from under the rolled side and asking in apparent innocence, early in the camp, "Hey, Sarge, what call is that?" Cooney, accepting the roll of instructor with scornful good nature, replied, "Hell, even you guys oughta know what that is,—that's Assembly." Cooney's suspicions were immediately aroused, though, when the kid said cutely, "Okay, Sargie, I was just asking."

Cooney popped off at that, "SARGIE? Hells bells, will ya listen to that?"

Cooney listened to it from then on. The kids soon changed "Sargie" to "Sargie-Wargie" and that almost ruined Cooney's good humor. Then, when they had enough experience to pick out his errors in calls, they caught him out for the first time and his reply convulsed them. He said, "Oh, that call? That's a pretty little number I composed meself." He retired in some disorder from this engagement and it was soon noticed that he must have put in a little private practice, because the calls became models of precision and execution from then on.

With this source of humor dried up the boys soon discovered that Cooney timed his calls to synchronize with the post buglers by the camp headquarters clock. Often he would be caught out of position to watch the time and would ask the nearest man for it. Very soon he picked on a wise guy and to the kid's enjoyment found himself all balled up in his schedule of calls.

It was all in good fun, though, and Cooney took it and enjoyed the ribbing as much as they did.

Quite naturally, as a veteran regular, he had no great admiration for the character and efficiency of the personnel in a camp made up of Reserve officers and civilian cadets. The one time when he was heard to express actual admiration of anyone or anything was the time when the colonel arranged with him for the procuring of a horse for an afternoon of polo practice. It suddenly began to rain just as Cooney brought the horse to the colonel's quarters and the colonel ordered Cooney to bring the pony under the tent fly out of the shower. Such solicitude for horseflesh earned Cooney's genuine good will as an old horse soldier and the colonel never wanted for anything that it was in Cooney's power to bestow for the remainder of the tour of duty.

He soon gave practical evidence of this good will when, toward the end of the camp, the battalion was deprived of the services of the post band for the evening parade for three days in succession. This meant abandoning the parade on the parade ground for the much less colorful and satisfying ceremony of "Standing Retreat" in the battery streets at the firing of the evening gun and the lowering of the flag.

Cooney approached the colonel on the fourth such day when it again became known that the band was still unavailable. In his usual informal way he said, "Colonel, I just heard that that gawdam band ain't gonna be here

fer ya again. Why, hell, colonel, if ya want some field music, I can fix you up easy. All I gotta do is turn out somma them goldbrickin' buglers down at the Post Guard House an' we'll give ya the whole works, parade an' all."

The colonel, well aware of Cooney's bugling activities and his evident easy regard for uniform regulations, tried to refuse with thanks. Cooney was insistent, however, and, not wanting to hurt the old soldier's pride or kill his good will, the colonel finally agreed doubtfully.

Retreat time rolled around that day and the battalion formed up spic and span to be marched out for the parade. The colonel and the adjutant, whose duty it was to form the parade on the parade ground, waited apprehensively for the appearance of Cooney's Band.

Nothing caused more gratified astonishment in that camp than the sight of Private Cooney in a complete uniform of faultless form and fit and with eight perfectly turned out buglers behind him reporting for duty.

When the adjutant had adjusted himself to this novel sight he began the ceremony, spotted Cooney and his men in their place on the right of the line and gave them the signal to begin the music which would bring the battalion onto the parade ground and up on the line. He never noticed what they were playing in his attention to his own movements in that set performance. The ceremony progressed to the point where the adjutant, from a position to the center front before the reviewing officers, gave the command, "Parade Rest," then ordered the band to "Sound Off."

Cooney and the buglers sounded off with the appropriate flourish and began the customary maneuver of marching and playing the length of the parade front, turning upon themselves, and coming back to their position again. It was then that everyone realized what the sole piece of march music was in the repertoire of Cooney's Band.

Blowing lustily, they swung past the grinning parade to the sound of "Pay Call," more vulgarly known from its ribald lyric as "The Drunken Soldier." Out of breath halfway down the line, they reversed at last and began it

all over again, over and over the same few bars of that hackneyed refrain. They blew it all through the pass in review and the battalion swung off the parade ground and back to the camp area to it. When the boys had at last reached the battalion streets they could contain themselves no longer and they were all shouting the words with joyous laughter at the end.

The adjutant, in traditional fashion, paid the reviewing officers' respects to the band for its music before they left the field and with unconcealed mirth asked Cooney how he had picked on that music for the parade. Cooney grinned his impish grin and replied, "Hell, lieutenant, that's all I could think of to play. The men got a kick out of it an' it did the trick, din't it?"

Off went Cooney and his men and the adjutant gazed after him pleasantly bemused.

That swaggering, garrulous old redleg had seen the sun rise and set on Army posts wherever the flag flew and the field guns roared. The Philippines, Hawaii, Panama, swank Fort Myer, bleak, dusty Sill and others that he must have all but forgotten or were no more. He carried the wet weather twinge of wounds from the Argonne and Chateau Thierry. He had had better than private's grade in his time but that sprightly spirit had gotten him into trouble often and he had been "broken" time and again. It was men like him, lusty, brave and humorous, whatever their petty faults, who set the tempo for a nation's manhood and did more for that tenuous something called morale than a thousand lectures or tons of propaganda. Now he was serving his last hitch before being discharged into that cast off world where lonesome old soldiers, who have known no other home than the Army for a lifetime, must go. But he wasn't asking for sympathy. That spirit of the happy warrior would never leave him.

The adjutant felt that he could speak for all that had known Private Cooney when he wished him luck and would never forget his name and deeds wherever Army men gathered to talk of old times and comrades.

### Use of Rockets for Training Observers

In the February 1941 issue of the *Artilleristische Rundschau* is an article by Major Thieme on the use of rockets for training of observers in high-burst ranging. The article also discusses the use of these rockets in artillery survey; observers lay on it from three points and compute the position or determine it graphically.

This use of rockets has been mentioned in French and German official texts; in fact, an article based upon the German use of these rockets appeared in the November-December, 1940, issue of THE FIELD ARTILLERY JOURNAL. Proper use of such rockets for topographical purposes implies

- a. That the rocket is projected vertically.
- b. That there is not much wind.
- c. That the schedule of firing the rockets is thoroughly understood.

Most satisfactory results can probably be obtained by laying on the luminous train of the rocket rather than on the exploding head.

—T. N.

# PROBLEMS IN GUNNERY

EXAMPLE 9

PRECISION, LARGE  $T$

Target: Check point. Mission: Registration.  
 Materiel: 75-mm. gun. Ammunition: HE shell,  
 reduced charge, quick fuze.

$T = 700; s = 20; c = 8; c/d = 0.2.$

Initial commands: No 1 Adj, BDR 340, Sh  
 Mk I, RCh, FQ, No 1 1 Rd.



Commands	Results	Sensings		Remarks
		Rn.	Df.	
Q. 240			?	$60 \times 0.2 = 12.$
228			+	Small deviation ignored. 2-s initial bound.
L 40, 212			-	Deflection short on terrain. Deviation too large to be ignored; on the line at 208 ( $20 \times 0.2 = 4$ ).
R 20, 218			-	Range bracket split between actual round at 228 and computed round at 208.
R 10, 223			+	
L 5, 3 Rds, 221		+	?	
		+	+	
		-	?	
L 3, 221		-	?	No change in elevation.
		-	?	
		+	?	
221		+	?	A 2-mil deflection bracket has been obtained; deflection will be correct when this bracket is split. Three more rounds are needed to complete second group of six. However, little change in elevation is indicated so far.
		+		
		-		

Next command: L1, 221.

EXAMPLE 10

PRECISION, LARGE  $T$

Target: Base point. Mission: Registration.  
 Materiel: 155-mm, howitzer. Ammunition: HE  
 shell, quick fuze.

$T = 500; s = 8; c = 6; c/d = 0.4.$

Initial commands: B Adj, BDL 9, Sh Mk I,  
 Ch 6, FQ, No 1 1 Rd.



Commands	Results	Sensings		Remarks
		Rn.	Df.	
Q. 290			?	$25 \times 0.4 = 10.$
300			?	Modify $c/d$ slightly for reverse slope, taking smaller value for next command.
2 Rds, 298			?	2 rounds are fired to increase chances of deflection sensing. 2-s initial shift.
		+		
R 16, 1 Rd, 286			-	
L 8, 292			-	
L 4, 3 Rds, 295		+	?	No change in deflection.
		-	?	
		+		
295		+	?	5 overs. 1 short.
		+	+	
		+	?	

Next command: R 2, 293 [ $295 - (4/12 \times 6)$ ].

Fire is continued in groups of three rounds until the deflection is correct.

**FROM**



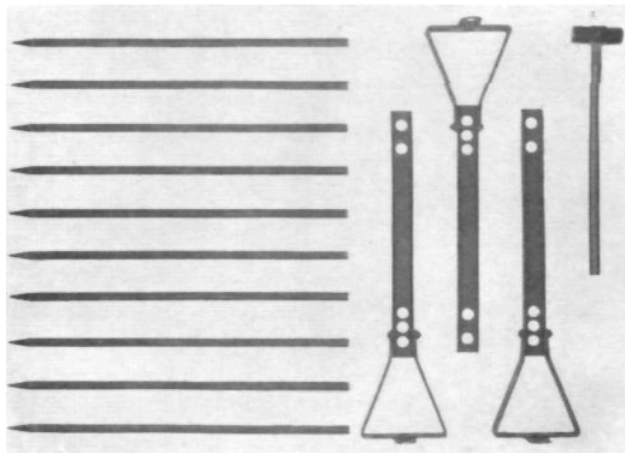
**THE CHIEF'S OFFICE**

**WRECKER TRUCK**

The Chief of Field Artillery has concurred in a recommendation of the Quartermaster General that Unit Equipment Second Echelon Set No. 8 (heavy wrecking) be deleted from T/BA 6-1, in view of the fact that the item is a part of the 4-ton heavy duty wrecker. The Quartermaster General's Office had expected to substitute a completely equipped truck in lieu of one 4-ton truck now designated in each medium artillery battalion to be equipped with Second Echelon Set No. 8. However, because of manufacturing difficulties it will be necessary to supply about 25% of these wreckers to the field without certain items of equipment intended to be installed thereon.

Where wrecker trucks are thus issued incomplete, certain items of equipment, as follows, will be supplied direct to organizations from the Diamond T factory:

- 1 each welding set—Unit Equipment Second Echelon Set No. 5 (41-T-3545-14).
- 1 each compressor, air, portable, gasoline driven, with tank ½ HP 3 cu. ft. capacity (66-C-1369).
- 1 each towing bar, Universal type (8-B-50).



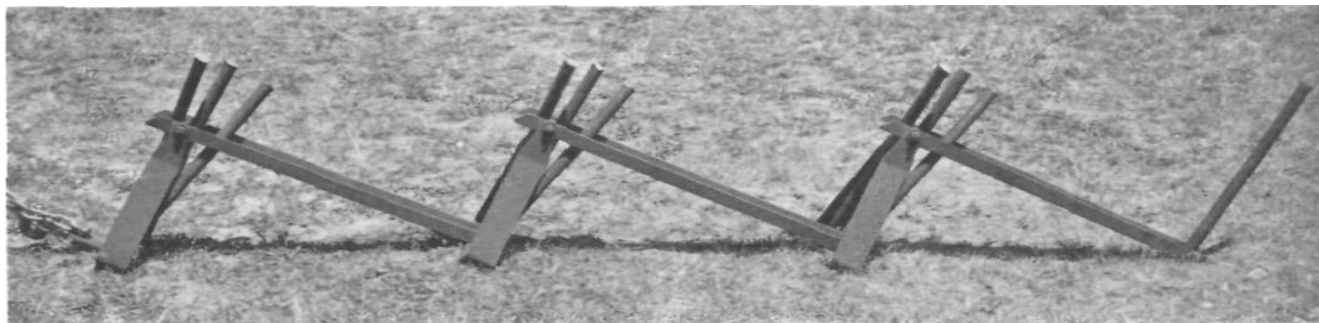
*Ground anchor and stake assembly*

The following items should be obtained from depot stocks by requisition submitted in the usual manner:

- 2 each Pioneer Equipment Motor Vehicle Set No. 1 (41-T-3539-5).



*4-ton wrecker truck*



*Ground anchor and stake assembly*

- 1 each welders' tool set (41-T-3555).
- 1 each block and tackle set—Unit Equipment Second Echelon Set No. 4 (41-T-3545-13).
- 1 each Set No. 9 (Ground Anchor and Stake Assembly) (8-A-1210).

In addition to the above tools and the wrecking equipment proper, the following are supplied by the manufacturer:

- 1 spacer bar of two adjustable telescopic members
- 2 snatch blocks
- 1 universal steering gear clamp set
- 2 tire mounting brackets
- 2 metal tool boxes brackets for mounting tow bar
- 1 safety hooks for anchoring lifting cables
- 2 hand cranks for lifting booms
- 2 searchlights
- 1 fire extinguisher
- 1 16-foot tow chain
- 1 20-foot tow chain
- 1 pinch-point crowbar

The vehicle is known as a double boom, power driven, heavy wrecker and is covered by Quartermaster Tentative Specification ES—No. 528b of April 19, 1941.

**LOCKS FOR TOOL BOXES** Quartermaster depots contain several thousand locks suitable and available for issue, to lock motor vehicle mechanics' tool boxes. Where not previously supplied, these locks can be obtained by the usual requisition.

**A LETTER FROM THE CHIEF'S FILES—SELF-PROPELLED AND TOWED ARTILERY**

My dear ———:  
I was glad to receive your letter of the — instant, and was much interested in your line of thought.

Current events have set everyone to thinking, and I am sure the result will be comprehensive experimentation, test, and discussion.

The officers in my office and I are striving to maintain open minds on all of these new and complex problems, with the idea ultimately of reaching sound solutions thereon. Increasing speed of combat, changing methods thereof, and greater employment of protective armor make

it imperative that the Field Artillery explore all reasonably promising ways of improving its ability to render more effective support.

Your suggestions as contained in your letter are now being carried out. A number of different sizes and types of vehicles—wheel, half-track, and full-track—are being developed and/or procured *as mounts* for various types and calibers of cannon to study their employment, among other things, for antitank work, close-support artillery, direct-support light artillery, and armored reconnaissance vehicles.

My own belief is that in order to fight tanks with a reasonable chance of success, we must have more tanks than the enemy. Also, to fight airplanes with a reasonable chance of success, we must have more airplanes than the enemy. This is because both tanks and airplanes are offensive weapons, and only the offensive achieves decisive results. Also, I am inclined to the further thought that we must have a lot of antitank guns, organized into antitank units in the division, corps, and army, with plenty of these antitank units in the GHQ whereby divisions, corps, and armies may have such units quickly and adequately reinforced.

These antitank units (perhaps battalions) must be indoctrinated with the spirit of the offensive. They must chase, stalk, hunt, ambush, and destroy tanks. Their mobility must be greater than that of the tanks they chase. They must, according to my inclination, be guns on self-propelled mounts. They must be guns that are fought singly, and that use direct fire. They must have sufficient light armor to protect their crews from rifle and machine-gun fire. They would be considered a match for tanks only because their crews can see more than can tank crews, because they have a higher degree of mobility than a tank, and because they can be so much more numerous than tanks that normally there would be several of them available to go after a single tank.

Now, however, when it comes to guns being fought in teams of four (batteries), and guns that are put into defiladed positions, where indirect fire must be used, where an OP must be selected, and where more or less hasty or elaborate survey operations are necessary, I still incline strongly to towed artillery, although I am quite

aware of the fact that you and other field artillery officers think otherwise. A towed gun can be much more easily concealed, and it offers an appreciably smaller target than a self-propelled gun. It takes a big fragment or a direct hit to put the ordinary field gun out of action; whereas a motor vehicle that carries a gun presents a very vulnerable target. A broken oil or gas line, a punctured radiator or oil pan, or a defective carburetor will put your gun out. Moreover, how often will you have a gun laid up with motor trouble? Also, a gun on such a mount is far more difficult for a gun crew to serve.

My chief fear of self-propelled artillery, however, is that higher commanders, if supplied with it, will frequently and unnecessarily forget real artillery missions and will on many occasions be chasing single guns of the divisional artillery out as antitank weapons, thus neglecting massed fire missions, without which the infantry cannot advance.

It seems significant to my mind that the Germans with their Blitzkrieg and their Panzer divisions do not yet have self-propelled artillery in the role of divisional support artillery. You can be certain that they would have it if they regarded it as advantageous. In the Panzers their artillery is towed. To be sure, they have self-propelled antitank guns, and they have self-propelled assault guns which they use for specific purposes. Also, they are putting into their Panzers and motorized divisions self-propelled accompanying artillery, and self-propelled antiaircraft weapons.

I appreciate the fact that gun positions will be tank objectives, and that tanks will seek to attack artillery positions from the rear. Here, doubtless, self-propelled batteries of medium calibers would find an advantage, for, while light guns could quickly and readily be turned

against raiding tanks, medium ones could be brought into action against them with the speed desirable only if on self-propelled mounts. Heavy calibers would be worthless against tanks because they cannot be served with sufficient speed. The important answer to raiding tanks would seem to be the antitank guns organic in the field artillery battalion, together with a battalion warning group whereby sufficient time is made available for light and medium guns to meet with their own fire a tank attack that approaches from any direction.

It has long been the conviction of the artillery that a part of our units must get up with and furnish close support to the infantry. This means "accompanying artillery," and it is my opinion that the present war in Europe has proven this close support as indispensable. Accompanying artillery should probably be composed of light and medium howitzers, and because its normal use would likely be in pairs of guns employing direct or indirect fire, self-propelled mounts with low silhouette are worthy of trial and test.

Again may I say that I am trying to keep an open mind on all of these problems. I am hopeful that exhaustive experimentation and test are near at hand, whereby our officers by discussion and by virtue of these experiments and tests will be able to assist us in finding the soundest possible solution to our many and interesting problems.

With much appreciation to you for your views, and with cordial regards, I am

Very sincerely yours,  
R. M. DANFORD,  
Major General, U. S. Army,  
Chief of Field Artillery.

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# BOOK By H. S. F. REVIEWS



*The study of the past alone can give us a true perception of practical methods, and enable us to see how the soldier will inevitably fight tomorrow.*

—DU PICQ

*TORY OATH.* By Tim Pridgen, Doubleday, Doran, and Company. 1941. 370 pages. \$2.50.

The sixty-five thousand officers and men now stationed at Fort Bragg, North Carolina, should enjoy reading this historical novel of their part of the country. The land on which Fort Bragg stands is steeped in the traditions of the Highland Scotch—those survivors of the Jacobite Rebellion who came to America to escape strife only to find it here also in 1776. Within a day's easy ride of Fort Bragg are the battlefields of Moore's Creek Bridge, Elizabethtown and Guilford Court House. Cornwallis, in his retreat after Guilford, passed through what is now Fort Bragg. All these events are accurately described in *Tory Oath*. The author seems to have used most of the better-known sources, including Carruthers. There is much in the book about Flora McDonald, the Highland-Scotch heroine who even today is practically canonized in Cumberland County. Fort Bragg people can see the site of her home on Cameron Hill from Vaughn Tower, if they know where to look. Cross Creek (Fayetteville) also comes in for frequent mention.

W. S. N.

*BUILDING AN ARMY.* By Edward S. Johnston. The Military Service Publishing Co., Harrisburg, 1941.

Colonel Johnston has written a concise and factual account of the construction of the present emergency army. It differs from most such accounts because of its emphasis upon organizational framework, and it has a high reference utility because of its attention to plans, policies, laws and public resolutions which are the little known background of the army.

*TD LIVE IT OVER.* By Flora Cloman. Farrar & Rinehart, Inc., New York, Toronto. 380 pages. \$3.00.

Under the brave title *I'd Live It Over* Flora Cloman takes her readers through an astonishing range of adventures.

She takes in gallant stride the raw pioneering conditions of her childhood and early youth, resourcefully exploiting the harsh ruggedness of her environment to develop sturdy self reliance.

Incidental bits of our country's industrial history are enlivened by the author's account of the turbulent doings in the mining towns of the West near the end of last century. Later with her first husband, Victor Clement, she turned up in the mining towns of South Africa. London, Berlin, Granada, each highlighted by its particular characteristics, became in turn the scene of action. In Mexico Mr. Clement died. Some years later Mrs. Clement married Col. Sydney Cloman, who at about that time received an appointment as

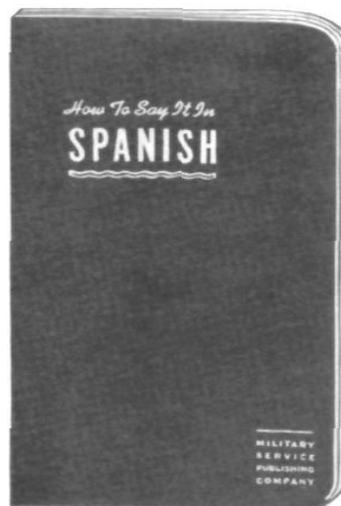
Military Attaché to the Court of Saint James. After four years in London came the comparative quiet of life on an Army post in Laredo, Texas, Says Mrs. Cloman: ". . . life on an Army post, completely controlled by 'regulations,' is on the whole calm, peaceful, and delightful—if one can enjoy simple things."

The range of Mrs. Cloman's autobiography embraces material poverty and wealth, heartbreak and happiness. The title of her book, *I'd Live It Over*, is an understandable testimony of the richness of her experiences,

F. P. J.

## How to Say It in Spanish

By Lieut. Col. Harry M. Gwynn, Capt. Enrique C. Canova, and Lieut. Willard Webb



Today, when so many officers are taking Spanish lessons, and there is such increased interest in augmenting friendly relations with Latin America, a need has arisen for a concise book of common Spanish words and expressions. *How to Say It in Spanish* is not a dictionary nor a grammar. Neither is it a tourists' language guide. Yet it combines the best attributes of all three, with emphasis on those words, phrases, and sentences most useful to

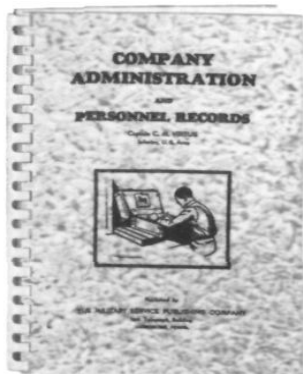
the military man. The scope of the book is shown best by an enumeration of the principal topic headings: general conversation; instructions or requests; travel or direction; colors, sizes, and comparatives; time and seasons; cities and towns, inhabitants; transportation and communications; geography and topography; aviation nomenclature; nautical; food, drink, and tobacco; personal service and needs; supplies; parts of the body, illnesses, accidents, and wounds; numbers, weights, and measures; common names.

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**Ninth Edition—**

Published April, 1941



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By MAJOR C. M. VIRTUE

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**MEDICAL SOLDIER'S HANDBOOK.** *The Military Service Publishing Co., Harrisburg, 1941. \$1.00.*

The title of this manual is self explanatory, and the medical detachment of every field artillery unit will find constant use for it.

**MY FATHER IS A QUIET MAN.** *By Tommy Wadelton. Coward-McCann, New York, 1941. 173 pages. \$1.50.*

Young Tommy Wadelton's character study of his mother, *My Mother Is a Violent Woman*, was one of last year's successes in the humor field. His latest effort purports to be a biography of his father, who is a lieutenant colonel in the Cavalry. Actually it is more of a continuation of the former book, and concerns mostly Tommy's mother. At the outset there is an effort to tell about the father, but toward the end, this theme is almost completely forgotten, and the mother dominates every page. She is made to be a very real character, and the reader feels as though he knows her; the father is rather more shadowy, and doubtless he would wish it that way. The humor in *My Father Is a Quiet Man* is a trifle forced in spots, which may be the result of too much editing. However, there are some very funny passages in it, especially that portion describing the adventures with an "orphan." The Wadeltons decided to bring an orphan from an asylum to their house to spend Christmas, but the results are very disappointing for the Wadeltons and hilarious for the reader.

We find ourselves wondering how a fourteen-year-old Army "brat" can have so much time to note and remember his mother's sayings and doings. Most of those whom we have observed appear to pay very little heed to their parents. We marvel also at his frequent display of what seems to be an eight-year-old unsophistication mixed with the wisdom of an adult. Most army children we know are pretty brash and savvy—except where their school work is concerned. Tommy, however, is an unusual lad; we predict a bright future for him as a writer.

## Army Mess Management Simplified

By MAJOR E. A. HYDE

Revised edition published in 1939.

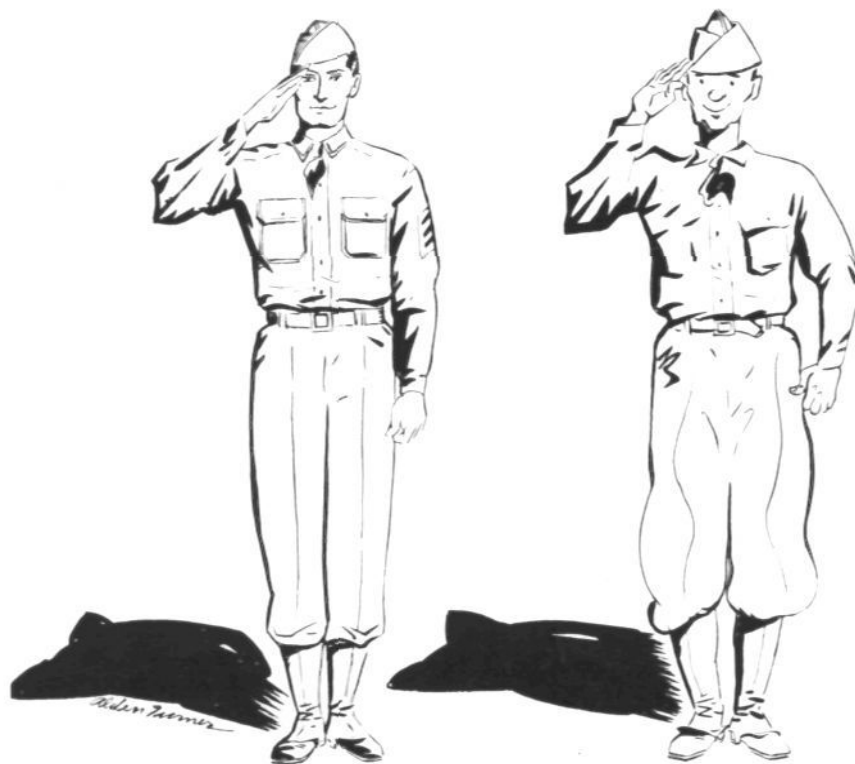
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The title of Major Hyde's book describes its scope and purpose. It simplifies the management of the unit mess, it reduces the labor in connection with it, and if the system is carried out, a SUPERIOR MESS will be the result. The basic scheme of the book is the use of a 15-days' Bill of Fare. Each Bill of Fare is followed by instructions and recipes for each of the items included in it. All the Company Commander has to do is to prescribe that the Bills of Fare be followed out in his kitchen, turn a couple of copies of the book over to his kitchen crew, and then see that the plan is being followed.

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