

The
FIELD ARTILLERY
Journal



IN THIS ISSUE:

IN THIS ISSUE

MAJOR GENERAL WILLIAM J. SNOW, USA-Ret., was Chief of Field Artillery from February, 1918, to December, 1927. Incidentally, he was the first editor of THE FIELD ARTILLERY JOURNAL, thirty years ago this month. No other officer of modern times has had more constructive and permanent influence on the progress of the Field Artillery than General Snow. His memoirs, never before published, which commence in this issue, are of tremendous significance today when the Arm is again on the march.

DIVISIONAL ARTILLERY IN THE POLISH CAMPAIGN was prepared especially for the FIELD ARTILLERY JOURNAL by Colonel Hartmann in collaboration with the officers of his regiment. Covering in a clear, practical way nearly every phase of field artillery in war of movement, it is the most outstanding professional article which the present war has produced.

COLONEL CARY I. CROCKETT is on duty at Fort Leavenworth as Director of the Special Class and Extension Course of the Command and General Staff School. His reminiscences of his step-father, General Imboden, will be relished by all Civil War history fans, and are a welcome addition to the not-too-plentiful literature dealing with the background of American field artillery. There is need for a series of biographical sketches of artillery captains and batteries of days gone by.

MAJOR OLIVER L. MARSTON, range officer at the Field Artillery School, contributes inspiration for further discussion of a subject whose timeliness and importance are scarcely outweighed by any other phase of field artillery training. It cannot be driven home too forcibly that if gun crews are to shoot effectively at tanks and combat cars they must have prior practice, and more practice. Field Artillery still causes 80% of all battlefield casualties.

BRIG. GEN. E. D. SCOTT continues his recollections of the Philippine Insurrection in *Gunner in Luzon*, Part II.

MAJOR J. A. WALLACE, on duty as instructor with the Minnesota National Guard, supplies another angle to the discussion started by Captain C. L. Boyle in the September-October number.

MAJOR B. A. DAY is Director of the Extension Course Department FA School.

ARTISTS contributing to this issue are Dr. H. S. Parker ("HSP"), son of Lieut. Col. Edwin P. Parker, FA; Sgt. J. B. Dunn, FA School; and Captain Rex Chandler, whose drawings have long been enjoyed by JOURNAL readers.

**The United States
Field Artillery Association
ORGANIZED JUNE 7, 1910**

President

**Major General Robert M. Danford,
U. S. Army**

Vice-President

Colonel Augustine McIntyre, U. S. Army

Executive Council

**Major General Robert M. Danford, U. S. A.
Brigadier General William H. Sands, VaNG
Colonel John A. Crane, U. S. A.
Colonel Fred C. Wallace, U. S. A.
Colonel Leroy W. Herron, Reserve Corps
Colonel C. C. Haffner, Jr., IING
Lieutenant Colonel W. C. Crane, U. S. A.
Lieutenant Colonel Ralph C. Bishop, Res.
Major Edward S. Ott, U. S. A.**

Secretary-Editor and Treasurer

Captain W. S. Nye, Field Artillery, U. S. A.



The Field Artillery Journal

A Publication for the Field Artillery of the Regular Army, National Guard, and Organized Reserve

JANUARY - FEBRUARY, 1940

THE FIRST CHIEF OF FIELD ARTILLERY	2
<i>From the Memoirs of Major General William J. Snow</i>	
DIVISIONAL ARTILLERY IN THE POLISH CAMPAIGN	15
<i>By Colonel Hartmann, German Army Translated by Brigadier General O. L. Spaulding</i>	
THE RAINS MIGHT NOT COME	24
<i>By Major O. F. Marston, FA</i>	
THE BATTERY THAT SAVED THE DAY	26
<i>By Colonel Cary Ingram Crockett, Inf.</i>	
DIRECT-SUPPORT BATTALION	34
<i>By Major J. A. Wallace, FA</i>	
GUNNER IN LUZON	38
<i>By Brigadier General Ernest D. Scott, USA-Ret.</i>	
SANTA BARBARA DAY	45
THE 1939 KNOX TROPHY	46
<i>By Captain Walter D. Webb, Jr., FA</i>	
KEEP YOUR EYE ON THE BALL	48
<i>By Captain Homer A. Dye, FA-Res.</i>	
SENATOR TRUMAN GETS A SOLUTION	49
MUZZLE BURSTS	50
EXTENSION COURSES	53
<i>By Major B. A. Day, FA</i>	
PROBLEMS IN GUNNERY	58
FIELD ARTILLERY ABROAD	60
ARTILLERY SUPPORT OF TANKS	65
<i>By Captain Charles Nathaniel Tupper, FA</i>	
MINUTES OF THE MEETING OF THE UNITED STATES FIELD ARTILLERY ASSOCIATION, DECEMBER 15, 1939	71
NATIONAL GUARD NOTES	72
<i>By Colonel C. C. Haffner, Jr., 124th FA</i>	
STATIONS OF FIELD ARTILLERY OFFICERS OF REGULAR ARMY	73
BOOK REVIEWS	78
SOME FORWARD OBSERVATIONS	80

Vol. 30

W. S. NYE, Captain, FA, Editor

No. 1

Published bi-monthly by The United States Field Artillery Association, 3110 Elm Ave., Baltimore, Md. Editorial and circulation office, 1624 H St., N. W., Washington, D. C. Entered as second class matter August 20, 1929, at the post office at Baltimore, Md. Copyright, 1940, by The United States Field Artillery Association. Subscription price \$3.00; Canada \$3.25; foreign \$3.50; single copies 75 cents. Checks drawn on banks in the Philippine Islands, Hawaii, and Canada should include 25 cents for collection charges; from the Canal Zone, 35 cents. THE FIELD ARTILLERY JOURNAL pays for original articles accepted. It is published without expense to the government.

THE FIRST Chief of Field Artillery





PART I — ORIENTATION

In 1914 the Field Artillery of the United States Regular Army consisted of 266 officers and 4,992 enlisted men organized into six regiments. This was sufficient only to provide small overseas garrisons and what might be considered "display samples" of the different classes of field artillery in the United States. Thus in the continental limits of the country there was but one regiment each of light, heavy, and horse artillery, and one-half a regiment of mountain artillery.

The arm remained at this pitifully insignificant strength until the late summer of 1916, when, under the National Defense Act, three new regiments were added.

When we entered the World War in 1917 we had 9 regiments of regular army field artillery, 16 National Guard regiments, and a Reserve Corps of 221 officers and 33 men; a total of 1130

officers and 21,875 enlisted men, trained, partly trained, and wholly untrained. Contrast this with the strength of the arm on November 11, 1918: 22,393 officers and 439,760 men!¹

Under the system of military training in vogue prior to 1917 it is no exaggeration to state that only the personnel of the Regular Army with over one year's service could be considered as trained—275 officers and 5,253 men. This is less than a single divisional brigade of the type into which the field artillery was organized after we entered the war. Yet on Armistice Day there were in existence 61 brigades, 42 of which were in France.

When we entered the war the field artillery did not contain a single ammunition train. In order to provide the

1st Division with such a train, Truck Companies 1, 2, 3, and 4, Coast Artillery Corps, were converted into the motorized section of the 1st Ammunition Train while personnel from the 7th, 8th, and 12th Cavalry regiments formed the horsed section. These units had to come from different stations, so that it required six months to assemble this first improvised train and get it to France. Yet, on November of the following year the field artillery contained 68 of these trains.

Similarly there was not a trench mortar battery in the arm when we entered the war, whereas on November 11, 1918, there were 61. In addition, on November 11, 1918, we had

11 corps artillery parks, although not one had existed when we declared war. And, finally, we had at the close of the conflict thousands of officers and men under instruction at schools, replacement



Extracts from the World War Memoirs of **MAJOR GENERAL WILLIAM J. SNOW**

depots, and firing centers.

This study will attempt to show how this tremendous expansion was accomplished, and indicate the obstacles encountered and how they were surmounted.

The names of all the people who contributed to the success of the Field Artillery during the World War would fill a book. I can only specify in this narrative, therefore, a few of the key officers upon whom I leaned heavily. If I have inadvertently omitted any of them, I now tender my apologies to them.

I wish especially to pay tribute to the Regular Army officers who held commissions in the Field Artillery at the outbreak of the war. In addition to training and leavening the huge mass of officers who entered during the war, they furnished many high commanders for their own and other arms; they performed staff duties wholly unconnected with the field artillery; and they

¹Include: Coast Artillery acting as Field Artillery.

fought in battle with skill and courage that brought added laurels to the Army of the United States.

Of the 14 colonels of field artillery at the outbreak of war only one, and he a man of advanced age, failed to become a general officer. One became General and Chief of Staff (March), nine became major generals, and three brigadiers. The major generals filled the positions of Chief of Field Artillery of the Army (Snow); Chief of Artillery, AEF (Hinds); Chief of Artillery of the First Army (McGlachlin, later McNair); Chief of Artillery of the Second Army (Lassiter); Director of Military Aeronautics (Kenly); one corps commander (Menohar); and two division commanders (Sturgis and McMahan).

Of the 14 lieutenant colonels, 2 became major generals, 8 brigadier generals, and 4 colonels. The major generals filled the position of corps commander (Summerall) and division commander (Lyon).

Of the 20 majors, 6 became brigadiers, 13 colonels, and 1 lieutenant colonel. Of the 118 captains, 21 became brigadiers, 72 colonels, 23 lieutenant colonels, and 2 majors. Of the 109 first lieutenants, 10 became colonels, 63 lieutenant colonels, 34 majors, and 2 captains.

The influence of this small number, 275, permeated every field artillery activity in an army having nearly a half million of that arm. The officers served in proportionately equal numbers in the Regular Army and National Army, and in a lesser degree in the National Guard. But their influence did not stop there. One field artilleryman, as Chief of Aeronautics, developed that arm. One (Conner), as Chief of Operations at Pershing's headquarters, directly influenced every battle in which American arms engaged. Finally, of this small group of 275, one, as Chief of Staff of the Army (March), built up and directly controlled the American Army of over four million men.

I challenge history to produce an equally glorious record. No words of mine can add to the impressiveness of this brief statement of facts. This record of achievement cannot fail to foster the pride of generations of Field Artillery officers yet to come, in what their Arm has done. They cannot fail to realize what a priceless heritage is theirs. I feel that it was a privilege to have grown up in the service with such men, and an honor and an inspiration to have been Chief of the Arm which claimed them.

INTO THE MERRY-GO-ROUND

In the summer of 1917, as a colonel, I reestablished the School of Fire at Fort Sill, Oklahoma, worked out a detailed plan for enlarging it to 100 times its previous capacity, and secured the approval of this plan together with an allotment of \$750,000 to carry it out. In all this I was ably assisted by a number of officers at Sill, notably

²Now Brig. Gen. F. W. Honeycutt; and Major General R. M. Danford, Chief of Field Artillery.

Majors Honeycutt and Danford.² Then, before I could continue this work, I was promoted to brigadier general and ordered to command a field artillery brigade at Camp Jackson, South Carolina. I left Fort Sill September 26, reached Jackson September 29, and remained there until February 1, 1918. On that day I receive a telegram from the War Department ordering me to report in person to the Chief of Staff in Washington for duty. The telegram contained no further information.

For some time previous to this I had heard rumors that the position of Chief of Field Artillery of the Army was to be created and that I was to be appointed to the office. But, as no one connected with the War Department had ever mentioned the subject to me, I placed but little credence in this rumor. I had no desire to be Chief. I wanted to go to France. Hence when I arrived in Washington on the 3d, about 1:00 PM, I carefully got my baggage together in one part of the Union Station where I could get it quickly if I were to continue my journey. I then went to the State, War, and Navy Building.

It was Sunday afternoon. After registering, I searched the War Department and could find *not a single officer on duty!* Later I learned that there had been one or two out of sight in Adjutant General's Office.

I then telephoned the Assistant Chief of Staff, whom I knew well, and asked him what duty I was to go on. He said he did not know.

I asked him where the Chief of Staff lived. He told me. I went around to the latter's house and found that he was out for the day but would be back for dinner a night. I left word that I would call during the evening which I did about 10 PM. At that time I asked him what I was to do in Washington. He told me that I was to be Chief of Field Artillery. I left, saying I would report to him at his office the next morning. This I did, at 9 AM, and the general at once took me in and presented me to the Secretary of War, Newton D. Baker.

Mr. Baker asked me if I had not just come back from France. When I replied that I had never been to France a shadow crossed his face, as he apparently thought "another coffee cooler." However, upon my saying that I was ready and anxious to go and would start in an hour if he would so order, instead of appointing me Chief of Field Artillery, he smiled and seemed to feel better.

He then, in a delightfully pleasant talk of a few minutes, said that the creation of the office of Chief had been under consideration for some time, and that he counted on my successfully administering it. After some complimentary remarks as to why the choice had fallen on me personally, he directed the Acting Chief of Staff to issue the order appointing me.

Parenthetically, I may add that some time after the issue of the printed order³ the Judge Advocate General's office called me on the phone and asked whether I knew

³G.O. 10, W.D., Feb. 10, 1918.

what law authorized my appointment. I replied that I did not, but that the order appointing me said I was detailed "By direction of The President." That was law enough for me.

At the termination of my interview with Mr. Baker, the Chief of Staff and I went into the latter's office. There I said to him:

"You are a busy man, so I will ask you just two

I learned that General Morrison, at the War College, was in charge of training,⁴ so I visited him. He was thoroughly disgusted with his status and said he knew nothing about the arm. I asked him if he were not in charge of Training, and he replied that he was supposed to be but that he was wholly unable to get any action on any paper he submitted. I asked him if he could make any suggestions that would help me.

To this he answered, "No, except that if you value your



"General March was the ablest and most efficient man I ever served under"
(See page 12)

questions: First, who will define my duties, status, responsibility, prerogatives, and so forth? Second, who will put me in touch with field artillery conditions?"

The Chief of Staff took my arm and replied, "Snow, the answer to both questions is, I don't know!"

I then went to the office of the Assistant Chief of staff. I asked him who had been handling field artillery matters.

He said, "Everybody and nobody."

I found the latter word at least to be correct.

From him I obtained a list of the General Staff committees, which I then visited. I got no useful information concerning the Field Artillery from them.

reputation, get away from the War Department." He then added that to do this was his only desire, and in answer to my query as to where he wanted to go he merely growled that "he didn't give a damn."

I left feeling rather discouraged, for it was late in the afternoon of my first day as Chief of Field Artillery, and I had not accomplished a single thing.

Next I visited the Inspector General's Office, where for the first time I saw a little daylight. The Inspector General had stacks of inspection reports

⁴Gen. Morrison, who had been an instructor at Leavenworth for years, was a recognized authority on training.

which he arranged for me to go over at my convenience.

Finally, at the close of the day, I went to see the Secretary of the General Staff, a classmate, and asked for an office. He promised to have a room for me in a week. I explained that I must have one the next day, as I already had telegraphed in the name of the Secretary of War to two Field Artillery officers to report to me for duty and I expected them to reach Washington the next day.

He informed me that I had no authority to issue travel orders.

We then dropped the subject, and I continued to issue travel orders throughout the war.

I asked the Secretary to have some stationery printed with the heading: *Office of the Chief of Field Artillery*. He objected to putting the War Department to this expense, and suggested using *Office of Chief of Staff* stationery, adding thereto, with a rubber stamp which he would get, the words *Office of the Chief of Field Artillery*.

At that time the Field Artillery must have been costing the United States Government over a thousand dollars a minute. It was to cost much more later on.

The following morning I went immediately to the office of General Graves, Assistant Chief of Staff, and asked for the use of a vacant desk I had seen in the corner of his room, in order that I might have a place to receive mail and telegrams. He assented.

I spent the entire day with the different staff departments (Signal Corps, Ordnance, and so on), taking up field artillery matters. These officers welcomed me with open arms, delighted at last to find some one who would decide a thousand pending questions relative to field artillery matters and with which they also were concerned.

An attempt to see the Acting Chief of Ordnance in person failed. This official had a newly commissioned officer in charge of his outer office; when I gave him my name I unfortunately added, "the Chief of Field Artillery." He informed me that there was no such position, and declined to let me in until he could investigate. I had too many things to do to waste any more time, so I left.

At 6 PM I returned to my desk. As I entered, two officers of high rank, both General Staff, were having a discussion. I listened. One of the officers, a colonel, went out and brought in a major of the General Staff to support him in his argument. Then the three of them continued discussing their subject, which was: "Should the War Department pay \$60.00 for a green carpet which Mr. Stettinius had ordered for his office?" Mr. Edward R. Stettinius, a partner in J. P. Morgan and Company, had, prior to our entrance into the War, been in charge of all purchases in the United States for the British Empire. At the time of which I am writing he was Assistant Secretary of War and in charge of procurement for the American Army.

When unable to restrain myself any longer at this piffing conversation, I blurted out that I personally would pay for the rug if they would only stop talking about it; and that I had that very day ordered the expenditure of over a half million dollars and now wanted to get some authority from the Secretary of War, whose name I had used freely.

On my third day in office two assistants reported for duty. They were Majors Bacon and Channing, who had been on my staff at Camp Jackson. I told them to go out and hire an office and engage some clerks, while I again spent the day in the staff and supply departments. Late that afternoon they returned and told me that there was not an office to be rented in Washington but that they had secured the loan of the building occupied by the *Carnegie Endowment for International Peace*, and that for my personal use Elihu Root was lending me his office!

And so it was that I began my work in the War Department in this Peace Endowment building, the Carnegie Peace people paying the rent. I always thought this quite appropriate, for certainly so far as practical results go I accomplished more to restore international peace than Mr. Carnegie ever did to maintain it.

The Secretary of the General Staff kept his promise in a few days he assigned me one room⁶ and one clerk in the War Department building. He also furnished me the money-saving rubber stamp, *Office of the Chief of Field Artillery*.

For some time, even after my office was well established in a suite in the State, War, and Navy Building I kept Mr. Root's office as a place where I could worked quietly and undisturbed on knotty problems; for frequently when I arrived at my main office in the morning I found, extending down the corridor, a line of people waiting to see me.

As soon as we were beginning to get our heads above water I designated an officer (later succeeded by Lieutenant Colonel E. L. Gruber) as Cable Liaison Officer. His duties were to bring to my office all Field Artillery extracts of cables, and to search back files for such masters. In this search he naturally worked backwards that is, searched the cables dated January 31st the January 30th, and so on. He unearthed many pertaining to field artillery, and in April found cables from the GHQ of the American Expeditionary Force, dated the previous October, asking for an early decision on field artillery questions. Yet no action had been taken to comply with Pershing's requests and the cables were merely marked "File"!

No wonder General Pershing, in his book, criticized the War Department. His field artillery queries remained unanswered for months, because there was no Chief of Field Artillery to answer them. There was no

⁵Robert Lowe Bacon, later a Congressman from New York; and Richard H. Channing. Both these officers were commissioned in the National Army.

⁶Room 291, State, War, and Navy Building.

one in the War Department with sufficient field artillery technical knowledge to make the replies required. There was no one to formulate a field artillery policy. There was no one to harmonize the many conflicting views of the nontechnicians. There was no one with authority to decide and act.

Bearing in mind that war had been declared in April, 1917, the conditions that existed in the War Department as late as February, 1918, were sufficient to substantiate any statement as to the department's ineffectiveness during the first ten months of the war. And while it is difficult even at this late date to write calmly and judicially of the supineness of the War Department during this period, I must in justice add that the fault did not lie entirely with that bureau.

Our army is always a creature of Congress, which, during the years preceding the war, had organized the army for peace only. The War Department General Staff had been limited to an absurdly small number of officers. Effective planning for war was impossible; economy was

the guiding principle. Now that war was upon us the War Department was attempting to accomplish in weeks what should have been given years.

Furthermore, it should be remembered that the President had cautioned the American people to be neutral "in thought and word" prior to our entry into the war; he had characterized Preparedness as an "interesting academic exercise"; he had coined the remarkable phrase "too proud to fight"; and I know of my own personal knowledge he had prevented our making certain preparations prior to our entrance into the war.

I have always thought that even after we did declare war, Mr. Wilson still did not visualize actual fighting by an American army. Recent publications of the State Department have made public a letter from Colonel House to the President, written early in 1918, in which the Colonel stated in substance that the Allies were then beaten unless the United States came to their rescue with an American army and, even if that were done, it was questionable whether it was not already too late.

108th Field Artillery, 28th Division, near Varennes, France, 1918



DIAGNOSIS

I spent the next few days reading over the Inspector General's reports to which I have already referred. The words which best describe the conditions existing in the various field artillery regiments and brigades in the United States, as set forth in these reports, are: "chaotic and almost hopeless." I soon became convinced that the first thing to be done was to find out the specific defects in each unit, then determine specific correctives therefor, and finally coordinate these correctives. This would begin to bring order out of chaos.

Consequently I formulated a telegram which was sent to each field artillery brigade commander, calling for direct answer, by wire, to certain questions. Soon these replies poured in. Some were useful, others worthless. Almost none were full enough to serve my purpose. It was evident that some brigade commanders did not know enough field artillery to answer the questions intelligently. Later, when a full investigation proved this to be correct, a number of these brigadiers were demoted. None of those demoted, however, had been in the Field Artillery before the war, hence are not to be condemned too severely for their helplessness as field artillery brigade commanders.

I now got up a mimeographed questionnaire, completing it on February 20, and mailing it direct to all brigade commanders on the 25th. The first part contained a statement of existing conditions in the field artillery of the National Guard, Regular Army, and National Army. Extracts from this questionnaire which are thought to be of historic interest are given below:

Extracts of recent inspection reports covering fifteen National Guard Brigades:

"The condition of the field artillery of the National Guard is deplorable. Training is intensive in only four brigades. In the remaining eleven brigades, either the seriousness of the situation and the needs for intensive training are not appreciated, or the brigade commanders have not the necessary technical knowledge of field artillery to enable them to train a brigade.

"Failure of the remaining two brigades to make satisfactory progress is due to five causes:

"(a) Failure of the brigade commanders to appreciate the seriousness of the situation and the necessity for intensive training.

"(b) Failure to realize the great importance of discipline.

"(c) Lack of sufficient technical knowledge of field artillery.

"(d) Failure to appreciate that the basis of all training is thorough instruction of the officers and noncommissioned officers, and to inaugurate proper schools.

"(e) Failure to utilize the small amount of equipment to the best advantage.

"One thoroughly competent, efficient, and energetic officer with field artillery experience can discipline and instruct a brigade of field artillery and, even with the small amount of equipment available, such a foundation of discipline and instruction can be established that, when full equipment is received, the completion of its training will be an easy task and can be accomplished in a short time.

"The enlisted personnel of the National Guard is of the very best, and anything can be accomplished by proper instruction.

"A large number of commissioned officers are inefficient . . . they must be eliminated."

The following are extracts from inspection reports of three National Army brigades:

"The brigade is deficient in every branch of training except dismounted drill. . . . No instruction is being given officers in computation of firing data, blackboard or terrain board firing, field gunnery and ballistics, map reading and map making, and many other subjects that a field artillery officer must know.

"Training of the brigade has not advanced beyond the preliminary stages. Very little progress is being made. . . .

"In all regiments the men are fairly proficient in dismounted drill, but practically no progress has been made in artillery training."

The following are extracts of inspection reports covering thirteen Regular Army brigades:

Conduct of fire—"fair to very poor."

Fire discipline—"good to very poor."

Occupation of position—"good to very poor."

Communications—"good to very poor."

Rate of fire—"very slow in all cases."

"The field artillery regiments covered in this report are in an unsatisfactory condition.

"The inspection shows that intensive training is necessary for several months, beginning with elementary training, before they can be regarded as effective."

It is hoped in this office that artillery equipment and supplies will shortly be distributed in reasonable quantities. But . . . work can and must go on faster than in the past. . . . This letter is not intended as a reprimand—it is merely an attempt to bring to all concerned the seriousness of the present situation and to set it forth with all the gravity and earnestness possible. . . .

. . . . This office must be an active agent, closely allied with troops, and, accordingly, a training program probably will be promulgated from here. But such a program can only be prepared when sufficient data upon which to base it are on hand. It is for the purpose of securing such data that the present blanks are sent you. It is the intention of this office to follow up any reports or training program by an inspection, either of the Chief of Field Artillery in person or by his representative, and see that stated work is actually and effectively carried out; and commanding officers will be held to strict accountability.

The second part of the questionnaire contained the standards of proficiency to be required of all officers. This was the first time that thousands of newly commissioned field artillery officers from civil life had even been told how much or how little technical knowledge they were supposed to possess. After the receipt of this they at least learned what the standard was. Space does not permit giving this part of the questionnaire in full, but a few extracts will indicate its general nature:

Gun Drill: Must be able to perform the duties of every member in a gun squad; must be word-perfect in the sequence of commands; must have a thorough knowledge of the sights, quadrant, and fuze setter of the field gun, and the methods of testing and adjusting these instruments, and must be a good layer with the different instruments.

Materiel: Must be able to mount and assemble all parts of the 3-inch or similar gun, breech mechanism and carriage, and have a detailed knowledge of the care, cleaning, and preservation of materiel.

Firing data: Must be able to calculate quickly the firing data for any assumed target and aiming point, using rough methods available in the absence of the BC telescope.

Firing: Must be able to conduct the actual firing of a battery against various targets, such as guns, wire entanglements, machine-gun emplacements, and must be able to shift the sheaf practically from one target to another; must understand how to make barrage tables and maps; must be able to adjust the fire from advance and flank observation stations; must be able to adjust a single gun on a target, making all the necessary corrections for air and powder, wind and barometric pressure, and in general conduct of fire for accuracy.

The other topics included: dismounted drill, visual signaling, cordage, physical training, property, indoor firing, subcaliber firing, topography, maps, and "Plan Directeur," organization, instruments, flank observation, harness fitting and draft, telephone, code practice, range tables, corrections of the moment, ballistics and gunnery, duties of executive, stable management, equitation, driving drill, reconnaissance and occupation of position, camouflage, entraining, smoke-bomb practice, antigas, first aid and personal hygiene, night movements, field fortification, and rifle practice. Each of the foregoing stated in a brief manner the standard to be achieved by each officer.

The third part was a list of specific questions the answers to which I had failed to get in my previous telegrams. These questions covered the personnel and materiel on hand in each unit, the type of instruction that was being conducted, and the means with which this instruction was being given.

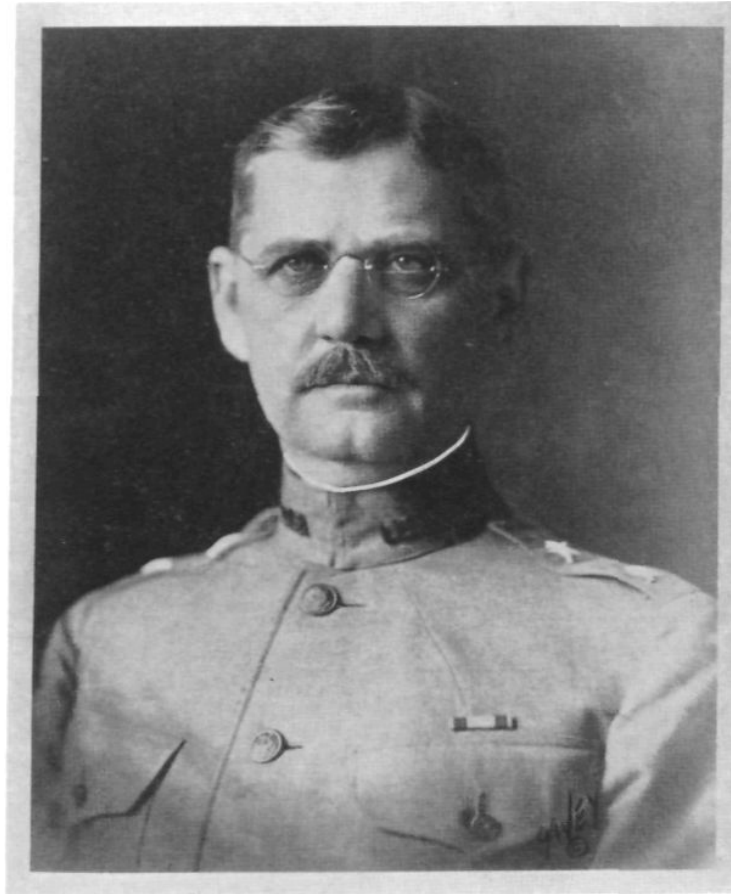
I had largely concentrated my efforts on preparing this questionnaire, which was quite comprehensive, as I realized that the replies would give me all the data I needed to collect outside of Washington, in order to obtain a full

grasp of the field artillery situation. But it was not until I was in possession of this information and what I could get in Washington that I would be in a position to formulate a comprehensive scheme for putting the field artillery on its feet. In the meantime there were several matters in Washington that demanded my immediate attention.

STATUS OF THE CHIEF OF FIELD ARTILLERY

In the very early days of my incumbency as Chief of Field Artillery everything went as lovely as a marriage bell as far as my relations with the staff departments and committees of the General Staff were concerned. They were all so pleased at finding some man upon whom they could shift responsibility for field artillery matters, some man who had the technical knowledge necessary to decide pending field artillery questions, and some man who would take work from the overburdened committees and relieve some of the congestion, that no exception was taken, at least so far as I could discern, to any action I saw fit to take.

From February 4 when I was detailed verbally as Chief until the 10th when the written order came out from the Adjutant General's Office, people with whom I conferred had to take my word that I actually was Chief. With one exception, however, no one questioned this fact. As to the orders I gave in the name of the



"Doc" Graves

Secretary of War, they also were accepted, though not so enthusiastically as my decisions on technical matters.

Of course this state of affairs was too ideal to last indefinitely, and no one knew better than I that sooner or later I would clash with some committee or department, and a show-down as to just what authority I had would be called for. As a matter of fact I had been given no authority. I had no status except that I had been detailed as Chief of Field Artillery. There never before had been a Chief of Field Artillery in the United States Army and, consequently, there was nothing in law, regulations, orders, or custom, which prescribed the

status and authority of the incumbent of the position.

On the evening of February 7 a reorganization of the War Department was approved by the Secretary, but it did not cover my status. So during the next day or two I examined the new organization carefully to see where the Chief of Field Artillery would fit in most naturally. The choice seemed to be either under the Operations Section of the General Staff or directly under the Chief of Staff. On the 11th I discussed the matter with the Acting Chief of Staff, telling him in very general terms and in a few words what I had been doing, and explained to him that my situation was liable to become embarrassing at any moment. I asked him to draw up a written paper fixing my status.

He told me to continue as I had been doing, but for me to draw up a memorandum assuming that I was directly under him, and to submit it to him for approval.

For the next ten days or so I was too busy with more pressing matters to give the proposed paper the amount of thought it required. However, some question arose, which I cannot now recall, plainly indicating that I was headed for a show-down. I accordingly submitted my memorandum to him on the 20th and he turned it over to his assistant for consideration on the 23rd. On the 25th I learned that the paper was being referred to the various sections of the General Staff for an expression of their views.

The reason that the Assistant Chief of Staff was reluctant to act on the paper without first consulting the General Staff was this:

He and I had been close friends for many years, and nothing has, even to this day, disturbed our friendship. But he had been an infantry officer, and took the ground that this arm was in need of a chief as much as the Field Artillery and that it was wrong to appoint a chief of the latter without at the same time appointing one for the former. "Doc" Graves, as he was familiarly called by his friends (and for over forty years I have been proud to class myself as one of them) was a man of sterling principles, sound good sense, and of fine soldierly qualities. His ability and loyalty were later tried to the extreme when, as a major general, he was in command of the American Forces in Siberia. As every friend of his knew in advance, he came out of that ill-fated venture with increased reputation and prestige.

While at the time General Graves and I were discussing the memorandum fixing my status, I had no strong convictions one way or the other as to the necessity of appointing a Chief of Infantry, yet subsequent events proved that he was right and before the war was over I wished many times that there was such an authority with whom I might promptly settle questions concerning both arms.

As the crisis relative to my authority was too imminent to admit of the delay involved in the circulation of my memorandum through the General Staff sections, I proposed that he take dinner with me at the club that night,

during which time we would discuss the paper and afterwards shut ourselves up in a room in the War Department and draft a satisfactory memorandum.

We followed this procedure. The next day we modified our agreement slightly, resulting in a document approved by the Chief of Staff on the 28th, extract of which follow:

The Office of the Chief of Field Artillery will be a part of the Office of the Chief of Staff, and the Chief of Field Artillery will be immediately subordinate to the Chief of Staff.

* * * * *

The Chief of Field Artillery will be responsible that adequate measures are taken to prepare the field artillery for overseas service. . . . The Chief of Field Artillery is authorized to control the disposition and use of all field Artillery personnel and materiel in the United States, subject to a priority claim from abroad. But, insofar as personnel is concerned, all travel, except in emergency, will be ordered by the Chief of Staff or his Assistant.

The Chief of Field Artillery is authorized to consult with and to correspond directly with Bureau Chiefs and head of Divisions of the War Department, any lack of agreement to be settled by the Chief of Staff. . . .

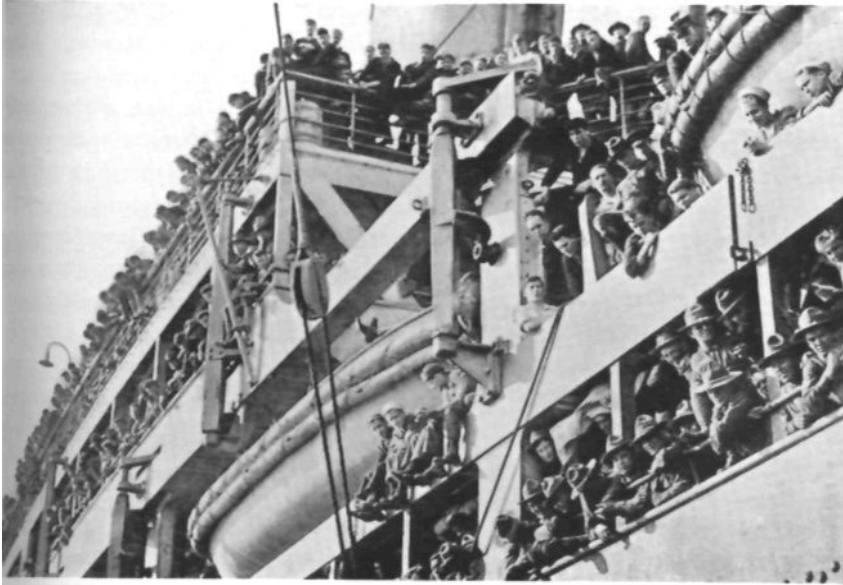
All questions pertaining to field artillery, arising in the War Department, will be referred to the Chief of Field Artillery and his decision, given in accordance with the policy of the Chief of Staff and subject to review by the Chief of Staff, will be final.

*To avoid disrupting existing machinery, and to secure harmonious cooperation, all field artillery officers on any General Staff committee will continue on such committees and will in addition, consult fully with the Chief of Field Artillery, in order to present to such committee his views and also to keep him thoroughly informed as to all field artillery matters under discussion in such committees. The Chief of Field Artillery will inform these officers as to the general policy which has been communicated to him by the Chief of Staff. These commitment men will thus not only perform their present work, but by reason of presenting the views of the Chief of Field Artillery will maintain a continuous policy in individual committees and, insofar as the field artillery is concerned, a coordination among the different committees.

* * * * *

In order to carry out the provisions of this memorandum, the Chief of Field Artillery is authorized to use the name of the Secretary of War in directing the Adjutant General to issue such orders as may from time to time be necessary, subject to the restrictions imposed (with reference to travel orders).

I have gone considerably into detail in this matter. But during the period prior to its adoption my position was exceedingly precarious. A challenge to my authority would have been disastrous to the newly created office of Chief of Field Artillery. Hence my anxiety to have my powers and responsibilities fixed. My efforts to do so were rather in conflict with the then policy of the War Department to postpone all important decisions until the arrival of General March. Fortunately the memorandum was approved just before my authority actually was challenged; I now stood on firm ground. I had all the authority I had asked for except that of issuing travel orders to personnel. I could not well take exception to this, because for many years only the Chief of Staff or



S.S. Leviathan, Brest, May 30, 1918

his Assistant had exercised that authority. Later it was granted also to the Chief of Field Artillery.

Part of the memorandum had been designed to offset a suggestion of the Acting Chief of Staff that I "appoint a couple of aides and go and visit the different brigades." At the time this suggestion was made to me I already had gotten enough knowledge of the field artillery condition to know that affairs had long since passed the point where the personal visit of any one man on earth could accomplish any real results. The difficulty lay far deeper than that; the whole field artillery structure would have to have a new foundation built under it, and this work would have to be done right here in Washington.

I would like to invite attention to that portion of the memorandum marked with an asterisk (*). I anticipated trouble in securing adoption of this, as it took away some of the independence from the members of the General Staff Corps and really made them my agents or representatives on their committees. This independence had always been highly cherished from the very creation of the General Staff, and this paragraph set forth a reversal of this idea. But I regarded it as highly important that power be concentrated in my hands to effect a unified policy and to prevent any working at cross purposes in bringing order out of chaos. The Assistant Chief of Staff did not demur.

However, the whole memorandum, having served its purpose, was shortly

filed away and forgotten during the balance of the war, for in a few days General March assumed the position of Chief of Staff and then things began to move so fast that there was no time for questions of authority to arise. March, unaccompanied by a brass band or blare of trumpets, quietly reorganized the human machinery of the War Department and then operated it under the greatest pressure the boiler would stand.

"GO TO IT, BILLY!"

General March was brought back from France in March of 1918 to be Chief of Staff of the Army. Up to his arrival I had met with but lukewarm cooperation from the General Staff, but now there took place a real awakening to the gravity of the situation and the magnitude of the undertaking upon which we were engaged. General

March replaced a number of the General Staff personnel and reorganized the body generally. This naturally took some time; but, as I remember, by the middle of May he had a highly efficient General Staff.

It was several days after General March's arrival before I could get in to see him. I then told him I was his Chief of Field Artillery. He said he did not know it. I said that I had not sought the job, did not know who had wished it on me, and wanted to go to France instead. He made no reply. I said that if he had any instructions to give me I would be glad to have them. There was a brief silence. I then said that, if he had no special instructions, I would make this proposition: "If I am to be Chief of Field Artillery, I am going to be what the name implies, and I am going to run the job, using your



name freely, and not coming near you to bother you except in cases wherein I must have your signature to put something over."

To that he replied, "Go to it, Billy!"

And those four words were all the instructions I ever got from him as to my duties, status, powers, responsibilities, and so on, during the entire war.

General March was the ablest and most efficient man I have ever served under. He accomplished miracles in the War Department. He brought that lifeless institution to life with the rudeness and suddenness characteristic of an electric shock. For getting results at that critical time in our history he was exactly the right man in the right place.⁷

It was said of him all during the war (while he was Chief of Staff) that the test of whether you were doing satisfactory work was whether you continued on your job or were relieved. Make a break, and off went your head. This used to amuse me, for I knew that all March wanted was results, and that I was in the same category as all the other heads of departments; I might arrive at my office any morning only to find that I had been relieved for slipping a cog somewhere. But I also felt sure that in such a case he would send me to France, where I wanted to go. And in the meantime I was carrying on my work to the best of my ability, and I had absolute confidence in March's fairness and sense of justice.

March never stood on his dignity or rank; you could discuss your business with the utmost frankness, totally disagreeing with him and flatly contradicting him. On one or two occasions I personally "blew up" in our discussion. But, so far from affecting our relations, these acrimonious discussions served only to clear the atmosphere. But woe betide the man who tried to take up March's time in discussing some subject of which he was partly ignorant!

I have spent some time in describing March, for the reason that there is not, in my opinion, another man in or out of the Army more entitled to credit for America's victory in the war than is General March. He inherited inefficiency and chaos; in an incredibly short time he brought forth order and such efficiency as must have surprised even himself. He deserves much from the American people, but probably the full value of his work will not be recognized until the final and impartial history of our war effort has been written.

ORGANIZATION OF THE OFFICE OF THE CHIEF OF FIELD ARTILLERY

I have told previously how the Chief's office started in the Peace building and in Room 291 of the War Department, and ran several days without clerical assistance. Business

grew pretty fast, and I was anxious to get things done, so busy trying to put the field artillery on its feet that I did not give a thought to records. Most of the business, anyway, was done verbally. But letters, papers, and telegrams would come in and did accumulate. This ran along for some time, during which period Major Bacon formed a tentative organization of the office and secured some clerks. But I would dislike to say that it was a smooth-working office, hence the earlier records were never straightened out. Perhaps some ideal of their condition can be obtained when I state that one day there arrived at the office a sterling silver trophy about two feet high, from some regiment, with a request that the Chief of Field Artillery take care of it safely during the war. I remarked that I did not know where to put it, when Major Bacon said, "File it in the records and no one will ever find it."

Without admitting the absolute accuracy of this facetious observation, it gives some idea of the office at that time. But, after the first rush was over and we had a little breathing spell, we of course organized the officers and straightened out the confusion.

The organization was a very elastic one. It had to be. The work was constantly increasing, not only in amount but also in variety. There was very little routine work. The mail truck stopped once an hour and dumped sacks of mail, of which some was routine. But otherwise each day brought new problems, calling on us to devise ways and means of meeting them.

Some organization was necessary, of course, for no business can function smoothly without it. Its absence leads to confusion, overlapping, inefficiency, and waste of time and energy. And there was none of that in the office. At the same time we never lost sight of the fact that organization is merely a means to an end, and we carefully avoided the formation of any "water-tight compartments," which almost invariably result from Tables of Organization.

We had three guiding principles: First get the work done efficiently and quickly; second, keep all parts of the office coordinated; and third, have as simple an organization as assures the preceding requirements. And, while the work grew, and while it became necessary to bring more officers into the office and to create new solutions, yet we never lost sight of the preceding three principles.

Under these conditions the office naturally became more or less the seat of conferences. All day long, various groups of officers would get together informally to discuss some matter, each contributing his share of information and opinion, and then by common consent the officer to whose department the matter pertained would take charge of the matter. Almost all the business was thus disposed of by conference, either in the office or outside. None of us ever wrote a paper, a memorandum, or a letter on any subject that he could settle by going and attending to it by a face-to-face talk or verbal conference.

Our treatment of records and official papers would

⁷I heard Secretary Baker, some years after the war, pay high tribute to General March's ability. He then added, "But I had to follow him up, figuratively, with a bottle of arnica in one hand and bandages in the other to assuage the wounds he made." To which I would like to add that no human being could accomplish the results that March did, without causing wounds.

have shocked a purely office man. One emergency officer had a habit of doubling up any official paper in the way a man frequently does bank notes, and then putting it in his pocket in the same way. When the paper ultimately emerged from the pocket it was crumpled and frequently covered with pencil memoranda, not always pertaining to the letter. The most I could do in the way of reform was to get him to use his blouse pocket instead of his trousers. But while he was carrying the paper around in this unmilitary manner, he got 100% action on it!

The Office was never large; I doubt if there were ever more than fifteen or twenty officers on duty at the same time, and about twice as many clerks.

Necessarily there were a few officers whose work was so outstanding that I still remember them. Among these was Colonel George R. Allin. Long acquaintance and intimate knowledge of his ability had shown me that there was no position in the Field Artillery which he could not fill creditably. I accordingly detailed him as Executive. He shortly brought order and system into the office, coordinated things generally, and not only ran the office, relieving me of all details, but also became a valuable advisor on all field artillery matters. He remained in this position until September, when new brigades were organized, whereupon he was promoted to brigadier general and given command of one of these brigades.

His successor was Colonel Raymond E. Lee, who brought to the office an ability to get results with less friction and more suavity than I have ever seen. He was good-natured, a tireless worker, and possessed great ability. He continued in the office for four years.

In these two executives I was fortunate, and I feel deeply grateful for the ability and loyalty they put into the position.

Major E. P. King, Jr., an officer whose outstanding qualities were (and are) ability, honesty, affability, and unswerving loyalty to me, was used as my confidential man. He carried on innumerable delicate conferences, mostly outside Washington, some of which called for tact and diplomacy in the highest degree, and he never made a slip. Officially he was the head of the Camps, Ranges, and Real Estate Section of the Office.

For one of our first projects we had to have accurate data as to how many officers there were in the field artillery. The Adjutant General was requested to furnish this information. After a lapse of over a month he finally replied that he was unable to do so.

Shades of Corbin and the sacrosanct Ainsworth! To think that the impeccable Adjutant General's Department did not know the total number of field artillery officers in the army, much less the number in each grade! However, I expect that none of us is above reproach. The army had grown so fast that it had gotten out of hand. But one result of this was the establishment of a Personnel Section in our office. This began with one officer and two clerks and grew to three officers and fourteen clerks.⁸

Some time after this, the Chief of Staff asked me how the Personnel Section of the Adjutant General's Department was getting along. I told him, reluctantly, that I had been compelled to establish my own section. Shortly after this he relieved the officer who had been in charge of personnel in the Adjutant General's Office.

Colonel R. McT. Pennell was the head of the Materiel section. In this subject he was a past master, and he fully justified my confidence in him. Later he was a member of the Caliber Board.

I cannot speak too highly of the value of the services of Majors Bacon and Channing, who performed so many and such varied duties that I do not have space to describe them. Their wide acquaintance among the "dollar-a-year" men, their initiative and resourcefulness, their direct methods and short cuts, their knowledge of business, and their absence of awe at military rank, gave them admittance to many inner circles and enabled them to get results promptly. In addition to being men of ability, they had pleasing personalities and a fine sense of humor, which was a saving grace in those troublesome times.

Of course, the Office had an Inventions Section. The American is quite prolific with ideas. One contractor thought guns and ammunition were obsolete and that what was needed was modern machinery on a large scale, so that a veritable subway could be dug under the enemy with steam shovels and the whole German army be blown up. Another man suggested a loaded club so arranged that when you hit a man over the head it would shoot him too. A very modest fellow proposed a pencil that would make its writing visible in the dark. Another had a plan for a folding bullet-proof steel umbrella. Still another suggested chemical powder to sift on one's body to cleanse it like a bath.

And so on. These schemes poured in. And they all had to be treated with polite consideration. As an illustration, I may mention the idea of a man from the southern part of the United States, who suggested that instead of high explosive, we load a rattlesnake into each shell. We thanked him and mentioned several obvious disadvantages and invited him to communicate with us when these difficulties were solved.

Then there was an Information Bureau, principally for members of Congress. We took the position of never saying "You have the wrong office." On the contrary, when a member of Congress called up about hand grenades or whatnot, we would tell him that, while this did not pertain to field artillery, we would get the information

⁸At first it was limited to current records of field artillery officers and the drafting of assignment orders. Later, complete control of field artillery personnel in the United States was centered in it; and personnel records from the A.E.F. were added. After the Armistice the complete records of some 18,000 students of the Field Artillery Central Officers' Training School were added, and later still, a complete record, as far as practicable, was made of every Field Artillery officer who served throughout the war.

for him. We were always definite, specific, and helpful.

We had a Statistical Section under Colonel Albert R. Gardner, who was exactly the man I needed. He was not only an able statistician but a man of tact and great diplomacy.⁹

There is another officer whom I want to mention on account of the peculiar position he occupied. In the summer of 1918 fifteen regiments of cavalry were converted into field artillery. I knew that this would bring disappointment to many cavalymen, and I wished to prevent antagonistic feeling arising. I therefore brought into the office Colonel E. P. Orton, who acted as morale officer for these regiments. He did his work so well that they soon had an excellent spirit and worked hard to learn their new duties.

I have described the office in a rather sketchy manner.

⁹My Statistical Section was really much more than the name implies. It collected information for me which I had to have, and some of which, from its secret nature, was hard to get. For some time the Section was unsatisfactory. Upon one of my visits to the School of Fire I asked the Commandant whether he could furnish me with a suitable officer to head this section. I said I wanted a man with great tact, a good mixer with a "nose for news." He replied that he had the very man in Col. Gardner and added, "He sat around the office for an hour this morning engaged in desultory conversation; I don't know what he came for, but when he left he had gotten the information he wanted."

But no tables of organization were ever prepared and the organization varied from time to time. There were two general divisions: Operations and Administration. Beyond this, nothing was fixed. New sections were added as their need arose and old ones were changed when the amount and character of their work suggested it. In reality, the organization revolved around the individual officers on duty. And this is as it should be in an office. Every piece of work ultimately comes down to one man and the secret of success is to put the right man in charge. In this I was fortunate, and that is what has led me to describe a few of the officers who were on duty with me. I have mentioned only those whose service was the longest.

In discussing an entirely different matter, General Leonard Wood once remarked, "There are no poor regiments; there are only poor regimental commanders. And in the same way the success of the Office of the Chief of Field Artillery depended upon the officers who were on duty there: all were honest, sincere and able men who knew no such word as fail.

In the March-April issue of THE JOURNAL General Snow will describe the dismal conditions confronting him with respect to training of personnel and the general training scheme which his office evolved to remedy these deficiencies.

Historians often ascribe to generals who have been successful as commanders in the field such endowments as prescience, intuitive divination of the enemy's designs and movements, and similar qualities. These gifts, to the preternatural extent implied, exist only in the imagination of the historian. A careful analysis and study of their campaigns merely indicates that successful commanders are those who by steadfast application of common sense and sound judgment have won battles, while those who were defeated were injudicious, lacked character, or took unwarranted risks.

AWARD OF SOLDIER'S MEDAL

To JOHN B. GARRETT (Army serial number 6,338,743), staff sergeant, Headquarters and Headquarters Battery, 2d Battalion, 83d Field Artillery, United States Army. For heroism displayed on the night of September 17, 1939, at Fort Bragg, North Carolina. Staff Sergeant Garrett, a member of the Military Police and Ranger Detachment, upon being notified that a murder had been committed, immediately went to the scene of the crime and with utter disregard of his personal safety, and well knowing that the murderer was armed, proceeded to apprehend and arrest him. Due to the darkness and fog, it was extremely difficult to locate the suspected person, and with Staff Sergeant Garrett's body silhouetted by the lights in the house to his rear, the murderer, without warning, opened fire on him. Staff Sergeant Garrett, flashing a light on the murderer, coolly and fearlessly returned his fire until the murderer dropped to the ground wounded, whereupon Staff Sergeant Garrett disarmed him and placed him in arrest. The heroism displayed by Staff Sergeant Garrett on this occasion reflects great credit upon himself and the military service.

Birthplace: Sandersville, Georgia.

Residence at enlistment: Manchester, North Carolina.

Present address: Hq. and Hq. Bat. 2d Bn., 83d FA, Fort Bragg, North Carolina.

DIVISIONAL ARTILLERY

IN THE POLISH CAMPAIGN

By COLONEL HARTMANN
German Army

(Translated by Brig. Gen.
O. L. Spaulding)



*German artillery in
action near Warsaw.*

Practical Lessons Gleaned from Actual Combat

I.—*General Considerations*

The question is sometimes asked, whether peace-time training is realistic, and properly planned as preparation for war; whether all modern weapons are given their due importance, without over-estimation. To these questions the events of the Polish campaign return a clear and unqualified affirmative. Nevertheless there are many other factors which have a controlling influence upon the conduct of war, which can not be expressed as doctrines and fundamental principles for incorporation in peace-time training. Such factors are, for example, the quality, combat methods and armament of the enemy; geographical relations, population, and communication system of the theater of war; finally, the specific strong and weak points of the enemy, and the unexpected situations which can appear only in actual war. To recognize these points at the proper moment, and to take full advantage of the opportunities thus arising, is essential to success. A war and the German eastern frontier differs materially in character from one on the western frontier.

In this campaign, elements of this nature were expressed and evaluated:

(1) In the bold plan of operations adopted by the German High Command; this implied, in execution, equally bold action, even down to the fundamental units, battery and company;

(2) In the fighting along roads, and for the possession of roads, the country having few roads, and those few in incredibly bad condition; this resulted in the loosest imaginable connection between units, often no direct contact whatever on the flanks;

(3) In the complete destruction of the Polish air force by the German; training principles which were worked out on the assumption that the enemy would be strong in the air could be, in fact had to be, thrown overboard, if full advantage was to be taken of the opportunities that offered.

The result was a war of movement in the strictest sense of the word, a regular alternation of combat and movement, such as was rarely seen in large operations on the



Light Field Howitzer "18" during Polish campaign.

eastern front in the World War. This war of movement has confirmed anew two old military principles:

(1) Good results can be gained only by troops and leaders of the very highest quality. There is no time and no opportunity for learning, or for correcting defects that may be discovered. The good or poor effect to be obtained by a battery, assuming well-instructed gun crews, depends entirely upon the battery commander. None of his subordinates can make good the mistakes which he makes in going into position, or compensate for his lack of skill in firing.

(2) War of movement puts an end to any complications of peace-time training. Such methods simply fall to pieces. Only things which are simple and primitive can stand the test and insure success. This does not mean that certain elaborations are useless; but their use requires time, which may be available under conditions approximating position warfare, but not in actual war of movement. The limit of their usefulness, in general, is at the point where they cause material increase in the difficulty of training newly raised units. This point will be touched upon again, later.

For the light, and most of the heavy, batteries, the finest and the most satisfactory task is the immediate support of the infantry, in attack and defense, with observed fire; but it is also the most difficult. Artillery tactics and technique must combine to satisfy the requirement that maximum artillery support must be given to the infantry.

Other, and equally important tasks, as familiar to both light and heavy batteries as their daily bread, are counterbattery work, firing with air observation, and map firing. In execution they are, in so far at least as the batteries are concerned, primarily a matter of technique and good training. The personal influence of the battery commander upon the course of the action falls off, in comparison with the task that is placed before him in the immediate support of the infantry. Tactical control is exercised more fully by the higher echelons of artillery

command, through assignment of the various tasks to the subordinate artillery units.

II.—*The Advance*

The familiar allotment, of one artillery battalion to an infantry regiment, and the formation of the two into a "march group," provides the basis for this section of the discussion. This automatically determines the task of such a battalion—support of the infantry in action. It also suggests, as the most natural solution, that the battalion be placed under the orders of the infantry regimental commander. If additional artillery battalions later go into action, the one initially attached to the infantry will as a rule revert to the command of the artillery regimental commander, for a single command is necessary to the formation of an artillery mass for the further progress of the action.

For placing the artillery battalion in the infantry march column, there are two possibilities. It may be incorporated in the main body; or parts of it, at least a battery, may join the advance guard, where it marched with the reserve. The second method is the better, except in special cases.

The natural and proper requirement made by the infantry is that it should have artillery support from the very moment of its entry into action. If the leading battery is marching with the main body, it must be brought to the front early; that is, it must trot up. But the distance from the infantry point to the leading battery was the main body will be some 4 km. or, with the additional depth called for in protection against air attacks, at least 6 km. To trot a battery or battalion up past a march column for such a distance is almost always impossible. The width of the road, the nature of the road and the traffic conditions make it out of the question to trot at all in most cases. It should not be overlooked that in a modern division, with its innumerable vehicles and its great length, even the poorest of roads will be used for the advance. Then too, such a column of artillery, trotting to the front, will become involved in two-way traffic—messengers



During the advance.

coming from the front, and motor vehicles trying to get past from the rear—headquarters cars, antitank guns, etc. Traffic jams will be the inevitable result, preventing anyone from getting to his destination. The idea that artillery can trot up, from any march column of any considerable length, must be given up. Good peace-time training drills the battery to get into action, measures in minutes the time from orders to go into position until the battery is ready to fire, and uses these records among other things in estimating the quality of the training. That is right and proper; the minutes saved by this training, however, bear no relation to the time lost if timely measures are not taken to get the battery out of the march column and up to the proposed position. Hence, if the artillerist is to satisfy the reasonable demands of the infantry, at least one battery and perhaps two must be with the reserve of the advance guard. The battery commander with his detail should ride with the advance-guard commander. Preparation to fire is

Before closing this chapter on placing batteries in the advance guard, it should be noted that such a battery belongs to the advance guard only for march purposes, and is not under the tactical orders of the advance-guard commander. It should be sent into action only by the infantry regimental commander, who passes his orders through the artillery battalion commander. Only by this method can unity of command be assured, and the fire be directed as the infantry regimental commander requires. Accordingly, the artillery battalion commander habitually remains, on the march, near the infantry regimental commander. He may often go, in his cross-country car—an absolute necessity to him—even up to the infantry point, to familiarize himself with the situation there and to get a look at the country in front. This procedure, and this method of command, will bear rich fruits when the time comes for him to make his recommendations as to the use of the battery. It is the only reliable method for insuring that his batteries shall be in the right place at the right time, to



Light Field Howitzer "18" going into action in Poland.

primarily and chiefly a matter of leadership and organization, rather than of training.

And here it may be well to consider some of the details of placing a battery in *position in readiness*.

We may assume that the battery is marching with the reserve of the advance guard; a message from the front reports that the hill directly in front is held by a small hostile force. The leading elements of the infantry advance guard are already deployed, and advancing against the hill. At the same time, the battery receives orders to take *position in readiness*. Meanwhile, the weak hostile force, a mere reconnaissance party, has disappeared from the hill.

We know by experience that if artillery has gone into position it can no longer keep even its observation posts up with infantry which is advancing unopposed. The battery must soon change position; if at this moment the infantry meets with resistance, it will have no artillery support. As already noted, batteries from the main body will not yet be up. The lesson to be learned is that batteries should not go into position prematurely, but only when definite news of the enemy is available.

go into action at the opening of the engagement.

To facilitate the handling of the batteries, the battery combat trains of the battalion should be consolidated into a battalion train, to follow in rear under its own commander, independent of the battery commanders.

III.—*Combat*

A.—*Occupation of Position*

In this chapter also, the discussion will deal with a light artillery battalion marching with infantry. For any task—harassing fire by the map, counterbattery, firing with the assistance of airplanes or the observation battalion—both battalions and batteries must be competently trained, of course; but the primary task is to break down hostile resistance by observed fire.

The executive officer and the chiefs of section should not be called forward to receive instructions for going into position until the battery is within 1½ or even 1 km. of the position selected. In view of the possibility of air attacks, or of special difficulties such as wrecked bridges or traffic jams, it is a mistake to take all these leaders away from the battery too soon.

The simplest and quickest method for laying the guns is by compass. This requires no topographical operations and no topographically located base point; and in ground where the view is poor it is the only practicable procedure. It fails only in cases where the position is near high-tension electric wires. In the Polish campaign, observation was generally poor, and laying by compass became the normal procedure.

It is an old rule that the gun positions should be as near as possible to the infantry line of departure. Every hundred meters thus gained helps in maintaining communications and makes it possible to keep up the supporting fire so much the longer without change of position. Of course, there must be a compromise, according to the air situation, between an advanced position and one farther to the rear but better concealed. In Poland it was justifiable to disregard concealment against planes.

The war of movement has emphasized the necessity of placing the artillery directly in rear of the infantry to be supported. Positions very much outside the sector of attack (see Sketch No. 1) seriously increase the difficulty of the conduct of fire; and especially when observation is poor the danger to our own infantry from range errors is much increased.

B.—Coöperation with infantry

1.—POSTS OF OFFICERS

Discussion of this subject in the technical magazines has been even over-elaborated. The (Polish) campaign has shown that it is simpler in practice. The typical country in the theater of operations is covered with clumps of trees and bushes, and the view to front and flanks is limited to 600 or 1000 meters, with no commanding high ground. The prospects for visual connection with the infantry, and for coöperation, were therefore decidedly unfavorable. Only three times did the present writer have, at the beginning of an attack, even fairly good observation.

For example, on one occasion, the infantry was to advance from its assembly position, and attack across the Warthe Valley, about 2.5 km. of perfectly open ground. Elevated observation posts about 600 m. behind the leading elements of the infantry gave good observation for about 3 km. When the infantry had gained 600 m., bringing them 1200 m. from the observation posts, the leading infantry could no longer be clearly made out; neither could be made out the source of the hostile flanking fire from the low ground, which slowed down the advance. Over and over again, experience showed us how difficult it was even to guess where the enemy's defensive posts were, if he conducted his defense skillfully—not to mention actually locating them.

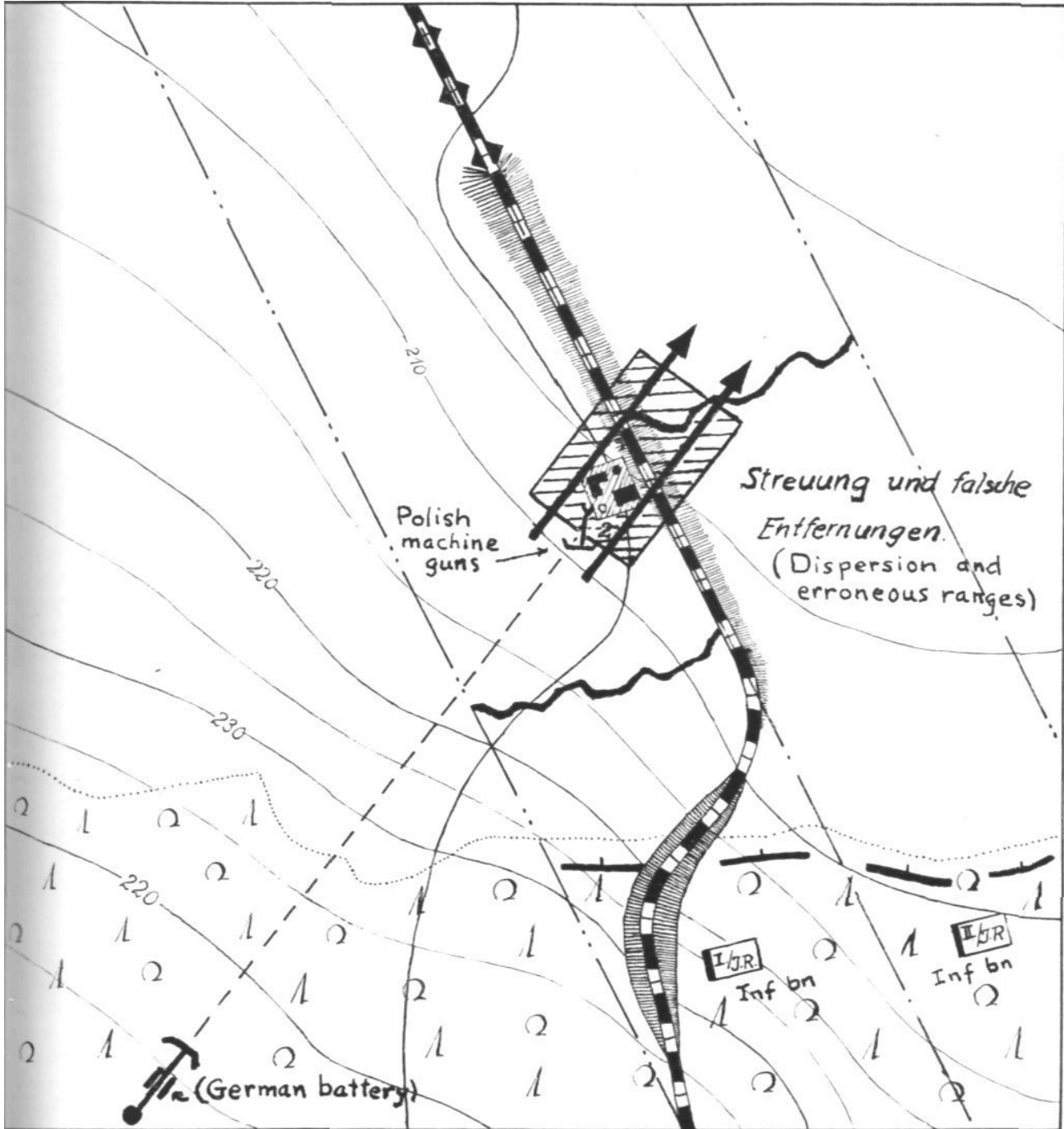
The artilleryman congratulates himself, very properly, when he finds commanding observation posts, and is drawn to them as if by magic. But as the above illustration shows, such points lose their value all too rapidly for the artillery commander who is trying to support advancing

infantry. He must be sure not to stick to them merely because of their command. They are of no further use when the artilleryman can no longer make out with certainty the position of his front lines. Never to lose sight of those lines is the secret and the gospel of any effective artillery support. Only then can he make out the enemy who is opposing our advance.

The selection of an observation post is largely controlled by this principle: *In an advance, it must begin the infantry front lines.* By this process, the necessary visual and physical connection between company and battery commanders is established in the simplest and most natural manner. From the mere fact that the infantryman sees the artillery observer beside him, he appreciates that he has his support. Only by actually living with the infantry in attack can the artilleryman properly and quickly identify the targets described to him, and—a matter of great importance to him—find favorable observation posts. Finally, this is the only way to guard against short fire by our own artillery; the results of such an accident can be appreciated only by an artilleryman who has actually been there with the infantry. Where the infantry can stay, and keep up the fire, the artilleryman also can do his work. The disadvantage that such an observation post will rarely have good view to the flanks, must be taken into the bargain. This point will be mentioned again, later.

In attack, in war of movement, the post of the artillery battalion commander should be on a line with the battery observation posts—that is to say, as just indicated, generally in the front lines, with a small staff. The desirability of close personal contact with the infantry regimental commander should not tempt him to depart from this principle. As a rule, the infantry regimental commander will be farther back than the artillery battalion commander should be. To have the two together will be practicable only occasionally, as for example during the preliminary stages of the attack and in especially favorable ground. Their posts will normally be separated, for the following reasons:

The infantry regimental commander handles his attack on the basis of reports which he receives from the front supplemented by his own personal reconnaissance. He takes action by means of orders only at moments when the situation demands it. The artillery battalion commander, on the contrary, directs his fire continuously; does not, like the infantry regimental commander, act only intermittently. If the two commanders are not together, their coöperation is insured (a) by preliminary consultation as to the conduct of the attack (for details, see below, B-2); (b) during the attack, by wire lines laid by the artillery battalion; wire is also laid by the artillery battalion to such infantry battalions (of the supported infantry regiment) whose command posts are not adjacent to that of the artillery battalion; (c) as the attack progresses, by advance of the infantry regimental commander's station, and resumption of personal communication between the two commanders.



Sketch 1

This close connection, created by appropriate selection of the commanders' stations, and strengthened by the personal association of the infantryman and the artilleryman, leads to close personal relations between the two arms. This association should not be unnecessarily broken down by changes in the assignment of artillery to the infantry; only for cogent reasons should this be done. The artillery will gladly make long marches to again touch with "its own" infantry.

The command of the batteries by the battalion is at the outset centralized, through concentrations in the sector of

an infantry battalion or company. As the attack progresses, this centralization weakens, and the support is handled by special orders such as: "1st Battery will support the attack of the 2d Company." Company and battery commanders then work closely together, to break into and through the enemy's resistance. If resistance becomes stronger again, control is automatically resumed by the artillery battalion commander. It is essential, of course, that battalion and battery are fully informed as to changes in observation posts; this is the affair of the battalion commander.

2.—PRELIMINARY CONSULTATION AS TO CONDUCT OF
ATTACK, BETWEEN INFANTRY REGIMENTAL AND
ARTILLERY BATTALION COMMANDERS

Illustration—attack across the Bzura, Sept. 16.

Situation (see Sketch No. 2).—On the evening of Sept. 15th, the enemy had been steadily pushed back by successful attacks; but the river bank, 1½ km. distant, could not be reached by dark. Orders were given for a renewal of the attack in the morning, after a short artillery preparation. The first objective was the farther river bank. The country was flat; view to the flanks was restricted by trees and bushes. In front, it extended to the river, whose line was indicated by bushes along the banks. Patrols determined in the early morning that the enemy had withdrawn to the river bank, but was firing from there. It was not yet certain whether there were hostile forces on our side of the river or only on the other side. At daybreak, the artillery battalion was pushed forward into the new firing position, not far distant. A consultation was held by the infantry regimental and the artillery battalion commanders, 1½ hours before the attack was to begin.

Infantry commander: "I am putting in my Second Battalion on the right, First Battalion on the left. I am anxious to get artillery support especially for the Second Battalion, to push it through the thick country just ahead and across the river east of the bridge. The attack will begin at 7.30 AM. By that hour the enemy should be under fire severe enough to permit the battalion to pass rapidly across the ground in front and reach assaulting distance. Besides this principal mission, it should be possible, with the assistance of the infantry guns attached to the First Battalion, to repel any counterattack directed upon that battalion, and also to protect the Second Battalion from a hostile flank movement, after crossing the Bzura, coming from the region west of the bridge."

Artillery commander: "The center of gravity of the attack, it would seem, is to be in the Second Battalion. The narrow limits of view to the flanks would make it very hard to support both battalions at once. I therefore recommend assignment of all the batteries to the support of the Second Battalion, to avoid splitting up the effect of the fire. For the special case, of a hostile counterattack against the First Battalion, I propose sending an artillery liaison detail to that battalion, and also establish a lateral observation station for the First (infantry) Battalion from my left battery."

Infantry commander: "I'll agree to that. But besides taking care of the counterattack, this left battery must also be on the watch for a flank movement from the region west of the bridge, which might stop the advance of the Second Battalion."

Artillery commander: "Yes, indeed; the left battery can, if necessary, look after this also. But I should be glad if you could arrange to push the front boundary of your assembly area forward to the line A-B. From the little elevations there, the battery observation posts and the

battalion command post can observe the front of the attack. I will lay wire from the infantry regimental command post, in the vicinity of the school, to my own battalion command post."

Infantry commander: "I am very anxious to have the infantry, during the artillery preparation, work forward as close as possible to the enemy. How near can they come, without danger of short fire?"

Artillery commander: "They may safely go as far as the line C-D."

Infantry commander: "When we reach the river bank I shall go to the old bridge near the mill. You can get in touch with me there."

The commander of the Second Battalion of the infantry regiment was present at this discussion, and arrangements were made for establishing wire communication of that battalion with the artillery.

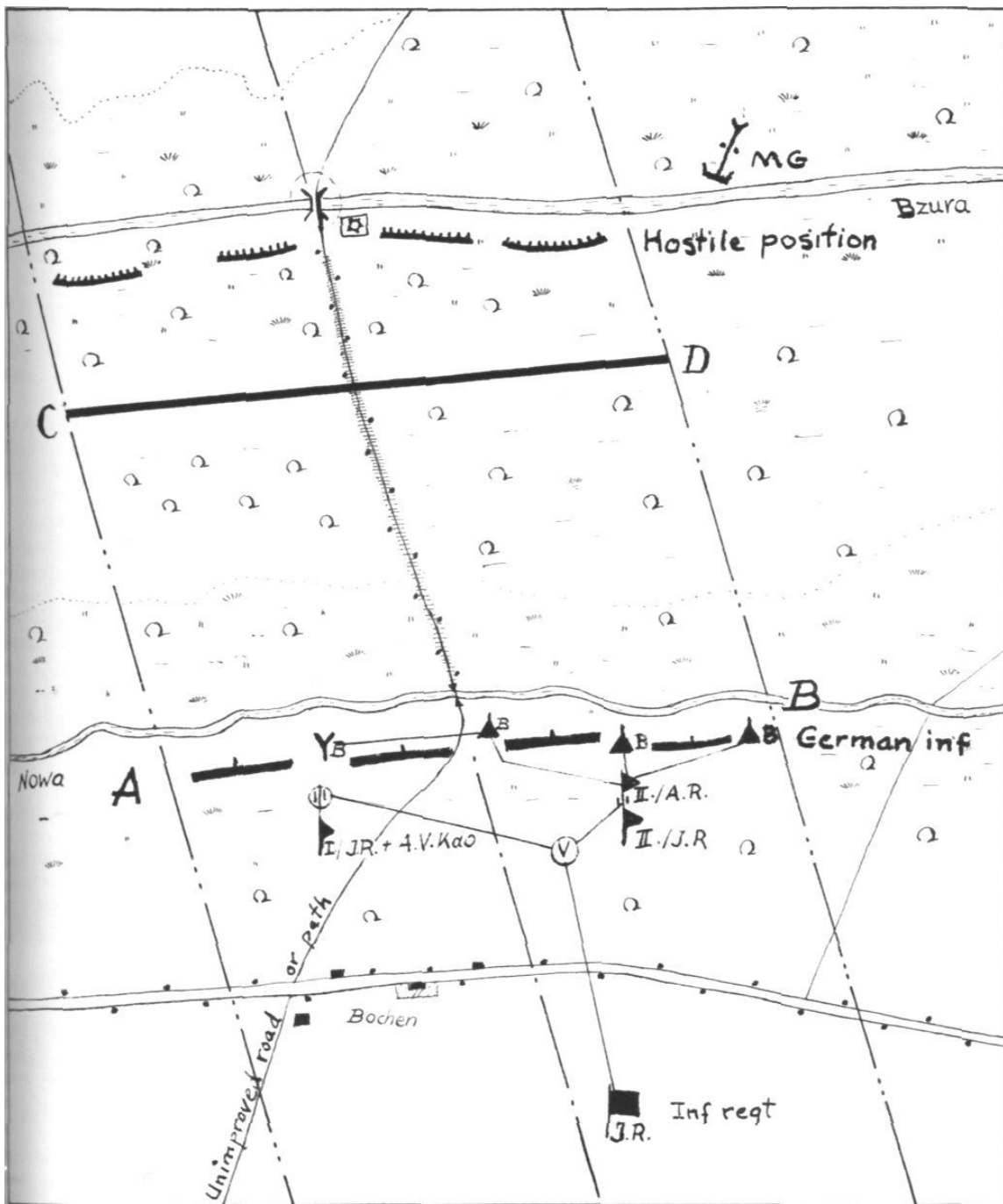
In conclusion, a few comments suggest themselves.

(a) In a situation like this, the time for the attack must not be set too early. There will be many preliminaries to be arranged at daybreak, such as taking up the initial attack formation, occupation of the firing position, establishment of forward observation posts, and final reconnaissance of the enemy's position. Commanders of all grades will naturally wish to attack as early as possible, but this wish must yield to the necessity of making all these preparations. A little time is spent here; it will lead to greater success, a saving of time in the end, and reduced losses.

(b) Only strong fire concentrations will be effective hence, when artillery is not too abundant, especially the field of view is not good, no attempt should be made to support all the attacking elements at once. In this case, only the Second Battalion is considered. Ammunition expenditure of 80 rounds in 10 minutes is not too much.

(c) Let us assume that the attack is making progress. At first, the Second Battalion gets on better than the First. The front line is continually changing and shifting. The First Battalion asks, through the liaison detail for artillery support. It is possible for the flank observer of the left battery to bring fire into the territory of the First Battalion. It is a matter for the artillery commander to decide. If this system—liaison detail and flank observer—is not installed, prompt support of the First Battalion is not possible; the call for support should have to go from the battalion to the infantry regimental and thence to the artillery battalion. Between the call for support and the opening of fire, the situation in the First Battalion may change materially.

Map firing without observation in such maneuver situations is a mistake. Either the fire is placed too far over, from considerations of safety for the infantry, and does not give the results required by the First Battalion or else there is too much risk of short fire. The situation is not the same as in stationary phases; as, for example before the attack starts, where the fire may easily be



Sketch 2

II - Artillery bn CP, with wire connection to OP's.

YB - Flank observer from left battery, with wire connection to the btry.

III - Liaison detail, with wire connection to the battalion.

V - Battalion switchboard

BA 0200 75 179

MORRIS SWETT LIBRARY, USAFAS



International News Photo

Prior to the Polish campaign—Germans practicing ferrying artillery. Note outboard motors at the right of the pontons.

shifted over broad limits even without observation. In the case under consideration effective support can not be given without observation.

In view of the excellent system of close communication existing in the sector of the main attack, it is best to send the liaison detail with the First Battalion.

IV.—*Firing and Ammunition*

The moral effect of rapid and accurate artillery fire is of greater value than the actual losses inflicted. Light artillery will keep a well-entrenched enemy down, rather than destroy him.

During the artillery preparation before an attack, it is best to use percussion fire and delay-action fuzes, to penetrate light cover. But shortly before the infantry moves out, the old reliable air burst should be used, to keep the enemy's heads down.

It is a good rule, in attack in the open, to begin with a long range, as a measure of safety for the infantry. For the same reason, when observation of the target is not good, it is justifiable to creep by range changes of 200 or even 100 m., instead of the usual changes of 400 and 600 m.

The excellent ballistic qualities of the light field howitzer 18 have demonstrated the correctness of the German firing methods, which are simple, rapid, and flexible. The same is true of the regulations for firing with

the observation battalion and with airplanes. In using air observation, experience has again shown the importance of the duties of the ground radio station officer, who can eliminate much minor friction and many misunderstandings between ground and air, and so insure the success of the firing.

The excellence of our ammunition appears from the statements of prisoners, and from our own observation of the poor quality of that of the enemy. To assist both infantry and artillery in ranging, it would be well to use colored smoke compounds in the shell of the heavy infantry guns.

V.—*Use of Machine Guns*

The use of the battery machine guns against airplanes soon became, in view of the air situation above described, a side issue. Only twice was there an attack by a lone plane upon batteries in march formation. A few caisson teams, frightened by the defensive fire of the cannoneers, were stampeded. Our experience has been that in case of surprise by low-flying planes, defensive rifle fire comes too late. On the other hand, it is necessary to protect the firing position against surprise by small hostile groups and stragglers, who are often passed over by the front lines in cases of rapid advance without contact to the flanks. In the case of one brief defensive phase, a line of resistance was established with machine guns, to stop a threatened break-through, but the occasion did not

rise. The two machine guns issued to each battery as air and ground defense are not a side issue, but a necessity. The time devoted to training with infantry weapons is not wasted.

VI.—*Care of Horses*

The best evidence of the performance of the horses, in long marches on poor and sandy roads, is that the batteries were always ready at the right time and place, to go into position. The motors were reliable too, but were superior to the horses only in speed, in quick changes of position.

Big-boned warm-blooded horses—Oldenburgers, Holsteiners, East Frieslanders—were the best, and were able to handle the heavy gun loads at a trot. They were selected for the gun teams, and were able to overcome all difficulties of the ground. The replacement horses, mostly cold-blooded, were generally satisfactory in the caisson teams. For the supply of forage and straw. Poland was an ideal country, the harvests having just been brought in. Water supply was not so good. The drawwells were few, and soon gave out. Then every rest had to be devoted to watering. To accomplish this rapidly, more watering buckets were needed than the regulation allowance, and metal buckets were picked up everywhere. Each carriage ought to be provided with them.

To expedite harnessing and unharnessing, double ring bits should be provided for all team horses.

On the sandy roads and in the hot weather, the hoofs dried out and became brittle; the shoes lost their hold. This

became a cause for serious worry; but by constant care material losses were prevented.

Since the horses were called upon for such great exertions, it came to be the practice, even in the limber positions, to unharness when possible, to allow the horses to graze, or to give them the oatstraw that was to be found everywhere. Equally important for keeping up condition was frequent grooming, especially under the saddle and breast-collar.

After a day's march or an engagement, a regularly-formed bivouac close to a village was preferred. The warm clear weather favored this, and the air situation made it possible. Protection against night attacks by irregular troops was much easier than in case of billeting in villages or scattered farmhouses, and less time was required to prepare to move in case of alarm.

To keep up the horses' strength, horse covers should be used on cold nights.

In closing these remarks, it should be stated again that they deal only with war of movement and with the attack. They are in full agreement with our artillery regulations. In the chapter, "posts of officers," the regulations are stretched forward to the limit. This was caused partly by the opportunities which this campaign offered, and partly by the necessities of the case.

Again we would repeat, that in such war of movement the simplest and most natural methods are best.



10.5-cm. gun firing in Poland.

The Rains Might Not Come

Since the introduction of tanks in warfare, opinion has been divided as to their proper uses, both as an offensive weapon and on the defensive. We hear of their employment in a mass attack, overpowering and crushing all resistance; while on the other hand we are told that tank traps, land mines, antitank guns, artillery, and airplane bombs can stop them before they overrun or outflank the infantry front line.

The war in Ethiopia gave us definite information as to just how helpless a poorly-equipped people are against such weapons. Again the Spanish War demonstrated how effective tanks can be against an unprepared force, yet how equally ineffective they are against a force equipped with weapons which score direct hits.

In the present European war, all belligerents have the greatest array of tanks and mechanized forces the world has ever known. We have already learned from the German campaign in Poland just how effective such armament is against an enemy who was unable to stop it; Polish land mines, tank traps, and antitank guns seem to have been ineffective, or were not used in sufficient quantities.

Common sense should tell us that if barriers are large enough, if traps are deep enough, if mines are powerful and numerous enough, tanks will be stopped if they run into such obstacles. These means are usually possible on the defensive and then only where a relatively long time is available for their construction. Every war since that of 1914-18 has demonstrated that the time element was seized by the attacker to an extent unheard of prior to 1918. But what is a commander going to do when he doesn't have the time to construct such means? What did the Ethiopians do? What did the Spanish do? What did the Poles do? What are the Chinese doing? They were helpless as far as stopping such attacks was concerned. Why? They either did not have, or did not use, a weapon which could score direct hits on fast-moving tanks and mechanized vehicles.

What could we do if M day were tomorrow, and I don't mean mañana? In my opinion, in our present state of training, we could do nothing until the hostile armored vehicles ran out of fuel; that is, ceased to be fast-moving targets.

The only point on which all military men agree, in the problem of defense against tanks and mechanized forces, is one of common sense; namely, a direct hit on any such vehicle will put it out of action.

It would seem that since even the most ardent supporters of mechanized vehicles agree that they are vulnerable to direct hits, we might start our problem on that basis. Tank—gun—direct hit—tank out of action. In fact, a start has been made. A limited number new

antitank guns have been manufactured; a new sight for the 75-mm. pack howitzer has been tested and a small number are in use. Paragraph 4 of the War Department Training Directive for 1939-40, dated December 28, 1938, emphasizes the necessity for training in tank defense.

What results have been accomplished? At least the Field Artillery feels that, where indirect laying is used covering zones, and areas where zone fire is used on assembled tanks or other mechanized vehicles, the problem has been solved. However, where direct laying is employed, even the most optimistic are not agreed that solution has been found; and the faster the tank moves the fewer there are who are in agreement on a solution the vital problem. After talking with many officers acumen, and after having had considerable experience with the problem for several years and with the latest equipment now in the hands of our troops, the writer is of the opinion that the problem is far from solution.

What is the reason for this apparent failure of the antis to keep pace with the tank advocates? It is entirely possible that during peacetime we have erroneously assumed that we can hit moving targets. This is because a few selected and well-trained gun crews are able to score direct hits on a moving target in a given set-up where many ordinarily unknown factors are known, on a range

By Major O. F. Marston, FA

which is itself well known to the gun crew, where usually the path of the target is fixed, and where it never travels over 15 MPH (less when computed for traveling at a right angle to the line of fire).

It is the American way to publicize the few exceptional feats, to take for granted that all of us can perform as well as the exceptions do under the favorable but artificial conditions above mentioned. The press, the news reels, and a few rehearsed demonstrations soon lull Mr. Citizen (including Army officers) into a false sense of security. We hear of the exceptionally efficient gunners, but to be really effective in battle, knowing that only direct hits put tanks out of action, ALL OUR GUN CREWS SHOULD BE EFFECTIVE.

It is reported in the press that the Army, at long last is about to receive a few antitank guns, incidentally fewer guns than tanks. It would appear that since any potential enemy of the United States is already well

¹FIELD ARTILLERY JOURNAL, July-August, 1938, p. 286.

equipped with tanks and mechanized forces, it would be advisable to have a preponderance of defensive antitank weapons and well-trained gun crews to man them. The offensive spirit is laudatory, but a sound defense is imperative, until such time after M day as we can manufacture, issue, and train in their use, antitank weapons.

The entire Polish Army was "flanked" out of existence in 20 days for lack of such weapons; the rains in Poland were like those at Fort Sill, unpredictable. Military experts are usually cautious in predicting the outcome of the use of new weapons until after they have had the final test, the result on the battlefield. The annihilation of the Polish Army by air and mechanized forces should be enough to convince the most conservative military experts and laymen alike that you can't destroy a modern mechanized army with the demonstrations given at the branch service schools. "At the present writing, the Army could put into the field for instant action only 60,000 trained troops, and those with only about three-fourths of the equipment needed to wage modern war."²

The Commandant of the Command and General Staff School stated that the Army is "not ready by a darn sight" for major war.³ What, then, are we going to do, when, as, and if, we, as officers and men in the Army of the United States, go into action? It's going to be sudden action. We are going into battle to fight with what we have at that time, whether it is the 1904 Springfield or the 1939 antitank gun. In the present state of antitank training with the defensive weapons which we are now using, we are going to be annihilated.

Let's take stock of the equipment we now have, and which we must use to prevent the failure which was the lot of Ethiopia, Spain, China, and Poland. Although the picture is as gloomy as a depreciator could wish for, it is not hopeless. Let's use a little ingenuity, do some serious planning, use plenty of common sense. Let's practice a lot with what we have—we can't lose! In the combat arms we now have weapons which fire projectiles which by direct hits will put a mechanized vehicle out of action. At all service schools we have developed methods of fire for direct laying by means of which direct hits are possible.⁴

²Brig. Gen. George V. Strong, Chief W.P. Division, W.D., *Liberty*, October 7, 1939, p. 15.

³Brig. Gen. Leslie McNair, Kansas City, Missouri, Oct. 4, 1939.



An officer of the Indian Army climbing into a British light tank during a demonstration of possible tactics against gas attacks.

What we need is practice on targets the approximate size of tanks traveling at the same velocity as the latest-model tanks travel.

We have the authority in the War Department Training Directive 1939-1940. We are now armed with weapons which, by proper training of personnel, can and must be used until more efficient weapons are actually in our hands. We have the ammunition for such practice, from that already available, by reducing the amount used for other training in which we are already proficient. Ranges for service practice are accessible to all during at least a part of the year. We have most of the trained personnel we shall have on M day. The organizations at the Field Artillery School have suitable targets and facilities for their use, perhaps other branch service schools have. What we haven't had is the determination. Let's stop this fallacy before M day! The Rains Might Not Come.

⁴(a) The Infantry School, Fort Benning, Ga.: *Combat Principles of Small Units and Infantry Weapons*—Vol. I, Chaps. 7 and 9; Vol. II, Chap. 7. *Special Security—Antimechanized Defense*—Vol. IV, Chap. 5 (Restricted). *Gun. 37-mm., Antitank, M-3, Carriage M-4* (Confidential). (b) The F.A. School, Ft. Sill, Okla., *FA Book* 161, 1936. (c) The Air Corps Tactical School, Maxwell Field, Ala.; *Attack Aviation*, June 1, 1939 (Confidential). (d) The Cavalry School, Fort Riley, Kansas; *Antitank and Antiaircraft Defense*, April 16, 1938 (Restricted). (e) War Dept.; *Defense against Mechanized Units*, AG 537.3 (2-17-38).

The Battery That Saved The Day

To have lived in daily association for several years with an ex-General officer of the Confederacy who had commanded troops in battle under the direct orders of both Lee and Jackson is a rare privilege, particularly for a military officer. It is my good fortune to have had that experience.

Brigadier General John Imboden, commander of "Imboden's Battery" at Bull Run, and later of "Imboden's Brigade" in the Shenandoah and on the retreat from Gettysburg, was my step-father. The most impressionable years of my early life were spent in his home. He died in 1895, but there is still the recollection of a tall, strikingly handsome man, smooth-shaven except for a mustache, of commanding presence, dignified, yet never aloof, and, to everyone, kind, considerate and just.

Successful battle - commander, engineer, geologist, architect, lawyer, author, political economist and statesman; widely read, with a profound knowledge of what were then called the Classics, perfectly poised and a brilliant conversationalist, General Imboden's versatility and magnetism won the admiration and high regard of all who knew him. To me, he represented the embodiment of leadership.

"Imboden's red-shirted gunners unlimber by the Henry House to answer the Parrots and howitzers of Ricketts and Griffin. The air is a sheet of iron, continually and dully shaken.

"The wreckage of Bee, Bartow, and Evans' commands streams back into a shallow ravine below a little wood—broken blocks, hammered into splinters by war—two thousand confused men reeling past their staggering flags and the hoarse curses and rallying cries of their officers, like sheep in a narrow run.

"Bee tries to halt them furiously—he stands up in his stirrups, tree-tall, while the blue flood of the North trickles over the stream and pours on and on.

"He waves his sword—he points to a grey dyke at the top of the ravine—a grey dyke of musket-holding Virginians, silent and ready. 'Look, men, there's Jackson's Brigade! It stands there like a stone wall. Rally behind the Virginians.' They rally behind them.

"Imboden is wounded. Jackson is shot through the hand, the guns of Ricketts and Griffin on the Henry House plateau are taken and re-taken; the gunners shot down at their guns while they hold their fire, thinking the advancing Thirty-third Virginia is one of their own regiments, in the dimness of the battle-cloud.

"It is nearly three o'clock—the South gathers for a final charge—on the left, Elzey's brigade, new-come from the Shenandoah, defiles through the oaks near the Sudley Road to reinforce the grey wrestler. The Blue wrestler staggers and goes back, on unsteady heels.

"The charge sweeps the plateau—Bartow is killed, blackhaired Bee mortally wounded, but the charge goes on.

"For a moment the Union line is a solid crescent again—a crescent with porcupine pricks of steel—and then a crescent of sand, streaming away.

"There is no panic at first. This is merely a moment when men have borne enough and begin to go home. The panic comes later when they begin to jostle each other.

* * * * *

"All night the Union Army fled in retreat.

"Meanwhile on the battle field Johnston and Beauregard,

Now joined by the dusty Davis, found themselves

As dazed by their victory as their foes by defeat.

They had beaten one armed mob with another armed mob.

* * * * *

"The chance went by

While only the stiff-necked Jackson saw it clear

As a fighting psalm or a phrase in Napoleon's tactics.

He said to the Surgeon who was binding his wound, with a taciturn snap. 'Give me ten thousand fresh troops and I will be in Washington by tomorrow.'

But they could not give him the troops while there yet was time.

He had three days' rations cooked for the Stonewall Brigade and dourly awaited the order that never came.

"Meanwhile he could while the hours of waiting away. By seeing the Stonewall Brigade was properly fed, Endeavoring, with that rigid kindness of his, to show Imboden the errors of his ways in using profanity—In the heat of battle many things might be excused. But nothing excused profanity, even then—"

(From "John Brown's Body." by permission of Stephen Vincent Benét)

In those days "The War" was the main topic of conversation when Southern men got together. Next to God, the War was the greatest thing that any zone could think of. Lee and Jackson, of course, being the greatest personages of the war, my step-father was always called on at the gatherings of ex-Confederate officers which frequently took place at our house to describe how they looked and tell what they said and did on various occasions.

My own father joined Morgan at the age of sixteen, and after the destruction of that raider's force in Kentucky, rode nearly a thousand miles, mainly through hostile country, to enlist as a member of Nathan Bedford Forrest's personal escort. As the son and step-son of a Confederate veteran I had, therefore, a double right to be present when war stories were told.

My interest in the war was so keen that my stepfather took me with him when he went to a great reunion held on the battlefield of Chickamauga where I saw more than fifty thousand ex-soldiers seat themselves at improvised tables—Blue and Grey alternating—to eat barbecued meat and smoke the pipe of peace. A corn-cob pipe and bag of tobacco were placed beside each plate.

By Colonel Cary Ingram Crockett, Infantry

The highlight of the reunion for me, however, was shaking hands with General John B. Gordon, the fiery little Georgian who held the bloody angle at Spotsylvania. I still remember General Gordon's indignation, my step-father's amazed resentment, and my own horror when toward the close of the day some Northern veterans struck up "Marching Through Georgia."

Naturally, by the time I was fourteen I had comprehensive knowledge, reflecting of course, the Southern viewpoint, of the principal campaigns and battles of the Civil War.

The stories written by General Imboden for the Century Magazine and later republished in "Battles and Leaders of the Civil War" were so familiar that I could almost recite them from memory. I had heard my stepfather tell them many times; also, each story was read aloud to the family before the manuscript was mailed; it was read to us again after publication, and finally I would take the magazine to my room and hide it for reading at night when I was supposed to be asleep.

General Imboden once spoke to me with deep feeling of the motives that led Lee and other Southern officers in the Regular Army to resign and join the Confederacy. Jackson had left the Army in 1851 and at the outbreak of war was a professor at the Virginia Military Academy.

General Imboden at first did not advocate secession. His father had fought in 1812 and his grandfather in the Revolution. But, when the threat of the invasion of

Virginia by Northern troops became a certainty, he felt impelled to act in defense of his native state.

General Imboden took me with him once on a fishing trip up the Laurel Fork of the Holston River, and at that time told me the complete story of the part his battery played in the first battle of Bull Run.

He began by saying that after secession Virginia was, or

claimed to be, an independent republic until admitted as a member of the Confederate States of America in May, 1861.

Then he traced in the smooth river sand the courses of the Shenandoah, the Potomac, and Bull Run. Two additional lines showed the Blue Ridge range and Warrenton turnpike. Using

stones as markers on the strategic map thus improvised, he located the main opposing forces as of the middle of July: Johnston at Winchester; Beauregard at Manassas Junction and along Bull Run; and the Union

General, McDowell, marching his newly created army of volunteers—one-third three months' men — on Centerville village.



BRIGADIER GENERAL JOHN D. IMBODEN, C.S.A.

From a photograph taken during the war, now in possession of Col. Cary I. Crockett.

McClellan was bringing his brief campaign in Western Virginia to a triumphant close, but the Septuagenarian General Patterson, commanding around twenty thousand three months' men, was vacillating before Johnston in the lower Shenandoah Valley, with Harper's Ferry as a center of gravity.

The strategic features did not interest me very much, but when General Imboden launched into his own story, he made history live again, and I listened with avid interest. Probably he was then formulating in his mind his article, "Incidents of the First Bull Run," published a

little later in *Century Magazine* and republished in the "Battles and Leaders" series. That article and his official report of the battle, dated July 22, 1861, of which I have a copy, have been used freely as aids and checks to memory.

Intensive training, first under Jackson at Harper's Ferry and then under Bee at Winchester, had developed the Staunton Artillery into a field battery in the true sense of the term. Brigadier General Barnard Bee, a West Point graduate, and regular of the old army, twice brevetted for conspicuous gallantry in the Mexican War, commanded Johnston's 3d Brigade to which the battery was attached. The strength totalled a hundred and forty officers and men. As to quality, the personnel could hardly be surpassed. College graduates, youths of leisure, and students formed the majority, which was leavened by about forty young mechanics. All were young, enthusiastic, intelligent, and of fine physique and stamina. Some of the more aristocratic privates had started out with colored body servants and large quantities of personal baggage, but under Jackson all unnecessary impedimenta quickly disappeared.

Imboden was then thirty-eight, a man of mature judgment and "as fit for war as a sword." One of the officers, Lieutenant Frank Imboden, was a brother of the Captain. The guns, four in number, were brass, smoothbore six pounders.

Three months of strenuous preparation had passed and the Battery was beginning to get a little stale. The local situation was quiet. General Patterson had crossed into Virginia again, but had halted at a safe distance from the Confederate position north of Winchester, and evidently did not intend to fight. Intelligence reports were to the effect that a majority of Patterson's men were demanding their discharges. Spring had merged imperceptibly into summer, and the weather was perfect. Life was good to the men in this camp in the beautiful Shenandoah.

But the period of inaction ended abruptly. About midnight, July 17-18, Imboden was aroused by a messenger from brigade headquarters. Bee was to report to Johnston immediately and wished his artillery commander to accompany him. Both officers knew that the order to report in the middle of the night meant something serious—probably a move against the enemy—and they were in high spirits.

Imboden waited outside headquarters while Bee and the other brigadiers received their orders. Bee came out of the building with the exciting news that Johnston would march that very day (July 18) to reinforce General Beauregard. The order to do so had just come from Richmond. This was the dispatch that later caused the controversy between President Davis and Johnston as to whether it was a positive order or left the movement to Johnston's discretion. It is quoted as an example of how an order should not be worded:

"General Beauregard is attacked. To strike the enemy a decisive blow, a junction of all your effective force is

needed. If practicable, make the movement, sending your sick and baggage to Culpeper Courthouse, either by railroad or by Warrenton. In all the arrangement exercise your discretion."

General Johnston held, as did also Bee and Imboden that use of the words, "if practicable," left Johnston free to act as his judgment dictated. At any rate, Johnston decided to move and did so immediately. Before noon the columns were in motion. The infantry set out by road for Piedmont, where they were to entrain for Manassas Junction; the artillery proceeded by marching and the bulk of the cavalry were charged with screening the movement.

Johnston's sick, some 1,700 men, were left at Winchester with only a few militia to guard them.

I asked my step-father how Johnston could have dared to turn his back on Patterson, who, after all, was confronting him with nearly twenty thousand men. He replied that Stuart and Ashby handled their cavalry with such consummate skill that they made Patterson think he was about to be attacked in force and cut off.

The result was that on July 20, at the very time when three of Johnston's brigades were joining Beauregard near Manassas Junction, and the fourth was on the way the Union commander was withdrawing to a defensive position near Harper's Ferry. Never was an enemy worse deceived.

Northern cavalry at that time was admittedly inferior. A Union cavalry commander wrote referring to Ashby's men: "As cavalry they are greatly superior to ours. I can't catch them. They leap fences and walls like deen Neither our men nor our horses are so trained."

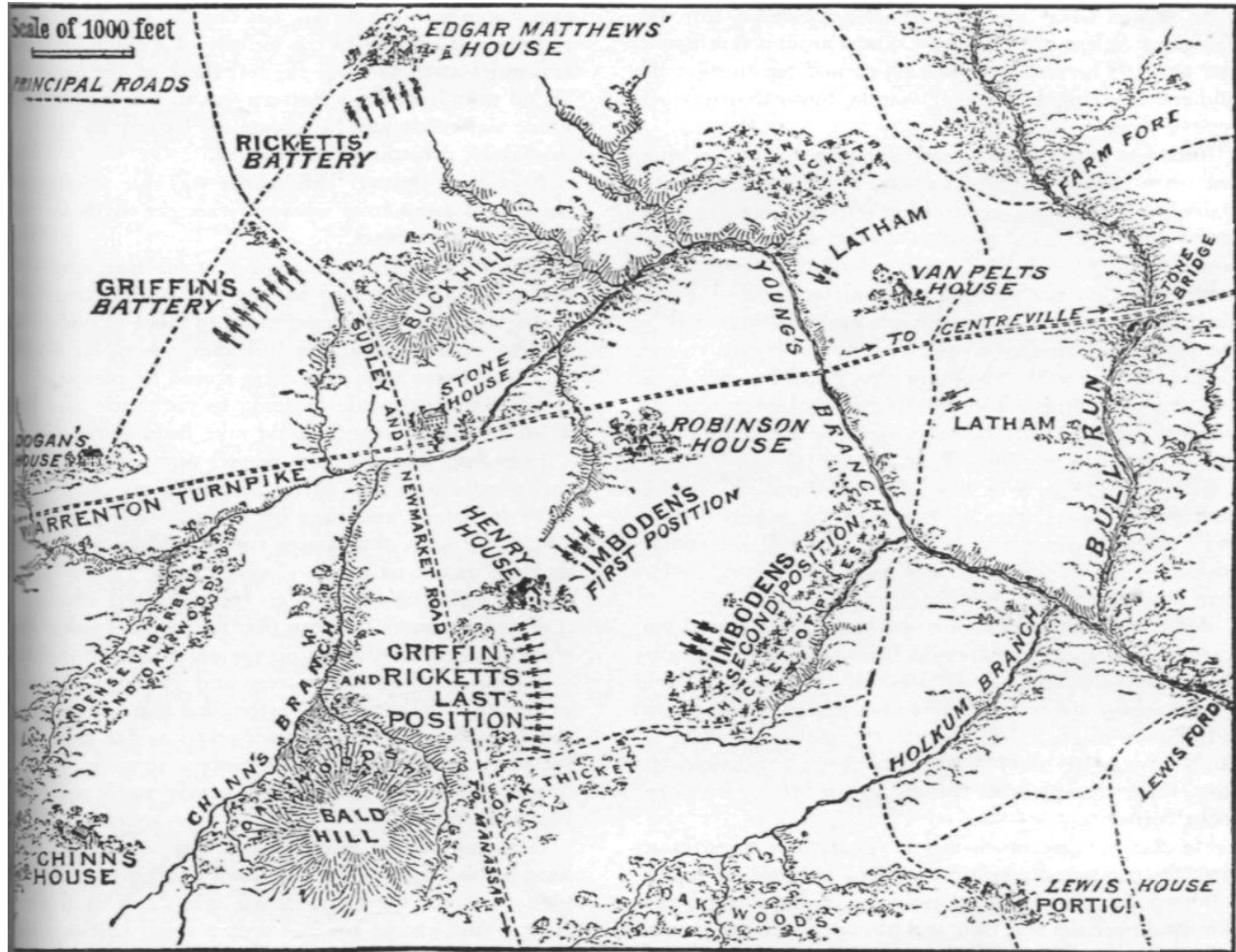
After his dismal failure, Patterson was charged by his superiors with gross incompetency and it was even alleged that he was a traitor. However, the Federal authorities finally decided that he was simply incompetent and gave him an honorable discharge.

My step-father said that when Johnston's force passed through Winchester moving southward, the rank and file did not know the purpose of the march and were greatly dispirited at turning their backs on the enemy. A little later, however, there was a complete transformation.

The head of the column reached a crossroads, and in stead of continuing southward turned east and halted while a message was read to the regiments. It was from Johnston:

"Our gallant army under General Beauregard is now attacked by an overwhelming force. The Commanding General hopes that his troops will step out like men and make a forced march to save the Country."

The effect was instantaneous. The men cheered again and again; their joy was unbounded. The march was resumed with eager step. Jackson's brigade led the way, fording the Shenandoah and pushing on through Ashby's Gap without stopping to bivouac until nearly



SKETCH OF BULL RUN BATTLEFIELD

Imboden's second position is on the line of the Confederate front as established by Jackson. (Reproduced from "Battles and Leaders of the Civil War," Vol. 1, p. 233, by permission of D. Appleton-Century Co.)

2:00 o'clock the next morning. They had marched over twenty miles, but Jackson aroused his men in time to start them off gain at dawn on the 19th. Entraining at Piedmont, he arrived at Manassas Junction that afternoon. Bartow's and Bee's brigades arrived by train on July 20, but lack of sufficient railway equipment delayed Kirby Smith's arrival until the day of the battle.

Stuart, having accomplished his mission, left the mystified Patterson to his own devices, and by hard riding managed to rejoin in time to take part in the battle.

Meanwhile, Imboden's Battery, which had marched out of Winchester on the afternoon of the 18th as part of Johnston's rear guard, continued by a forced march over poor country roads towards Manassas. On the second day (July 19) Imboden received orders



through Bee to assemble all four of Johnston's batteries and lead them secretly and rapidly to Manassas Junction.

Overcoming all difficulties, he got the batteries together during the night, and was on the road by daybreak, July 20th. Hunger acted as a spur to quick movement, he said, because the scanty three days' rations issued at Winchester had already been finished to the last crumb.

However, the hospitality of the Virginia people to troops,—that is, friendly troops—passing through the countryside, is traditional. I myself often saw it displayed during the Spanish-American War to Northern regiments on the way to the great and illomened concentration camp at Chickamauga.

So it was when the artillery column rolled into the village of Salem in Fauquier County around late breakfast time. The whole population turned out to meet the soldiers, bringing baskets of viands, more than enough for everyone.

Imboden had learned road discipline from Jackson, but when he saw the tables covered with food set up in a shady grove by the roadside he directed his bugler to sound halt and announced a twenty-minute stop for breakfast.

He said that red being a color attractive to the eye, his scarlet-shirted young men were especially favored by the ladies. Even the horses were given plenty to eat. Continuing, he said, "Without that breakfast we could not have accomplished what we did, because it was the last food any of us tasted until after the battle had been fought and won, 36 hours later."

Men and horses thus having been refreshed, the column forged ahead all day and into the night. About one o'clock in the morning Imboden found Bee and reported. Brigade headquarters was at a log cabin less than a mile northeast of Manassas Junction.

Bee complimented Imboden on his prompt arrival and directed him to unharness and bivouac in place, adding that the artillerymen would need all the rest they could get because a great battle would begin in a few hours.

Imboden related that despite the ominous nature of Bee's advice, he had no difficulty in falling asleep the moment he threw himself on the ground in a convenient fence corner.

He did not get much sleep. Less than three hours later the command was aroused by a tremendous report, followed by the whizzing noise of a large shell that skimmed over the tree tops and plumped into the ground a short distance from the bivouac.

Imboden's emphasis on initiative led him often to quote the line, taken, I think, from Caesar's Gallic Wars: "Each Lieutenant, without waiting for orders, himself took the best practicable dispositions." Also, he held that a field battery should conform to the highest standards of smartness in everything that it did. In this case he directed that the battery be ready to march in five minutes, and himself reported to Bee.

Bee was furiously angry. He said that Jackson's and Bartow's brigades were to remain in reserve positions opposite nearby crossings of Bull Run and would certainly

join in the fighting, but that he had been ordered to move his brigade to the vicinity of a stone bridge several miles away to cover the left flank of the army. He added that Imboden's Battery was to accompany him, a guide was ready and he wished the battery to march inmediately, preceding the infantry.

Bee was a fighter. His anger was due to chagrin at being sent away from where he thought the heavy fighting would take place.

When Imboden mentioned that his men and horse had not had anything to eat for nearly twenty-four hours, Bee gave him a curt order to move at once. Then by way of an apology to Imboden, whom he liked, he said in a bitter tone that there would be plenty of time to cook and eat while listening to the music of a battery in which his command would take little or no part.

Imboden mounted and moved out with his battery following the guide. After an hour's march, first by westerly detour and then by a road leading northward (Sudley Road), the battery turned off the road and began the ascent of a hill (Lewis House Hill). Here courier riding southward at furious speed checked his horse long enough to shout that the whole Yankee Army was marching northward up the other side of Bull Run.

Imboden halted the battery and galloped to the top of the hill. What he saw astounded him. The road up the far side of the Run was packed as far as he could see with a dense column of troops, some in blue and others in the variegated and gaudy uniforms of the Northern militia.

Glancing to the rear, he saw Bee advancing at the head of his brigade. He tore back to report. The Union plan to strike the Confederate left flank in force was clear. And except for Bee only a small half-brigade of South Carolina and Louisiana troops under Colonel Evans, placed to cover the Stone Bridge and Farm Ford a mile above the bridge, was available to meet the blow!

Bee called to Imboden, "Come on," and dashed up the hill past the Lewis House and on to the next rise. This hill overlooked the Warrenton turnpike, the valley of Young's Branch and open country to the north.

There was a house on the hill (Henry House). Bee rode up to it. He was now in high spirits. After glance at the surroundings he called joyously to Imboden, "Here is the battlefield, and we are in for it. Bring up your guns quickly and I'll look around for a good position."*

In telling the story my step-father pause again at this point. I begged him to tell on Smiling at my impatience, he took out a pencil and sharpened it. Then he drew on the back of an envelope a sketch, perfect in every detail similar to the one shown on page 29. With the sketch as an aid to make things clear he told of the battle and his part in it. In substance his

*"Battles and Leaders of the Civil War."—D. Appleton-Century Co.



story was as it appears in his article, "Incidents of the First Bull Run," published in "Battles and Leaders of the Civil War."

In his own words taken from the published article, this is how the battery went into action:

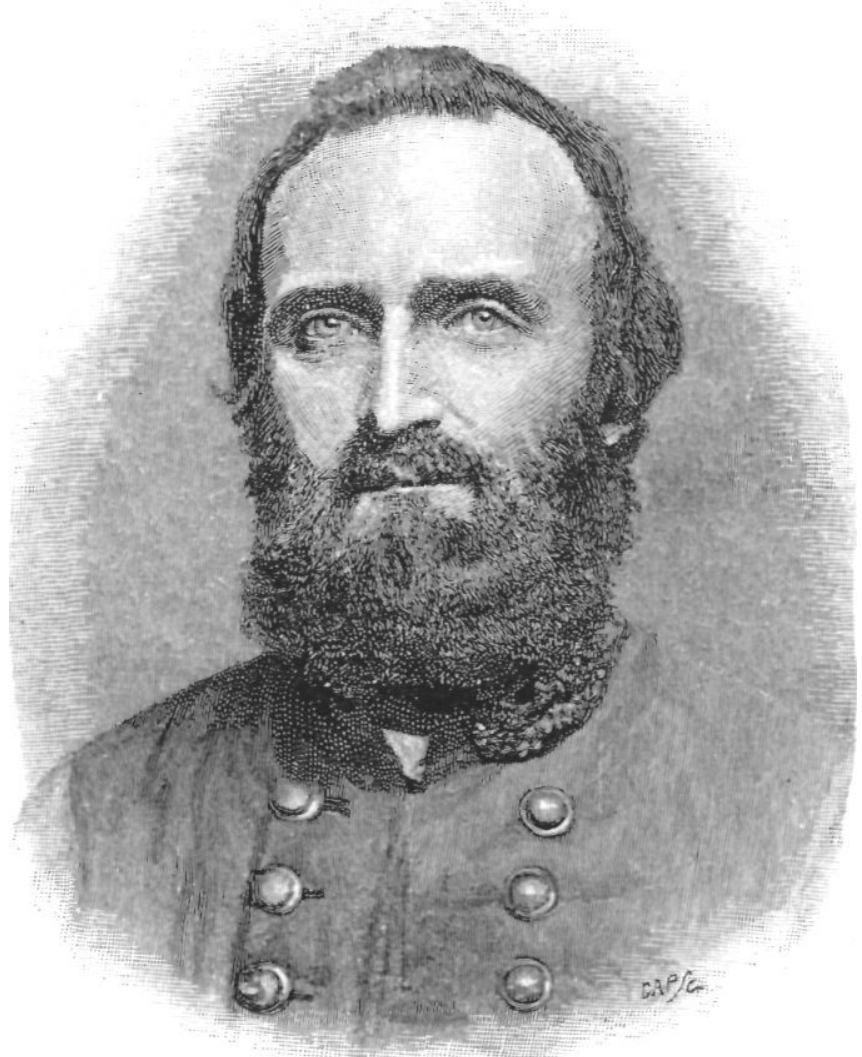
"In less than twenty minutes I and my battery had passed the Lewis House, when I discovered Bee coming out of the pines. He stopped, and placing his cap on his sword point, waved it almost frantically, as a signal to hurry forward. We went at a gallop, and were guided to a depression in the ground about one hundred yards to the northeast of the Henry House, where we unlimbered.

"With his keen military eye, General Bee had chosen the best possible position for a battery on all that field. We were almost under cover by reason of a slight swell in the ground immediately in our front, and not fifty yards away. Our shot passed not six inches above the surface of the ground on this 'swell,' and the recoil ran the guns back to still lower ground, where, as we loaded, only the heads of my men were visible to the enemy.

"We went into position none too soon; for, by the time we had unlimbered, Captain Ricketts, appearing on the crest of the opposite hill, came beautifully and gallantly into battery at a gallop, a short distance from the Matthews house in our side of the Sudley road, and about fifteen hundred yards to our front. . . .

"We were hardly more than fairly engaged with Ricketts when Griffin's battery came to his aid, and took position full five hundred yards nearer to us, in a field on the left of the Sudley road. Ricketts had 6 Parrott guns, and Griffin had as many more, and, I think, two 12-pound howitzers besides. These last hurt us more than all the rifles of both batteries, since the shot and shell of the rifles, striking the ground at any angle over 15 degrees, almost without exception bored their way in several feet and did not harm. It is no exaggeration to say that hundreds of shells from these fine rifle-guns extended in front of and around my battery on that day, but so deep in the ground that the fragments never came out. After the action, the ground looked as though it had been rooted up by hogs."

To carry on the story told me by General Imboden would be merely to paraphrase his published account from memory, and thus substitute second-hand for primary information.



Lieutenant-General Thomas Jonathan Jackson, C.S.A.

This battle has been described and analyzed by various participants and historical writers. Moreover, the moving scenes of the battle have been portrayed vividly in lines which flow with the rhythm of a beautiful stream by our great epic poet and literary illuminatus, the author of *John Brown's Body*.

However, through personal association with General Imboden, I am able, perhaps, to add a few sidelights on what took place. With respect to Imboden's own narrative, he was too modest to be depended upon for a full statement of the predominant part taken by him and the little unit of which he was the leader.

It is from an editorial note in a "History of the Great Rebellion" published in 1866 by Harpers, that the following extract is taken:

"Northern papers were filled with accounts of heights stormed, intrenchments carried and masked batteries encountered. But the battle was fought upon ground which neither side had anticipated—not a yard of intrenchment was thrown up and, with the exception of the abatis at the Stone bridge, there were not artificial defenses. The Confederate artillery was indeed very

judiciously posted, every advantage being taken of the natural formation of the ground.

"Thus Imboden's battery of four guns was placed by Bee early in the day in a ravine running down the slope of the plateau in front of the Henry house, opening directly on the road by which Porter's brigade and Heintzleman's division were advancing. Across the mouth of this ravine was a slight swell, behind the crest of which the guns were sheltered and over which they played upon the Federal columns.

"When Bee and Evans were driven back, their line of retreat took them to the east of this battery, which was left wholly unsupported. *For more than three hours Imboden never saw a Confederate, except those belonging to his own battery.* All the time he kept up a fire upon the Federal columns until his guns became so heated that it was dangerous to load them.

"During all this time he was fired upon by Griffin's and Rickett's batteries—and at last when the Federal column was close upon him, by going up the ravine he carried away all his guns except one which was disabled. This was the only semblance of a masked battery on the field."

This statement is in accord with Imboden's story except as to the period when there was no support, which Imboden said was "a full three-quarters of an hour." He had been put in position by Bee, and ordered to "Stay there until ordered away." He stayed until he had suffered serious casualties in personnel, over half the horses had been killed, the ammunition had been expended, except three rounds for a single gun, and a heavy column of Federal infantry was massing for attack not five hundred yards away. Not until then did he withdraw.

He was going back, as he said, "alone on the field," when he met Jackson hurrying forward, and in exasperation at being abandoned for so long, used the profanity that so grievously offended that austere leader.

After Jackson had indicated his displeasure, he said, "Unlimber right here; I'll support you." Imboden then took up his second position on the line of the front formed by Jackson.

Other Confederate batteries soon came into line and Jackson detailed Imboden to go from battery to battery to see that the pieces were properly laid and fuzes cut the correct length. As Imboden told the story, the hotter the fight became, the more inspiring Jackson's appearance and actions were to all who beheld him. At a critical phase of the battle, a staff officer rode up and, shouting to make himself heard, said, "General, I fear the day is going against us!" Jackson fixed him with his eye and said, "If you think so, sir, you had better not say anything about it."

Bee's men were surging back in disorder when he and Jackson met. "General, they are beating us back," Bee shouted. He was wildly excited, but Jackson was as calm as though he were on parade. "Then, sir, we will give them

the bayonet," was all he answered, and coolly set about dressing his men into line on the plateau.

Fortified in spirit, Bee galloped down into the ravine where his officers were trying to reform their companies. It was then that he pointed out Jackson, spoke of him "standing like a stone wall," and gave the order "rally behind the Virginians."

Beauregard, in referring to this phase of the battalion said "Imboden and his battery did excellent work on this trying occasion."

Jackson was in the act of giving an order to Imboden throwing up his hand with a characteristic gesture as did so, when he received a wound in his left hand from which, Imboden said, he never entirely recovered.

Imboden himself was covered with blood at that time. He had already received several minor wounds from shell splinters when in his eagerness to observe the effects of his fire he knelt to peer through the smoke without noticing how close he was to the muzzle of a cannon. The blast knocked him over and blood poured out of his left ear. The concussion deafened him. He never regain his hearing on that side.

A few minutes later he was again wounded in an on way. Having been released by Jackson to rejoin his battery, he started to go to a ravine where his horse was tied. As he passed Hampton's Legion, then in reserve, a shell burst among the men, killing several and starting a panic. Imboden threw himself, saber in hand, in front of the leading fugitive and threatened to cut him down. Crazy with fear, the soldier lunged with his bayonet. The point caught in Imboden's sleeve and ripped open his left arm from wrist to elbow. He tore off the dangling sleeve and went bare-armed on that side for the rest of the day. This wound was painful, but what affected him the most unpleasantly, he said, was nausea from the wind of a heavy projectile that grazed his saddle pommel.

Unable to replace losses in men and horses, or to replenish his empty caissons, Imboden reported to General Johnston, who ordered him to take the battery to the rear. After he had found a safe place for the battery he called a sergeant to accompany him, and returned to the front.

By the time they reached the Henry House plateau the Confederates had cleared it of the enemy, and the Union troops had started to withdraw all along the line.

Jackson's instructions to his Virginians for a counter stroke had been to hold their fire until the Federal infantry came within fifty yards, "then fire and give the the bayonet."*

Later Jackson told Imboden that in his opinion victory was due "to the blessing of Divine Providence and vigorous use of the bayonet."

Imboden watched the Union retreat break into disorderly rout. On the right a Confederate battery was shelling the fugitives, and he rode in that direction. As

*In the charge that followed, my father's elder brother, S. F. Crockett, of the 4th Virginia, was killed.—C. I. C.

he approached the artillerymen, Colonel J. E. B. Stuart swept by leading his eager cavalrymen in pursuit. The battle was won.

There was nothing further for Imboden to do where he was. He started back to his battery and on the way an incident occurred that he always enjoyed relating. The story, as I heard him tell it, differed a little from that given in "Battles and Leaders." Opposite the Lewis House he saw General Johnston and his staff slowly approaching preceded by a civilian on horseback who was lifting his hat to everyone whom he met.

What followed could have happened only in the United States of America. Imboden recognized the civilian and said to the sergeant, "Why, there is President Davis." The sergeant was a young Virginian of good family. Evidently the idea had never entered his mind that he was not entitled to address anyone in the world on equal status as one gentleman to another. Impulsively galloping ahead, he grasped the President's hand and shook it, meanwhile huzzaing at the top of his voice. The President's dignity left him, and he joined in the general laughter.

When they came closer to where Imboden had halted, the sergeant exclaimed, to the great amusement of all was heard him, "Mr. President, there's my Captain, and I went to introduce you to him."

Imboden said in his article in "Battles and Leaders," "The President eyed me for a moment as if he thought I was an odd-looking captain. I had on a battered slouch hat, a red flannel shirt with only one sleeve, corduroy trousers, and heavy cavalry boots. I was begrimed with burnt powder, dust, and blood from my ear and arm. I must have been about as hard-looking a specimen of a captain as was ever seen. Nevertheless, the President grasped my hand with a cordial salutation, and after a few words passed on."

During the heavy fighting on the plateau, General Bee received a mortal wound. He was carried back to his cabin headquarters. All through the night Bee had messengers seeking Imboden. He had heard that Imboden blamed him for leaving the battery so long exposed to capture, and he wished to assure Imboden that he had sent a message to withdraw which was never delivered. Unfortunately Bee was unconscious when Imboden reached his side. He died shortly afterwards.

It is quite possible that if the order to withdraw had been delivered, the battle would have ended differently. Without doubt the battery delayed the advance of the poorly disciplined Union troops long enough to enable Jackson's brigade to arrive at the critical moment. This seems to have been one of those rare instances where a small unit turned the scale in a great battle.

It has been said that a profound student of military history always finds something familiar in any situation with which he is confronted in war, but that those ignorant of it find themselves frequently confronted with conditions totally unexpected and without any similar experience to lean upon.

Surprise is the most deadly of all weapons. When troops are surprised their emotions and not their intellects are in control. Their minds become confused and they are very liable to err. Surprise has been the foundation of almost all the grand tactical and strategical combinations of the past, as it will be for those to come.

AWARD OF SOLDIER'S MEDAL

VICTOR GAUTHIER, private, Battery D, 103d Field Artillery, Rhode Island National Guard. For heroism displayed in saving an enlisted man from drowning at Municipal Beach, Lake Champlain, Plattsburg, New York, August 15, 1939. While swimming about 100 yards from shore, a comrade was suddenly seized with cramps, called for help, sank below the surface and was in grave danger of drowning. Responding to his cry for help, Private Gauthier, with utter disregard of his own safety, immediately swam to his rescue and succeeded in bringing him safely to shore, thereby saving his life.

Birthplace: New Bedford, Massachusetts.

Residence at enlistment: Pawtucket, Rhode Island.

Present address: 33 Humbolt Avenue, Pawtucket, Rhode Island.

DIRECT-SUPPORT BATTALION

FOREWORD

The article by Captain Conrad L. Boyle in the September-October issue of THE FIELD ARTILLERY JOURNAL entitled, "Has the Close - Support Problem Been Solved," is one of the best contributions ever made to JOURNAL readers. If you have not read this article and are not a radio "nut" you may readily pass up the first dozen pages because I feel sure that Captain Boyle and his contemporaries will take good care of this little technical problem for us. If you are interested in radio developments you should read the entire article by all means. Every reader of this JOURNAL should read Part II of Captain Boyle's article.

We present here a case history of the application, in large part, of Captain Boyle's suggestions. It includes application and development by the 2d Field Artillery in Panama and the 151st Field Artillery in Minnesota.

Early experience of the 2d Field Artillery revealed two serious weaknesses in centralized Conduct of Fire as distinguished from Fire Direction, as cited by Captain Boyle in his article: (1) The bottleneck for communication and the technical firing procedures involved in conduct of fire. (2) The vulnerability of the fire-direction center to a single well-placed volley from enemy artillery or attack aviation.

Failure to make proper use of battery commanders who, by the nature of their assignment, are experts in the conduct of fire, furnished food for thought.

During the 1937-38 training year the officers of the 151st Field Artillery, Minnesota National Guard, Colonel Charles A. Green commanding, gave serious thought to all these things in the light of their own training and experience, developed ideas, and tried them out. The 1938-39 training year was started with a basic organization and procedure for the direct support artillery battalion as indicated in the figure.

APPLICATION

There are six main elements in the battalion position area: The three battery positions, the fire-direction center, the telephone central, and the air-ground station. The latter consists of the SCR-178 radio set, the panel station, and the drop and pickup ground. We are working on visual

By MAJOR J. A. WALLACE, FA



communication by signal lamp from ground to air for use when pickup difficult, with success thus far.

When sufficient space is available to main installations in the position area should be separated by at least two hundred yards and preferably three hundred yards, to avoid having more than one damaged by the same standard area of fire.

The battalion executive normally operating from, and in charge of, the fire-direction center, supervises all details of arrangement and operations in the position area. He also supervises the SYSTEM TEM OF

OBSERVATION, LIAISON, AND COMMUNICATION with front-line units and reserves of the supported unit. He personally insures that information of the situation is obtained as required and available, and is properly recorded. The executive is usually the best-informed person on the situation in the infantry regiment-artillery battalion combat team.

S-3 is known as the "battalion gunnery officer." His duties are: (1) As an especially qualified technician supervise the preparing, development, and use of battalion and battery firing charts, plans of support prepared fires, time schedules and the like. (2) Supervise survey and registration in connection with (1) above. (3) Assign battalion missions as determine by him or directed by the executive and keep a record of all fires executed by the batteries of the battalion. Take personal charge of conduct of fire for concentrations requiring the fire of more than one battery as determined by him or directed by the executive. For this purpose battery commanders conduct their own fire but as directed by the gunnery officer.

The regimental commander, based on brief past perience, proposes soon to assign to each battalion "battalion survey officer." This survey officer is the modern prototype of the reconnaissance officer. He furnishes survey data to the gunnery officer for the preparation of firing charts and laying the guns, and the location of OP's, targets, and the like. He also assists the gunnery officer in the restitution and use of air photos and the preparation of overlays involving topography

The two lieutenants in battalion headquarters battery

A Practical System of Fire Direction

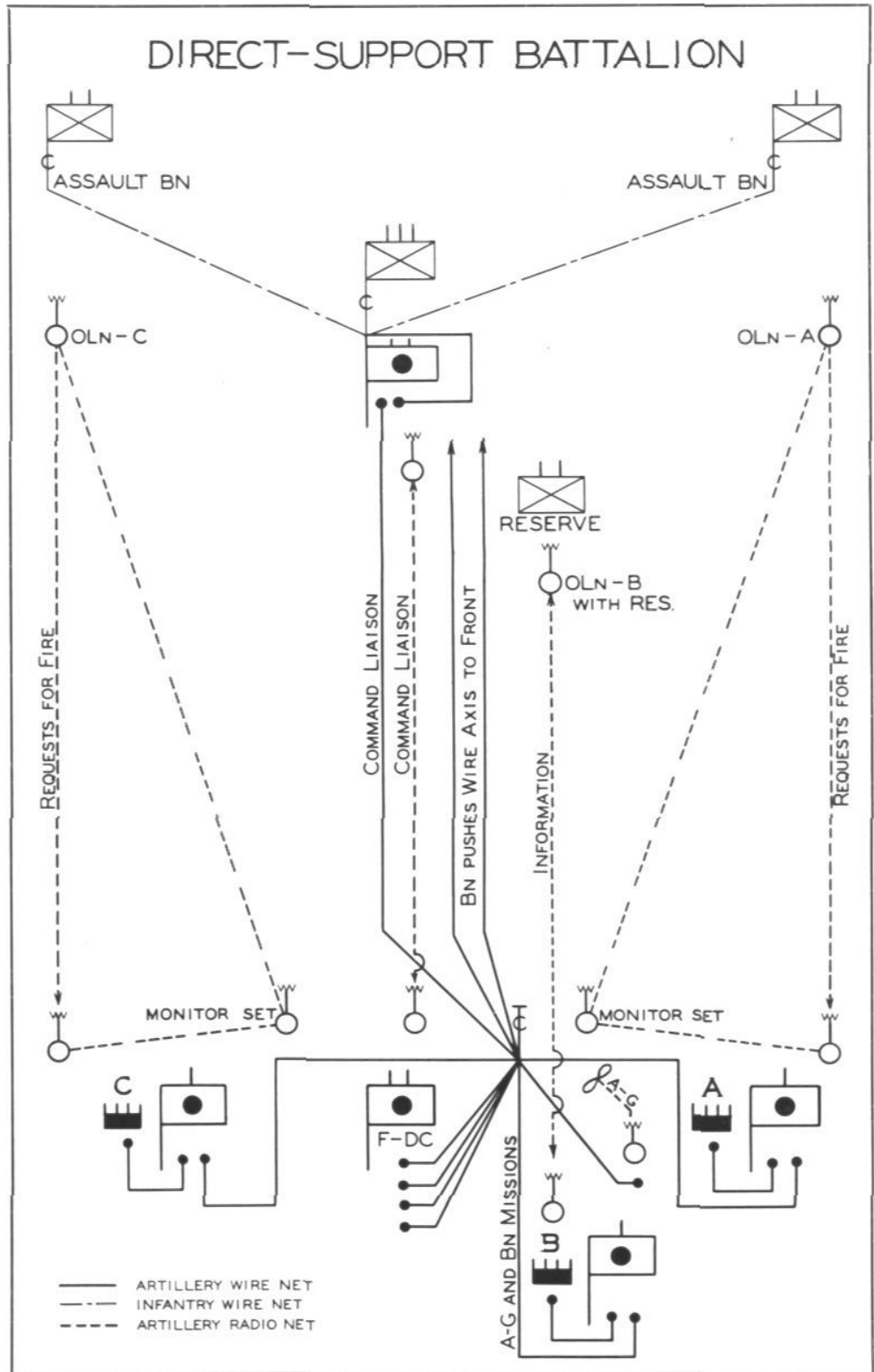
are specially selected and trained as radio officers and air observers. When an adjustment is to be made with observation one of these officers takes charge at the air-ground station and insures that the necessary communication and proper transmissions get through to be battery commander who is to conduct the fire. The other serves as the observer or the battalion. Actual practice with this procedure as resulted in excellent speed and accuracy under extremely varied conditions.

Two distinct types of liaison are maintained at all times when the combat team approaching or in contact with the enemy. The battalion commander maintains command liaison while marching, displacing, or in position. To assist him he has one staff officer, one operation sergeant (4th grade), and two radio and telephone operators. This party, with personal equipment, radio set, one half mile of wire and three telephones, is carried in one station wagon. The executive is specially responsible that all information he receives is promptly transmitted to the battalion commander. During brief periods that it was necessary for the battalion commander to be absent from the infantry headquarters his staff officer acts as his personal representative and must be qualified to fill this requirement.

The gun battery OP detail has been streamlined and is called the battery observation-and-liaison detail. In conversation the observation part of the title is omitted and understood. Each battery

observation-and-liaison detail habitually operates with the same infantry battalion on the march, in bivouac, or in action. Therefore each gun battery normally furnishes direct support for the same infantry battalion. Referring to the chart, if the first and second battalions of infantry

were in the assault, Batteries A and C would be in direct support of their respective infantry battalions. Battery B would be in general support but maintaining liaison with the third infantry battalion in reserve.



As the rapidity of movement to front or rear increases there will be a good many variations. This applies particularly to the location and use of the radio sets normally located in the position area. After a few well-directed exercises in continuous support during displacement the basic arrangement can be varied to fit the situation without much loss of control by battalion headquarters. The battery observation-and-liaison detail consists of the reconnaissance officer, two NCO's trained as observers, and two radio and telephone operators. Together with personal equipment, the radio set, one half mile of wire, and three telephones, it is a convenient load for one station wagon.

We do not agree with Captain Boyle's implication that the two battalion liaison details should be dispensed with. We prefer to consider them as a reserve of observation-and-liaison personnel. In most any engagement the action of one or two infantry platoons or companies of the supported regiment will be of special importance, and such units should have direct liaison from the artillery battalion in direct support. In addition to fulfilling this requirement, the battalion observation-and-liaison details are useful for establishing lateral and special OP's for center-of-impact and high-burst adjustments and for special intelligence purposes. Under certain circumstances the monitor sets may be used to furnish communication for one of these details.

Now for our special point of disagreement with Captain Boyle, who suggests that individual gun batteries push wire communication to the front during the attack. All past experience shows that this quickly dissipates the wire facilities of the battalion and almost precludes the coordination of these facilities. We prefer to centralize wire communication personnel and equipment (except for local gun-battery nets) in battalion headquarters. We would prefer three or four wire trucks, each with a crew of six to eight men, for war strength. Battalion pushes a wire axis forward (to the rear in the case of withdrawal) to back up the radio net. Two wire circuits which may be laid two hundred yards or more apart will also carry two phantom circuits or one phantom and two simplex circuits in addition. More wire circuits should be used when facilities permit.

We do not quite agree with Captain Boyle's opinion that the value of the long-range characteristic of our present guns and ammunition is entirely lost because of the range limitation of our present liaison radio sets. We should much prefer to have sets of the type he suggests, and hope that eventually that will come about. However, we feel that we can do a fair job with what we have. An intelligent, hard-working, and fairly well-trained battalion wire section should be able to maintain a wire axis over which communication can be relayed from the position-area radio sets located in the vicinity of the wire head. This is not the most satisfactory arrangement but it has been worked under all kinds of adverse conditions including night traffic

and excepting actual hostile fire. For one thing, veterans and others who study these problems often fail to realize how much improvement has been made in our wire communications as well as other facilities since the World War.

The battery commander habitually conducts fire from a command post in the immediate vicinity of his guns. He is assisted by a gunnery sergeant, gunnery corporal, and two radio and telephone operators. Together with personal equipment and CP equipment they comprise a convenient load for one station wagon. The battery gunnery detail is trained in all phases of survey and the preparation and conduct of fire. It should only be necessary for the battery commander to lay out and check their work and exercise other supervision from time to time, so that he is never denied time for attention to other elements of his battery when this is required. This objective was attained by two of our batteries during the past year and we expect that the others will reach it during the current year.

When a request for fire is received from the liaison detail a member of the gunnery detail immediately makes the necessary calculations and initiates the transmission of fire commands to the executive. Another member of the detail reports the request to the fire-direction center in the usual fire-control language, and states the time that fire is opened. When the mission is completed another report is made to the fire-direction center giving the time of completion, number of rounds and kind of ammunition used, and any other pertinent data or information. These data are used by the battalion gunnery officer to maintain Sheet 2, S-3 Report (see form in Appendix to FA Book 221).

If a battalion mission has been requested this is included in the initial message to the fire-direction center and, if approved, a member of the battery gunnery detail remains on the line to transmit data from his battery during the adjustment. The gunnery officer has assistants call the other batteries and initiate their shifts to the battalion concentration in the usual manner. For quite apparent reasons the response to a request for either a battery or battalion mission is more prompt than when conduct of fire is centralized in the fire-direction center. The danger of a fire-direction bottleneck is reduced to a minimum. The only requirement for this difference seems to be a bit of training and practice for gun-battery personnel.

The gun-battery executive is assisted by a recorder, an instrument operator to assist in the operation of the gun position aiming circle and BC telescope, and one telephone operator. Together with equipment and instruments this detail is a convenient load for one station wagon.

The remaining officer in the gun battery is the motor and supply officer. He supervises the maintenance and operation of the battery motor transportation, the operation of the mess, and supply including the supply of ammunition.

In closing this section I should like to point out that we emphasize the importance of our arrangement for command liaison. If it is essential that the chief of artillery of a large unit be in constant touch with the commander of the unit he supports it is especially necessary for the commander of the direct-support battalion whose combat team situation changes much more rapidly. A number of other reasons are too apparent to require description. In the past we have overlooked this because, in the great majority of cases, field artillery exercises have been conducted without the supported troops being present and the battalion commander had nothing to do but assume duties similar to those that I have listed for the executive.

As previously stated, the 151st Field Artillery started the 1938-39 training year with a basic organization and procedure as described herein. The brief periods available during the Armory Training Period were used by the various elements of the battalions to practice their part of the team play. It should be remembered that after deducting approximately six drills for inspections and ceremonies, from the allotted forty-eight, it was still necessary to maintain the usual high standards in all types of basic training.

In February, 1939, the regiment participated in a two-day CPX conducted by a provisional division composed of National Guard and Reserve units. This was the first opportunity for application by the battalions. The experience gained was extremely valuable since field training took place several months later and there was opportunity to profit, during the intervening period, by the lessons learned from the CPX.

During the last four days of the first week of the Field Training Period service practice was conducted under the immediate direction of battalion commanders. For each of these days each battalion was furnished a situation sheet which provided a tactical situation and required dispositions similar to those shown in the figure. For each situation there were two forward concrete shelters available for the battalion commander's party and the liaison details. Officers exchanged key positions to the extent permitted by conditions.

The first two days of the second week were devoted to a regimental field exercise involving a march, occupation of concealed bivouac during daylight, selection and preparation of positions during daylight, occupation of positions under cover of darkness, registration with high-burst adjustment by one gun per battalion just before dawn, and the actual firing of a complete plan of support for an attack commencing at dawn. Each concentration was marked by firing one round of smoke on each corner of a 100 × 200-yard rectangle centered on the prescribed area. The center of each concentration area had been previously marked on the ground and surveyed by the brigade staff. This method was found to give a much better indication of the accuracy of the fire than volleys or salvos on line. K-transfers were used for the prepared fires, there being no

meteorological service available. Corrections were made from airplane surveillance. There was one plane available for each battalion, and the observers were from their respective battalions. Each battery conducted at least one liaison adjustment in response to a call mission.

The battalions participated in a two-side combined arms maneuver on Wednesday and Thursday of the second week. A regiment of Minnesota National Guard infantry with one of the battalions of the 151st Field Artillery attached, represented the troops on each side. During this maneuver considerable movement requiring continuous support during displacement was experienced for the first time. It is sufficient to say that the method stood up and that the comments upon the termination of the maneuver were characterized by expressions of satisfaction on the part of the artillerymen of all ranks and complements from all infantry officers who had been concerned with the employment of the artillery.

It has been said that the Lord is on the side with the strongest battalions and we feel that the Lord is now on our side.

LEST WE FORGET

In connection with the new divisional organization in our army, and the field tests now being conducted, the following report, extracted from Information Bulletin No. 13, American Expeditionary Force, Jan. 2, 1919, may be of interest:

The following are extracts from the observations of an Artillery Brigade Commander, as a result of experience gained during recent actions.

When I joined this Brigade the ammunition train was under the orders of the Artillery Commander only when in the face of the enemy. At other times it was commanded by the Commanding Officer of Trains. This matter was not satisfactory. The Artillery Commander is held responsible for the service of ammunition during combat. He must command the ammunition train at other times in order that he can keep both personnel and materiel in proper shape for combat service. I succeeded in having the Divisional Commander issue an order placing the ammunition train under my orders at all times. My remarks also apply to the M.O.R.S. (Mobile Ordnance Repair Shop). Most of the work of the M.O.R.S. is for the artillery. The M.O.R.S. was under the orders of the Division Ordnance Officer, who used the plant as a supply department. Instead of repairing guns, the personnel was off hunting for spare parts, etc. The Division Commander has placed the M.O.R.S. under my command and our troubles have ceased. I believe that a G.H.Q. order should be issued placing all ammunition trains and all M.O.R.S. establishments under the command of the Artillery Brigade Commanders. The Commander of Trains is a fifth wheel and has no place in a divisional organization.

GUNNER IN LUZON

Editorial note: In the preceding issue of the JOURNAL Gen. Scott gave the background of the Philippine Insurrection, described the outbreak, and told how his platoon of Light Battery D Sixth Artillery supported the action on February 4-6, 1899.

During the three or four days following the outbreak the two batteries were reassembled at their old quarters on Calle Nozaleda, which remained their station until July or August, when Hawthorne's Battery was disbanded, and Light Battery D, 6th Artillery, was moved to camp near the Deposito and at last properly mounted and equipped, but its very diverse combat activities were at an end.

Hawthorne's Battery brought in as trophies two field guns abandoned by the Insurgents at Santa Ana, and from then on was sent out, wholly or in part, on various expeditions. Fleming's Platoon was sent to the 2d Division (MacArthur), where it added small mortars and other pieces to its equipment, and participated in all operations until after the capture of the Insurgent capital, Malolos. The center platoon was used from time to time as replacement or reinforcement for mine, the battery in general acted as depot for the detached units.

On or about February 10th, in the middle of the afternoon, I received orders to march to San Pedro Macati. We started at once, pulling the two guns by hand, as we still had no draft animals. The road was fair macadam to and through Paco, and we rolled along that first two miles very well. But the next two miles were sandy; more and more frequent stops were necessary. At the end of an hour we had made about a mile, and the men were nearly worn out.

Then came an order to return. That settled one thing for me: I would beg the captain no more to do something about transportation. On my own I secured two bull carts with four carabao and their Chinese drivers. I had the carabao hitched in tandem, rigged a device on the bottom of each cart to which the pole of a gun limber could be attached; and when in a couple of days the order again came to proceed to San Pedro Macati we did so at two miles an hour, with spare ammunition and all our kitchen equipment, food supplies, and the men's equipment, except pistols and canteens, loaded on the guns and carts.

Quite a royal progress in comparison with what we were used to!

San Pedro Macati was a small village on the west bank of a bend in the Pasig River, about six miles from Manila. Most of the houses were of masonry as to the lower stories, good woodwork as to the upper, with tile roofs. The terrain, level through the village, sloped upward towards the southwest to a hill perhaps a hundred feet above the river and distant three hundred yards from it. This hill was crowned by a small cemetery enclosed by a four-foot stone wall. Halfway between it and the street of the village stood the church.

Due east from the hill and from 1000 to 1500 yards distant, along the south bank of the river, lay the village of Guadalupe, a large church on the slope south of it. It was also a well-built place. It had been occupied by our troops on February 5, but a few days later orders came to withdraw and establish a defense line with San Pedro Macati as its left, and the troops burned Guadalupe to prevent its use by the Filipinos.

When I arrived the 1st Washington Volunteers occupied San Pedro Macati and had constructed trenches in the valley

between there and Guadalupe, up to the outer wall of the cemetery, and for some distance to the west. Other troops were extending this to the west until it finally joined the old Spanish system at Blockhouse 13. The troops who took Pasay had also been withdrawn to their original positions with the exception that Blockhouse 14 was held. The other side of the river from San Pedro Macati was insurgent territory, generally unoccupied but from which they annoyed us by sniping and occasionally by quite heavy rifle fire. Guadalupe converted into a strong position with a trench system confronting ours for half a mile and in places not more than 200 yards distant. West of that they constructed no trenches but maintained outposts and occasionally launched night attacks. None of these ever reached our lines, but they all inflicted casualties and kept us on the alert.

Within the cemetery I placed the two guns in echelon so as to have as wide a field of fire as possible, with small parapets for protection. The gate was at the center of the north wall; and on either side of it, as close to the wall as possible, and outside the cemetery. I established camp. My own tent was near the northeast

PART II

TRENCH WARFARE 1899 STYLE

By Brigadier General Ernest D. Scott, USA-Ret.

corner. From Guadalupe its white top was visible and was a frequent target for snipers. I had some narrow escapes—once a bullet popped through while I was shaving, missing my head by inches. Bullets missing the corner of the wall clipped the ground just outside the narrow camp area—it was not necessary to warn the men to keep within the latter. The first evening our Chinese drivers pulled their bull carts up close in front of my tent and started to settle down for the night. They had an idea it was the safest place, but it was the most dangerous and, besides, I did not want them as such close neighbors. Finally they settled about fifty yards away, down the slope to the north. Some bullets fell there and there was much jabbering. At last they found the answer—they piled some loose hay to stop enemy bullets and went to sleep in perfect security! And if results prove methods, they were right—days passed, the Lieutenant and two of his men stopped bullets, while the four Chinamen remained unhurt!

Our hilltop afforded an extensive view from the east around through the north to the southwest, about Paranaque. To the northeast low plains rose in a few miles to verdure-clad mountains; to the north plains stretched as far as the eye could reach, an occasional white spot in the green indicating the church of some town; to the northwest and west lay Manila and its suburbs, over whose roofs could be seen the waters of Manila Bay backed in the dim distance by the faint outline of the Zambales Mountains. Shipping movements furnished much material for speculation, as did any cannonading to the north of the city, where it was understood our first advance was to be made.

The days passed pleasantly enough. It was the best part of the dry season, the ground was dry and hard, the grass gray-brown, gentle breezes were generally about, the days of brilliant sunshine were never too hot for comfort, the nights were cool.

Life was a bit crude, of course. One's bath was of the bucket and sponge variety, there was no ice and the most nearly cool drink was water from an air-cooled olla (unglazed jar) hung under a fly. Fresh meat was received daily, but had to be consumed at one meal—the canned meats we ate and enjoyed were of the kinds alleged to have ruined the Army in Cuba. But in the Philippines the Army lived on such for many moons before hearing of their malevolent character! Fresh bread was a part-time supply, fresh vegetables and fruits were not to be had, and canned ones were of little variety and scanty supply. Canned butter — yellow oil when opened—and milk could be purchased, sometimes. Cooking left much to be desired—the regular battery cooks were at headquarters, detachments did the best they could with absolutely green men.

Watching for some sign of enemy activity occupied daylight hours. Two quite severe night attacks were made by the enemy from the open country to the south: we made two daylight raids on the enemy lines between the two towns. These were conducted much as were the trench raids in France. All preparations were made in advance, my guns vigorously battered the front to be assaulted, the

assault troops left their trenches and ran forward, all others and the guns covered them by fire on known or suspected enemy points. Both were successful in that they resulted in quite heavy enemy losses while our own were remarkably slight. The Wyoming Infantry Battalion, under the personal direction of J. Franklin Bell,¹ then "Information Officer" (a G-2 today), swept the area opposite San Pedro Macati clear of the enemy who was getting stronger and more troublesome daily. My guns supported the force.

A story was told of Bell on this occasion. He was standing in a skirmish line that, in prone position, was engaged vigorously with the enemy, observing the latter through his field glasses. One of the soldiers looked up and noticed Bell's breeches bloody from a flesh wound in his thigh and quite naturally called out, "You're wounded!" Bell looked down on him and remarked, "You damned fool, don't I know it?" and resumed his observation.

Some interesting incidents of the "siege" come to mind. General Charles King² always wore khaki; I do not recall ever seeing him in a flannel shirt. He was a little man, inclined to be portly, very active, always courtly and pleasant in manner. I admired him greatly, but one of his customs worried me very much. Frequently he visited the whole front line of his command at or just before daylight, which was perhaps commendable, but he also frequently indulged in a similar visit late in the afternoon. Conspicuous in khaki helmet and blouse with white gauntlets that almost reached his elbows, he rode slowly along the line, in full view and within rifle range of the enemy position. Scattered bushes behind our trenches were the favorite loafing places of the men; as the General approached they scuttled like crabs into the trenches, for he was always accompanied by a spattering fire from enemy snipers. He would jolly the men as he passed along. Meantime I stood by my guns, dreading what seemed sure to happen, ready to take vengeance on the enemy if it did. Why he never stopped a bullet is a mystery.³ He thoroughly enjoyed those rides; the one or two staff officers he sometimes took along never looked a bit happy! Sometimes I

¹Later Chief of Staff of the Army.

²Charles King graduated in the Class of 1866, USMA, and was retired as Captain, 5th Cavalry, in 1879, for disability due to wounds received in action against hostile Indians. He was the author of a number of Army stories of which "The Colonel's Daughter" was best known, and of professional papers and books. In 1898 he was appointed Brigadier General of Volunteers. In 1918 his retired grade was raised to Major, and in 1922 to Lieutenant Colonel. He belonged to many military and semi-military associations, to the National Guard of Wisconsin for many years, and was military instructor and instructor-emeritus at St. John's Military Academy during the last thirty years of his life, beloved by all. On his 81st birthday a Wisconsin cavalry regiment tendered him a review. He had to be assisted into the saddle—but he rode the lines at a gallop in the good old-fashioned way! He died in 1933, the last of five generations who served their country as officers in war, beginning at the siege of Louisburg in 1745.

³An amusing thing happened at the General's quarters. He was walking out when his pony kicked him—just a glancing blow on the breeches leg, no harm done. His orderly sold "the shoe that kicked the General" to quite a number of gullible comrades—each for two pesos and under pledge of absolute secrecy!



General Wheaton on pony: other officers unidentified.

thought the General really cherished the hope of death in action. There have been others; I believe it was Ringgold, at Palo Alto, mortally wounded and being carried to the rear, who breathed the prayer, "Oh God, let me die on the field of battle!"

One morning a staff officer—now a retired Major General—came to me in great distress. He was to have accompanied the General on his morning ride but a call of nature delayed him and he was unable to find the party. When he went later to explain, the General refused to see him. The boy was in a terrible state of mind—sure that the General attributed his absence to deliberate evasion of a dangerous duty, sure that only ruin faced him. I went to see the General and found my friend's estimate of the situation exactly correct. But I convinced the General of the facts and the young man was restored to favor.

Some staff officer from Manila brought out a couple of civilians to see the lines. They were provided with rifles, and had a wonderful time firing at points in the Filipino lines. Finally the party—it had grown to half a dozen by the addition of officers in the vicinity—came into the cemetery, and the civilians were assured that now they would be sure to get a shot at an actual Filipino. By this time I was mad clear through and emphatically assured them that the cemetery was my bailiwick and that no murder would be committed by anyone within its bounds. The civilians rather resented the imputation—the officers reminded me of my rank. I told them I would call my men and run the whole outfit out of the place! They left and resumed their "sport" further along. But they carried with them an earful about the ethics of the matter.

One day some staff officers came out escorting a young woman, first of her sex to visit the front lines. I do not know who she was, but she was certainly very pretty, vivacious, and smartly dressed. They spent some time at

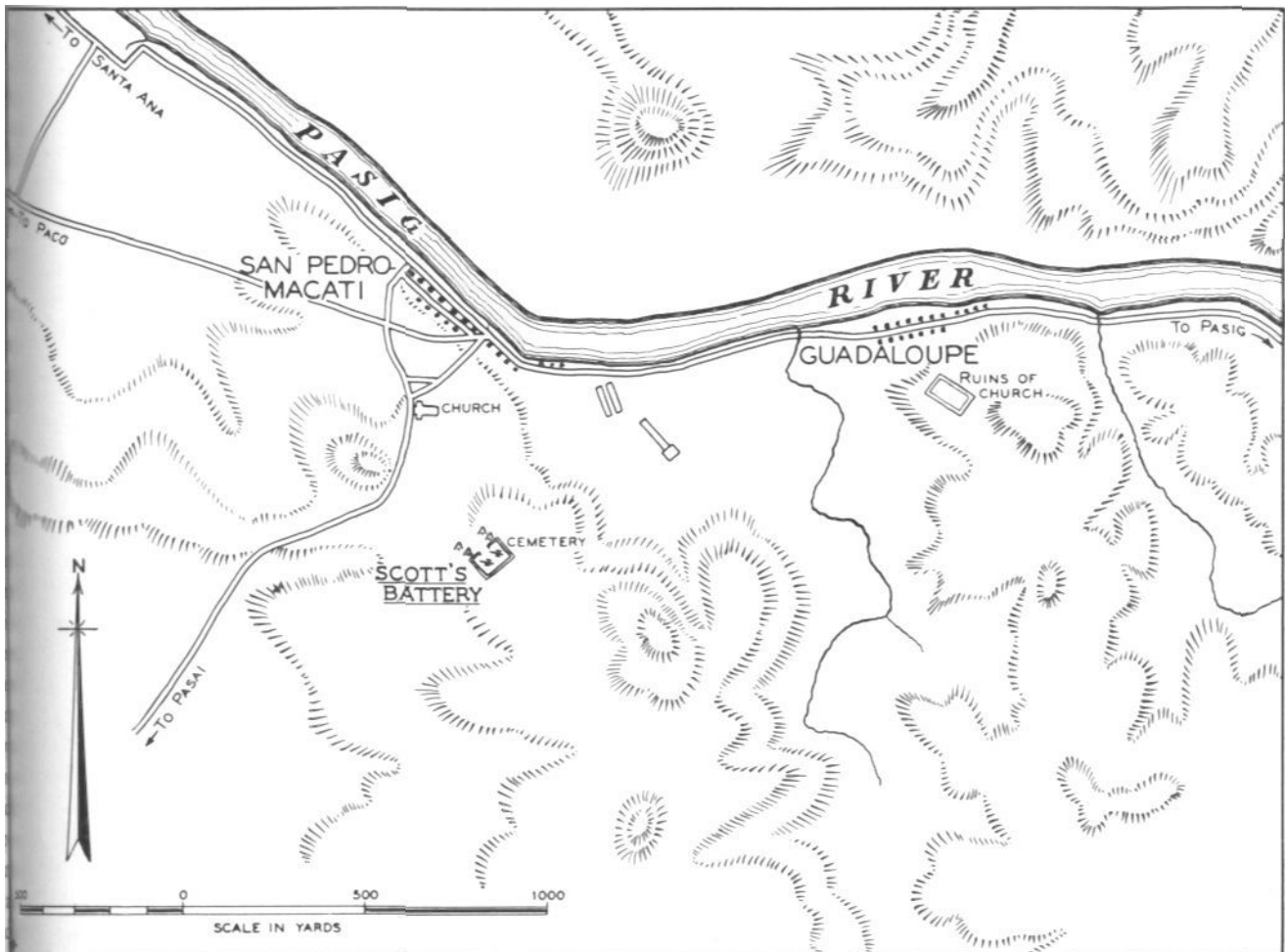
the battery position and asked me to do some firing for the benefit of their guest. At first I declined but finally agreed to fire one shot at a thicket about 1500 yards away. I had no idea it was occupied. The shot landed in the thicket, exploded, and to my utter astonishment, objects flew up in the air from it, and dropped back. My glasses showed some to be white, others blue. One officer announced that the air was full of legs and arms! But the explosion of a 16-pound shell does not sever arms and legs, let alone throw them twenty feet up in the air—my own opinion was that the objects were garments laid out on the bushes to air. The blast of the explosion would easily throw them up. Their owners may have suffered, but no sign of life appeared. The young woman had the grace to be shocked, probably felt some womanly regret, and I hoped my scornful "Well I hope you're satisfied," spoiled the afternoon for her. The party left at once for the city, the young woman looking rather serious.

Our lines to the west ran along a low crest, the northern edge of a shallow valley whose further edge, a mile and a half distant, formed our horizon to the south. On that edge stood a lone tree whose top spread out horizontally. It was quite natural that the name "T Tree Ridge" should have been applied. Before my arrival the Insurgents openly marched troops across this area, out of range of the American rifles. I put an end to that by shooting at even small parties. One day General Anderson, commanding the front south of the Pasig, paid us a visit accompanied by my battery commander, Captain Dyer. He took occasion to admonish me about "wasting ammunition" and said it should be saved for a general engagement. I defended my action on the ground

that forcing the enemy to a wide detour, teaching him to fear the guns, preventing him from building up any forces near our lines—at least by daylight—or constructing any works that might later give us trouble, was worth the ammunition. But the Captain supported him and I was told to cease my activities. The Filipinos soon began to take chances in the open, as my guns remained silent—to the vast disgust of the infantry. Then one day I was suddenly awakened from a nap and found much excitement. Over near the T Tree the tail of an Indian file of insurgents was going up a gentle slope. About a hundred were in sight, the last man an officer mounted on a pony. Observers stated it was the tail of a whole battalion; my men had not reported it to me because of the orders against firing except in a "general engagement." I yielded to the clamor and sent two shrapnel against the visible line. Two perfect bursts and every man went down except the last two and the officer. The two ran backwards against the officer's horse, then ran forward and disappeared over the crest. The officer crouched over his horse's neck, his right arm wielding a whip vigorously, and his mount carried him to safety in a moment. I sent a few rounds over the crest to hurry the rest along. About thirty were caught by those two first rounds. Many glasses were kept trained on the spot until night came on two hours later.

Nothing could be seen because of the knee-high grass, but no one left the place—except perhaps by crawling—and no one came back to look after the casualties. I had an uneasy feeling that trouble might come my way, but that wore off in a day or two as nothing happened.

Reveille was sounded on bugles, and companies formed for roll call in rear of their trenches—at first. This nonsense was ended by the Filipinos opening fire all along the front just after "Assembly" sounded. Why they inflicted so few casualties was a constant source of wonder. But even after the Americans stopped their foolish practice the Filipinos continued their morning fusilade. One morning I seated myself before daylight astride the trail of a gun, and as daylight broke carefully studied through glasses the wooded hills of Guadalupe. I found a small brown spot in the green. Over it I made out an opening in the green. Then the brown spot showed a smooth and level top—a breastwork or trench. Then I made out blue-clad figures in the opening, standing closely about, rifle in hand, apparently talking. I guessed some unit was assembling for the morning salute to the Americanos, called out a gun squad, laid a gun loaded with shell, verified it myself, and gave the order to fire. That shell struck exactly on the top of the brown spot and exploded. There was no enemy firing that morning.





Position in cemetery at San Pedro Macati: Lieutenant Scott verifying laying of piece; General King in white helmet, Captain A. B. Dyer left of King. The other two officers are unidentified.

About one year later Major Charles Boyd⁴ of the 37th Infantry was escorting a captured Filipino major to Manila, and the two discussed events of the war. The latter told of a morning when an unexpected shell from the cemetery at San Pedro Macati killed or wounded every man in one of his companies just as it was assembling for the morning harassing of our lines. Perhaps that one shot was just as useful as though fired in a "general engagement."

About the end of February our little General was relieved and sent to Honolulu (or home?). We were sorry to see him go; his kindly manner endeared him to all, his gallantry was an inspiration. Only in one thing did he ever embarrass anyone. He designed a sort of decoration and conferred it on the members of his staff and a number of others—and they were expected to wear it at all times. It was an equilateral triangle, about four inches on a side, made of silk in three wide stripes—red, white and blue—with some sort of design embroidered in the center. It was to be worn over the heart. It would have taken more courage than any of us possessed to wear that banner where our friends could see it, but it was carefully pinned on when there was a likelihood of meeting the General.

After one of the daylight raids I learned a lesson that is now taught before the young soldier takes the field—to avoid observation by the enemy and never needlessly draw his fire. My not having learned that lesson cost the life of an American soldier, and for weeks I was tortured with the memory of it. A raid was over and our troops had returned to their trenches. I was eating my lunch when an officer who had participated in the raid came to suggest that if I would go over the scene of action before the Insurgents returned, I might get some ideas useful in case of another

bombardment. That sounded reasonable, and I went off with him just as was—a straw hat, pink silk shirt, khaki breeches, no leggins, slippers on my feet. Down at the left of our lines near the river, we discussed the matter with some other officers, and three or four of us with an escort of a dozen soldiers moved out across "No Man's Land," there about 200 yards wide. There must have been eyes watching us from among the ruins and the wooded hillside, but for some reason not a shot was fired. We explored the insurgent trench position where the fighting had occurred finding some twenty-odd bodies—one that of a ground and got a good idea of the organization of the ground. Then we withdrew, still unmolested, to our own lines. There I stayed some little time talking things over and finally started for my camp, walking along just in rear of the trenches. Halfway there, on a long slope in full view of the enemy position, a bullet hit the ground beside me and others followed. Soldiers lying in the shade of the bushes hastily scuttled into their trenches and some invited me to join them. Inwardly I was far from calm, but—I was a Regular and a West Pointer—not for worlds would I have shown what I felt and I continued my unhurried walk smoking my cigar. Bullets continued to whine about and kick up dust until a friendly but hid me from enemy view. And there I found a soldier peacefully sleeping—dead—with one of the bullets intended for me through his body. It came over me with a rush that had I ducked for cover at the first shot soldier might then be alive, and an agony of remorse seized me. No false pride ever betrayed me into such behavior again.

General Lloyd Wheaton came to command the sector. He was a tall, thin man, with a black beard that reached his chest, a quick temper, a wealth of profane expletives

⁴Killed at Carrizal, Mexico, in 1916.

and a voice like Gabriel's trumpet with which to deliver them. General Anderson came out one day and the two came up to the cemetery. After some discussion General Anderson suggested that he send out a couple of small mortars to use against Guadalupe Church, the dominant object in that village. General Wheaton thought the idea good, and remarked that these guns could do nothing against the heavy walls, and their flat trajectory prevented getting inside them. Now the church had been burned and nothing remained but the bare walls. A large door facing our position seemed the only thing that had escaped the flames. Three weeks or more of constant observation had convinced me that the Insurgents had found no use for the ruin; its size and dominating position made it look threatening to us, but it was simply a harmless bogey. My pride was touched by the General's remark and I entered the discussion for the first time with the statement that my guns could get inside the walls. Wheaton laughed at me. I told him I should put a shell through any window he chose to point out. That amused him still more but at last he said, "All right, take that big door." Presently we were watching the black pinhead that was a shell on its way and had crosslines been drawn on the door it could not have been hit more accurately in the center. The shell burst inside, great clouds of ashes rose above the walls. Wheaton grunted, then growled, "We don't want the mortars," and they left after some complimentary remarks on our gunnery.

A day or so later the General sent for me and told me some animals had arrived from the States and that he could get me four per gun, not more, horses or mules. Five years on a farm had convinced me that four mules could pull as much as six horses, so I elected to take mules and by evening they were at the camp. I never regretted the choice. All had been broken to draft, seven of them quickly submitted to being ridden, the eighth, a beautiful roan mare, though perfectly tractable otherwise, never was brought to submit to the indignity of being mounted. What a relief it was to know that when the long delayed advance began I should not be left behind for lack of transportation!

The General called me in one day and said that he had been offered Hawthorne's battery of mountain guns but would prefer taking mine if I thought I could keep up. I swore I could go anywhere, and he accepted the statement. That fixed a policy with me—whenever asked if I could do something my answer was "Yes." More often than not it was a shot in the dark, but somehow I always made good on the bluff. Had I been in Wheaton's place I would never have asked the question—the enemy had no artillery to be outmatched, mobility was certain to be the most important requirement in that country of poor roads or none at all, and the mountain guns had it all over us in that respect. I felt sorry for Hawthorne, for whom I had great respect and some affection, but—"All's fair in love or war!" Had I expressed the above opinion he would doubtless have been taken and my then role of "guns of

position" would probably have continued indefinitely. How sick I should have become of that!

Two of my little command had been slightly wounded, and I had stopped a bullet myself. It was during one of the many little actions. I was standing near a gun, bullets were flying pretty freely. One glanced off a gun and struck the inside of my left thigh with the force of a club. I was using my glasses at the moment and continued to do so. Something warm and wet was flowing down my leg and filling my shoe. I did not dare to look down for fear of becoming sick, nor move for fear my leg might give way. The action ended presently and then I found I could move safely, so went back to my tent and removed the bloody breeches and shoe. There was a ragged hole an inch long, bleeding profusely but not deep; the bullet had not penetrated. Having no doctor, I dressed the wound and it healed in a few days.

In 1936 the Purple Heart decoration for wounds was restored and I wrote the Adjutant General about this case. In due time came a reply to the effect that the battery records contained no mention of my having been wounded, and such record was essential to the issuance of the decoration. My sons have been advised to see that everything at all worthwhile gets on their records.

Our month in the cemetery had been invaluable. Our infantry thought well of us, our enemy feared us—could gunners ask more?

In a word, we were veterans.

The extension of the "South Line" to include Pasig practically doubled its length; the country to the south of its central portion was uninhabited, rough, waterless except in the rainy season, in fact was marked "El Desierto" on Spanish maps; troops holding it had to be kept close to the Pasig River for water and supply. It was planned to remain on the defensive on this front and make the main military effort along the Manila-Dagupan railway in the populous provinces of Bulacan and Pampanga.

For this reason a sizable garrison was maintained at San Pedro Macati with Light Battery D, 6th Artillery, as support. So the little camp at the cemetery became "home" to my platoon, the place to which it returned from various expeditions, until we left it for good and all when the South Line was moved forward on June 10.

Some few incidents of our life there seem worth recording.

Our outpost line was along the T-Tree Ridge, about a mile to the south of our camp. One had to go there to get a glimpse of enemy terrain. One could see for many miles, a country of low ridges and shallow valleys, generally grassed but with patches of brush—no large timber. Except that there was evidence of plenty of old rice paddies it looked like a not very difficult terrain for the operations that would some day be made over it. The Insurgents had outposts scattered along, usually in shelters

among the bushes at the bottom of ravines, just out of rifle range. Probably they had lookouts nearer our lines, but if so they were never discovered. Neither side troubled to patrol between the lines; neither fired on the other unless an all too tempting target presented itself, which was rare. It was as peaceful a sector as some of those in the Vosges, which worried the warlike Americans no little at first!

A favorite daily amusement of mine was to ride a pony out to the T-Tree Ridge, then along it about a mile to the west, where our line left it and ran northwest. A good path ran along the ridge and "Cossack Posts" of four men each were along it at intervals of perhaps a quarter of a mile. One man would always be in observation of the enemy terrain, the others asleep just back of the crest. No rifle pits or other protection had been constructed anywhere. With just a little enterprise the Insurgents might have bagged any or all of these posts any night, but they were evidently not inviting trouble, and the posts were never annoyed. One morning I was riding slowly along enjoying the scene and the fine morning air—not a care in the world. As usual, blue clad Filipino soldiers could be seen here and there in the distance, probably busy about their daily affairs. Suddenly the feeling rushed over me of impending doom, and I whirled my pony off the path and hurried down the slope out of sight. Then I pulled up, and sat there until this unaccountable panic and its aftermath of shame had worn off a bit. How I hoped none of the sentinels had observed me! Then I returned to the path and slowly followed it to the end as usual. The panic was gone but not the feeling of apprehension, and it took all the moral courage I could muster to complete that ride—and vivid still is the feeling of relief that came over me when the friendly hills hid me from the enemy! I never experienced anything of the sort again. I have often felt fear but always had the moral courage to do whatever the situation required and keep my true feelings hidden. I suppose most men are that way—in fact I have always believed and often said that the man who says he never felt fear in action is a liar. Men react differently of course. I have seen strong men turn sick and vomit under fire. I have seen a soldier run backwards when his squad rose and dashed forward to a new position—and then dash forward to his place in line. Not once, but every time did he thus expose himself for twice the length of time necessary. What a moral struggle was going on in that man's soul! One of the most determined men in action was an officer without a command, a gunner acting as Judge Advocate, named Captain Berkhimer. He tried to get in every fight wherever it might be and succeeded to a marked degree. He usually went forward with the scouts and made use, too, of the carbine he always carried. But—at the first shot the blood left his face, which took on a ghastly, ashy pallor. He looked like a man in a blue funk until the danger was over, when the color returned to his face. I could imagine some

legendary hero at sight of that face telling a hard-boiled sergeant to keep an eye on him and "shoot him if he runs"! But Berkhimer won the Medal of Honor! I have seen soldiers quietly sooth and encourage a comrade until his tenseness left him and self-control returned; I have seen a soldier, dirty, ignorant, mean spirited, with no background, an undesirable in the battery, display coolness and qualities of leadership under fire that won him the respect of men and officers and their forgetfulness of his past; I have seen an officer with good background of family and a diploma from the United States Military Academy, display a continuing abject cowardice for weeks, despite every effort to bring him to a proper frame of mind.

This "break" of mine caused me to give a lot of thought to the matter of personal courage in others as well as myself. I no longer felt quite so cocksure of my own. And one question haunted me long—if the danger had not been imaginary, if it had been real, imminent, rushing on, would I have rallied to meet it or would I have continued my ignoble flight, terror-stricken and demoralized? I wonder!

A battalion of the 12th Infantry was stationed at San Pedro Macati. It was under the command of a fine old gentleman, Major Harry Haskell. He was of the quiet type, earnest and efficient, and his command had a discipline and training higher than that of many a more assertive Major. His appearance was very striking—amusing at first. He was a little above medium height, his hair and beard snow white. The former was as much longer than "Regulation," the latter was very broad and covered his chest halfway to his waistline.

The Major was anxious to give his men a taste of what it means to be under fire; it would help their training and ensure their being more confident and steady when the real advance should begin. We had one or two talks on the subject and I assured him he could get what he wanted at any time by just marching out to the T-Tree Ridge and starting down its further slopes. So one afternoon he marched out there, deployed two companies as skirmishers just in rear of the crest, disposed the others as supports and reserve, and ordered the advance. I was with him as a sort of guide, with knowledge of the ground and a pretty fair idea as to how the insurgents were likely to react. We stood on the ridge about the middle of the line. The Insurgents were accustomed to seeing individuals and small parties there, and probably had given us no more than a passing glance, for the skirmish line had advanced a hundred yards or so before anything happened. Then a single shot came from somewhere, followed by others from various directions, and the volume of fire increased rapidly. Our skirmishers began to return it and to advance by rushes, our supports closed up to the ridge. The Filipinos were rather notorious for firing high, and much of the fire directed against the skirmishers fell on the slope between us and them or passed by and over us. It

seemed needless exposure, though not subject to the charge of needlessly drawing fire on others. But the old man stood calmly looking on—and I could scarcely do less! Presently he remarked that the lesson was sufficient and had his bugler sound recall. Soon all were again in the shelter of the T-Tree Ridge, and the surprised Filipinos were probably congratulating themselves on a "victory."

The men were mostly recruits of a few months' service and were certainly an excited lot. One man had a slight bullet wound—a skin cut on the leg—and was the envy and the hero of all; another with a bullet hole in his legging ranked second. And the eagerness of the men for more was a certificate that the lesson had been effective.

Our hillside gave a good view over Manila and down the coast of Manila Bay for some miles to include the town of Paranaque, of which all but the big church was hidden by trees. Off that town about a mile lay at anchor the monitor Monadnock, flanked by two small gunboats. The only road to the south from Manila passed through Paranaque, close to the beach, and crossing a bridge near the church. It was the line of supply and communication for the Insurgent forces facing Manila on the south. The insurgents acquired an old muzzle-loading cannon, of about 8-inch caliber, and mounted it near the church. They built for it a suitable emplacement of earth with revetted slopes, etc. It was a very respectable bit of fortification, was built by man power, required weeks for completion, and stood on the shore in full view of the Monadnock. The sailors must have had many a merry quip over all this preparation to wipe their ships off the bay, being made right under their noses. A single shell from the Monadnock would suffice to wipe out the labor of weeks.

We were startled one peaceful Sunday by the sound of heavy-gun fire in the direction of Paranaque. Smoke began rising above the tree tops there; through glasses it could be seen that the church was receiving American shells—the Navy was bombarding Paranaque. It seems that the Insurgents having completed their emplacement, loaded their gun and fired it at the Monadnock—and the round shot hit that ship! Some minutes were necessary to prepare for a second shot and by that time the surprised Americans were pouring shells into the place; the attack on our Navy was over. Thereafter from time to time the Navy bombarded Paranaque, and this kept up until our advance on June 10 finally cleared the Insurgents from that area. Just what it was hoped to accomplish was not clear to us, and our sister service was the subject of many a joke. If absent from camp for a day, or days, or weeks, the first question of the returning soldier was as to the progress of the bombardment of Paranaque!

SANTA BARBARA DAY

The Field Artillery Officers of the Sixth Division at Camp Jackson, South Carolina, with a number of National Guard, Reserve, and former officers of the Field Artillery, gathered together at the Jefferson Hotel in Columbia,

South Carolina, on Saturday evening, December 2nd, to celebrate the Birthday of Santa Barbara, the patron saint of the Field Artillery.

The affair was a most enjoyable one with esprit and good fellowship predominating throughout the evening. Table decorations carried out in the color of our arm included red carnations, red candles, red place cards and menu folders; they made a striking picture.

Colonel Richard C. Burleson, the Field Artillery adviser of the division, acted as toastmaster and master of ceremonies; his witticisms and remarks throughout the proceeding kept everyone in a jovial mood. Guests of honor were Brigadier General Clement A. Trott, Division Commander, Brigadier General Walter A. Prosser, Infantry Adviser, who served a short time in the Field Artillery as a Lieutenant, and Mr. S. L. Latimer, Jr., editor of the *Columbia State* and a field artillery officer in the World War. The guests of honor and other ranking officers made brief remarks.

A place of honor in front of Colonel Burleson was occupied by a statuette of Santa Barbara, exquisitely carved from wood by an artist from the Hawaiian Islands, which had been presented to Colonel Burleson by the 13th Field Artillery.

Throughout the evening many old favorite songs were sung including the *Caisson Song*, *The Mountain Battery*, and the *Red Guidon*. The introduction of a new song, *The Merrie Men of the Eightieth Artilleriae*, was a feature; words and music of this song were by Captain Edward H. Metzger and 1st Lieutenant Robin G. Speiser.

Among those present were Colonel William O. Wood, Lieutenant Colonel Ray L. Burnell, Majors C. M. Thirkeld, Wendall Bevan, Lawrence H. Bixby, Howard W. Turner, Ivan L. Foster; Captains Edward H. Metzger, Harry Crawford, Francis O. Wood, Alfred Vepsala, Lester M. Rouch, Thomas E. Meyer, Valentine R. Smith, James J. Deery; 1st Lieutenants John J. Davis, Charles P. Westpheling, John C. McCawley, Samuel E. Otto, Robin G. Speiser, William O. Darby, Thea L. Lipscomb, Edward Berry; and 2d Lieutenants William A. Enemark, Charles J. Blake, Jr., Homer E. Miller, Warren R. King, William J. Randolph, James H. Shelton, James R. Wilson, Joseph G. Wogen, and Clark M. Thaler.

Among the guests from the civilian components were Colonel Irvin L. Belser, FA-Res., Major David McHorton, FA-Res., Captain James B. Murphy, FA-Res., Mr. William Lykes, and Mr. Cosmo L. Walker, formerly officers of the Field Artillery.

The second annual FEAST OF SAINT BARBARA was held at the Hotel Olds, Lansing, Mich., on Dec. 15, 1939. This is the annual St. Barbara's Day banquet of the Order of Saint Barbara, an organization composed of the officers of the 119th Field Artillery who are graduates of the Field Artillery School at Ft. Sill. Fourteen officers were present including thirteen of the twenty active members of the Order and also the regimental commander, Col. Glenn W. Carey, as a guest.

THE 1939 KNOX TROPHY

By Captain Walter D. Webb, Jr., FA.



Captain Walter D. Webb, Jr.

Right: Battery A, Second Field Artillery, near La Venta, Republic of Panama, April, 1939.



Much of the service practice of the 1st Battalion Second Field Artillery is conducted on the Field Artillery range west of the Panama Canal, in the vicinity of Pedro Miguel. In order to reach this range from our home station, Fort Clayton, it is necessary to cross the Canal on the lower lock gates at either Miraflores or Pedro Miguel. On the fifth of December, 1939, we held a battalion "shoot," with the battalion fire-direction center in operation, on this range. Upon completion of the firing the battalion marched back to the stables by way of Miraflores Locks and was held up at the gate for exactly one hour, waiting for ships to clear the locks so that we could cross. When we finally got across and started the last mile into stables I noticed the Battalion Commander's station wagon waiting at the side of the road. As I approached it Staff Sergeant Carter of Headquarters Battery halted me and informed me that Colonel Franke, the Battalion Commander, directed that I turn my battery over to my Lieutenant and report to him at

battalion headquarters immediately. I turned the battery over to Lieutenant Laskowsky and started in the station wagon, wondering what it was all about. I asked Sergeant Carter what the Colonel wanted me for but could get no information from him. I racked my brains trying to think of everything I might have done that I should not have done and all the things I should have done that I had failed to do. I thought it must be something pretty serious for the Battalion Command to send out for me. When I arrived at headquarters ported to Major Dixon, the Adjutant. He appeared solemn and told me to go right into Colonel Franke's office. I then noticed that S-3, Captain Phelps, was also present. Still wondering what it was all about, I reported to Colonel Franke, who then informed me that he had received a radio message from the Chief of Field Artillery lery stating that Battery A Second Field Artillery won the Knox Trophy for 1939. I will not attempt a description of my feelings.

When I was assigned to command Battery A Second Field Artillery in May, 1937, it did not take long for me to realize that I had fallen heir to a splendid organization. The battery was (and still is) composed of as fine a body of enlisted men as it has ever been my privilege to serve with. "A" Battery was selected to take the Knox Trophy test in 1938 and I believe we profited by what we learned from it. The battery entered the 1939 test with every man believing that we could win the Knox Trophy and determined to do his best. We were fortunate in having the test held during the month of May. This was about the end of the dry season and just following our annual maneuver period. Consequently, men and animals were in good, hard condition after nearly four months of field service under tropical ditions.



Battery A at service practice west of the Panama Canal.

A great deal of the credit for winning the Knox Trophy is due First Sergeant George T. Cunningham who by his enthusiasm and determination to win instilled this spirit in the entire battery. The Packmaster, Staff Sergeant Casey J. Hall, and the Stable Sergeant, Sergeant James W. Hughes, by their superior knowledge and handling of the pack animals are largely responsible for the record of the battery in mobility.

The actual training for the test was conducted by the Noncommissioned officers, under the supervision of the officers, 1st Lieutenant James E. Beery, Executive, and 2nd Lieutenant Rudolph Laskowsky, Reconnaissance Officer. Particular credit is due Sergeant William H. Munyon for his work with the instrument detail and Sergeant Harold B. Edwards for his work with the communication detail. I would like to cite each individual in the battery by name if space permitted. The Knox Trophy was won not by a few key individuals, but by the spirit and effort of each individual man in the battery, all of them working together as a team.

KNOX MEDAL



Sergeant Vernon O. Moore

Sergeant Moore was born in Grover, N. C., November

The Knox Medal, awarded annually for excellence as an enlisted student at the Field Artillery School, was won by Sergeant Vernon O. Moore, Headquarters and Headquarters Battery, 2d Battalion 83d Field Artillery, Fort Bragg, N. C. The following biographical information concerning Sergeant Moore was furnished by Captain T. J. Sands, his battery commander:

21, 1916; he graduated in 1933 from Grover High School after an outstanding career as a student in which he won honors scholastically and also in athletics. He enlisted in the Army in 1935 and has served continuously since that time in the 83d Field Artillery, where his progress has been steady. He graduated from the Enlisted Communication Course at the Field Artillery School in June, 1939, having attained the highest average grade ever won there by an enlisted man in that course. His exemplary conduct since his return from the school has shown him to be a noncommissioned officer of the highest type, and eminently qualified for the honor of receiving the Knox Medal. At present Sergeant Moore is chief radio sergeant of his battery.



FIELD ARTILLERY ASSOCIATION MEDAL WINNER

OREGON STATE COLLEGE

CHARLES H. RICE

Son of Col. C. H. Rice, 16th Inf., Governors Island, N. Y.; Cadet Lieut. Col.; Scabbard and Blade; Fish and Game Club; Agricultural Club; Accounting Committee; Phi Sigma Kappa; Co-champion intramural golf.

STATEMENT OF POLISH OFFICER

"Often from 100 to 200 German airplanes prepared the attack of the German troops. Having dropped their deadly load, and flying at low altitude, they fired with machine guns even at single, isolated infantrymen. Then followed a massive tank attack. Prepared in this manner, the offensive could not be stopped by Polish troops. But even if they did succeed in stopping, in some places, the advance of the German troops, a hurricane of artillery fire followed immediately, destroying every possibility of resistance. We were unable to resist the technical superiority of the German Army and the sweeping hurricane fire of its artillery."

—From *Account of Polish Officer*, in "Segodnia" (Riga), September 20, 1939.

Keep Your Eye on the Ball

By CAPTAIN HOMER A. DYE, FA-RES.

When you go out for an afternoon of golf, you don't mind giving the caddie a fifteen-cent tip as a matter of expressing your appreciation for a pleasant time to which he has contributed. You lay it on the line for good measure, win or lose, and feel that you are leaving a measure of good-will and well-being all around.

Something of that spirit pervades the Saturday-afternoon trainer practice sessions of the Field Artillery Reserve unit of Kansas City. Every officer gets to fire a problem—sometimes two or more—and the fifteen cents that is laid on the table as the officer signs his name on the attendance sheet is an offering that does not have a tendency to discourage attendance, and yet is sufficient to defray the incidental expense entailed in the operation of the equipment. He would pay that much or more for a little casual rifle practice at a shooting gallery and think nothing of it. The greater fun of conducting the fire of the trainer guns is a little "cover charge" on that basis, and those who have paid the modest price are ready to admit that they get their money's worth.

And yet that small revenue bridges the gap between the facilities provided by the government and what is needed to make the thing work smoothly and successfully. It oils the machinery, just as the tip to the caddie greases the palm. With a little money in the till, youngsters from a nearby school swarm around for the privilege of retrieving the balls. High school cadets occasionally are on deck to earn two bits for three or four hours' fun, and to gain incidental advantage of absorbing some of the fundamentals of artillery fire. On one notable afternoon a quarter of little girls on the short end of the teen-age bracket elbowed off the masculine competition and displayed their proficiency on the range. And they were just as prompt to line up at the pay-table when "close station" was sounded.

The set-up for trainer practice with the Kansas City group is somewhat different from that obtaining in any other outfit in the country. Numerous reserve units have access to the equipment in National Guard armories and other organizations, but the Kansas City unit fortunately has rated a set of equipment of its own from the War Department.

When the equipment was issued, during the regime of Colonel George M. Peek as unit instructor, the innovation was taken on with some misgivings, owing to the fact that no government funds are available for the incidental expenses of operating it. The 15-cent

"greens fee" paid by the officers who fire the problems has taken care of this in considerable measure, but room still is left for the resourcefulness and adaptation necessary to make the program a complete success—the things that mere money, unless there is quite a lot of it, could not buy.

Staff Sergeant George Beaumeister (2d Lt., FA-Res.) of the Reserve Headquarters office in Kansas City was willing to put on his fatigue clothes and take charge of the mechanics of the practice, devoting afternoons that normally would be free to him in his white-collar job in the office. Incidentally, the sergeant has displayed enough enthusiasm in the extra work to indicate that this modicum of the smoke of battle provides a certain amount of inspiration to an old war horse. It is not entirely a sacrifice to him, he has indicated. A janitor in the Medical Arts building, in which the reserve offices are established, provides a truck for a nominal fee, which hauls the equipment to the practice ranged.

Some of the officers themselves have notably cooperated in the necessary mechanics. Lieutenant Colonel Leo B. Crabbs generally shows up two or three hours ahead of time to work with the sergeant in getting the equipment together and firing preliminary adjustment. Ten-cent-store toys have provided a wide selection of miniature targets for the range, and in addition to this, the officers themselves have devised some unique features. Major Jo Zach Miller, III, who in civilian life serves as vice-president of the Commerce Trust Company, took time out from weighty affairs and got a lot of kick out of building miniature bridges and other gadgets to be shot at. Among the array of landscape features is a red barn with beautiful silos which honor of the peppery instructor, was labeled "Farmer Peek's Barn." For some reason or another—and whatever the reason, Colonel Peek didn't give a hoot—the students have taken especial delight in using that barn for a target, with the result that it is not as pretty as it once was. Elaborate architectural plans are under way for a new target in honor of Colonel C. A. Selleck, the new instructor who has taken Colonel Peek's place.

The Kansas City experiment has given rise to some speculation as to whether similar equipment might be available for other units. Without definite official word

on the matter, the conjecture is that obtaining a Bishop battery for your area or district would depend on the sympathetic understanding of your needs at Corps headquarters and the demonstration of interest and willingness to work in the group applying for the equipment. An essential would be some funds to defray the cost of trucking the materiel and to pay ball retrievers, and to allow for the cleaning of the equipment.

It is certain that encouragement and urging comes from the top for reserve officers to become efficient and resourceful. On the other hand, there are some handicaps in the way of fulfillment. But by that same token, some of that efficiency and resourcefulness can be exercised to overcome some of the red tape, to the end that efficiency is strengthened and the handicaps are lessened. In the absence of direct assurance that Bishop batteries can be had for the asking, the possibilities are thus indicated.

With Colonel Peek having seen at first hand the success of the reserve's independent operation of trainer equipment, the unofficial grapevine is that reserve units which desire to acquire similar equipment will find a cooperative and sympathetic friend at Seventh Corps Area Headquarters.

Reserve officers who have served the miniature guns have been impressed with the valuable mechanical experience it gives them. Capt. Paul Long and Capt. Everett L. Bohrer have served untiringly behind the guns. Capt. Thomas Adams, who has been through the School at Ft. Sill, gives testimony that the mechanical functions behind the guns, following the commands of the firing officer, provides a new slant on the fire technique involved, and affords a direct insight into conduct of fire to be had in no other way. Captain Adams divides his time between serving the guns and assisting the beginners at the firing point.

With a great quantity of firing under way, field officers are enabled to keep in touch with fundamental mechanics and technique. Major Miller and Colonel Crabbs serve regularly in critiquing the problems. Major John Gregory and Major Herbert Van Smith also function in this capacity. Capt. Paul Dickson and Captain Adams, who are fresh from the school at Sill, are invaluable at the firing point.

The Kansas City Park Board cooperated enthusiastically and materially in providing the practice range, which is located three hundred yards southwest of the Liberty Memorial. Park employees terraced an abutment and poured concrete for a permanent gun emplacement. This enterprise was not without some compensating features from the standpoint of the park department. The practice range might be considered an added feature of interest to the landscaping, and there is no denying that the firing activities provide some entertainment to motorists who park behind the guns to watch the proceedings. For a city park department that provides a menagerie, a swimming beach, golf courses, tennis courts and other entertainment and recreational features for the public, the encouragement of trainer firing could be profitably included as a park project merely from the standpoint of selfish interest, the Kansas City experiment indicates.

With the program at hand, some progressive features have given added interest to the series of range practice assemblies. Emphasis is made on the value of rapid conduct of fire among the more experienced officers who have had their fundamental training. It is a policy that has reciprocal advantages. By firing more rapidly, each officer is given more opportunities at the firing point. With more opportunities at the firing point, there is more habitual experience with the technique, and a resultant lessening of "buck ague"; thus the officer is enabled to fire more skilfully—and more rapidly.

The group has two trainer batteries and enough fire-control instruments, minus some telephones that can be borrowed from the National Guard, so that it can set up and operate a fire-direction center and get practical training in phases of work that are especially valuable in view of the newer doctrines of tactics.



SENATOR HARRY S. TRUMAN AT THE BC 'SCOPE Left to right: Col. Leroy Collins, Sen. Truman, Sen. Elmer Thomas (in background), Rep. John Sparkman (Louisiana), Capt. W. H. Bartlett, Sen. Harry H. Schwartz (Wyoming), Col. C. P. George, and Rep. Overton Brooks (Louisiana).

SENATOR TRUMAN GETS A SOLUTION

During the visit of a Congressional Committee at Fort Sill in November, Senator Harry S. Truman (Colonel, FA-Res.) fired a problem in the Signal Mountain area. In spite of a running fire of caustic comments from his colleagues, Senator Truman fired a superior problem, according to the report of the Field Artillery School Commandant, Colonel McIntyre.

The target, representing a battery in action, was assigned without prior warning. The set-up was lateral, with the OP on the right. Senator Truman promptly shifted from base deflection, opened at a range-finder range of 3800, which was over. A bracket was obtained after two salvos, and fire for effect commenced. Senator Sherman Minton of Indiana, a reserve captain of infantry with distinguished war service, was especially severe in his comments, but Senator Truman had the right answer for all criticisms. And the results of the problem were 100%, as reported by Major Arthur Wilson, FA, who accompanied the party in its inspection of Army posts.

MUZZLE BURSTS

This page is for "Letters to the Editor," or any other random thoughts which readers wish to share with others. Let your conscience be your guide. *The Field Artillery Journal* pays for all "Muzzle Bursts" accepted.

BARGAIN FOR A DIME

Recently I discovered once again that even in the shabbiest book stalls you may sometimes find a bargain. Wandering through the narrow streets back of the Reading Terminal in Philadelphia, I noticed a little shop, more or less hidden by a group of saloons. Out in front was a small rack of books priced at ten cents each. One of them was a thick blue volume entitled *Recollections of a Military Life*, by General Sir John Adye, G.C.B., R.A. I could not recall having heard of the General or his autobiography, but, reasoning that any general's reminiscences are worth a dime, I bought the book.

Continuously from 1762 a member of General Adye's family had been an officer in the Royal Artillery. The General himself entered Woolwich, the military academy for the artillery and engineers, in 1834, graduated at the head of his group, and was commissioned second lieutenant in the Royal Artillery in 1836, at the age of 17. He retired a full general in 1886, having served fifty years in the Royal Artillery. He thus witnessed the whole of the tremendous change that came about in this branch of the service with the introduction of breech loading, rifling, and high explosives. When he entered the artillery, it was not greatly different than it had been in the days of Queen Elizabeth, yet when he retired from the service it was substantially the same as it is today. General Adye describes this revolution in detail, and in his pages one may read, for example, of the slow death of the muzzle-loader in Great Britain. Breech-loading cannon were adopted in England in 1859, but generally poor results experienced with them in the China War of 1860 convinced many that they were not yet practical. Breech-loading guns were therefore abolished, and replaced by the old muzzle loader, though it was now rifled. The muzzle loader remained standard in the British army for twenty years, and breech loading was not re-established until long after the other powers had permanently adopted it.

General Adye's *Recollections* are full of bright passages, for he possessed a fine sense of humor and a keen appreciation of the ridiculous. I quote the following at random, as an example:

"Even the placid and scientific temperament of an Ordnance Committee may, however, occasionally be subject to a severe strain. Many years ago a proposal was submitted by some inventor that a small gun, strapped broadside across a horse's back, and fired from that position, would be useful, especially in mountain campaigns. The experiment was made in the arsenal at Woolwich, the horse's head being tied to a post, with the

muzzle of the gun pointed to an old earthen butt; the committee standing on the other side of the horse to watch the result. The gun was loaded, and, in order to give time, a slow-burning fuse was used to fire it. The committee however, in tying the animal's head, had omitted to take the precaution of also making fast his tail. The first result was that, when the horse heard the fizzing of the fuse on its back, it became uneasy and walked round the post, so that the gun, instead of pointing at the butt, was thus directed straight at the heads of the committee. Not a moment was to be lost; down went the chairman and members, lying flat and low on their stomachs. The gun went off; the shot passed over the town of Woolwich, and fell in the dockyard; the horse being found lying on its back several yards away. The committee were fortunately unhurt, and gradually recovered their equilibrium, but reported unanimously against any further trial."

So, just because the principal stock in trade of a book store seems to be western magazines, confession stories, and dirt, don't ignore it; sometimes you can get a real bargain for a dime.

—LIEUT. HARVEY S. FORD, FA-Res.

MORE ON STREAMLINED CONVOYS

Having read with more than passing interest Lt. Colonel Burnell's article entitled "Streamlined Convoys," I am breaking a precedent of twenty-odd years to add a few items of interest.

Using the Streamlined Convoy principle, I moved a battalion of the Fourth Infantry from Fort Lewis, Washington, to Fort George Wright in twelve hours' total elapsed time—333.3 miles from entrance to entrance—in 1937. Profiting by experience, the same identical route and haul was made in May, 1939, in ten hours twelve minutes.

I agree heartily with every point, Colonel Burnell, and wish to add the following of my own:

a. Route markers; used as indicated by Colonel Burnell. *In addition*, trained in traffic control and used at any intersection where traffic lights can be controlled from a control switch. This with the authority of city police. We found, however, that state and city police in Washington state were more than glad to have us assume full responsibility for traffic regulation, which we did. It expedited the movement of the convoy, did not, due to increased distances, interfere in any material way with civilian traffic, and, most important, eliminated accidents. We had none in over 6,000 miles of convoy work.

b. Halts. Colonel Burnell states "From then on, drivers were on their own until the next rendezvous point was reached." This statement should be extended to indicate that halts, as well as movements, are by vehicle. Halting places are indicated by the RO or the convoy commander, as the case may be, but each vehicle is checked out of the halting place at the expiration of the time allotted for the halt. Thus, if the halt is for seven minutes, then each vehicle leaves the halting place seven minutes after arrival.

c. The problem of the noon halt is one that requires study and staff work in order to eliminate unnecessary delay. By proper coordination and planning, it was found possible to limit the time of the noon halt to twenty-two minutes per vehicle, at thirty-second intervals. This made the total time consumed at the noon halt the time length of the column plus twenty-two minutes. In other words, each vehicle halted twenty-two minutes and then proceeded. In that twenty-two minutes each vehicle was serviced, gassed, and oil replenished where necessary, checked, and the drivers fed. This was accomplished by using two tank trucks in column, each tanker gassing every other vehicle, and the diesel oil kitchen truck placed ahead of the column and ready to serve the meal upon arrival of the leading vehicle. Drivers were required to remain with their vehicles, sending the assistant drivers to the kitchen for meals for both men. All other personnel reported to the kitchen truck, marker party personnel being fed first. Upon completion of the meal, the kitchen truck immediately began preparation of the evening meal, and did not leave the noon halting place until the tail of the column had cleared.

As a summary, it is a truism that no time is lost as long as the convoy is rolling. Time is lost in unnecessary halts, staying too long at the halts, and in failure of drivers to maintain standard speed. This latter is easily corrected. Too-frequent halts are a holdover from horse-drawn days. One halt every seventy to eighty miles is ample. The time at the halt does not need to exceed ten minutes per vehicle for the first halt, and not to exceed five minutes thereafter, with the exception of the so-called "noon halt." That the decentralized system is highly efficient for any type of motor movement is illustrated by the statement made in the second paragraph—333.3 miles in ten hours twelve minutes' total elapsed time. In other words, from the time the leading vehicle left the entrance to Fort Lewis to the time the leading vehicle entered Fort George Wright 333.3 miles away on the "other side of the mountains" was the aforesaid ten hours twelve minutes. I can hear screams of "too fast, too fast" and shouts of "fake." Not so. The standard speed was 38 miles per hour, which could be maintained over most of the route. The halts were ten minutes, twenty-two minutes, five minutes, and five minutes, for a total of forty-two minutes. The actual driving time, nine hours and thirty minutes. $9.5 \times 38 = 361.0$. The overage accounts for slowing down for intersections and complying with speed regulations. The

average speed was 35 + MPH. This speed does not appear to be excessive. It is fast enough to accomplish the movement without undue fatigue to the "passengers" (infantry), slow enough to not endanger materiel or personnel, and, what is of paramount importance, accommodates itself very readily to the average flow of civilian traffic.

As the primary objective of all troop movements by motor is to get there at the appointed time, exposing troops and vehicles to the possibility of air and mechanized attack for as short a period as possible, it is urged that study be made of the decentralized or streamlined convoy with a view to eliminating some of the fallacies that exist in convoy regulations today. "Never train troops to do in peace time that which they will not do in war."

—LIEUT. COL. WILLIAM ALEXANDER, FA

SOMETHING ROTTEN IN DENMARK

TO THE EDITOR, FA JOURNAL,

Sir: It seems to me that THE FIELD ARTILLERY JOURNAL is acquiring a discordant note of levity which is not in keeping with the lofty purpose for which it was instituted. With this in mind, I am submitting herewith a scientific study which I hope that you will publish in an earnest endeavor to reestablish that serious professional tone which your better class of readers would wish for it.

The subject of my theme is a description of my new invention, which I have called the *Olfacto-scope*. The purpose of this mechanism is to locate hostile guns (and possibly aircraft) as well as to adjust our own long-range weapons by means of an entirely new principle. You may well say that this idea is revolutionary!

Before describing the apparatus and outlining a method of employment, I shall discuss, mathematically, the theory back of this astounding discovery:

Let us assume that

$$X^2 + [(F - X^2) + y] - y = M(A + x + y - y - x)$$

Now for ease of handling, change to hyperbolic coordinates and integrate with respect to z , allowing x to approach $\sqrt{-00}$ as y becomes imaginary. Then leave out a few simple steps which the reader can fill in for himself, and we get

$$x=0$$

$$y=0$$

Which we knew all the time. A more elegant solution may be obtained by letting

$$a=b, \text{ and } b=a$$

Whence, $a+b+1=b+a+1$

Now reduce the series

$$1+1+1+1 \dots$$

Assuming that the tide is out; and it may easily be shewn that

$$x=0$$

$$y=0$$

Providing, of course, that there are no extra molecules.



How about the olfacto-fuze for use against *mephitis mephitis*?

Having thus cleared the air, we are ready to proceed with the more practical aspects of our problem. The *Olfacto-scope* is essentially a locator which works on the olfactory principle rather than visual or auditory. The actuating element consists of the olfactory membrane of an adolescent *felis concolor*,* suspended between two metallic plates so that when an impulse is received to which the membrane is responsive, the inductance, resistance, or capacitance of an electric circuit is varied so that a momentary surge of current flows through a circuit. Of course, any of the well-known microphone detector principles may be used in constructing this *olfacto-phone*; the principle difference is in the actuating unit of the detector, and the fact that the impulses received are olfactory in character rather than electro-magnetic, sonic, or visual. The recording apparatus may also be a standard type, though personally I favor two tubes of solution, one acid and the other alkaline, in which litmus paper is suspended. As the current flows one way, the paper turns blue, when it flows the other way, the paper turns red, or something of the sort. There are a few minor details yet to be worked out.

Now for methods of employment: For ranging our own artillery, we must first introduce into the bursting charge of each projectile (at the factory) a small quantity of essence



Warning! The olfacto-scope may cause our guns to react to the same aromas which inactivated Ferdinand the Bull.

of *Nepeta cataria*.† When the shell bursts, this effluvium drifts down the breeze, sets the membrane of our olfacto-scope aquiver, and the shot is located, either by using a directional, goniometric arrangement, or by hyperbolic plotting. It's as simple as that.

To locate enemy guns we must see to it that our spies also introduce *nepeta cataria* into the propellants used by the enemy.

*Mountain lion.

†Catnip.

There are a few bugs in the system which have been eliminated. If the troops have been in the field as long as two weeks, and prior to the establishment clothing-and-bath units, there may be considerable inference, which we may call "static," on the air. Also if we are up against an enemy whose diet contains such substances, say, as garlic, or limburger cheese, our olfacto-scopes may vibrate almost continuously. The solution of these difficulties lies, of course, in constructing proper odor traps, or tuning our apparatus so as to eliminate the undesirable frequencies. I am sure that American genius can surmount these minor obstacles.

—LIEUT. R. F. ARPH

EDITOR'S NOTE: Because of the prevalence of *mephitis mephitis*, there would be no chance of using this device at Fort Sill.

REPLY TO "GADGET WANTED"

I just can't restrain a comment on the chap who signs himself "Reserve Officer" to a squib entitled "Gadget Wanted" on page 552 of the November-December, 1939, number.

For the information of Reserve Officer there are many gadgets or gimmicks which will solve any number of given problems. I recall solving rolling-barrage data on an adding machine or comptometer that was in use in the Office of the Chief of FA in 1918. This was just to see if it could be done. The Air Corps has the so-called "little black box" which will solve a time sight for longitude by merely setting increments and "Larry, turn the crank." Similarly, a device can be made that will, given a gun, a charge, a fuze, a projectile, and meteorology data, turn out the net effect. However, the bug in this idea is that, to be accurate, we must have a separate gadget for each and every type of weapon, each and every type of powder charge, etc., etc. In other words all these devices work with constants and, in gunnery there are many variables.

In 1915 the Navy developed a device called the "Farnsworth Gun Error Computer" that solved the corrections-of-the-moment problem for a specific weight of projectile, powder charge, etc., all factors involved in the materiel part of it being assumed as constants. There had to be one for every type of gun from 3" to 14". I have an old note book practically filled with compactions of curves to be used on a circular slide-rule type of correction-of-the-moment finder. These computations convinced me that the data-correction sheet and the range table was the best method. The small bit of grocery store arithmetic used in the latter method is a slight pain as compared to the slide-rule idea where the BC would have to carry a half a dozen of them and have just as much trouble getting the right one as it is to look up the right page in the Range Tables. Most important, there is no record to show where the mistake was on the slide rule, and slip-stick artists are born, not made. If Reserve Officer will make a brief study of this subject he will discover some headaches that do not exist in the present proven methods.

—W. A.

Extension Courses

The following quotation from paragraph 1, AR 350-3000, sets forth the mission of the Extension Courses as at present prescribed:

a. Primary mission:

(1) To provide for reserve officers an opportunity to undertake a systematic course of study covering the military knowledge qualifications essential for their arm or service, to prepare them as far as practicable for their wartime duties, and to assist them to meet their requirements for promotion.

(2) To provide for those seeking a commission in the Officers' Reserve Corps a means of meeting the military knowledge qualifications.

(3) To provide a basis for coordinated instruction in Reserve unit conferences.

b. Secondary mission:

(1) To provide individual instruction for National Guard personnel and Regular Army officers.

(2) To furnish assistance in preparing for resident courses at the army service schools.

Note that the primary mission is aimed entirely at Reserve Officers; the entire arrangement accordingly is based primarily on the theory of instruction for officers who rarely have personal contact with their instruction and whose actual experience with troops is limited to the two weeks of active duty every few years. The

importance of the peacetime training of reserve officers and the dependence which the country must place upon them in time of war are rather generally appreciated by officers of the Regular Army. Also, the heretofore relatively small amount of money provided yearly by Congress for their training is well known. Until the passage of the Thomason Act, only a very few reserve officers could obtain short yearly periods of active duty. In 1922, the Army Extension Courses, known then as Correspondence Courses, were established to further the military education of officers by providing for them a carefully planned, progressive, and extensive course of study.

Until this year, the Field Artillery Extension Course was divided into four groups of subcourses, called the 10, 20, 30, and 40 series. These were intended for qualifications, respectively, for appointment as 2d Lieutenant and for promotion to 1st Lieutenant, Captain, and Major. For field officers the Command and General Staff School subcourses were available in lieu of a 50 and 60 series. The subcourses were on a four-year revision basis, under instructions from the Extension Course Section of the Adjutant General's Office. An average of one fourth of the Field Artillery subcourses were revised annually, and each year the revision program for that year and the three following years was known well in advance and the work could be planned accordingly. Since the Field Artillery Books were the primary texts, their revision dates could

also be planned well in advance, as the revision of a text is contingent on the revision of a subcourse based on it. In April, 1939, a new directive was issued by the War Department, which radically changed the existing set-up, and threw out entirely the existing revision program. The following are extracts from this directive.

2. The numbered series as a whole will be modified to include in general only such instruction as is required to fit the officer for his mobilization assignment. In this connection, the following will govern:

a. The subcourses, both arm or service and common, will be arranged in series as at present.

b. The Command and General Staff Extension Course as a whole will be eliminated from the 50 and 60 series of the Extension Courses of the Arms and Services. It will be retained for officers who should take it by virtue of their assignment or for officers who have the interest and time to pursue a course of instruction in addition to that required. In order to prepare Reserve and National Guard officers for attendance in the resident special course at the Command and General Staff School or the Corps Area Staff Schools or to prepare any officer for completing the Command and General Staff School Extension Course, an abbreviated preparatory course is being arranged. * * * * *

c. The elimination of the Command and General Staff School Extension Course from the 50 and 60 series of arms and services now using them will necessitate the substitution

therefor of suitable arm and service subcourses.

d. The readjustment of subjects in the other series to meet the objective of giving an officer instruction in the fundamentals of his wartime duties should be the next step. In making this readjustment some of the subcourses now in the lower series may be found suitable for the 50 and 60 series. The elimination of the Command and General Staff Extension Course from the 50 and 60 series will obviate the necessity for placing preparatory subjects therefor in the lower series.

e. The inclusion of instruction in the same subject in several series of a course for the purpose of giving advanced or refresher instruction may be desirable or necessary. Especially is this true in connection with such subjects as Training Management, Administration, Supply and Mess Management, and the like.

f. In modifying the series, the fact that the Extension Courses are designed primarily for the Reserve officers' use must be kept in mind. The Summary of Unit Training Schedules for Mobilization should be examined to see whether there is a source of training information available in the Extension Course for essential war-time subjects.

3. The scope of the subcourses will be adjusted where necessary to include instructional material appropriate for the war-time duties of the group for which intended. In this connection the following will govern:

a. Approximately seventy-five per cent of the material included in a series of subcourses or subject matter within a course will be limited to phases of subjects or subject matter to

By Major B. A. Day, FA

the grade of the group concerned; the remainder of the material may be devoted to instruction applicable to the next higher grade. For example, subcourses of the 40 series should be devoted primarily to material essential for the continuation of the instruction initiated in the latter part of the 30 series designed to fit the student to perform the duties of a captain in an appropriate assignment; the remainder of material should be applicable to the duties of the grade of major.

* * * *

c. Instructional material for the arms will be designed primarily for qualification for the *command* of a unit appropriate to the grade for which intended. For example, subcourses intended for a captain should be devoted primarily for the command of a company rather than for duty on the regimental or other staff.

* * * *

f. In preparing material for staff officers and senior commanders of the arms or services it often will be necessary to familiarize the student with higher units but estimates of the situation, command decisions and similar requirements for these higher units will not be required. For example, a colonel of Engineers may be informed of the operation of a division or corps in order that he may better serve it, but he will not be required to make a decision normally made by the division or corps commander.

g. Subject matter applicable to peace-time operations only will not be included in subcourses.

* * * *

i. Texts to be used will be carefully considered *before* the scope of the subcourse is finally determined. A judicious adjustment between desired subjects and existing official training documents will greatly simplify the preparation of instructional material. A procedure whereby subjects are determined without regard to what official War Department texts already exist has often necessitated extra texts and added expense, and is not viewed with favor.

j. The use of common subcourses will be continued.

* * * *

4. War Department publications in the form of manuals or regulations will be used as texts for the extension courses to the greatest practicable extent.

a. If the official text appears to be out of date, paragraph 2, TR 1-10, prescribes the method by which needed changes can be effected and published. The time which would ordinarily be utilized to prepare a special text may often well be devoted to revising an official text.

TABLE 1
(Subcourses marked (c) are common subcourses)
a. For candidates for commission.

Subcourse	Title	Primary text	Approximate hours
(c) 10-1	Organization of the Army		7
10-2	Organization of the Field Artillery	FM 6-5, FAFM	8
(c) 10-3	Defense against Chemical Warfare		19
(c) 10-4	Military Law—The Law of Military Offenses		15
(c) 10-5	Military Discipline, Courtesies, and Customs of the Service		6
(c) 10-6	Interior Guard Duty		8
(c) 10-7	Map and Aerial Photograph Reading		25
	Part I, Map Reading		(15)
	Part II, Aerial Photograph Reading		(10)
(c) 10-8	Military Sanitation and First Aid		10
10-9	Materiel and Ammunition	FAB 100, ST 102	17
10-10	The Firing Battery	FM 6-40, FAFM	16
Total hours			131
b. For second lieutenants.			
20-1	Elementary Ballistics and Dispersion	FM 6-40, FAFM	10
20-2	Preparation of Fire—I	FM 6-40, FAFM	20
20-3	Conduct of Fire—I	FM 6-40, FAFM	24
20-4	Field Artillery Signal Communication—I FM 24-5, BFM, Sig Com.		20
20-5	Preparation of Fire—II	FM 6-40, FAFM	30
20-6	Supply and Mess Management		18
	Part I, Supply		(8)
	Part II, Mess Management		(10)
20-7	Conduct of Fire—II	FM 6-40, FAFM	24
(c) 20-8	Care of Animals and Stable Management		(18)
	(For officers assigned to horse-drawn units only)		
(c) 20-9	Care and Operation of Motor Vehicles—General		28
(c) 20-10	Conduct of Elementary Training		12
(c) 20-11	Military Law—Courts Martial		18
Total hours			(222) 204
c. For first lieutenants.			
30-1	Marches and Shelter	FM, 6-5, FAFM	20
	FM 25-10, BFM, MT		
30-2	Preparation of Fire—III	FM 6-40, FAFM	30
30-3	Conduct of Fire—III and Technique of Fire Direction	FM 6-40, FAFM	24
(c) 30-4	Administration		30
30-5	Reconnaissance, Occupation, and Organization of Position—Battery	FM 6-20, FAFM	16
30-6	Field Artillery Staff Functions—I	FAB 221	21
(c) 30-8	Camouflage		18
30-9	Field Artillery Signal Communication—II	FM 6-20, FAFM	18
30-12	Sound and Flash Ranging	FM 6-120, FAFM	(30)
	(For officers assigned to observation battalions only)		
Total hours			(207) 177

b. In instances where the official documents are found not completely adequate, consideration first will be given to using attached memoranda to be issued with individual lessons for the purpose of amplifying official texts.

c. Special texts may be prepared and used:

(1) In the absence of War Department publications on an essential subject.

(2) For subcourses which would require the use of small portions of several field manuals or other War Department publications. Much of this can be avoided by carefully considering the scope of texts in connection with the scope of subcourses.

(3) When reasons of economy overshadow other reasons.

d. When special texts are prepared, the instructional material contained therein must conform to official War Department publications. These texts are not to be used as a vehicle for announcing new developments and so-called "improvements" over official methods.

* * * *

TABLE 2
d. For captains.

40-1	Preparation of Fire—IV	FM 6-40, FAFM	28
40-2	Conduct of Fire—IV and Technique of Fire Direction	FM 6-40, FAFM	28
(c) 40-3	Mobilization		14
40-4	Field Artillery Staff Functions—II	FAB 22	22
40-5	Field Artillery Training	FAB 26	22
40-9	Combat Orders	FM 6-20, FAFM	18
40-10	Associated Arms	FAB 22:	46
	Part I, Organization and Combat Principles	(17)	
	II, Tactics and Technique of Infantry	(29)	
(c) 40-12	Interpretation of Aerial Photographs		18
	Total hours		196
	<i>e. For majors.</i>		
50-1	Reconnaissance, Occupation, and Organization of Position—Battalion and Regiment	FM 6-20, FAFM	12
50-2	The Tactical Employment of the Field Artillery Battalion—General	FM 6-20	30
50-3	The Field Artillery Battalion in Defensive Action	FM 6-20, FAFM	24
50-4	The Field Artillery Battalion in Offensive Action	FM 6-20, FAFM	24
(c) 50-5	Problems in Combat Intelligence		21
(c) 50-6	Estimation and Use of Terrain		18
50-7	Field Artillery with Cavalry	FAB 22:	37
	Part I, Tactics and Technique of Horse and Mechanized Cavalry	(20)	
	II, Field Artillery Support of Cavalry	(17)	
	Total hours		166
	<i>f. For lieutenant colonels.</i>		
60-1	The Field Artillery Brigade, Regiment and Battalion in Defensive Action	FM 6-20, FAFM	45
60-2	The Field Artillery Brigade, Regiment and Battalion in Offensive Action	FM 6-20, FAFM	45
60-3	Corps and Army Artillery	FM 6-20, FAFM	22
60-4	Field Artillery in Special Operations	FM 6-20, FAFM	45
	Total hours		157
	Entire course		1,031

Department is now busy on the first year's portion of the new revision program and expects to be able to complete the program on or even ahead of time. What the present "limited emergency" will do to the Extension Courses is of course rather problematical. Rumors run all the way from a great expansion of extension-course work for training reserve officers to a complete abandonment of the entire project. From information available so far, however, it is believed that the set-up will not be changed.

From the point of view of the actual conduct of Extension Courses the work consists of two distinct phases:

(1) That of preparing all subcourse material—all lesson material and textbooks used with them.

(2) The actual conduct of the schools—the enrollment of students, assignment of instructors,

distribution of instruction material, and grading of papers.

The Field Artillery School is concerned only with the first phase of the work—the preparation of material and texts; the actual conduct of the schools is charged to corps area commanders.

The following gives a brief picture of how the Extension Course work fits into the school's operation, and how each subcourse progresses from original directive to final printed job turned over to the Adjutant General's Office for distribution.

The Extension Course Department is an integral part of the school's organization, and while the number of instructors (6) in this department forms only a small part of the entire instructor personnel, the original preparation of extension-course material constitutes a regular part of the work of all instructors. Only in this way can the material be coordinated with and kept abreast of the instruction given the resident student. In the very nature of the school organization, most of the instructor personnel are primarily concerned with resident instruction. The instructors of the Extension Course are primarily concerned with the instruction of reserve officers through the medium of the Army Extension Courses.

Compliance with the provisions of the above directive caused an increase in the number of subcourses in the Field Artillery Extension Course from 42 to 49 and in hours from 809 to 1031. While this increase does not appear excessive, the problem was complicated by the fact that the directive desired that the revision and rearrangement be complete for the next school year (1940-41), that the subject matter of the series be largely changed from promotion requirements to knowledge-ingrade requirements, and that War Department publications be used as texts rather than the Field Artillery Books. This latter requirement presents quite a problem in itself, as most of the War Department Field Manuals, in existence or in course of preparation, were written to be actual field manuals rather than instructional texts. However, after a careful study of the situation and considerable correspondence with Washington, approval was obtained for the ultimate set-up outlined in Tables 1 and 2.

The set-up outlined in the foregoing tables is to be reached by 1942. This gives us two more years to complete the revision of 31 subcourses (the common subcourses are prepared elsewhere), by which time the various new War Department Field Manuals should be available. The

Many of the field artillery subcourses are long and require a great deal of careful planning and checking to approach the high standard the school desires. The original draft of all subcourse material is prepared by the appropriate department of the school, and the Extension Course coordinates, edits, illustrates, and otherwise prepares it for submission to the Chief of Field Artillery. After approval by the War Department, the material is returned to the school, where it is printed and shipped to corps areas in bulk. The actual work of typesetting, printing, and binding is handled by the Printing Plant of the Field Artillery School, and the shipping is done by the Supply Officer. The proofing and paging of all printed matter is done by instructors in the Extension Course Department. This preparation of extension-course material is a continuing process the year around and accounts in no small measure for the amount of instructor personnel required at the school.

To give general information relative to the scope of this work, its rapid growth, and apparent interest and value as a training medium, there are tabulated in Table 3 certain enrollment data.

The annual announcement of subcourses carries information of the scope, contents, required texts, and number of hours of the various subcourses, and similar information. AR 350-3000 cover preparation of, enrollment in, and grading of courses, and similar matter. These two publications are in constant use by anyone who is on duty concerned with training and instruction by means of Army Extension Courses.

The work on subcourses, however, is actually only a portion of the work of the department. The following are quotations from Staff and Faculty Regulations, Academic Division:

8. Departments. * * * * *

b. Department of Extension Courses.—The Director of the Department of Extension Courses is charged with the preparation of the field artillery subcourse material of the Field Artillery School Extension Course in accordance with directives from the Chief of Field Artillery, the Commandant, and the Assistant Commandant. In addition, he is charged with the editing and supervision of publication of field artillery books and other training literature published by the school. He will represent the

TABLE 3 Enrollment data

(These data are taken from quarterly report on enrollment as of March each year. The report is received here about June.)

Year	Distribution								
	Reg. Army		National Guard		Organized Reserves		Miscellaneous		Total enrolled
	Com.	Enl.	Com.	Enl.	Com.	Enl.	CMTC	Civ.	
1922	.....	.....	.....	.....	.....	.....	.....	.....	6,091
1924	.....	.....	3,834	(1)	10,696	(1) 523	.....	(1)	15,053
1930	132	471	5,859	3,908	24,120	1,222	1,521	1,297	38,431
1932	489	863	8,481	8,529	32,483	1,854	2,706	4,867	60,272
1935	1,103	1,285	10,743	15,824	50,503	1,260	3,886	4,305	88,909
1937	1,457	1,245	11,811	18,729	56,109	862	2,824	3,584	96,621
1938	1,505	1,244	11,950	18,240	57,060	996	3,161	3,901	98,057
1939	1,427	1,147	13,153	19,218	60,729	891	3,808	5,275	105,648

(1) Reports for 1923 and 1924 did not segregate enlisted men of the Organized Reserve from civilians, nor National Guard commissioned from National Guard enlisted personnel.

Distribution of students by arms and services, 1939

Air Corps	2,530	Field Artillery	15,409
Cavalry	5,326	Infantry	34,965
Coast Artillery	9,094	Signal Corps	2,474
Engineers	5,517	Services	26,889
C. & G. S. S.	3,444		

Field Artillery Enrollment in March, 1939

Regular Army officers	35
National Guard officers	2,882
Reserve officers	7,236
Regular Army enlisted men	119
National Guard enlisted men	4,312
Organized Reserve enlisted men	168
CMTC	431
Civilians	226
Total	15,409

Assistant Commandant in dealing with the directors charged with the preparation of the preliminary manuscripts. In addition, he will edit all school literature of a permanent nature.

* * * * *

18. Instructional literature.

a. All instructional literature will be prepared in accordance with the provisions of the Form Manual in Section V and of the Style Manual of the Field Artillery School, published separately.

b. All instructional literature, except that of a transitory and informal nature, will be transmitted through the Assistant Commandant to the Director of Extension Courses for editing before it is published in final form. The Director of Extension Courses will check the literature for conformity with the Form Manual, and will edit it. Edited material will be returned to the preparing department, which is responsible for final checking and proofing, and for correctness of the document when published.

In other words, the department is the bottleneck through which must pass every text, study, report, and important letter and indorsement bearing upon instructional matter, to assure that it is correct in form and content—that it accurately presents the views of the school in a sound, logical, and creditable manner.

It may be of interest to discuss briefly the past history and the present status of the revision of the Field Artillery Field Manual. By 1934 the present Field Artillery Field Manual was already in part obsolescent

and the need of revision was becoming evident. And in the fall of that year the Chief of Field Artillery gave the Commandant an informal directive to submit a program for the revision of the present Field Artillery Field Manual. The only suggestion relative to the nature of this mission was that the manual contain chapters or parts dealing with the various phases of field artillery instruction and that eventually there be a series of field artillery texts, each one elaborating upon one of these chapters or parts of the manual.

In January, 1935, the Commandant submitted a plan for the revision of the manual along the general lines indicated above.

In March, 1935, there was received from the Chief of Field Artillery a directive entitled "Field Artillery Training Literature," extracts from which are given below. It was written, incidentally, by General Danford, who was then Executive in the Chief's Office.

Except as indicated in paragraph 6 *d* below, the Commandant is hereby charged with the revision of the Field Artillery Field Manual together with all Field Artillery training literature supplementary thereto. This task will be referred to as the "Field Artillery Literature Project" * * * * * This project will consist of two subprojects, namely, (1) revision of the Field Artillery Field Manual, (2) revision of the Field Artillery School publications known as the Field Artillery Books.

The revision of the Field Manual will be begun at once and will be continued to completion, which should be effected prior to July 1, 1937.

The revision of the Field Artillery Books will proceed as heretofore in accordance with the needs of the Field Artillery School, the Field Artillery ROTC units, and the Field Artillery extension courses.

In the revision of the Field Artillery Field Manual, the Commandant will be governed by the following general principles and instructions:

The manual will contain in convenient and condensed form for ready use the approved principles and doctrines governing the training and employment of field artillery and such reference data as a trained field artilleryman would need in the theater of operations.

The book will be brief and concise. It will prescribe doctrines, principles, and such methods as must be uniform throughout the field artillery in the short, clear, unequivocal language of law, and will not be concerned with the explanation, justification, or deduction of such law, leaving such matters as these to suitable places in the supplementary literature, that is the Field Artillery Books.

Revision of the Field Artillery Books should proceed under plans already adopted, except that hereafter it should be kept clearly in mind that these books are intended to supplement, explain, and elaborate upon the Field Artillery Field Manual. It is contemplated that they will be used as text material with the extension courses, by the ROTC, by the National Guard, and by the Regular Army.

For some time there has existed a large mass of training regulations in small pamphlet form, a considerable number of technical regulations, training manuals, and field manuals. In addition, most of the arms and services have a

number of training texts. In the field artillery these texts are colloquially referred to as Red Books, whose history is briefly as follows:

Early in the development and improvement of the extension-course program of the War Department, it became evident that the training regulations were not satisfactory as texts for the extension-course student who had no instructor but had to depend largely on his text for his instruction. Therefore a series of so-called Special Texts was prepared solely for the Extension-Course student.

There are two premises upon which a textbook may be prepared.

1st—It may be detailed, complete, and elaborate—containing not only all basic fundamentals of the subject but also an elaboration of these to the point of detailed treatment.

Or 2d—it may contain only general and fundamental information, methods, doctrines, and principles, the elaboration and detailed explanation of which are left to the student's instructor.

Manifestly, texts for the extension-course work should be based upon the first premise; that is, they must treat the subject matter in a complete and detailed manner. On the other hand, some texts which the school prepares (some of those for ROTC students, for example) may leave much of the elaboration to the instructor.

To avoid the preparation of parallel texts, these special texts which were prepared for the field artillery extension-course students were adopted as texts for the resident students here. During General L. J. McNair's tour as Assistant Commandant of the Field Artillery School he persuaded the War Department to allow the Field Artillery to discard the Special Text designation and instead to designate our texts as Field Artillery Books; for example, old Special Text No. 10 became Field Artillery Book 10—Organization of Field Artillery. There were, however, certain conditions which these texts had to fulfill in order to be continued as standard texts for extension-course work.

1st—They must be written primarily with the extension-course student in mind; accordingly much of the elaboration of subject matter found in these texts is addressed to the extension-course student, rather than to the Regular Army officer.

2d—They must not be revised so frequently as to cause undue expense in substituting revised texts for old ones. A text cannot be revised during the life of a subcourse based upon it.

The school has attempted to limit its texts to the minimum practical number and to confine them to one series which will meet the needs of four distinct types of students: The regular army officer; national guard and reserve students; ROTC students; and enlisted and civilian aspirants for reserve commissions.

PROBLEMS IN GUNNERY

CONDUCT OF FIRE BY LIAISON OFFICER, OR FORWARD OBSERVER

Fire unit available: 1 Battalion, 75-mm. guns

<i>Sensings and commands</i>	<i>Results</i>	<i>Remarks</i>
<p>From observer to FDC: "BP, 700 left, 400 short; reconnaissance party; ready to observe; FIRE." FDC to observer: "Concentration No. 51, Adjust Battery B." Commands to battery: "BDR 175, Cv 4000, On No. 1 op 8, Site 300, Sh Mk I, FQ, BR, 3900." FDC to observer: "Battery has fired." Observer to FDC: "100 right, 200 over."</p>		<p>In this problem, it is assumed that the observer remains in position to observe when he reports a target. In order to save time, it has been pre-arranged with him that the message "Battery is ready" will not be sent.</p> <p>In the diagram, the line AB represents the base line of the center battery of the battalion. The lines, vanishing on the horizon, pass through the base piece.</p>
<p>Commands to battery: "Left 25, 3700." FDC to observer: "Battery has fired." Observer to FDC: "50 left, 100 short, fire for effect."</p>		<p>On seeing the second salvo the observer realizes that his sensings on the first salvo were twice the actual errors. With the "bracket" that he now has, he can make exact sensings and call for fire for effect.</p>

Commands to battery: R15, B 1 Rd, Zone 3700-3900.

Comments.—The forward observer, unless he uses axial and lateral methods, will estimate the range and definition errors along lines that are at right angles to each other. This is comparatively easy for targets in the immediate front, but for targets to either flank, or in the far distance, it is usually difficult to visualize this right angle. Therefore, the "bracket" obtained in this problem enabled the observer to make an accurate sensing before firing for effort. Such a bracket also prevents "spiralling" around the target during adjustment.

If the accuracy of the observer's last sensings is doubted, another salvo (at 3800) may be fired.

Note: The elevated view, pictured above, is better than the average that can be expected by a forward observer. For clarity, the target and bursts are large in proportion to the landscape.

PRECISION AXIAL

Target: Enemy observation post with light overhead cover. Mission: Destruction. Materiel: 75-mm. gun (M-1897). Ammunition: H.E. Shell, Delay Fuze. Fork=5, r R=1.0.

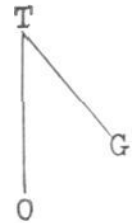
<i>Commands</i>	<i>Elev.</i>	<i>Sensing</i>	<i>Remarks</i>
No. 2 adjust, BDR 140, Sh Mk I, FD, No. 2 1 Rd, Q, L30,	150	30R ?	Cannot be sensed on terrain.
R4,	150	4L +	Sufficiently over to warrant a 4-fork bound although range finder was used.
	130	—	
	140	+	
	135	—	
3 Rds,	137	+	Or 138.
	137	+	
	137	+	
2 Rds,	135	Target	Target not destroyed.
	135	—	The 6 rounds considered as having been fired at 136.

6 Rds, 135.6. [136 - (1/12 × 5)]

Comments.—The initial range bound is usually determined by the accuracy of the initial data, but the first round should be carefully observed; its error may be greater or less than expected.

The comparatively small destructive power of the 75-mm. shell (together with dispersion) makes it difficult for this caliber destroy any substantial object. In this problem, a study of the target indicated that continued precision fire might accomplish the real mission; namely, to prevent any further protected observation.

PERCUSSION BRACKET, LARGE T

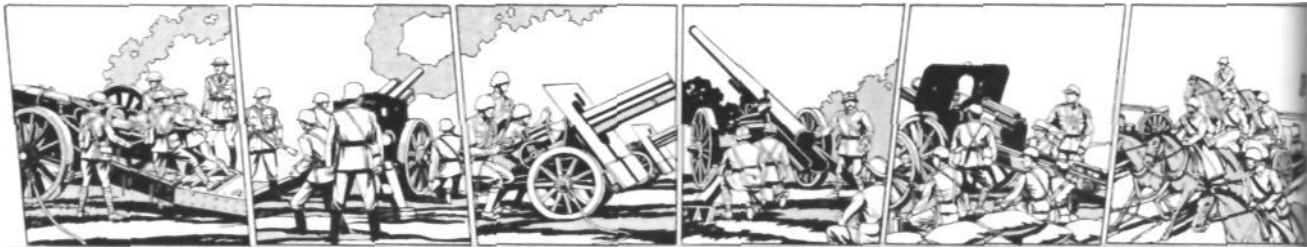


Target: Machine guns reported in the vicinity of a low mound. Mission: Neutralization. Materiel: 75-mm. gun (M2), on the right. Ammunition: H.E. Shell, Quick Fuze. T=450, s=14 (use 15), d=11.

Commands	Results	Remarks
Battery adjust, BDL 45, Cv 3500, On No. 1 op 9, Site 300, Sh Mk I, FQ, No. 2 I Rd, 3400		Deflection doubtful.
3100		Deflection of the sheaf sensed as short (later firing showed it to be approximately correct).
R 30, BR, 3300		Deflection doubtful. Range over.
3200		Deflection over. Range over.
L15, 3100		Deflection over. Considering the single round at 3100, the range is approximately correct.
L10, B 1 Rd, 3100	Observer accepts 3000-3200 as the range bracket. Instructor gives "cease firing" because he desires to verify the deflection sensing of the single round fired at 3100. The battery has complied with the command "L10," but has not fired.	
L10, No. 2 I Rd, 3100		Commands given by instructor. Sensed as "line short."
R5, 3100		The deflection of the sheaf is approximately correct.

Comments.—This problem illustrates what may happen when the initial deflection is correct. This observer sensed the second round of the problem (a close one) as "deflection short," thereby fixing the short limit of his deflection bracket. The sensing, in this case, was not serious, because the final sheaf which he accepted was only 5 mils less than 20 yards) in error.

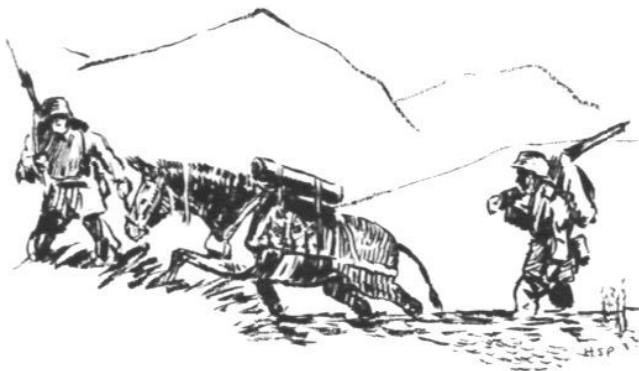
After the second round, which appeared close to the target, a salvo should have been fired at the same range and deflection. The deflection of a single round does not always indicate the deflection of the whole sheaf. Had a salvo been fired at 3100, the adjustment for both range and deflection might have been complete; early effect would have been obtained.



FIELD ARTILLERY ABROAD

MOUNTAIN ARTILLERY IN FLAT COUNTRY, Major Eder, in *Artilleristische Rundschau*, Munich, August, 1939. Translated by O. L. S.

Articles have often appeared in this magazine dealing with the employment of horsed or motorized artillery in mountainous country—that is, in country for which it was not designed. The opposite case, the use of mountain troops and especially mountain artillery in flat country, occurs at least as often, perhaps oftener. The very words "flat country" awaken vivid memories in the mind of the mountain soldier who knows the history of his arm—the Austrian Alpine troops in Galicia, in 1914; the German Alpine Corps before Verdun, in the summer of 1916; the use of mountain artillery as accompanying batteries in the German offensives of 1918, and in the Austrian attack on the Piave in June, 1918; the battles of the German and Austrian mountain troops in the Rumanian and Italian plains, after the debouchment from the mountains had been



secured. And many mountain artillerymen of the post-war period will remember last autumn's plans for the use of their arm in case it might become necessary to enforce by arms the will of the Führer in the Sudetic country.

These historical reflections suggest to us the principal cases in which mountain troops may be employed in flat country.

(1) No mountain frontier is threatened. In this case the mountain troops, picked men with special training, accustomed to hardships even in time of peace and familiar with conditions similar to those of war, can not be left at home in spite of their numerous disadvantages for employment in flat country.

(2) Difficult ground in certain portions of the battle front call for the use of mountain troops. This is especially the case for accompanying an infantry attack across swampy ground, or regions with a deficient road net, or across numerous small streams.

(3) The exit from the mountains having been secured by fighting, the mountain troops continue on with the rest into the low country. This may be because there is no other mountain region where they are needed; or because the situation of the moment, the lack of immediately available troops capable of more rapid movement in flat country, or other special conditions, prevent their relief.

Then, too, small armies must count upon using mountain artillery in flat country, since with their limited force they can not afford to restrict mountain troops to their own specialty. So also with mountainous countries, where light artillery regiments organically contain a certain number of mountain batteries (e.g., Italy, and the former Austria). Mention should be made also of colonial warfare and overseas expeditions, where the lack of roads makes mountain artillery especially suitable even if the operations are in flat country. Examples of this are found in the extensive use of mountain artillery by the Italians in Abyssinia, and in the whole history of the English mountain artillery, which originated as colonial artillery. It should be noted also that the German mountain artillery took its origin in German Southwest Africa, that several German mountain batteries were organized for the China Expedition, that German mountain batteries served in Kamerun and in German East Africa during the World War, although in Europe, up to the winter of 1914-15, Germany considered mountain artillery, and mountain troops in general, unnecessary.

When a light artilleryman first sees a mountain battery in flat country, the first thing that strikes him is the incredible number of men and animals required to handle four of these little "vest-pocket guns" of the same caliber as the field gun. He is astonished to learn that the whole battery, except parts of the train, is designed for pack transport. He observes what seems to him the enormous road space of a mountain battery, and its limited mobility. He notices that the battery detail, mounted on ponies, can not do better than a trot, and that only for short distances; that the whole column

makes only infantry speed, four or five kilometers an hour; and that, in contrast to the infantryman of the flat country, the mountain artilleryman carries his own kit. He thinks of his own smart maneuver of coming into action; and he shudders to think that to occupy or change position six or eight mule loads have to be handled for each gun. He tries to calculate how much time it will take, and reaches horrifying conclusions.

But he is right only in part. True, the caliber and effect of the mountain gun are the same as for the field gun, and the range is shorter. Our road space is comparatively long, and our rate of march only that of the infantry. For certain things we are very poorly adapted. Take for example the protection of a march to the front. It is not only that our range is short; but a mountain battery which has received such an assignment can not regain its place in the column. After completing the mission or after being relieved it must follow in rear, and if then there is hostile contact it will be too late in arriving; for with a mountain battery, however energetically led, there is no such thing as trotting to the front. But in spite of these and other disadvantages, the mountain battery has so many points of superiority that it is fair to say that in many conditions a mountain battery can be more effectively handled in flat country than a light battery. As for the points of inferiority, the defects may be in large measure compensated for by experience in makeshifts.

But first one common error should be pointed out—the fable about the incredible time required for unpacking and coming into action with a mountain battery. This time compares favorably with that required for a horsed or motorized light gun. It is no state secret—foreign mountain artillerymen can do as well as we can—that a mountain gun in six or eight loads can, in favorable ground, be placed in position by a well-trained crew in less than two minutes from the time the animals are posted. In peacetime competitions, the batteries of our professional army can cut this time to less than a minute. Compare these times with that required for unlimbering a light horsed or motorized gun, not to mention heavier and more powerful pieces. Remember, too, that in 95% of the cases, if cover or concealment does not enter into the question, the gun-teams of the mountain battery can bring their loads exactly to the marked position—which is by no means always possible for the light gun under war conditions; and frequently conditions that cause no difficulty at all to the pack battery entirely prevent such a maneuver with a light battery.

While it may be true that on the road the mountain battery can move only at a walk, it enjoys corresponding advantages on the battlefield. In flat country, there are no obstacles for a mountain battery, except swamps and woods so dense that the side loads can not get through. It can travel on the narrowest of paths, can use the lightest of bridges, where individual drivers must dismount, and can go regardless of roads anywhere in flat country except for

the two cases mentioned. This saves enormously in time and labor. A light artilleryman, attempting to lead a mountain battery, may think he will have plenty of time for his reconnaissance and preparation, since he and his immediate staff are well mounted, while the battery can move only at a walk; but he may soon find the battery treading on his heels—a most unpleasant experience. And here it may be well to repeat a caution which has already been given in this magazine; in flat country, always march packed when there is any danger of hostile contact—or at most have one gun in draft when tank attacks are to be expected and there are no antitank guns. If the whole battery is in draft—two animals tandem—it gives up all its special advantages, and becomes merely a light battery which can march on narrower roads, but which can move only at a walk.

Marching packed, a mountain battery in open or fire-swept country can make use of the smallest folds in the ground, hedges, and similar bits of cover, almost as well as infantry. It may use dispersion to an extent out of the question for light artillery; even a single gun section can scatter as a protection against air attack, provided it can still be under the control of the chief of section. In the mountains, the principle holds that the loss of even a single mule may put the whole gun out of action; but this is less true in flat country. Here, if the load itself is uninjured, it can always be gotten to the front on ammunition mules or spare mules. Even if all the animals but two fall out, it is still possible, if the loads are uninjured, to move in draft, or for short distances by man power. And here we are reminded of a wartime experience. In the early summer of 1916 at Verdun, the field artillery was firing at extreme range, and it was impossible to get much farther ahead in the rough, marshy and shell-torn ground; but the mountain batteries of the German Alpine Corps rendered excellent service. Moving one load at a time, by packmules or by manpower, they could pass through the faintest of trails and even over shell-torn ground, and reach positions which would have been inaccessible to horsed artillery, but from which effective support could be given to the infantry and Jager. So also when mountain batteries were used as accompanying artillery in the German offensives in the west in 1918, when the question was to get field artillery to the front quickly, when the rolling barrage was terminated.

The mountain battery suffers the disadvantage that the mules must be kept nearer the guns than the limbers of a light battery, since for a change of position they can come up only at a walk, not at a trot or gallop; but this is compensated for by the possibility of utilizing small bits of cover better than with six-horse teams. Here too we have a question, suggested by the late war. How long will the horsed artillery, in a future war, continue to trot and gallop as it does in peace times? Again, which will have the advantage in case of attack by armored scout

cars or by airplanes, when it becomes necessary to get off the road as quickly as possible to utilize the nearest cover—the horsed guns, or the individual man with a packmule at a walk? This depends entirely upon the conditions of the moment; but I am confident that the packmule, able to utilize almost any cover, will generally get on better than the six-horse team. Undoubtedly, however, there will be plenty of examples to show the contrary. One thing is certain—the chief of section in the mountain battery will have more to do than in the light battery. He will have to keep track of from 7 to 10 packs, including ammunition loads, and see that they take cover but do not get out of hand. This resembles the task of an infantry chief of section, rather than the chief of a solid unit such as a six-horse team.

The mountain battery in flat country finds a handicap in the limited mobility of its battery detail; the ponies are too slow, being unable to gallop, or even to trot for long distances. An expedient may be adopted, however, which overcomes this difficulty at least in part. Each mountain battery has a few full-sized saddle horses, six at most, for officers. The battery commander may form, with these, a "flying echelon" of his detail—himself, an instrument sergeant, a scout, two horseholders; or such men as he wishes to have maximum mobility. The reconnaissance officer and all the men for the observation station, the executive, and officers acting as platoon commanders, must be content with ponies. The platoon officers should be so mounted in any case, since they can never accommodate the pace of full-sized horses to that of packmules.

In maneuvers of mountain batteries in flat country, various officers have "pulled out of their sleeves" a highly successful expedient—a motorcycle with side car, driven by a scout and carrying an instrument sergeant and the battery commander. This partial motorization is especially desirable for a mountain battery, since it marches alone, detached from its battalion, much more often than a light battery, and is generally assigned directly to a Jager battalion acting as a separate march or combat group. In flat country or hills, where the Jager officer habitually uses his motor car, the best mounted battery commander and detail can not keep constant touch with him.

The light artillerist may perhaps feel that the present writer looks upon the mountain battery as ideal for light artillery service. Nothing could be farther from his mind. The mountain artillerist fully appreciates his deficiencies for work in flat country. The pack gun would not be the ideal even if it should sometime become possible to develop a pack gun with the same caliber and range as the light field howitzer. It should be emphasized only that we are not as unfit for service in flat country as we may appear at first sight; we can make ourselves very useful in many exceptional conditions, and get good results in many difficult cases.

Here again we may cite various illustrations, this time from maneuvers. In a delaying action, two mountain batteries were caught several times in situations which would have meant capture for horsed batteries; the Jager had fallen back too soon and connection with them had been lost. Difficulties of the ground would have made it impossible in these cases for the horsed batteries to extricate themselves. The mountain battery could simply pack and drop to the rear through the woods, regardless of roads, taking direction by the compass.

In an attack, in flat country, the writer calls to mind a stream crossed by mountain guns, in which the separate loads were taken across on small inflatable boats, without assistance from the pioneers. Whether the light infantry guns could be handled in this manner seems more than doubtful. In another stream crossing, through preparation was necessary. The stream was barely fordable, and ran at the bottom of a valley about 200 meters deep. It was approachable only by hill trails, impassable by horsed batteries. The task of advancing a battery could be accomplished only by pack guns; the loads were carried across by men, and the mules were led across by the ford.

To the present writer, a light-caliber pack gun (75-mm. with well-mounted battery and platoon details) seems perfectly adapted as an infantry accompanying weapon. Think of the advantages above outlined, and of the possibilities of using such a piece in any situation and on any ground. Think of combat in extended woods compare the adaptability for taking cover and for concealment from the enemy's view and fire, with that of a four-horse or six-horse team. Remember that with every meter of approach to the enemy, the power and effect of his fire increases—as no one who served in the recent war will dispute. And here again an incident from that war comes to the writer's mind—relief and ammunitions supply in difficult country, under fire, for an advance field battery, and the same problem for mountain artillery in the same country and under the same condition—a comparison which is overwhelmingly in favor of the pack gun and pack ammunition load, and which applies as well to maneuver warfare as to the conditions position warfare.

It is not asserted that the present model of mountain gun is ideal for the purpose. This we of the mountain artillery have felt keenly, when, in maneuvers in flat country, we have been called upon, by reason of the advantages above outlined, to undertake tasks similar to those of the light infantry gun—that is, to work single pieces up to close range, to crush the last resistance. Perhaps, since the infantry gun requires less range than a mountain gun, since one is used as a rule for infantry work, the other for artillery work, we might find a solution by developing a piece with lighter or fewer loads—perhaps both. This would make it possible to get into action more quickly, facilitate moving the loads by hand and decrease road space, as compared with the present models of mountain guns.

TRANSLATOR'S NOTE. — It is astonishing to consider how quickly we forget. The foregoing article is written very much in the spirit of our mountain artillery of twenty-five years ago. We find ourselves, all too often, picking up from a foreign periodical things which we once knew perfectly well. Perhaps our small proportion of duty with troops, and the rapidity with which our officers pass through our fluid regiments, may be one of the causes of our loss of tradition. But that is another story.

Mountain artillery in flat country is nothing novel to anyone who served with the old Fourth in Texas City in 1913-15, where the ground rose from the water's edge to the towering elevation of ten feet, ten miles back from the shore. But we did not then suffer from the handicap of which Major Eder complains, of having a six-mule gun team to extend our road space, and we were allowed saddle horses, not ponies, for our details. Moreover, we could, and did, without injury to the mules, trot for short distances when coming into action or packing out of position; and Major Eder's times, one to two minutes to come into action, would not seem fast to us. Still earlier, in the Philippines, all our guns, even in light batteries, used very short range on occasion, and when horses were not available they were horsed with trotting bullocks and the mounted men had Filipino ponies. At the Zapote River light guns fired at thirty yards; and in Jolo the mountain guns were moved by hand much closer than that.

Every American mountain artilleryman will feel that Major Eder is very moderate in his claims for the little pack guns, of which we sing, "for when there's something doing they always send for me."

But Major Eder really "says something" when he wonders if the mountain artillery is not getting outside its class by seeking to increase its power and range to compete with the light gun. As he points out, the mountain gun does not need the range. It can get its results by working forward closer to the enemy, as every "red-legged mountaineer" will agree.

Major Eder loves to back up his reasoning by personal reminiscences; and perhaps we may be pardoned for something of the kind on his suggestion as to close support of the infantry. A battery of the old Second, in the Philippines in 1915, specialized for a time on this training. Before leaving park in the morning, the battery commander would send an observing party to some hill well out to the front, pointing out to the commander of the detail some pass or other defile through which he meant to bring the battery. When the battery, in due course, approached the exposed portion of its route, the chiefs of section were called forward, and shown how, in any further advance, they were in danger of discovery. A concealed position was indicated to them, well on the other side of the pass, and each was given the task of bringing his gun to that position undiscovered. It was astonishing and encouraging to see the interest all the

men took in playing this game—moving each mule separately by covered approaches; then unpacking and moving by hand power; and finally crawling forward like snakes and dragging each piece of the disassembled gun after them by ropes.

There seems to be no reason why the infantry should be loaded down by all the heavy weapons. If we assigned to each division say two batteries of mountain guns, perhaps the doughboys might be relieved of the burden. These guns should be designated specifically, not for light artillery work, but for service with the infantry front lines, under infantry command. If we could get again a four-mule gun, a modernization of our old 2.95", the temptation to use it as an inferior light gun would be removed; and the piece would become, as Major Eder points out, better adapted for its accompanying task.

EMPLOYMENT OF BATTALION HEADQUARTERS OF GERMAN OBSERVATION BATTALION. By Lieut. Vorderwülbecke. Digested from *Artilleristische Rundschau*, September, 1939, by J. S. W.

ON THE MARCH

1. During an advance in the vicinity of the enemy, the observation battalion commander and his party march with the commanding officer of the artillery. The party is made up as follows:

- Adjutant,
- Assistant Adjutant,
- 2 motorcycle messengers,
- Communications Officer,
- 2 Radio Operators,
- 1 Truck, Command Post,
- 1 Radio truck,
- 1 Officer from each battalion, with motorcycle messengers.

2. The remainder of the battalion detail marches at the head of the headquarters company in two trucks and a motorcycle.

3. The observation battalion commander is in radio communication with his executive during the march.

4. In case of deployment, the battalion commander indicates to the adjutant the general location of the battery control stations and battalion command post. The adjutant sends each battery its orders by motorcycle messenger. The topographical battery begins its work of locating the control stations. Communication is established by motorcycle messengers.

DURING COMBAT

1. In combat, the command post truck of the battalion is placed in the vicinity of the artillery command post.

2. The combat operations of the battalion staff comprise the collection, comparison, and evaluation of all artillery information. The requirements for effective operation are:

a. Rapid communications throughout the battalion, so that messages from the flash, sound, and balloon batteries can be transmitted immediately to the battalion command post to allow timely action by the artillery commander.

b. Close cooperations with the artillery commander and staff for immediate and constant interchange of information coming from the observation battalion on the one hand and from the agencies of the artillery commander (observers, aviation, listening companies) on the other.

3. Efficient cooperation requires close contact with the combat post of the artillery commander as well as with the central stations of the batteries. The telephone net is constructed as soon as possible. Two lines are laid at once between the command post wagon and the battalion message center, one for command and priority messages and the other for ordinary information.

4. The adjutant or his assistant establishes the command post, assigns tasks to messengers and clerks, supervises the situation map, examines the incoming information, and prepares it for the artillery commander.

5. The computing and plotting section includes two noncommissioned officers, two plotters, and two clerks.

6. The Section Chief has the following duties:

a. Location and protection of the command post truck, issue of gas masks, etc.

b. The marking of the location and the posting of guides, if necessary.

c. Providing cover for the truck.

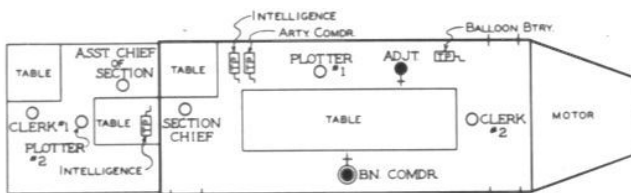
d. Forwarding of messages to the artillery commander and to the batteries.

e. Making entries in the diary and in the register of enemy batteries.

7. The Assistant Chief of Section receives messages from the sound and light batteries and enters them on the work sheet. Plotter No. 2 assists in this. They are given to the operations officer and after examination are filed by Clerk No. 2, who also serves as telephone operator on the balloon battery phone.

8. The plotters keep up the Situation Map and prepare special overlays.

9. The command post truck is arranged as shown in the sketch.



DOCUMENTS

The following documents are maintained at the Command Post:

1. Situation Map, on the 1/20,000 or 1/50,000 map if available. The map is mounted on a board and covered with tracing paper. On the map are placed the locations of the various battery and battalion installations in the designated colors, the positions and command posts of the supported artillery, the limiting boundaries of the sound location service, and the definitely located batteries. These latter are numbered and the time of their last firing is shown. Entries of incoming information and of probable battery positions are made on the tracing paper. In case only smaller scale maps are available, the targets are not placed on the map but on a 1/25,000 chart.

2. Register of batteries. A register of located batteries is kept in the following form:

Time of entry	Sound Station No.	Light No.	Balloon No.	Plane No.	Coordi nates	When suspect ed	When known	Time of last firing
					Additional information			
Battalion No.	Battalion Coordinates	From	To	Last firing? Caliber		Remarks		

3. Information File.

4. Diary.

**TRAINING IN ANTI-AIRCRAFT
AUTOMATIC RIFLE FIRE**

At present the sole defense of Field Artillery columns and of Field Artillery installations against low-flying aircraft is the Browning Automatic Rifle, Caliber .30, M1918. The most difficult step in training riflemen to fire on fast-moving targets is teaching them to "lead" the object they are trying to hit. The use of the .22 caliber rifle has been found a most valuable means in teaching this "lead." Further, this small-bore weapon will enable many batteries to train at home stations that otherwise could train only at summer camps, where, because of other training activities, the training in antiaircraft defense is often neglected. In order to facilitate antiaircraft training and increase its efficiency, the Chief of Field Artillery has recommended that a small allowance of .22 caliber rifles be set up for each organization and be incorporated in Section VIII (Allowances of Special Equipment for Training Purposes Only) of Tables of Basic Allowances. This authorization has been approved by the Adjutant General of the Army. The following allowances of U. S. Rifle, Caliber .22, M1922, M1922M1, or M2, will be included in the next revision of Tables of Basic Allowances for Field Artillery upon the following basis: Twelve per Field Artillery regiment, and six per separate or detached battalion of Field Artillery. Units are authorized to requisition this weapon by authority of the 3d Indorsement, AG 400.34 (3/14/39) Pub. D. The description of this weapon and data on its operation and maintenance are covered in Technical Regulations No. 1300-22A.

ARTILLERY SUPPORT OF TANKS

In several countries, including our own, military thought subsequent to the World War has vacillated with respect to tanks. Impressed by their success at Cambrai and by the writings of General Fuller, the British made some progress toward mechanization for a number of years, then suddenly "went in for it" wholeheartedly. The French, apparently economy-bitten and somewhat skeptical concerning the efficacy of the tank, were more conservative. The development of armored vehicles and methods for employing them have proceeded in the logical, analytical, and cautious manner characteristic of French military activity during the past decade. Russian quality and quantity have been more or less a question mark, the evidence consisting mostly of extravagant claim and massive parades in the Red Square.

In the United States we watched Europeans carefully and vacillated with them—or at least some of us did. In the Infantry, some supporters of the tank, like all enthusiasts, were convinced that persons not of their persuasion were hopeless reactionaries if not actually criminal in their neglect of this great new weapon. Opponents of the tank were of two sorts: Those who scornfully declared that the tank, far from getting warfare out of the ditch, would wind up there itself; and the more numerous group who, while admitting that the tank might be useful on special occasions, thought that unfavorable terrain and modern defense methods generally would neutralize it. (Many of the latter group were secretly a little afraid that they might be tragically wrong.)

In the Cavalry, where the tank is called a combat car, well, frankly, the argument was basically the old controversy between the horsemen and the motormen. This subject is too delicate for discussion.

The Spanish war was scrutinized anxiously in hope that an answer might be found to the question "What of the tank?" But the inconclusive evidence seemed to prove only what one wished to prove.

The French flatly stated, "We have the tank whipped. Obstacles — natural and artificial—mines, antitank guns, and artillery will do the trick." European landscapes broke out with a rash of concrete studs and railroad rails thrust upright in the ground.



Munitions makers began advertising various models of sleek antitank guns of various patterns and calibers.

The Germans knew what they wanted and went after it on a large scale. They standardized two excellent antitank guns and issued them in quantity to their fighting units. Accepting Eimannsberger's ideas, they also built thousands of tanks. After several realistic maneuvers which probably were "dry runs" they swept into Poland and secured a victory which should have stilled all critics of the tank.

But the latter are hard to convince. They ask, "What of barriers? What of land mines? Why didn't the Poles make better use of these defenses? Where were their antitank guns?"

The answers must wait for more detailed reports on the Polish campaign. One can only say: Although tests and theory indicate that antitank defenses can be made effective, the tank has proved its worth in recent, largescale warfare.

Therefore, in addition to spending, and quite properly spending, time and money in perfecting antitank measures, we ought also to direct a little of our intellect to a study of artillery support for tank attacks.

European doctrines seem to specify that a major tank attack can be launched only after the infantry-artillery team has captured terrain favorable for the employment of tanks. We must not conclude from this that the tank is a weapon purely for exploitation purposes. We can only form the premise that it will not be hurled against a position known to be protected by barriers and minefields.

A defender forced to abandon his prepared position and who lacks time or means to establish new barriers and to sow new minefields must protect himself with antitank guns and artillery alone. But these, because of mobility which permits them to be concentrated quickly in a threatened area, and because of their great fire power, may still provide a formidable defense. They must be neutralized by the attacker's artillery if the tank attack is to be assured a reasonable chance of success.

There are not available sufficient examples of recent tank warfare

By Captain Charles Nathaniel Tupper, FA

to permit us to enunciate laws governing the employment of this arm nor its supporting artillery. But this should not cause us to go to war without having thought of the subject at all. As von Eimannsberger says, "One must make an honest endeavor to look into the future—at the risk of arriving at the wrong conclusions." In that spirit let us consider the following premises:

A tank attack requires artillery support to neutralize antitank weapons to the same or greater extent that infantry needs it to beat down hostile small-arms fire. But this support must be more carefully planned and more nicely timed; for, though infantry can halt under cover while waiting for artillery support to be readjusted or strengthened, the tanks cannot wait. They are too vulnerable while standing still.

Antitank guns will be dug-in, the extent of this fortification depending on the time the defender has available. They will also be well concealed. This means that artillery fire must be heavy and searching, perhaps more so than when only machine guns or other light weapons are the targets. Medium calibers must be used liberally, air bursts—secured by ricochet or by time fire—must be employed to a great extent if proper effect is to be secured from fragmentation. Yet, on the other hand, in spite of being carefully emplaced, the antitank guns will be very mobile. Hence the artillery preparation must not be fired too soon or many of the targets will displace. A brief, violent artillery preparation will be required, wherein the number of projectiles fired will be as great as (if not greater than) for an attack without tanks.

The mass of the artillery must support the attack from initial positions. The rapidity and brief duration of the action precludes the possibility of displacement.

There will be slight opportunity for adjusting fires. Observed fires will have to be transfers from nearby points previously registered upon. Most of the fires will be schedule fires; some may be *on call*, but will have to be prepared beforehand. There will be no time for bracket adjustment, let alone precision fire.

The plan of support must be based on:

- (a) The direction and rate of advance of the tanks;
- (b) An estimate of the hostile antitank system, no matter how meager the information available;
- (c) The location of the tank objective and the estimated time at which the tanks will reach it. In connection with this, the tanks must be given a compartment of terrain or zone in which no friendly artillery fire will fall while they are operating therein.

The above are in addition, of course, to the usual conditions that the support is based on the plan of the commander.

The artillery must be so organized tactically that it can return quickly to its duty of providing normal infantry support in case the tank attack fails or is not launched. Additional liaison groups will be needed. Current infantry teachings are to the effect that artillery liaison parties "may ride in one of the leading tanks *if space available*." If the

artillery commander feels that the liaison is essential he had better take some action to ensure that such space *is* available. Better yet, the artillery should provide themselves with a few armored personnel carriers.

And now for an illustrative problem. This problem will be limited to the situation where the enemy, having been compelled to withdraw from his initial fortified line back into open country, still maintains an unbroken front. The use of tanks in the pursuit phase will not be considered, as artillery support for such an action requires special technique. The problem will be simplified further by avoiding complications necessarily inherent in participation by combat aviation and the use of toxic chemicals; it will be assumed that neither are used.

ILLUSTRATIVE PROBLEM

1. *Situation.*

a. The Blue 1st Division (triangular) is a part of a larger force attacking south. Red troops have been organizing a position along the North Anna River (see map). The Blue main force planned to attack this line with a view to creating a breakthrough which would lead to a quick decision. The I Corps (to which the 1st Division is assigned), heavily reinforced by artillery and tanks, was to make the main effort. It was planned to employ the tanks, under divisional control, as soon as the river crossing had been forced; for this purpose large quantities of portable bridging material had been moved up secretly and concealed north of the stream. At the last moment, however, it was learned that the Reds had covered their position with continuous belts of portable land mines, had dug numerous traps and ditches, and had improvised other barriers. The Blue commander decided to withhold his tank until after the Reds had been forced back from their prepared position. Divisions had been warned to prepare tentative plans for the employment of tanks when favorable ground had been secured.

b. The attack, launched at 4:00 AM, surprised the Reds by its power. Supported by masses of artillery and by combat aviation, the Blue infantry quickly overran the hostile position on a broad front. By 10:00 AM advance elements had reached the line shown on the map, where they were reported stopped by enemy fire and local counterattacks. Increasing cloudiness and a lowering mist prevented further aerial support. No reconnaissance nor photographic missions had flown over the enemy area since 8:00 AM. Terrestrial visibility varied, but was generally poor. Little was known of Red dispositions and movements except that the town of Davis (95-11) was strongly held, and fire from small arms and heavy infantry weapons was coming from the ridge southwest of Davis. G-2 estimated that the 1st Division was opposed by at least two Red battalions supported by some artillery; locations of batteries as reported by the Blue 1st Observation Battalion (FA) are shown on the map.

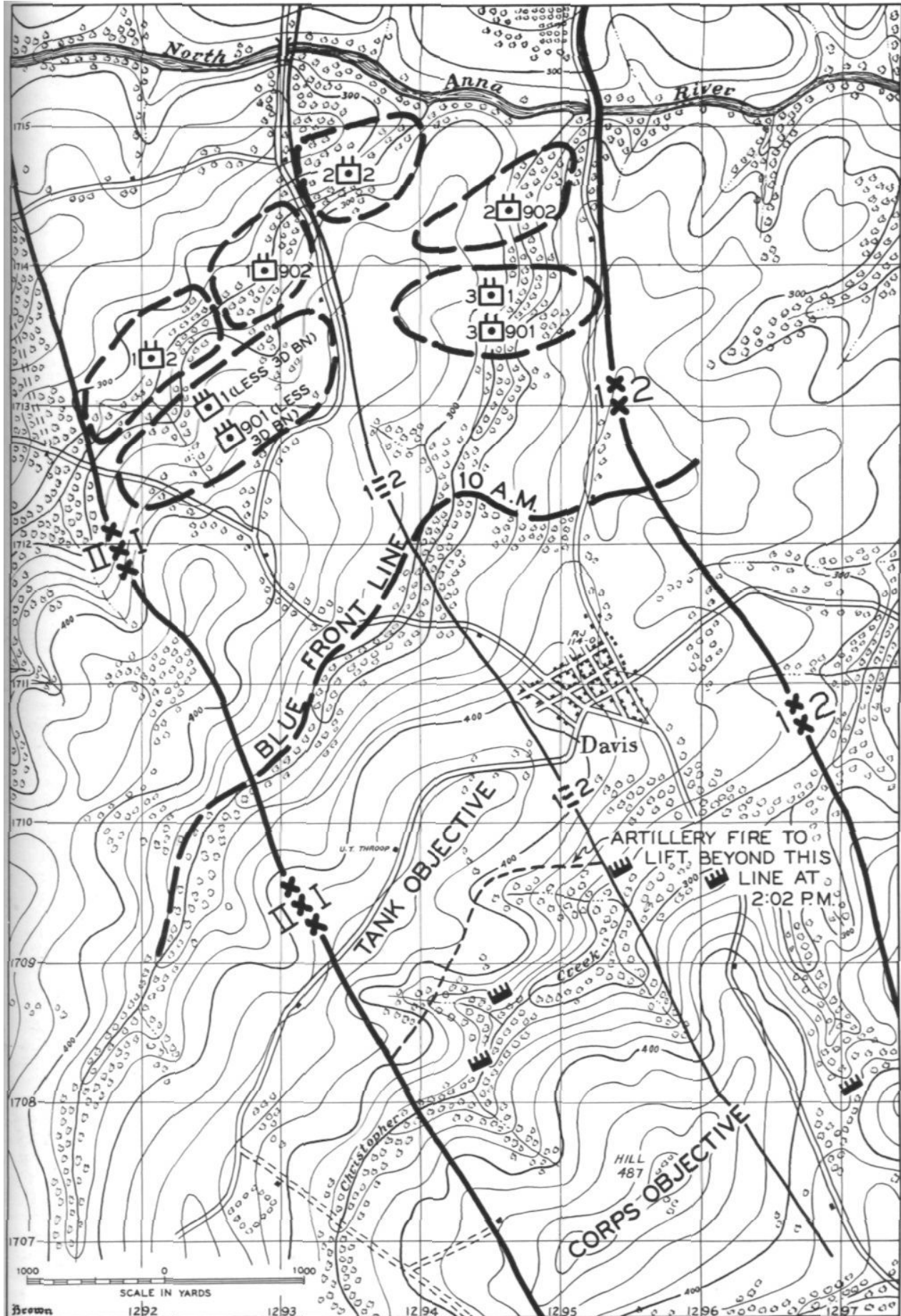
c. Composition and disposition of 1st Division.

(1) The 1st Division consists of:

- 1st Infantry
- 2d Infantry
- 3d Infantry
- 1st Field Artillery (75-mm., truck-drawn)
- 2d Field Artillery (155-mm., truck-drawn)

* * * * *

Attached:
1st Battalion 901st Infantry (light tanks) with Company



A 911th Infantry (medium tanks), attached
 901st Field Artillery (75-mm., truck-drawn)
 902d Field Artillery (155-mm., truck-drawn)
 * * * * *

(2) The light artillery regiments each consist of three battalions of three batteries each. The howitzer regiments each contain two battalions of two batteries each.

(3) The 1st Division is attacking with the 1st and 2d Infantry abreast, 1st Infantry on the right. Boundaries are as shown on the map. 3d Infantry is in reserve. The attached tanks are in an intermediate position north of the North Anna.

(4) *Organization of the artillery.*—The organization of the artillery for the initial attack this morning was as follows (and no change has been made up to 11:00 AM):

1st FA (less 3d Bn), with 901st FA (less 3d Bn) attached, direct support of 1st Inf;

3d Bn 1st FA, with 3d Bn 901st FA attached, in direct support of 2d Inf;

2d FA, with 902d FA attached, in general support.

(5) *Position areas.*—see map.

2. *Plan of attack.*

a. *I Corps.*—The I Corps is to resume the attack at 2:00 PM and capture the high ground in the vicinity of hill 487 (95-07).

b. *1st Division.*—The orders of Major General A, commanding the 1st Division, specify that the division will attack with the 1st and 2d Infantry abreast to capture the high ground southwest of Davis, prepared to continue the attack to the corps objective. Boundaries as shown on the map.

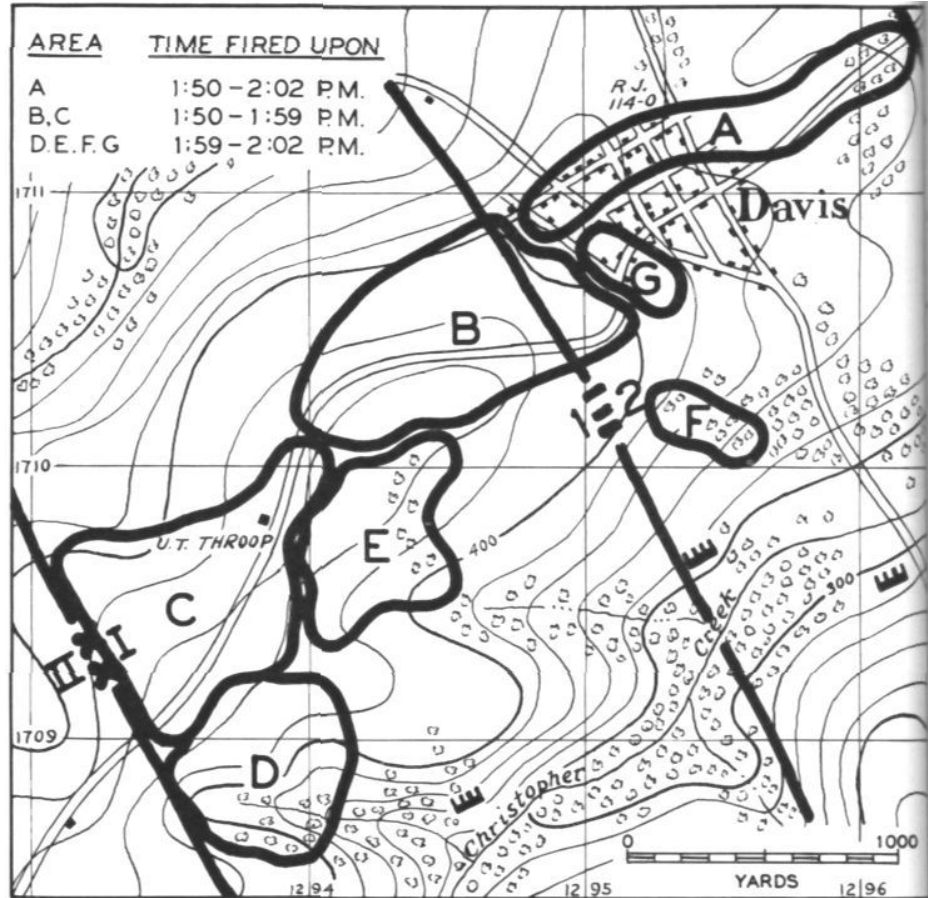
(1) 1st Infantry with tanks attached, capture the high ground southwest of Davis, be prepared to continue the attack and capture that part of the corps objective within the zone of action of the regiment.

(2) 2d Infantry * * * * *

(3) The artillery to support the attack, paying particular attention to the attack of the 1st Infantry. No preparation to be fired prior to 1:50 PM. At 2:02 PM the artillery is to lift its fires beyond a line parallel to and 800 yards south of the road running along the ridge southwest of Davis.

c. *Action of the tanks.*—By 11:00 PM, Brigadier General B, commanding the divisional artillery, is in possession of the following information:

(1) Schedule of tank movements: Tanks start crossing the North Anna at 1:00 PM, and move to an assault position at * * * *. They leave the assault position in time to cross the line of departure at 2:00 PM. It is estimated that the first wave of tanks will arrive on the objective at about 2:03 PM. Subsequent to this the tanks will be arriving on the objective in successive waves, cruising over the objective and mopping up. After resistance has been reduced here the tanks will assemble prepared to continue the attack.



Overlay to accompany solution.

(2) Formation for the attack: The medium tank company will lead the attack, advance to the objective, and reduce those parts of the hostile antitank defense not already neutralized. The light tank battalion will follow the medium company with two companies abreast in the assault and the third company in reserve. The light tanks will advance directly to the objective, clean out the islands of small-arms resistance and support the advance of the infantry. The infantry will follow the tanks and consolidate the position.

(3) Tank assembly area: On the objective. Alternate assembly area: The assault position.

3. *Requirement.*—Give the divisional artillery plan of support for the period from 11:00 AM to 2:02 PM, with respect to the following only:

a. Organization of the artillery.

b. Normal and contingent zones, if any, for the artillery which you place in direct support.

c. Missions assigned to the general-support units. Give these missions in general terms only; do not assign fires in detail.

d. If a preparation is to be fired, give its duration, the units to participate, and the areas to be neutralized (do not assign these areas as standard circles; merely outline on the map).

Note: Assume that eight batteries of corps artillery will fire in the zone of action of the 1st Division. The normal missions of this artillery includes counterbattery, and distant and special fires.

A SOLUTION

a. Organization of the divisional artillery for the support of the division from 11:00 AM to 3:00 PM: No change.

b. 1st FA (less 3d Bn) with 901st FA (less 3d Bn) attached, normal zone; zone of action of 1st Infantry. Contingent

zone: One battalion be able to fire as far east as RJ 114-0 (95.2-11.2).

Note: Higher authority might require some units to fire into the zone of action of the corps on the right. For simplicity no discussion of that has been introduced here.

3d Bn 1st FA, with 3d Bn 901st FA attached, normal zone: zone of action of 2d Infantry. Contingent zone: 2 batteries be able to fire as far west as U. T. Throop (93.9-09.9).

c. 2d FA, with 902d FA attached: general support, with special attention to attack of 1st Infantry. At least 4 batteries be prepared to reinforce corps artillery in counterbattery. All batteries be prepared to execute counterbattery between 1:00 PM and 1:50 PM. All batteries be prepared to participate in the preparation (see *d*, below). General-support artillery be prepared to execute harassing fires on hostile working parties, and to interdict, on call, hostile routes of approach, assembly areas, located command posts. Special attention to southern exists of Davis, stream crossing at (96.1-09.8), wooded draws along Christopher Creek within zone of action of 1st Infantry. Be prepared to smoke, on call, Davis, ridge southwest of Davis, and hill 487.

d. All divisional artillery to participate in a preparation to be fired from 1:50 to 2:02 PM. Areas to be neutralized, and time at which they are to be fired upon: see overlay.

DISCUSSION

a. *Organization for the attack.*—When the attack commenced at 4:00 AM this morning, the artillery commander had grouped his units according to an arrangement which should, under most circumstances, have served throughout the course of the day's action. To make changes in this organization during the battle, or to attempt any regrouping, would cause confusion; it should not be done unless some important change is discovered in the hostile dispositions. For this attack, liaison has been organized with supported units, and observation, communications, fire direction, and ammunition supply have been planned and are functioning in accordance with the present set-up. The artillery as now organized favors the main attack, provides a powerful general-support group instantly available to the commander, yet is sufficiently flexible to meet most changes in the situation. Artillery should not be attached to the infantry until it has been determined definitely that the artillery commander cannot exercise proper control.

b. *Assignment of missions to direct-support units.* — Initially the artillery commander may make no other assignment of missions to the direct-support groups than to assign normal and contingent zones. (Later, of course, he may send overlays giving more specific assignments.) The divisional 75-mm. guns are so flexible that wide and deep fields of fire may be covered with ease from almost any position shown on the map here with. It is still desirable, however, to assign normal and contingent zones, so that batteries will have sectors of responsibility definitely pointed out ahead of time. Frequently such details as clearing fields of fire, constructing emplacements or embrasures, erecting camouflage, placing ammunition, and organization of fire direction will not be facilitated unless the battery and battalion commanders know definitely the zone in which their fire is to be placed. Also it should be remembered that such assignment is for observation as well as for fire.

In the problem under consideration it is desirable to have some of the guns supporting the 2d Infantry able to fire well into the zone of the main attack, in order to provide a more powerful mass of fire to meet unexpected contingencies. Similarly, some of the artillery supporting the main attack should have as its contingent zone the zone of the secondary attack. It is quite probable that fire which will endanger the main attack will come from the east.

There are, of course, several practicable solutions to this part of

the exercise. The important thing is to ensure that normal and contingent zones are specified.

c. *General-support missions.*—Since the general-support artillery is more closely (initially, at any rate) under the control of the divisional artillery commander, he should be somewhat more specific in the missions which he assigns to this artillery. At the outset, before he attempts to send them detailed orders, he will issue a broad directive which will permit the subordinate commanders to commence their operations. In this directive he may include some items which might be considered as routine, but it is always safer to restate such missions than risk the omission of important fires.

Counterbattery will be extremely important at all times, for the Red artillery will constitute one of the principal menaces to our tanks from the moment they leave their intermediate position north of the North Anna. While this is ordinarily the function of corps artillery, and it appears that there is available sufficient corps artillery to take care of these fires, we have no assurance that additional hostile batteries will not "come to life" during the action, thus requiring reinforcement of the normal counterbattery groups. The divisional artillery commander, by his directive, ensures that half his medium weapons are available for this purpose at all times, and that all of them are available during the critical time when the tanks are crossing the river and moving forward. This part of the directive does not mean that the medium weapons may not be used for other missions at such times as calls for reinforcement of counterbattery are not received.

The preparation, which must be as powerful as possible, will require all the divisional artillery. Furthermore, 155-mm. howitzers will be extremely valuable during this period to fire on the town of Davis or on other localities where the emplacements of antitank weapons are apt to be too strong for neutralization by 75-mm. fire.

The caution to the medium artillery to be able to execute certain interdiction and harassing fires is to enable these units to prepare schedule fires for fire on call when there is evidence that they will be effective. It may be very important to prevent the Reds from putting out new mine fields or bringing up reinforcements or ammunition, but we cannot afford to fire blindly on rear areas or even on the more forward positions unless we have information that such fires will be profitable.

The howitzers are not directed to smoke hostile observation, but they are directed to be prepared to do so if improved visibility makes this necessary.

d. *The preparation.*—The preparation is the most important mission which the divisional artillery will execute, so far as can be foreseen. It is designed to neutralize, at the last possible moment, the hostile antitank defense and infantry weapons. As will often occur in battle, we have very little information as to the hostile dispositions. No one has traced them on the map for us. We must determine from a study of the terrain where the enemy resistance will be strongest.

In this problem the enemy has been forced back from his initial position. As there are no indications that he has retired to a previously prepared position, it may be assumed that he will employ delaying tactics, although we must also be prepared for a stubborn defense or for a counterattack. His infantry will occupy villages, clumps of woods, the edges of roads, or other similar terrain features which are readily identified and easy to organize. Thus we may expect the town of Davis to be organized, especially the forward edges; and the road running along the ridge southwest of the town will likely form the trace of his position. Roads, having ditches, cuts, and fills, provide excellent temporary shelter to withdrawing troops. Our preparation should fall heavily on these terrain features, and also on those noses, within the zone of the attack, which provide localities from which enfilade fire may be delivered

by machine guns or antitank weapons.

It would be desirable to sweep the whole zone with a heavy fire, beginning close to our own front, and extending to the limit of our range. But we do not have the means for this; we must place the artillery fire on the most dangerous localities, and leave to the infantry weapons the neutralization of the more forward areas. Other factors governing the selection and assignment of missions for the preparation include the fact that it is desirable to advance the fire for two hundred yards or more during the last three minutes before the tanks are due to arrive in the hostile area, so as to lessen the danger of causing casualties to our own tanks. Another factor is the advisability of placing some fire *beyond* the ridge. It is to be expected that some of the enemy infantry, as well as antitank guns, will crouch behind this ridge during the beginning of our fire, ready to rush forward to the crest and fire on our tanks when the preparation lifts. If we place concentrations on the reverse side of the ridge just before the end of the preparation we will probably attain important results.

Finally, we must fit the means to the end. We have 26 batteries available, which can fire 60 200-yard concentrations in the twelve minutes allotted. The plan might be worked out somewhat as follows:

75-mm.—18 batteries:

1:50 - 1:59 PM
6 minutes' fire, 3 minutes shift18 concentrations

1:59 - 2:02 PM
3 minutes' fire..... 18 concentrations

36

155-mm.—8 batteries:

1:50 - 1:59 PM
3 minutes' fire, 3 minutes' shift, 3 minutes' fire..... 16 concentrations
1:59 - 2:02 PM
3 minutes' fire..... 8 concentrations

24

Grand total..... 60 concentrations

1:50 - 1:59 PM fire 35 concentrationsareas A, B, C

1:59 - 2:02 PM fire 18 concentrationsareas D, E, F, G

1:59 - 2:02 PM repeat 7 concentrationsarea A

The overlay shows the areas on which these concentrations might be fired.

The problem of the artillery does not end with the preparation, but lack of space prevents a discussion of the fires which should be planned for the period from 2:02 PM until 3:00 PM. In general they will be protective fires.

It is interesting to note that during the 12-minute preparation alone, the divisional artillery will fire some 4,400 rounds, weighing fifty-one tons.



Minutes of the Meeting of the United States Field Artillery Association December 15, 1939

In accordance with the call of the Executive Council, the thirtieth annual meeting of the U. S. Field Artillery Association was held at the Army and Navy Club in Washington, D. C., on December 15, 1939. Major General Robert M. Danford presided.

A quorum was present in person or by written proxy for the transaction of business.

The Secretary-Treasurer presented and read his annual report and financial statement, which are appended hereto and made a part of the minutes.

The President had previously appointed Major Guy Kurtz and Captain Mark McClure to audit the financial statement. At the direction of the chair, the secretary read the report of the auditors, which stated that the auditing had been performed and the financial statement had been found to be correct.

The chair stated there were seven vacancies in the Executive Council to be filled. These were caused by the expirations of the terms of office of Brig. Gen. L. J. McNair, Brig. Gen. Wm. H. Sands, Col. E. L. Gruber, Col. R. E. D. Hoyle, Col. C. C. Haffner, Col. L. W. Herron, and Col. R. C. Bishop.

The President had previously appointed a nominating committee, Lt. Col. Julian F. Barnes, FA, Lt. Col. J. B. Anderson, FA, and Major Rex W. Beasley, FA. Colonel Barnes, its chairman, read his report, which submitted the names of Col. F. C. Wallace, Brig. Gen. Wm. H. Sands, Major Edward S. Ott, Col. J. A. Crane, Col. C. C. Haffner, Col. L. W. Herron, and Colonel R. C. Bishop. The opportunity being made for nominations from the floor, and none being offered, it was moved, seconded, and adopted that the polls be closed, and that the secretary be directed to cast the unanimous ballot for the nominating committee choices.

It was moved, seconded, and passed that the Secretary-Treasurer be directed to "write off" a number of the securities held by the Association which have been in default many years, and in the future to carry these securities at their cash value rather than their face value. The Secretary-Treasurer stated that this would mean that approximately \$8,772.45 would be shown as a "paper" loss, and that the total assets of the Association as of the current financial statement instead of being \$31,268.57 would be \$22,496.12. While this will cause next year's annual statement to show an apparently large operating loss, actually no financial injury will result and the advantage will accrue that members of the Association can tell at a glance from the annual statement the actual worth of its assets. The sum \$22,496.12 represents the cash in bank, government bonds, and other securities whose present cash value either equals or exceeds their face value.

The President stated that the matter of changing the

format of the JOURNAL was under consideration and would be taken up and acted upon at the meeting of the Executive Council which was to take place immediately following the annual meeting. The Secretary-Treasurer pointed out that the financial advantages which would result from this change, as well as the

ANNUAL REPORT OF THE SECRETARY-TREASURER FOR YEAR ENDING NOVEMBER 30, 1939

Assets November 30, 1938		
Balance checking account.....	\$ 4,709.70	
Savings account.....	3,644.07	
Securities, face value \$24,600 (less \$1,220 liquidated).....	23,380.00	
	\$31,733.77	\$31,733.77
Assets November 30, 1939		
Balance checking account.....	594.73	
Savings account.....	2,553.84	
Government bonds, <i>cash value</i>	9,240.00	
Securities, <i>face value</i>	18,880.00	
	\$31,268.57	31,268.57
Loss.....		\$ 465.20
A detailed statement of receipts and expenditures for fiscal year 1939, as compared with fiscal year 1938, is as follows:		
RECEIPTS		
	<i>1938</i>	<i>1939</i>
Membership dues and subscriptions.....	\$ 8,976.94	\$10,078.15
Interest on securities.....	508.13	550.14
Interest on savings account.....	60.78	53.84
Books and magazines.....	1,596.34	1,452.09
Miscellaneous and liquidated securities.....	653.42	100.68
	\$11,795.61	\$12,234.90
Cash on hand November 30, 1938.....		8,353.77
		\$20,588.67
EXPENDITURES		
	<i>1938</i>	<i>1939</i>
Printing and mailing FA JOURNAL.....	\$ 3,421.11	\$ 4,088.35
Office supplies.....	349.85	565.64
Postage, express, telegrams.....	426.16	328.37
Rent and telephone.....	423.42	506.48
Services.....	2,015.00	2,811.11
Authors, engravers, photographers.....	1,919.90	2,182.54
Books and magazines.....	1,161.58	1,134.97
Insurance, tax.....	67.04	72.85
Trophies.....	70.28	92.90
Donations.....	7.00	7.00
Miscellaneous: copyrights, refunds, etc.....	288.39	1,049.89
Prize essay thesis.....	150.00	100.00
Government bond.....		4,500.00
	\$10,299.73	\$17,440.10
Cash on hand November 30, 1939.....		3,148.57
		\$20,588.67
Total receipts for year ending November 30, 1939.....		\$12,234.90
Total expenditures, year ending November 30, 1939.....		17,440.10
Excess of expenditures over receipts.....		² \$5,205.20

¹This amount, \$100.68, does not include the \$1,144.07 which (see voucher No. 1, February, 1939) was transferred from savings to checking account. This \$1,144.07 was not actually a "receipt" for the month of February or for 1939. It was merely a transfer from one account to the other.

²If we subtract from this the net gain in securities, i.e., \$4,500.00 (bond purchased) plus \$240.00 (gain in cash value of government bonds), we get again \$465.20 as a net loss for the year.

ability to print larger maps and a better display of illustrations, probably outweighed the reasons, mostly sentimental, for retaining the smaller format of the JOURNAL. It was pointed out that the format had already been changed six times, including a change in its three external dimensions.

Among the members present who had come from a considerable distance were Brig. Gen. Wm. H. Sands, National Guard, of Norfolk, Virginia, and Capt. John Coleman, FA-Res., of Dayton, Ohio.

The cash on hand, \$3,148.57, is greater than it should be. It was the sense of the meeting of the Association for 1938 that only \$2,000.00 should be maintained as an operating fund. However, the payment of current bills to the printer, engraver, and authors, will reduce the operating sum by the desired amount.

It was also decided at last year's annual meeting that the surpluses for 1937 and 1938, \$1,826.00, should be spent for such projects as advertising folders and letters, in an effort to secure more subscribers, and for the preparation and printing of a pocket field manual or reference book. The advertising circulars and letters have been printed and mailed at various times during the year. The pocket manual project, however, was found to be impracticable. In its place, a comprehensive 29-year Index of the JOURNAL has been prepared. This project was made possible within our financial means because the JOURNAL was able to secure an experienced compiler, Master Sergeant Swett, to perform the task. This work required over three months, and, while it has been fairly expensive, will be a contribution of permanent value to the Association. The operating loss for the current year, \$465.20, is accounted for by the sums spent for advertising circulars; \$464.56 for folder to Reserve Officers, and \$107.00 for miniature JOURNAL to National Guard officers. The balance of the \$1,820.00 authorized for such projects will be spent on the Index and, possibly, will also cause 1940 to show an operating loss.

These projects have produced results the eventual worth of which to the Association cannot be estimated accurately. This year's increase in memberships is 585, bringing the total to 3,541 paid memberships. The net increase during the last two years has been well over a thousand, which constitutes a real tribute to my predecessor and to the continued efforts of the National Guard and Reserve Officer members of the Executive Council in bringing in new members.

W. S. NYE
 Captain, Field Artillery
 Secretary-Treasurer

NATIONAL GUARD NOTES

By Col. C. C. Haffner, Jr., 124th Field Artillery

A year ago the Field Artillery Officers of the National Guard organized an informal Field Artillery section of the

National Guard Association which has functioned now for a year under the able leadership of Colonel William A. March of Pennsylvania.

At the National Guard Convention in October in Baltimore the Field Artillery section of the National Guard Association held a meeting and a delightful luncheon. Those present held a most worthwhile general discussion of their mutual problems as well as much informal discussion of the special problems between individual officers. This attitude of mutual helpfulness aided greatly in cementing an esprit de corps among the Artillery Officers of the Guard.

Several matters of vital interest were discussed, and recommendations made to proper committees and authorities of the National Guard Association.

By acclamation, Colonel William A. March of Pennsylvania was reelected President; Colonel Lewis L. Roberts of Indiana, Vice President, and Lieutenant J. F. Hunter Speer of Pennsylvania, Secretary.

The Chair then appointed as Corps Area Representatives the following: First Corps, Gen. Harold R. Barker; Second Corps, Col. E. J. Towers; Third Corps, Lt. Col. Tom Shyrook, Jr.; Fourth Corps, Maj. Lake; Fifth Corps, Col. Pruching; Sixth Corps, Col. R. E. Myhrman; Seventh Corps, Col. Harry Ward; Eighth Corps, Capt. J. Bouton; Ninth Corps, Col. Powell.

If matters of particular interest arise during the coming year, one or more bulletins may be issued to the Brigade and Regimental Commanders of the National Guard Field Artillery. It was suggested that perhaps more Field Artillery National Guard items could be carried in THE FIELD ARTILLERY JOURNAL, and the Corps Area Representatives were requested to obtain and arrange in their Corps Area for such material to be forwarded to the Editor of the JOURNAL.

The Field Artillery Officers at the convention entered the smoker singing the Caisson Song, and also gave a good account of themselves, especially in a musical way, during the banquet.

The following Field Artillery Officers attended the meeting of the Field Artillery section of the National Guard Association: Brig. Gen. Harold Barker, Brig. Gen. Wm. R. Dunlap, Brig. Gen. Wm. H. Sands, Brig. Gen. Sumpter L. Lowry, Brig. Gen. S. T. Lawton, Brig. Gen. Wm. L. Marlin, Brig. Gen. Rodger W. Eckfeldt, Colonel Roy D. Pruching, Colonel Ed. J. Towers, Colonel Robert E. Myhrman, Colonel C. C. Haffner, Colonel Beverly Ober, Colonel E. L. Compere, Colonel C. A. Green, Colonel John Jacobson, Jr., Colonel Leo M. Kreber, Colonel R. D. Schmidt, Colonel Earl C. Webster, Colonel Harry Ward, Colonel F. W. Rollins, Colonel Wm. F. Howe, Jr., Colonel Louis L. Roberts, Vice President, Colonel Elmer W. McDevitt, Colonel E. Slater Montague, Colonel A. P. Schock, Colonel Wm. A. March, President, Lt. Col. A. H. Stackpole, Lt. Col. Tom Shyrook, Majors Provosty O. Dayries, W. E. Jones, Ed. D. Sirois, Norman E. Hart, Captains James L. Shearer J. F. Fitzgerald, Jay H. Bouton, Sidney P. Godsman, Lieuts. Charles Barron and J. F. Hunter Speer, Secretary.

Stations of Field Artillery Officers of Regular Army

OFFICE CHIEF OF FIELD ARTILLERY

Washington, D. C.

MAJOR GENERAL R. M. Danford
 COLONEL F. A. Doniat
 COLONEL F. C. Wallace
 LT. COLONEL J. B. Anderson
 LT. COLONEL J. F. Barnes
 MAJOR R. W. Beasley
 MAJOR G. O. Kurtz
 MAJOR J. W. MacKelvie
 CAPTAIN W. S. Nye
 CAPTAIN M. McClure

LIAISON OFFICERS

MAJOR A. L. Campbell, with Ordnance, Aberdeen Proving Grounds, Md.
 CAPTAIN B. Evans, with Signal Corps, Fort Monmouth, N. J.
 CAPTAIN T. North, with Engineer Board, Fort Belvoir, Va.

FIELD ARTILLERY BOARD

Fort Bragg, N. C.

COLONEL R. S. Parrott
 LT. COLONEL S. L. Irwin
 LT. COLONEL J. P. Lucas

FIRST FIELD ARTILLERY

Fort Sill, Oklahoma

COL. M. G. Randol
 LT. COL. J. J. McCollister
 LT. COL. E. B. Edwards
 MAJOR G. H. Cushman, Jr.
 MAJOR O. F. Marston
 MAJOR A. S. Quintard
 MAJOR J. J. Turner
 CAPTAINS
 A. R. Bennet
 W. D. Brown
 Rex E. Chandler
 M. Craig, Jr.
 F. W. Farrell
 J. L. Hardin
 T. R. Hedekin
 G. Heninger
 W. C. Lucas
 R. M. Osborne
 A. L. Price
 L. Clarke
 H. R. Whitely
 C. E. Swartz
 H. W. Brimmer
 J. C. Oakes
 FIRST LIEUTENANTS
 R. C. Bower
 W. P. Goodwin
 D. A. Herman
 F. G. Smith
 H. L. Sanders
 C. W. Crockett
 G. W. Seaward
 P. R. Weyrauch
 E. G. Hahney
 SECOND LIEUTENANTS
 H. W. Elkins
 J. R. Hamilton
 E. J. Ingmire
 F. K. Mearns
 G. G. O'Connor
 V. M. Shultz

SECOND FIELD ARTILLERY

Fort Clayton, C. Z.

LT. COL. G. H. Franke
 LT. COL. R. H. Dixon
 MAJOR L. E. Savage
 CAPTAINS
 W. B. Avera
 J. M. Gallicutt
 C. R. Gildart
 M. H. Lucas
 T. McGregor
 J. V. Phelps
 W. D. Webb, Jr.
 FIRST LIEUTENANTS
 F. C. Boswell
 C. Longely, Jr.
 P. F. Oswald
 SECOND LIEUTENANTS
 M. L. Green

R. Laskowski
 P. W. Long

SECOND BATTALION, THIRD FIELD ARTILLERY

Fort Sheridan, Illinois

LT. COL. G. A. Pollin
 MAJOR N. C. Manley
 CAPTAINS
 W. G. Bennett
 J. L. Beynon
 J. R. Pitman, Jr.
 FIRST LIEUTENANTS
 J. R. Brindley
 H. M. Batson, Jr.
 SECOND LIEUTENANTS
 R. J. Hill, Jr.
 E. B. Leever

FIRST BATTALION, THIRD FIELD ARTILLERY

Fort Riley, Kans.

LT. COL. R. Hospital
 MAJOR M. A. Cowles
 CAPTAINS
 N. J. Eckert
 O. Ellis
 W. D. McNair
 J. K. Bryan
 FIRST LIEUTENANTS
 G. A. Carver
 F. G. Hall
 J. W. M. Read
 2d Lt. R. I. Beaver

FOURTH FIELD ARTILLERY

Fort Bragg, N. C.

LT. COL. I. T. Wyehe
 MAJOR W. B. Walters
 CAPTAINS
 S. L. Cowles
 C. H. Day
 R. C. Cooper
 W. A. Wedemeyer
 1ST LT. C. R. Murray
 SECOND LIEUTENANTS
 T. Truxton
 G. P. Winton, Jr.

FIFTH FIELD ARTILLERY

Madison Barracks, N. Y.

COL. R. E. Lee
 LT. COL. J. B. Hunt
 MAJORS
 A. C. Searle
 M. C. Walton
 CAPTAINS
 R. M. Costigan
 G. L. Holsinger
 F. N. Leakey
 S. L. Mains, Jr.
 C. P. Townsley
 E. C. Burkart
 C. A. Billingsley
 R. I. Pride
 FIRST LIEUTENANTS
 E. J. Hickman
 R. N. Tyson
 E. H. Eddy
 R. S. Carter
 SECOND LIEUTENANTS
 L. Lutes, Jr.
 F. H. Patrick
 G. D. Bilat
 E. R. Kindig
 V. E. R. Rawie
 F. T. Unger
 C. H. Wohfeil

SIXTH FIELD ARTILLERY

Fort Hoyle, Md.

COL. R. E. D. Hoyle
 LT. COL. C. B. King
 (sick in Letterman Gen. Hosp.)

MAJORS
 P. G. Black
 A. E. Billing
 H. B. Dawson
 CAPTAINS
 H. E. Baker
 C. L. Booth
 J. T. Dawson

J. Hinton
 R. C. Lawes
 D. J. Oyster
 H. Van Wyk
 FIRST LIEUTENANTS
 D. E. Beach
 R. Q. Brown
 T. I. Edgar
 SECOND LIEUTENANTS
 V. M. Elmore, Jr.
 J. Folda, Jr.
 R. T. Bowie
 T. M. Crawford
 E. W. Geary
 E. J. Jordon
 J. Ray
 F. W. Norris

SEVENTH FIELD ARTILLERY

Fort Ethan Allen, Vt.

LT. COL. C. Brewer
 MAJORS
 D. C. Schmahe
 A. F. Doran
 S. J. Cutler
 CAPTAINS
 L. V. Chaplin
 L. C. Davis
 F. A. Granholm
 E. V. Kerre
 L. L. Lesser
 C. G. Nelson
 R. E. O'Conner
 E. B. Thayer
 E. B. Ely
 G. P. Harrison
 J. Mesick
 D. R. French
 FIRST LIEUTENANTS
 G. W. Gibbs
 J. K. Wilson, Jr.
 W. P. Whelihan
 C. D. W. Lang
 W. M. Tisdale
 SECOND LIEUTENANTS
 A. H. Baker, Jr.
 R. J. Long
 D. J. Minahan, Jr.
 C. C. Holloway
 B. R. Major

SIXTEENTH FIELD ARTILLERY

Fort Myer, Va.

LT. COL. W. C. Crane, Jr.
 MAJOR L. M. Riley
 CAPTAINS
 F. A. Garrecht, Jr.
 R. K. McMaster
 E. L. Strohbehn
 R. L. Taylor
 FIRST LIEUTENANTS
 O. N. Stokes
 H. K. Whalen
 C. Darnell, Jr.
 2d Lt. J. W. Watt, Jr.

SEVENTEENTH FIELD ARTILLERY

Fort Bragg, N. C.

LT. COL. A. V. Arnold
 MAJORS
 W. C. Goessling
 M. R. Cox
 CAPTAINS
 J. C. Campbell
 S. V. Krauthoff
 P. L. Martin
 J. L. McKinnon
 G. E. Lynch
 R. D. Waring
 T. M. Watlington, Jr.
 G. D. Pence
 FIRST LIEUTENANTS
 H. W. Riley
 D. C. Little
 R. C. Brisach
 G. Chapman
 C. L. Heitman, Jr.
 N. C. James
 J. M. Beery
 SECOND LIEUTENANTS
 J. Taylor, Jr.

H. W. Caldwell

EIGHTEENTH FIELD ARTILLERY

Ft. Sill, Okla.

COL. C. P. George
 LT. COL. J. E. Hatch
 LT. COL. J. O. Hoskins
 MAJORS
 J. D. Matthews
 G. P. Winton
 R. Campbell
 N. J. McMahon
 CAPTAINS
 R. P. Clay
 F. Q. Goodell
 G. A. Grayeb
 H. S. Isaacson
 L. Mathewson
 D. C. McNair
 W. T. O'Reilly
 G. S. Price
 M. W. Brewster
 W. A. Samouce
 J. H. Sampsen, Jr.
 L. J. Stewart
 C. H. Studebaker
 W. D. Williams
 L. S. Griffing
 A. R. S. Barden
 E. L. Andrews
 FIRST LIEUTENANTS
 K. H. Ewbank
 W. A. Harris
 J. C. Hayden
 D. Parker, Jr.
 A. Watson, 2nd
 R. B. Neely
 H. King
 S. W. Gooch
 T. C. Foote
 J. J. Duffy
 W. M. Griffith
 M. M. Magee
 R. H. Adams
 H. H. Critz
 C. A. Symroski
 R. E. Weber, Jr.
 U. P. Williams
 SECOND LIEUTENANTS
 C. H. Anderson
 E. A. Bailey
 T. C. Compton
 C. C. Harvey, Jr.
 L. E. Hoska, Jr.
 J. L. Collins, Jr.
 A. F. Rollins
 S. C. Scott

1ST BN (LESS BTRY "C") 19TH FA

Ft. B. Harrison, Ind.

MAJOR W. W. Belcher
 CAPTAINS
 D. S. Babcock
 C. H. Mitchell
 W. R. Schaefer
 F. H. Sinclair
 FIRST LIEUTENANTS
 G. E. Dietz
 G. G. Garton

BTRY C. 19TH FA

Ft. Snelling, Minn.

CAPT. S. F. Yeo
 1ST LT. R. C. Bahr

19TH FA (LESS 1ST BN)

Ft. Knox, Ky.

COL. C. Parker
 LT. COL. A. W. Waldron
 MAJORS
 H. J. Gaffey
 M. M. Potter
 CAPTAINS
 B. P. Heiser
 N. C. Cureton, Jr.
 B. Holtzworth
 J. Meade
 S. B. Bonner
 J. Massaro
 P. H. Ringsdorf
 E. A. Lee

L. F. Young

FIRST LIEUTENANTS

C. A. Schrader
 D. F. Buchwald
 M. S. Davis
 P. H. Pope
 R. L. Brunzell
 SECOND LIEUTENANTS
 J. B. Mitchell
 W. E. Davis
 R. D. Offer
 R. H. Van Volkenburgh, Jr.
 M. E. Allen
 C. L. Curtis
 H. G. Davison
 B. W. Porterfield
 R. A. MacGregor

TWENTY-FIRST FIELD ARTILLERY

Ft. Knox

LT. COL. D. E. Cain
 MAJORS
 D. L. Crane
 J. J. B. Williams
 E. T. Hayes
 J. Y. LeGette
 CAPTAINS
 O. L. McDaniel
 P. W. Steinbeck, Jr.
 N. H. Smith
 J. P. Woodbridge
 FIRST LIEUTENANTS
 T. H. Slade
 J. G. Benner
 S. W. Horner, II
 SECOND LIEUTENANTS
 E. B. Kennedy
 W. R. Buster
 S. R. Johnson
 W. H. Corbett
 C. B. Hines
 J. R. Johnson
 R. C. McCabe
 W. W. Beverley
 C. W. Mayne
 M. L. Pitney

23D & 24TH FA

Fort Stotsenburg, P. I.

COL. L. R. Dougherty
 LT. COLONELS
 A. R. Ives
 E. C. Williams
 J. A. Sheridan
 MAJORS
 D. T. Boisseau
 R. Hirsch
 H. N. Lockwood, Jr.
 W. W. Murphey
 S. F. Reyes (P.S.)
 F. V. Segundo (P.S.)
 CAPTAINS
 H. J. Coyle
 F. W. Crary
 T. E. de Shazo
 A. D. Garcia (P.S.)
 V. Z. Gomez (P.S.)
 T. S. Gunby
 J. E. Holley
 J. R. Lindsay, Jr.
 A. Martelino (P.S.)
 H. J. D. Meyer
 R. K. Quekemeyer
 F. E. Fellows
 W. W. Scott
 L. J. Tacy
 J. O. Taylor
 C. B. Leinbach
 FIRST LIEUTENANTS
 J. G. Brimmer
 R. R. Ganns
 M. O. Perry
 R. H. Safford
 J. W. Hansborough
 C. Baehr, Jr.
 D. G. Grothaus
 E. Kraus
 H. B. Packard
 W. R. Thomas
 A. R. Fitch

SECOND LIEUTENANTS

R. C. Heflebower, Jr.
H. E. Marr, Jr.
P. H. Lauman, Jr.
K. C. Griffiths

2D BN 25TH FA
Puerto Rico

LT. COL. J. A. Hoag
MAJOR E. Herendeen
CAPTAINS
C. D. Daniel
H. C. Larter, Jr.
R. D. Wentworth
FIRST LIEUTENANTS
J. J. MacFarland
M. V. Pothier
E. G. Shinkle
SECOND LIEUTENANTS
T. N. Dupuy
L. F. Mercado
L. C. Maslowski
W. O. Gall
F. W. Hasselback, Jr.

36TH FIELD ARTILLERY
Fort Bragg, N. C.

LT. COL. W. W. Hess, Jr.
MAJORS
A. W. Shutter
H. A. Cooney
J. L. Gammell
CAPTAINS
J. W. Black
P. W. Brown
J. H. Lewis, Jr.
W. A. Walker
P. R. M. Miller
R. B. Hart
J. D. Salmon
E. L. Johnson
FIRST LIEUTENANTS
R. L. Carmichael, Jr.
T. W. Parker
J. E. Slaughter
G. T. Powers, III
M. B. Colburn
H. F. Bigelow
A. C. Goodwin, Jr.
W. H. Hoover
J. Hagood, Jr.
D. E. Means
SECOND LIEUTENANTS
J. B. R. Hines
E. B. Blaha
H. F. Holman
C. L. Haley, III
S. K. Eaton
W. E. Barker
C. H. Strong

68TH FIELD ARTILLERY
Ft. Knox, Ky.

COL. M. Magruder
LT. COL. Y. D. Vesely
CAPTAINS
L. C. Friedersdorff
H. Y. Grubbs
H. W. Holt
N. W. Jones
B. F. Luebbermann
C. P. Summerall, Jr.
M. C. Walter
FIRST LIEUTENANTS
W. F. Gallup
W. E. Grubbs
L. T. Heath
J. F. Smoller
C. F. McNair
B. E. Powell
W. W. Sisson
N. M. Wallace
2D Lt. M. Lynn, Jr.

76TH FA (LESS 2D BN)
Ft. E. Warren, Wyo.

LT. COL. H. Templeton
CAPTAINS
K. N. Decker
H. L. Ingham
C. A. Pyle
W. T. Kirm
FIRST LIEUTENANTS
W. J. Ledward
P. T. Hennigar
W. J. Daniel
SECOND LIEUTENANTS
R. H. Camp
C. Cantrell
S. P. Lay
M. E. Sparks

2D BN 76TH FA
Pres. of Monterey, Cal.

LT. COL. J. E. McMahon
MAJOR W. A. Ray
CAPTAINS
E. A. Banning
W. N. Gillmore
P. H. Draper, Jr.
1ST LT. F. W. Ellery
SECOND LIEUTENANTS
D. C. Beere
V. G. Gilbert
A. W. Reed

1ST BN 77TH FA
Ft. Sill, Okla.

LT. COL. L. A. Craig
MAJORS
R. T. Adams
J. A. Chase
R. O. Montgomery
CAPTAINS
V. F. Burger
V. H. Connor
C. M. Hallam
D. F. Walker
FIRST LIEUTENANTS
H. J. Lemley, Jr.
C. A. White, Jr.
T. L. Crystal, Jr.
K. F. Dewalt
SECOND LIEUTENANTS
R. A. Broberg
M. L. Webb
F. B. Harrison
C. B. Huntley

77TH FA (LESS 1ST BN)
Ft. D. A. Russell, Texas

COL. R. H. Lewis
LT. COL. B. Frankenberger
MAJOR W. M. Tenney
CAPTAINS
J. V. Collier
G. A. A. Jones
G. J. Reid
J. B. Evans
FIRST LIEUTENANTS
S. F. Crawford
J. R. Messersmith
D. E. Jones
C. B. Elliott, Jr.
J. W. Ferris
SECOND LIEUTENANTS
L. B. Burkett
B. W. Campbell
W. H. Hastings
F. G. Ratliff

80TH FA (LESS 2D BN)
Ft. Lewis, Wash.

MAJORS
H. W. Turner
I. L. Foster
CAPTAINS
J. J. Deery
F. O. Wood
L. M. Rouch
H. Crawford
FIRST LIEUTENANTS
C. P. Westpheling
S. E. Otto
W. O. Darby
T. L. Lipscomb
E. S. Berry
SECOND LIEUTENANTS
W. A. Enemark
H. E. Miller
C. J. Blake, Jr.

2D BN 80TH FA
Ft. Des Moines, Iowa

LT. COL. S. G. Brady (sick in
Fitzsimons General Hospital)

MAJOR L. H. Bixby
CAPTAINS
E. H. Metzger
B. R. Smith
A. Vepsala
FIRST LIEUTENANTS
R. G. Speiser
J. C. McCawley
J. J. Davis

82D FIELD ARTILLERY
Ft. Bliss, Texas

COL. E. J. Dawley
LT. COL. W. F. Winton
MAJORS
H. C. Demuth

T. R. Kerschner

CAPTAINS
A. L. Cobb
E. G. Farrand
A. J. Hastings
J. B. Horton
C. D. Palmer
D. S. Somerville
A. N. Williams, Jr.
FIRST LIEUTENANTS
T. W. Carrithers
J. E. Goodwin
R. Hackett
H. S. Sundt
M. Tague
SECOND LIEUTENANTS
J. C. Damon
J. E. Norwell
D. P. Quandt
W. T. Weissinger
H. D. Wendorf

1ST BN 83D FA
Ft. Benning, Ga.

LT. COL. C. G. Helmick
MAJOR W. A. Beiderlinden
CAPTAINS
Charles C. Blakeney
L. E. Heyduck
R. S. Marr
E. McGinley
J. S. Winn, Jr.
FIRST LIEUTENANTS
H. W. Browning
O. C. Troxel, Jr.
R. A. Hewitt
SECOND LIEUTENANTS
E. L. Hoopes, Jr.
K. M. Hull
B. G. Lane, Jr.
C. E. Seipel, Jr.
J. M. Shepherd

2D BN 83D FA
Ft. Bragg, N. C.

LT. COL. E. A. Zundel
LT. COL. W. Clarke
CAPTAINS
R. C. Hendley
W. R. Hensey, Jr.
R. F. McEldowney
T. J. Sands
FIRST LIEUTENANTS
R. L. Cato
C. E. N. Howard, Jr.
SECOND LIEUTENANTS
R. H. Lumry
J. L. Cantrell
V. G. Gibbons
J. F. Thomason
H. M. Crawford

1ST OBSERVATION BN
Ft. Bragg, N. C.

MAJOR P. A. Reichle
CAPTAINS
D. G. Erskine
J. G. Harding
A. F. Freund
FIRST LIEUTENANTS
M. Moses
J. R. Winn
A. R. Hercz
P. R. Walters

ARTILLERY SECTION HQS.
1ST DIVISION
Madison Barracks

COL. E. L. Gruber
CAPT. H. D. Baker
1ST LT. B. C. Patrick

ARTILLERY SECTION HQS.
3D DIVISION
Ft. Lewis

COL. W. H. Peek
MAJOR R. H. Bacon

ARTILLERY SECTION HQS.
5TH DIVISION
Ft. Knox

COL. W. H. Dodds, Jr.
CAPT. J. B. Daly
2D LT. E. Y. Burton

ARTILLERY SECTION HQS.
6TH DIVISION
Ft. Lewis

COL. R. C. Burleson
MAJOR W. L. Bevan
CAPT. T. E. Meyer

FIELD ARTILLERY OF THE
2D DIVISION
Fort Sam Houston, Texas
(12th and 15th FA—2d FA
Brigade)

COLONELS
T. P. Bernard
A. C. McBride
R. M. Pennell
LT. COLONELS
C. M. Tuteur
H. Eager
MAJORS
A. Brumage
R. L. Gervais
R. G. Hunter
J. Kennedy
J. S. Mallory
S. White
CAPTAINS
W. H. Bertsch, Jr.
W. P. Blair
G. D. Crosby
F. W. Day
W. H. De Lange
J. Cross
A. M. Gruenther
J. P. Holland
J. P. Kennedy, Jr.
F. A. Lightfoot
C. N. McFarland
G. H. McManus, Jr.
T. A. Roberts, Jr.
J. A. Samouce
M. B. Stokes, Jr.
W. E. Waters
R. P. Huff
S. R. Browning
FIRST LIEUTENANTS
A. W. Blair
N. L. Head
C. L. Jones
F. C. Norvell
G. W. Power
W. M. Connor, Jr.
J. D. Torrey, Jr.

SECOND LIEUTENANTS
R. B. Anderson
B. D. Browne
J. W. Browning
T. I. Sawyer
W. A. Sundlof
S. L. Barbour
A. B. Sundin
L. D. Vieman
H. C. Walker, III
T. J. Webster
L. N. Taylor, Jr.
J. S. Billups, Jr.
A. R. Brownfield, Jr.
C. W. Dietz
W. C. George
R. J. Hanchin
T. N. Hunsbedt
R. M. Lilly
H. M. Myers
J. R. Reeves
W. E. Showalter
C. L. Shepard

FIELD ARTILLERY OF THE
3D DIVISION
Fort Lewis, Wash.
(9th and 10th FA—3d FA Brig)

COL. K. S. Perkins
COL. T. D. Osborne
LT. COL. S. D. Downs, Jr.
LT. COL. H. C. Vanderveer
MAJORS
W. C. Brigham
M. Moore
A. P. Kitson
CAPTAINS
G. D. Adamson
J. J. Binns
J. J. Burns
F. H. Canlett
J. R. Culleton
S. H. Fisher
S. R. Hurt
G. F. Lillard
R. S. McClenaghan
J. A. McFarland
G. B. McReynolds
F. P. Miller
M. F. Stober
K. S. Sweany
D. W. Traub
C. S. Whitmore

C. L. Taylor
J. P. Barney, Jr.
N. E. Poinier
E. M. Taylor
H. J. John
FIRST LIEUTENANTS
F. D. Atkinson
A. H. Hogan
R. S. Pratt, Jr.
R. A. Ports
C. R. McBride
T. B. Maury, III
SECOND LIEUTENANTS
F. J. Chesarek
A. O. Connor
C. L. Johnson
J. V. Roddy
L. G. Jewett
G. S. Edward
C. P. Samson
R. W. Allen, Jr.
W. E. Brinker
J. D. Byrne
C. C. Coyne
W. T. Kerwin, Jr.
J. F. Roberts
R. M. Williams
A. W. Masters
D. F. Slaughter
D. E. Painter

ELEVENTH FIELD
ARTILLERY BRIGADE
Schofield Barracks, T. H.
(8th, 11th, and 13th FA—11th FA
Brig)

COLONELS
D. C. McDonald
L. C. Sparks
E. R. Van Deusen
LT. COLONELS
G. E. Arneman
D. W. Craig
F. Royse
I. Spalding
W. Spence
A. J. Zerbee
H. W. O. Kinnard
H. H. Ristine
MAJORS
B. C. Anderson
R. M. Bathurst
J. R. Bibb
J. H. Carrier
M. L. Craig
T. L. Futch
R. Garey
H. Harding
S. C. Hilton
W. E. Jenkins
F. B. Lyle
J. M. Sanderson
P. G. Tenney
D. J. Sabini
L. O. Field
C. D. Calley
CAPTAINS
J. E. Adkins, Jr.
A. Bliss
F. R. Brisack
J. M. Burdge, Jr.
G. E. Burritt
J. F. Collins
T. J. Counihan
D. Dunford
J. F. Fiske
R. J. Handy
W. C. Huggins
C. P. Jones
T. F. Keefe
C. W. Land
R. W. Mayo
Robt. E. Chandler
R. C. Ross
R. Sears
W. E. Shallene
R. C. Singer
J. E. Slack
R. T. Strode
W. A. D. Thomas
W. Wesner
R. C. White
G. M. Williamson, Jr.
J. M. Works
H. F. Conrey

R. B. Hood
D. M. Perkins
FIRST LIEUTENANTS
J. E. Barlow
W. Jackson
H. C. Plapp
C. W. Raymond
F. R. Redden
H. G. Sparrow
T. E. Wood
D. T. Workizer
D. R. Bodine
C. D. Hartman, Jr.
R. W. Fletler
R. B. Franklin
C. W. McConnell
C. V. Clifton, Jr.
E. A. Grove
D. W. Sudduth
W. Y. Frentzel
N. R. Duell
R. M. Burnett
J. H. Daly
G. H. Duin
R. B. Partridge
W. C. Westmoreland
S. D. Smith, Jr.
D. W. Hiester
W. S. Penn, Jr.
R. L. Martin
F. Hill
W. R. Goodrich
W. Taylor, Jr.
J. K. Neff
D. C. Cubbison, Jr.
J. E. Godwin
E. A. Walker
SECOND LIEUTENANTS
P. Y. Browning
J. F. Brownlow, Jr.
F. P. Campbell
G. L. Higgins
F. W. Jenkins
C. F. von Kann
J. C. Nickerson, Jr.
E. C. Spaulding
J. H. Stangle
J. R. Wergin
F. G. White
L. D. Adams
R. W. van de Velde
B. M. Barksdale
J. E. Beler
J. H. Hodges, Jr.
**THIRTEENTH FIELD
ARTILLERY BRIGADE**
Ft. Bragg, N. C.
LT. COL. M. H. Taulbee
CAPT. M. W. Daniel
CAPT. J. B. Murphy
1ST LT. J. F. Greco
1ST LT. H. W. Riley
FIELD ARTILLERY SCHOOL
Fort Sill, Okla.
STAFF AND FACULTY
COL. A. McIntyre, Commandant
COL. L. P. Collins
COL. J. T. Kennedy
LT. COLONELS
H. L. C. Jones
R. P. Shugg
G. W. Stiney
J. B. Wogan
MAJORS
B. A. Day
J. P. Eckert
H. C. Bowman
G. D. Shea
CAPTAINS
W. H. Bartlett
R. M. Cannon
M. P. Echols
R. G. Gard
H. D. Kehm
R. L. Mabie
W. R. Pierce
Gen. V. Keyser
R. R. Mace
J. F. Uneles
O. W. van den Berg
E. T. Williams
J. F. Williams
J. E. Theimer
C. H. Jark
1ST LT. T. W. Dunn
**INSTRUCTORS, OTHER
SERVICE SCHOOLS**
MAJOR E. Y. Argo, Cavalry School,
Ft. Riley, Kansas

CAPT. J. D. Balmer, Infantry
School, Ft. Benning, Ga.
CAPT. S. C. Lombard, Air Corps
Tact. School, Maxwell Field,
Ala.
**FIELD ARTILLERY SCHOOL
DETACHMENT**
Fort Sill, Okla.
MAJOR P. Mallett
MAJOR C. A. White
CAPT. V. B. Barnes
CAPT. L. H. Wyman
CAPT. A. E. Solem
1ST LT. L. V. Hightower
FIELD ARTILLERY SCHOOL
Fort Sill, Okla.
Regular Course 1939-40
CAPTAINS
J. P. Kaylor
R. C. Carpenter
L. M. de Riemer
FIRST LIEUTENANTS
G. E. Adams
R. G. Beker
E. L. Barr
E. S. Bechtold
J. A. Berry, Jr.
T. G. Bilho, Jr.
G. F. Brown
W. J. Bryde
E. A. Clarke
K. A. Cunin
G. S. Eckhardt
G. D. Ellerson
H. M. Exton
R. B. Firehock
J. L. Frink, Jr.
E. J. Gibson
J. A. Gloriod
A. Graham
E. J. Greco
W. P. Grieves
L. R. St. John
R. H. Strauss
H. J. Versace
J. N. Wilson
H. B. Harden, Jr.
R. H. Harrison
A. Hero, III
D. H. Heyne
S. W. Horstman
H. J. Hubbard
J. H. Keating
E. J. Koehler
P. J. Kopesak
R. C. McDonald, Jr.
D. G. McLennan
B. W. McQuade
C. W. Miller
F. A. Osmanski
C. M. Peeke
W. H. Richardson, Jr.
G. L. Roberson
D. Sineilar
J. H. Skinner
M. A. Solomon
B. E. Soivy, Jr.
J. M. Worthington
R. L. Cordell
G. Blackburne
**Advanced Course, Horsemanship,
1939-40**
FIRST LIEUTENANTS
J. A. Costain
C. Lynn, Jr.
G. Ruhlen
S. K. Yarbrough, Jr.
**Advanced Course, Motors, 1938-
40**
FIRST LIEUTENANTS
K. L. Davis
R. L. McKee
J. R. Pritchard
J. F. Surratt
R. P. Thompson
G. G. Warner
W. R. Calboun
**SOUND AND FLASH
RANGING COURSE**
**University of California, Los
Angeles**
CAPT. W. C. Bullock
**COMMAND AND GENERAL
STAFF SCHOOL**
Fort Leavenworth, Kansas
INSTRUCTORS
LT. COLONELS

F. W. Bowley
H. L. McBride
W. E. Burr
MAJORS
W. P. Bledsoe
W. A. Campbell
A. M. Gurney
R. T. Guthrie
W. H. Maris
B. H. Perry
H. W. Blakeley
J. R. Sheetz
STUDENTS (Class of 39-40)
LT. COL. R. T. Heard
MAJORS
F. M. Crist
R. A. Gordan
S. L. Bertchey
D. L. Ruffiner
CAPTAINS
J. H. Baumann
C. S. Berrien
J. F. Bird
L. B. Bixby
J. R. Burrill
F. F. Carpenter, Jr.
J. W. Clyburn
W. L. Coughlin
C. L. Dasher, Jr.
S. A. Dickson
E. M. Edmonson
S. Edwards
H. G. Elliott
W. J. Eyerly
W. W. Ford
N. F. Galbraith
E. C. Gillette, Jr.
E. B. Gjelsteen
J. L. Graves
H. F. Handy
S. V. Hasbrouck
B. F. Hayford
F. J. Heirholzer
A. E. Kastner
A. L. Keyes
W. J. Klepinger
S. S. Koszewski
O. W. Martin
W. F. Millice
F. H. Morse
C. P. Nicholas
E. C. Norman
F. B. Porter
G. P. Privett
J. B. Rasbach
H. M. Roper
H. E. Sanderson
G. R. Scithers
E. W. Searby
W. T. Sexton
A. L. Shreve
S. E. Stancisko
J. H. Workman
A. L. Keyes
W. J. Epes
THE ARMY WAR COLLEGE
District of Columbia
STAFF AND FACULTY
COL. N. B. Rehkopf, Assistant
Commandant
COL. H. W. Huntley
COL. E. P. King, Jr.
LT. COL. H. J. Malony
STUDENTS
LT. COLONELS
R. M. Howell
D. Hudnutt
R. W. Barker
J. A. Lester
V. E. Prichard
MAJORS
J. T. B. Bissell
G. P. Hays
Z. E. Lawhon
J. M. Lentz
P. P. Rodes
CAPTAINS
S. A. Beckley
C. C. Blanchard
B. M. Bryan, Jr.
M. K. Kurtz
A. C. McAuliffe
E. J. McGaw
M. D. Taylor
HISTORICAL SECTION
COL. O. A. Dickinson
LT. COL. R. B. McBride, Jr.
LT. COL. A. A. White
NAVAL WAR COLLEGE
Newport, R. I.

LT. COL. C. Andrus
MAJOR G. D. Wahl
**ARMY INDUSTRIAL
COLLEGE**
Washington, D. C.
CAPT. E. A. Bixby
CAPT. L. R. Garrison
**UNITED STATES MILITARY
ACADEMY**
West Point, N. Y.
LT. COLONELS
F. B. Prickett
S. E. Reinhart
L. E. Hibbs
T. J. J. Christian
MAJOR R. E. Dupuy
CAPTAINS
C. J. Barrett
F. J. Brown
T. Calhoun, Jr.
J. L. Chamberlain, Jr.
H. B. Enderton
B. Furuholm
C. E. Hart
H. W. Kruger
A. T. Leonard
F. A. March, III
C. M. Mathews
E. H. McLemore
R. M. Montague
E. Parmly, III
J. E. Perman
D. P. Armstrong
D. F. Brown
F. H. Chaffee
J. P. Hannigan
W. E. Kraus
J. D. F. Phillips
D. N. Sundt
P. S. Thompson
W. J. Thompson
L. A. Vickrey
P. Sather, Jr.
W. C. Stanton
H. P. Starke
F. G. Stritzinger
F. J. Tate
J. F. Trent
H. W. Wilkinson
C. R. Hutchison
FIRST LIEUTENANTS
W. H. Allen, Jr.
J. P. Beishline
R. D. Black, Jr.
H. E. Brooks
G. K. Cusack
J. P. Daley
W. W. Dick, Jr.
W. A. Downing, Jr.
G. C. Duehring
M. L. Fisher
A. A. Greene
J. J. Heriot
B. D. Jones
H. L. Lash, Jr.
G. C. Lothrop
S. L. Morrow, Jr.
A. P. O'Meara
S. Sawicki
G. S. Speidel, Jr.
J. F. Stroker
F. G. Terry
P. C. Wehie
G. M. Wertz, Jr.
I. R. Schimmelpfennig
R. W. Timothy
R. H. Booth
W. F. Ryan
B. Thielen
C. R. Revie
J. O. Seaman
J. F. Ammerman
OFFICERS ON ROTC DUTY
Alabama Polytechnic Institute,
Auburri, Ala.
COL. J. J. Waterman
MAJOR H. F. Searight
CAPTAINS
G. M. Cole
L. H. Ham
L. E. Jacoby
K. L. Johnson
W. W. Welchel
H. L. Watts, Jr.
Arkansas State College,
Jonesboro, Ark.
MAJOR W. E. Corkill
CAPTAINS
F. J. Achatz

J. L. Lewis
**Colorado State College of A & M
Arts, Fort Collins, Colo.**
LT. COL. N. P. Morrow
MAJOR J. D. Donovin
MAJOR S. E. Bullock
CAPTAINS
C. E. Margrave
W. C. Stout
Cornell University, Ithaca, N. Y.
COL. W. C. Potter
MAJOR J. B. Matlack
MAJOR F. A. Metcalf
CAPTAINS
A. B. Devereaux
E. H. Lastayo
R. R. Raymond, Jr.
R. T. Finn
G. B. Coverdale
**Culver Military Academy, Culver,
Ind.**
MAJOR I. L. Kitts
**Duquesne University, Pittsburgh,
Pa.**
LT. COL. M. Proctor
MAJOR H. E. Sowell
CAPT. R. T. Tompkins
**University of Florida, Gainesville,
Fla.**
COL. S. R. Hopkins
MAJOR J. H. Keatinge
MAJOR C. M. Lucas
CAPTAINS
F. T. Dodd
R. H. Donaldson
W. P. Ennis, Jr.
T. O. Foreman
W. D. Paschall
**Eastern Kentucky State Teachers
College, Richmond, Ky.**
LT. COL. C. W. Gallaher
CAPT. H. P. Adams
CAPT. E. M. Link
**Harvard University, Cambridge,
Mass.**
LT. COL. H. D. Jay
MAJOR C. E. Sargent
CAPTAINS
L. W. Haskell
G. F. Wooley, Jr.
University of Illinois, Urbana, Ill.
COL. R. G. Kirkwood
MAJOR C. B. Cole
MAJOR L. M. Hanna
CAPTAINS
F. S. Kirkpatrick
J. H. Leusley
M. Pierson
E. M. Quigley
E. A. Routhau
**Iowa State College of A & M Arts,
Ames, Iowa**
COL. H. R. Odell
MAJOR P. Winlock
CAPTAINS
H. Cort
J. K. Gibson
R. F. Hallock
T. C. Wood, Jr.
F. S. Gardner
**Louisiana State University and A &
M College, Baton Rouge, La.**
MAJOR C. Pickett
CAPTAINS
R. C. Conder
C. G. Follansbee
R. G. Crandall
**Michigan State College of
Agriculture and Applied
Sciences, East Lansing, Mich.**
MAJOR M. H. Doty
MAJOR A. C. Stanford
CAPTAINS
O. M. Barton
C. E. Hixon
**University of Missouri, Columbia,
Mo.**
LT. COL. L. E. Jones
MAJOR S. F. Dunn
MAJOR A. P. Moore
CAPTAINS
R. G. Miller
D. G. Dwyre
K. W. Treacy
W. W. Webster

University of Nebraska, Lincoln, Nebr.

MAJOR R. G. Barkalow
MAJOR W. R. Philip
CAPTAIN W. R. Grove, Jr.
Ohio State University, Columbus, Ohio
COL. O. L. Brunzell
LT. COL. D. J. Page
MAJOR C. A. Beaucond
MAJOR R. J. Canine
CAPTAINS
M. H. Burckes
C. W. Cowles
E. E. Elliott
H. C. Fowler
J. G. Howard
D. V. Johnson
J. L. Langevin
H. K. Palmer, Jr.
A. R. Sewall
A. E. Smith
J. C. Strickler

University of Oklahoma, Norman, Okla.

LT. COL. P. V. Kane
MAJORS
C. H. Brammell
M. M. Pharr
J. A. Stewart
CAPTAINS
J. O. Anding
J. V. Carroll
H. M. Cole
L. L. Hittle
M. G. Smith
L. R. Wingfield
Oregon State Agricultural College, Corvallis, Ore.
COL. J. E. Sloan
CAPTAINS
H. A. Doherty
R. A. Ellsworth
E. J. Roxbury

Princeton University, Princeton, N. J.

MAJOR S. F. Clark
MAJOR G. E. Cook
CAPTAINS
Creswell G. Blakeney
H. W. Kiefer
E. S. Molitor
F. C. Foster
Purdue University, Lafayette, Ind.
COL. D. M. Beere
LT. COL. G. A. Pickering
MAJORS
J. W. Faulconer, Jr.
R. B. Warren
J. G. White
CAPTAINS
C. L. Boyle
E. V. Holmes
D. Larr
E. J. Murphy
R. E. Hattan
R. B. Hubbard
P. W. Thompson
B. A. Tourney
J. M. Whistler
C. O. Wiselogel

University of Santa Clara, Santa Clara, Cal.

MAJOR E. T. Barco
CAPTAINS
R. G. Duff
E. T. Owen
Leland Stanford Jr. University, Stanford University, Cal.
MAJORS
H. B. Allen
L. H. Sloucm
J. A. Smith, Jr.
CAPT. R. W. Goldsmith
St. Bonaventure College, Allegany, N. Y.
MAJOR C. F. Murray
MAJOR D. DeS. Trenholm
CAPTAIN J. J. Winn
A & M College of Texas, College Station, Texas
LT. COL. O. E. Beezley
CAPTAINS
C. F. Burback

**J. A. Cella
P. H. Enslow
University of Utah, Salt Lake City, Utah**

LT. COL. J. C. Wyeth
MAJOR P. C. Boylan
CAPTAINS
F. W. Lee
G. E. Mitchell, Jr.
W. E. Watters
J. R. Wheaton
Virginia Military Institute, Lexington, Va.
LT. COL. J. M. Fray
MAJOR G. G. Heiner, Jr.
CAPTAIN A. T. McCone
Yale University, New Haven, Conn.
LT. COL. F. P. Armstrong
MAJOR J. M. Devine
CAPTAINS
W. H. Hill
R. M. Wicks

Xavier University, Cincinnati, Ohio

MAJOR F. Camm
MAJOR A. M. Harper
CAPTAIN G. E. Wrockloff, Jr.
**JUNIOR ROTC
Bellamine High School, Tacoma, Wash.**
MAJOR A. L. Warren
Benedictine School, Savannah, Ga.
MAJOR S. T. Wallis
Chicago High School, Chicago, Ill.
COLONEL W. F. Morrison
MAJOR W. B. Weston

Davenport High School, Davenport, Iowa

MAJOR P. J. Atkinson
Detroit High School, Detroit, Mich.
MAJOR R. H. Slider
Florida Military Academy, St. Petersburg, Fla.
MAJOR R. J. Sothern
Gary High School, Gary, Ind.
CAPTAIN D. Q. Harris

Ball High School, Galveston, Texas

MAJOR W. F. Kernan
Guthrie High School, Guthrie, Okla.
CAPTAIN H. J. Harper
Jackson High School, Jackson, Miss.
MAJOR H. C. Harrison, Jr.
Joplin High School, Joplin, Mo.
MAJOR E. R. Black

Long Beach High School, Long Beach, Cal.

LT. COL. A. Smith
Los Angeles High School, Los Angeles, Cal.
MAJOR G. H. Duff
Marion Institute, Marion, Ala.
MAJOR C. W. Glover
Memphis High School, Memphis, Tenn.
MAJOR H. H. F. Gossett

New Bedford High School, New Bedford, Mass.

MAJOR G. R. Rede
Oakland High School, Oakland, Cal.
CAPTAIN H. L. Love
Porter Military Academy, Charleston, S. C.
MAJOR A. B. Wade
Robert E. Lee Institute, Thomaston, Ga.
CAPTAIN T. E. Binford
Roger High School, Newport, R. I.
MAJOR R. L. Greene

Santa Barbara High School, Santa Barbara, Cal.

MAJOR R. H. Knapp
Savannah High School, Savannah, Ga.
MAJOR H. R. Hanson
St. Joseph College, Hays, Kansas
MAJOR J. G. Cook

St. Joseph High School, St. Joseph, Mo.

MAJOR S. G. Fairchild
St. Norbert College, W. De Pere, Wisc.
MAJOR B. M. James
The Sewanee Military Academy, Sewanee, Tenn.
CAPTAIN W. E. Johns
Walla Walla High School, Walla Walla, Wash.
MAJOR P. W. Allison
William A. Chrisman High School, Independence, Mo.
CAPTAIN W. L. Carr
DUTY WITH ORGANIZED RESERVES

Portland, Maine

LT. COL. S. L. Kiser
New Haven, Conn.
MAJOR C. Bassich
Pittsfield, Mass.
MAJOR H. E. Camp
Boston, Mass.
MAJOR M. A. Dawson
MAJOR S. D. Bedinger
Manchester, N. H.
COL. C. H. Lanza
MAJOR V. L. Knadler
Worcester, Mass.
MAJOR L. M. Skerry
Providence, R. I.
LT. COL. M. A. S. Ming
Buffalo, N. Y.
COL. P. W. Booker
New York City
COL. J. W. Downer
COL. J. M. McDowell
LT. COL. W. J. Jones
LT. COL. J. D. von Holtzendorff
MAJOR R. L. Dalferes
MAJOR A. E. Fox
MAJOR R. B. Willis
Albany, N. Y.
MAJOR P. C. Fleming
Elizabeth, N. J.
MAJOR E. A. Henn
Newark, N. J.
MAJOR J. F. Hepner
Syracuse, N. Y.
MAJOR J. F. Roehm
East Orange, N. J.
MAJOR I. B. Warner
Trenton, N. J.
MAJOR M. L. Young
Harrisburg, Pa.
COL. W. K. Moore
Philadelphia, Pa.
COL. J. R. Starkey
MAJOR J. C. Cook
Washington, D. C.
LT. COL. J. G. Burr
Richmond, Va.
LT. COL. D. A. Connor
Pittsburgh, Pa.
LT. COL. W. D. Mangan
CAPTAIN T. A. Jennings
Baltimore, Md.
MAJOR B. L. Davis
Jacksonville, Fla.
COL. W. P. Ennis
MAJOR H. W. Tarkington
Charlotte, N. C.
LT. COL. F. H. Gallup
Birmingham, Ala.
LT. COL. J. M. Jenkins
Knoxville, Tenn.
MAJOR C. C. Brown
New Orleans, La.
MAJOR R. H. Lewis
Gainesville, Fla.
MAJOR E. A. O'Hair
Macon, Ga.
MAJOR J. E. Ray
Nashville, Tenn.
MAJOR A. P. Rhett
Montgomery, Ala.
MAJOR J. S. Tate
Tampa, Fla.
CAPTAIN G. D. Vanture
Columbia, S. C.
COL. W. S. Wood
Lafayette, Ind.
COL. R. M. Milam

**MAJOR F. E. Kauffman
Ft. Wayne, Ind.**

MAJOR F. H. Boucher
Toledo, Ohio
MAJOR D. S. Doggett
Columbus, Ohio
MAJOR W. J. Egan
Cleveland, Ohio
MAJOR W. S. Evans
Muncie, Ind.
MAJOR D. M. Hoagland
Charleston, W. Va.
MAJOR E. A. Hyde
Akron, Ohio
MAJOR A. E. King
Louisville, Ky.
MAJOR R. G. Mangum
Indianapolis, Ind.
MAJOR R. V. Maraist
MAJOR G. R. Middleton
Dayton, Ohio
MAJOR O. N. Schjervon
South Bend, Ind.
MAJOR J. A. Steere
Cincinnati, Ohio
CAPTAIN S. F. Little
Chicago, Ill.
LT. COL. J. Andrews
LT. COL. C. H. Hayes
MAJOR H. M. Findlay
COL. C. B. McCormick
Detroit, Mich.
LT. COL. M. C. Heysler
LT. COL. T. G. M. Oliphant
Wausau, Wis.
MAJOR J. C. Hughes
Milwaukee, Wis.
MAJOR W. H. McNaught
Springfield, Ill.
MAJOR J. C. Patterson
Kansas City, Mo.
COL. C. A. Selleck
Little Rock, Ark.
LT. COL. R. F. Hyatt
Wichita, Kans.
MAJOR J. C. Adams
MAJOR M. V. Patton
St. Louis, Mo.
MAJOR C. W. Bonham
St. Paul, Minn.
MAJOR R. H. Crosby
Des Moines, Iowa
MAJOR L. A. Kurtz
Sioux City, Iowa
MAJOR L. McHale
Minneapolis, Minn.
MAJOR E. S. Brewster, Jr.
Davenport, Iowa
CAPTAIN G. B. McConnell
Phoenix, Ariz.
LT. COL. E. T. Spencer
Denver, Colo.
LT. COL. T. W. Wrenn
CAPTAIN J. T. Loomie
Norman, Okla.
MAJOR J. J. Atkinson
Oklahoma City, Okla.
MAJOR W. Hayford, III
MAJOR A. H. Lee
Dallas, Texas
MAJOR L. M. Kilgarif
Waco, Texas
MAJOR W. C. Lattimore
Ft. Worth, Texas
MAJOR C. S. Richards
San Antonio, Texas
MAJOR M. C. Shea
Houston, Texas
MAJOR L. V. Harris
San Francisco, Cal.
COL. J. R. Davis
MAJOR C. C. Knight, Jr.
Seattle, Wash.
LT. COL. F. B. Inglis
Los Angeles, Cal.
LT. COL. W. F. Maher
LT. COL. A. C. Sullivan
Portland, Ore.
MAJOR H. T. Brotherton
MAJOR J. W. Loeff
Salt Lake City, Utah
MAJOR J. G. Watkins
MAJOR R. W. Yates
MAJOR J. R. Young

**ON DUTY AS INSTRUCTORS
WITH THE NATIONAL
GUARD AND ON DUTY,
NATIONAL GUARD
BUREAU**

National Guard Bureau
COL. B. M. Bailey
LT. COL. E. C. Hanford
MAJOR C. C. Alexander
Hartford, Conn.
COL. F. A. Ruggles.
Providence, R. I.
LT. COL. W. Alexander
CAPT. J. M. Willems
Boston, Mass.
LT. COL. J. Kelher
Stamford, Conn.
MAJOR G. L. Danforth
Manchester, N. H.
MAJOR R. A. Knight
Allston, Mass.
MAJOR W. B. Leitch
New London, Conn.
MAJOR R. C. Mallonee
Caribou, Maine
MAJOR N. E. McCluer
Bangor, Maine
LT. COL. T. R. Miller
Salem, Mass.
MAJOR L. E. Reigner
Buffalo, N. Y.
LT. COL. H. S. Struble
New York City
LT. COL. C. H. Tate
MAJOR W. C. Green
MAJOR H. J. Thornton
Jamaica, L. I., N. Y.
MAJOR F. H. Black
Binghamton, N. Y.
MAJOR W. G. Dockum
Newburgh, N. Y.
LT. COL. J. M. Garrettery
CAPT. G. B. Barth
Camden, N. J.
MAJOR R. C. Montgomery
Pittsburgh, Pa.
LT. COL. O. I. Bates
LT. COL. O. M. Moore
MAJOR A. M. Sheets
Richmond, Va.
LT. COL. E. P. Parker, Jr.
Pikesville, Md.
MAJOR J. Nash
Norfolk, Va.
MAJOR C. D. Parmelee
Wilkes-Barre, Pa.
MAJOR G. P. Seneff
Philadelphia, Pa.
CAPT. L. B. Ely
Harrisburg, Pa.
MAJOR L. T. McMahon
Nashville, Tenn.
LT. COL. K. C. Greenwald
New Bern, N. C.
MAJOR L. E. Babcock
Lakeland, Fla.
MAJOR J. C. Butner, Jr.
Andalusia, Ala.
MAJOR M. S. Creusere
New Orleans, La.
MAJOR C. R. Doran
Columbus, Miss.
MAJOR B. B. Lattimore
Raleigh, N. C.
MAJOR L. S. Partridge
Savannah, Ga.
MAJ. W. H. Quarterman
MAJOR J. M. Reynolds
Dothan, Ala.
MAJOR M. Ross
Tampa, Fla.
MAJOR P. E. Shea
Columbia, S. C.
MAJOR C. M. Thirkeld
Greenville, Miss.
CAPT. G. S. Smith
Columbus, Ohio
MAJOR T. E. T. Haley
MAJOR H. M. Schwarze

Indianapolis, Ind.

MAJOR G. R. Hayman
MAJOR S. McLeod

Louisville, Ky.

MAJOR R. M. Wightman
CAPT. H. C. Raymond

Cleveland, Ohio

CAPT. J. Ganahl
Madison, Wis.

COL. F. T. Cruse
Chicago, Ill.

LT. COL. C. K. Rhinehart
Jackson, Mich.

MAJOR J. E. Bush
Monmouth, Ill.

MAJOR A. B. Hicklin
La Crosse, Wis.

MAJOR W. H. E. Holmes
Milwaukee, Wis.

MAJOR M. L. McCreary
Detroit, Mich.

MAJOR J. H. Milam
Lansing, Mich.

MAJOR E. R. Roberts
Chicago, Ill.

MAJOR J. J. Waters
Columbia, Mo.

MAJOR E. H. Almquist
Duluth, Minn.

MAJOR W. W. Dixon
Beone, Iowa

MAJOR E. A. Erickson
Hiawatha, Kans.

MAJOR J. J. France
Tepeka, Kans.

MAJOR L. H. Frasier
Fayetteville, Ark.

MAJOR A. R. Reeves
Sioux Falls, S. D.

MAJOR R. de P. Terrell
Minneapolis, Minn.

MAJOR J. A. Wallace
Hutchins, Kans.

MAJOR L. H. Caruthers
Ft. Smith, Ark.

CAPTAIN R. O. Smith
Bismarck, N. D.

CAPT. C. W. Stratton
San Antonio, Tex.

LT. COL. J. K. Boles
Denver, Colo.

LT. COL. H. C. Jones
Tulsa, Okla.

MAJOR C. E. Boyle
Anadarko, Okla.

MAJOR H. P. Gantt
Dallas, Texas

MAJOR E. M. Graves
CAPT. D. P. Potet

Austin, Texas
MAJOR C. W. Mays

Enid, Okla.
MAJOR R. C. Snyder

San Antonio, Texas
CAPT. M. B. Barragan

Oklahoma City, Okla.
CAPT. S. Y. McGiffert

Seattle, Wash.
LT. COL. P. L. Thurber

Oakland, Cal.
MAJOR J. H. Ball

MAJOR L. M. Haynes
Tacoma, Wash.

MAJOR G. J. Downing
CAPT. H. T. Molloy

Portland, Ore.
MAJOR J. M. Hamilton

Santa Barbara, Cal.
LT. COL. L. W. Hasslock

Richfield, Utah
MAJOR J. McDowell

Boise, Idaho
COL. H. A. Schwarz

Salt Lake City, Utah

LT. COL. H. B. Parker
OFFICE, ASSISTANT

SECRETARY OF WAR
LT. COL. J. E. Lewis (Assistant

Commandant, Army Industrial
College)

OFFICE CHIEF OF STAFF

COL. J. Magruder
MAJOR W. R. Frost

WAR DEPARTMENT

GENERAL STAFF
Washington, D. C.

COL. J. A. Crane
COL. E. R. W. McCabe

LT. COLONELS
J. W. Anderson

C. M. Busbee
T. T. Handy

H. E. Maguire
V. Meyer

O. Ward
A. R. Harris

MAJORS
E. H. Brooks

B. Campbell
L. J. Compton

E. C. Ewert
R. W. Hasbrouck

L. B. Hershey
A. F. Kibler

E. S. Ott
M. W. Pettigrew

B. M. Sawbridge
L. J. Whitlock

A. R. Wilson
CAPTAINS

W. B. Palmer
E. L. Sibert

J. H. Hinds
F. A. Henning

GENERAL STAFF WITH

TROOPS
COLONELS

G. R. Allin, Hq. 3d C. A.
C. A. Bachr, Philippines

E. H. DeArmond, Philippines
J. L. Devers, C. Z.

P. Hayes, Hawaii
H. D. Higley, Hq. 8th C. A.

B. F. Miller, Hq. 1st C. A.
F. K. Ross, Hq. 2d C. A.

R. Talbot, Jr., C. of S. 5th Div., Ft.
Sheridan

LT. COLONELS
C. L. Clark, Hq. 3d C. A.

J. M. Eager, Hq. 5th C. A.
W. R. Gruber, Hawaii

F. Heard, 8th C. A.
K. P. Lord, 1st Div., Ft. Hamilton,

N. Y.
C. C. Bank, Hawaii

J. M. Swing, 8th C. A.
J. S. Wood, 3d Army, Atlanta, Ga.

C. S. Ferrin, Puerto Rico
S. Knopf, Hq. 4th C. A.

R. L. Burnell, Hq. 6th Div., Ft.
Lewis, Wash.

MAJORS
J. H. Fye, Hq. 9th C. A.

M. M. Montgomery, Hq. 5th C. A.
Maj. C. E. Hurdis, Hq. 5th Div., Ft.

Bragg, N. C.
T. F. Hickey, Hq. 5th Div., Ft.

Myer, Va.
CAPTAINS

C. B. Magruder, 3d Div., Ft. Lewis
G. R. Carpenter, Hq. 6th C. A.

DUTY WITH GENERAL STAFF

WITH TROOPS
MAJOR M. E. Scott, Hq. 9th C. A.

ARMY STAFF

COL. W. F. Sharp, 4th Army
CORPS AREA STAFF

COLONELS

R. W. Briggs, 7th C. A.

G. W. DeArmond, Hq. 1st C. A.
P. V. Kieffer, Hq. 1st C. A.

G. M. Peek, Hq. 7th C. A.
A. L. P. Sands, Hq. 4th C. A.

LT. COLONELS
R. C. Batson, Hq. 3d C. A.

L. R. Cole, Hq. 3d C. A.
C. I. McClure, Hq. 7th C. A.

DUTY WITH PHIL., DET.

MAJOR W. C. Dunckel
PORT OF EMBARKATION—

SAN FRANCISCO
COLONEL A. Boone

MILITARY ATTACHES

COLONELS
J. N. Greely, Spain

G. H. Paine, Rome, Italy
B. R. Peyton, Berlin, Germany

H. H. Fuller, Paris, France
LT. COL. G. H. McCoy, Mexico

MAJORS
G. S. Beurket, Venezuela

W. H. Colbern, Holland
L. J. Fortier, Yugoslavia

W. L. Kluss, Turkey
W. Mayer, China

J. P. Ratay, Rumania
CAPTAINS

F. P. Munson, China
I. D. Yeaton, Russia

G. B. Conrad, England
R. C. Partridge, Berlin, Germany

DETAILED TO OTHER ARMS

AND SERVICES
Adjutant General's Department

MAJORS
S. F. Miller

B. M. Fitch
W. M. Wright, Jr.

CAPTAINS
B. M. Jones

L. B. Downing
Air Corps

1ST LT. J. P. Craig
SECOND LIEUTENANTS

J. Y. Parker
J. W. Carpenter, III

R. F. Cassidy
T. J. J. Christian, Jr.

W. W. Croxton, Jr.
B. B. Webb

C. H. Hillhouse
F. W. Iseman, Jr.

H. Lampley, Jr.
E. J. Latoszewski

R. R. Little
E. P. Donohue

S. W. Fitz Gerald
J. H. Frost

B. E. Glawe
S. B. Hardwick

R. G. Lyeon
E. B. Maxwell

R. E. Phelan
H. R. Sullivan, Jr.

Geo. W. R. Zethren
J. C. Pitchford

Finance Department

CAPT. H. L. Kersh
Inspector General's Department

COLONELS
L. J. Ahern

W. R. Henry
J. G. Tyndall

J. E. Mort
J. P. Marley

LT. COLONELS
H. S. Clarkson

F. B. Jordan
W. R. Woodward

R. W. Hocker
MAJORS

C. C. Park
F. C. Mellon

Judge Advocate General's

Department
CAPT. I. Schindler

CAPT. W. P. Connally, Jr.
1ST LT. A. M. Haynes

Ordnance Department

FIRST LIEUTENANTS

J. D. Armitage
C. F. Buck, Jr.

J. A. Cain, Jr.
M. B. Chatfield

E. Gray
F. A. Hansen

C. K. McClellan
R. W. Meals

D. J. Murphy
J. G. Shinkle

S. Smellow
D. E. Breakefield

R. Van Roo
E. G. Robbins, Jr.

W. Menoher
A. V. Dishman

J. L. Cowhey
P. H. Brown, Jr.

D. L. Hine
H. P. Mikkelsen

A. G. Stone
W. R. Hunber

C. B. Tyler, Jr.
W. A. Davis

H. W. Hirlong
H. C. Porter

SECOND LIEUTENANTS
E. G. Robbins, Jr.

E. N. Kirsten
H. L. Stiegler

J. M. Cone
G. C. McDowell

Quartermaster Corps

MAJORS
C. A. Bennett

E. Busch
H. J. Guernsey

W. L. Kay, Jr.
H. Kernan

C. R. Lehner
M. C. Wilson

J. A. Sullivan
D. B. Floyd

CAPTAINS
E. H. Barr

J. B. Clearwater
P. B. Herrick

F. C. Holbrook
W. H. Kennett

C. E. Pease
L. Vocke

R. J. West, Jr.
T. B. Whitted, Jr.

T. E. Moore
D. F. Healy, Jr.

K. W. Hisgen
FIRST LIEUTENANTS

C. I. Hutton
O. P. Robinson, Jr.

J. B. Rankin
E. L. Thompson

W. H. Isbell, Jr.
Signal Corps

1ST LT. L. A. Mason
Coast Artillery Corps

MAJORS
V. R. Woodruff

T. C. McCormick
J. W. Russey

CAPTAINS
E. V. Williamson

H. H. Hunt
1ST LT. L. K. Meade

AIDES
MAJOR D. O. Hickey—General

Honeycutt
CAPTAINS

P. A. Gavan—Gen. Brees
H. E. Kessinger—General Collins

T. E. Lewis—Gen. McNair
T. L. Sherburne, Jr.—General De

Witt
F. Dorn—General Stillwell

FIRST LIEUTENANTS
A. R. Fitch—Gen. McNair

E. S. Hartshorn, Jr.—General
Merrill

J. T. Honeycutt—General Herron
H. M. Peyton—Gen. Peek

C. C. Smith, Jr.—General Sweeney
J. W. Totten—Gen. Murray

P. Clark, Jr.—Gen. Bryden

ORIENTAL LANGUAGE

STUDENTS
CAPT. R. Condon—Chinese

CAPT. S. Wood—Japanese
RECRUITING

COLONELS
T. G. Gottschalk—Ft. Sam Houston,

Texas
F. A. Prince—Montgomery, Ala.

A. J. Greer—Columbus, Ohio
J. A. Moss—Dallas, Texas

LT. COL. W. H. Cureton—
Cincinnati, Ohio

MAJORS
L. S. Arnold—Ft. McDowell, Cal.

H. C. Breinzer—Ft. Slocum, N. Y.
F. G. Chaddock—Spokane, Wash.

H. E. Tisdale—Ft. Slocum
E. S. Van Benschoten—Ft. Slocum,

N. Y.
T. R. Willson—Ft. Slocum N. Y.

R. L. Allen, Jr.—Ft. McDowell,
Cal.

F. H. Hollingsworth—Oklahoma
City, Okla.

CAPTAINS
J. B. Kraft—Ft. Slocum, N. Y.

P. A. Berkey—Ft. Slocum N. Y.
BALLOON SQUADRONS (for

one year)
FIRST LIEUTENANTS

L. W. Cather—1st Squadron, Ft.
Sill, Okla.

B. Hamlett—1st Squadron, Ft. Sill,
Okla.

C. A. Piddock—2nd Squadron, Ft.
Bragg, N. C.

J. P. Pearson, Jr.—3d Squadron, Ft.
Lewis, Wash.

C. L. Williams, Jr.—3d Squadron,
Ft. Lewis, Wash.

2d LT. R. C. Gildart—2d Squadron,
Ft. Bragg, N. C.

CCC
LT. COLONELS

J. N. Hauser—Oklahoma City, Okla
E. Yeager—Hq. 2d C. A.

S. Bacon—8th C. A.
MAJORS

T. E. Buechler—Van Nuys, Cal.
R. A. Carter—8th C. A.

L. A. Daugherty—Ft. Lewis, Wash.
F. H. Gaston—Des Moines, Iowa

J. L. McIlhenny—Hq. 3d C. A.
W. A. Metts, Jr. Ft. Bragg, N. C.

D. S. Rumbough—Indiana, Pa.
G. H. Stuts—Ft. Hayes, Ohio

P. H. Weiland—Medford, Ore.
H. J. Crigger—Charleston, W. Va.

W. N. White—Pres of San
Francisco, Cal.

A. S. Miller—Van Nuys, Cal.
L. F. Kosch—Sacramento, Cal.

CO USAT "HUNTER

LIGGETT"
MAJOR J. P. Crehan

USMA PREP SCHOOL, 4TH C.
A.

2d LT. D. W. Hayes
BATTLE MONUMENTS

COMMISSION
Washington, D. C.

CAPTAIN E. O. Hopkins
RUSSIAN LANGUAGE

STUDENTS
1ST LT. R. Park, Jr.—Columbia U.,

N. Y.
U. S. DISCIPLINARY

BARRACKS
MAJOR F. H. Timmerman—

Governor's Island, N. Y.
OVERSEAS DISCHARGE AND

REPLACEMENT DEPOT
Ft. McDowell, Cal.

COL. R. S. Pratt

BOOK REVIEWS

SOLDIERS IN THE SUN. By William Thaddeus Sexton, Captain, United States Army. 297 pages, with 9 illustrations. The Military Service Publishing Company, Harrisburg, Pa. 1939. \$2.50.

This book is not a novel as its title might suggest. It presents in a single volume a comprehensive, chronological account of American and Filipino history embracing the period from 1898 to shortly after 1902.

By the terms of the Treaty of Paris, the United States paid to Spain twenty million dollars for the privilege of assuming and maintaining sovereignty over ten million natives and twenty-five thousand square miles of territory located nearly seven thousand miles from the United States. During the period covered, 125,000 Volunteers and Regular troops journeyed to the Philippines. At one time, 70,000 were present, and 525 stations were manned by troops.

The Filipinos objected to being subjected to barter and sale like chattels, and wanted freedom. Under Aguinaldo, an insurgent force existed. The various marches and more important skirmishes with the insurgents, and later with the guerillas and Moros, are described or referred to. The total number of skirmishes and contacts is probably unknown, but probably two thousand would be a conservative estimate, since 1,026 are recorded to have occurred within one year. The efforts to scatter and disband Aguinaldo's forces are well described. The actual capture of Aguinaldo is related from authentic sources. It is interesting to note that no American was actually present when the Macabebe Scouts captured him, but Funston and four other officers soon appeared.

The hardships endured by the U. S. troops because of lack of food, ammunition, transportation, sickness and inclement weather, while breaking trail over mountains and through swamps, and fording streams, are graphically described.

An extensive bibliography shows the sources and demonstrates the thorough preparation of the author to write this book. An index of persons and places is added.—E. A. C., JR.

MY FRIEND AND CLASSMATE, JOHN J. PERSHING. By Brig. Gen. Avery DeLano Andrews. Military Service Publishing Co. Harrisburg, Pa. 291 pages. \$2.00.

The Military Service Publishing Company is bringing out a number of books which should be of great interest to the army. Among these, Gen. Andrew's book is likely to be outstanding. Physically, it is above the publisher's average,—some of their earlier books showed editorial

inexperience and lack of competent proof reading. Even this one gets the reader off to a confused start. The title on the jacket is "John J. Pershing, My Friend and Classmate"; on the cover it is "My Friend and Classmate. John J. Pershing," which gives the impression that Gen. Pershing is the author. On the title page is added the sub-title "With Notes from my War Diary." It is the elaboration of these notes into the story of the author's experiences in the A. E. F. that is likely to be of greatest interest to military readers. In the mass of books dealing with the American participation in the World War, there is a notable lack of volumes by members of the General Staff, A. E. F. Gen. Harbord's books cover much of the General Staff procedure in the early days of the A. E. F., but he, of course, did not remain at G. H. Q. very long.

Gen. Andrews was G-1 from August, 1918, to April, 1919. It must be remembered that, in the A. E. F., the First Section, General Staff, was not the personnel section as it is today, but the administrative section. It included, for example, ocean tonnage, priority of overseas shipments and the remount service in addition to what are now G-1 functions.

As a biography of Gen. Pershing, the book presents little that is new. There is again striking evidence of the respect that Gen. Pershing's forceful, dignified personality commanded throughout his service. Two phonographs, one of Gen. Pershing as first captain of the Corps of Cadets and one as commanding general of the A. E. F., give pictorial evidence that these qualities were inherent in the boy and in the man.

An appendix gives a break-down of the organization of the A. E. F. as of Nov. 11, 1918, in terms of company units with the impressive total of 9,686 such units.

—H. W. B.

AMERICA'S CHANCES OF PEACE. By Duncan Aikman and Blair Bolles. Doubleday, Doran and Co., New York. 161 pages. \$1.00.

FALSE PROPHETS OF PEACE. By W. Armin Linn. The Military Service Publishing Co., Harrisburg, Pa. 367 pages. \$2.00.

A flood of war books is as inevitably accompanied by a flood of peace books as general officers are by aides. The current lot are not very distinguished (we trust that it is obvious that we are talking about books, not generals or even aides) largely because of the speed of their preparation in order to take advantage of the current situation and of the holiday demand for books.

"America's Chances of Peace" is an interesting comparison of our state of preparedness,—military, diplomatic, economic, financial, and psychological—in 1914 and in 1939, with particular emphasis on the broadening of our ideas of preparedness during the interval. The publishers state that the authors "worked with their own research staff" in organizing the information contained in the book. From the viewpoint of the military reader, there can be only one conclusion in regard to the authors' research staff. They should get a new one. A few quotations will support this. "The American Expeditionary Force numbered 4,000,000 draftees, 500,000 regulars and volunteers, and 400,000 National Guardsmen." (Actual total strength of the A. E. F. on Nov. 11, 1918, was 1,981,701, including Marines.) In 1939, according to the authors, the President's proclamation of a limited emergency "had a purely military aim, authorizing an enlistment campaign for expanding * * * * the Marine Corps by 25,000 men." (To 25,000 men is quite different.) To refer to the activities of the Punitive Expedition of 1916 as "the army's poor conduct in a cross-country chase" is expressing an opinion contrary to that of most competent military critics.

The author of "False Prophets of Peace," leaning heavily on Upton's "Military Policy" and Ganoë's "History of the United States Army," has handled his military facts more accurately in an impressive report on who caused America's wars,—not the financiers or the munition makers, but those who had shouted most loudly for peace. Mr. Linn apologetically refers to the necessity for speed in preparing his book. We hope that this book may have a second edition in which sentences like the following may be improved. "There we find a spectacle that would wound the feelings of the most callous man—without hats, without blankets to cover them, without camp kettles to cook the miserable provisions furnished them by the Government contractor, or any one necessary for camp equipage." It is true that this sentence is attributed to a senator, but, even so, we hope that he could claim that he was misquoted.

The publisher's announcement says that the author does not deal in vituperation or invective. Perhaps not, but his summaries of the Civil War effort of Halleck, McClelland, Floyd, Fremont, Butler, Pillow and Banks under the not very gentle title of "Outstanding among the Flops" contain some intimations that vituperation and invective are not beyond him.—H. W. B.

▶ ▶ ▶

SOLDIERS UNMASKED. By William Addleman Ganoë, Colonel, U. S. Army. The Military Service Publishing Company, Harrisburg, Pa. 133 pages.

This is a new edition of Col. Ganoë's book, originally

published in 1935, based on his radio talks explaining the American soldier to the American people. Unfortunately, there has apparently been no attempt to bring the text up to date, with the result that the final chapter, entitled "Now," presents a false picture to the casual reader.

For the officer who is faced by the necessity of giving a talk on the army to some civic body, this little book and Col. Ganoë's splendid "History of the United States Army" constitute a complete reference library.

▶ ▶ ▶

PERISH BY THE SWORD. By R. Ernest Dupuy, Major, Field Artillery, U. S. Army. The Military Service Publishing Co., Harrisburg, Pa. 302 pages. \$2.50.

A surprisingly large number of books by field artillerymen is being published this winter. The only thing they have in common is that they are not about field artillery. Major Dupuy's book tells the almost unbelievable story of the movements and fighting from 1918 to 1920 of the Czech Legion,—an army corps of over 40,000 men—which, as Major Dupuy says, "marched from the Volga to Vladivostok and back again, fighting both ways, held a new Eastern Front for two years and went home around the world to build a new nation." This Czech campaign and the two assisting American expeditions to Siberia and North Russia formed, to again quote the author, "an inseparable tryptich" of which the basic panel was the Czech Anabasis; of the other two components, the Siberian episode was but "one more of the countless instances of the American regular doing his duty and doing it well, hampered not only by outside influence but at times by other branches of his government," while the North Russian tragedy "should serve as a warning against squandering American soldiers under alien command." Each of these expeditions, it should be noted, was sent contrary to the advice of both the Chief of Staff and the Secretary of War.

This book is not the final product of the research scholarship that Secretary of War Baker, in his foreword to Gen. Graves' "American Siberian Adventure," envisaged as some day "finding documents and papers, reports of conversations and invitations to new policies, based upon supposedly new facts" nor is it intended to be. It is rather a well-told, straightforward story of the military aspects of a phantasmagorical side-show of the World War.

The book is well illustrated, but the sequence of the insertion of the illustrations in the text unfortunately suggests that they were scattered into it by the publisher's office boy.—H. W. B.

Anticipation may be said to be the essence of generalship. It is the cause and reason for all planning. It is the basis of all staff work.

Some Forward Observations



■ LIEUTENANT EDWARD A. RAYMOND writes in to point out that Figure 2 of his article on *Visibility in Range Estimation*, in the November-December JOURNAL, apparently was printed upside down. This is certainly true, and the editor's face is cranberry-colored. In the figure as printed the lower circle appears larger. Lieutenant Raymond also suggests that "U. S. Army musketry instructions regarding range estimation should not be followed in estimating ranges over 1,000 yards. Regular officers with West Point training and reserve officers with a CMTC background get into trouble when carrying over their previous infantry practices into field artillery work. Our musketry instructions state that objects seem nearer when seen in a bright light or when looking over water, snow, or sand. This is generally true for ranges less than 1,000 yards, but too much light produces a glare, makes it difficult to see across distances, and exaggerates apparent range."

■ FROM ALL we can learn, the state of mind of the Fort Sill folk is accurately reflected by the title of Major Marston's article.

■ MAJOR CHARLES R. TAYLOR, 160th FA, sends in seven new members to the Field Artillery Association from his regiment.

■ QUITE A FEW copies of the November-December JOURNAL were returned (by postal authorities) marked, "Annie doesn't live here any more,"—or words to that effect. Again we urge that if you have moved or contemplate moving, you

(a) Send in your change of address in plenty of time;

(b) Drop us a card if for any other reason you fail to get your JOURNAL within a reasonable time. Without this cooperation on your part we cannot guarantee delivery of the magazine. Official orders (we receive only those issued by the War Department for regular army officers) are not adequate for change of address; they do not give the new address in sufficient detail. This is particularly true for officers going on DOL or foreign service.



■ CAPTAIN REX CHANDLER seems to be properly imbued with the Spirit of Old Fort Sill.

■ THE STORY is told that one of the field artillery officers with the 1st Division at Benning went to Atlanta for the premiere of "Gone With the Wind." While strolling down the avenue, he saw Clark Gable and his wife, Carole Lombard, drive up to a hotel and enter. A crowd gathered quickly. In a few moments a tattered old darky shuffled out of a nearby alley.

"What's de crowd looking at, boss," he queried, respectfully removing a battered hat.

"Why, Gable has just arrived," the officer replied.

"Yo' don't say! Praise de Lawd! Halleleujia. Judgment Day at last! But how come he don't blow his hawn?"

■ COLONEL GODFREY CHESHIRE, commanding the 113th Field Artillery, Raleigh, N. C., sends in twenty-five new memberships to the Field Artillery Association. If all unit commanders supported the Association in a similar material way, this JOURNAL could "go places."

■ THE CONTENT of current field artillery literature indicates that the subject of antimechanized defense occupies a large place in the thought of our officers. There is considerable justification for this. Yet there is one phase of the question which appears to receive insufficient attention; namely, the purely passive defense measures which artillery *in position* ought to employ when threatened with attack by armored units. In other words, there is need for a more full discussion of how terrain should be selected and adapted to the defense of battery positions; and what special work of field fortification, construction of obstacles, establishment of mine fields, and so on, ought to be undertaken for the protection of the guns. The artillery problem in this respect differs somewhat from that of the infantry, though of course the principles are the same. The JOURNAL would welcome letters or articles on this timely subject.



BACK ISSUES

of THE FIELD ARTILLERY JOURNAL *Are Now Available at Reduced Rates!*

Take advantage of this opportunity to complete your set of THE FIELD ARTILLERY JOURNAL before stocks are exhausted.

PRICES:

Current year:

Single copies, 75 cents.

Extra copies to subscribers only, 50 cents each.

Issues older than one year:

Single copies to current subscribers, 25 cents.

Single copies to nonsubscribers, 35 cents.

A discount of 10 per cent is allowed on purchases of old issues when sold in lots of six or more.

Available: All issues from Volume I. Number 1, except: No. 1 issue for Vol. IV.

Suggestion: Would you like to secure a text on *counterbattery*? Or on the *artillery information service*? The Readers' Guide (index) shows that there have been eleven articles in the JOURNAL on the former subject and four on the latter. Or would you prefer to have a bound set of Colonel Lanza's articles? The way to obtain any of the foregoing, or volumes on other artillery subjects, is to select from the index what you wish to have bound, buy old copies of the JOURNAL in which the articles appeared, and either have them bound or arrange them in a loose-leaf binder. Several of the service-school binderies are equipped to do this work at reasonable rates, or, if you prefer, the JOURNAL will handle it for you. Write for quotations.

MILITARY BOOKS

Following is a list of books on military subjects which are recommended for their professional value as well as interesting content:

	Price (Domestic postage included)		Price (Domestic postage included)
WARFARE— <i>Spaulding, Nickerson and Wright</i>	\$3.00	TOMORROW'S WAR— <i>Stephen Possony</i>	\$2.50
PEN AND SWORD IN GREECE AND ROME— <i>Col. O. L. Spaulding</i> ..	2.00	NOTES ON FRENCH ORDNANCE, 1717-1936— <i>Hicks</i>	3.50
ELEMENTS OF ORDNANCE— <i>Lt. Col. T. J. Hayes</i>	6.50	BOMBS BURSTING IN AIR— <i>Eliot</i>	1.75
SECRET AND URGENT— <i>Fletcher Pratt</i>	3.75	WORLD IN ARMS— <i>Major R. Ernest Dupuy</i>	2.00
FIELD ARTILLERY: The King of Battles— <i>Maj. Gen. H. G. Bishop</i>	1.00	CANTIGNY, A CORNER OF THE WAR— <i>J. M. Ecarts</i>	1.25
CARBINE AND LANCE, A HISTORY OF FORT SILL— <i>Nye</i>	3.00	MEMOIRS OF THE CONFEDERATE WAR FOR INDEPENDENCE— <i>Heros Von Borcke</i> (2 V.)	7.50
R. E. LEE— <i>Freeman</i> (4 vol., each)	3.75	FIGHTING FOOLS— <i>J. E. Edmonds</i>	2.50
A MODERN DICTIONARY— <i>Col. Max B. Garber</i> —Cloth, \$2.50; Leather	2.75	OUR MAGINOT LINE— <i>L. Hartley</i>	2.75
COMBAT INTELLIGENCE— <i>Schwieen</i>	2.00	THROUGH THE FOG OF WAR— <i>Liddell-Hart</i>	2.50
THE INFANTRY BATTALION IN WAR— <i>Lt. Col. Walter R. Wheeler</i>	3.00	FIREARMS IDENTIFICATION— <i>Lt. Col. Julian S. Hatcher</i>	7.50
MILITARY HISTORY OF THE WORLD WAR— <i>Col. G. L. McEntee</i> ..	7.50	THIS FLYING GAME— <i>Maj. Gen. H. H. Arnold and Ira C. Eaker</i> (2 ed.)	3.00
ROAD TO EMPIRE— <i>Fletcher Pratt</i>	3.75	THE ART OF RIDING— <i>Lt. Col. M. F. McTaggart</i>	3.50
ARMY MESS MANAGEMENT SIMPLIFIED— <i>Maj. E. A. Hyde</i>	2.00	THE LONG ARM OF LEE— <i>J. C. Wise</i> (2 Vols.)	5.00
		BRAXTON BRAGG— <i>Don C. Scitz</i>	1.75
		REBEL WAR CLERK'S DIARY— <i>J. B. Jones</i> (2 Vols.)	5.00
		MILITARY HISTORY OF CARLISLE BARRACKS— <i>Tousey</i>	3.50
		THEY WERE NOT AFRAID TO DIE— <i>M. C. Azoy</i>	2.00
		WARFARE— <i>Ludwig Renn</i>	2.50

A reduction of 10% will be made to JOURNAL readers who purchase any of the above books through the U. S. Field Artillery Association. The Association is in a position to obtain for its members not only books on military subjects but biographies and fiction as well, at a reduction of 10%.

United States Field Artillery Association
1624 H STREET, N. W., WASHINGTON, D. C.

TWO IMPORTANT BOOKS

THE UNITED STATES ARMY IN PEACE AND IN WAR

A history of our military policy and of the work of the Army from its genesis and on through to include the World War.

BY COLONEL OLIVER LYMAN SPAULDING.
Field Artillery

Here is a work which should be a permanent part of every military library both public and private. It combines in a single monumental volume what could be obtained otherwise only by searching through divers tomes without assurance then that they were authoritative.

Of this World War portion of the book. John Ferguson wrote:

"His (Col. Spaulding's) book will serve as an antidote for those who took too much to heart Liddell Hart's belittling version of what the United States Army did in France. Colonel Spaulding's history draws a different picture—different in perspective, middle distance, and foreground."

And of the rest of the book: "The history of the United States Army is actually a history of the nation. Colonel Spaulding has analyzed the problems, the accomplishments, and the blunders of each campaign, and he describes carefully the role the Army has played in peace."

467 pages, \$6.00 postpaid.

The BIRD The GUN and The DOG

BY LEDYARD SANDS

Illustrated with twenty-four plates . . . six original paintings by Courtenay Brandreth, two in full color. 488 pages and index. \$7.50

"This is the most important and the most ambitious book for sportsmen that has appeared in twenty years . . . The man who reads this book and remembers what he reads will know everything that he needs to know about the bird, the gun and the dog. Neither in quantity nor in variety is the information here given equalled in any other work I know, published in this or any other country. . . . The wonder is that any man, a soldier betimes, a gentleman sportsman always, could have time in one brief lifetime to have shot so much, to have enjoyed it so fully, and to have told it so well.

"Wherever he shot or whatever he shot, we who read his book are privileged to travel right with him, across New England for ruffed grouse and woodcock, over the Western plains for pinnated grouse and sharp-tail, off the bleak coasts of Maine for sea ducks, or where the lordly canvasback finds a winter home off the Carolina shores. Wherever we have longed to go and could not, we can go now in good company, seeing the great Canada geese come in, listening to the clangor of their cries, shooting straight, and ending it all with great content."

—MAJOR CHARLES ASKINS,
Arms and Ammunition;
Editor, *Outdoor Life.*

This book includes the latest classification of birds compiled by the American Ornithologists' Union together with recent findings of the Smithsonian Institute. This information is not available to the general sportsman and should remain a standard for years to come.

TWELVE BOOKS IN ONE

Order from

U. S. FIELD ARTILLERY ASSOCIATION, 1624 H St., N. W., Washington, D. C.