

COAST ARTILLERY JOURNAL



MAJOR GENERAL A. H. SUNDERLAND

MARCH-APRIL, 1936

Automotive Transportation

for the MILITARY SERVICE

By

CAPTAIN JOHN T. DECAMP, C.A.C.

and

1ST LIEUT. LEW M. MORTON, C.A.C.

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THE COAST ARTILLERY JOURNAL

1115 17th Street, N.W.

WASHINGTON, D. C.

THE COAST ARTILLERY JOURNAL

Member Affiliated Military Magazines

Published as the Journal of the U. S. Artillery from 1892 to 1922

LIEUT. COL. E. E. BENNETT, C.A.C., Editor

VOLUME LXXIX

MARCH-APRIL, 1936

NUMBER II

Publication Date: April 1, 1936

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THE COAST ARTILLERY JOURNAL IS NOT RESPONSIBLE FOR OPINIONS EXPRESSED IN PUBLISHED CONTRIBUTIONS

THE COAST ARTILLERY JOURNAL pays for original articles upon publication.

Published bi-monthly under the supervision of the United States Coast Artillery Association for the information of the Coast Artillery personnel of the Regular Army, National Guard and Organized Reserve.

Publication Offices, 1406 East Franklin Street, Richmond, Virginia; Editorial Offices, 1115 17th Street, N.W., Washington, D. C.

Terms: \$4.00 per year. (Coast Artillery Association members, \$3.00 per year.) Single copies, 75 cents.

Entered as second class matter at Richmond, Virginia, under the Act of March 3, 1879, for mailing at special rate of postage provided for in Section 412, Act of October 3, 1917.

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WAR DEPARTMENT
OFFICE CHIEF OF COAST ARTILLERY
WASHINGTON, D. C.

TO THE COAST ARTILLERY CORPS:

As I assume the duties of The Chief of Coast Artillery it would appear most proper that my first official act be to extend greeting to the Corps.

From a knowledge gained in the past, I need no assurance of the staunch loyalty which may be expected of our Regular, National Guard, and Reserve personnel.

Many difficult problems remain to be solved. Many have been solved in the past. We will solve more in the future. Let us work hard and play hard, and with a spirit of determination try even to excel the high record of accomplishment that always has been the pride of the Coast Artillery Corps.

A. H. SUNDERLAND,

Major General,

Chief of Coast Artillery

Pershing and the Anvil Chorus

BY H. A. DEWEERD

"The Americans are an extremely credulous people. I can liken them only to the Chinese."—Lord Northcliffe.

ON July 9, 1918, that sagacious old soldier Tasker Bliss, who had been hearing the general chorus of praise for the American action at Château Thierry, wrote to Pershing: "It occurred to me that it would be a good thing to quietly put on record such statements. . . . There may be a tendency a year or so from now to minimize the credit which at the moment they gave to our troops."

The old soldier was right, for the last shot had scarcely been fired in the World War before a systematic campaign was instituted by the erstwhile allies of the United States to discredit the American military effort. This has become so common that one has to study foreign military works with a reading glass in order to discover that we were actually one of the belligerents. Our final rank as a decisive factor in the struggle seems to be right along with Portugal and Serbia. American editors have unwittingly assisted in this shrinking process by insisting that their readers view American military men and efforts largely through the eyes of European critics. Thus it is that Pershing, Hunter Liggett, Harbord, and other typical American military men, have been tagged and labeled by a facile corps of European special pleaders. The same mildly fantastic results would ensue if Cosmo Gordon Lang were to hold forth from the sterile fog of Canterbury on such a typical American religious phenomenon as the late Reverend Billy Sunday.

Admiral A. T. Mahan, who enjoyed an international reputation as a naval historian, once described his fellow Americans as being "aggressive, combative, and even war-like—but out of sympathy with military tone and feeling." From first to last our wars have been waged with the rough and ready improvisation common to democracies in distress. Lest the reader with justifiable indignation pass up this article as just another one of those stodgy appeals for preparedness, I should like to state that a long study of the military mind at work enables me to contemplate the traditional American attitude toward preparedness and "military tone" with complete serenity of mind. I only want to make it clear that there was something *very* unconventional about the situation in April, 1917, which required the transformation of a few thousand troops, who were causing the Secretary of War great concern because of the high rate of sickness "not in line of duty" on the Mexican border into a triumphant independent army in France. To expect the European proponents of "spit and polish" to sit in judgment on this herculean task, is obviously asking too much.

Laclede, Missouri, claims to be the birthplace of J. J. Pershing. Under what remained of frontier conditions, young Pershing worked his way up to normal school

The American commander's methods were ruthless.

and from there to West Point. As an officer of the 10th (colored) Cavalry regiment he showed an ability to put subordinates in their place, if necessary by sheer fist power, and became widely, if not affectionately, known as "Black Jack." He served with distinction against the Apache tribesmen, against the Spanish at Santiago, and against the Moros in the Philippines. During the Russo-Japanese War he was one of the few American officers to observe *grande guerre* in Manchuria. He was commanding a brigade in San Francisco when the Mexican difficulties caused his assignment to the border. This stroke of fate led directly to his later commands, but it also dealt him a staggering personal blow. While he was hunting for a house in El Paso, news reached him that the military headquarters at San Francisco had burned to the ground and that his wife and three daughters had perished in the blaze.

Pershing came out of the Mexican trial, a hard, taciturn, competent major general. When President Wilson and Baker were looking for a commander of the A.E.F. they selected Pershing "solely on his record" and raised him to the rank of full general. Once having chosen their man, they avoided the mistakes that Lincoln had made during the Civil War by giving Pershing a virtual *carte blanche*. He was allowed to choose his own officers and to assist in the preparation of his written instructions. No American general ever set out on a campaign with better backing at home. Aside from the lack of an army, Pershing had every possible chance of success. Secretary Baker said in effect: "If you succeed, all will be well; if you fail, the public will probably hang us both to the first lamp-post."

* * *

Although the military experience of the American commander was still small when judged by the European standards of 1917, it was more varied than that of the average European brass hat. He carried the most soldierly figure and the most imposing chin in Europe. If he lacked experience, he none the less demonstrated a notable vision and a remarkable elasticity of mind. No other statement will fit the case.

Pershing's early observations on the ground confirmed his decision to operate an independent army in the southern sector of the Allied line in France. The preparations for this plan, and the immense task of building harbors, bases, railways, factories, and storage plants, make a long story which has often been told. It is an account, however, which Americans should never lose sight of; for it is the sort of thing which may have to be done again in some future emergency. The work was costly but, in the main, well done. No twisting of the evidence available

will serve to rob Pershing of the credit he deserves for this immense administrative achievement. The European soldiers watching this performance, and remembering the mildly astonishing reports of military attachés describing our pre-war army, were confident that we had few or no tried officers, that we could not raise troops, train them, and learn staff work at the same time. "Against them stood only a rather inarticulate national pride, and the stubborn conviction of the professional soldier that we could succeed."

To those who were interested in seeing how the new commander bore up under the increasing problems of command, Pershing seemed to take on mental stature daily. So did Harbord. When the French, eager to put him in swaddling clothes, suggested all manner of French staff assistance, they met a stone-wall refusal behind a "heart-hiding smile." The American staff soon had plenty of opportunity to gauge the quality of French officials and found some of them inclined to be "petty, hidebound, and obstructionist." Occasionally they treated American officers with an air of tolerant superiority generally reserved for dealing with disagreeable minors. One officer complained to Pershing: "General, the trouble is that these subordinate French officials in immediate charge are either so hide-bound or else so conceited that it would be as easy to convince a Greek statue as to make one of them understand. Here we have come 3000 miles to help them, and yet we are treated like mendicants on the street holding out a tin cup for passing pennies." It finally became necessary for General Pétain to circularize the French army to the effect that the Americans were a proud and sensitive people who would not tolerate the "patronizing attitude commonly displayed toward them."

From the European point of view Pershing took far too much time to get his army ready. Some writers have cynically referred to our military effort as "fifteen months fighting in the rear and two months fighting at the front." When the driver of an army Ford ran down a wounded French soldier in the Place de la Concorde, one heard the observation that the American army had started killing Frenchmen before it killed Germans. Other leaders might seek to win the war in any way possible, but "Pershing wanted to win it with an American army stamped by the Pershing seal." With the perfectionist tendencies of a true West Pointer, he wanted the democratic army of the new world to out-soldier the veterans of Europe. Discipline in the American army was noticeably more severe than in the French and British service; European officers asked each other scoffingly whether Pershing contemplated adopting the goose-step. When he decided upon the large combat division many experts were certain that our improvised officers could not handle such large units. They heard of his enthusiasm for "open warfare," for the "offensive spirit," and for the "supremacy of the rifle" with ill-concealed amusement.

As the demands of his program grew, General Pershing became increasingly brusque and unyielding. He had certain warm and human qualities, "but these appeared less and

less frequently as he became absorbed in the machine he created and drove." His smile seldom lingered more than a moment, and his handshake became short and perfunctory. Officers and men might not like their grim commander but they gave him a grudging sort of admiration. He demanded the utmost punctuality of every officer, and yet he fell down flagrantly himself on the matter of keeping engagements. It is said that he kept nearly every important person in Europe waiting for him at one time or another. Our allies took their revenge by letting lesser American officers cool their heels in waiting rooms. Divisional generals in trench sectors raged at his order to visit the trenches at least once a week. Frederick Palmer heard one of them storm: "I would like to tell the damned fool at headquarters who wrote that order what I think of him." But he pulled his boots on—and went.

* * *

To some European officials who were eager to sell us dead horses, it appeared that Pershing's conception of the duty of the American commander was to return a curt "No" to all Allied requests. In some cases he seemed to refuse their requests before he heard what they had to say. The wisdom of his stand on the question of amalgamation is now generally accepted, but at the time immense pressure was put upon him to agree. The proposal to use American troops as drafts in the British and French service appeared under numberless forms, but Pershing seemed to be able to penetrate them all. With Yankee bluntness he asked General Robertson why the British were undertaking offensive operations in Palestine if they were so deeply concerned over the safety of the Western Front.

When disasters befell the British and the French in the spring of 1918 the pressure on Pershing greatly increased; even General Bliss was carried away. On May 8, 1918, the combined force of Allied prime ministers and generals assembled to make the final assault on the American commander. One can readily envisage the scene: Clemenceau with his walrus moustache and grey gloves, Lloyd George with his theatrical mane of hair, Lord Milner in a faultless cutaway, Foch with his nervous jerky speech, Signor Orlando with the diffident manner of a trained undertaker. When this battalion of argumentative shock troops worked up to a crescendo, Foch triumphantly rasped out: "Are you willing to risk our being driven behind the Loire?" Crisply, suddenly, and like a good poker player Pershing said, "Yes." This took the wind out of the marshal's sails for a moment, but the pack led by Lloyd George set on him again with driving argument. Finally, when he had had enough of it, Pershing arose, thumped the table and said with the greatest possible emphasis: "Gentlemen, I have thought this program over very deliberately and I will not be coerced!" That ended the meeting. General March later observed that *he* never had to thump the table to get his way, but it must be said he never had to deal with so many vocal artists at one time.

The thing that hurt the European leaders most about Pershing's invincible "obstinacy" in the matter of amalgamation was his frequent reference to the low state of Allied morale as a reason against the proposal. The Allied generals were quick to point out that Pershing mistook cynicism, born of experience, among the Allied troops for failing morale. They asserted that the eager American troops only had to tear their guts out on the German wire and machine guns to know this feeling. Pershing could not understand the "Sandhurst stoop" of British officers and viewed with a critical eye the none-too-soldierly tank and file which survived "victorious" attrition of the general staff. The honeymoon period of the war was now over and the Allies savagely ridiculed each other. One British captain of three years service on the Western Front wrote:

"The French troops sneer at the British now, and the British at the French. Both had the same derisive note in the voice when they named the "Brave Belges." Canadians and Australians had almost ceased to take pains to break it gently to us that they were "storm troops"—that out of all us sorry home troops only the Guards division, two kilted divisions, and three English ones could be said to know how to fight."

The average American soldier would never have endured amalgamation. There is a telegram in the archives of the A.E.F. in which the commander of one of the best American divisions in the Argonne said if he were asked to fight again in liaison with French divisions, he would resign. A British major general once made the mistake of asking a wounded American who had served in the British area with the American 27th Division how he got on with the British. No Hollywood actor could have registered contempt more satisfactorily as he replied: "The British! Why them suckers drink tea!"

It was really too bad for the legend of Allied military superiority that Nivelle should smash up the French army so soon after we entered the struggle, and that Haig could not be restrained from making his stupid and murderous offensive in the mud of Passchendaele. The British disasters of March and April of 1918 cut down their air of military superiority considerably, and after Caporetto nothing was heard from the Italians but plaintive appeals for help. The French had to wait until May, 1918, for their supreme military humiliation on the Chemin des Dames; but when it came it was a real "facer." To make matters worse American intelligence officers had given the French clear warning of the impending stroke, but they ignored it. The same was true of the British warnings to the French at the time. The French retreat became a virtual marathon in which they left bridges and roads intact for the enemy. A day or two after this amazing collapse, M. André Tardieu took it upon himself to badger General Pershing about certain deficiencies in the American staff which had been called to his attention. At this untimely bit of impudence, Pershing cast aside restraint and told the startled Frenchman in good frontier fashion that the American army was fed up on silly French criticism and that to judge from

recent events they had plenty of work to do at home. When he wanted to, Pershing could turn off a sentence that had the kick of an army mule. In the main he got along best with General Pétain who was also as blunt as a dull axe.

Foreign critics have been especially outspoken on what they describe as General Pershing's narrowness of view. General Sir Frederick Maurice in reviewing Pershing's *My Experiences in the World War* observed that some of the American commander's comments "seem singularly naïve and lacking in understanding." Captain B. H. Liddell Hart is of the opinion that Pershing "revealed strange limitations of outlook and knowledge in a man cast by fate for so big a rôle." Yet the impartial muse of history (when she finally gets around to it) may well show that Pershing had a better grasp on reality in 1917-1918 than most Allied generals. Long before they were willing to do so, he had written Russia off the books as a dead loss. He did not foresee Caporetto, but it confirmed his worst fears. He alone seemed consistently willing to risk the possibility of a German break-through in 1918. To all complaints as to the lateness of the American effort, he could and did reply that it was largely due to the failure of the Allies to provide the artillery and tanks they had promised and to their insistence on shipping nothing but American machine gunners and infantry during the critical months of 1918.

* * *

As a soldier Pershing professed a strong faith in an army trained for open warfare and placed extreme reliance on the rifle. He was a tireless advocate of the offensive, and all officers who did not fall in with this program were mercilessly weeded out. Before the grim experiences of the Argonne—and even after—he spoke as if the *offensive brutale et à l'outrance* were a new doctrine and had not been exploded in 1914. When he was finally ready to fling his divisions into the battle "he had omitted but one factor from his calculations—the German machine guns—and was right in all of his conclusions save one—their effect."

The hard working American infantry, ground down by perfectionist practice, spoke of their taskmaster in awed but profane terms. As a column of troops marched toward the Saint Mihiel theater a voice was heard in the ranks saying: "Pershing says he'll take Metz if it costs a hundred thousand lives." There was silence for a time then another voice added: "Ain't he a damned generous guy!"

It had long been agreed between Foch and Pershing that the American army should try its hand out in reducing the Saint Mihiel salient. This must be taken, therefore, as Pershing's first great solo performance. Little episodes like Cantigny, Belleau Wood, Château Thierry, and Villers-Cotterets were merely incidental bits of military benevolence in the interest of the Allied cause. The American commander, naturally eager to ensure the success of his first major venture, concentrated enough force to storm two such areas. The easy victory that resulted

afforded the French and British critics the opportunity to refer to this operation as "breaking an egg with a steam hammer." Clemenceau passed the limits of understatement, however, when he described the Americans as "victoriously following in upon the heels of the departing Germans." Pershing neatly returned the compliment by stating that from the standpoint of raising Allied morale, this was the most important battle of the war.

Unhappily for Pershing the American army was not allowed to press its attack in the direction of Metz, for Foch and Haig had come to the conclusion that it had better be put to work cutting wood in the Argonne Forest. The fact is Foch had greatly disconcerted the American commander on the eve of the Saint Mihiel operation by insisting that the American army launch an early attack northward between the Aire and the Meuse.

Many American officers involved in the Saint Mihiel operation hold that it was a profound mistake to halt the movement within the limits set by Marshal Foch. Hunter Liggett's force, which formed one of the pincers, captured its second-day objectives by noon of the first day. Brigadiers reported no enemy in sight, not a shot being fired. Finally with the aid of glasses one could make out "tiny ant-like men in field grey frantically digging at the unfinished Michel Stellung." Beyond that lay open country! General Dickman, whose troops would have had the brunt of the attack, declares: "The failure to push north from St. Mihiel with our overwhelming numbers will always be regarded as a strategical mistake for which Marshal Foch and his staff are responsible." General Fuchs, the local German commander, made no effort to disguise in his telegrams "the very great and continually threatening danger of a break through."

Critics now generally agree that a breach of the Michel position was possible on a wide front during September 12-14. How far the penetration could have advanced is problematical. The valley of the Wœvre is not particularly suited for campaigning in wet weather, but it might well have been worth the chance. General Gallwitz, the German army commander in that area, holds that such an advance would have been far more effective than the subsequent Meuse-Argonne operation. He declared, "An American advance toward Longuyon would have been a blow we could not have borne." The situation seemed to call for a typical American "damn the directives, full speed ahead!"; but Pershing had been one of the early supporters of a unified command, and felt he could not let Foch down on his promise to launch the Argonne attack according to schedule. After all, there is something to be said on the side of keeping agreements. General Charteris was good enough to observe in 1918: "The Americans are men of their word. If they say they will do a thing they do it, or as near it as is humanly possible. It is not always so with the French."

It was the strategic hope of Foch and Haig that a rapid advance of French and American armies toward the Sedan-Mézières railway together with a concentric British attack in the north would have far-reaching, per-

haps decisive results. Foch seemed to think the American army could reach the vital railway in two or three swift thrusts; but Pétain, who always had two feet on the ground, said we would do well to capture even Montfaucon before winter. It was found impossible to utilize the "blooded" leading divisions in the first attack in the Argonne; consequently many divisions were distinctly green at the jump off. For example, the 79th Division, which was assigned the most distant objectives, had men in the ranks who had received but a few days training in the States and none in France.

At 5:30 A.M. on September 26, 1918, nine American divisions (the equivalent of eighteen French or British divisions) swept forward.

"It was a crushing weight to hurl on a line held by only five shrunken enemy divisions, averaging barely a quarter of the rifle strength of an American division (six more American divisions were in corps and army reserve). But crafty tactics helped to dam the flood—. The Germans repeated the method of elastic defense—with real resistance some miles in the rear. The unexpectant Americans ran into this cunningly woven belt of fire when their momentum was lost—. Although the advance of the center had come to an early stop on the slopes of Montfaucon, the wings had pressed on, only to be halted when they reached corps objectives. It was difficult to revive this momentum after six hours delay, and in the face of the enemy's well-posted machine guns little further progress was achieved."

So wrote an English historian. A distinguished American observer declared that "although the mishandling of a certain division would have been burlesque if it had not been so murderous—it was an amazing performance—one of the greatest of the war."

Marshal Foch did not conceal the fact, however, that American progress in the Argonne was distinctly short of his anticipations. On September 27 he sent an irritating note to Pershing saying: "The use of numerous machine guns can undoubtedly retard or cover the enemy's retreat. But they do not suffice to create a solid defensive system." It must have been very hard for Pershing, with all his talk of the offensive, to receive such a missive from a French general whose attitude he had once erroneously described as "tending toward the defensive." By September 29 the German command had thrown six reserve divisions into the Argonne battle, and subsequent American progress was slow and costly. The American commander was now forced to fight a battle of attrition; his army was to have its turn at "tearing its guts out on the German wire and machine-guns." Finally on October 14 Pershing had to call a halt in order to reorganize—a sure sign that the original plan had bogged down.

The initial phase of the Argonne battle gave our national army its first full taste of war. A merciless commander grimly drove his awkward divisions into the shambles—and held them there. When failures occurred Pershing applied the whip to divisional commanders or sacked them. "They in turn put it on the haggard brigadiers. Colonels rounded on the majors and captains and so on down the line. Staff brains reeled

from fatigue as they issued more and more directives. Only the wearer of a wound tag might return from the front past the cordon of military police." All the men in a division who could make their legs move, "even those whose coughs might indicate the first stages of pneumonia, were sent along the muddy trails toward the roar of battle under the leaden skies." Warm food did not get to the front; soggy blankets were worse than useless in the cold rain and mist. The army shivered, cursed, and fought on. It was no longer the gay enthusiastic force that had shouted cock-eyed, ribald songs as it marched through French villages.

Under the discouraging conditions prevailing, it was largely the brutal driving force of Pershing that made it possible for the battle to be resumed on November 1 with immediate and far-reaching success. The American commander's methods were ruthless; divisional commanders were knocked about like ten-pins, but in the end the newly created First Army under Hunter Liggett jumped off on November 1 like a ship freed from an obstructing shoal. It was true that by this time Ludendorff had thrown a fit on the floor of the Hotel Britannique at Spa and the German coalition was crashing around the ears of Hindenburg. The impending capture of the Sedan-Mézières trunk lines, together with the splendid rush of the British and French armies in the north, combined to force the German high command to ask for an armistice.

Although one British critic went so far as to admit that "the American army was the first to reach the German spinal cord," others are unsparing in their criticisms of confusion on the lines of communication and the "amateur staff work." By comparison one British writer urges:

"Our methods produced results which dwarf those of the A.E.F. From August 8 to November 11, our operations took on increasingly the character of open warfare. In that period we drove the Germans back some 80 miles, captured 200,000 prisoners and 2080 guns. The American experience of open warfare was limited to 10 days in November, 1918; the depth of their final advance was 35 miles—their captures amounted to 26,000 prisoners and 874 guns. Yet General Pershing thinks that we and the French failed to set that example of aggressiveness which he was trying to inculcate."

More than one writer has observed that it was fortunate for both Pershing and the A.E.F. that they had to deal with the Germans of 1918 and not the intrepid men of 1914-1917. Yet General Plumer, one of the most distinguished British commanders, has repeatedly insisted that the German army retained its high degree of military effectiveness right up to the armistice. The German leaders may have lost their nerve, but there were still plenty of machine gunners who maintained the final

glory of the German arms. The army that left its positions in France and marched back to the Fatherland in good order was a beaten army, but it was not broken.

General Peyton C. March's *The Nation at War* makes many an acid statement showing that Pershing was not distinguished for his team-work. His rapid changes of mind on types of gantry cranes, motor trucks, and airplane engines nearly drove the War Department frantic. It is true that his cables showed little or no appreciation for the difficulties raised by his uncompromising requests. On the other hand, it is something of a relief to encounter a soldier with enough flexibility of mind to change it frequently. Most commanders were unshakable apostles of the *status quo*.

There seems to be some basis for the criticism that Pershing was somewhat out of touch with the troops themselves. When the troops found that his idea of peace meant only divisional reviews, intense parade-ground work, and the continuation of West Point discipline, they reacted in typical American fashion. As the army of occupation lined up at Coblenz, Pershing tried to warm up a bit. He had made a tremendous newspaper *coup* at his landing in Liverpool back in 1917 by singling out a private in the Royal Welsh Fusiliers whose sleeve was covered with wound stripes and asking the soldier where he got them. In a like fashion at Coblenz he picked out a private in the front rank whose sleeve was covered with wound stripes and asked: "Where did you get these, my man?" To the consternation of everyone within hearing, the hard-boiled private replied in his best Sunday school manner: "From the supply department, sir." If this story is not true, it ought to be!

In that sternest of all tests, the virtual inactivity of peace time after exercising almost limitless authority in war, Pershing has steadily enhanced his reputation. There has been no break in the iron cast; dignity and decorum have marked his firm step. Others might allow their names to be dragged before a presidential convention; but not so with J. J. P. There has been only one slightly embarrassing rumor (hastily denied) in which the "advocate of the rifle" is said to have peppered a Scotch beater with birdshot while grouse hunting. But even this is not out of keeping with the best military traditions; Wellington once shot three in a single day!

It may be too early to assign General Pershing a final place in the company of great soldiers. But to use the words of an English critic not distinguished for his praise of Pershing: "It is sufficient to say that there was perhaps no other man who would or could have built the structure of the American army on the scale he planned. And without that army the war could hardly have been saved and could not have been won."

The Historical Background of the Italo-Ethiopian Dispute

BY MAJOR PORTER P. LOWRY, C.A.C.

A glance at the index of *A History of the Nineteenth Century* shows such items as:

- Algiers: opened to French (1802); attacked (1829); conquered (1830).
- Burma: British expedition to (1824-1825).
- Congo: annexed by Belgium (1895).
- Dahomey: annexed by France (1892).
- Delhi: annexed by England (1803).

While many historical details pertaining to the realm of diplomacy are missing from the great majority of text books, the foregoing chronology serves to remind us that as industry developed in Western Europe during the 19th century the nations of that part of the world vied with each other in securing colonies for use both as sources of raw materials with which to feed their growing industries and as home-controlled outlets for manufactured products.

What of Italy during this period? Under "I" in the index appears the entry:

- Italy: revolution (1824); revolution (1848); unity accomplished (1861).

It is therefore evident that while the other nations of Western Europe were building colonial empires and extending spheres of influence in Africa, Asia, and elsewhere, Italy was busy with internal affairs which eventually led to her unification in 1861.

By the time the unification of Italy had been effected most of Africa had been divided among her neighbors, but she was as prompt in entering the race of colonial expansion as the settlement of her internal affairs permitted.

Early in 1870 an Italian company purchased the port of Assab in what is now Eritrea. In 1882 the Italian government took over the holdings of this company and three years later extended its possessions by the purchase of Massawa from Egypt. In 1892 Italy leased from the Sultan of Zanzibar certain territory along the Benadir Coast which has since become Italian Somaliland.

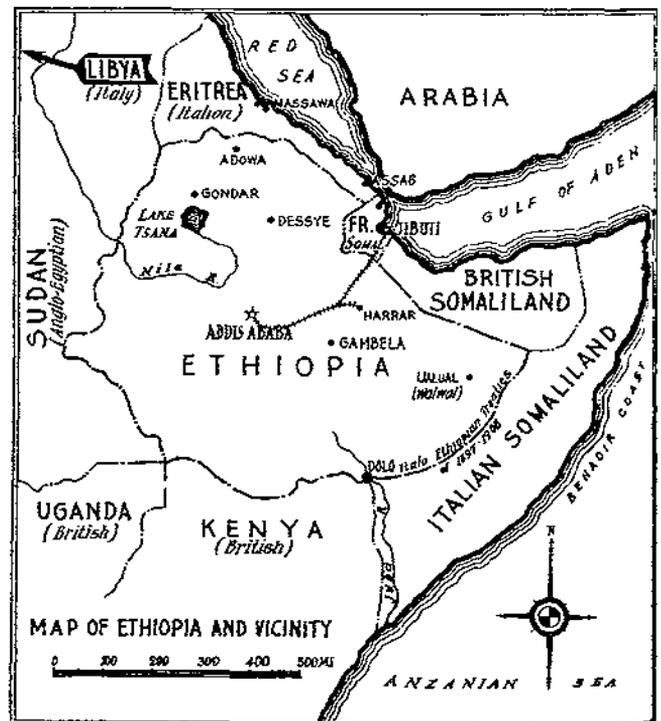
The signing of the Treaty of Ucciali in May, 1889, consummated the first amicable relations between Italy and Ethiopia. Rapprochement had been undertaken with the coming of Menelik to the Ethiopian throne in that year. Cordial relations, however, were short lived. Either by design or accident the transposition of the terms of the Treaty of Ucciali into the language of the two peoples injected distinct differences in meaning into the two texts. According to the Italian version Italy had acquired a virtual protectorate over Ethiopia. Upon being apprised of this, Menelik, in 1893, denounced the treaty and in-

dicated his determination to maintain Ethiopia independent and unentangled.

In the meantime an Italian force of some 17,000 had advanced into Ethiopia from Eritrea until on March 1, 1896, it was overwhelmed by an Ethiopian force estimated at about 90,000. This defeat was followed by a treaty of peace signed at Addis Ababa in October, 1896; in this Italy recognized the complete independence of Ethiopia, thus voiding the previous treaty of Ucciali.

A glance at the accompanying map shows that England and, to a lesser degree, France are also interested in this section of Africa as far as colonies are concerned. Italy and her colony, Libya, already straddle England's line of communication between the homeland and India; further colonial expansion on the part of Italy in the vicinity of this line—the so-called "life line of the British Empire"—would cause fear for the safety of the British Lion.

The British Isles are dependent upon imports for much of the foodstuffs necessary for the subsistence of the islands' population, but such supplies come largely from across the Atlantic rather than from India and those which are brought from Australia and New Zealand can easily be transported via the Panama Canal. With regard to distribution of the products of British manufacture, particularly to the great population of India, the



Mediterranean route offers the convenient short haul but it cannot be considered as absolutely essential; however, the "Life Line of the Empire" tradition is firmly fixed in the minds of the British people.

The Blue Nile has its source in Lake Tsana in Ethiopia. For Italy to acquire Ethiopia might endanger the water supply of the valley of that stream in the Anglo-Egyptian Sudan where the vast cotton fields so necessary to England's textile industries are situated.

Apparently as a prelude to her next treaty, England ceded some 8,000 square miles of British Somaliland to Ethiopia in 1897. This cession of territory was followed in 1902 by a treaty between England and Ethiopia which provided: (a) that the headwaters of the Blue Nile would not be dammed or diverted without England's consent, (b) that England could connect the Sudan and Uganda by railroad across Ethiopian territory, and (c) that a British trading station could be opened at Gambela.

In 1894 the French obtained a concession from Ethiopia which permitted the construction of a railroad from the principal seaport of French Somaliland, Jibuti, to Harrar. Ten years later permission was obtained to extend this railroad to Addis Ababa. The line was completed in 1917

and is the only railroad in Ethiopia today.

In December, 1906, Italy, France, and England entered into a tripartite treaty in which the three nations agreed to cooperate in maintaining the political and territorial integrity of Ethiopia. This treaty further provided for a division among the three participants of economic spheres of influence in Ethiopia; recognized the French railway concession; and provided that one would not accept concessions injurious to the other two, that all would refrain from interfering with the internal affairs of Ethiopia except upon mutual agreement among

all three parties of the treaty. It is noteworthy that this treaty was signed in London and was agreed to without Ethiopia being consulted or represented.

Although never published to the world, it is believed that an Italo-Ethiopian treaty establishing a boundary between Ethiopia and Italian Somaliland was consummated in 1897. Such a pact is mentioned in the treaty signed by these nations in 1908, which dealt mainly with

the determination of boundaries between Ethiopia and the adjoining Italian colonies. The boundary pertaining to Italian Somaliland was specified, roughly, to extend northeast from Dolo along a line generally parallel to the Benadir Coast and about 180 miles therefrom. This line was never definitely laid out on the ground and, while official Italian maps (to include that of 1925) indicate this boundary essentially as described above, maps subsequent to that date indicate no boundary between Ethiopia and this Italian colony. It is interesting to note that the boundary between Ethiopia and Eritrea as established by this same treaty was actually delineated on the ground and has never been in dispute.

As Italy has grown in pride, prestige, and population the expansionist sentiment also has grown among her

people; to this sentiment her late start in the race for colonies has been a serious handicap. Even prior to the World War she felt that her colonial empire was far too small. This feeling was doubtless a determining factor in causing Italy to desert her alliance with Germany and Austria-Hungary and throw her lot with the Allies in the World War. The secret Treaty of London (1915) which brought Italy into the war on the side of the Allies provided as a price for such participation that in case England and France acquired additional colonial territory in Africa at the expense of Germany, then Italy

The following list of treaties pertaining to the Italo-Ethiopian dispute will be a convenience in connection with the article covering the historical background of that controversy:

YEAR	BETWEEN WHAT NATIONS	TERMS IN BRIEF
1889	Treaty of Uccialli between Italy and Ethiopia. (This treaty was denounced by Ethiopia in 1893).	Italian text of treaty gives Italy a virtual protectorate over Ethiopia.
1896	Treaty of Peace of Addis Ababa Between Italy and Ethiopia.	Annuls the Uccialli Treaty and Italy recognizes the absolute independence of Ethiopia.
1897	Between Italy and Ethiopia.	Agrees on frontier between Ethiopia and Italian Somaliland.
1897	Between Great Britain and Ethiopia.	Great Britain cedes 8,000 square miles of British Somaliland to Ethiopia.
1902	Between Great Britain and Ethiopia.	Ethiopia grants certain trading and railroad rights to Great Britain and provides against damming the Blue Nile.
1906	Tripartite Treaty of London Between France, Italy, and Great Britain.	Provides for maintaining the status quo in Ethiopia and that neither nation will be favored by Ethiopia to the injury of one of the others.
1908	Between Italy and Ethiopia.	Fixes the boundary between Eritrea and Ethiopia.
1915	The Secret Pact of London Between France, Great Britain, and Italy.	Recognizes (with restrictions) Italy's right to colonial expansion in Africa, in exchange for Italy's participation in the World War on the side of the Allies.
1928	Treaty of Friendship and Arbitration Between Italy and Ethiopia.	Provides for settlement of disputes by negotiation, conciliation, and arbitration, and makes certain concessions to Ethiopia relative to trade routes through Italian territory to the sea.
1929	Between Italy and Ethiopia.	Reasserts the terms of the treaty of 1928.

could demand from them an expansion of her African colonies of Libya, Italian Somaliland and Eritrea.

At the peace table in Versailles in 1919 Italy attempted to "collect" on the promissory note of 1915. Repercussions of this attempt were heard around the world and only recently the "secret treaty" has been discussed at length by the so-called Munitions Investigating committee in Congress. Among other things, Italy demanded that France turn over to her the port of Jibuti and the Jibuti-Addis Ababa railroad and that England cede to her the Juba River valley which was then a part of Kenya. Much to the dissatisfaction and disgruntlement of Italy, accession to these demands was refused by France and England. In recent years however, in apparent attempts to stem the rising tide of her colonial ambitions, a portion of the stock of the Addis Ababa railroad and the Juba River valley have been given to Italy.

France has always considered the League of Nations an important adjunct to her scheme of national defense, and has ever desired to have the largest possible number of voting friends among the nations composing the League. In accordance with this policy she proposed, in 1919, that Ethiopia be admitted to membership in the League. This proposal bore no fruit at that time due to contentions on the part of other members to the effect that slavery prevailed in Ethiopia.

In 1923, fearing that the signers of the tripartite treaty of 1906 might decide to dismember her, Ethiopia applied for membership in the League, the application was approved and she became a member in September of that year.

In 1925 Italy and England entered into a tentative agreement, without consulting Ethiopia, to aid each other in securing certain concessions in that country. France, however, objected under the terms of the tripartite treaty and Ethiopia appealed to the League, so the matter was dropped.

The signing of the so-called "Treaty of Friendship and Arbitration" between Italy and Ethiopia was consummated in 1928. This treaty would appear to make war between the two nations impossible. Under its terms any dispute which might arise was to be settled, if possible, by negotiation; if negotiations failed then two nationals from each country were to sit as a "board" and settle the dispute by conciliation; if differences could not be reconciled by conciliation, the board was to select a fifth member from a neutral nation and thus augmented was to settle the controversy by arbitration. By the signing of such a treaty it would appear that Italy had accepted Ethiopia as a responsible nation and had signified her intention to respect the absolute independence of that nation.

Another treaty between these two countries was signed in 1929. The terms of this treaty renewed the pledge of arbitration and friendship and provided for the construction of a motor road from Assab, in Eritrea, toward

Dessye, and for Ethiopian access to the sea via a free zone through the port of Assab.

An unfortunate and unwarranted attack was made on the Italian consulate at Gondar in November, 1934. Ethiopia was prompt in meeting Italy's demands for an apology and indemnities. A month later the world was attentive to an Italian-Ethiopian skirmish at Ualual (Walwal), where the Italians claimed that their outpost had been attacked by Ethiopians. It is noteworthy that Ualual, which is some 240 miles from the Benadir Coast, is some 60 miles within Ethiopian territory under the terms of the 1897 and 1908 boundary treaties.

During recent months our newspapers have told of the maneuvers of England and France to effect a settlement of the dispute; the collapse of attempts of the two belligerents to close the controversy through the medium of the several steps provided in the "Treaty of Friendship and Arbitration"; the seemingly half-hearted application of sanctions by the League of Nations; and in spite of all this, the Italian invasion of Ethiopia.

A study of the historical background of this dispute might well cause us to ponder on the value of treaties. Will either treaties or membership in the League of Nations prevent an ambitious nation, with the means at its disposal, from attempting to absorb a nation unable to defend itself?

There are those who hold that conquest in order to secure sources of raw materials, markets for products of manufacture, or room for excess population, has proved fallacious. Proponents of this idea point out that raw materials can be purchased in the world market at less cost than that involved in conquest and the subsequent cost of colonial maintenance. With regard to colonial conquest for the purpose of securing home-controlled markets, these proponents point to the fact that Japan is now capturing the market of India, with its population of 350,000,000 people, from England, and that for every yard of British textiles imported into Kenya there are six yards of Japanese goods. As for colonial expansion for the purpose of providing room for surplus population, it is noted that while the population of Japan has been increasing at the rate of from 600,000 to 1,000,000 a year for a generation, only 200,000 Japanese had settled in South Manchuria during the twenty-five years following its acquisition from Russia; that in 1914 there were but 8,000 Italians settled in all of the Italian Colonies acquired since 1880—approximately one-fiftieth of the number in New York state alone; and that in all the 900,000 square miles of the German colonies in Africa in 1914 there were only some 22,000 Germans.

It appears that this whole matter might well be likened to a hypothetical poker game, in which there are four players; for easy reference we will call them Mr. Brown, Mr. Blue, Mr. White, and Mr. Green. Brown is an amateur, the others are professionals. The game is being played in Brown's room, let us say, in the International Hotel. Before going to Brown's room, White, Blue, and

Green met and entered into a tripartite agreement, under the terms of which (1) Brown is to be fleeced, (2) no one of the three will do the fleecing act unless the other two agree, (3) the fleecing act will contain no element injurious to the interests of any of the three. On the way to Brown's room, Green decides that Blue and White held out on him on the occasion of the last division of spoils. The game begins. It is Green's deal. Apparently Green holds the best hand, but now that it is evident to White and Blue that Green intends to hedge on his agreement they will try to oust him from the game. With Blue's great resources perhaps he can raise the stakes beyond Green's capabilities of calling. This is all the more possible if White can be depended upon to run up the play. Who will win? The answer is difficult at this stage of the game, but it seems assured that Brown will lose at least a portion of his fleece—he is inadequately prepared to prevent it.

Here we have a positive verification of the fact that in order to maintain its liberty, independence, and property a nation must be able to defend itself. History is replete

with innumerable examples proving that weakness invites aggression. Failure to provide adequate protection for territory, raw materials or wealth is to insure their loss. The only way calamity can be avoided is to make the price to be paid by any despoiler so high that the game is not worth the candle. And yet there are those who would have this nation disarm, pretending to believe that a rampart of paper is all the protection we need. To these we would counsel: consider Ethiopia!

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Winning the Knox Trophy

BY MAJOR OLIVER B. BUCHER, C.A.C.

FOR the first time that much coveted prize, the Knox Trophy, has been won by the Hawaiian Antiaircraft gunners, or more properly speaking, by Battery "B" 64th C.A. (AA) manning 3" guns (M-3).

The practices were held "On the Beach at Waimanola" in March and April, 1935. The two day practices were fired with the Sperry Director, M-2, and the night practice with the Vickers, M1A1. The change to the M1A1 for the final practice was occasioned by abnormal lateral, vertical and range deviations developed in the first two practices using the M-2. The M1A1 was assigned to Battery "B" three days before the final practice and the range section had approximately three hours drill in tracking. Altitudes in all practices were obtained by height finder and in the final practice only height finder adjusting was used. Throughout the target practice season the work of the height finder detail was especially noteworthy. Sgt. John Rigg was the stereoscopic observer in all practices; the results demonstrated that he is one of the best in the Coast Artillery.

It is obvious that the height finder has several advantages over the altimetric system of altitude determination, provided a properly trained stereoscopic observer is available. There were only two height finders, of different makes, available in the 64th. In order to utilize these to the best advantage and to train the maximum number of observers a regimental school was organized under the direction of Lieut. D. D. Edison. Observers from the six gun batteries were given instruction for sev-

eral hours each day in the preparatory period before the regiment moved to Waimanola. The school set-up provided an accurate check of each observer's readings against true altitudes obtained by other observers stationed at each end of a measured base-line. At the end of each drill, records were available for the information of all Battery Commanders. Three weeks before the beginning of target practice the observers were returned to their respective batteries for further training under their Battery Officers.

Five of the six batteries used only height finder altitudes for all of their practices and the results were uniformly good. Best results can be obtained with these instruments at night and on cool days when heat waves are not present.

On March 2, 1935, the regiment moved to Waimanola and went into position about 1000 yds. from the beach. Adjacent to the 64th Camp was situated the Air Corps field, and at all hours of the day or night flying missions were provided on the request of the P&T Officer. The set-up was almost ideal, the only difficulties experienced being occasioned by the beautiful Hawaiian clouds.

Too much stress cannot be placed on the frequent checking of orientation, synchronization, clinometering, and bore sighting. Gun clocks should be carefully checked against the director immediately before and after firing. The reason for checking before firing is obvious; afterwards to locate the sources of errors which might come to light during the analysis. The ammunition should be

carefully inspected and selected. Loose or twisted fuze lugs are frequently the cause of the fuze cutter or the breech block jamming. Careful attention should be paid to the seating of the projectile in the case. Frequently loose rounds will be found and recrimping is necessary.

Check fuze cutters before firing by actually cutting several fuzes. If, for example, the fuze shows 15.2 when the cutter dial reads 15 the error can easily be rectified. The fuze cutters are not built to stand rough usage and the gun crews were carefully drilled to protect them during drill as well as the firing; consequently they functioned almost perfectly, there being only one very short delay due to a projectile becoming jammed in a fuze cutter. Firing was immediately stopped for that course in accordance with previous instructions. The penalty assessed for inability to maintain the required rate of fire is too heavy to continue with one gun out of action. The Battery had been carefully trained to maintain approximately 22 rounds per gun per minute. This rate can be maintained without "rushing and pounding" the fuze cutter and no doubt was partially responsible for the almost total lack of matériel failures.

In order to prevent the gun flashes from blinding the men matching the pointers, each pointer case was "hooded" with a fatigue blouse. It is believed that the hoods could be used advantageously for day firing as they would prevent any tendency to flinch or close the eyes. Long mailing tubes were used on all tracking telescopes to prevent blinding the observers.

The Brigade Commander, Hawaiian Separate Coast Artillery Brigade, made the following comments as an indorsement to the third practice which was fired using stereoscopic range sensings only:

"The results of the 3 practices of this battery show excellent preparation for and conduct of practice. The work of the stereoscopic height finder detail of this organization is especially worthy of note. This practice, fired using stereoscopic range sensings only, producing the greatest number of hits and the largest score of the 18 practices fired by the 64th CA. this season. The work of this height

finder detail bears out my contention that with properly drilled observers, the stereoscopic height finder is dependable for sensings.

"I consider the results obtained by this battery in using an M1A1 director after a very short and intensive drill an indication of the high degree of training attained in preparation for target practice. The work of the range section is to be commended. I was particularly interested in noting the results obtained with the range section manning a more or less unfamiliar director as this is a condition which might arise under service conditions."

Summary of practice is as follows:

Average slant range (four courses)	5991
Average horizontal range (four courses)	5188
Average altitude (four courses)	2993
Average angular height (four courses)	536
Ground speed plane, M.P.H.	91
Number guns	2
Number shots	57
Number hits	13
Per cent of hits	22.8
Hits per gun per minute	4.8
Average time flight	14.23
Type target	B-9A
Score	152.35

EDITOR'S NOTE: Under date of January 9, 1936, The Adjutant General sent the following letter to Major Bucher:

"It is desired to express to you the heartiest congratulations upon the winning by Battery 'B,' 64th Coast Artillery (AA), Fort Shafter, T. H., of the Knox Trophy for the calendar year 1935. This trophy is much sought after by all organizations of the Coast Artillery Corps and Battery 'B' is announced as the winner after the most careful review and study of all 1935 target practice records by the Coast Artillery Board. The fine record made by Battery B in its target practices is a tribute to the high state of training of the battery and its fitness for service. It should be a source of gratification to you as commanding officer of the battery at the time of its target practices to know that your efforts have been recognized by the award of this much coveted trophy."

The officers on duty with the battery at the time of the practices were Major (then Captain) Oliver B. Bucher and Lieut. Edgar N. Chace. These officers and the entire enlisted personnel of the Battery deserve special commendation for the high standard of performance, general excellence, professional zeal and ability, which resulted in their outstanding accomplishment and noteworthy performance; this they have received in an unstinted measure.



IT IS THE LACK of any good reason for fighting which is the only sure safeguard against aggression; while for a peace-loving nation—especially one with the responsibility of great possessions—security and the power to preserve peace call for weapons, not weakness.—JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.



So the Germans did not get warning of the attack.

Spy and Counter-Spy—Part II

By THOMAS M. JOHNSON

ONCE, in my tender youth, my father took me to thrill at a melodrama of secret service. The Master Spy tiptoed onto the stage, disguised in a luxuriant black beard. But, just as he stole "the papers," the beard fell off! The audience was delighted, but not I. Indignantly, I complained, "Aw, he isn't a real spy!"

The late A.E.F. and the Army generally, are apt to receive narratives of spies in their midst with similar skepticism. Baloney! Their beards would fall off! They forget that eighteen years ago every *briquet* that flashed and every radiator that knocked was a German spy signalling.

In truth, while there was not a German spy lurking behind every French fertilizer pile, there *were* German spies, and they *were* spying upon the Americans. Beneath the spotlight of verity, not quite all the beards fell off. But, sad experience impels me hastily to add, "Don't take my word for it." As proof, I quote from a questionnaire the Germany military intelligence circulated to its agents:

"What routes are taken by American transports to Europe?"

"At what French ports have American troops been landed?"

"How many troops have been landed at each port?"
"What is the composition of such troops? Combat troops, labor battalions?"

"Which French ports are being specially enlarged by the Americans?"

I have seen that captured document; also, another paper that casts light on this German spy business. It is the final report of G-2, S.O.S., that it had handled 3,706 cases of suspected espionage or disloyalty, and had under counter-espionage 26 German agents. Of this latter group some were fed false information or permitted to send reports which the Americans intercepted, falsified, then forwarded. There were 79 persons interned, 102 expelled from the S.O.S., and 18 deported from France. And that excluded the Zone of the Armies; also, the rest of Europe, and the world; and the others, who spied on, undetected.

Wherever there were Americans, there were apt to be

As a whole the work involves more drudgery than drama.

German spies. Scarcely had the 1st Division sailed, than naval intelligence in New York interned a man who filed to a suspect address in Holland, an encoded cablegram imparting the numerals and strengths of its regiments; scarcely had those regiments landed, than the French told Major General Hanson E. Ely, then provost marshal, that German spies with motorboats were using the islets and estuaries about St. Nazaire, to cover spying upon them.

We had to protect ourselves—which is counter-espionage—spy-hunting. An experienced Frenchman defined it as “the practical outcome of the fear of having spies everywhere.” That same Frenchman prepared a memorandum to help us organize G-2-B, the secret-service division of the intelligence section at G.H.Q. That memorandum is before me. It shows that the German secret services (there were several) had a multitude of agents spying upon all the Allies. The Allies welcomed our aid in hunting them down. There was less danger of overcrowding in this branch of the work than in the Allies’ own already perfected spying in Germany. So, the Americans did much more in counter-espionage, than in espionage.

From the great Mata Hari—Bolo Pasha—*Bonnet Rouge* spy-scare of 1917 to the Rhineland intrigues of 1919, the Americans had 50,000 officers and men running with the hounds, hunting spies as secret agents. They were divided between two organizations, so well hidden that today few know of them—save officers who have heard them described in War College lectures. They were, first, the 500 or so “I.P.’s,” the Corps of Intelligence Police, the special spy-hunters who covered the rear areas and the front in France, Britain and Italy; and second, the thousands of undercover operatives in the ranks, who formed “Divisional Intelligence,” or “silent watchers.”

Theirs was a double duty, a double hazard. Outwardly, and actually, they were soldiers, like any others; they drilled, marched and fought, and many died or were wounded; but living, they never relaxed eyes, ears or wits in the ceaseless and silent hunt for spies in their midst, or for the disloyal. They never worried about disciplinary infractions, even crime. But espionage or disloyalty, they reported to a single officer in the division, who, in turn, reported directly to G-2-B. Thereupon the disloyal disappeared, to labor battalions perhaps, or to internment camps. Eight hundred were thus weeded out of New York City’s polyglot 77th Division before it even sailed for France.

That was why we had to have such a system which unavoidably led to occasional abuses, and why we may have to have it in another war. No army in the world was so cosmopolitan as the A.E.F., with its 51 languages. From no army was it so difficult to weed out spies, actual and potential. It is to the German-Americans’ eternal credit that the problem was no worse—also, to the silent watchers. Thanks to them, by the time divisions reached

France, they had been so sifted that the A.E.F. was the most loyal army in our history. The devoted men who composed this army within an army received no extra reward, even for a service so valuable and so dramatic as that just before the first American attack, at Cantigny. Just before dawn, German lookouts heard several shots in the 1st Division’s trenches, followed by a single cry; then silence, and darkness. Minutes passed . . . nothing more happened. Possibly a nervous sentry. The lookouts lighted their pipes, carefully concealing the flare. Dawn was breaking. The sun was rising behind them, but they never saw it shine.

A sudden crash of artillery hurled a rushing hell of bursting shells at the German positions. Behind the barrage came the Americans. They swept through Cantigny in the first American victory of the war.

But news dispatches that told of that victory said nothing of the episode that made it possible; of how, the night before the attack, a man in American uniform had started to cross No Man’s Land to the German trenches. He disregarded the cry of “Halt!” Two shots cracked. At the edge of the barbed wire, the fugitive stopped, cried out, fell, lay still. His pursuers crawled to him, and one took something from beneath his slicker. “Trench code book,” he said.

So the Germans did not get the warning of the attack that a German sergeant in the 1st Division had tried to take them.

I believe no official record exists that shows that the Americans ever executed a spy. I have seen an official photograph of “German spies in French uniforms, shot in the 28th Division sector.” But try and get the answer! At the front, shrift was very, very short; at the more effete rear, once we had trapped a spy, we delivered him to the tender mercies of the French, who tried him for violating their laws against espionage, and almost invariably convicted him. That meant a firing squad or a prison term.

The silent watchers story once aroused the skepticism of a former major who said so in the magazine he edited. Four readers wrote him “I was a ‘silent watcher’ in your own war-time battalion. And you never knew it!”

The I.P. did the more “open and above board” secret service. Among troops at the front, a group were attached to each army and corps, to ferret out men who could not account for themselves (sometimes in uniforms taken from American prisoners), to prevent careless telephone talk, or handling of important papers and maps, sometimes to spread false rumors. Before St. Mihiel and the Meuse-Argonne, almost every I.P. in France was concentrated behind the battle front to make stranger-proof compartments into which no spy could safely go. During battles they helped handle prisoners and refugees, whom they carefully sifted for spies or German sympathizers.

But most of the I.P.’s work was in the rear areas, running down the innumerable “spy tips” and occasionally

ferreting out a real spy or a disloyal Frenchman or American from among the troops or civil population. France and England were divided into districts, each in charge of one or more intelligence officers with a group of perhaps a dozen I.P. sergeants. Under various pretexts these agents traveled from place to place, sometimes in uniform and on motorcycles, sometimes in civilian dress. Some worked as waiters in cafés, as laborers, or in any capacity that would camouflage their investigations.

This was ticklish work that required men of unusual characteristics, and such were the I.P. The M.I.D. in this country had hoped that this guerilla band might be largely recruited from former private detectives, but in the end had to resort to mysterious advertisements aspiring for daring men who spoke French, German and other languages. Cosmopolites responded, who neither knew nor cared about I.D.R. or F.S.R. All were fitted by temperament or experience to go it alone. One had killed a French officer; another tried to kill an American officer; a third had held up a Russian train, single-handed; a fourth was a Belgian nobleman who later posed successfully as a French banker. Many odd jobs fell to the I.P., the "detectives" serving G-2-B, not to be confused with the M.P. or D.C.I.

Mostly, they were self-made sleuths, happily going it alone. As one said, "Some tried to be deep and foxy, but I worked like the village fool who went out and found the lost donkey all the wise men had given up. 'Why,' they said, 'how did a fool like you find that clever donkey?' The fool answered, 'I figured out what I'd have done if I'd been the donkey, and I did—and he had.'"

That method, or others equally individualistic, succeeded pretty well. Faced with proofs of German spying at Tours (headquarters of the S.O.S.), the I.P. made it a special area, hard to enter or leave; the same at aviation centers at Issoudun and Romorantin, to protect the secrets of the Liberty motor. At the railroad regulating station at Is-sur-Tille they stopped a gushing leak of information by insisting that if outgoing freight cars must have chalked on their sides their contents, unit and place of destination, it be not in plain English and French, but in a code, frequently changed. Another check for Colonel Nicolai's *Nachrichtendienst* on our order of battle, was in the Y.M.C.A. hut in sacred Chaumont, where visiting officers writ large in a register their name, rank, unit and station.

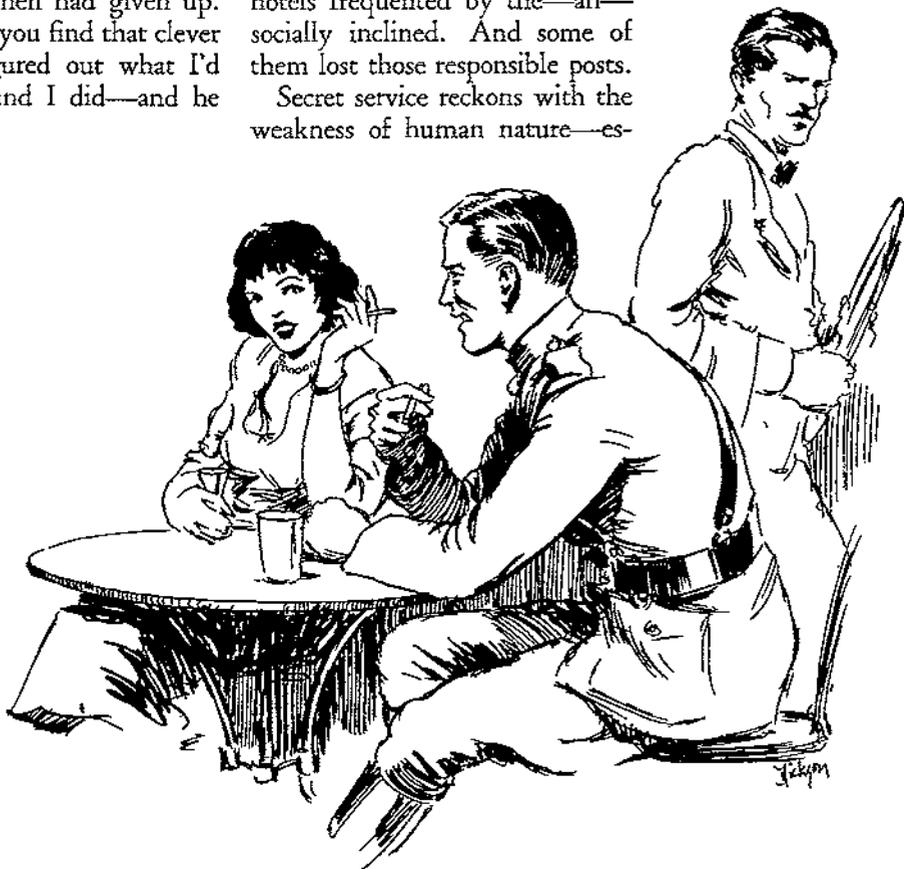
The I.P. guarded G.H.Q. against

German spies, with a daily and nightly patrol that watched scrubwomen, and what happened to the contents of waste baskets—which the Germans really did covet. One of the patrol fell victim to a salty Marine from South Dakota, and remained twenty-four hours in durance vile, as a 'German spy! Another I.P.'s job was bodyguarding General Pershing; he carried two revolvers, a Colt and a hammerless Smith & Wesson, easy to draw quickly. Some attributed a fire near General Pershing's office to an incendiary pencil the Germans used, but I am assured that no spies were caught at Chaumont. Yet some must have been there; spying on G.H.Q.'s was universal.

So was spying in capitals, like Paris. In the secret war of spy and counter-spy, the *ville lumière* was indeed a tactical feature; full of politicians, officials, ministries of foreign affairs, war and marine; munitions plants; and thousands of officers and soldiers from every army and every front, on leave, off guard, shaking off the strain of the trenches, bibulously, amorously.

There were those little ladies—"Come to my room, 'ave dreenk?"—often curious to know "'ow mannee Americain' arrh on France?" Most worked for one secret service or another; if not German, then French, or British. We too felt we must keep tabs on officers, especially those in responsible posts. Some, alas, talked too much. To find out which ones, the Belgian nobleman I.P. entertained the "rankest," and G-2-B had dictaphones in hotels frequented by the—ah—socially inclined. And some of them lost those responsible posts.

Secret service reckons with the weakness of human nature—es-



"'Ow mannee Americain' arrh on France?"

pecially American human nature. In the ports where transports disgorged new arrivals, I.P.'s mingled with them, in the uniform of veteran outfits, or perhaps in civs, as correspondents for *The Christian Herald* (yes, honestly) pumping the newcomers. How about grievances, health, state of training, morale? Usually their report was, "Excellent." Just occasionally, German-Americans drafted from the mid-west showed they would rather take their mud in Brest, than in the trenches. A good thing for G.H.Q. to know.

Colonel Nicolai says he also received such information from his spies at ports the Americans used, but preserves masterly silence about Emil. That astute spy was a bus-boy at a Havre hotel, until the I.P. spotted him. After that, he was God's gift to G-2-B, for they ingeniously fed him all manner of misinformation, which he duly dispatched to Colonel Nicolai in reports the Americans as duly intercepted, read, then forwarded by his "secret" grapevine.

Many an I.P. case had its comedy, but in drama, two especially approached the popular idea of "secret service." One started with an order to a cosmopolite sergeant to "go find out what's wrong at Selles-sur-Cher." No further explanation. So, as Pedro Padilla from Madrid, he got a job working on the big refrigerating plant the Americans were building with labor largely imported from Spain. He sensed immediately that this was a tough crowd and a suspicious one. The first night he awakened with a start, a flashlight in his face.

"Get up," a voice commanded, in Spanish.

Two men led him into a dark corner of the bunk house.

"You don't look like a workman," snarled one of them. "We think you're a damned American spy. You say you're a Spaniard, from Madrid. Prove it—or else—!"

They asked the I.P. searching questions. But, racking his brains, he answered them, for he really had once lived in Madrid. Then came the climax.

"If you lived in Calle Zorilla in 1898, what happened in that street?"

"What happened?" repeated the secret agent, his heart sinking. "Why, so many things—can't you give me some hint?"

The dark faces glowered suspiciously. Then one inquisitor grunted; "Well, it was about a pig."

"A pig! Good God, a pig—" the I.P. groaned inwardly. Then, suddenly, a flash of memory. "I know! The day war began between Spain and America. A crowd

paraded the street, cheering—leading a pig—a 'Yankee pig'—wearing an American flag and a plug hat. Before the house of General Weyler, they hung the pig to a lamp post."

The Spaniards leaped up, extended their hands. "No dirty American spy would know that!" they cried.

The I.P. sighed with relief, and rightly, as he found next day. He had made himself solid, free to move about, eyes and ears open. He noted that when a train went by, the Spaniards stopped work and counted the cars. They were betting on how many trains would pass, in what direction, what sort of trains. Results were carefully written down for one man who kept the pool and never returned the lists. Camouflaged as love letters, he handed them to a French barmaid, who in turn gave them to a railroad man traveling daily to Paris. A train-watching trick for the *Nachrichtendienst*.

This same sergeant was ultimately promoted second lieutenant for this and other exploits.

"What was the hardest ordeal of all?" I asked him.

"The hardest?" he repeated. "Well, one day an American corporal made four of us Spaniards pump him five miles on a handcar, bawling us out for 'Greasers.' A corporal! and I was a sergeant—but I was in disguise and couldn't tell off the so-and-so!"

The second I.P. adventure also has a Spanish background, a reminiscence of '98. There were Spanish laborers in Beaune, too, and among them flitted a youthful Red Cross interpreter who spoke their language and several others. Like them he was fond of good red Burgundy and a roll of the dice, yet never lost his head. His real name was Peter de Pasqua; his real job, as an I.P. sergeant, was keeping tabs on what went on beneath the sometimes troubled surface.

Surprising things did he find when he met one Diaz. This Spaniard had never forgotten that his family had been expelled from Cuba for hostility to the Americans. Of violent temper, he had killed the colonel of the Spanish regiment into which he had been drafted, then had fled to France, and sought work for the Americans, so that he might settle the twenty-year-old score. He had won over another Spaniard, Ochoa, and a pacifist Frenchman, and now, it seemed, this American interpreter.

Diaz was ready for anything, he vowed when full of wine. He claimed a German secret-service chief in Spain lived in his parents' home, and begged de Pasqua to stamp with an A.E.F. censor's stamp a letter to him.



I.P.'s mingled with them, in the uniforms of veteran outfits.

volunteering as a spy for Germany among the Americans. Meantime, he wanted to steal and send to the Germans plans of the American hospitals at Beaune, so they might be bombed by airplanes or sabotaged. De Pasqua reported to his superior who arranged to let Diaz steal faked plans. Flushed with success, the Spaniard called the conspirators together in a little *buvette*.

"We must sign an oath!" he cried. "Death to the Americans! An oath in blood."

They pricked their wrists, and signed the oath. The I.P. too.

"And now," said Diaz, "let us not wait. Nearby is a big reserve *dépôt* of munitions. Let us blow it up!"

De Pasqua's superior, now a prominent New York lawyer, notified Patis, and a high French counter-espionage officer came to Beaune. Diaz, Ochoa and the Frenchman they gobbled up. But de Pasqua was not satisfied. He wanted to go to Spain, and work in with the German spy chief. The offer went, through channels, to General Nolan; but the American G-2 chief hesitated to let a man so brave, risk a death so mean. Then came the Armistice. They recommended de Pasqua for the Distinguished Service Medal; in vain. But recently he got the Purple Heart. However, he does have to show for his secret-service experience a French wife, wooed and won in Beaune, and certainly of late, an interesting life.

You see, de Pasqua testified against the Spaniards and, in open court, they shrieked that they would kill him when they got out of prison. Well, they got out not long ago and de Pasqua was right there in Paris. He still is, according to a recent letter. He is hardly the worrying kind.

Most counter-espionage cases, as Lieutenant Colonel Aristides Moreno, who handled them, once said, "come to no satisfactory conclusion." As a whole the work involves more drudgery than drama. For instance, there was a lot of wire-tapping, which is important but laborious. By wire-tapping I mean trying to intercept the spy's communications to and from his superiors. This communication is at once his greatest strength and weakness.

If he can get his reports out quickly, it is doubly dangerous—both to his enemy and to himself. His grapevine is his Achilles' heel—mixed metaphor, but truth. For every time a spy dispatches a report, he risks revealing not only himself but the recipient, and so, perhaps, a whole system. Therefore counter-espionage must "control everything," meaning, watch everything, tap every possible channel of communication; not only telegraphs, mails, radio, but ships, ports, frontiers, railroads, sometimes even roads and hotels. The I.P. spread a net of spy-control over all France from ports to front.

They checked travelers by suspect lists; 15,000 names at G.H.Q., 140,000 at Paris, G-2, S.O.S., which organization forbade 323 passport applicants to leave France. They watched closely crews of ships docking at French ports; some were messengers for the Germans, and if shadowed might lead to higher-ups. At ports and other American centers all travelers were under surveillance.

I.P.'s watched railroad stations, called at hotels, even hired hotel employees to report on suspected guests, search rooms, steam open letters; distasteful, perhaps, but sometimes yielding important results. And—a part of war.

The eye of counter-espionage was ever open at frontiers, especially the Swiss, a gauntlet that spies and their messengers were continually trying to run. They carried information hidden in a myriad ways; in a gold-crowned tooth, a shoe heel, a toothbrush handle, a pipeful of tobacco (which the spy would light if caught), even a baby's intimate draperies. The French caught three hundred spies at the frontier station of Bellegrade alone. There were also stations for questioning civilian travelers from Germany.

Through another frontier station, Pontarlier, went telegrams to Switzerland, many of which were suspect. The French sifted them all, saying, "Any telegram, even the simplest, even the least suspicious, can contain secret information." How can a censor know that "Forward fifteen boxes of sardines" means "150th Infantry Regiment is here?" American I.P.'s sifted telegrams for Switzerland at Dijon, and occasionally turned up something interesting.

Tricky things are codes. A British censor pondered a cable to a suspect address in Holland: "Father is dead." He changed it to "Father is deceased," and let it go. Soon came a reply: "Is Father dead or deceased?" Our naval intelligence censored our transatlantic cables and often changed messages that looked queer, or held them up if they were from or to anyone on its suspect list of 100,000 names.

There were innumerable tales of German wireless plants near French seaports, flashing news of our troopship movements. Naval intelligence could never find them, nor could G-2-B; but they did find that German submarines sometimes landed agents who sought such information, and flashed it from shore at night. So naval intelligence enlisted French fishermen to sell submarine crews fish—and ask questions.

Perhaps in the next war, radio will be out—unless secret radio or radio-telephony can be developed for military purposes. In the last war both sides were very successful in intercepting and decoding enemy messages. American G-2 got to be quite good at it, and correctly predicted some German moves.

We also tried to pick German messages from the mails but with less success . . . at least, in France. The French kept thirty censors and eight chemists busy at Pontarlier, but our base censor in Paris never had a real spy case. He examined 6,335,645 letters, tested 53,658 for secret ink, and the worst thing he found was a bellyache about the chow, sent to relatives in Italy from an Italian-American Doughboy who had written on Y.M.C.A. paper—in fruit-juice—with a steel pen! So the ink was far from invisible.

That does not mean there were never spy messages in the A.E.F. mail, for only a fraction of its letters were ever examined by anyone but company officers, and the

chemical laboratory did not function until nearly a year after the first Americans reached France. At the end, the base censor, Major B. A. Adams, reported:

"We discovered many attempts at conveying forbidden information to satisfy the curiosity of friends and relations at home. This information was usually the location of the writer, troops near him, and where he was to go, ordinarily in some easily-detected code. In a few instances it was conveyed by invisible inks."

On the whole it is a tribute to the loyalty of the A.E. F. (and to the silent watchers of divisional intelligence) that this fine-tooth comb brought out so few suspects, for Major J. S. S. Richardson to describe with characteristic irony in that interesting publication, *The Counter-Espionage Bulletin*. Circulated among higher-ranking officers and G-2-B, it detailed the appearance and methods of the "aces" of the *Nachrichtendienst*, who might be expected to operate against the Americans, such as the formidable "S" whose downfall was one of the most notable single achievements of American counter-espionage in Europe. I have the facts of that case from several officers who were high—one, very high—in the M.I.D., and from documentary evidence.

"S" was a versatile genius—engineer, army officer, amateur actor, master of seven languages. He was attached to the German legation at Berne to outwit Swiss restrictions upon trade with blockaded Germany. He set up a dummy broker's office that imported to Switzerland many million francs' worth of merchandise which was then smuggled into Germany often by the ancient device of bribery. He had two other identities: A German captain in charge of transfer of prisoners and an habitu  of night life.

Through all these ramifications he had contacts with high and low. The chief of police of Berne was one. "S" had a Swiss police badge. Business connections gave him tips on what went on in Allied diplomatic and consular circles. To Berlin he sent the names of twenty-one French spies in Germany to be snuffed out before they could report plans for the German 1918 spring offensive. That was indeed his master stroke; it won him the decoration *Ordre pour le M rite*.

But the hand of the master slipped. He did not know that the young German managing his dummy brokerage

office nursed a rankling hatred for the Imperial government and its army, because of an *affaire* between his sister and a German officer. He vented that hatred by turning over valuable information to an American officer, and so became known to M.I.D. as "Zero."

Far from "zero" were the proofs he gave that "S" was not only violating Swiss neutrality but violating other laws as well. The Swiss had to arrest him but influential friends got him transferred to a private sanitarium. There a false alarm of fire allowed him to escape in an automobile of the German legation to his villa at Arbon on Lake Constance, where a speedy motorboat took him to Germany.

Once he left Switzerland his secret service broke up. But his furious compatriots suspected "Zero," had him arrested on a trumped-up charge, searched his rooms and shadowed him when he was released. He begged the Americans to get him out of Switzerland. Now one of the rules of secret service taught at the G-2-B school at Chaumont was, "If a spy or informer who has served you is caught, disown him."

But this American officer decided to forget rules. He smuggled the panic-stricken "Zero" across the frontier to safety. However, the Americans did follow one rule: "A secret service should be *secret*." They turned over the proofs on "S" not directly to the Swiss, but to the French secret service.

"Let the Frogs get the credit," chuckled the American chief. "They'll love it—and we'll keep the biggest advantage we have in this game—everyone will still think we're just a bunch of big-hearted country boys, playing spy."

They all thought that for a while, Germans and Allies. But they learned. Says Colonel Nicolai, "It was noticeable that American support of the belligerents stimulated secret-service work. It seemed as though the Allies only then gained a clear picture of Germany, and found out where to set to work with their secret service and, above all, with their propaganda."

And von Hindenburg says, "Our spy service produced only miserable results. In this sphere, even German gold succumbed in the struggle between our enemies and ourselves."

So, we won even the secret war.



THE OBVIOUS WAY to have short wars is to be prepared beforehand to make them short.—PROF. HENRY C. EMERY OF YALE.

Antiaircraft Machine-Gun Tracers

BY MAJOR C. S. HARRIS, C.A.C.

WHEN four antiaircraft machine gunners open fire on one target using individual tracer control, usually a rather widely dispersed pattern of fire results. Some of the gunners are likely to shoot behind the target; others, ahead; some will shoot low; others, high. And to confuse further, all of the individual patterns are likely to weave from one side to the other. If the guns are grouped in a small area it is difficult either to identify the individual streams of fire, or to locate the center of impact of the entire cone of fire. With this confusion it is impossible to coach the gunners either individually or collectively. Roughly, the foregoing is a résumé of one of the discouraging problems which have exasperated antiaircraft machine gun commanders for several years. Recently, under the energetic leadership of Colonel (now General) A. H. Sunderland, special firing tests have been conducted both by the Coast Artillery Board and the 64th Coast Artillery. During the tests the matter of machine-gun tracer observation was given particular attention. While no striking progress in individual tracer control has yet been made, at least some new ideas have been introduced which may be of interest to the officers who are now preparing for machine-gun target practices.

It was demonstrated early in the tests that if only one machine gun were firing, a certain amount of extraneous confusion was removed and tracer observation became more practicable. It was also found that the same result could be obtained when several guns were firing if the guns were widely separated. Inasmuch as this method of emplacement is in accordance with present tactical doctrine, it merits strong consideration for application in target practice. However, even with such separation of the individual machine guns, there still remains a difficult observation problem since at ranges beyond 500 yards, human stereoscopic acuity decreases rapidly. At such ranges the observer needs to utilize other schemes to aid his stereoscopic vision. Partly by accident and partly by study and test, it was discovered that the position of the observer with reference to the gun and to the course of the target has a great effect upon the efficiency of observation. On this basis the tangential method of observation has been developed.

TANGENTIAL OBSERVATION

When machine-gun tracer fire is directed against a rapidly moving aerial target the trajectories appear to curve sharply. This apparent curvature is due to the relative movement of the target and the bullet and the direction of the curvature is always opposite to the direction in which the target is traveling. I prefer not to call this curvature illusionary, since to the observer it is very real, comprehending completely the movement rela-

tion between the bullet and the target. Refer to Figure 1. If the observer takes position at A, he is on a line tangent to the apparent trajectory at the range of the target; the tracer appears to be going straight away from him and toward the target. He is in position to get tangential observation on the target course shown. Actually he has taken a position from which the true angular rate of the target is equal to the true angular rate of the tracer when the bullet reaches the approximate range of the target. With a reasonable degree of stereoscopic acuity he can secure accurate tracer observation, since for a long travel of the tracer there is little relative angular movement between the tracer and the target. If the stream of fire is behind the target along the curve $G e e'$, the observer can easily tell that it is behind since the tracers never get up to the line, Observer-Target, and also since each tracer has a fairly constant deviation from the target during a long interval of time when the tracer is near the range of the target. Likewise the observer at "A" can easily tell when the fire is ahead of, or above, or below, the target. If, on the other hand, the observer takes position at "B," there is a rapid angular movement between the tracer and the target. Consequently, he cannot judge the fire accurately unless his stereoscopic vision is very acute. For example, if the stream of fire is behind the target along the apparent curve $G e e'$, when a tracer reaches "e" the observer may erroneously judge that it is striking the target at "T."

The principle of tangential observation may be illustrated in a more conventional mathematical manner by Figure 2. At a range of 1,000 yards the velocity of a caliber .50 tracer bullet is approximately 500 yards per second. A fast airplane may travel at a velocity of 100 yards per second. Let us assume, therefore, that while the bullet travels from "S" to "U," the target travels from "R" to "V," and that they meet at "T." If the

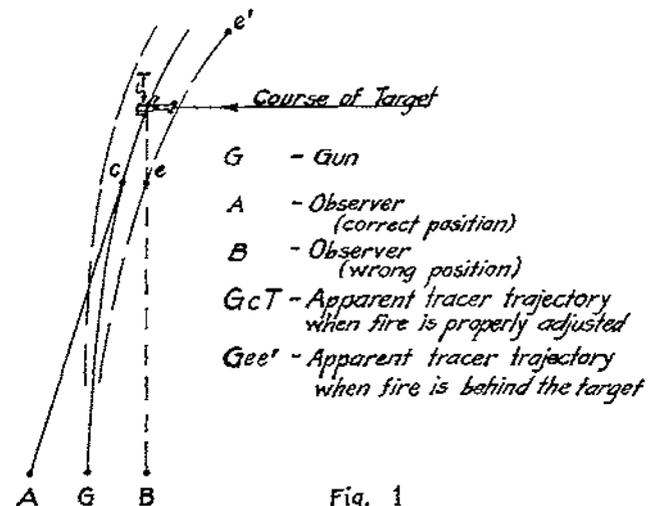


Fig. 1

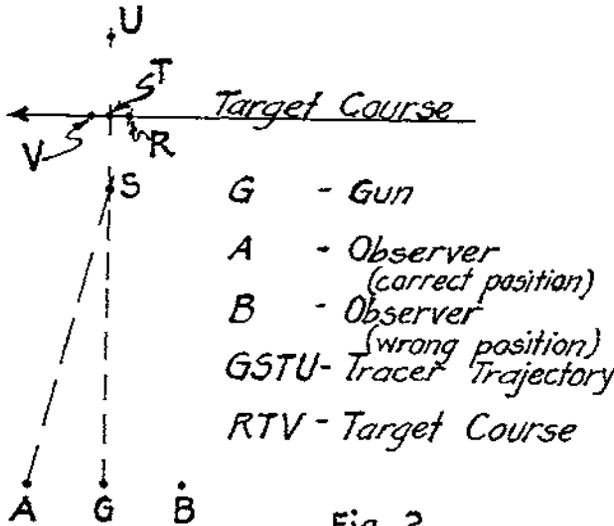


Fig. 2

observer is located at "A," in prolongation with the points "S" and "R," the angular velocities of the bullet and the target are in the same direction and approximately equal, and he is in position to gain tangential observation. The tracer remains approximately in line with the target as the former moves from "S" to "U" and, consequently, an error in stereoscopic vision does not lead to a material error in the observation of fire. To the contrary, from point "B" the actual angular movements of the tracer and the target are in opposite directions, and consequently, the two can remain in line only for a moment. An error in stereoscopic vision will lead to a considerable error in the observation of fire.

Theoretically, the exact point for tangential observation varies for different courses and also it varies continually on each course. Practically, a location on the flank toward which the target is flying and at a distance of about one-tenth of the mean range gives satisfactory results for target practice conditions. When the target approaches directly toward the machine-gun position tangential observation is obtained from a point in rear of the guns.

So what? It is obvious that we cannot chase the gunners about to the various points in order to give them tangential observation; at least, we cannot with the machine guns now in use. However, trained observers, other than the gunners, can utilize such observation. If such observers are assigned to coach each individual gunner, the coaching can be made more positive and more valua-

able than has usually been practicable heretofore. Such coaching can be used to particular advantage during the early firings for individual training. Unit commanders can utilize tangential observation during the firing practices to keep themselves continually informed as to the accuracy of the fire.

TRAJECTORIES OF TRACER AND BALL AMMUNITION

A number of officers believe that the tracer trajectory does not follow the ball trajectory with sufficient accuracy for fire control purposes. That theory was refuted by the results of the recent tests; however, a brief discussion is in order. It is generally known that the tracer bullet has a higher ballistic coefficient than the ball bullet; that the tracer ammunition is given a lower muzzle velocity; that the two trajectories are made to group at a certain range (caliber .30, 600 yards; caliber .50, 1,000 yards); and, that beyond the grouping point the tracer trajectory is slightly above the ball trajectory and the time of flight of the tracer ammunition for a given range is less than that for the ball ammunition. However, the divergencies even at maximum ranges are negligible when M1 tracer and M1 ball ammunitions are used. For example, note the following comparative data which were determined by recent tests at Aberdeen Proving Ground:

	Difference in ordinate, yards	Difference in time of flight, seconds
Caliber .30, range 1,000 yds.	.18	.022
Caliber .50, range 1,800 yds.	2.16	.128

The worst situation arises when caliber .30 M1 tracer ammunition is used with caliber .30 M 1906 ball ammunition. By reference to Firing Tables 0.30-A-1 and 0.30-C-2 it can be seen that at a range of 1,000 yards the tracer trajectory is approximately two yards above that of the ball, and the tracer time of flight is one fourth of a second less than that of the ball. The practical solution is to place the tracer cone of fire one target length ahead of the target and two yards above when firing at extreme ranges. During the recent tests with such ammunition the holes made by ball and tracer bullets were identified on a number of courses and it was found that the holes made by each were consistently in the correct proportion according to the number of rounds fired. The logical conclusion is that for present practical purposes the tracer trajectory is satisfactory.



THE RANGE AND ACCURACY of present-day antiaircraft artillery gives it the best possible protection, the ability to hit the attacker first.—MAJOR RAYMOND MARSH, ORDNANCE DEPARTMENT.

Sailing the Three C's

BY COLONEL J. C. JOHNSON, *C.A.C.*, and CAPTAIN
GEORGE F. McMANUS, *Coast Artillery Corps Reserve*

REPOSING special trust and confidence in your patriotism, valor, fidelity and abilities, it pleased the President to appoint you a Reserve officer in the Army of the United States. If you are a real *asset* to your country, you are one of the active assignables. Each year you have pursued your Army Extension Subcourses, attended troop schools, participated in unit terrain exercises (on your own time) and, when funds have been available, you have gone to camp—all for the one major purpose of qualifying yourself properly to function in grade on and after M day. This being your objective you take your job seriously. You know that under our military policy the government and the people depend upon you.

You, together with thousands of Reserve officers like you, are giving, unstintingly, your time and your best efforts in order that you may be able better to assist in the protection of the United States of America from invasion without or from subversive elements within. You belong to that component of the Army which must furnish over 75% of the commissioned personnel on, or soon after, M day. On shoulders such as yours the fate of our nation rests heavily.

Perhaps you are preparing yourself for an M day in the nebulous and distant future. For over 7,000 Reserve officers M day is *here*. For nearly three years M day and M+ have existed for those who have been ordered to active duty with the CCC. For such officers the time arrived—and arrived suddenly—for them to put into practice not only the lessons they had learned during their military careers but also that common-sense generally inherent in sturdy Americans. For theory they found it necessary to substitute reality—actually to handle men and to be responsible to their country and to their communities for their health, esprit, loyalty, comfort and welfare. Clearly such responsibility includes keeping the minds of these young enrollees, many of whom have been idle, shiftless youths, free from subversive ideas.

As an eligible for CCC duty you are looking forward to the day when priority will carry you to the top of the list on file at corps area headquarters and into that ever-to-be-remembered dawn of your first day in the CCC. When that time comes, where can you reasonably expect to land? What can you reasonably expect to find there?

First, you can count on going neither to CCC G.H.Q. in Washington nor to corps area headquarters. You will in all probability land at some CCC district headquarters where you will find your future district commander and his staff consisting of an executive, adjutant, quartermaster, chaplain, inspector, and various assistants depending on the size of the district, more absorbed in the multitudinous details of administering and supplying the

For over seven thousand Reserve Officers, M day is here.

many camps of their district than they are in you. However, you will find that they will stop long enough to give you your assignment to duty and, if conditions permit, to see that you are given some preliminary instruction in your job-to-be.

In due time you will probably report at some distant camp for duty. What will you find there? You may reasonably expect to find a camp fifty to one hundred miles or so out in the lonesome pines, at the end of an unimproved tortuous mountain road or trail. There you will also find a CCC unit composed of some 200 to 220 husky young Americans hardened to the rigors of forestry work, with appetites which completely offset the calculations of a young mess officer, and with many other needs which often require long over-time hours to meet. Generally speaking, these youngsters will manifest a loyalty and good will which will do your heart good and will be some measure of compensation for the many trials and tribulations. In meeting their natural needs, you will find many things, demanding your constant attention and your prompt decisions, which were not taught in your extension school courses—things which you can learn only in the hard school of experience. You are now in that school, and you will soon find, just as on any M day, that you will have to prove your mettle and your ability.

To what duties can you reasonably expect to be assigned? First a few generalities. You are now to be one of the guiding spirits of a body of young hopefuls, the total of which in the entire corps amounts to six figures—some three or four times the size of the Regular Army. You are not engaged in war nor are you called upon to give military instruction. You will find yourself one of two or three Reserve officers who are immediately charged with the housing, feeding, supply, clothing, sanitation, medical care, morale, welfare, recreation, administration and discipline of the "command." This command, though all-absorbing so far as you are concerned, is represented by only one of the thousands of specks on the map showing the location of all units of this vast Civilian Conservation Corps, the constant turnover in which has by now brought the total number of enrollees to over one million youths. Each one of this vast number has received the personal attention of those who, like you, are immediately in charge of them.

The responsibility for the welfare of those in your camp is henceforth yours to share. In assuming this responsibility, prepare yourself for just about everything that could develop during an initial war-time mobilization—except military drill and military instruction.

You will be required to function from reveille to taps. Even taps does not mean that the day's work is done. It is finished only when the business at hand for that day has been completed. Take your job seriously.

Now for more details as to your general duties, the exact nature of which will depend upon your grade as compared with the other officers in camp. Suppose we switch you from grade to grade and see what happens to your chances and your fortunes.

You are the senior in camp. You are therefore camp commander. As such, you are primarily responsible for everything in your small domain. Although you may delegate such things as paper work, mess management, supply, camp exchange, welfare, camp police, and motor transportation to your juniors, you *cannot* delegate to them *your own responsibility* to higher authorities for the success and efficiency of any of these activities. Nor can you delegate to them the duties of camp administration, agent finance officer or acting quartermaster with which higher authority squarely saddles you. In addition to these you may find it advantageous to handle personally all company administration, and possibly supply and welfare. Circumstances beyond your control, including changes in and losses of your assistants, will generally regulate the extent of your own activities—except *supervision*. Do not forget *supervision*, regardless of all other duties. When the district commander, the district inspector, or other critical higher-up arrives to give you and your works the once-over, if conditions in camp ranging from the material to the intangible are not what they should be, *you* are the one holding the bag—and do not let anyone tell you differently. If your *supervision* has been loose, your job, if not your commission, may be looser still. This is putting it bluntly; but reality is usually blunt.

With the large stapled volume of regulations, orders and instructions with which you will be presented upon assuming your duties, together with additional ones appearing upon the scene mail after mail, and with the multiplicity of reports called for, you will probably want to handle all administrative work yourself. The morning report, sick report and duty roster, while all-important, are simple as compared with the large number of reports and papers such as payrolls, financial statements, tri-monthly strength reports, monthly returns, ration returns, reports of obligations, intelligence summaries, weekly diaries, and so on. The former are child's play—the latter, *man's work!* And they *must be correct!*

One of your outstanding administrative duties as camp commander is the morning camp inspection. Whether under canvas or in barracks this important function must not be neglected under the penalty of a let-down in morale. A four-platoon organization is ideal for the development of a high competitive spirit. The *leader* will, without fail, develop it. In doing so, such privilege as a special trip to town (remember you are far out in the bosque) for the best platoon or the occupants of the best barracks will act like a stimulating "shot" in the arm.

And like the "shot," the effects will soon die out if these inspections are omitted or are allowed to drift into a mere routine. Floors swept spick and span, beds made up "according to Hoyle," shoes in line, stoves polished, cobwebs broomed, outside areas policed—in fact, everything from mess hall to latrine just so, make not only for special privileges, morale and esprit, but also for the health of the command and a camp area which is in reality a home for all. With a large number of new enrollees arriving, this is not at first easily accomplished; but with morning inspections properly made, discrepancies brought daily to their attention, and, when necessary, privileges withheld while others are enjoying them, standards are soon met through painstaking progressive daily accomplishment. When brought about by proper leadership, even new enrollees eat it up, and like it.

At times the maintenance of discipline and even morale in camp will require disciplinary action against offenders. When this necessity arises, be prompt and impartial in meting out the penalty warranted by the offense. In doing so, consult carefully the limits of punishment furnished you by higher authority.

Another important duty connected with your camp administration: letters constantly arrive from the folks back home who want information ranging all the way from why William has not written, to why Nathan's check has not been received (Nathan being in the hospital due to his own misconduct). To put the writer at ease, a personal reply is called for, extending sympathy where necessary, explanation when occasion demands, and interest in the boy always with an ever-ready spirit of helpfulness to the family. Contentment both at home and in camp is *your* responsibility. Take the cue and attend to it personally.

Now *funds*. You may be lax with your own, but with camp funds—*don't!* With a big capital D. Any hour must find your accounts in order. All supporting vouchers must be correct and complete. Anyone at first lax in keeping up his company fund account will soon learn to his sorrow the importance of not confusing the use of "mess funds" with that of "other funds," of keeping all deposits listed in the bank book, of having the bank book balanced regularly, and of always and everlastingly maintaining an exact balance between the net of your company fund as shown by the company council book on one hand, and the total of such funds in bank and cash on hand on the other. This is just day-to-day administration for every company commander.

Supply is most important. The men must be properly clothed in all seasons, and properly equipped for the work at hand. For example, should a fire call or other emergency occur at any time, and should your company not be ready when the call comes in—well, it's just too bad, but there is no excuse!

As you are not functioning in a theater of operations in an emergency, every item of government issue that is not expendable must be accounted for. It is an easy matter to sign a consolidated memorandum receipt for approx-

mately \$18,000 worth of government property upon assuming command of a CCC camp; but unless it has been physically inventoried, piece by piece, and if stock record cards have not been maintained daily, it is a horse of another color to get clearance upon your transfer or relief.

In other words, it rests squarely on your shoulders, be you captain or lieutenant, to make an absolute check of all property upon taking over, and not to sign for anything that is not physically present. Individual debit memoranda will arrive from time to time, and credit memoranda will be due you from the quartermaster for property for which you should receive credit. Do not sign and return the former until all the property thereon has been personally checked. And do not rest on your oars until you have received all of the latter due you. Nobody will try to cheat you but clerks make mistakes, and remember you are the only one *personally* interested. Again, a clerk may make a mistake and send you a second copy of a debit memorandum. Never sign a debit memorandum until you have checked and double checked to make sure that you are not signing twice for the same property.

Company property. The original issue to enrollees is made according to the basic table of allowances; thereafter in accordance with the table of quarterly allowances, or as worn out by fair wear and tear, the old articles being surveyed, dropped, and replaced by new ones. You are required to make a monthly physical check of all articles of clothing and property issued to enrollees, first, to see that they are taking proper care of them and, second, to see that articles needing renovation or replacement are so acted upon. Give special attention to shoes which must be frequently repaired, to comforters and blankets which must be renovated quarterly and to sheets and pillow slips which have the knack of not returning from the laundry. For this check you may make an inspection of your entire company once a month or, as some prefer, you may inspect one of your four platoons each week. Articles of clothing issued to enrollees are expendable and are dropped from accountability upon issue, but do not forget to give the district quartermaster a seven-day service from date of receipt of such articles by getting to him within that time a list in duplicate of everything issued to each enrollee, by name, accompanied by a signed shipping ticket covering the issue.

Welfare. Remember again that the location of your camp is far out on the shoe-string end of a mountainous trail, unpaved and one-way, requiring two to four hours' travel by trucks loaded with enrollees; and you will soon conclude that welfare in camp may well become a problem of major importance. Trips to town cannot be made every day, but must be confined to week-ends. For five days each week no leaves can be granted. Therefore this small community must be so organized through such activities as athletics, camp nights of various descriptions and traveling motion picture shows, that morale will be maintained at a high level day after day and week after week. Traveling picture shows, with admissions at ten

cents per, have proved most popular. Camp exchange "chits" issued on credit may be used for payment and redeemed by the exchange on pay day. The camp welfare officer cannot pay too much attention to any feature that builds up the morale of the enrollees. He will soon learn to ferret out local talent, at first latent but always on hand, and easily developed.

Orders from higher authority appointing you Class A finance officer and acting quartermaster will vie with you in reaching camp. You will probably win the race by a truck's length, but the orders are sure to follow. This means that you are to see personally that the monthly payrolls are made up in quadruplicate and submitted to district headquarters for payment. It also means that you either draw the money in person at district headquarters and promptly pay all your men including those at your sub-camps, generally two in number; or that you take the payroll check received from the finance officer to the nearest bank, cash it, safeguard the funds on the return trip to camp, and pay off as before; and to keep your credit good, to say the least, promptly return any balance due enrollees not present, to the finance officer. This sounds simple, but funds in your possession on lonesome trails and in isolated camps are a responsibility you will want to dispense with at your very earliest convenience. As agent for the finance officer, you are not yet through. Each enrollee discharged and sent home individually must be paid commutation of rations before leaving camp. These payments have their own finance form to be filled in and to be submitted to the finance officer for repayment.

As acting quartermaster and camp commander you have charge of all camp construction in your bailiwick. There are few camp commanders who have not built at least one CCC camp. The average allowance is \$17,500 per camp, which must not be exceeded without prior approval of higher authority. It is up to you to go out and hire your own workmen, to supervise the construction, to be your own time-keeper, to house and feed your workmen, and to pay them off when finished.

In the meantime, as individual enrollees are discharged, you, in your capacity of acting quartermaster, issue them their transportation requests and see that they understand signing them and turning them in at the proper office for their tickets. Now these transportation requests, issued to you bookfuls at a time, are like termites—they thrive best if kept under cover and soon disappear if left in the open. It therefore behooves you to keep them everlastingly under lock and key. If you do so both your individual reports of issues and your consolidated monthly reports to The Quartermaster General are liable to be much more satisfactory to *you* personally and will require less clerical assistance in writing explanations to higher authorities.

Perhaps one of the adjustments you will find most difficult is that involved in your relations with members of the technical services such as the National Forest Service, the National Park Service, and the Soil Conservation

Service. The primary purpose of the CCC is that an enrollee shall perform forty hours' useful labor weekly under the supervision of the personnel of these services. Although the enrollees pass completely from your control during this time, you are, nevertheless, charged with the responsibility of administering discipline for any misdemeanors, lack of interest in work assigned, quality of labor performed, or failure to obey instructions issued by the personnel of those technical services. Here you find the necessity for a nice balance of judgment and fairness. On the one hand the authority of the technical service personnel must be upheld to the end that their work projects may go forward satisfactorily and with minimum friction, while on the other hand, the welfare, safety and general interests of the enrollee must be guarded and maintained. This problem has wrecked the CCC career of more than one otherwise efficient Reserve officer.

Study your uniform regulations. Many Reserve officers are sadly lacking in their idea of what comprises the uniform and how it should be worn. As there is nothing mysterious about this, it is difficult to ascribe existing ignorance in the matter to other than sheer lack of interest. When a service hat is worn, find out and wear what goes with it. If you haven't the necessary complement of other articles, *don't wear the hat!* Be careful of the service ribbons and decorations you wear. Remember you are now on active duty in the Army and certain ribbons, bars and whatnot that you wore while on an inactive status may not be authorized as part of the uniform. Read the regulations and escape embarrassment. In all matters of dress adopt this motto: Be as neat, as clean, and as properly dressed as the occasion permits. This will take you in perfect safety from forest fires to visits at the office of the district commander, and will reflect credit on you personally and on the Army generally.

Now let me demote you to a junior officer in camp.

Yes, you have guessed the first job on my list—mess officer. Not that the camp commander is going to pass this job on to you and then promptly forget about it. Far from it. First, he is going to insist on checking up and approving your weekly menus which you will be required to make out ten days in advance. Then there are the monthly "exceptional purchases" which he alone can pay for from the mess fund after he has settled with the district quartermaster for the monthly contract articles of purchase. He will keep an eagle eye on your Form 86 which shows the financial standing of your mess from day to day; he will also watch your garbage cans which should contain little else than bare bones, prune seeds and thin potato peelings. A glance at these two things during his morning inspections will tell him exactly how the mess stands and whether or not you are on to your job. But, subject to this supervision which never lets up, the actual operation of the mess, from the planning and buying to the cleanliness of the personnel, the mess hall

and its premises, rests squarely on your shoulders as mess officer.

Your money allowance for running the mess is the value of the ration times the strength of the company plus the amount received from boarders. This amount has proved sufficient to feed a well-balanced ration of three fine meals a day with extras such as pastry and ice cream regularly. A good mess is imperative, for the enrollees work hard and get to eat only what is placed on the table for them. This is where your real value as a good mess officer will show up—in placing always a good meal on the table. In this you are, in fact, an assistant welfare officer. Thoroughly digest your sub-course in mess management. It is a fine base to build on, but as I said earlier, you are now a student in the uncompromising school of experience; by actually running the mess you will learn things that no sub-course can cover.

Then, there is the mess sergeant. He will be a great help to you—in fact he will teach you much. But at the same time don't fail to supervise him.

Before you have a chance to become "set" in your mess duties, you will also probably be detailed as camp exchange officer. Remember your camp is far away from any town or village and therefore the camp exchange is a vital installation. There the enrollees should be able to obtain such commodities as soap, tooth paste and brushes, other toilet articles, cigarettes, chocolates and soft drinks. In fact you will find all the responsibilities of a young retail merchant suddenly thrust upon you. In this work you will soon learn to sell your wares at the most reasonable prices possible, and at the same time make your exchange pay good dividends. Bookkeeping systems vary, but regardless of style, on the last day of the month your accounts must balance and pass the audit by the company council. AR 210-65 governs. Various forms and statements must be made out accordingly. *Correct bookkeeping and accurate accounting of funds are among the most important details of CCC duty.*

The camp commander establishes the policies to be carried out in the exchange. He will also keep a close eye on its activities. But it is up to you to do the buying, to maintain the stock at the prescribed level, to keep the books, to check the steward, to take in the cash daily, to bank the funds, and to pay all bills. Exchange dividends should average from \$100 to \$150 a month. When a dividend is declared, the funds are turned over to the camp commander who places them to the credit of either the mess fund or other funds, or both, at his discretion.

As a junior officer in camp you may also be detailed as motor transportation officer. Here you will have more bookkeeping. The results of your daily inspection of the trucks must be recorded. A complete record must be kept of all gas and oil received from the district quartermaster and of emergency purchases made on the road, as well as all consumed by each truck, separately, and that used by the five-kilowatt camp motor generating set. And still more bookkeeping—don't forget to deduct gas purchased on the road from your quarterly allowance.

don't forget to make out trip tickets for the chauffeurs before they start on their trips, and don't forget to keep your motor transportation books up to date.

On your first M day with the CCC you cannot be expected to know all the tricks of the trade, but you will find your seniors generally sympathetic and helpful. If you are honest, sincere, and loyal and keep in mind at all times the thought that you are out to make good, you can go forward and far without fear of your future as a Reserve officer.

In assuming your duties and your responsibilities in a

CCC camp you have one thing in your favor—*time*. Do not expect to perform all your diversified duties in a few hours; but with twenty-four hours a day and seven days a week available, and with the proper planning, organizing and execution of your work it can all be accomplished. CCC work is a serious business, and an officer taking up this duty with the idea of drawing his pay and loafing while doing so, or of doing his work in a routine manner, is headed for a rude awakening and the possible loss of his commission. For him, M day is *here*; and he is expected to *function in grade!*

Shine on Me

By ANOTHER CAPTAIN

THE purpose of this opus is to register a growl against the over-exploited "competitions" that are being waged with such deadly seriousness in the Army. It is reputed that these competitions improve "training standards, build regimental morale and *esprit*, etc., etc." Some of us class this claim as pure bunk. The company officers of today (and a lot of the mex majors too) can testify that this competition disease has spread with the rapidity of the bubonic plague until we groan under the burden of "Banner Greens," "Timbuktoo Guidons," "Patagambia Trophies" and similar symbols of what passes for martial glory.

Now, at the start, I plead guilty to active participation in these contests that are designed to impress the higher-ups with the idea that the perpetrators thereof are hot shots. However, in justice to myself I hasten to add that I have never believed that they accomplished much beyond swelling the dividends of the local exchange, owing to increased sales of "Corporal's Friend" brass polish, "Tryanshine," and regimental insignia. But either because I was yellow, loyal, dumb, or a combination of the three, I joined the crowd and was led meekly to the slaughter with the rest of the hired hands.

The usual procedure in launching one of these programs (I nearly wrote "pogroms") is to issue a voluminous training memorandum whose introductory paragraph reads somewhat as follows: "The purposes of the competitions outlined herein are to encourage friendly rivalry between companies of the 70th Regiment of Foot, raise the regimental standards of training to a higher and more uniform level, and increase the morale of the regiment."

Well—what happens when this poop sheet, so carefully prepared in the Plans & Training Office, reaches the people who are going to do the work? First of all, everyone concerned specks the aforementioned sheet, which describes in minute detail the inspections that are to be held to determine the winner of the fur-lined cuspidor. The idea is to discover some skullduggery by which you can pull a fast one on your fellow sufferers and there-

What regiment ever had any other shade of leather than that worn by the Old Man when he took command?

by place the muchly coveted doodad on your own orderly-room shelf.

Company officers will now enter their orderly rooms each morning with fear in their hearts lest some AWOL, venereal, or other irregularity (most of which fall perilously close to that category labeled "act of God") has popped up under cover of darkness. Of course such juicy items are immediately pounced upon by some personnel adjutant and joyfully published in the daily skin sheet to the detriment of the company "administrative record."

All officers, regardless of rank and financial condition, will faithfully dye their leather to match the "regimental standard." (What regiment ever had any other shade than that worn by the Old Man when he took command?) If the shade chosen happens to be of a light hue, then those who have previously served under the possessor of a darker shade will proceed to purchase new leather. The effect on the exchequer depends on just what part of the cycle you happen to get caught in.

Then the shock troops really get down to business. Orderly rooms, supply rooms, and mess halls will soon be plastered with one, more or all of the following evidences that the war is on:

1. Visible duty rosters carefully built on five-ply veneer wood and liberally sprinkled with brass clips purchased from the company fund at \$5.00 a gross. The more and the brighter the clips, the better the effect.

2. Diet charts designed to show at a glance the exact number of calories in 1,000 beans; said charts look to the harassed mess sergeant more like a rainbow without the pot of gold at its foot.

3. Shelves containing prunes, spinach, saddle soap and gun slings carefully labeled "prunes," "spinach," "saddle soap," and "gun slings." (*Note:* The best effect is ob-

tained by using large brass clips with green paper inserted in them.)

Other manifestations of friendly rivalry are:

1. Some unscrupulous officer or noncom will allow copious quantities of "Valspar" to be inadvertently spilled in some issue O.D. paint. A high gloss effect is secured when it is daubed on wagons, carts, rolling kitchens and similar equipment. Result—crop-carrying judges will be much impressed.

2. Another slicker will even go so far as to prepare a set of nickel-plated shoes for the jenny-mule slated to haul his howitzer cart in the departmental horse show. He will then shoe this innocent virgin just prior to the appearance of the judges. Of course, a yegg like that will win hands down.

3. The next fast thinker will appear for the close-order drill competition for the "Highly Slassy Plaque" with nickel-plated bayonets, khaki-blancoed web belts, and non-regulation collar insignia on his men (all purchased, incidentally, quite incidentally, at the latter's expense) and the dazzled judges will proclaim that he has the best rifle company in the division.

4. The Banner Green competition (designed to show the best housekeeping company) will find Company Q using Company Z latrines for a solid week before the judgment day. The men in this company will be doled off to the other three companies of the battalion for chow (real battalion teamwork, at last). One day I sneaked in a kitchen just prior to the arrival of the judges and heard a red-faced mess sergeant bellow, "Hey, Rubinoff, right-dress them there strips of bacon." Oh, well—

5. The service company now starts picking the best leather for its own use. A wagon appears on the parade ground carefully drawn on a sled. This highly practical piece of equipment is plastered with varnish, has nickel-plated tires and hub-caps, and the harness would make Ringling Brothers bow their heads in shame.

The regiment, now exhausted from its intra-murder efforts, will take a breathing spell, while the winning company prepares for the national competition for the Lark Trophy or the Socky Cup. Of course the rest of the boys will do all the guard and fatigue while the favored sons spend three or four months getting ready for the big meet. You figure out how much this contributes to the combat efficiency of the regiment as a whole.

Lizzie Spivins now snubs Joana Gish at the weekly knitting league. (Bill Gish pulled a fast one on Joe Spivins at the last inspection by ducoing the headquarters company's howitzer.) Officers appear each morning

with chips on their shoulders. Speaking with civility becomes an effort; back-biting is the rule. The first sergeant of Company Y tells the personnel sergeant-major that he can't understand why the service company never gets skinned on their administrative record. (He should know that the sergeant-major belongs to the service company.) The regiment's efforts to achieve a high state of morale and *esprit* have been realized.

Now just what has been accomplished by all of this hullabaloo? Did it accomplish the purposes so glowingly set forth in the directive? Did it accomplish *anything*? Yes, a lot of grief for everybody on the receiving end, from the battalion commanders down to the privates who did all of the shining and paid more than their just share of the bills. In point of fact, the results can be summed up as follows:

1. It lowered the regimental morale and all funds, personal and organizational.

2. It created a mutual distrust among the participants, and knocked the spots out of any semblance of teamwork.

3. It furnished a little salve for the unimportant egos of a few unimportant people.

Now we are all acquainted with the stock arguments that are advanced in support of these affairs; namely, "It is necessary to use such methods to make company commanders raise the standards of training and insure uniformity, etc." "The younger officers (30 to 45) don't or won't exercise their initiative as they did in the Old Army; and other weak sisters must be carried by the rest of the organization." Well, the answer to this is that company officers have already had a little service themselves, and if they can't do a reasonable job, it's time to put the skids under them. Further, how will they ever learn to think if they are condemned to polish tent pins during the best years of their service?

If at this stage you have tears, you might well shed them for the money John Soldier was made to spend on junk.

What is the cure? I submit this:

1. Let the ukase go forth that the commanders of organizations that turn out for parades and inspections wearing sundry non-regulation gadgets will be mercilessly flayed instead of commended.

2. Make somebody pay for the dyed leather, nickel-plated bayonets, painted harness hames and similarly damaged government property.

3. Finally, let it be proclaimed in Garh and published in the streets of Askalon that the usurper Eyewash is ~~dead~~ and that King Reason has remounted his ancient throne.



A MERCENARY low-order army on a police basis marks the beginning of the end of a nation.—GEORGE STUART BRADY.

Field Training of the 61st C. A. (AA)

BY CAPTAIN FRANK C. MCCONNELL, C.A.C.

THE field training period of the 61st Coast Artillery (AA), had two major objectives. First, completion of training for, and conduct of, antiaircraft searchlight practice. Second, the final phase of annual training in chemical warfare by the regiment. Minor objectives were training recruits in actual field service conditions, camouflage and field fortification training in cooperation with the Air Corps, and operation of motor vehicle convoys at higher speeds than heretofore have been contemplated.

Conditions necessary to meet these objectives included a 90° defense sector for antiaircraft searchlights relatively free from railroad interference; airplanes for tracking, photographing and observing; terrain suitable for Chemical Warfare, field fortification and camouflage training. These conditions obtained at Scott Field, Belleville, Illinois; hence, with the approval of the Corps Area Commander, this place was selected as the base for the regimental field training. Scott Field is the home station of the 15th Observation Squadron, Air Corps; the unit that has cooperated most loyally with the 61st in all its field training activities.

In planning the routes to and from Scott Field it was decided to follow a different road each way with one overnight stop going and one returning. This plan had the advantage of giving the maximum number of people the opportunity to view an antiaircraft regiment on the march and, at the overnight stops, to see the matériel in simulated action.

Camp Lincoln, in the suburbs of Springfield, Illinois, was selected for the first overnight stop. For the 216 mile march from Fort Sheridan the regiment was divided into two columns; the first was composed of the searchlight battery with the four three-inch guns and instrument trailer attached; the second, the remainder of the regiment. The first column traveled at a rate of 25 m.p.h. and the second at 35 m.p.h. At the outskirts of Springfield the two columns joined and continued into camp as one. En route, the only event of interest was the refueling at Pontiac, Illinois. Arrangements had been made with one of the oil companies to refuel all vehicles. Upon arrival at Pontiac it was found that the only facilities available were three small tank trucks, equipped only for gravity feed into cans and thence into the gas tanks; consequently the refueling required two hours and twenty minutes for the 94 vehicles. This experience demonstrated the necessity of arranging with the company furnishing the gasoline to insure that adequate facilities would be available at the point scheduled.

At Camp Lincoln a pyramidal tent camp was pitched and all pieces of tactical equipment were put in display formation. Much newspaper publicity had been given our visit and from the time of the regiment's arrival until

darkness, the public was permitted to view the camp and equipment on display. The crowd soon grew to a multitude requiring the city police to handle the traffic. The piece of equipment, other than tactical, that attracted the greatest amount of interest was the gasoline-burning stove installed in a truck. This stove is an experimental model manufactured at the Jeffersonville Quartermaster Depot and issued to the 61st for test. Thus far, it has been highly satisfactory and a wonderful improvement over the field range or kitchen trailer.

Previous arrangement had been made to have a formation of the 15th Observation Squadron fly over the city at 8:00 P.M. This flight was illuminated by the searchlights of Battery "A." The combined demonstration attracted thousands of visitors to the vicinity of the lights, causing considerable traffic congestion. Searchlight illumination for the demonstration was furnished from the exhibit position in the camp.

The following morning was utilized in taking the enlisted men to New Salem State Park and the tomb and home of Abraham Lincoln.

At noon the regiment departed for Scott Field (a distance of 122 miles) where it arrived at 4:30 P.M.

The next two days were utilized in selecting tactical positions for the searchlights and installing the communications net; selection of positions for the gun and machine gun batteries suitable for camouflage and field fortification problems; general improvement of the camp, and motor transportation servicing.

On the third day, all batteries occupied their tactical positions. The gun and machine gun positions were photographed from the air after the camouflage was completed. Natural camouflage was employed whenever possible. Although the exact map position of the batteries had been indicated, the aerial photographer stated that he had considerable difficulty in locating the gun position and the machine-gun position never was spotted either from the air or on the photographs.

On a surprise attack the machine gun battery position was covered with a high concentration of tear gas and smoke to determine the gas discipline of Battery "E." Immediately following the attack the battery was inspected by the regimental commander for gas casualties but no tears could be found.

It should be explained that prior to departure from Fort Sheridan each individual in the regiment was equipped with a properly-fitted gas mask. The quantity needed over our regular peacetime allowance of 16 masks per battery were obtained from the Fort Sheridan and VI Corps Area pools. An amount of tear gas and smoke in both candle and grenade form sufficient for all tactical exercises was made available by the Commanding General, VI Corps Area.

Battery "B" (3-inch guns) moved six miles from camp in this exercise, the last mile over an unimproved trail, emplaced, oriented and camouflaged the gun battery complete and was ready to fire on a target in two hours and forty-five minutes from the time it left camp.

On Saturday a camp and motor transportation inspection was held by the Regimental Commander. A surprise check was made of gasoline, oil in crankcase, condition of storage battery, air pressure in tires and water in radiator of each vehicle. Results of the check were reported on a special form for each piece of transportation. One vehicle out of a total of 94 was found deficient. It had insufficient air pressure in the tires.

Following the inspection, orders were received from the Commanding General, VI Corps Area, to move to St. Louis and participate in the American Legion National Convention. The city provided camping facilities in Forest Park.

The regiment left Scott Field at 8:00 A.M. and arrived at the camp site at 9:30 A.M., a distance of thirty miles, mostly through thickly populated areas. A shelter tent camp was pitched and equipment put in standard display formation.

In cooperation with the 15th Observation Squadron and the lighter-than-air forces at Scott Field, a joint aerial show and searchlight demonstration was staged in the evening. On Monday the performance was repeated, three dirigibles, eleven airplanes and the searchlights of Battery "A" took part in the demonstration.

The following morning the entire motorized regiment marched in the American Legion parade through the down-town section of St. Louis. After the parade Battery "A" returned to Scott Field to continue preparations for searchlight target practice. The remainder of the regiment returned to Forest Park where the 3-inch guns had been left under guard.

After lunch the regiment departed on a forced tactical march to Bagnell Dam at Lake-of-the Ozarks, Missouri. The purpose of this march was to determine the speed at which a motorized column could be moved over good paved roads where there was comparatively light traffic. The distance to Bagnell Dam is 178 miles and the average rate of speed was 35.6 m.p.h. with no accidents. On the following day the regiment returned to Scott Field, a distance of 208 miles, averaging better than 32 m.p.h. The march demonstrated that on concrete roads modern motor vehicles can move in convoy at an average speed of about 33 m.p.h. with no injury to the vehicles.

On the outward trip to Bagnell Dam arrangements were made for refueling at a point on the road east of Jefferson City, Missouri. Detailed requirements were made known to the company furnishing the oil. As a consequence all vehicles were refueled in one hour using four tank trucks with hose direct from gas truck to fuel tanks. On the return journey the same oil company's detail with the same equipment refueled all vehicles in 36 minutes. This shows how much time can be saved

when the oil company's personnel are familiar with the job.

Battery "B" with its 3-inch guns and Battery "E" with antiaircraft machine guns were sent out from camp on Monday to new tactical positions with instructions to camouflage and fortify the positions. Arrangements were made with the 21st Photo Section to photograph the positions each hour until the work was completed. These photographs are to be used in indoor instruction of the regiment on the subject of camouflage.

After the gun battery had reported its job complete the position was subjected to a high concentration of tear gas and smoke. A surprise order directed that the position be vacated immediately. This was accomplished with all personnel wearing masks, although the time required was about twenty minutes, or double the normal time.

The Chemical Warfare training was concluded with riot duty exercises and a surprise gas attack on the entire camp at noon. This attack was started by tossing tear gas hand grenades into the regimental command post during officers' call. Needless to say, there was a wild scramble by one or two officers who had neglected to wear their masks to the officers' call. Examples of the gas discipline were such that the regimental telephone switchboard operator continued to function, handling post calls while using a diaphragm mask, and the cooks, wearing gas masks, went ahead with the preparation of dinner. The waiting mess line never wavered; gas masks went on with alacrity and the wearers waited for the atmosphere to clear up.

On the return journey it had been decided to stop overnight at the University of Illinois, at Champaign, to give the Coast Artillery R.O.T.C. unit there, as well as the general student body, an opportunity to see our equipment. Again the regiment traveled in two columns: they joined on the outskirts of Champaign and continued into camp together.

The march of 173 miles was regulated in the Field Order on a time schedule of 30 m.p.h. for the fast column and 20 m.p.h. for the heavy column so that their arrival would be simultaneous. This schedule was easily achieved by both columns, with no accidents.

The equipment exhibit proved to be of great interest to a large number of students and faculty members. At 8:00 P.M., a searchlight demonstration was staged in cooperation with a flight of three airplanes from the 15th Observation Squadron. As usual the aerial display attracted a large concourse of people. On all marches of the 61st during the current year special effort has been made to demonstrate the antiaircraft equipment to as many civilians as possible. It is felt that this not only "sells them antiaircraft artillery" but shows them how the taxpayers' money for national defense is being utilized. The effect on civilian communities and institutions is shown by the following letter from the P.M.S.&T. at the University of Illinois to the Commanding General, Ft. Sheridan.

"1. The demonstration and encampment of the 61st Coast Artillery (AA) on the night of the 3d of October, on the Campus of the University of Illinois, was highly appreciated.

"2. Thousands of visitors, in addition to the large student body here undergoing military training, were given a very interesting and instructive demonstration.

"3. President Willard expressed his pleasure and satisfaction for the camp exhibit, as well as the night demonstration.

"4. The fine discipline of the troops, the fine appearance of the equipment, and the efficiency displayed in the demonstration, are worthy of commendation. In addition the perfect police after breaking camp is worthy of mention."

(Signed) FRED R. BROWN,
Colonel, Infantry,
Commanding.

On the last leg of the trip the regiment again divided into light and heavy columns. The march was regulated in a similar fashion to the previous one from Scott Field to Champaign. Both columns joined outside Fort Sheridan and entered the post at 3:15 P.M., as scheduled.

As the concluding exercise of the maneuver the column of 94 vehicles swung onto the parade ground and executed left front into line by batteries to the strains of "Crash on Artillery," rendered by the 3d Field Artillery Band which had turned out to welcome the 61st home.

SUMMARY

1. The present allowance of chemical warfare munitions for training is insufficient. The 61st used approximately five times its annual training allowance of tear gas and smoke in these exercises. Some of the munitions used were old and failed to function properly. It

is believed that about four times the present annual allowance is necessary if troops are to be adequately trained both in their primary arm and to function efficiently in domestic disturbances.

2. Antiaircraft artillery should be stationed for training where Air Corps units of all types are available for cooperative missions. The effectiveness of exercises in camouflage and field fortification is much more easily determined when seen from the air. Moreover the effectiveness can be made a matter of permanent record by use of aerial photographs. In addition to these special type air missions, the antiaircraft artillery can use every incoming and outgoing airplane from an adjacent field as a training mission for tracking purposes. When stationed a great distance from any Air Corps unit, as is the 61st, active antiaircraft training can be conducted only for a few weeks out of each year when airplanes are made available for this purpose. The remainder of the year must be spent in theoretical training.

3. With new type transportation it is safe to conduct marches of motorized units at a rate of 30 m.p.h. where no trailers are included. In a column containing trailers a rate of 22 m.p.h. can be maintained. These rates were conclusively established in this 1100 mile march, *made without a single accident to either matériel or personnel* at an average rate of 31 m.p.h.

4. All antiaircraft target practices should be fired under strictly field service conditions. The gun, machine-gun and searchlight practices of the 61st in 1935 were all fired from field positions representing an actual tactical defense of some appropriate objective, such as a city (Muskegon, Michigan), for 3-inch guns; a harbor entrance (Lake Muskegon, Michigan), for antiaircraft machine guns; and an airport (Scott Field, Illinois), for antiaircraft searchlights.

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Improvised Antiaircraft Fixed Mount For Caliber .30 Machine Gun

BY LIEUTENANT COLONEL M. M. KIMMEL, C.A.C.

IN the Panama Canal Department, considerable difficulty has been experienced, during maneuvers, in manning and transporting antiaircraft machine gun matériel with reduced personnel. In many cases the po-

sitions could be reached only by jungle trails, not passable by any type of vehicle.

This experience led to a quest for some type of fixed mount for the caliber .30 machine gun that could be permanently emplaced in the positions habitually occupied during maneuvers, thus obviating the necessity of carrying (by man power) over long distances, the heavy tripod mounts M1AA or M-1918.

Two types of mounts were manufactured in the local Ordnance machine shops, as shown in the accompanying photographs. The Railway Rail type of mount (top photo) consists essentially of a section of ordinary 90 lb. railway rail, 96 inches in length, with two pieces of $\frac{3}{4}$ inch reinforcing steel spot welded to the rail, ten and twenty inches respectively from one end. This end is set in a cylindrical concrete block 24 inches in diameter and 40 inches in height. The pintle is bolted to the upper end of the rail by means of four $\frac{7}{8}$ " x 3" bolts. The upper end of the pintle extends above the rail 4.062 inches. It is 1.497 inches in diameter; the proper size to receive the adapter bracket, used with AA tripod M-1918. The bracket is held in place by a one-inch crown nut and washer. A cotter pin is used to prevent the crown nut from loosening during firing.

The reinforced concrete type of mount is shown in the lower picture. This mount consists essentially of a vertical piece of steel pipe six inches in diameter, the lower end of which is set in a concrete block and the pintle (as described above) is set in concrete inside the steel pipe.

These two mounts have been tested in firings and found to be very satisfactory. With both mounts the vibration experienced is much less than that with either the M1AA or the M-1918 tripod.

The "reinforced concrete" type gave even less vibration than the "railway rail" type. However it is believed that the small difference in vibration in the two types would not warrant the expenditure of the additional funds necessary for the manufacture of the "reinforced concrete" type of mount.

The approximate cost of manufacture is:

Reinforced concrete	\$20.00
Railway rail	15.00

The description of these mounts is submitted with the hope that it may be of some assistance to officers confronted with the necessity of providing AA machine gun mounts where none are available, or to meet some special situation, such as exists in Panama.

EDITOR'S NOTE: Detailed blue prints of these mounts will be furnished upon application.



The railway rail type (above) and the reinforced concrete type (below) of improvised fixed mounts.

The Great Delusion

BY MAJOR JOHN H. BURNS
Infantry

"Better be ignorant of a matter than half know it."
—PUBLIUS SYRUS (42 B. C.)

ALL army schools of all the great powers spend considerable time in studying military history; not the history of man and his changing environment—which broadens anyone's vision—but the narrow, restricted history of armies locked in battle with the physical details emphasized and the psychological factors barely sketched in. The peoples from which the armies grow and draw sustenance are given scant attention. In this investigation of an artificially restricted subject, officers spend many hours developing the necessary historical technique, and many more hours investigating some small phase of military operations (research) to evolve a learned monograph studded with references. Why should men of action—military men—be forced to follow the trade of the scholar; why this constant poring over records while eyes grow dim, shoulders assume a scholar's stoop, and waist belts lengthen? Why?

"Because," and one can hear the voices of the scholastic soldiers rise almost to the grandeur of a Gregorian chant, "military history is the soldier's test tube. Only from the study of military history can we deduce the immutable principles of war." Then the chorus swings into a minor key. "Tactics may change with changes in weapons, but the principles of war never change." It ends on the high antiphonal note—a triumphant peal—sung by a uniformed scholar with horn-rimmed spectacles—"Study the great captains; only thus can we acquire proficiency in the military art; so sayeth Napoleon."

If the study of military history will give us the immutable principles of war, it is excellent. But does it? Great battles have been fought skillfully and won by the violation of these alleged principles. Here at once we discern a crack in the theory—a crack that widens when we find that different nations with the same data before them do not agree as to the statement of the principles. And the crack becomes a gap when we read the brilliant analysis by *Signifer*, in "Reunion on the Styx," in which the author clearly shows that, actually, our so-called principles are but methods—a very different thing. Perhaps *Signifer's* statement of the true principles of war verge on metaphysical formulæ, but what matter? We may disagree with his new conception of them, but we can hardly disagree with his logical, if humorous, exposition that our so-called principles are nothing of the kind.

But what of the opinion of the great Napoleon, which ended the scholar's chant? Clausewitz, that precise formalist, who from the bloody business of war has built almost a philosophy, states that the older a battle, the less valuable is it for study. It lacks details. Therefore Napoleon's dictum to study the Great Captains—Alex-

ander, Hannibal, *et al*—is countered by Clausewitz. It is a pity, too, because the phrase has a sonorous sound.

Where have we come to now? First, we find that we have no principles derived from military history, and then two great minds clash as to how we should study it.

Still, one might think, we should at least be able to obtain from military history a fund of knowledge from which to draw ideas that can be used today. But from the academic hall on the banks of the Missouri comes the stentorian shout: "NO! such a method is pure paralleling; it is destructive to tactical thinking—pernicious, useless." And from the banks of the Upatoi and the plains of Kansas and Oklahoma comes the echo, "No!" Yet von Gronau's brilliant decision to attack on the eve of the Battle of the Marne in order to clear up an obscure situation was based on the memory of what his corps commander did in 1871 in a similar situation. And was it not Napoleon who said that often the happiest inspiration on the eve of battle is only a recollection?

Shall we approve von Gronau's method? Hardly. But officers have made and will make decisions by this method. Here was a correct one. On the other hand, how many incorrect decisions have been reached in the same manner? Can we blame the officers who made them? They had been indoctrinated by the study of military history—stuffed with an uncorrelated mass of contradictions. How could it be otherwise? We begin the study of military history without defining our terms; we do not mass our facts and classify them in order to make generalizations; we deal with *masses of men*, but never with *man*; we think almost exclusively of the physical side of war and neglect the mental side; we deal only with armies in action and not the nation at war; and we bow as humbly as any Tibetan lama facing the throne of the Living Buddha, before the opinion of a successful man of action—Napoleon—or an abstruse philosopher of the obvious—Clausewitz. We proceed as if we were in a static field, whereas we are in the moving, dynamic current of life and culture. It is not a science we are building but a quasi-religion.

"Give us the detailed physical facts of these old-time campaigns," cry the researchers, "and with them we can erect a veritable science of war." So conscientious men dig deep, spending a lifetime in checking dusty battles until a Niagara of petty facts almost drowns us. With little effort we can picture the trusty research worker diving deep below the sea of papers and, from time to time, coming to the surface with a fact, for all the world like a walrus with a fish in his mouth. Unfortunately the fact is not edible.

Carefully, methodically, every detail of a campaign is unearthed and fitted to other details. Often there results a wonderful mosaic of the physical side of battle. Then it is pointed out where the commander has followed, or violated, one of the sacred principles of war—which are not

principles—and what he should have done, how he should have done it, where, when, and why. The little rectangles on the map give the picture.

Two things can be noted here: the selection—not scientifically but arbitrarily—of certain ideas called principles, and then a calm rationalization to prove the worth of these ideas. A more faulty practice could scarcely have been devised—nor one more likely to lead to distortion and error. Ironically enough, the facts, unearthed by dint of great labor, give not the whole colorful picture, but only a single-toned, schematic glimpse of the physical outline. In this naïve manner we try to prove a dogma.

With these queer distorted battle stories of a bygone day we feed the military mind until often it becomes as grotesque as the food it feeds upon. Is such a mind competent to meet future wars? There is the gravest doubt whether it is as able to deal with the newness of a fresh war as the mind that never heard of Cannæ or Austerlitz. No war is ever like any other war. The answers to war problems are not to be found in pamphlets or mimeographs. There are no Sibylline Books for the soldier. The less distorted historical data he has to go upon (and note well that all military history data are distorted when the psychological element is excluded), the clearer will the commander see the immediate picture and the better will his decisions be.

Let us look at the record to see whether military history has produced our great soldiers. Washington, the country squire, was certainly not a student of war. Of the leaders of the Civil War, Halleck alone could be called a military bookman and he was inept, because, one feels, he was everlastingly trying to fit the unique problems of the Civil War into the Procrustean bed of military history. The result was not happy, for in war we cannot cut our problems to a certain pattern; the problem cuts us more to its own shape. Grant was no military student; he was a simple man who saw a simple problem and solved it in a simple way. Sherman, with probably the keenest mind on the Union side, was never hampered by wondering how Napoleon would have used railroads had he had them. He simply decided how they could best serve Bill Sherman's purpose and used them that way. It is more than mere coincidence that the great leaders on the Union side, although educated as soldiers, came to the war from civil life. Couple this with the fact that the amateur general often did brilliantly—Logan, whom Sherman desired as an army commander, is typical—and we have something to think about. Can it be that their very lack of knowledge of past wars and their freshness of outlook was responsible for their success? And then consider Forrest. He was not only a great leader, but a keen observer and a clear thinker. His endlessly quoted remark on getting there "fustest with the mostest men" is an axiom to rank with Napoleon's.

Who coached Alexander, Hannibal, or Cæsar in military history? Alexander took his father's army, and without any knowledge of the great campaign waged by Thothmes III and Rameses II of Egypt, sliced like a knife

across Asia and into India. The Carthaginians had just learned to fight from Xanthippus, the Greek, when Hannibal came to power. Carthage had no fund of military traditions or history; consequently, there was nothing Alexandrine about Hannibal's battles. In their way they are unique. Perhaps here we have the Semitic mind as it works in war. Then there was Cæsar, the middle-aged man stepping into war from the rowdy political arena. Is it likely that he had devoted his time to poring over old campaigns? More probably those hours were spent in some district political club telling the boys how to vote, how to intimidate the other side, and distributing patronage judiciously. A rare character, was Julius. And even Napoleon, the Number One advocate of the study of military history, was not the profound student of it that his celebrated dictum implied. It is all a bit bewildering.

Can it be that this study in the narrow sphere of military history renders a man unfit for battlefield command? There would be a justification for it if, by the sacrifice of a few potential commanders, we obtained a group of specialists capable of organizing the data of past conflicts, generalizing from these data, ascertaining trends of evolution, and from it all predicting with fair accuracy the shape of things to come—the character of the next war. *But the acquisition of military historical knowledge is worth nothing except when it can be used to predict the future.* That, in fact, is the criterion of all scientific knowledge. If our laboriously garnered facts do not lead to such predictions, then we have only a mass of doctrines, opinions, and dogmas. We have a faith but no science.

Has all this laborious study enabled the orthodox military historian to predict the character of a future war? Decidedly not. The most severe indictment of the military historian lies in the fact that he did not predict the shape the World War would take. Limited though he was to the study of armies in combat, he still had available much data that pointed unmistakably to trench warfare.

The Civil War showed clearly that the defense could dig in quickly and erect hasty breastworks. Under this cover a small force, with the crude musket of the day, could repulse a powerful infantry attack with frightful losses. Grant learned this to his sorrow at Spotsylvania and Cold Harbor, and having learned it, sat down to an eight months' siege of Petersburg rather than risk dashing his army to pieces on its breastworks.

After this war came the magazine rifle, and later the machine gun, both of which increased fire power enormously. Another small item slipped in unobtrusively from agriculture—a familiar thing, ignored and neglected; yet it added tremendously to defensive power and eventually changed all tactics. That item was barbed wire. These three things—trenches, barbed wire and fire power—were squarely before the eyes of the military historian waiting to be evaluated in a prediction of the character of the next war. This prediction might have been used as a basis for organizing the war force, deciding its equipment, and evolving its tactics. But the military historian

was either strangely blind or so intrigued with the geometric battle designs of Jomini that he saw little else.

It may be said that the World War was a particular case; that actually it was a siege; that great masses in the restricted area of northern France caused the peculiar aspect of the war. But the historian knew already that great masses would be used there. Moreover, he had the example of Port Arthur to indicate the type of modern defense; yet he failed to put these facts together and predict a war of positions. He was more concerned studying books that told the tale of Port Arthur than in appraising the significant factors directly before his eyes—trenches, barbed wire and machine guns.

Perhaps we have no right to say that it was solely the restricted area and the great bodies of troops in it that caused the character of the World War. A study of Sherman's advance to, and capture of, Atlanta shows the invader, with the butt-end of a continent in which to maneuver, using entrenchments. Give one of Sherman's corps but a few hours' halt, and it could, and would, build an almost impregnable position. Fifty years before the World War, both attacker and defender were using entrenchments extensively and skillfully. Something was driving the soldier into the ground. That something should have been evaluated. It was the most significant military fact of the entire war—of the century—yet it was practically ignored. Thus, even within his own sharply limited field, the military historian was strangely blind to the significance of facts.

A full half-century the military historian had in which to study this war. And what do we find in 1914? The French with their emotional doctrine of the *offensive à l'outrance*, and the Germans with colossal schemes of open maneuver leading to another Sedan, smashing together in one big, open battle at the Marne. Then to the bewilderment of all, the soldier went into the ground, and there came four years of warfare such as no one anticipated or understood—trenches, barbed wire and machine guns.

Stalemate! So the high command called for more guns to blast a way through, only to find that once through one line they still faced another—with trenches, barbed wire and machine guns. (Sherman, fifty years before, envisaged this organization in depth; hence his shifting maneuvers in the Atlanta campaign.) Then in desperation gas was used—anything to get the war into the open and on a footing where the high command could recognize it and fight it in accordance with the old historic pattern. Meanwhile Europe bled herself white, and nations consumed the wealth of generations.

Military history has failed in its sole function. All the information on the subject of past wars has not even enabled us to predict the problems of future wars, let alone suggest solutions for them. In the name of the great god Mars, why our reverence for it?

You may say that we are asking too much of the military historian. But are we? The tactical pattern of the World War was clearly discerned by one man, and he

not a soldier. In 1897, Monsieur Bloch, a Pole whom the soldiers thought mad, saw with clairvoyant eye the stalemate, the trenches, the slaughter, and the stabilization. This man was a banker and a pacifist but had any one of the great powers based the organization of its pre-war force on his conception, that power would be master of Europe today.

If a civilian can do it, why not a soldier? What is our deficiency? Wherein lies our error? Here we come to the heart of the Great Delusion. The major reason lies in the fact that military historians have confined themselves narrowly to the study of bodies of troops in battle and campaign. They restrict their investigation to the physical details of battle—the geometric pattern of war—and ignore its psychological implications. They fail to see that even if the battle pattern could be reconstructed to the last physical detail, any conclusions drawn from it would be incorrect, because moral factors were not considered.

The crowning error, however, is to ignore the fact that armies are but a part of the people and their life and industry. The whole people should be studied. As it is, we only study the sword a nation uses, or should use—what shape it should be, what material, the type of grip, the kind of pommel; and we may even use a microscope on the metal itself. Then we develop methods of using the sword, called tactics. All very useful, but we have neglected to study the nation that will use this ideal weapon. Meanwhile that nation may have developed for peaceful purposes a certain device which, applied to war, may render the weapon and the methods of using it obsolete. Barbed wire, lethal gas, the track-laying tractor, the gas engine, and airplanes are examples in point. Not only have they been found useful in war but they bid fair to transform it completely. What others are before our eyes unregarded, and how many are still in the womb of Time?

One is tempted here to make the generalization that a nation's war machine can only be the sum of its entire social and industrial life. The social life produces the soldier material; the industrial life, the tools of war. The evolution of war can be traced only in the evolution of civilization. It is not a study of past campaigns that changed the face of war, but swift utilization of the products of peace in the waging of war. In ancient days the invention of the wheel and the clumsy country cart led promptly to the development of the swift war chariot, just as in modern times the farmer's tractor becomes the basis of the armored tank.

As pure theory we can determine how any army would be more efficient if organized and equipped a certain way, but if that way cannot well be followed in view of the social and industrial set-up of the nation, then it will have to be discarded or modified to fit into the civil structure. Perhaps the horse is better than the motor, but in a motor civilization we must learn to fight with motors. Perhaps our tactics could be changed for the better if our soldiers came to the army with a different mental equipment. But unless we can change the heredity and environment

producing the mental set-up—and we cannot—we must use the man as he comes to us. How the Roman generals of the late empire must have sighed for the solidity of the heavy armed masses of foot that had conquered the world; but this solidity had disappeared along with the Roman virtues that produced it. No wishing or even training could resurrect it. So, perforce, they used masses of heavy cavalry. They did well with the new weapon, but not until the loss of half an empire had driven home the lesson that the ideal, built from historical data, must inexorably be discarded for the compromise that will fit the realities of the present.

The problem of these old Roman soldiers was simple compared to ours. The weapons of war had not changed greatly from the days of Marius and Sulla. Well might the soldier of the late empire think that he could copy the campaigns of Cæsar, who used the same type of organization, and some of whose legions still existed, at least in name. That indeed is what these ancient warriors thought; but their concentration on the physical side of war—weapons, formations and the like—left them blind to the fact that society was giving them a different psychologic product to turn into a soldier than it gave to Cæsar a few hundred years before. These generals knew their art and the history of it, but they did not understand the history of the empire nor the great social changes occurring within it that affected their soldier material. The scope of their historical study was too narrow, and, as a result, a mass of Gothic horsemen—which Cæsar's Tenth Legion would have torn apart—rode over the imperial army at Adrianople and the Western Empire was lost.

Today, in a machine civilization, the tools of war change rapidly and society changes almost as rapidly. The problem facing the modern soldier is far more complex than the one that confronted the Roman. Never before has it been so complicated by the things stirring in industry and life.

War—and here we risk another generalization—is more a reflection of the life and industry about us than a reflection of past wars; but armies reflect with uncanny accuracy the armies of the past. This paradox has muddled military thought, yet the explanation is simple. Since the human has not changed basically in some tens of thousands of years, it follows that the method of controlling, directing, and rewarding this fearful, panicky creature under fear of death must necessarily be relatively constant. Society may mould the individual for better or for worse, but it cannot change him fundamentally. The cave dweller and the penthouse owner are blood brothers. Scratch a scientist and you find a savage. However, even though the human cannot change himself essentially, he does change his environment—he produces new tools, new weapons, new instruments, and new machines. And warfare is constantly changing as these things are adapted to its use, and as they change the structure of society.

We know how to control humans in battle. Our armies are direct heirs of the legion in this respect. Hold fast to it. But the method of using these humans in war

will be determined for us by the pattern of the times. Not what we think, not what Napoleon thought, not what anyone thinks, determines the shape that warfare will assume. This, it may be repeated, is determined inexorably by the age. Tactics, then, is not something that can be formulated from a minute consideration of past battles. The evolution of tactics is to be traced, strange as it may seem, by studying factors outside the sphere of war itself.

We must forsake the old mode. We must study man as a whole, not merely as a soldier. We cannot permit our attention to be monopolized by the skillful fencing of commanders whose swords are armies. We must cease to look upon the lunges and ripostes of the contestants as the criteria of success and failure. The physical details of battle are but the background. Not in the chessboard arrangement of units will we discover the answers but in the analysis of what happened in the minds of the contestants—leader and led—and how it happened, when it happened and why it happened. This leads directly to a study of the nation, society, industry—in short, the whole culture of the contestants.

Our concern with the older wars need only be sufficient to illuminate the action of man in battle. The study of recent wars should go beyond this in that it should seek to plot trends of evolution in weapons and tactics. Then against the background of contemporary society, the military student can build the framework of a science.

The Great Delusion is thinking that war can be comprehended, and that the pattern of future wars can be predicted, by a study of the narrow field of military history. The military historian needs to range through anthropology, psychology, sociology, economics, social and industrial history, and philosophy. He must cease concentrating on the dramatic battles of the past, which thrill his heart but fuddle his brain with their outmoded tactics. He must forsake his hero worship and his belief in the potency of geometric forms of battle. He must cease rationalizing—twisting facts to prove a preconceived idea. He must abandon his intense application to the physical factors affecting battles and spend more time on the intangible psychological factors, which are decisive. He must see behind the obvious. Lastly, he must organize, classify, and generalize from his facts. Only thus can he shake himself free from the trammels of a pseudo-science and step clear-eyed into the real science of military history where man and all his works is the field of research. And the problem is to combine man, the unchanging, with the implements, machines, tools, and instruments he ceaselessly spawns to his own bewilderment and the complication of his environment, into an army that can solve the problems of the coming war.

It is a large order. We may have to await the arrival of a military Darwin to classify our heterogeneous data, bring order into our chaos, and deduce the general and fundamental principles. At present there are too many spade workers in the field. What we need is a few creative thinkers.

Organization of Searchlights in an Artillery Regiment

By MAJOR WILLARD IRVINE, C.A.C.

IN considering the organization of searchlights in an antiaircraft artillery regiment, of particular importance is:

- (1) The number of searchlights necessary to illuminate targets for the gun defense.
- (2) Whether machine guns for the protection of searchlights should be part of the searchlight organization or included in the machine-gun battalion.
- (3) Whether the searchlight organization should be a separate unit or in the gun battalion.

In the preceding article on the organization of antiaircraft guns, the opinion was expressed that the increase in the speed of bombers since the organization of antiaircraft artillery was adopted, makes necessary six fire units to cover the critical zone and an increase in the number of 3-inch guns employed to defend an objective against an attack by bombardment aviation. The following discussion is based upon a defense of twenty-four 3-inch antiaircraft guns, but is applicable also to a defense of twelve or eighteen guns if they are employed as six fire units.

NUMBER OF SEARCHLIGHTS REQUIRED

One method of determining the number of searchlights necessary to illuminate targets for the gun defense is:

- (1) Find the horizontal range at which an airplane must be illuminated to permit the nearest gun battery to bring the target under effective fire.
- (2) Find the average range at which a searchlight may be expected to illuminate a target under normal atmospheric conditions.
- (3) Find the average "carrying" range of searchlights.
- (4) Form an outer ring of searchlights (primarily "pick up" lights) at an approximate distance from the gun batteries of (1) minus (2) and a distance between searchlights not greater than (3).

- (5) Form an inner ring of searchlights (primarily "carrying" lights) at a distance from the outer ring of searchlights not greater than (3).

This method will be illustrated, employing, first, the gun range and bombardment airplane speed of 1921, when the present antiaircraft artillery organization was adopted; and, second, the gun range and bombardment airplane speed of today.

The horizontal range at which an airplane had to be illuminated in 1921, in order for the nearest gun battery to fire at its maximum effective horizontal range, may be arrived at as follows:

	Yards
Maximum effective horizontal range of a 3-inch gun	5000
Distance traversed by an airplane at a speed of 120 miles per hour during the time of flight of the projectile for 5000 yards horizontal range and 15,000 feet altitude	900
Distance traversed by an airplane at a speed of 120 miles per hour during the estimated 15 seconds required by a battery to get on the target, determine the future position, and then fire	900
Total	6800

Experience has shown that under normal atmospheric conditions, the large majority of airplanes are first illuminated within a horizontal distance of 3000 yards of the searchlight (Figure 1). For the purpose of this discussion, illumination is considered to occur first on the line of the outer ring of searchlights. Lest this estimate be thought too conservative, it is noted that at the Fort Humphreys Antiaircraft Artillery-Air Corps Exercise, in 1931, 83% of all approaching airplanes were illuminated, but those flying at an altitude of 5000 feet or more averaged 700 yards inside the outer ring of searchlights when picked up.

Experience has shown also that 6000 yards may be taken as the "carrying" range of searchlights under favorable atmospheric conditions.

The next step is to locate searchlights to cover an area of 6800 yards in width and extending outward from the gun batteries. This is accomplished by forming an inner and an outer ring of searchlights with not more than 6000 yards between lights. Figure 2 shows that fifteen searchlights, the number in an antiaircraft artillery regiment, satisfies the requirements of this method.

Since the organization of antiaircraft artillery was adopted, more than a decade ago, the effective horizontal range of antiaircraft guns has increased from 5000 to

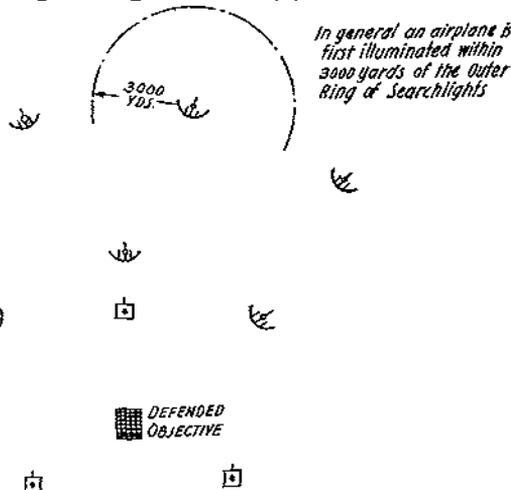


Figure 1

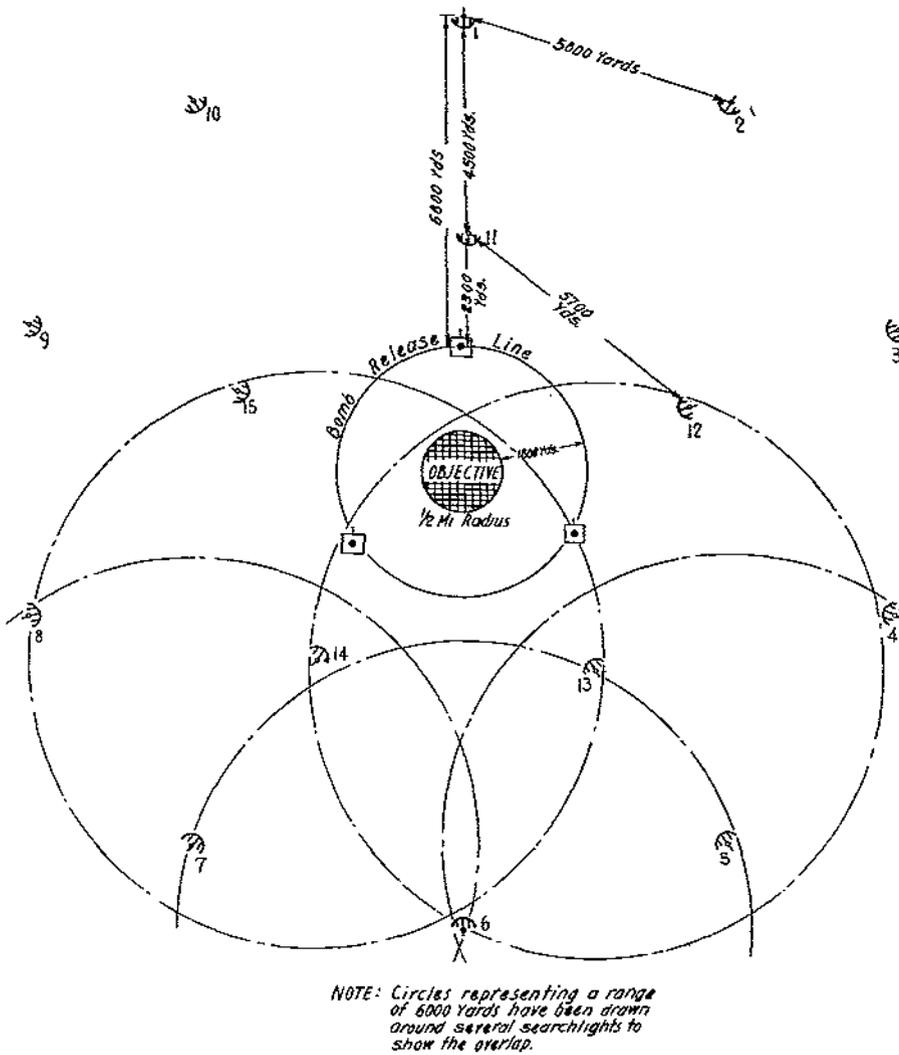


Figure 2

6000 yards, and the speed of bombardment aviation has jumped from 120 miles per hour to at least 200 miles per hour, with the result that the area to be illuminated has been doubled.¹ Using this increase in range of anti-aircraft guns and increase in speed of bombers, and following the same method as before for determining the number of searchlights required to illuminate for the gun defense, the result is twenty-four searchlights. This number is arrived at as follows:

	Yards
Maximum effective horizontal range of 3-inch gun	6000
Distance traversed by an airplane at a speed of 200 miles per hour during the time of flight of a projectile for 6000 yards horizontal range and 15,000 feet altitude	1800
Distance traversed by an airplane at a speed of 200 miles per hour during the estimated 15 seconds required to get on the target, establish a rate, and then fire	1500
Total	9300

¹Newspapers reported a new bomber to have flown from Seattle to Dayton at an average speed of 233 miles per hour.

If, in general, airplanes are first illuminated near the outer ring of searchlights, but once "picked up" can be carried 6000 yards, then the outer ring of searchlights should be located 9000 to 10,000 yards from the nearest anti-aircraft gun batteries. Under this condition, an outer and an inner ring of searchlights are established and the position of the resulting twenty-four searchlights is illustrated in Figure 3.²

MACHINE GUNS FOR THE PROTECTION OF SEARCHLIGHTS

Some anti-aircraft artillerymen consider machine guns unnecessary for the protection of searchlights as they are concealed in the daytime and at night machine guns may have difficulty in seeing low-flying airplanes. Probably a majority agree with the present practice of protecting each searchlight at night with one machine gun; and not a few advocate two machine guns. This leads to a consideration of whether machine guns for the protection of searchlights should be taken from the machine-gun battalion or be made an organic part of the searchlight organization.

If all the machine guns of the anti-aircraft artillery regiment are placed in the machine-gun battalion, it is

reasonable to conclude that better battery training will be obtained. Since during war practically all battery training will be conducted by Reserve officers, two types of training (searchlight and machine-gun) adds unnecessarily to the professional requirements of these officers.

But there are reasons for the inclusion of machine guns in the searchlight organization which may offset this advantage in training. The machine-gun battalion is organized for the purpose of defending troops or important establishments, and all its machine guns are required to carry out this mission. To protect searchlights requires a diversion of nearly one-third of its weapons. Additional machine guns might be added to the machine-gun battalion but this procedure would be inconsistent with the organization of the gun battery which has its own machine guns, and would fail to comply with the principle laid down in Field Service Regulations that combat units will provide their own protection against low-flying aircraft. Also, searchlights are scattered over a large area and the administration and supply of machine-gun units

²The British generally employ 24 searchlights to illuminate a circle of five miles radius. (British Manual of Anti-aircraft Defense, Volume II.) The area shown in Figure 3 has a radius of seven miles; but the same number of searchlights.

defending them would be facilitated if machine guns are made a part of the searchlight organization.

A SEARCHLIGHT BATTALION

If the number of anti-aircraft guns and searchlights is increased to the extent that has been suggested, the personnel to man them becomes excessive for one battalion and a separate searchlight battalion appears desirable. For this battalion several different organizations should be considered.

If machine guns are not made a part of the battalion, the organization might be two searchlight batteries of twelve lights each. If one machine gun is to protect each searchlight, the battalion could consist of three batteries of eight searchlights and eight machine guns each; or two batteries of twelve lights each and one battery of 24 machine guns. If two machine guns are allowed for each searchlight, the battalion might be composed of two batteries of twelve searchlights each and two batteries of 24 machine guns each; or three batteries each of eight searchlights and sixteen machine guns. The last named combination would give a strong defense for a rear area and would require an estimated personnel of about 800.³

THE NEED FOR ADDITIONAL DATA

Finally, data are needed from searchlight exercises, employing modern airplanes in tactical formations, upon which organizational requirements of searchlights may be based. Data, obtained with less than a peace strength squadron of airplanes, are of limited value. This requirement, coupled with the large number of tests necessary

³Major William F. Marquat, General Staff (CAC), writing in the July-August, 1935 COAST ARTILLERY JOURNAL, suggests a battery of 28 searchlights and an all-purpose battalion of four batteries.

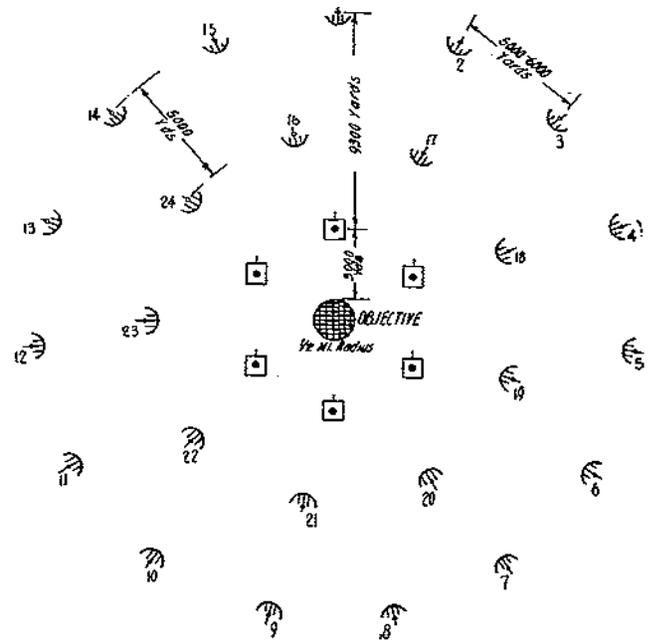


Figure 3

to determine the capabilities and limitations of anti-aircraft searchlight equipment and personnel, under the many conditions likely to occur, would probably preclude the Air Corps furnishing the number of missions required, unless a searchlight battery is stationed at an Air Corps field where it would be practicable to secure data from missions flown for other purposes. A year of such training and exercises by even a searchlight platoon would provide information invaluable in the tactical development of both arms.



THE PROTECTIVE POWER of modern weapons is so great that where these are strongly and deliberately organized for defense they practically assure invulnerability. Only through surprise action can collision with the enemy's prepared positions be avoided, and to gain surprise nothing is more important than superiority in mobility. The constant trend in the modern world is toward greater and greater speed. Any army that fails to keep in step with this trend is, far from making necessary progress toward modernization, going steadily and irrevocably backward.—MACARTHUR.

Baton in the Knapsack

BY STAFF SERGEANT J. R. ULMER
L.E.M.L.

"This is the sergeant . . . a good and hardy soldier."
—THE BARD

AN irascible personage of high rank making an inspection of a large post asked the stock question: "What are you going to do on M day?"

The post commander drew forth a weighty document labeled "Mobilization Plan," cleared his throat, and said, "One of the first things is the establishment of an officer-candidates' school for the noncoms."

"Do you have to wait for M day? Must you have a war before you can do this?" snorted the personage.

The snort went the way of all good snorts—but the idea behind it still lives in the mind of at least one of the awed auditors. And so . . .

While laying about vigorously for war-time officer material in the directions labeled ROTC and CMTC, are we sitting placidly upon an untouched mine of capable reserve officers in the persons of the enlisted men of our Regular Army? The figures in the accompanying table have something to say on this point.

It may be argued with some logic that an arm or service whose proportion of reserve officers to total enlisted strength is greater than another's, is the better of the two.

Utilizing this logic, which is not guaranteed, we examine the record and find the men of the Quartermaster Corps much smarter than the men of the Infantry—three times as smart, in fact, for of the 7,500 men composing that service, 286 (3.8%) are reserve officers, whereas the Infantry's 40,000 can show but 525 (1.28%). This news should distress *Captain Company A*, when he remembers that but yesterday he sent a detail of ten men, headed by a sergeant, in the direction of Utilities to do an odd job the Quartermaster detachment just couldn't get to.

But let not the Infantry be cast down by these figures, nor the Quartermaster Corps unduly elated. The Dough-boy may console himself by pointing out his superiority to the Field Artillery's meager .82%, the Coast Artillery's .4%, and the Corps of Engineers' .7%, while the Quartermaster Corps must yield place to the Medical Department's 4.3% and to the Chemical Warfare Service with 7.6%. But the banner for military excellence is hereby awarded to those sterling campaigners who face the thought of M day calmly and with fortitude—the Finance Department! Of their 380 enlisted men, 15% are reserve officers.

Examine the figures for the whole, compare them with the results obtained in the World War by the "Old Army," and jump at another conclusion. The "Old Army" produced better noncoms than today's army. Of the 200,000 war-time officers, 16,000 came from the

ranks; of these 5,000 were Regular Army noncoms commissioned soon after we joined the war. Look at the slate today—88,000 assignable reserve officers, and of these but 1,736 enlisted men and warrant officers (1.97%) hail from the regular establishment. This is not so hot in any man's army.

Following our decision to enter the war to end war, 5,000 Regular noncommissioned officers were promptly commissioned. ("Promptly" means anywhere from 30 days to 5 months.) Five thousand commissions represented 5,000 letters, each of which carried from three to ten indorsements. Each indorsement represented a desk.

Now leap with me to another conclusion. Since the CMTC has brought forth 3,000 reserve officers, its ability to produce war leaders is nearly twice that of the Regular Army. Here I regretfully and abruptly abandon you to the logic that two eggs are necessarily better than one egg.

Of course, all this does not mean what it says. We know that 1,700 reserve officers do not represent a maximum winnowing of the ranks of the regular establishment. We know that the 30,000 noncommissioned officers of the Regular Army will produce between 5,000 and 8,000 officers on "Der Tag."

We also know that those disconsolate souls who spent the duration at desks would have been pathetically grateful for the removal of 5,000 active pieces of correspondence from the glutted military channels of 1917. May we not assume that the removal of 8,000 letters with accompanying indorsements and recommendations will be equally welcome to the desk soldiers in our next fracas? Surely, then, it would be the part of wisdom to establish a training and administrative policy that will accomplish this important work while we are still at peace. If 5,000 or more noncommissioned officers are to be commissioned when war breaks, they should be given their reserve commissions now. In the words of the immortal *Snuffy*. "Time's a-wastin'."

Table showing Reserve-officer strength, by enlisted men, of arms and services of the Regular Army:

ARM OR SERVICE	STRENGTH	NUMBER PERCENTAGE RESERVE OFFICERS TO OFFICERS STRENGTH	
		OFFICERS	STRENGTH
Infantry	40,909	525	1.28
Cavalry	3,986	89	2.23
Field Artillery	14,881	122	.82
Coast Artillery Corps	11,988	48	.4
Air Corps	13,334	53	.4
Corps of Engineers	4,338	32	.7
Signal Corps	2,541	18	.7
Quartermaster Corps	7,545	286	3.8
Finance Department	380	57	15.
Medical Department	6,520	282	4.3
Ordnance Department	2,025	54	2.66
Chemical Warfare Service	409	31	7.6
Detached Enlisted Men's List.....	6,012		
Adjutant General's Department....	0	125	
Military Intelligence Division.....		12	
Specialist Reserve		2	
Totals	118,000	1,736	1.47%

Coast Artillery Association Trophies

The 59th Tops the List

IN keeping with the policy of the Coast Artillery Association to award annually a trophy to the Regular Army, National Guard and Organized Reserve regiments for outstanding performance during the previous training or target practice year, the President of the Association, Major General Harry L. Steele, has announced that the award to a Regular Army regiment for the target practice year ending December 31, 1935, goes to the 59th C.A. (HD) Ft. Mills, Corregidor, P. I. This award is made to the regiment with the greatest number of active firing batteries receiving an excellent rating. In this instance numerical scores are not as important as the general performance of the several units.

The 59th has seven active firing batteries. Five of these were rated excellent; therefore, the final score on a percentage basis is 71.4%. The nearest competitor was the 63d C.A. (AA) at Ft. MacArthur, Calif., with a final score of 68 $\frac{2}{3}$ %. The award of the Association trophy is a fitting recognition for outstanding and meritorious performance, demonstrating a high state of training and general efficiency. The following tabulation will be of interest:

Battery	Type	Armament	Classification	Score	Battery Commander
A	12"	SC BC	E	168.4	Capt. C. O. Bell
B	12"	SC DC	E	217.5	1st Lt. O. T. Forman

Battery	Type	Armament	Classification	Score	Battery Commander
C	14"	SC DC	G	49.6	1st Lt. J. B. Carroll
D	12"	SC DC	G	101.8	Capt. C. M. Myers
E	14"	SC T.	E	90.4	Capt. P. F. Biehl
F	12"	SC BC	E	178.8	Capt. V. Schmidt
G	12"	M	E	108.7	1st Lt. J. G. Reynolds

The President of the Coast Artillery Association has sent the following letter of commendation to the Commanding Officer of the 59th:

It gives me great pleasure to inform you that the Executive Council of the Coast Artillery Association has selected the 59th C.A. Ft. Mills, P.I. as the winner of the Association trophy for the target practice year ending December 31, 1935. The results of the majority of the practices are outstanding and noteworthy, reflecting a high degree of training, efficiency, performance and readiness for service. I am mindful of the fact that this fine record could not have been accomplished without long hours of training, attention to details and a high state of morale which undoubtedly permeated both the commissioned and enlisted personnel of your regiment.

On behalf of the Executive Council of the Association I desire to congratulate you, and through you all the members of your command, for this outstanding performance and the credit you have reflected upon the Coast Artillery Corps. To this I desire to add my personal thanks and congratulations.

Presentation of Trophy to the 519th C. A. Res.

THE Coast Artillery Association Trophy, won in 1935 by the 519th Coast Artillery (AA) of Los Angeles, was officially presented to the officers of that regiment by Brigadier General Sherwood A. Cheney, commanding the Ninth Coast Artillery District, on Dec. 17, 1935.

Officers of the 519th sat in a body, a large number being present to receive the well merited honor. Flanking them on either side was a gathering of officers representing all arms and components of the Army. Regimental commanders and high ranking officers of other arms, by their presence and evident interests, proved the value and desirability of such handsome recognition of work well done.

Colonel Richard H. Williams, C.A.C., Executive of Coast Artillery Reserve for Southern California, and unit instructor of the honored regiment, in brief and well chosen words, introduced General Cheney, who in a scholarly address, formally presented the trophy (a large bronze plaque, suitably inscribed) on behalf of the U. S. Coast Artillery Association. Lieutenant Colonel Frank J. Baum, commanding the regiment, accepted with words of appreciation for the Coast Artillery Association, the officers of the District Headquarters, the Unit Instructor, members of the regiment, and all concerned except himself. Colonel Baum's driving power,

leadership and example were primarily responsible for winning the award.

General Cheney's remarks, following an introduction in which he quoted from Aristotle, Horace Mann, and Addison, all favorable in principle to education and the spread of learning, went on to review the figures and statistics (published in the JOURNAL, September-October, 1935), clearly inferring that those who decry the worth of Army Extension Courses as a means of preparation for war are not in accord with the best thought of the ages as to the value of education and learning in general. He then presented additional statistics showing that, whereas for the United States as a whole, there are 75% of all reserve officers eligible for assignment, active duty and promotion, and but 50% enrolled in Army Extension courses, in the Coast Artillery reserves in Southern California, 91% are eligible for assignment and 60% are enrolled in extension courses.

General Cheney then assured his hearers that reserve activities of the Coast Artillery in Southern California were by no means limited to book study and correspondence work. He complimented the regiment on its frequent and instructive terrain exercises, field problems, and on the "school of fire"—antiaircraft firing on an in-

active duty status just concluded at Fort MacArthur—saying that such activities were most unusual and most commendatory inactive duty training, of invaluable assistance in obtaining the greatest benefits from the too infrequent periods of active duty, and as assurance of success in war. Briefly reviewing the unsettled conditions throughout the world, he indicated the continuing need for preparedness, asserted that a regiment such as he

knew the 519th Coast Artillery to be was a decided asset to the nation, and concluded:

"May our nation be profited through your industry, remain firmly established through your fidelity, and be honored through your integrity. May you continue to be guided by American ideals and may your loyalty and patriotism remain such that our nation may profit by your lives."

The 251st C. A. (AA) Gets the Prize

ONCE more the trophy awarded by the U. S. Coast Artillery Association to a National Guard regiment for general excellence and outstanding performance goes to the far West. An inspection of the records reveals that out of the total number of trophies awarded to both National Guard and Organized Reserve regiments, 50% have gone to the Pacific Coast. We would like to know why the Ninth Corps Area gets as many prizes as all the remaining eight corps areas combined. Perhaps some gifted scribe will send us a reasonable explanation, but please do not ascribe it to the climate.

It is our pleasure to announce that the National Guard trophy for the training year 1935 has been awarded to the 251st C.A. (AA). At the time of the annual target practice this regiment was under the command of Lieutenant Colonel H. H. Morehead. Only recently we had the pleasure of announcing that this officer has been promoted to the grade of Brigadier General and appointed Adjutant General of the State of California. Merit has its reward. The unit instructor is Major George C. McFarland, C.A.C. The headquarters of the regiment is in San Diego, Calif.

The winning regiment in the National Guard component is selected annually by the Chief, National Guard Bureau. The basis of the award is:

1. Results attained at target practice with the principal weapon.
2. Percentage of batteries rated satisfactory at the annual armory inspection.
3. Percentage of batteries rated satisfactory at the annual field inspection.
4. Attendance at drill during the twelve months prior to the annual armory inspection.

Of the foregoing factors the results attained in target practice carries the greatest weight, nevertheless general excellence in the other activities plays a very important part, and no organization can hope to lead unless its performance under factors 2, 3 and 4 have been of a high order.

Based on these factors, the final score of the 251st was 96.2 out of a possible 100—a truly remarkable perform-

ance when we consider the many conditions that could operate to detract from the total.

Incidentally we may mention that the Chief, National Guard Bureau, has decided that in order to be eligible for the award a regiment must have four or more firing batteries. The obvious reason for this is that it tends to counteract the vagaries of chance which might react to the decided advantage of an organization with one or two firing batteries. Only three National Guard organizations are adversely affected by this ruling.

The 251st C.A. (AA) was federally recognized as an antiaircraft regiment on January 1, 1930. Prior to that date it was the 251st C.A. (HD). It consists of Headquarters, Headquarters Battery, Band, Service Battery, and four firing batteries. The headquarters and gun battalion are located in San Diego, while the machine-gun battalion is divided between San Pedro and Long Beach.

We desire to congratulate the Commanding Officer, Lieutenant Colonel John H. Sherman, the officers and enlisted personnel of the 251st, for their fine performance in winning this coveted trophy.

The nearest competitor of the 251st is the 213th C.A. (AA) of the Pennsylvania National Guard. The final score of this regiment, with eight firing batteries, was 88.0%; a performance which certainly merits commendation and congratulations.

Major General Harry L. Steele, President of the Association, in announcing the award, sent the following letter to Lieutenant Colonel Sherman, Commanding Officer of the 251st:

"It gives me great pleasure to inform you that the Chief, National Guard Bureau, has recommended the 251st C.A. (AA) to receive the trophy awarded annually by the U. S. Coast Artillery Association. This action has been concurred in by the Executive Council and the trophy will accordingly be awarded to your regiment.

"I desire to congratulate you and through you all the officers and enlisted personnel of the regiment on its outstanding performance and demonstrated readiness for active service, should the occasion arise. The signal honor won by the 251st shows plainly that it is ready for any emergency. You have every reason to take just pride in the fact that, in the keenest kind of competition with the entire Coast Artillery National Guard, your regiment has attained the highest figure of merit for the training year 1935."

Training the Searchlight-Sound Locator Team

BY CAPTAIN JOHN L. GOFF, C.A.C.

FOR the officer or organization newly assigned to duty with antiaircraft searchlights and sound locators, there may be some uncertainty and confusion as to what should be done to prepare the command to meet all requirements in a satisfactory manner. The amount of training necessary will vary depending upon previous experience, personnel turnover, difference in equipment and tactical requirements. In general, three types of peace-time missions will have to be performed; viz., demonstrations, tracking for night-gun and machine-gun firing, and antiaircraft searchlight practices. Occasionally the unit will be called upon to participate in joint antiaircraft-air corps exercises. In war, these exercises become actual combat. The training of a platoon, equipped with five lights and locators and designed to defend a 120° sector is visualized in this article.

As soon as possible the platoon commander should make available, for his own use and the use of his principal subordinates, a number of copies of the following:

1. Gunners' Instruction Pamphlets, A.A. Artillery, Searchlight Battery, 2nd Class, 1st Class and Expert.
2. Manufacturers' manuals and descriptive literature of the searchlight and sound locator.
3. The following training regulations and Coast Artillery Field Manuals:
T.R. 435-55
T.R. 435-75
T.R. 190-10—Map Reading
Vol. II. Part two, C.A.F.M., Chapter 3 (pages 243-294)
Basic Field Manual Vol. IV. Signal communications, field telephones and wire laying.
4. Tables of Organization and Equipment.

For preliminary training, a binaural trainer and an overhead trolley with controllable moving sound source to test and train listener operators is essential. An indoor area of sufficient size to dismantle lights and locators and spread cables is desirable.

Preliminary training will begin, generally in the indoor season, with Gunners' instruction in the subjects prescribed. At the same time a survey of all available personnel in the searchlight battery and other units will be made to find listeners with a normal binaural sense and especially acute hearing. After a sufficiently large group of these men has been selected to provide for expected casualties, they should be given special instruction and practice on the binaural trainer, using a moving sound source. This sound source may be easily constructed locally for either outdoor or armory training. Overhead wires should be attached to any convenient

anchorage such as trees, poles or buildings. For indoor training attach wires to walls, selecting points near the ceiling. Sloping wires are more satisfactory since they train both horizontal and vertical listeners simultaneously and the trolley carrying the sound source may be allowed to run by gravity, thus necessitating an operator only at one end. The sound source may be an assembly consisting of a buzzer (simulating plane noises) and several dry cells bound together with friction tape. The buzzer assembly carries with it a pair of light weight wires; an operator at the stationary end of these wires controls the sound by means of a contact key. The assembly is suspended by a trolley. On signal from the instructor, the operator starts the sound source moving either by gravity or by manual operation; by means of the key he can interrupt the sound or start it at will.

Special training should be given during this period in tracking a controllable moving sound source using the horns. Actual tracking of airplanes, if possible, should take precedence over other forms of training. During the training period, chiefs of section, searchlight commanders and other key men should be given especially planned work in orientation and map reading, making this conform insofar as possible to tactical situations.

Daytime training of entire searchlight and sound locator teams should next be instituted, using planes flying directed courses at prescribed altitudes and speeds. From this training, chiefs of section and searchlight commanders will acquire definite information of the values and senses of corrections to be expected under varying conditions. All members of the teams should become expert in the performance of their duties. Recording of all results and conditions of problems encountered on prepared forms for later analysis and discussion should be stressed.

If equipment is new, certain adjustment of matériel must be made before it is ready for training purposes. For the sound locators, these adjustments include the following: lubrication of the gears in the turntable to insure quiet and smooth operation; setting of the open or daytime sights of the sound locator, both vertically and horizontally, so that the visual axis will correspond to the auditory axis using a fixed sound source in still air; addition of leveling boards in case locator jack plates must rest on muddy or soft sandy soil; adjustment of level bubbles on 180° reversal; cutting of the straight sections of the rubber listener tubes to the correct theoretical length prescribed in Ordnance Department literature; fastening the tapered rubber tubes in such a manner that they will not rub against the metal horns and cause disturbing noises.

The electrician sergeant will find adjustments necessary from time to time due to wear on the carbon feed control, asbestos heads, data cables, traversing and elevating clutches and comparator dial Selsyn motors. All electrical work should be done under his supervision.

The new gasoline-engine-driven wire reels will save much time in the field. Equipment of 60" lights with modern electrical data transmission lines from sound locators and controller-comparators is advisable whenever possible.

Incidental training of teams leading to mastery of the mechanics of their duties will be afforded by night work during demonstrations and in tracking for gun or machine-gun fire.

Demonstrations staged for the benefit of civilian personnel may take many interesting and instructive forms. A simple night demonstration of the operation of the light with explanation of its features is effective. With more than one light, various planned evolutions can be carried out on signal or by telephoned commands; some of the more striking of these include the use of colored occulting screens made of translucent theatrical spotlight cellophane.

Lights may be called on in certain instances to illuminate outdoor pageants, night mass flights, parachute jumps, mountain or flood rescue work, or as beacons to guide airplane pilots. The best demonstration of all is the one wherein the lights surround a large flying field, from the far side of which the AA guns and machine guns advance and go into position, just in time to open fire against high- and low-flying enemy aircraft simulating an attack on the field, both the guns and planes being illuminated by the searchlights. These demonstrations provide valuable training and prepare the teams to meet new situations and master the mechanics of the equipment.

In tracking planes for antiaircraft gun fire, the comparator-controller operators and searchlight commander get especially good training. Tracking low-flying machine-gun targets acquaints the personnel with the use of the quick traversing and elevating hand-control. As an incidental feature, quick changing from electrical distant control to hand control and the reverse should be practiced.

After a period of activity involving some or all of the incidental training events mentioned, a new command is ready to conduct searchlight target practice. The position selected to be defended should be a logical one from the viewpoint of national defense, even though its selection involves a departure from ideal conditions. On the other hand, interference with peace-time civilian activities must be reduced to a reasonable minimum. Holding a practice in the outskirts of a large city, for instance, might fulfil the former condition but so interfere with road traffic as to create a nuisance and menace the safety of the public. Cooperation with civil authorities may be necessary.

Select the several positions so as to have as little inter-

ference from railroad trains, highways carrying heavy traffic and airport noises as practicable. Prescribed conditions for selection of war-time searchlight positions apply likewise to those for target practice. Probable location of gun positions should be kept in mind in selecting the platoon commander's C. P.

Now the communications can be installed. One of the most satisfactory arrangements is to have the switchboard operator put all lights and advanced listeners to the left of the C. P. in parallel and all those to the right of the C. P. in parallel. Then using two operators, the lines will not be overloaded. Soldering connections will improve transmission. All advanced listeners and operators must be good telephone and line trouble shooters. After all elements are reported in position and oriented by means of a celestial aiming point, a good practical way for the platoon commander to check the orientation without actually visiting each light, is to order all the lights in action in the vertical position, then bring the distant beams down over his own light one at a time and have the operator at the distant light read the azimuth. This can be checked against the map azimuth. This serves to show each light crew where the other lights are located. The advanced listeners are instructed as to the normal expected direction of approach of enemy planes; each light and locator can then set out oriented stakes indicating directions to other elements and the north point. The value of the preliminary training in map reading and orientation will show up at this point.

The value of preliminary practices cannot be overemphasized; as many as possible should be held and all available time devoted to them. They are the best form of training, excluding the tactical exercise, and the more of them held, the better will be the record practice. There is no doubt that conditions beyond control tend to restrict this training. Limited flying missions, demands on gun and machine-gun batteries, and absence from home station account for most of the curtailment of preliminary practices.

In conducting preliminary practices, a close and continuous contact before and after each mission should be maintained between pilot and platoon commander. The former should be furnished with a map showing light positions, objective and boundary lights. Also he should be instructed as to altitudes, speeds and types of maneuvers desired and specific information as to what the platoon commander desires to accomplish in each phase of his training. This is simplified if the searchlights and planes operate from the same base. During this period, a sense of the time and space elements involved should be developed among all personnel. After a sufficient number of preliminary practices have been held, a platoon commander will know when he is ready for record practice.

For the record practices, a well drilled and qualified observation section from the gun battery should be present for scoring and keeping records; it would be well if

they were present for several of the preliminary practices. They should be centrally located near the switchboard, well to the flank of any light but in close communication with the platoon commander.

After the searchlight record practices, a command is ready to participate in a joint Air Corps-Antiaircraft exercise, and be it on a large or small scale, this is the real test of training. Key searchlight men must become familiar with the probable enemy intentions and methods, strength and type of equipment, probable rendezvous points and approach routes, and expected time of attacks. Chiefs of Section must set up effective alerts, and keep in mind the means to be employed to meet multiple attacks of varied dispositions. The Chiefs of Section must know under what conditions they may assume the initiative for going into action. The service of information must be organized on an altogether free-flowing basis between all elements of the battalion, battery, platoon and light

teams. A highly developed familiarity with defended terrain features should characterize this phase of the training and a developed ability to carry efficiently one target and shift properly and quickly to new targets at other altitudes, will be the outstanding features of this, the final, phase of training.

It will be a great satisfaction to any officer or soldier to participate in a complete cycle of training such as described, but it will seldom be possible or necessary to undertake all the activities mentioned in a single training season. Such activities as are best suited to improve the condition of the command should be undertaken. Gaps in personnel from preceding training years usually require the greatest attention.

Whatever the activity engaged in, searchlight personnel have the great satisfaction of ever varying, fascinating, colorful, and instructive team work. It is an experience no young artilleryman can afford to miss.

The Dangerous Grade

By COLONEL ROBERT P. GLASSBURN, C.A.C.

I THOUGHT that title would get you. If I had used one revealing that this is just a statistical study of the basis for some already generally accepted conclusions about the Officers' Reserve Corps you might have passed this up. Now that you have gone this far you might as well go ahead, whether you are interested or not; if not, you should be. Everyone, Regular, Reserve, or National Guard, should be interested in the Reserve for enough reasons to fill another article.

After about eighteen months' duty as a Unit Instructor of several Reserve regiments, I have recently taken over the duties of Chief of Staff of a considerable Reserve Group. Its voluminous records seemed to offer the opportunity to test statistically some highly-generalized conclusions formed as a Unit Instructor—conclusions which I found to be shared by a large number of officers on like duty. Of the three units of which I was Instructor, two might be classified as urban, since their personnel is all resident in a large population center; the other rural, since its personnel (to about 70%) is scattered through the outlying districts of two states. The study seems particularly apt since paragraph 49½ recently has been added to AR 140-5, setting up a standard of inactive duty performance for Reserve officers above the grade of 1st Lieutenant. The conclusions to which I referred are:

a. That the urban officer is more likely to retain active *general* interest in the Reserve because of his opportunities for frequent contact with his comrades in the Reserve—with his unit, or group, Instructor, and because of the fact that he can accumulate credits by attendance at conferences, group schools, etc.

b. That the rural officer is more advantageously placed to accomplish extension school work than his urban

The sad story of the young man who left his country home to seek employment in the city, or the case of the urban versus the rural officer.

brother because of fewer social and business demands upon his time.

c. That the aforesaid business and social demands upon the time of the urban officer increase more rapidly with age than with the rural officer.

d. That, in view of the above, the following may be expected:

1. Greater attrition in the higher grades among urban officers than among rural officers; and
2. Greater extension school activity in all grades among rural officers than among urban officers.

Let's see what the figures say. For purposes of the study I took the years 1931-1935, both inclusive, as a distinctive and representative period in the development of the Organized Reserve. I classified as urban all officers living within a radius of about 15 miles of a city in which a Unit Instructor is maintained; all others, rural. I considered only preventable losses, that is, from the following causes:

- Failure to establish eligibility for re-appointment.
- Non-acceptance of reappointment.
- Failure to submit report of physical examination for re-appointment.
- Rejection of re-appointment.

Over a period of 5 years total losses among all officers, regardless of locus and grade, average 7.2% annually. Of the urban officers 6.7% are lost, and, of the rural, 7.7%. This seems to confirm general conclusion "a," above.

For the moment we shall set aside general conclusion "b," and consider only losses.

A study of the distribution of losses in grades should shed some light on general conclusion "c." Annual losses tabulated by grade and residence are:

GRADE	URBAN	RURAL
Lt. Colonel	7 %	0 %
Major	28 %	11 %
Captain	9 %	9 %
1st Lieut.	4.2 %	5 %
2nd Lieut.	7.1 %	8.5 %

Thus "c" is confirmed and "a" re-confirmed in that rural losses in the lower grades, when continued military contact is so important in crystallizing the young Reserve officer's interest, are greater than among the urban officers. The expectation of general conclusion "d-1," is also justified by these figures.

How about general conclusions "b" and "d-2"? Here as expected, the rural officers lead in a higher percentage enrolled, and a greater output per enrollee. I will not bore you with the figures, but the rural enrollees averaged 50% more output per officer than their city cousins.

There is no great virtue in this dissertation if its purpose is merely to confirm conclusions already reached by the exercise of ordinary intelligence. The real purpose is to stimulate consideration of corrective measures. When a Reserve major is lost the net man-loss to National Defense is greater than when a lieutenant is lost, for the major represents more years of training. It is a serious matter when, among urban majors, the percentage of loss is from three to seven times that in the lower grades. Why is this the case? It is not normal for a man to cast

away what it has taken years of effort to attain. I think the causes are, principally, economic pressure and lack of interesting instruction. A Reserve officer reaches the grade of major at the age when the economic burden upon the average man, particularly the family man, is reaching its peak—children arriving at college age, increased social demands, the most critical level of American business competition. It is the years between 40 and 50 which are most decisive for the executive type of American. Too many find themselves hard put to find remaining time and energy for Reserve activities and requirements. So much for the first cause. The other is the result of the load placed upon Unit Instructors. The Instructor usually has inadequate clerical assistance; he has, with three units, from 150 to 200 active extension course students. Add to this the demands of unit and group schools, and his unofficial but important civic contacts. The Unit Instructor who does his job thoroughly and conscientiously is an over-worked man. He should conduct special instruction for his field officers, but, out of his small reserve of time and energy it is difficult, and frequently impossible, for him to coordinate his time with the time and energy of the field officers.

What are the answers? I do not know all of them, but I suspect a number can be found among the following:

- a. Unit Instructors should have more frequent contacts with their urban officers, to offset the effects of opposing interests;
- b. Unit Instructors should give more instruction to officers of field rank, definitely applicable to their functions.

To make possible the desiderata above, there should be:

- a. More, and more capable, office assistance for Unit Instructors.
- b. No more than two units of regimental size per Unit Instructor.



MAN IS A PECULIAR CONGLOMERATION of sentiments. He normally likes to get along with his fellow men in a peaceful manner, but once he is convinced that he is getting the bad end of a bargain, he is likely to break out in violence.—CAPTAIN A. T. BEAUREGARD, U. S. NAVY.

Facts and Fables

BY PROFESSOR A. L. KIBLER*

MOST published reports of the discovery of new war gases are so obviously absurd that investigation of them is unnecessary. When the name of the gas is given in such accounts, a mere reference to its known physical and chemical constants is in many cases sufficient to show the impracticability of its field use.

The requirements for a satisfactory chemical warfare agent are so rigid that very few substances possess the physical properties necessary to meet them. For example, the melting point and boiling point of the acceptable agent must fall within fairly narrow limits. There must be sufficient volatility to allow an effective concentration to be built up in the air, but not enough to prevent liquefaction and loading into shell. The substance must be sufficiently stable to withstand storage, contact with metals and earth, the shock resulting from the detonation of the propelling charge, etc., yet be active enough chemically and physiologically to constitute a strong poison. It should be able to circumvent existing protection, and finally it must be fairly easy to manufacture in enormous quantities and the necessary raw materials must be easily procurable and comparatively inexpensive.

Because of these rigid technical requirements, only about 3,000 of the innumerable chemical substances known to science were considered during the World War as possible chemical warfare agents. Of these, less than 25 were actually used on the field, and only five or six survived at the end of the war as effective military agents.

Although many compounds have been tested as possible chemical warfare agents in chemical laboratories, throughout the world, since the War, it is significant that practically all claims for the discovery of new and super-powerful agents, when investigated, are found to have emanated from the imaginative brain of some modern Jules Verne. Few such claims have appeared in scientific publications. Unless they do, chemical warfare experts are inclined to be exceedingly skeptical. They know, first of all, that the suitability of an agent for chemical warfare use can be established only after exhaustive tests by military staffs, and that decisions based upon such tests are not likely to be publicized in the daily press.

Of the many claims investigated, so far not a single one has led to the discovery of a practicable new agent. Many reports of alleged new agents refer merely to well-known chemicals that were used, or at least considered for use, during the World War. A few examples chosen at random will serve to illustrate how fantastic are many of the accounts which find their way into the news columns of the daily press.

In August, 1924, a New York newspaper, under a Paris heading, published an article with the following sensational headlines:

1,000 POISON GASES AVAILABLE FOR WAR

**UNPRECEDENTED MASSACRES IN THE NEXT
GREAT CONFLICT ARE PREDICTED
EXPERTS REPORT TO LEAGUE**

One paragraph of this article reads:

"One of the most terrible gases is one which causes a fatal lesion of the heart, but which is entirely painless in its effects, so that the victim remains ignorant of his fate until he drops dead."

It is obvious that the writer of this report was quite ignorant of the rigid requirements which all chemical warfare agents must meet. It is impossible that a thousand gases suitable as chemical agents would be available. The "terrible gas" referred to suggests hydrocyanic acid, the action of which is quicker than that of any known gas. However, there is nothing to prove that this gas, whatever it may be, is suitable for military purposes. Many substances that cause sudden death are totally unacceptable as war agents. Hydrocyanic acid was used in large quantities by the French in the World War, but was reported by the Germans to be very ineffective because of the difficulty of setting up a sufficiently high concentration and the fact that hydrocyanic acid is not a cumulative poison; today it is not seriously considered as a war gas.

A London newspaper in May, 1926, published a remarkable account under large headlines regarding an investigation of lewisite, the so-called "dew of death," developed in America during the War. One of the sub-headings was as follows:

"How a South Kensington professor escaped by the narrowest chance from being killed by 'Lewisite'—the odorless but devastating vapour that could bring death to Londoners in the streets without their knowledge of its presence."

Lewisite is not odorless and is regarded as less dangerous and less effective than mustard gas, partly on account of its instability in the presence of moisture, partly on account of manufacturing difficulties, and partly on account of other deficiencies.

A New York daily published in January, 1933, under a London dateline, an article with the following headline:

**MORE DEADLY GASES MADE FOR THE NEXT
WAR, CAN WIPE OUT CITIES, SAYS
LORD HALSBURY**

This article turns out to be exceedingly sensational.

*Reprinted by courtesy of the Chemical Warfare Bulletin.

Among other wild claims is one that a bomb filled with diphenylchlorarsine will kill everyone within a radius of a half mile. Diphenylchlorarsine is a well known irritant used during the World War. It is extremely irritating to the mucous membranes, and small quantities of it will induce nausea, but sufficient concentrations cannot be set up in the field to cause death. As a matter of fact, diphenylaminechlorarsine, a very similar compound, is being manufactured by a commercial concern in this country and put on the market in a form suitable to control dangerous mobs, it being acceptable for this purpose because it produces only temporary and noninjurious effects.

A New York newspaper in July, 1927, published a note concerning mustard gas under the headline:

TON OF MUSTARD GAS TO KILL 45,000,000 MEN

Mustard gas is the well known agent introduced by the Germans during the World War and is still the most effective chemical war agent known. But World War data shows that about a ton and a half of this "King of war gases" was required to produce one fatality. This figure is based on the fact that 12,000 tons of mustard gas are known to have been used during the War and that there were 350,000 mustard gas casualties (hospital cases) of whom only 2.5% died. The headline exaggerated the facts by some sixty-eight million times! In partial extenuation of this exaggeration, however, the article itself stated that 45,000,000 men could be killed by one ton if they would all stand still and inhale mustard fumes! Even this was an exaggeration by many millions of times, for in order to be true the lethal dose would have to be administered to each man separately in such a way as to *avoid all loss*.

A New York newspaper in September, 1934, published an article under the following headline:

NEW WAR GAS WHICH CAN KILL AS EXPLOSIVE OR DEAL SILENT DEATH IS PRODUCED AT M.I.T.

The article described a compound which may be called fluorine nitrate, the preparation of which was reported to the American Chemical Society at the Cleveland meeting in 1934. Investigation by the Chemical Warfare Service revealed that no measurements of toxicity had been made and no consideration had been given to the suitability of the substance as a chemical warfare agent, except that it caused coughing when it was smelled and that it exploded when heated. There is no information of the concentration which is required to produce coughing, and coughing in itself is not a serious physiological effect. The explosive property of the gas would be a serious drawback to its use as a chemical warfare agent since this indicates extreme instability, it greatly increases the difficulty of manufacture and loading, and it destroys the identity of the gas when a shell explodes.

A London newspaper in July, 1934, published an article under the following headline:

POISON GAS BEATS EXPERTS MASKS QUICKLY OUT OF DATE EVEN WAR OFFICE APPALLED PEOPLE AT MERCY OF CHEMISTS

The article revealed that the "horrible new gas" which was "the most devastating gas known" was diphenylarsine. The composition of this substance places it in the class of irritants. The compound is known and was described in the Journal of the American Chemical Society for 1933, page 1161. It is closely related to diphenylchlorarsine, already referred to. Modern, properly constructed gas masks offer complete protection against all irritant smokes. Diphenylarsine is probably less effective as an irritant than diphenylchlorarsine, since it is well known that the presence of chlorine usually increases the irritating effect of such compounds.

A Chicago newspaper of December, 1928, featured the story of the "reluctant" divulging of the terrors of a new war gas by an "internationally known research chemist." The headline was as follows:

SCIENTIST TELLS OF GAS THAT CAN DESTROY ARMIES

The following is quoted from the article: "He talked reluctantly about the new poison gas, which, he said, is called cacodyl isocyanide—reluctantly—because, he said, the government has made it known that it does not wish to have the subject too much discussed. He said the gas is so deadly that although it is in the possession of all the great nations of the World, the rulers and military leaders would hesitate to start using it." The Chicago section of the American Chemical Society undertook an investigation of this and other stories emanating from the same source, and published its findings in *The Chemical Bulletin* of January, 1929. The "internationally known research chemist" was revealed as a professional lecturer with a flair for the sensational. As a matter of fact, the cacodyl compounds were carefully investigated during the war and discarded as potential chemical warfare agents.

E. Alexander Powell in his new book, *The Long Roll on the Rhine* (Macmillan, 1934) writes: "I have been told by a chemical engineer of international reputation that the German chemists have succeeded in producing two new toxic gases and a new explosive far more deadly than anything heretofore known."

One of the gases he identifies as nitroso camphor, of which he says: "Odorless and colorless, it insidiously penetrates and dissolves in the mucous membranes, particularly affecting the lungs, its victims have no warning of its presence until it is too late. Its inventors claim that by pumping it into a town through concealed pipes the entire population could be wiped out in a few minutes."

The second gas he identifies as chloralkylarsenide of

which he says: "It has a double-barrelled effect, for it burns the skin as horribly as the so-called mustard gas used during the latter stages of the great war and at the same time enters the system and produces acute arsenical poisoning." The explosive he identifies as nitrogen chloride, saying of it: "Like nitroglycerine it explodes on contact, but it is claimed to be many times more powerful." Of the two new toxic gases, it may be said that their chemical nature is not sufficiently disclosed to enable positive identification of their composition. However, it is difficult to believe that any derivative of camphor could have the properties attributed to "nitroso camphor" which, incidentally, sound suspiciously like the properties of mustard gas.

The expression "wipe out the entire population" is a favorite of sensational writers who never take the trouble to tell what they mean by it. It sounds very terrible but means nothing. The idea of laying concealed pipes in hostile territory and pumping a poison gas through them to "wipe out the entire population" is very naïve. The "chloralkyl arsenide" is probably a chlorarsine such as ethyldichlorarsine which was used in large quantities by the Germans during the World War. These compounds are very well known and do not present any unexpected hazards. Nitrogen chloride is well known in chemical literature and is not suitable for any kind of military use on account of its extreme sensitivity and its lack of explosive energy.

These examples are quite typical of all reports investigated. It appears of interest to add in this connection several well established facts which may be used to controvert most of the sensational reports that appear from time to time.

Lewisite, the so-called "dew of death" discovered in America during the War, although somewhat more toxic than mustard gas, is less well adapted for use as a chemical warfare agent than mustard gas.

Irritant smokes and lacrimators are irritating and *not* lethal agents. No deaths are known to have been caused by these agents.

All known gases except the very highly volatile ones are caught by the modern military gas masks. Most of these very highly volatile gases (gases with very low liquefying temperatures) such as oxygen, nitrogen, hydrogen, and so forth, are nonpoisonous. Even those that are poisonous, like carbon monoxide, are not suitable for

chemical warfare agents, partly because they cannot be used in shell in the liquid form and partly because their comparatively low toxicity would require enormously large quantities to set up effective concentrations. Even the immense quantities of carbon monoxide which are daily discharged into our city streets from gasoline motors and from other sources are not sufficient to set up even harmful concentrations.

Lengthy and expensive tests by qualified chemical warfare experts are necessary to establish the suitability of any gas as a chemical warfare agent. Consequently when a report of the discovery of a new chemical agent or gas of highly toxic characteristics immediately couples it with military use to wipe out cities or armies or to make the soil sterile, we can be sure that the claim is premature, to say the least, if not entirely unreliable.

Many years are frequently necessary to work out efficient methods of manufacture after a new gas has been made in small quantities and in extremely low yields. Surveillance tests must be run to determine if the material is stable and can be loaded in steel shell. On account of the impracticability of testing the effects on human subjects the determination of the physiological action and the effective concentrations by roundabout methods is difficult and time-consuming. Since it is not feasible to use a large number of agents in the field, it is necessary to make a decision whether a given new agent is better than a standard agent and should replace it. This decision involves a great many factors and much experimental work to determine whether it has a sufficient number of desirable characteristics to warrant its adoption in place of the old agent.

Published accounts of the discovery of new agents seldom, if ever, give any idea of the concentrations required to produce the effects described. The effective concentration is a fundamentally important technical factor. Any gas known, excepting only a mixture of oxygen and nitrogen in the proportions present in air, will cause death if the concentration is sufficiently high. If we ignore the factor of the effective concentration we could base very sensational headlines upon such well known substances as ether, chloroform, gasoline (especially if it contains lead tetraethyl!), ammonia, sulfur dioxide, hydrogen sulfide, carbon dioxide, and hundreds of others. Water itself can cause very sudden and horrible death if a person is immersed in it!



AS THE NECESSITY of national defense is sacrificed in the name of economy the United States presents a tempting spectacle. It is a spectacle which may ultimately lead to the alignment of the nations which may lead to another world war, and that war would find a score of nations ready for the sack of America.—MACARTHUR.

Emergency Methods of Fire Control

Part IV

By MAJOR JAMES T. CAMPBELL, C.A.C.

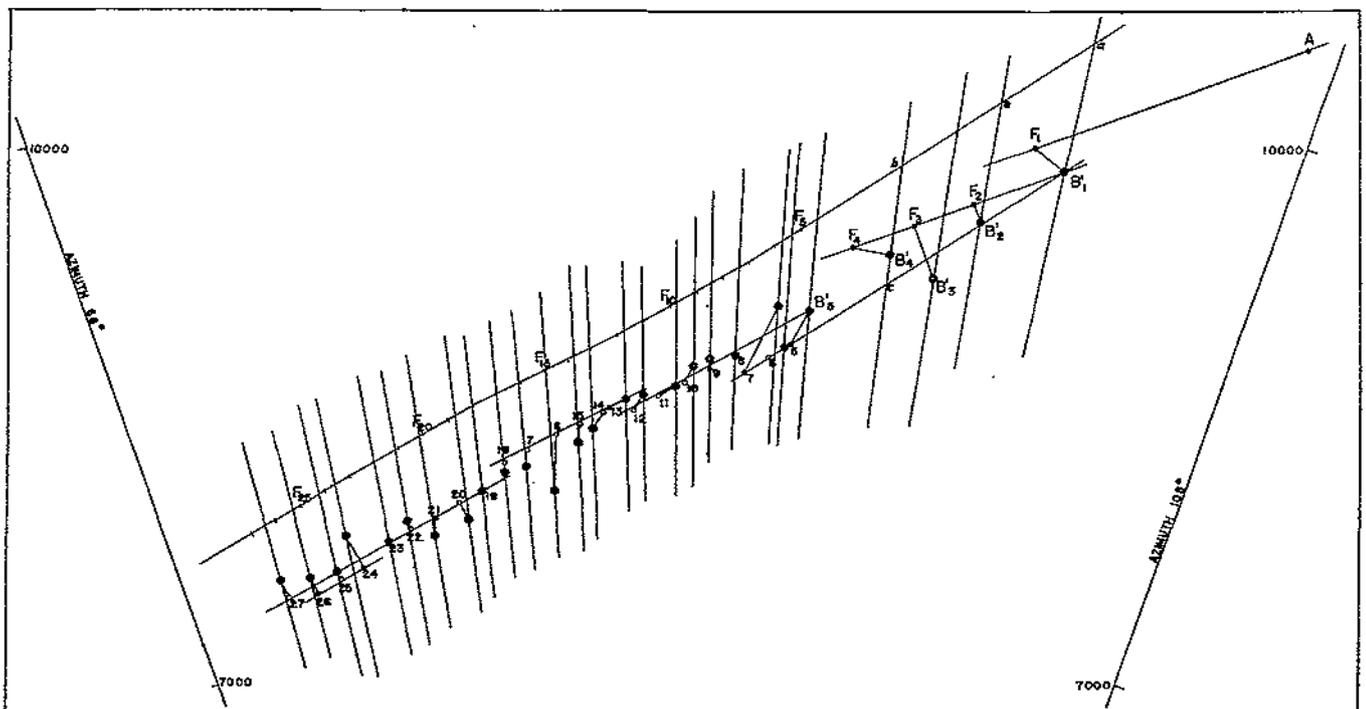
THE emergency method described in the preceding article of this series is too radically different from the standard system. It is a very simple system, but the result of that simplicity is that one man does too much work. This man must plot ballistic points, select the ballistic course, and make predictions. To plot ballistic points, he must associate each spotting message with the correct point representing firing data. A prediction along the ballistic course is a combination of fire adjustment, both in range and in direction, with a problem in arithmetical proportion, involving time and rate of travel. Time has a way of changing, even while one is trying to find out what the time is, and the rate of travel changes with each shift of the ballistic course. The plotter can do all these things very nicely if he has plenty of time between shots, but it is practically impossible for him to speed up the firing. While the value of the method cannot be doubted, it should be considered as a beginning and not as a finished product.

The method suggested in this article uses the ballistic course to work out the rates of change in range and azimuth, and to adjust fire. However, the data used in firing are taken originally from an independent, non-shifting course. These data are then corrected to give what would have been read from the ballistic course.

The separate course is a record of the passing of time; predictions are made on it, almost mechanically—one step forward on each time interval bell. A division of duties is brought about and a long step is taken toward making the emergency system the same as standard.

The method is illustrated and explained by an example. It is assumed that the battery fires every twenty seconds, and that the data taken from the plotting board after one bell are sent to the guns after the next bell for firing on the bell following. That is, the firing interval is twenty seconds and the dead time is forty seconds. This increase in the rate of fire has made it necessary to depart from the intention, expressed in an earlier installment, to use the same data for all problems. A new set of ballistic points has been drawn up, based on the same course and assumed ballistic conditions as before. The example is worked out on a Cloke plotting board with the percentage corrector, universal deflection board, and Pratt range board as auxiliary equipment. Slight modifications will adapt the system to any similar equipment.

Let the initial report of the observer be the same as in the previous example: range, 10,500 yards; azimuth, 1,850 mils; course of target, 335 degrees; speed, 17 miles per hour (510 yards per minute); time of observation, 8:17 A.M. A point, "A" is plotted on the board, range



10,500 yards; azimuth, 1,850 mils, and through this point a line is drawn whose azimuth is 335 degrees. Assuming that the first shot will be fired at 8:20 A.M., three minutes after the time of the observation, the travel of the target during three minutes, 1,530 yards, is laid off along the line just drawn, measuring from A . The point thus determined is marked F_1 (See diagram). The range and azimuth read from point F_1 are sent to the percentage corrector and the deflection board, where ballistic corrections are applied. The resulting data are sent to the guns for firing.

Ballistic corrections, taken from the usual charts, are incorporated into all data sent to the guns. This is a theoretical improvement over the previous system, and involves no added complications since the correction boards are to be used anyhow. In this case, however, the ballistic point has a slightly different definition. It is now a point representing the data which, if ballistic corrections were added, would have caused a shot to be a hit. The one-to-one correspondence between a point on the board and a pointing of the gun is just as complete as before, only a little more refined.

The data resulting from point F_1 are used to fire the first shot, which is spotted 2 o'clock 200 yards. The ballistic point (B'_1), based on this spotting, is plotted on the board just as in the previous method, and the course used in prediction is moved parallel to itself so as to pass through this point. Predictions are then made along this new line for firing three additional trial shots. Allowing one minute between the shot already fired and the first of these three shots, and forty seconds between shots thereafter, the distances measured off are 510, 340, and 340 yards. This gives F_2 , F_3 , and F_4 . The shots are spotted 3 o'clock 100, 3 o'clock 300, and 1 o'clock 200. The ballistic points are B'_2 , B'_3 , and B'_4 .

This particular choice of time intervals between trial shots is not an essential part of the system. The interval will be different in different situations, but in every case the selection will be guided by certain elementary considerations. In an emergency situation of the kind assumed here, the firing of shots must take the place of the usual observation with instruments. That is, in the absence of position data, ballistic data must be substituted; or, more simply, if you don't shoot you can't find out anything. This calls for a short time interval between shots. But, on the other hand, if the interval is too short, the information gained may not be what is required. Shots fired too close together, in time, may give a fine indication of the pointing required at the time of firing, but fail to show the rates of change in pointing data. Too rapid firing before the direction of the ballistic course is known may not be economical.

Returning to the example, the next step is to make use of the information offered by the trial shots, and to start the plotting for fire for effect. Each ballistic point, as it is plotted, has a radial line drawn through it—the plotting arm of the Cloke board is convenient for this pur-

pose. A line representing the estimated ballistic course is drawn through the ballistic points. In this example, this line passes through B'_1 , runs close to B'_2 , and goes about half way between B'_3 and B'_4 .

It is an essential part of this system that the plotter is to make his predictions along a fixed line, on which he will mark off a new point each time the time-interval bell rings. Instead of shifting the course parallel to itself, the same purpose is achieved by percentage corrections applied to the ranges read from the fixed course (Proposition 1, part II). If lateral corrections are also introduced, complications result (part II), but as long as these lateral corrections are small the errors are negligible. The course used by the plotter will be called a course of "false positions." The range to a point on this course is a "false range," and its azimuth is a "false azimuth." The plotter will move forward along the course of false positions by measuring off, each time the time-interval bell rings, a distance approximately equal to the travel of the target during the time between bells. The false range and false azimuth go to the operators of the percentage corrector and the deflection board, who apply adjustment and ballistic corrections before sending the data to the guns.

The "improved range" is the result of adding the range adjustment correction to the false range; the "improved azimuth" is the result of adding the lateral adjustment correction to the false azimuth. The operation of the percentage corrector is modified in that the adjustment correction is applied before the ballistic correction. The improved range may then be read opposite the ballistic pointer. This modification is trivial, and might as well be made standard, since the order of applying the adjustment and ballistic corrections makes no difference in the final result. On the universal deflection board it is easy to provide for reading the improved azimuth. A strip of paper is attached across the front of the board, below the tape and far enough from it to permit the "read" pointer to be seen. On this strip an index is marked, opposite the "set" pointer when the indicated adjustment correction is zero. Then, regardless of how the correction is changed, when the false azimuth is opposite the "set" pointer, the improved azimuth will be opposite the improvised index.

There will be plotted on the board a series of points corresponding to the improved range and improved azimuth. Each of these points will be called an "improved point." From the improved points, the range officer will plot ballistic points as the spotting comes in. To avoid interference between the plotter's work and that of the range officer, the course of false positions is set off a short distance. In the figure, a line is drawn from "a" to "b," parallel to the course selected through the ballistic points. The travel along this course will, of course, be a false travel; it is determined by measurement between the intersections of the radial lines, through the ballistic points, with the course of false positions. An interval of

eighty seconds is taken between trial fire and fire for effect, to allow for the operations now being described. The distance measured forward from "b" is made equal to the distance from "b" to "c," since the elapsed time between the second and fourth trial shots was also eighty seconds. The resulting point is marked F_5 . To get the range adjustment correction required, the false range to "b" is set opposite the index line of the percentage corrector, and the ballistic pointer is then moved until it is opposite the improved range of point "c." The ballistic pointer is thus set to the percentage correction required. With this percentage correction, and zero lateral correction, firing data start flowing to the guns.

As soon as the range and azimuth of a point of false position are read from the board, the operators of the correction boards call off, to the plotter, the improved range and improved azimuth. A point corresponding to these data is plotted. When a shot is fired, the improved point, whose range and azimuth were corrected ballistically to give the firing data for that shot, is marked for identification. When the spotting on that shot comes in, the ballistic point is plotted by measurement from that improved point. In the figure, each improved point is indicated by a small circle with a numeral showing the number of the shot. Each ballistic point is indicated by a double circle attached by a straight line to its corresponding improved point.

These ballistic points have all the value and permanence that were associated with the ballistic points of the earlier method. From them the range officer selects the direction of the course. He draws a line through them in the direction desired, just as he would in the earlier method. The course of false positions must now be made parallel to this selected line, and to do this, a line parallel to the selected line is constructed through the last point of false position that has been used for determining data. The plotter extends the new line, forward for predictions, and backward to get intersections with the radial lines through ballistic points. Travel along the new line is determined from the average distance between these intersections.

Next, it is necessary to determine the range and lateral adjustment corrections that will make the improved points lie on the newly selected ballistic course. It is desirable that this be done without interrupting the flow of data. After the fifth shot of the example, for instance, the range officer decided that he would make full correction at once, swinging the ballistic course closer to the direction reported by the aerial observer. Having done this, he knew that if the correction had been such that the improved point corresponding to F_5 had fallen at B'_5 , the shot would have been a hit, and also, succeeding im-

proved points would have fallen very close to the newly selected course. They would fall even closer to the selected course if the new line of false positions were made to pass through F_5 , but it seems better to accept a small error than to bother with this refinement. He therefore has the range and azimuth of B'_5 read from the board and compared with the recorded false range and false azimuth of F_5 . The recording necessary for this step, as well as the subtraction of one reading from another, is done by two additional members of the range section. The difference between the false azimuth and the desired improved azimuth gives the lateral correction directly. The range difference is converted into percentage correction on the slide rule attached to the fire adjustment board.

In the figure, a change in the corrections is indicated by the jumping of the improved points (represented by small circles) from one line to another, or by irregularities in the spacing of the improved points along the line. The change made after the fifth shot was not effective until the eighth. A change made after the tenth shot got in on the thirteenth. After the eleventh shot, and again after the twelfth, corrections were changed to bring the shots on for direction, and the travel was changed; these changes became effective on the fourteenth and fifteenth shots. There was an important change after the sixteenth shot, and two minor changes later.

In the process of working out this method, an effort was made to develop the corrections on the fire adjustment boards, following the procedure that is normal when using those boards. If this scheme could be made to work it would be a wonderful improvement, for it would reduce this emergency system to a special case of ordinary tracking. It turned out, however, that a change in the lateral correction affects the range correction materially, and that it would require rather elaborate machinery to untangle the two. Someone may yet show how it can be done, but it will take some careful thinking to find anything as good as the ballistic course.

Care has been taken to present a system that does not require special equipment. However, it would be desirable to have an instrument that will convert clock spotting into range and lateral deviations and subtract these deviations, algebraically, from the improved range and improved azimuth. This would give the range and azimuth of the ballistic point, which could then be plotted directly. Since the improved point would not appear on the board, there would be fewer marks to cause confusion. There would also be fewer operations performed on the board, a further division of duties, and more time for the range officer to do his part of the work.



WE ARE A RICH NATION, *and undefended wealth invites aggression.*—THEODORE ROOSEVELT.

Warfare in the Eighteenth Century

BY LIEUTENANT COLONEL J. M. SCAMMELL
Infantry, N.G.U.S.

THE ARTILLERY

THE cannon made kings. The cannon unmade them. It was siege guns that by pummelling the castles of the nobles, gave kings their power. Field artillery transferred that power to the people. The first use of cannon in set battles was to frighten horses. As field pieces were multiplied in number they were used to frighten soldiers too. Finally the big guns wived the little guns, heavy ordnance was united in wedlock with light, the artillery and the infantry met together and begat a new system of tactics. Field guns could do damage to soldiers and their shelters. In this development lay the seeds of Napoleonic warfare.

When Napoleon Bonaparte said that "The cannon has made a complete revolution," he referred to the artillery reforms of Gribeauval¹ and the new tactical doctrines derived from them by Guibert² and du Teil.³ Said the latter: "The system of war has changed and consists in having armies well constituted, mobile, and able to maneuver."

According to Colin, "In the military instruction of the duTeil brothers one can always recognize the directing idea, the great principles of war, which dominated the strategy and tactics of Napoleon."

Prior to the reforms of Gribeauval, the rôle of artillery in field armies had been growing steadily in importance. The number of guns taken into the field had progressively increased. At the Battle of Rocroi (1643) the French had 12 guns to 23,000 men, and the Spanish had 18 to 27,000 men. Toward the end of the 18th Century the Prussians had 300 to 400, and the Russians as many as 600 guns in an army. In France, by the Ordinance of February 5, 1720, the artillery was organized into one corps, the Royal Regiment of Artillery, of five-eight-company battalions. Companies numbered 100 men. A sixth battalion was added in 1756. In 1792 there were seven-two-battalion regiments.

The number of guns and their weight hampered the movement of armies. Said General Lloyd:

Ordinarily the artillery brigades precede the columns to facilitate their development, and to prevent the enemy from interfering with the formation of the line of battle . . . The only result is noise; but the real difficulty is that this ponderous column of guns with all their trains advances slowly, forever halting and slowing up the march of the troops by a thousand accidents, in such a way that rarely,

The recognition of the power of a small force to contain and delay a larger for a considerable time made armies flexible.

almost never, do the troops arrive together on the ground where they should deploy.

In addition, there was the dilemma that ordnance powerful enough to effect material destruction was too unwieldy for satisfactory field use; whereas lighter guns which were able to maneuver with armies, lacked the power to destroy shelters. Soldiers everywhere squirmed to find a solution to this problem. The Austrians sacrificed power and range to multiply the number of lighter and more mobile field pieces. Frederick the Great gave two 6-pounders and one 7-pounder to each line battalion; in addition each brigade had a battery of ten 12-pounders attached; and with the army went forty 10-pounder howitzers. In France, in 1702, M. de Vallière proposed artillery of five calibers: 4-, 8-, 12-, 16-, and 24-pounders. The long guns were designed to be the armament of fortified places. The short 4-pounder *à la Suédoise*, introduced about 1740 and firing from eight to ten shots a minute, was given to battalions in 1757.

At the La Fère Artillery School a professor of mathematics named Bélidor began to experiment with powder charges. He discovered that the charges commonly used were too heavy, and that by reducing the charge he could actually increase the range of the projectile. After twenty years of scientific work he was expelled for his pains: any fool knew that the more powder in a charge the greater the range! But by 1765 a field artilleryman named Gribeauval had completed a series of experiments to determine the exact charge of powder that would give the maximum range for each caliber of gun. Having established the proper relation between the propelling charge and the weight of the projectile, it became possible to design guns with the thickness of the walls of the tube in proportion to the strain produced by the explosion. With the thickness of the walls reduced, the tube and therefore the gun carriage could be lightened. Gribeauval also shortened the gun, improved the bore in such a way as to reduce the amount of gas escaping between the projectile and the tube, arranged the gun teams in pairs instead of in tandem, and reduced the number of calibers to three: 4-, 12-, and 18-pounders. Gribeauval not only lightened the field artillery so as to make it mobile, but he simplified it.

This was the beginning of a revolution. Now big guns could accompany an army where formerly nothing larger than an 8-pounder could go. And even the little 4-pound-

¹Inspector General in the French Army at the end of the Seven Years' war.

²At 29, when with the rank of colonel he commanded a Corsican Legion, he published his *Essai général de tactique*.

³Du Teil the Younger. A division commander in 1793, he later commanded the artillery of the Armies of the Alps and of Italy, whence he was summoned to Toulon and given charge of the siege artillery as the superior of Napoleon Bonaparte.

ers, with a rate of fire three or four times that of the old, unwieldy guns, could smother and silence batteries up to and including 24-pounders! The old artillery, horses in tandem, maneuvering by batteries, offered a large, slow-moving target. The "New Artillery" with lighter guns, with short gun teams, coming into action at a gallop, with intervals between guns, offered a small and a fleeting target.

The new artillery could close in to 1200 yards, out of range of the enemy's guns, mount most of its cannoners and, using covered routes, gallop to within 800 yards of the enemy.

"Battery, HALT!"

The short teams swung half-right. The guns, brought into battery immediately, opened a brisk fire.

The speed with which these batteries could approach and go into action, the range of the guns (medium range, 1400-1600 yards), the surprise effect of a hurricane of accurate fire, gave them complete ascendancy over the guns of the enemy. Now ordnance of large calibers, formerly of use only in siege operations, could maneuver with other arms on the battlefield, could be used in close cooperation with them, and throw a weight of metal capable of demolishing the shelters of the enemy troops. The new artillery could destroy any material protection likely to be found on the average battlefield.

The Gribeauval guns, tested in 1765, were furnished to the French Army in 1774, and remained in use until 1825. Artillerymen were quick to recognize the influence upon the art of war: henceforth it would be possible to wage an active, aggressive, and a vigorous campaign. Lighter guns of long range, able to displace promptly, brought delaying actions and rear guard action within the scope of the tactician. The recognition of this power of a small force to contain and delay a larger for a considerable time, made armies flexible. A force could advance on a wide front, threaten everywhere, and yet concentrate for battle. The divisional system was in sight.

Garrison artillerymen brought to open warfare the principles developed by Vauban for the attack on fortified places. Gunners began to study infantry tactics. Everywhere there was a cross-fertilization of ideas. But the artillery officers were the first to develop the new system of combined tactics, and it was they who best understood it, because they alone were familiar with the characteristics of the new artillery and with its possibilities. The school of Gribeauval was appreciated by Guibert, but it was the chevalier du Teil who was its great spokesman. He was the first to set forth the basic principles of what we now know as "Napoleonic warfare."

Vauban in his siegecraft had taught artillerymen how to make a breach in fortress walls by concentrating the fire of their guns against a vital point. Officers from the siege artillery brought this concept with them to the field artillery. It is not *men* that good soldiers try to destroy in battle, but *armies*. When Guibert asked artillery officers how their arm should be used, they answered that their object was not to destroy lives all along the line: it

was to overthrow a decisive portion of the enemy's front; and that this could be done by concentrating the fires of powerful batteries against this part of the line so as to create a breach and prepare the way for the assault of the infantry. By so doing one could achieve decisive results.

Du Teil was the first to advocate the doctrine that the guns should blast the way for the infantry:⁴

One ought to concentrate the greatest amount of fire against the principal points . . . One ought to concentrate the greatest number of troops and a greater mass of artillery upon the points where the enemy is to be overthrown, while demonstrating against other points . . . It is by this science of movement, in the rapid and intelligent choice of positions, that the artillery will preserve its advantages over the enemy. It will continually concentrate its fire on the decisive points and will always keep up with the infantry.

The artillery, mated with the infantry and become its yoke-fellow in battle, began to study the tactics of that arm in order the better to support it. Before 1765 the artillery schools had been immersed in technical gunnery studies. After Gribeauval's reforms the artillery schools held two classes a week in the combined use of artillery and infantry in battle. After 1785 artillery and infantry battalions executed exactly the same drills; and officers of each arm were taught the tactics of the other, because "Artillery and other arms must mutually protect one another." Infantry officers, on the other hand, were required to become familiar with the effective ranges of the various calibers of guns, to know where they should go into position, and what results might be expected from their fire.

The boon of mobility had been conferred upon the guns: the cannoners resolved to exploit this advantage to the full. They declined to be bound by precedents or to be held back by the dead hand of the past. Boldly they cut themselves loose from the shackles of tradition. While they adapted the principles of siege warfare to the uses of battle, they declined to adopt its practices. The power of cannon had been increased, not only as regards range and rapidity of fire, but by the mobility that made one gun the equal of many. The gunners declined to sacrifice this asset for the illusory advantage of entrenched positions: "Every defensive founded solely upon entrenched positions is absolutely contrary to the true and solid principles of the art of war," was the teaching of du Teil.

With the guns able to keep up with and yet not impede the deployment of a field army, it became possible to dream of a war of ceaseless activity, and of a continual and relentless offensive. With artillery able to maneuver with the other arms, even on the battlefield, it became possible to achieve swift marches. Speed fostered secrecy, and secrecy surprise. Armies could be articulated, be made supple and flexible. They could be subdivided, each

⁴But Frederick the Great foreshadowed it: "Die Artillerie-Officiers . . . suchen sollen ihr Feuer wohl anzubringen, damit es von der Seite den Ort der Attaqua concentriere." ("Artillery officers must seek to direct their fire in such a way that it will be concentrated from a flank against the point chosen for the attack.") *Militär Schriften*, 306.

division having both mobility and the power to delay larger forces for a considerable time. Also, after victory, a resolute and relentless pursuit could be instituted—guns well to the front, barking at the heels of the quarry to bring it to bay again. Uninterrupted activity, unceasing, economized, and concentrated energy—these were the ideals sought, and the new musket and the new artillery had made it possible to realize them.

Such were the ideas incorporated in the *Artillery Field Service Regulations* issued April 1, 1792. After that year the artillery ceased to be a part of the infantry organizations and became a separate arm. This step led in turn to a new development: the creation of horse artillery. The idea was not new. Both Charles XII of Sweden and Frederick II of Prussia had sought to gain greater mobility for the guns by mounting all the cannoneers. The Gribeauval guns made this practicable. On April 17, 1792, seven companies of horse artillery were authorized, one to be attached to each regiment of field artillery, but available to be detached at need. Each company was composed of 76 men and of two captains and two lieutenants. This horse artillery was equipped with 4-pounder guns and 24-pounder howitzers. The first two companies were organized by Mathieu Dumas⁵ at Metz, and one company was attached to the army of Lafayette and the other to that of Lückner. By December, 1793, there were nine 9-company regiments of horse artillery; so popular did this new arm become that the generals would have no other if they could help it.

Such were the developments during the time when "Napolléone Buonaparte" was learning the craft of making war. Napoleon read Feuquières, Guibert, and probably Lloyd, as these were the military works first placed in the hands of young officers. The young Bonaparte was the favorite disciple of the Baron du Teil, the elder brother of the chevalier. In 1788 he was the junior member and recorder of a board convened by the Baron du Teil, Commandant of the Artillery School at Auxonne, to study the fire of bombs from siege guns of 8-, 12-, and 16-pounders and from mortars of 8-, 10-, and 12-pounder calibers. Again, according to the Baron du Teil's daughter, Napoleon, in 1791, stayed four days with du Teil studying maps spread on large tables and talking shop.

During the siege of Toulon Bonaparte asked the Committee of Public Safety to send an artillery general to lend the prestige of his rank and experience to the task of reducing the enemy forts. The chevalier du Teil, although in poor health at the time, was sent. He approved the dispositions made by his subordinate, but does not appear to have taken an active part in the siege. From these long and intimate associations it appears that Napoleon Bonaparte could not but have absorbed and digested the teachings of the du Teil brothers, which doc-

trines he later put into effect with such startling success.

The revolution begun by Gribeauval's discoveries and changes was not only a revolution in matériel: it was, above all, an intellectual revolution. It is not enough to possess new devices: the officers of the old Royal Army in France did not rest until they had exhausted the maximum of benefit to be derived from them. They were quick to throw overboard as illusory, attempts to smother the entire enemy front with artillery fire; and they sought and found surprise by placing a hurricane of accurate fire on the decisive point in space and time. They understood that mobility begets mobility as immobility begets immobility. When they took the guns away from the infantry battalions in order to concentrate their fire, they took away from the artillery the need for great supplies of ammunition, and long, cumbersome trains to furnish them.

The cannon has given sovereignty, and it has taken it away; or, rather, it has been science that has given us the guns, and it has been intellectual alertness that has taught us how best to use them. Toward the end of the 18th Century, soldiers were immersed in professional studies. They were aware of the best thought of their day and of the past. They were able to seize the spirit of their time and to make use of it to develop a tactics and a strategy in keeping with it. A young Corsican gunner, industrious and studious, reaped what had been sown by those who had gone before him. It was he who threshed the grain, winnowing the wheat from the chaff, took it to the mill of study, ground it between the wheels of reflection, and sold the product for an empire.

Before 1914 the nations had hitherto unheard of inventions. Soldiers had the experience of their predecessors to guide them. They had seen recent inventions tested even on the battlefield. They had all these advantages set before them. They ignored them all. Immersed in the artificial technique of their peacetime profession, blinded by routine, effecting to worship the innovations of times long gone by, they kept on repeating the litany which condemned the pharisees, never dreaming that they themselves had now become the pharisees. The blind led the blind. Both fell into the ditch.

Today there are the means for creating a new revolution in the art of war (it is still a useful art and still decisive in the affairs of mankind), but the blind are still leading the blind. There are motors in great numbers; yet we go afoot. There are semi-automatic rifles; and we still think of using them only to produce a greater volume of frontal fire. We have 75-mm. howitzers, we have light tanks—or at least blue-prints of them—we have armored cars (a few), and airplanes of speed and dependability hitherto undreamed of. Yet there is no speech of "the new this" or "the new that"—there is only speech of the things that are already dead but still unburied.

The Army must live, or we all may die.

⁵A veteran of the American War for Independence, and a graduate of the revived general staff college.

Military English as She is Wrote

By S. NORTON BULL
S.O.L. (Student of Language)

THE article "Military English," in the November-December JOURNAL has me all confused. I found that I have been living in a fool's paradise, imagining that I understood what I read and heard.

But, alack and alas! our military terminology is beneath contempt. It appears that *march* can refer only to that movement which involves the placing of the pedal extremities one before the other in succession by a group or organization of soldiers. In spite of Webster's definition of *march*: "To proceed; to progress," and Funk and Wagnalls': "To cause to move in military fashion," a motor column cannot *march*. Evidently because the measured cadence of "one, two, three, four," is absent.

I venture the humble opinion that our military language is as exact, precise, and unambiguous as the language of the law. It is unquestionably much less prolix. The use of the clock face to designate wind and shot strike on the target range and to designate the target in musketry is the last word in clear-cut, crisp and unmistakable language. "Chain of command," "envelopment," "communications," "intelligence," "liaison," "morale," and hundreds of other words and expressions convey definite thoughts, ideas or meanings to the educated soldier. Here I use "soldier" in its general connotation rather than in its limited and restricted one.

In spite of the opinion of your contributor, the language, the phraseology, and the terminology of our profession are anything but ponderous, murky, inaccurate, ineffectual, careless, meaningless, or hazy. The trouble lies *not* with our military English; it lies squarely on the doorsteps of the sloppy users of the language. The fact that Captain John Doe, through laziness, indifference, or ignorance, misuses military words and phrases is no reason for revising our terminology downward. In the language of commerce we see *loan* used as a verb and *same* used as a pronoun. In poetry we see *either* used to express the meaning of *both*, and the dictionary gives the definition of *either*: "Each of two, one and the other," as well as "One or the other of two." It might be fatal to use *either* in an order. For instance: "Place your command on either side of the river," might be interpreted to mean "Split your command, put one part on one side of the river and the other part on the other side." The officer should know his language well enough to be aware of the ambiguity of certain common words.

Orders should in every case be fool-proof. As in contracts, there should be a meeting of minds on precisely what is to be done and by whom and when. Our language is rich enough to make this possible. If one is not familiar with the exact words, he should not do as did Sentimental Tommy who failed to turn in his paper simply because he could not recall the exact word—hantle—

to express the shade of meaning he desired. In the language of an old manual, it is better to do any intelligent thing than to search hesitatingly for the ideal—and do nothing.

Your contributor suggested a cut and dried military terminology to be prescribed by regulations. It takes no great strength of imagination to visualize some poor soul scratching his thick skull, trying to remember how TR umpty ump dash so-and-so prescribes just how one must say the thing he is trying to say.

As long as there is no prolixity or ambiguity, leave to the individual some latitude in the art of expression. If "Scatter," shouted promptly, will save an infantry column from an air attack better than will a hesitant "Take up formation—er—er—B prime," or some other prescribed-by-regulation terminology, who will quarrel over it? Certainly not the men who live to tell the tale.

Because history records an ambiguous order to Stuart or a contradictory one to Gough is no indictment of our language; rather it condemns the sloppiness of the writer of the orders. Under our system, we recognize human frailty and almost invariably ask: "Are there any questions?" The mere fact that hundreds of thousands of orders have gone through without being quoted as horrible examples is ample proof that our critics are unfounded and unsupported by facts.

I must agree with the pronouncement that: "There is every reason to write of military things in language so clear and words so carefully chosen as to be unmistakable in their intent," but I would delete the word "military," for the remark is applicable to all writing.

Your contributor says: "But just as often we clutter it (our vocabulary) up needlessly with such duplicate (sic) words as 'morale,' 'liaison,' 'matériel,' and 'portée.'" I rise to suggest that he would be conferring a boon on philologists if he could and would give us substitutes which express as clearly the ideas of these words as they do. For "liaison," would "contact" do? Or "link?" Or "representative?" No; yet "liaison" connotes all three.

He says "we are in a mess over such a group of modern terms as . . . 'truck-drawn artillery,' 'portée artillery,' and 'tractor-drawn artillery.'" The terms convey clear pictures. There is no occasion for being in a mess if one knows that truck-drawn artillery is field artillery guns and caissons drawn by trucks rather than by horses, or tractors. How should these relatively new developments be designated? No more suitable terms suggest themselves to me. The big point is, if the terminology is brief and unambiguous, it fills the bill. Even "Cossack post" conveys a clear picture, although no Russians are envisaged.

Regulations and a canned language can never be substitutes for a close and intelligent study of our rich and expressive English language. Where errors have occurred, they were the errors of the user, not of the words.

Suggestions for Better Reserve Training

BY CAPTAIN JOSEPH E. McMULLEN, CA-Res.

IN the average ROTC student we find a boy with no definite aim in life. He may think he wants to be a doctor, a lawyer or an accountant; but it is an exceptional lad who knows what he wants to be, and then actually sets out and achieves that aim.

Someone says to the freshman student: "Better take ROTC. It will excuse you from Gym." And finding that he has a spare hour on his schedule, and that the uniform of the assistant PMS&T looks mighty nice, he signs on the dotted line. It is hardly an over-statement to say that for every student who enrolls because he feels he has an obligation to his country, 20 will be found who enrolled for no better reason than to "get out of Gym." The PMS&T, in a newly-enrolled student, has a piece of human clay which may be molded into a fine Reserve officer or merely another boy who started ROTC and did not finish.

No easy task—that of the PMS&T. He must make his courses interesting enough to hold the attention of his students, yet he must follow the War Department training schedule. He must impart military knowledge, and with it create in the minds of his students a burning desire to finish their training and obtain commissions.

I do not subscribe to the views of many who hold that only the choicest material should be allowed to enroll in ROTC. Let every student with normal intelligence and physical ability be enrolled. Time and conditions of college life will soon weed out the undesirables.

From 20 to 80 per cent of the students enrolling in ROTC as freshmen will drop out during the first two years. This high loss is due to such reasons as: leaving college, inability to schedule ROTC because of conflict with other classes, lack of military interest, etc. Thus we find that natural causes will weed out the majority of the undesirables before the beginning of the advanced course. Not all those students who drop out will be in the undesirable class; but in the majority of cases they are those who would soon lose interest in military matters. The students who start the advanced course are pretty sure to be the pick of the group which enrolled as freshmen two years previously.

Only a small percentage of students fail to finish the advanced course. The PMS&T and his assistants have the tremendous responsibility of developing this excellent material into good officers. Therefore it behooves the War Department to select outstanding officers for ROTC details. It is evident that the Department has realized this.

What shall be our type of instruction for the ROTC? The Reserve officer on CCC duty says administration is

almost a complete mystery to him, and that if his ROTC training had stressed the subject more he would not now be having such a time looking after the duty roster, morning report, and other paper work.

The Reserve officer attending any of the Service Schools will say that, had he received more technical training, he would be better fitted for the course he is now pursuing. And so it goes for each officer. The particular problem confronting him during his active duty tour appears to be of greatest importance, and he naturally feels that his ROTC training was at fault because it did not stress that subject. There is probably a certain amount of truth in all of these divergent opinions. Certainly the system is not perfect, but we must consider the problem in its entirety. The object of ROTC training is to turn out an officer of broad general knowledge—not a limited specialist. Upon this basic foundation the officer can build his future specialization.

Half of our task has been completed when we get our student commissioned; it is the easiest half of the task—the remainder is more difficult.

The stern reality of making a living has the chief attention of the officer upon graduation and unless his interest can be held, he will probably be just another one who became inactive at the end of five years.

Not enough attention has been paid to the Reserve officer during these first few years. We have seemingly taken it for granted that he is interested, and that he will step right into the swing of extension courses and group schools. We have almost forgotten that we have a stern competitor for his attention in the business of making a living, and in order to share his time, we must give him more consideration than is necessary with the officer who has been commissioned a number of years. Every effort should be made to obtain active duty training for each officer during his first year of service.

It should be the duty of each unit instructor to become acquainted with his new lieutenant, and to impress upon him the responsibility that is his in becoming a Reserve officer. He should explain the functioning of extension courses, minimum requirements, steps necessary for promotion, and many of the other questions which are in the mind of the new lieutenant. The matter of efficiency reports should be thoroughly explained, for it is an almost unheard-of subject to many ROTC graduates.

Such an effort will remove many problems from the mind of the officer, and will give him information that would take several years to obtain if he were left to his own devices. Getting his interest at the start will go a

long way toward keeping it at high pitch during the critical first years.

Another matter that may be troublesome to the young officer is the proper method of carrying on correspondence with his unit instructor. Should he use the conventional form of a letter when writing to his instructor, or should he follow military form and remain entirely impersonal? The reader may smile at this, but ask any lieutenant just starting to correspond with his unit instructor, and I'll wager his answer will be that he does not know exactly what to do.

Some unit instructors prefer their Reserve officers to follow the military letter-writing form exactly, believing that it gives them valuable experience. Others prefer the ordinary business method, believing that it allows greater freedom of expression, thus making it more likely that the officer will take his problems to his instructor. There is merit to each of these viewpoints, but each instructor should see that his officers know which method he prefers.

The greatest weakness of our present system of Reserve training is the impossibility of actually commanding troops. As long as the present set-up is maintained, our Reserve officers will continue amassing technical knowledge without an inkling of practical troop leading, and our Regular officers will continue to wonder what the Reserve will do when confronted with the actual problems of command.

I do not make that statement in a spirit of criticism, for certainly we have made the best of a bad situation. However, if we are to obtain the maximum training possible for every Reserve officer, it is imperative that we devise some plan that will enable him actually to train troops and exercise command.

A means of meeting this problem is to make Reserve training a year-around proposition. During the winter months, when schools are being held at the regular army posts, assign Reserve officers to each company and battery for active duty. Follow the scheduled plan of instruction, but utilize the Reserve officers for instructors when they are competent. If not qualified to act as instructors, certainly they could carry on the administrative duties of the various organizations. In short, turn over as much of the actual operation of the battery as possible to Reserve officers. When one group has finished its training, have another available.

Likewise when Regular units go on training trips, hikes, field exercises, etc., assign Reserve officers to duty with the outfits and let the commanding officer see that they actually have some duties to perform—not merely go along as excess baggage. We are passing up a golden opportunity for giving Reserve officers experience in actual command and leadership by continuing Reserve and Regular training as separate functions.

The difficulties of this plan are recognized at the outset. The possibility of Reserve officers not being able to

get away from their civilian jobs during the winter months, the slowing up of troop schools due to the change in Reserve instructors, the possible lowering of troop school efficiency due to incompetent instructors, the problem of housing and messing such Reserve officers in posts where there are insufficient accommodations, etc. However, the writer firmly believes that the benefits to be obtained from such training would more than repay the troubles and inconveniences it would cause; and certainly the Reserve officers thus trained would be far better qualified to assume their duties on M Day.

Such training would make for smaller groups at summer camps, which should bring a rise in the efficiency of that type of training. The majority of summer camps are so overcrowded that an impossible demand is made upon the available equipment and personnel; thus, the Reserve does not receive the maximum benefit from the training, and the Regular units cannot give the best of their talents and ability.

The system of extension courses has become thoroughly established, and is functioning in an acceptable manner. Naturally, there are improvements to be made and they are being made. Until someone can bring out a better plan, the present courses will continue to do their jobs extremely well.

The winning of competitions for the most credit hours of extension courses is a worthy objective; still, in many cases, I feel that we lose sight of the true purpose of the courses and pay dividends for quantity rather than quality.

We do not want to place a damper on the enthusiasm of any officer, but this zeal for work can be steered to a better use than merely obtaining several hundred hours credit. It is obvious to military men, be they Regular or Reserve, that the lieutenant of two or three years Reserve service should not be pursuing "Command and Staff" courses. Such an officer is too inexperienced to obtain the maximum value from such advanced work. No officer should be hampered because of his rank, but he should not be pursuing work far beyond his rank. Let the young officer who is working in the 40 or even the 50 series, and holding the rank of a recently promoted first lieutenant, go through the 10 and 20 series of the many other arms and branches of the service, until he is ready for the higher courses. The officer so trained will reap rewards in the future from the broader understanding of the problems of "Command and Staff" functions. All honor to our prize winners and credit hour hunters, but let's keep them within the limits of their own military experience. It seems logical to assume that if a National Guard officer is deserving of pay because of the time he spends in furthering his ability as an officer, certainly the Reserve officer, who is actually working, is deserving of equal treatment. This question should receive careful consideration and some constructive plan worked out, which is just and equitable both to the Government and to the Reservist.

NEWS AND COMMENT

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250th C.A. (TD) Calif. N.G.
251st C.A. (AA) Calif. N.G.
243d C.A. (HD) R. I. N.G.

HONORABLE MENTION

Harbor Defenses of Sandy Hook

Only one new name to add to the list. Terrible!

The above organizations need company. The 206th C.A. (AA) Arkansas National Guard, under the tutelage of Major C. S. Doney, gives great promise of being the next to join. Only a few more names and another star will be added to the crown of Arkansas.

Who will be the next?

Southern California School of Fire

COLONEL R. H. WILLIAMS, Executive for Southern California Coast Artillery Reserves, together with Lieutenant Colonel H. R. Oldfield, 63d Coast Artillery, commanding the Harbor Defenses of Los Angeles, recently arranged a program for a school of fire for Reserve Officers to be conducted at Fort MacArthur.

Colonel Oldfield was in general charge of all firings, supplied the matériel and enlisted personnel, and made all arrangements for conducting the firing problems. The commissioned personnel for the batteries was detailed from the reserve regiments, each group firing a problem. Selection was made from those officers who had not attended camp during the past year.

The four antiaircraft regiments—519th, 975th, 976th, and 977th—fired one or more trial shot and burst problems. A towed sleeve target was not available during these exercises so recourse was had to the target burst.

Each trial shot problem consisted of five rounds fired from one gun, after which the reserve officers in charge calculated the results and determined the necessary corrections. This was followed by a target burst and twelve rounds each from two guns.

In addition to the interest manifested and instruction obtained the results achieved were creditable, showing that progress is being made by our reserve antiaircraftmen in their military avocation.

The two harbor defense regiments—626th and 628th—staged a real demonstration from soup to walnuts. A towed target was made available by the generous assistance of the U. S. Coast Guard. The 3rd Coast Artillery, recently made active by the increase of enlisted men, furnished the men and matériel, and under the supervision of Captain James F. Armstrong, 626th Coast Artillery, with other battery officers selected from the 626th and 628th, moved the two-gun battery some 18 miles to Point Vincente, where they occupied a position, set up a plotting tent, established a base line, and otherwise prepared for practice.

Daily drills were held at the field location during the week, and this newly organized battery, composed almost entirely of recruits, settled rapidly into a target practice team. Captain Armstrong and some of his battery officers somehow found time to visit the battery for drill and instruction. Nearly all reserve officers connected with the firing were present early on the following Saturday to participate in preparations for firing.

The many reserve officers who attended as observers were supplied with bracketing adjustment charts, and the spotting reports during firing were put on a blackboard outside the plotting tent so that all could follow

the firing and make their own records of adjustment. Immediately after the firing a critique was held, but no one was discovered who differed with the battery commander as to the adjustments actually made. It is believed this method, while it cannot make battery commanders of all who may be present, gives much more instruction to officers observing the fire than does the customary method, where the sole concern of all observers is that each shot shall make a satisfactory splash. The regular army unit instructors on duty with the Coast Artillery Reserves of Southern California, viz; Colonel R. H. Williams, Lieutenant Colonel George Ruhlen, Jr., and Lieutenant Colonel Avery J. French, assisted in the school of fire.

History of National Guard Regiments

IN the November-December, 1935 issue of the COAST ARTILLERY JOURNAL was published a short write-up on the 245th C.A.N.Y.N.G. and its right to wear streamers for Revolutionary War service. At the end of this article we very innocently added an Editor's note to the effect that "if other regiments were entitled to wear this streamer the JOURNAL would like to have the opportunity of announcing it to the world."

Little did we realize what would result from this innocuous statement. It appears we started something that cannot be stopped. In the January-February issue the First Corps of Cadets (211th C.A. (AA)) Boston, Mass., fully established its right to wear Revolutionary war streamers, in fact antedating the claims of the 245th.

And now the 243d C.A. (HD) R.I.N.G. comes forward with the claim that its ancestry goes back to a period before we became a nation. According to its historian, Staff Sgt. Thomas W. C. McGrath, the 243d R.I.N.G. is entitled to bear on its colors the following streamers with inscriptions as indicated:

REVOLUTIONARY WAR

Rhode Island, 1778

WAR OF 1812

No inscriptions

CIVIL WAR

Bull Run

Peninsula

Antietam

Fredericksburg

Chancellorsville

Gettysburg

Virginia, 1863

Wilderness

Spotsylvania

Cold Harbor

District of Columbia, 1864

Petersburg

Shenandoah

Appomattox

Its Revolutionary War history is as follows: Pursuant to an act of the general assembly of December, 1776 creating a brigade of two regiments of Infantry and a regiment of Artillery "for the defense of the United States in general and Rhode Island in particular." These regiments were organized for 15 months but by subsequent acts of the general assembly they were maintained in the service until June, 1780, the entire service being in the State of Rhode Island.

The artillery regiment was engaged in the battle of Rhode Island, 1778, and in the affair with the British Ship off Dutch Island in August, 1777. The 243d C.A. (HD) had its beginning in independent or chartered companies whose charters antedated the regiment of artillery brought into existence by the act of December, 1776. The present Battery "E" of the regiment was chartered and created by the general assembly as the "Artillery Company" in 1755. Battery "F" traces its lineage in unbroken line to the "Gloucester Light Infantry" organized in October, 1774. Battery "H" had for its progenitors a company of militia organized in the Town of North Providence and the Eastermost Company of Militia in the Town of Smithfield. These men petitioned the Legislature for a charter which was granted under the title of "North Providence Rangers." The 243d C.A. in its embryonic form and through all its stages of development in peace and in war has rendered faithful and meritorious service to its State and country and has fully lived up to its motto, "Game to the Last."

On top of all this there comes a letter from a source that we are not at liberty to divulge. Whether or not the technical point raised by the author of this letter is drawing "too fine a bow" we will leave for others to decide. The contention is that an organization once having been disbanded is severed from all official relations with a reconstituted organization even though all or a part of the personnel of the former is absorbed in the latter. There is some foundation in fact for this contention; however, the War Department acknowledges continuity of service in authorizing present-day organizations to wear the streamers of their Revolutionary progenitors. The letter referred to is quoted as follows:

"The matter of streamers for Revolutionary War Service and the claims advanced by various regiments showing that such and such an outfit was entitled to a battle streamer for Revolutionary War Service is exceptionally interesting, although strict accuracy and official records prove that the *only* organization officially entitled to a Revolutionary War streamer has not yet been mentioned.

"One dislikes to appear controversial, but it is a matter of cold, sad fact that only one organization in the whole United States may officially sport such a streamer on its colors. It is not a Coast Artillery outfit, neither is it a Reserve nor a National Guard outfit. It is the Fifth Field Artillery, now stationed in the Second Corps Area; and it is altogether by accident that it is entitled to the Revolutionary War streamer.

"At the close of the Revolutionary War, an order was published to muster out *all* military organizations. The mustering out was done, and those organizations died

more or less natural deaths—except one battery which was then 'Alexander Hamilton's Battery,' and now is Battery 'D,' Fifth Field Artillery. Military authorities forgot to muster it out!

"I believe that the official records will substantiate this matter."

/ / /

More About Revolutionary War Streamers

LIKE the proverbial snowball rolling down hill, this question gains mass and momentum as it rolls. Each issue of the JOURNAL brings forth more claims concerning the ancestry, date of birth and right to wear this, that or the other thing, by units of the National Guard.

And now up jumps the 263d C.A. (HD) from the proud old State of South Carolina, claiming its place in the hierarchy of ancient and honorable artillery organizations. It seems that this regiment can trace its family tree, in an unbroken line, from February 1776, when a regiment of volunteer soldiers known as the Beaufort Artillery was organized as a part of the South Carolina Continental Army. In 1820 this organization was incorporated as the "Beaufort Artillery Society," and in 1843 was merged with the "Beaufort Volunteer Guards." This regiment, according to the records, is the fifth oldest in the United States. It is antedated by the Artillery Company of Boston, 1637; the Newport Artillery of Rhode Island, 1741; the United Train of Artillery, Providence, R. I., 1775; and Company "A," 165th Infantry, New York National Guard, 1775. Under the provisions of General Order No. 16, War Department 1921, the 263d C.A. is entitled to wear the following streamers:

Revolutionary War (without inscription)

War of 1812 (without inscription)

At the present time the regiment is commanded by Lieutenant Colonel Claud C. Smith with headquarters in Greenwood, S. C.

/ / /

Now the Ladies Are Subscribing

SOMETIMES we doubt the correctness of the old saw: "There is nothing new under the sun"; however that may be, from time to time there develop new applications of old principles. For example, recently we received a subscription from the widow of a deceased Colonel, Coast Artillery Corps. So far as anyone connected with the JOURNAL can recall this is the first time that a subscription has been entered in the name of one of the feminine sex. While we will have to concede fashions, recipes, etc., to other publications, we believe that the JOURNAL furnishes the best medium for maintaining contact and association with the Coast Artillery Corps. Undoubtedly this is the underlying motive which prompted the widow to continue the JOURNAL in the list of magazines to which she subscribes. Incidentally, the officer in question had been a subscriber to the JOURNAL throughout his entire service, and we are much gratified that the widow is carrying on in a good cause. May the practice become general.

A New Chapter of the Coast Artillery Association

AT a meeting held at Ft. MacArthur, Calif., on December 21, 1935, attended by 92 officers of the Coast Artillery Corps, including all components of the service, there was brought into being the Los Angeles Chapter of the Coast Artillery Association. This is the youngest member of the official family. Reports indicate that its birth will soon be followed by the advent of another husky son of California (San Diego). Too bad it wasn't twins.

After a delightful supper provided through the courtesy of Lieut. Col. Homer R. Oldfield, Commanding Officer of Ft. MacArthur, the meeting was called to order by Lieut. Col. F. R. McReynolds, C.A.-Res., Chairman of the Committee appointed by Colonel R. H. Williams, for the purpose of effecting the organization. The purpose of the meeting was explained and introductions were made of the senior officers present. Colonel Williams presented a brief and timely statement on the needs for a local chapter of the Association. He was followed by Lieut. Col. Oldfield. The report of the committee on organization was read by Major Everett K. Higgins, C.A.-Res. This committee had drafted a proposed constitution and by-laws; a copy of these was furnished to each officer present. After discussion it was moved and seconded that the constitution and by-laws be adopted thus officially marking the nativity of the Los Angeles Chapter.

The committee previously appointed for the purpose then placed the following slate in nomination:

For President, Colonel Richard H. Williams, C.A.C.

For Vice-President, Colonel Forrest E. Baker, C.A.-Res.

For Vice-President, Major George W. Oertly, C.A. Calif. N. G.

For Members of the Executive Council:

Lieut. Col. Homer R. Oldfield, C.A.C.

Capt. David F. Sellards, Jr., C.A.-Res.

Lieut. Col. Frank H. Holden, C.A.-Res.

Lieut. Col. George Ruhlen, Jr., C.A.C.

Lieut. Lynn D. Smith, C.A.-Res.

For Secretary-Treasurer, Lieut. Col. F. R. McReynolds, C.A.-Res.

By a rising vote the foregoing were unanimously elected. Colonel Williams, in well chosen remarks, accepted the presidency of the Chapter and expressed his desire to secure the whole-hearted coöperation of all concerned in making the Chapter both useful and active.

Knowing the past performance of California Coast Artillerymen it is anticipated that this young child will soon become the giant of the family and that it will give an excellent account of itself by rendering whole-hearted and meritorious support to the parent organization and all that it represents. These chapters can be made a powerful influence for the advancement of the Coast Artillery Corps by their precepts, principles, and teachings, and by keeping before the public the aims and objects

of the Association. It is sincerely hoped that other chapters will emulate the fine performance of the Pacific Coast Chapters where interest and attendance runs high; perhaps by some devious and inexplicable manner, this is reflected in the increase in the appropriations for the defense of the Pacific Coast. As usual California is in the vanguard in all Coast Artillery activities. We wonder why so much energy and initiative should be concentrated in one State. It must be the climate. No, the writer is not a native son.

The Executive Council of the Association extends its sincerest thanks and appreciation to those who were instrumental in the formation of the Los Angeles Chapter and we wish for it a long life of happiness and usefulness.

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Coast Artillery Officer Again Honored

THE November-December issue of the JOURNAL carried an announcement of the outstanding performance of Lieut. E. Jeff Barnette, a Coast Artillery Reserve officer residing in Houston, Texas. It now appears that honors are being showered upon this officer and that Houston has adopted a unique method of rewarding merit. On the occasion of the annual banquet of the Houston Chamber of Commerce, Lieut. Barnette was presented with a distinguished service award designating him as Houston's outstanding young man for the year 1935. He was selected from a long list of worthy young men by a committee composed of the Mayor of the City of Houston, the Circuit Judge of Harris County and the President of the Houston Chamber of Commerce. The award is made each year to a young man between the ages of 21 and 35 who, in the opinion of the committee, has best served the City of Houston.

Honorable Oscar F. Holcombe, Mayor of Houston, in making the presentation said "Jeff Barnette is never too busy to serve Houston. His accomplishments and service to the City are too numerous to mention. All Houston is proud of him and I present him with this distinguished service award because he merits it."

The Coast Artillery Association desires to take this opportunity of extending its congratulations and best wishes to a most worthy Coast Artilleryman.

/ / /

Meeting of the Coast Artillery Association

PLANS are being formulated for a general assembly and conference of the U. S. Coast Artillery Association to be held at Ft. Monroe, Va., during the summer of 1936. No definite pronouncement can be made at this time as to exact dates. It is not unlikely that the meeting will be held during the latter part of July or the early part of August. Further details will be announced later. It is suggested that all Coast Artillerymen keep this in mind and make their plans to visit Ft. Monroe and historic Virginia at the time of this meeting.

Sweet Music

"To the Editor of the COAST ARTILLERY JOURNAL:

"I have now received the first issue of the COAST ARTILLERY JOURNAL and find it an exceedingly interesting magazine. I fear that I have missed a lot by not subscribing sooner. Inclosed is my check in payment.

"Sincerely yours,

CAPTAIN, C.A.-Reserve."

/ / /

The 41st C. A. Please Note

To the Editor:

The frontispiece in the January-February, 1936 issue of the JOURNAL is a thing of sheer beauty.

The innate military bearing of the Germans has always evoked my admiration, but it is not possible that even they could surpass the masterly neatness, precision, discipline of officers and men and their matériel as shown in the photograph of the review of 1st Battalion, 41st C.A., at Schofield Barracks.

My humble but hearty congratulations to the 41st and to the Army that can produce such organizations.

Captain, C.A.-Res.

/ / /

Pilot Fish

A PILOT-FISH is an indolent inhabitant of the deep that finds it too much effort to swim, therefore, it fastens itself securely to a larger and more energetic fish and goes serenely on its way, content to ride on the back (or stomach) of its host.

We would not be guilty of even remotely hinting that officers of the Army are like pilot-fish but sometimes they are not averse to taking a nice easy ride. Of course there is not the remotest connection between the two but we are thinking of those who borrow (sometimes without the consent of the owner) the JOURNAL from the battery day room or the old man's desk and then with equanimity and complete indifference turn deaf ears to our touching appeals for their signature on the dotted line. We do not blame them, but suppose—oh well! why continue the analogy and get disliked for the trouble? What brought this to mind was a letter from a Captain of the New Hampshire National Guard from which we take the liberty of quoting:

"Inclosed is our check for the next year's subscription to the COAST ARTILLERY JOURNAL. You certainly have made a fine magazine of it. One of my civilian friends, an ex-naval aviator, says that if it gets any more interesting he will have to subscribe himself instead of relying on my copy, a sentiment in which I am encouraging him."

COAST ARTILLERY ACTIVITIES

Office of Chief of Coast Artillery

Chief of Coast Artillery
MAJOR GENERAL A. H. SUNDERLAND

Executive
COLONEL HENRY T. BURGIN

Personnel Section

LIEUT. COL. R. T. PENDLETON

Matériel and Finance Section

LIEUT. COL. O. L. SPILLER
MAJOR C. W. BUNDY
MAJOR B. L. MILBURN

Organization and Training Section

LIEUT. COL. E. E. BENNETT
LIEUT. COL. C. M. S. SKENE
LIEUT. COL. ROBERT M. PERKINS

Plans and Projects Section

COLONEL G. A. WILDRICK

News Letter from "The Gypsy Artillery"

(62d Coast Artillery (AA).)

COLONEL FRANK K. FERGUSSON, *Commanding*

By Captain A. C. Spaulding

ALTHOUGH the 62d Coast Artillery (AA), stationed now and then near the Brooklyn end of Long Island, and proudly called "Queens' Own" by the residents of Queens Borough, New York, very seldom sounds off except with its anti-aircraft guns, its regimental band and 30-man Drum and Bugle Corps—it is believed that the ending of the winter training season calls for some publicity; not to tell the world how good the 62d Coast Artillery (AA) is (the world knows that) but to give other Coast Artillery regiments something to shoot at. During the closing months of 1935 the regiment more than justified its title of "The Gypsy Artillery" by covering thousands and thousands of miles in its own powerful, high-speed motor vehicles; and by firing thousands and more thousands of rounds of anti-aircraft ammunition at targets that came to earth plentifully shredded by "hits."

Now, with the entire regiment of about 30 officers and 800 soldiers at Fort Totten awaiting the "spring thaw" so that the hundred and fifty or so ultra-modern motor vehicles and various and sundry pieces of equipment can again take the road, the regiment is putting just as much pep into the routine of indoor training as it did into the performance of its training missions during the outdoor season; and it might be added that the manner of performance of assigned missions during the past year not

only gave other regiments much to shoot at, but left foreign and American observers busily engaged in figuring out how it was done (not that the 62d would boast about anything that is all in a day's work).

In the number of miles traveled and in training missions efficiently carried out during the past year there is no denying the fact that the 62d exceeded the performance of any other regiment in the Coast Artillery.

LAST YEAR

A brief résumé of the work of the past year shows that the "Gypsies" have plenty of cause for pardonable pride.

Last August, after rambling hither and yon about the eastern seaboard for several months training Reserve and National Guard Regiments and ROTC units, all organizations of the 62d roared home for fresh laundry and some home-cooked eats. But not for long.

On August 14th, the regiment—with all its officers, soldiers, and a two-mile-long column of mobile equipment—left the home station and sped toward the Canadian border. It made a 400-mile run through New York, White Plains, Peekskill, Poughkeepsie, Troy, Schenectady, Amsterdam, Utica, and other large cities in less than 25 hours running time. The trip was made without accident and without losing a single vehicle from its appointed section of the convoy. The entire population

of many cities through which the regiment rolled, turned out to do honor to "The Gypsies," and to offer the maximum of hospitality and friendship.

At Pine Camp the 62d, with its spectacular night displays and flashing defense against air raids on various manufacturing centers staged by the 97th Observation Squadron, proved to be the outstanding feature of the maneuvers from a spectator's viewpoint. The metropolitan newspapers sent dozens of high-priced correspondents to the camp area of the 62d to see what made the wheels go 'round. These gentry of the press dubbed the regiment "the blue-ribbon brain-child of military scientists"—and that bit of dubbing has stuck until this day.

However, letting the spectacular features of the maneuvers rest, the regiment provided motor trains and drivers for two National Guard Divisions and participated in all Corps combat exercises. While the modesty of the 62d forbids frankness in this matter, the records do show that although the "Gypsies" were transferred from one Corps to another for various exercises, the Corps with the 62d on its side always won.

As a fitting close to a fine training period, the 62d made the 400-mile trip back to Fort Totten in 20 hours running time. Seven hours of this were through a driving rain, with no accidents to delay its fast moving column.

TARGET PRACTICE

During September the "Gypsies" rolled again; this time to Aberdeen Proving Ground, for their annual target practice. The trip of about 200 miles, through New York, Jersey City, Newark, Trenton, Philadelphia, Chester, Wilmington, and other large cities required nine hours running time. The slow rate of travel was caused by traffic congestion in the densely populated areas through which the two-mile-long column rolled.

Full coöperation from the personnel of Aberdeen Proving Ground enabled the "Gypsies" to take advantage of every good flying day for its shoots; and records show that they were some shoots! The Gypsies proved that, as an entire regiment, they outperformed any other Coast Artillery outfit. Much of this was due to the willingness of the Air Corps to fly at any time in any kind of weather. When the ceiling was too low for the big guns, the machine guns stepped in and did their stuff.

WINTER SEASON

The end of October found the "Gypsies" back at Totten where winter training was inaugurated, and, because the regiment was more than 200 soldiers under strength, recruiting got under way.

Also, it was learned that the WPA program allowed the expenditure of \$550,000 at Fort Totten for the renovation of the post, and that hundreds of WPA laborers and experts would be at Fort Totten to perform the work for which this money was intended. With its usual willingness to coöperate the 62d furnished three officers and

about fifteen noncommissioned officers to superintend the labor parties.

All officers' and noncommissioned officers' quarters were thoroughly renovated, the officers' club given a much-needed overhauling and remodeling, the razing of old emplacements and preparation for new construction was commenced, and the whole post was given a thorough housecleaning. Barracks were critically inspected and everything placed in readiness to start renovating them as soon as the weather permitted.

Pistol practice got under way early in December, and 80% of the regiment qualified as marksman or better. Gunners' instruction proceeded along its well-ordered course. More than 450 expert gunners have already qualified, and most of the others are qualified as second or first class.

Then came the recruiting drive. On the first of January the publicity department started its own drive in support of "Gypsy" recruiting parties. During the month, this department achieved the following:

117 newspaper columns of feature articles about the 62d Coast Artillery, in more than 40 newspapers throughout the eastern part of the United States.

61 newspaper photographs of 62d C.A. (AA) activities.

1,200 feet of film in Fox, Paramount, and Pathé News Weeklies, and 100 feet in The March of Time.

As a direct result of this intensive drive, the regiment gained 186 hand-picked recruits. The "Gypsy Artillery" now is practically up to the full authorized strength.

As a sidelight on the situation it is worthy of note that although the strength of the 62d is more than 800 soldiers, at this writing not one soldier from the regiment is in the guardhouse nor in arrest in quarters.

Recently leaders of civic organizations in near-by communities got together, and as a result of this conference, Colonel George U. Harvey, President of the Borough of Queens, caused to be erected on Willetts Point Boulevard, near the main entrance to Fort Totten, a high white signboard upon which appears in bold letters the following:

QUEENS OWN!

62D COAST ARTILLERY,
FORT TOTTEN.

The "Gypsy Artillery" has, without fanfare or boastful predictions, justified its much-publicized title, "The Blue-Ribbon Brain-Child of Military Scientists." Officers, soldiers, and motorized equipment of the regiment stand by for the signal to roll again, impatient to add another chapter to the already crowded pages of the record of accomplishment of the crack regiment of Uncle Sam's Antiaircraft Artillery.

Hawaiian Separate Coast Artillery Brigade

News Letter

BRIGADE COMMANDER, BRIGADIER GENERAL ROBERT S. ABERNETHY
CHIEF OF STAFF, COLONEL BENJAMIN H. L. WILLIAMS, C.A.C.

S-1, LIEUTENANT COLONEL E. S. DESOBRY, A. G. D.
S-2, MAJOR W. F. LAFRENZ, C.A.C.

S-3, LIEUTENANT COLONEL RALPH E. HAINES, C.A.C.
S-4, LIEUTENANT COLONEL B. S. DUBOIS, C.A.C.

Harbor Defenses of Honolulu
16th C.A.

COLONEL G. L. WERTENBAKER, *Commanding*

Harbor Defenses of Pearl Harbor
15th C.A.

COLONEL EARL BISCOE, *Commanding*

Sixty-Fourth Coast Artillery
COLONEL WILLIS G. PEACE, *Commanding*

By Lieutenant John R. Lovell and Private Robert N. See

BRIGADE REVIEW

THE Brigade Review held at Fort DeRussy on the evening of February 17, 1936, under a canopy of light furnished by 40 Sperry Searchlights, was one of the most magnificent military spectacles that has ever been held in the Hawaiian Department. The purpose of the ceremony was to present to Battery "B," 64th Coast Artillery, the Knox Trophy for 1935 and also to present the Hawaiian Department Commander's Coast Artillery Cup and guidon streamers for 1935.

The searchlights were arranged in a circle around the newly constructed parade ground at Fort DeRussy. The beams were focused on a point over the center of the field and the effect from the "inside" was analogous to being in a huge tent.

It is estimated that from five to eight thousand people were in attendance at the ceremony, while thousands of others viewed the spectacle from points of vantage on buildings and mountain slopes.

Major General Hugh A. Drum, commanding the Hawaiian Department, and his staff received the review. The General presented the Coast Artillery Cup to Colonel Willis G. Peace, commanding the 64th Coast Artillery, and personally congratulated Captain Henry D. Cassard, the present Commanding Officer of Battery "B," winner of the Knox Trophy for 1935, and Captain Kenyon P. Flagg, Commanding Officer of Battery "E," 55th Coast Artillery, the "runner-up" for the Knox Trophy.

Brigadier General Robert S. Abernethy commanded the Brigade and led the troops past the reviewing stand. At the conclusion of the review General Drum congratulated General Abernethy on the smart soldierly appearance of the command and the general excellence with which the ceremony was conducted. There was much favorable comment in the local press and from all sides there was unmistakable evidence that the Coast Artillery in Hawaii had scored another "grand slam."

The Brigade Commander sent the following letter of commendation to the Commanding Officers of the several regiments:

To The Commanding Officer:



Maj. Gen. Hugh A. Drum presents the Hawaiian Department Commander's Coast Artillery Cup to Col. Willis G. Peace, Commanding the 64th C.A. Left to right—Capt. K. P. Flagg, commanding Btry. "E," 55th C.A., runner-up for the Knox Trophy; Col. Peace, Gen. Drum, and Brig. Gen. Robert S. Abernethy, Brigade Commander.

The Honorable Joseph B. Poindexter, Governor of Hawaii, turns the first spade of earth, beginning construction of the new military highway through Kole Kole Pass.

Front and center. Colonel Peace, Captain Henry D. Cassard, and Captain K. P. Flagg advance toward the reviewing officer to receive trophies.

"I take great pleasure in congratulating you and your entire command on the excellent performance of the command at the Night Review, February 17, 1936. It was a special pleasure to note a great improvement in the execution of the manual, and the giving of commands by officers, and in the general set-up of the men throughout."

COAST ARTILLERY SHOULDER INSIGNIA

The adoption of distinct shoulder insignia for the troops of the Hawaiian Separate Coast Artillery Brigade has been one of General Abernethy's dreams for several years. The dream was finally realized when General Drum directed the Brigade Commander to cause a shoulder insignia to be designed and submitted for approval.

The design submitted by Colonel B. H. L. Williams, Chief of Staff of the Hawaiian Separate Coast Artillery Brigade, was finally selected from a group of a hundred or more. Colonel Williams' idea was to enlarge the ellipse as it now appears on the Coast Artillery insignia (crossed cannons) and add to this, in the background, in black, the familiar outline of Diamond Head, the site of the first Coast Artillery fortifications in Hawaii. The ellipse, projectile, and background are in the original colors of red and gold; it so happens that these colors closely resemble the Hawaiian colors.

At the present time there are three different shoulder insignia worn in the Hawaiian Department. The new Coast Artillery Brigade insignia, the familiar octagonal shape, scarlet and gold design of the Hawaiian Department, and the Taro Leaf insignia of the Hawaiian Division.

SPORTS

Colonel Willis G. Peace, commanding the 64th Coast Artillery (AA) was the proud recipient of the Honolulu Sector Boxing League championship trophy, recently donated by Brigadier General Robert S. Abernethy. The presentation was made at the final smoker of the season held in the Civic Auditorium in Honolulu. The gray-haired officer and soldier knew few moments of which he was any prouder, for he had just witnessed the boxers of

the 64th in a magnificent comeback that snatched victory from Fort Kamehameha, after entering the final championship card trailing by a margin which seemed too great to overcome. The final point standing was 64th C. A. (AA) 3390, Fort Kamehameha 3315.

The winning stable from Shafter was coached by Lt. George R. Carey and First Sergeant Pat Bryles. The championship finals concluded the best Sector fight season for many years.

General Abernethy sent the following message of congratulation to Colonel Peace and the men of the 64th C.A. (AA):

"I take great pleasure in congratulating you and the officers and enlisted men of your command upon the winning of the Honolulu Sector Boxing Championship for 1935-1936.

"I consider the winning of sixteen consecutive bouts during the last two smokers of the tournament, one of the best athletic performances in the Honolulu Sector in recent years.

"The fine spirit and excellent sportsmanship which you, the boxers, and the members of your regiment generally displayed throughout the boxing season and the very real ability of your boxing team, again demonstrate the admirable attitude of your command toward Sector Athletics."

* * * *

Miss Christine Williams, the daughter of Colonel H. L. Williams, Chief of Staff of the Hawaiian Separate Coast Artillery Brigade, recently was married to Mr. Robert H. Grayson of Stanford University. Mr. Grayson was the unanimous selection for All-American full-back during the 1935 football season. Colonel and Mrs. Williams entertained at a reception at the Waialae Country Club following the ceremony for their many friends who assembled to wish the bride and groom happiness.

* * * *

Bert Wheeler, half of the movie comedy team of Wheeler and Woolsey, made a great hit with five thousand or more Army boxing fans when he appeared in the ring during the finals of the Honolulu Sector boxing championships. The Army fans gave Wheeler a tremendous ovation.

Fort MacArthur Notes

LIEUTENANT COLONEL H.R. OLDFIELD, *Commanding*

By Captain John W. Davis

THE closing weeks of the year 1935 were busy ones for the entire post. Battery "A" returned to Fort MacArthur on October 22, having terminated an eight weeks' encampment at March Field, where its annual searchlight target practice was conducted. Captain Arthur B. Nicholson deserves much credit for the efficient training of his battery as evidenced in this demonstration. Brigadier General Henry H. Arnold, Air Corps, then in command at March Field, rendered enthusiastic and invaluable cooperation—this in a large measure is respon-

sible for the enviable record established. Almost immediately upon the arrival of the battery at Fort MacArthur after this training it was ordered back to March Field to put on a demonstration for the Military Affairs Committee, which was making a tour of inspection. The Honorable John J. McSwain after watching a magnificent display of advanced training said:

"The searchlight work I have previously seen had led me to believe that searchlights were ineffective, but this exercise has certainly changed my mind."

The performance of the battery in these exercises is believed to be outstanding, and the results obtained are a source of pride to the entire regiment.

The 63d, including the Band, spent a large part of November on the deserts, engaged in the annual practice march and combined maneuvers with the Air Corps. Encamping at Mojave, Bakersfield, and Inyokern, actual war conditions were simulated throughout the entire maneuver.

At Mojave the camp was threatened by a rising dust storm. We escaped what may have been a serious situation only by a somewhat hasty and premature departure.

The march to Inyokern was made at night, without accident, over tortuous and dangerous roads. The positions occupied in this locality were camouflaged. As this is desert country the ingenuity of everyone was taxed to the utmost.

The return to Fort MacArthur completed the annual practice match. A remarkable feature of this exercise was that in spite of many mountainous roads of precipitous gradients and sharp turns, there were no accidents of any kind.

On December 14th and 21st (yes, we work on Saturdays), firing was conducted with 3" AA, 75-mm. and 155 G.P.F.'s for the training of Coast Artillery Reserve officers assigned to Southern California regiments. The 3d Coast Artillery has been recruited to a strength such that it can and actually did man a 155-mm. battery for this firing.

The Commanding Officer has introduced a voluntary school for the officers of the garrison. This school convenes each Friday evening for the presentation of current events concerning the present conflict in Ethiopia, and special topics relating to current world affairs.

Corregidor News Letter

BRIGADIER GENERAL JOHN W. GULICK, *Commanding*

59th Coast Artillery
COLONEL PAUL D. BUNKER
60th Coast Artillery (AA)
COLONEL ALLEN KIMBERLY

91st Coast Artillery (PS)
LIEUTENANT COLONEL CLAIR W. BAIRD
92d Coast Artillery (PS)
MAJOR REINOLD MELBERG

THE pressure starts at Corregidor as soon as the Christmas holidays are over. The ammunition for the new year then becomes available, and it is a race to get all the target practices fired and the War Condition Period over before the advent of the rainy season. The seacoast batteries now have their training well under way. The "ping-ping" of the subcaliber is heard almost daily and a few of the deep-throated, sonorous "booms" of the service practices are over.

A number of batteries that did exceptionally well last year are scheduled to fire special practices, at high speed targets; these special practices approach as near as possible the conditions of actual war. There will be firings on curved and sinuous courses, with a change of base lines, a change from vertical to horizontal base, and finally an entire change of batteries during the practice. These should be very interesting to watch, and should give some idea of what might happen under emergency conditions. It is to be regretted that there will be no mortar practice fired at a high speed target being towed directly toward the firing battery. It has been nearly 25 years since it was demonstrated that it cannot be done.

The high speed target developed in these defenses during the past few years, mostly by the local Ordnance officers and their assistants, is having another improvement. In the past these targets have carried the standard pyramidal superstructure, but at high speeds the wind resistance tends to overturn the assembly. As improved it will, like the fast locomotive under full steam, scoop up water on the run, discharging it in a spray through a pipe and nozzle high above the water. With this change

the observers, on first spying the synthetic whale, will cry "Thar she blows" in the best Melville manner.

The antiaircraft gun batteries, both in the 60th C.A. (AA) and in the seacoast regiments, have been delayed in completing their practices. As a result they will swelter on the firing lines while their more fortunate "flat-artillery" friends recuperate in Baguio. The antiaircraft ammunition was due on the freight transport, but this boat was delayed a full month, hence this firing cannot take place until after the War Condition Period in March. Unfortunately most of the present battalion and battery commanders will be on the way home before that time.

Approximately 50 Coast Artillery officers are due to return to the United States during 1936; of this number a total of 22 have extended their tour of foreign service or intend to do so. In addition there is one officer returning at the end of four years and three at the end of three years service.

After participating in a spectacular demonstration in the Department Military Tournament, Battery "A," 60th C.A., left for Fort Stotsenburg, 75 miles north of Manila, to conduct their annual target practice. The convoy went up in the gentle drizzle of a number one typhoon; came back in the howling gale of a number four; and during a good part of their stay an area of low pressure near by kept plenty of clouds overhead. Results—no hits, no runs, no errors.

A two-gun platoon from Battery "D," 60th C.A., which participated in the Military Tournament, received much favorable publicity. A picture of the guns, director, and crew was given a two-page spread in the Manila

Sunday Tribune, accompanied by a feature article stressing the importance of these weapons.

Corregidor was honored by a visit from President Manuel Quezon of the Commonwealth of the Philippines, with members of his staff. The party arrived off Corregidor at 9:00 P.M. and slowly circled the Island, being entertained by an elaborate display participated in by all seacoast and antiaircraft searchlights. The President spent the night aboard his yacht, the "Arayat," but came ashore the next morning, to the booming of 19 guns, for an inspection of the post.

In the Department Golf Championship held at Fort McKinley the best this post could do was to win a consolation in the third flight. Far different were the results in the Department tennis championship held in Manila. Captain Raymond Stone, Jr., won the Department championship in straight sets and Mrs. Pastor Martelino won the ladies' championship.

In the Corregidor Club Gold Championship, Major N. L. Baldwin, Signal Corps, won the 36-hole medal play with a score of 117, nine strokes lower than the winner of last year and three strokes under par. He then

won the championship with a medal score of 54, at the same time breaking the course record and submerging an opponent so unfortunate that his name will not be revealed.

Let not others point the finger of scorn at our nine-hole course with its par of 30. The wonder is that there is any course at all on the top of a mountain rising a sheer 600 feet out of the water.

At Corregidor the 60th has ruled the basketball courts for many years, so it was a great reversal of form when the 59th team took the 31st Infantry, Nichols Field and 60th teams into camp in rapid succession to win the Department American Championship. Later the team went south to compete in the National Championships in Iloilo. Here they won three and lost three games. The game with the ultimate championship team, San Beda University, went to two over-time periods and was lost with a score of 62-58. This was followed by a win over the 24th Field Artillery, the winner of the Department Philippine Scout Championship, this making the 59th the Army Champions.

Fort Monroe News Letter

BRIGADIER GENERAL JOS. P. TRACY, U. S. ARMY,
Commanding.

COLONEL RUSSELL P. REEDER, 2d C.A.
Commanding Harbor Defenses of Chesapeake Bay

COLONEL HORACE F. SPURGIN,
Commanding 1st Bn., 51st C.A.

LIEUTENANT COLONEL ROBERT C. GARRETT,
Commanding 3d Bn., 52d C.A.

LIEUTENANT COLONEL FRANK S. CLARK
Commanding 1st Bn., 2d C.A.

By Major O. B. Bucher, C.A.C. Adjutant

ON January 30th the Secretary of War announced the promotion of Colonel Archibald H. Sunderland to the rank of Major General and his appointment as Chief of Coast Artillery. The Coast Artillery Corps is most fortunate in having this outstanding officer as its Chief. The separation of Colonel and Mrs. Sunderland from Fort Monroe will be a distinct loss to the garrison; our regret is assuaged by the fact that they are stepping into a larger sphere where their influence will react to the advantage of the entire Corps. Colonel Sunderland brings to his new assignment a vast store of knowledge and diversified experience which augurs well for the development and progress of this very important part of our National Defense. Congratulations, General and Mrs. Sunderland.

On January 25th a large number of equestrian minded assembled at the Sinclair Farm, near Hampton, to participate in an Old Virginia Fox Hunt. The temperature registered 10° above zero, but this did not chill the ardor of the enthusiasts of the chase although it almost congealed the blood of man, horse, and dog. Reports indi-

cate that "Sir Reynard," being wise, remained in a comfortable dugout.

This part of Virginia is advertised as having mild winters. Perhaps the advertising agents and real estate promoters should revise their copy. Our improvised snow plow was called upon to do yeoman service to keep our streets reasonably free from snow so that they would be passable. Five heavy snow storms interfered materially with the training program. Day after day it was necessary to detail about 100 men to remove snow from streets, sidewalks and batteries. The appearance of the Bay is a reminder of the winter of 1917-18. For several days all water transportation was stopped; no boats from Washington for more than three weeks. The Baltimore boats ran intermittently but they could navigate the upper Bay only during the hours of daylight. Ice jams in the James River caused considerable damage to docks, aids to navigation and ships. Serious damage to the James River Bridge was threatened by ice and ships which had broken loose from their moorings.

The U.S.A.M.P. *Graham* from the Panama Canal

Department has been at this Post for the past several months undergoing repairs. The contractor expects to finish the work by March 15th and Lieutenant Virgil Kimm, who commands the *Graham*, hopes to be in Canal Zone waters by April 1.

We expect to have our new traffic lights installed in the very near future. One will be placed at the intersection near Post Headquarters and another at the intersection of Ingalls Road and Fenwick Road, near the Chamberlin Hotel. These lights, together with several stop signs at dangerous intersections, will materially reduce the traffic hazards on the Post.

Special machine-gun firings at Fort Story were starting about March 1. Battery "C," 2d Coast Artillery, with about 110 men under the command of Captain A. M. Wilson, Jr., left for Story on February 26. Eleven officers will participate in the maneuvers which are being staged by the Coast Artillery Board. The firings will continue until the latter part of April. Planes from Langley Field will cooperate in the exercises by furnishing towing missions and special demonstrations. The maneuvers probably will involve a test of communication systems.

Instructions have been received from the War Department that the old Casemate Quarters will not be re-assigned for further use as living quarters, due to seepage through the roofs and lack of ventilation. When vacated they will be used as storerooms, battery mechanic shops and Boy Scout assembly rooms.

The visit of the West Point Cadets has been set tentatively for August 13-18. Each year the garrison looks forward with pleasure to their presence at the Post. It is always a pleasure to entertain such appreciative guests.

SPORTS

The Fort Monroe Basketball Team defeated the Langley Field Aviators in four straight games, thereby winning the Third Corps Area Southern District Championship for the second consecutive year. The Corps Area Championship games will be played during March, and Fort Monroe, as Southern District Champions, will battle the winners of the two northern groups for Corps Area basketball supremacy. We believe that the Corps Area Championship Trophy will remain at Fort Monroe for another year.

The new boxing arena at the Central Garage, with a seating capacity of about 1,000, has been a great incentive to the boxing sport. While we lack good material in heavyweight fighters, we have a bunch of excellent fighters in the featherweight, lightweight, and middleweight classes.

Headquarters Battery, 51st Coast Artillery, Captain Paul Kelly, commanding, was awarded the Athletic

Trophy for the year 1934-1935, the presentation being made by Colonel H. F. Spurgin, Commanding Officer of the regiment.

Thirteen competitors remained in the bowling championship finals. Warrant Officer A. W. Christensen, emerged the victor to win a beautiful medal and official recognition as Bowling Champion of Fort Monroe.

WEST POINT PREPARATORY SCHOOL

The Third Corps Area West Point Preparatory School was established at Fort Monroe, Virginia, in 1929, and is one of the fourteen schools conducted in the United States Army for the preparation of young soldiers who aspire to become commissioned officers.

The 1935-36 class was originally composed of 41 members, selected according to their standing in the competitive entrance examinations from candidates in the Third Corps Area. In December, eleven students with the lowest scholastic record were dropped in order to concentrate on the others. The class now numbers 30.

The faculty consists of recent graduates of West Point who are thoroughly conversant with the entrance requirements to the Academy. Major E. M. Benitez is in charge of the school. The instructors are Lieutenants Koscielniak, Peca, Ebel, and Routh. The subjects taught are algebra, history, geometry, and English literature. Classes are held daily (except Saturdays and Sundays) from 8:00 to 11:45 A.M. and from 1:00 to 3:30 P.M. The students are required to spend every evening (except Fridays and Saturdays) from 6:30 to 9:00 P.M. in the Study Hall, under the supervision of one of the instructors. All books used by the students are supplied by the Army.

Some of the arms and services represented in this year's class are: Engineers, from Fort Belvoir; Air Corps, from Langley Field, and from Bolling Field; Signal Corps and Infantry, from Fort Washington; Field Artillery, from Fort Myer; Medical Corps, from Army Medical Center, Washington, D. C.; Coast Artillery, from Fort Monroe.

The school year terminated on February 28, 1936. The first seven men will report for examination on March 3d at the Army Medical Center, Washington, D. C., where they will take the competitive entrance examination to the Military Academy, as representatives of the Third Corps Area.

With the conclusion of the school year, preparations will be made for the opening of the next term. Those desiring to attend the school should enlist for either one or three years on or before July 1, 1936. Examinations will be held on the first Tuesday in August, 1936, open to those candidates whose applications have been approved by the Commanding General, Third Corps Area.

The Harbor Defenses of Sandy Hook

COLONEL L. B. MAGRUDER, C.A.C., *Commanding*

By Lieutenant Colonel E. B. Dennis

THE beacon light at the northwestern extremity of Sandy Hook, that invaluable aid to navigators and of the utmost importance to the hundreds of fishing boats which swarm in the area, has become undermined by the relentless and resistless action of tide and currents, necessitating holding the tower in position by guy ropes until necessary repairs, which will probably include the construction of a bulkhead, can be accomplished.

The Ft. Hancock fire department had an occasion to test its readiness for action in something more realistic than a fire drill when a disastrous fire, fanned by a 50-mile wind, broke out on February 24, in a frame building housing five families of the Coast Guard personnel. Twenty persons living in the building escaped without injury other than the loss of personal belongings. The fire department, ably assisted by members of the 288th CCC Co., did yeoman service in preventing the spread of the fire to adjacent buildings. Fortunately the direction of the wind was offshore; this probably resulted in preserving the Ft. Hancock life-saving station (one of the oldest in the United States) from destruction. The value of chemical extinguishers was fully demonstrated in keeping the conflagration under control.

Lt. Paul A. Roy has completed the preliminary reconnaissance and survey for a nine-hole golf course on the reservation. Care has been exercised to insure that the first and last hole will be easily accessible to the Club, a detail that all ardent golfers will appreciate.

On February 22, and again on February 29, the members of the garrison derived great pleasure from listening to the broadcast of the massed Coast Artillery bands of the Hawaiian Separate Coast Artillery Brigade. This super-band deserves much credit for its fine performance and for its initiative in going on the air, thereby fur-

nishing entertainment to music lovers in all parts of the world.

The Ft. Hancock Boy Scout troop has been organized under the leadership of Lt. Murrin. An activity of this nature was badly needed because of the excellent instruction it provides and the further fact that it teaches the boys precepts and principles which could not be inculcated in any other manner. Ft. Hancock offers many opportunities for outdoor sports and for participation in those activities in which Boy Scouts are primarily interested. A successful troop under the guidance of Lt. Murrin is assured.

Construction on a new bridge connecting Flatbush Avenue, Brooklyn, with Ft. Tilden has been started. This, together with extensive improvements planned for Riis Park, will materially help in making this Post one of the most desirable in the vicinity of New York. Improvements and developments at Riis Park include a new 18-hole "pitch and putt" golf course, a new out-of-door swimming pool and a parking space to accommodate about 15,000 automobiles (72 acres).

It may be a surprise to some to learn that the next World's Fair is to be held at Flushing, Long Island, in 1939. It is hoped that the permanent quarters and barracks at Ft. Tilden will be completed prior to that time. The immediate projects for Ft. Tilden include repairs to the Jamaica Bay Bulkhead, extensive landscaping and repairs to the dock and railroad, all of which will be completed in the near future.

Post dances, bowling and duplicate contract bridge are the principal social activities enjoyed by the garrison. These activities center around the Officer's Club, better known as "The Brick House." All together life at this important garrison is far from being dull or monotonous.



Divisional Review. Schofield Barracks, Hawaii.

COAST ARTILLERY BOARD NOTES

SECTION I

Projects Completed Since Last Issue of the Journal

PROJECT No. 1027—MESS TABLES.—This project dealt with service test of an experimental type of mess table, specimens of which were sent to the various arms for a one-year trial. The new table has a hard wood top with varnish finish, which the Board regards with favor in view of the excellent way it has withstood a year's use. The new table is also equipped with casters; these proved to be less acceptable, both because of the marring of mess hall floors from their use and because of the probability of the spilling of liquid foods whenever a man accidentally jarred the table. The experimental table is nine feet long, one foot shorter than the table now in use. This suggests the idea of a squad mess table, to seat four men on a side; unfortunately, most mess halls were designed to accommodate the standard ten-foot table and in many cases floor space would be lacking to provide for the necessarily increased number of slightly shorter tables. Accordingly, the Board recommended favorably with regard to the new style table top, but unfavorably with respect to the casters and the reduced overall length.

PROJECT No. 1042—MOTORCYCLE REQUIREMENTS, COAST ARTILLERY CORPS.—No study in recent years has called forth so many widely divergent views from interested officers as has this. Opinions varied from unrestrained enthusiasm for the cycles to utter condemnation of their use; recommendations ranged all the way from an allotment of sixty-three motorcycles per regiment, to a complete abandonment of the type. Confronted by so many varied viewpoints, and so many diametrically opposed opinions, the Board is doubtful whether its recommendations will prove satisfactory to anyone. Considering the advances in motor transportation design and development since the World War, it appears that some of the missions formerly assigned to motorcycles with side-cars can be better executed today through the use of vehicles of more modern type. It is clear that for some purposes, a $\frac{1}{2}$ ton pick-up truck of commercial pattern can be substituted for a side-car to advantage; the motor-tricycle (either of the pattern used for delivering small packages in a city, or one rigged to carry two men besides the driver) should meet other situations to better advantage. In spite of the anticipated use of radio for convoy control, missions will remain for which no substitute can be seen for the solo motorcycle. The Board favored the limited use of a solo motorcycle of rugged design, increased clearance, and relatively low gear, capable of operating for prolonged periods at a slow

speed, for such purposes as messenger service, column control, and emergency situations when no other type of vehicle can get through.

PROJECT No. 1044—MACHINE GUNS, M1, CALIBER .22.—These guns have been favorably considered by various service boards as a means for imparting instruction in firing machine guns at ground targets with the minimum expense for ammunition. The Board supervised numerous tests of these weapons, to ascertain the applicability of this method for training antiaircraft gunners. It concluded that, for antiaircraft troops, the training value of the caliber .22 machine gun was exceedingly limited. So short is the time of flight that the question of angular leads did not enter; the lack of tracers prevented any training in the observation of fire; and the absence of the usual vibration and shock removed the use of this gun still farther from effective preparation for firing machine guns of larger caliber. The additional cost and complications involved in issuing to antiaircraft units an additional type of machine gun were evident. Finally, the Board believed that the susceptibility of this gun to stoppages of a character wholly different from those experienced with the caliber .30 and caliber .50 constituted an added drawback to its use as a means of training. Accordingly, the Board submitted an adverse report on this project.

PROJECT No. 1062—BINOCULARS, BAUSCH AND LOMB. Sample binoculars of a new pattern, 6x30 and 8x30, which had been submitted to the Chief of Ordnance by the manufacturer, were forwarded to the Coast Artillery Board for examination and test. The Board was favorably impressed and recommended that the 6-power binocular be subjected to additional tests with a view to the possible substitution of this model, in a slightly modified form, for the present type EE field glass.

SECTION II

Projects Under Consideration

PROJECT No. 953—RADIO-CONTROLLED HIGH-SPEED TARGET.—Unfavorable weather conditions and the pressure of other duties have slowed down progress on this project. However, a new control mechanism is being prepared, a gyroscopic course-stabilizer is being designed, and preparations are being made for installation of buoyant material in the hull. The problem of how to render this small boat sufficiently visible to permit shore batteries to track it at extreme ranges, without rendering the craft top-heavy and unstable in high winds and rough

water, is a vexatious one. Some consideration is being given to the use of smoke for this purpose.

PROJECT NO. 1039—DATA TRANSMISSION SYSTEM, T11.—The installation of this matériel at Battery Montgomery, Fort Monroe, has been completed. As the weather improves, static tests of this "follow-the-pointer" system of data transmission will be undertaken. These will be followed by tests of the functioning of the mechanism during actual firing.

PROJECT NO. 1046—ANTI-AIRCRAFT MACHINE GUN FIRE CONTROL METHODS AND EQUIPMENT.—This test is the most important and most extensive activity of the Board at the present time. A detailed program for the test has been prepared, and the lines along which research is to be conducted has been determined. These naturally group themselves into individual control of fire from each gun, and centralized control of fire by the platoon commander. Each method has some advantages; the former may prove to be a valuable alternative method to meet emergency conditions when centralized control by platoon is no longer possible. The tests are intended, among other things, to fix a quantitative measure of the relative efficiency to be expected from each method, and the comparison of each with the methods now in use.

PROJECT NO. 1049—FIELD JACKETS.—These zipper-front, windbreaker-type jackets, designed to replace the service coat for field duty, are being subjected to extensive tests by members of the Board and by selected enlisted men. All who have worn them are agreed as to their comfort. The loose fit permits the soldier the unhampered use of his body, and affords him a freedom of movement unobtainable in a fitted uniform coat. The full back, which explains much of the ease of this garment, wrinkles rather badly under the pack, and the general appearance of the garment departs radically from the smart effect of good military tailoring. On the other hand, it appears probable that after some months of active field service, garments of this pattern would present as creditable an appearance as would service coats of the existing pattern, and that in the meantime the wearer would have been not only much more comfortable, but also capable of far greater freedom in bodily activity without partly disrobing. The test is being concluded by the wearing of these experimental garments during the anti-aircraft machine-gun firings at Fort Story, Va.

PROJECT NO. 1051—TIME INTERVAL APPARATUS EE-85-T5 AND ASSOCIATED EQUIPMENT.—This mechanism is designed for use by mobile artillery. It operates from relays in much the same manner as an ordinary electric clock. The device carries four drums on each of its four arbors, and thus can give sixteen different time intervals. These signals are distributed along telephone lines by a tone audible in headsets; at the guns a howler gives a louder firing signal.

This mechanism has been studied and tested at the Coast Artillery School during the winter. Field test of this equipment is to be held as soon as weather conditions permit. The need of the records section for a time interval signal, during the machine gun tests at Fort Story, will afford one opportunity for its practical test under field service conditions. It will also be used during seacoast target practices to be held by Coast Artillery School personnel during May and June, 1936.

PROJECT NO. 1052—COAST ARTILLERY MEMORANDUM NO. 16.—Since the last issue of the JOURNAL, the Board has completed its review of all Coast Artillery Target practices fired during the calendar year 1935. It has recommended classification of each practice as to its relative excellence, and submitted nominations for award of the Knox Trophy. These administrative functions having been discharged, there remained the question of determining what technical lessons can be drawn from the 1935 firings.

All Coast Artillery officers, either consciously or unconsciously, absorb certain viewpoints and draw certain conclusions from the practices they witness. Since circumstances prevent any officer from witnessing in person more than a small percentage of all practices fired during any particular year, the viewpoint of the individual officer is necessarily colored by circumstance; chance dictates the phenomena which are presented to the individual, and hence the lessons that he derives therefrom.

As a sort of clearing house for all Coast Artillery firing, the Board prepares annually a study of the previous year's firings. Formerly, a large amount of statistical matter appeared in the text. Except for the most diligent and zealous officers, few had the patience to plough through this mass of figures and to formulate any conclusions therefrom. In more recent years, less attention has been given to details of individual practices, and an effort has been made to reflect current tendencies and to show the more common pitfalls for the unwary. Coast Artillery Memorandum No. 16 is being prepared in this pre-digested form.

PROJECT NO. 1054—TELEPHONE BOX, EE-91-T1, AND ASSOCIATED EQUIPMENT.—This equipment has been subjected to but few tests. Those so far held indicate that the set is astonishingly microphonic, which is an excellent feature if not carried to excess, but this feature might limit the suitability of this equipment for plotting room use. Further tests will be required to establish definitely its powers and limitations. These tests cannot be undertaken until certain associated equipment, now being circulated among other service boards, has been returned to the Coast Artillery Board.

PROJECT NO. 1055—PAINT PRIMERS FOR SEACOAST GUNS.—The guns, on which these paint primers are now under test, are being exposed to weather and normal

handling. It is too early to draw any conclusions as to how satisfactory each type of paint primer may prove.

PROJECT NO. 1056—SOUND-POWERED TELEPHONES.—Tests of this equipment have commenced, but have not progressed far enough to justify drawing any definite conclusions.

PROJECT NO. 1058—SPOTTER T5.—This instrument was sufficiently described in the last issue of the COAST ARTILLERY JOURNAL. A test program has been completed, a special allotment of ammunition has been requested and it is hoped to conduct further tests of this instrument shortly after the completion of the antiaircraft machine gun firing tests at Fort Story.

PROJECT NO. 1059—DEPRESSION ANGLE INDICATOR, 1936.—The direction of heavy artillery fire by aircraft was common enough during the World War; for targets on shore, positions could be located rapidly and with fair accuracy by the aid of a map. Postwar experiments in the conduct of air-controlled fire against moving naval targets have shown the need for some instrument by means of which the friendly aviator can ascertain with greater precision the position of a naval target with respect to his plane. Two instruments designed for this purpose have been received and studied by the Board; practical tests of their reliability and precision are to be made as soon as weather conditions permit and Board members can be made available for this duty.

PROJECT NO. 1061—OPTICAL FACEPIECE.—This experimental gas mask facepiece differs from the facepiece now in use in that the lenses are larger and single-curved. Heretofore all gas mask lenses have been made flat; the employment of curved lenses constitutes a marked innovation. Whether or not this new feature is desirable in an optical gas mask and, if desirable, whether or not it should also be incorporated in the diaphragm gas mask and the service gas mask, are questions now before the Board.

SECTION III

Miscellaneous

Because so many of its projects are of a secret or restricted nature, the Coast Artillery Board notes, as published, show but a fraction of the work in progress. Furthermore, much of the work consists of studies of the performance of matériel already standardized, or other research problems the nature of which does not seem to require the dignity of the formal assignment of a project number and title. The following matters of miscellaneous character indicate some of the activities of the Board during recent months, or set forth matters of general interest.

ANTIAIRCRAFT MACHINE GUN FIRING TABLES.—Firing tables for the caliber .30 antiaircraft machine gun are to be prepared. These will be more extensive than the

tables now issued for the caliber .50 antiaircraft machine gun, and they will probably include several additional features. It is the hope of the Coast Artillery Board that these tables, when published, may aid in removing some of the existing uncertainties in antiaircraft machine gun fire, and permit a more scientific approach to this problem than has been possible heretofore. But it is doubtful if these tables can be published before 1937, hence those firing machine guns this summer should not become unduly excited and endeavor to delay the date of practice.

TELESCOPIC SIGHTS FOR 155 MM GUNS.—Frequently inquiries are received by the Board as to when telescopic sights for direct aiming of 155 mm. guns will be issued to the service, to permit Case II fire without the handicap of attempting to use the panoramic telescope to follow a small, distant, and moving target. Several methods have been employed: in one regiment, Scott sights were adapted to the 155 mm. carriages for direct aiming; elsewhere, there has been issued a sight bracket capable of taking either the panoramic sight or a direct telescopic sight. Neither arrangement has proved entirely satisfactory. The Board has been informed that there is being developed, under the direction of the Chief of Ordnance, a wholly new system which may replace the methods now in use.

SPOTTING DEVICE FOR STEREOSCOPIC HEIGHT FINDERS.—As a result of the experience of antiaircraft gun batteries in spotting bursts by means of stereoscopic instruments, various schemes have been advanced for the use of stereoscopic means for attaining range adjustment. To provide a separate instrument for stereoscopic spotting appears impracticable, principally because of its cost. To modify the design of height finders so that while the regular observer uses the instrument in the usual manner, a spotter may simultaneously make use of a portion of its optical system for spotting, was proposed; the technical difficulties involved proved too great. The Board has recommended that, until some better solution can be reached, the existing instrument be used alternately for height-finding and for spotting. Experience has shown that efforts to carry on both processes simultaneously are unsuccessful, but there seems to be no reason why tracking cannot be suspended for brief periods, and enough bursts sensed to allow the battery commander to effect any needed adjustment.

ELECTRIC FIRING CIRCUITS.—In view of the undue frequency of misfires when electric primers are used, the Board has recommended certain changes in the firing magneto and the publication of more detailed instructions covering the test of electric firing circuits preparatory to practice or action.

PAINT REMOVERS.—In an effort to lighten the work of maintenance detachments, the Board has made repeated

experiments and tests to determine the applicability to service needs of various means of removing old paint, and of applying new paint. Discovery of satisfactory labor saving methods in either respect would reduce the difficulties now experienced in the upkeep of the paint work

of artillery matériel. To date, none of the newer methods has proved sufficiently advantageous to warrant a favorable recommendation on the part of the Board. Especial attention has been given to paint removal by wire brushes and by chemical means.

COAST ARTILLERY ORDERS

(Covering the period January 1 to February 29, 1936)

Colonel H. K. Loughry, from 6th, Ft. Winfield Scott, to Instructor, Army War College.

Colonel G. T. Perkins, from General Staff Corps, 3d Corps Area, Baltimore, to Org. Res. 9th Corps Area, Seattle, Wash.

Colonel A. H. Sunderland, from Coast Artillery Board, Ft. Monroe, to Office Chief of Coast Artillery, March 15.

Lieutenant Colonel Franklin Babcock, from Univ. of Kansas, Lawrence, to student, Army Industrial College, August 21.

Lieutenant Colonel R. F. Cox, from student, Naval War College, Newport, to instructor, C. A. School, Ft. Monroe.

Lieutenant Colonel R. V. Cramer, from student, Army War College, to instructor, C. A. School, Ft. Monroe.

Lieutenant Colonel P. S. Gage, from 4th C. A. Dist., Ft. McPherson, to student, Army Industrial College, August 21.

Lieutenant Colonel R. C. Garrett, from 52d, Ft. Monroe, to General Staff Corps and to 7th Corps Area, Omaha, January 15.

Lieutenant Colonel F. M. Green, from Coast Artillery Board, Ft. Monroe, to Office Chief of Coast Artillery, July 1.

Lieutenant Colonel M. J. Hickok, from 11th, Ft. H. G. Wright, to student, Army War College.

Lieutenant Colonel Charles Hines, from U. S. Military Academy, West Point, to student, Army War College.

Lieutenant Colonel G. F. Humbert, from Org. Res. 6th Corps Area, to 13th, Ft. Barrancas.

Lieutenant Colonel M. M. Kimmel, Jr., from Panama, to Org. Res. 5th Corps Area, Cincinnati.

Lieutenant Colonel W. C. Koenig, from historical section, Army War College, to student, Army War College.

Lieutenant Colonel O. H. Longino, from 6th, Ft. Winfield Scott, to General Staff Corps with troops, Panama, sailing San Francisco, August 11.

Lieutenant Colonel H. F. Loomis, from 62d, Ft. Totten, to Org. Res., 2d Corps Area, New York.

Lieutenant Colonel J. DeM. McCain, from the Philippines, to Asst. P.M.S.&T., Univ. of Illinois, Urbana.

Lieutenant Colonel G. R. Meyer, from student, Naval War College, Newport, to instructor, C.&G.S. School, Ft. Leavenworth, August 1.

Lieutenant Colonel H. LeR. Muller, from the Philippines, to Org. Res. 2d Corps Area, Wilmington.

Lieutenant Colonel H. F. Nichols, from

13th, Ft. Barrancas, to 4th C.A. Dist., Ft. McPherson.

Lieutenant Colonel H. R. Oldfield, from 63d, Ft. MacArthur, to General Staff Corps, 9th Corps Area, San Francisco, July 26.

Lieutenant Colonel F. A. Price, from office of The Assistant Secretary of War, Wash., D. C. to 52d, Ft. Monroe, August 16.

Lieutenant Colonel E. B. Walker, from instructor, C.&G.S. School, Ft. Leavenworth, to 51st, Ft. Monroe, July 31.

Major S. W. Anderson, from Univ. of Delaware, Newark, to student, C.&G.S. School, Ft. Leavenworth.

Major C. H. Armstrong, from student, C.&G.S. School, Ft. Leavenworth, to Office Chief of Coast Artillery.

Major H. B. Bliss (CAC), from Ft. Sill, to student, Quartermaster Corps School, Philadelphia, August 20.

Major L. J. Bowler, from the Philippines to Alameda High School, Calif.

Major W. G. Brey, from 14th, Ft. Worden, to Univ. of San Francisco, San Francisco, March 1.

Major J. D. Brown, from 61st, Ft. Sheridan, to Asst. P.M.S.&T., Univ. of Illinois, Urbana, February 1.

Major H. F. E. Bultman, from the Philippines, to instructor, C.&G.S. School, Ft. Leavenworth.

Major G. deL. Carrington, from student, Army War College, to instructor, C. A. School, Ft. Monroe.

Major Homer Case, from the Philippines, to student, Army War College, Ft. Humphreys.

Major F. L. Christian, from instructor, C. A. School, Ft. Monroe, to C.&G.S. School, Ft. Leavenworth, August 26.

Major H. McC. Cochran, 3d, from student, C. A. School, Ft. Monroe, to instructor, C. A. School.

Major H. W. Cochran, from 51st, to C.&G.S. School, Ft. Leavenworth, August 26.

Major J. H. Cochran, from instructor, C. A. School, Ft. Monroe, to student, Army War College, Ft. Humphreys.

Major G. H. Ericson, retired, January 31, upon his own application.

Major R. T. Gibson, from instructor, Fla. Natl. Guard, Miami, to the Philippines, sailing New York, June 2.

Major M. C. Handwerk, from 52d, Ft. Monroe, to C.&G.S. School, Ft. Leavenworth, August 26.

Major F. H. Hastings, from 51st, Ft.

Monroe, to student, Army Industrial College, August 21.

Major C. D. Hindle, from Hawaii, to Org. Res. 3d Corps Area, Pittsburgh.

Major H. S. Johnson, from P.M.S.&T. Alameda High School, Calif. to student, C.&G.S. School, Ft. Leavenworth.

Major Kenneth McCatty, from student, Air Corps Tactical School, Maxwell Field, to C.&G.S. School, Ft. Leavenworth, August 26.

Major S. L. McCroskey, from student, C.&G.S. School, Ft. Leavenworth, to office Chief of Coast Artillery.

Major F. J. McSherry, from Hawaii, to student, Army War College.

Major S. R. Mickelsen, from student, C.&G.S. School, Ft. Leavenworth, to Coast Artillery Board, Ft. Monroe.

Major B. L. Milburn, from Office Chief of Coast Artillery, to student, Army War College.

Major T. R. Phillips, from student, C.&G.S. School, Ft. Leavenworth, to instructor, C.&G.S. School, August 1.

Major G. W. Ricker, from Hawaii, to student, Army War College.

Major Kenneth Rowntree, from Hawaii, to instructor, Oregon Natl. Guard, Salem.

Major J. H. Wilson, from student, Army War College, to instructor, C.&G.S. School, Ft. Leavenworth, August 1.

Major A. V. Winton, from 11th, Ft. H. G. Wright, to C.&G.S. School, Ft. Leavenworth, August 26.

Captain R. W. Berry, from Hawaii, to U. S. Military Academy, West Point, July 1. Previous orders revoked.

Captain J. F. Cassidy, from Hawaii, to 6th, Ft. Winfield Scott.

Captain W. L. Claxton, from Panama to home and await retirement.

Captain P. W. Cole, from U. S. Military Academy, West Point, to student, C.&G.S. School, Ft. Leavenworth.

Captain B. E. Cordell, from 69th, Ft. Crockett, to Hawaii, sailing San Francisco, May 16.

Captain R. W. Crichlow, Jr., from instructor, C. A. School, Ft. Monroe, to C.&G.S. School, Ft. Leavenworth, August 26.

Captain L. L. Davis, from Coast Artillery Board, Ft. Monroe, to C.&G.S. School, Ft. Leavenworth, August 26.

Captain J. T. deCamp, from instructor, C. A. School, Ft. Monroe, to C.&G.S. School, Ft. Leavenworth, August 26.

Captain K. L. F. de Gravelines, from U. S. Military Academy, to student, C. A. School, Ft. Monroe, August 25.

Captain L. A. Denson, Jr., from 63d, Ft.

MacArthur, to C.&G.S. School, Ft. Leavenworth, August 26.

Captain D. S. Ellerthorpe, from U. S. Military Academy, to student, C. A. School, Ft. Monroe, August 25.

Captain J. H. Featherston, from student, C. A. School, Ft. Monroe, to C.&G.S. School, Ft. Leavenworth, August 26.

Captain G. L. Field, from Hawaii, to 61st, Ft. Sheridan.

Captain K. P. Flagg, from Hawaii, to Asst. P.M.S.&T., Univ. of Pittsburgh, Pittsburgh.

Captain J. E. Harriman, from student, C.&G.S. School, Ft. Leavenworth, to 13th, Ft. Barrancas.

Captain Hobart Hewett, from student, C.&G.S. School, Ft. Leavenworth, to Coast Artillery Board, Ft. Monroe.

Captain F. B. Kane, from student, Mass. Inst. of Tech., Cambridge, to instructor, C. A. School, Ft. Monroe.

Captain P. B. Kelly, from 51st, Ft. Monroe, to C.&G.S. School, Ft. Leavenworth, August 26.

Captain R. H. Krueger, from 13th, Key West Barracks, to the Philippines, sailing New York, May 19.

Captain R. H. Kreuter, from Ft. Sam Houston, to C.&G.S. School, Ft. Leavenworth, August 26.

Captain L. L. Lemnitzer, from student, C.&G.S. School, Ft. Leavenworth, to instructor, C. A. School, Ft. Monroe.

Captain P. W. Lewis, from Org. Res. 5th Corps Area, to student, C.&G.S. School, Ft. Leavenworth, August 26.

Captain F. C. McConnell, from 61st, Ft. Sheridan, to C.&G.S. School, Ft. Leavenworth, August 26.

Captain Donald McLean, from 13th, Ft. Barrancas, June 13, to U. S. Military Academy, West Point.

Captain J. H. Madison, from 52d, Ft. Monroe, to C.&G.S. School, Ft. Leavenworth, August 26.

Captain Otta Marshall, from 13th, Ft. Barrancas, to Ft. Slocum.

Captain H. F. Meyers, from 2d, Ft. Story, to C.&G.S. School, Ft. Leavenworth, August 26.

Captain F. A. Mitchell, from U. S. Military Academy, West Point, to student, C. &G.S. School, Ft. Leavenworth, August 26.

Captain L. M. Morton (CAC) from Holabird quartermaster depot, Baltimore, to Motor Transport School, Holabird.

Captain J. D. Moss, from student, C.&G.S. School, Ft. Leavenworth, to 2d, Ft. Monroe.

Captain J. S. Robinson, from 52d, Ft. Monroe, to The Citadel, Charleston, August 1.

Captain C. Van R. Schuyler, from student, C. A. School, Ft. Monroe, to C.&G.S. School, Ft. Leavenworth, August 26.

Captain W. B. Short, from 13th, Ft. Barrancas, to student, C. A. School, Ft. Monroe, August 25.

Captain N. B. Simmonds, from Panama, to 69th, Ft. Crockett.

Captain J. W. Smith (PS), from the Philippines, to 9th Corps Area, awaiting retirement. Previous orders revoked.

Captain L. S. Smith, from instructor, Mass. Natl. Guard, Fall River, to student, C.&G.S. School, Ft. Leavenworth, August 26.

Captain A. C. Spalding, from 62d, Ft

Totten, August 25, to U. S. Military Academy, West Point.

Captain R. E. Starr, from student, C.&G.S. School, Ft. Leavenworth, to instructor, C. A. School, Ft. Monroe.

Captain V. C. Stevens, from Hawaii, to instructor, C. A. School, Ft. Monroe.

Captain E. C. Wallace, from Hawaii, to 63d, Ft. MacArthur.

Captain M. H. Zwicker, transferred to Quartermaster Corps, January 29.

First Lieutenant C. R. Bard, from 69th, Ft. Crockett, August 25, to U. S. Military Academy, West Point.

First Lieutenant A. S. Baron, from student, C. A. School, Ft. Monroe, to 52d, Ft. Monroe.

First Lieutenant A. H. Bender, from 2d, Ft. Monroe, to the Philippines, sailing New York, May 19.

First Lieutenant F. T. Berg, from 62d, Ft. Totten, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant H. A. Brusher, from student, C. A. School, Ft. Monroe, to 2d, Ft. Monroe.

First Lieutenant A. F. Cassevant, from 2d, Ft. Monroe, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant F. P. Corbin, Jr., from 62d, Ft. Totten, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant L. N. Cron, from 62d, Ft. Totten, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant J. T. Darrah, from 51st, Ft. Monroe, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant J. B. F. Dice, from 52d, Ft. Monroe, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant P. V. Doyle, from the Philippines, to 69th, Ft. Crockett.

First Lieutenant J. C. East, from 52d, Ft. Monroe, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant A. C. Gay, from 2d, Ft. Monroe, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant E. G. Griffith, from 11th, Ft. H. G. Wright, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant L. M. Guyer, from student, C. A. School, Ft. Monroe, to U. S. Military Academy, West Point.

First Lieutenant E. F. Heidland, from student, C. A. School, Ft. Monroe, to Hawaii, sailing New York, July 15.

First Lieutenant E. W. Hiddleston, from 61st, Ft. Sheridan, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant G. E. Hill, from 52d, Ft. Monroe, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant Joseph Horridge (CAC), from Ordnance Dept. Raritan Arsenal, Metuchen, to U. S. Military Academy, West Point.

First Lieutenant P. A. Jaccard, from 14th, Ft. Worden, to Hawaii, sailing San Francisco, June 12.

First Lieutenant O. H. Kvster, Jr., from student, C. A. School, Ft. Monroe, to 52d, Ft. Monroe.

First Lieutenant M. J. McKinney, from 10th, Ft. Adams, to the Philippines, sailing New York, May 19.

First Lieutenant C. L. MacLachlan, from 61st, Ft. Sheridan, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant C. J. Odenweller, Jr., from 69th, Ft. Crockett, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant B. L. Paige, from Hawaii, to U. S. Military Academy, West Point, August 25. Previous orders revoked.

First Lieutenant G. F. Peirce, to 3d, Ft. MacArthur. Previous orders amended.

First Lieutenant A. C. Peterson, from 7th, Ft. Hancock, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant P. A. Roy, from 7th, Ft. Hancock, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant Arnold Sommer, from the Philippines, to U. S. Military Academy, West Point. Previous orders revoked.

First Lieutenant W. F. Spurgin, to 10th, Ft. Adams. Previous orders amended.

First Lieutenant J. H. Twyman, Jr., from 69th, Ft. Crockett, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant M. G. Weber, from 2d, Ft. Monroe, to student, C. A. School, Ft. Monroe, August 25.

First Lieutenant N. B. Wilson, from 11th, Ft. H. G. Wright, to student, C. A. School, Ft. Monroe, August 25.

Second Lieutenant A. J. Cooper, Jr., from 62d, Ft. Totten, to the Philippines, sailing New York, March 14.

Second Lieutenant G. H. Crawford, from Panama, to 13th, Ft. Barrancas.

Second Lieutenant H. W. Ebel, from 52d, Ft. Monroe, to Hawaii, sailing New York, April 24.

Second Lieutenant Harry Julian, from the Philippines, to 13th, Ft. Barrancas.

Second Lieutenant P. S. Peca, from 52d, Ft. Monroe, to the Philippines, sailing New York, May 19.

Second Lieutenant D. B. Routh, from 51st, Ft. Monroe, to the Philippines, sailing New York, May 19.

Second Lieutenant R. B. Warren, from 6th, Ft. Winfield Scott, to the Philippines, April 7, revoked.

Second Lieutenant G. J. Weitzel, from 52d, Ft. Monroe, to the Philippines, sailing New York, May 19.

Master Sergeant T. A. McMaster, 2d, Ft. Monroe, retired, February 29.

Master Sergeant Walter Morrisy, 10th, Ft. Adams, retired, February 29.

First Sergeant Otto Bentz, 13th, Ft. Barrancas, retired, February 29.

First Sergeant D. B. Breddon, 69th, Ft. Crockett, retired, January 31.

First Sergeant Peter Hanson, 69th, Ft. Crockett, retired, February 29.

First Sergeant P. M. Kelley, 6th, Ft. Winfield Scott, retired, February 29.

First Sergeant William McKibbin, 6th, Ft. Winfield Scott, retired, January 31.

First Sergeant J. R. Osborn, 6th, Ft. Winfield Scott, retired, January 31.

First Sergeant M. M. Scott, 16th, Ft. DeRussy, retired, February 29.

Staff Sergeant J. J. Kelly, 4th, Ft. Amador, retired, February 29.

Staff Sergeant J. D. Kennedy, appointed warrant officer, from 9th, Ft. Banks, to Harbor Defenses of Sandy Hook, Ft. Hancock.

Sergeant Edwin Deuschle, 2d, Ft. Monroe, retired, January 31.

Sergeant Bernardo Hintolan, 64th, Ft. Shafter, retired, February 29.

Sergeant H. S. Reddy, 64th, Ft. Shafter, retired, January 31.

THE FOREIGN MILITARY PRESS

Reviewed by Major Alexander L. P. Johnson, Infantry

AUSTRIA: *Militärwissenschaftliche Mitteilungen*, January, 1936.

THE EAST AFRICAN WAR, by Captain Ludwig Kachina.

The origins of the present conflict between Italy and Ethiopia are traceable to the outcome of the war of 1896, and the treaty of 1906 which gave Great Britain control of the headwaters of the Nile, conferred upon France exclusive rights over the Addis Ababa-Djibouti railroad, and conceded to Italy the right to construct a highway across Ethiopia connecting the Italian colonies of Eritrea and Somaliland. Italy charges Ethiopia with acts of aggression beginning as far back as 1915, when 150,000 Ethiopian troops led by Emperor Micael invaded Eritrea. Italy attributes much of the trouble in this respect to the party of "Young Abyssinians" which seeks territorial expansion of Ethiopia to the coast. The Ual Ual incident near the Somaliland border in December, 1934, and a similar affair in February, 1935, were the immediate causes of Italian mobilization, although the rainy season caused postponement of actual hostilities until October.

On August 1, 1935, Italian forces in Africa comprised about 160,000 troops and 150-200 airplanes under the supreme command of General di Bono. About one-fourth of the entire force concentrated in Somaliland under General Graziani, who had sailed from Italy on February 22, 1935, to assume command. The bulk of Italy's forces concentrated in Eritrea. Ethiopian forces are estimated at about 750,000 men. Less than half of these are armed with rifles of a great variety of makes and vintages. With the exception of a few batteries, the Ethiopian artillery is equipped with obsolete guns.

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A rough, mountainous country, the climate of Ethiopia ranges from unbearable torridity in the desert lowlands to frigid cold at the high altitudes of its snow-clad alpine peaks. Rich in mineral resources and oil, the country unquestionably is an attractive colonial prospect for any nation lacking in these particulars. The population of about 10-12 million is racially mixed. The Coptic Christian Amharas of Semitic race, though a minority, are in actual power. Other racial groups in the country are the Mohammedan Danakils, Gallas, Kaffas and Somalis, the Jewish Lashas and the aboriginal black Augas. Politically Ethiopia consists of seven feudal kingdoms whose rulers enjoy nominal independence from the King of Kings whose personal power extends to the three feudal provinces of his own family.

Military operations began on October 2, 1935. The capture of Aduwa avenged the disastrous defeat of Italian arms forty years earlier. The fall of Axum, Ethiopia's

holy city, apparently ended the first phase of the campaign, for the Italian northern army then reorganized along the line: Axum—Aduwa—Adigrat. Rains greatly impeded progress of the campaign on the southern front. On October 16, the Italian forces resumed operations, moving against Makale in the north, and in the direction of Harar in the south. The Italian high command experienced great difficulties in the matter of supply despite 5,000 trucks and 70,000 pack animals employed in that service. The problem will become increasingly acute as the Italians penetrate the Ethiopian mountain fastnesses.

Apparently dissatisfied with the slow progress of the campaign, Mussolini appointed Marshal Badoglio, one of Italy's ablest commanders, to succeed General di Bono as commander in chief of the Italian armies in East Africa. The new commander assumed his duties on November 28, when operations had seemingly come to a standstill. Badoglio's first concern was reorganization. A few days later, on December 6, the troops of Ras Desta launched a surprise attack on the southern front. Contradictory reports from the belligerents leave much doubt as to the real outcome of this action. Ethiopia claims the recapture of Gorraheh and Dardeiro. On December 16, the Ethiopians launched a second surprise attack, this time against the outpost line of the northern army near Mai Timihet. Prompt intervention by Italian reserves soon restored the situation.

To date it appears that the Italian high command is making haste slowly. Lessons taught by colonial wars of the past are being carefully followed. Modern equipment is being exploited to the utmost. Reports indicate that Marshal Badoglio pins high hopes upon an extensive use of his aviation to force Ethiopia to surrender.

FRANCE: *La Revue d'Infanterie*, August, 1935.

EMPLOYMENT OF TANKS IN THE ATTACK, by Captain Lelequet.

Polish military authorities keep in close touch with developments in Russia's tank tactics. In his discussion the author depends largely upon Polish sources of information. Russian tank tactics are based upon the idea that attacking infantry must be provided with protection against hostile defensive fires. It is the mission of tanks to destroy or neutralize the enemy's defensive weapons either by distant action, by direct support or by accompanying the other arms.

Heavy tanks are employed against distant objectives such as hostile artillery, regimental and divisional reserves, general staffs and rear-area installations. Tanks assigned to these missions are armed with a small cannon, usually the one-pounder, and five machine guns. Their

speed ranges from 15 to 40 kilometers per hour. They are capable of overcoming obstacles nearly two meters high and can cross rivers 1 to 1.50 meters deep.

Heavy tanks precede the attacking infantry. They should be prepared to engage hostile artillery at the very moment that its threat is most dangerous to the advancing infantry, that is, when the assault infantry crosses its own line of departure. Necessarily, the time at which these tanks are to jump off must be carefully calculated. They move directly on their objectives, delaying only long enough to knock out antitank guns located within their zones of advance. So far as possible, tanks approach hostile batteries from the flank or rear. Soviet experts believe that these tanks should be able to neutralize hostile batteries within 10-15 minutes. The Soviets expect their heavy tanks to remain within the hostile battle position until the arrival of the assault infantry. However, some tank experts hold that this needlessly exposes them to grave danger.

Supporting artillery assists the advance of tanks by counter-battery, and covers their withdrawal in case of reverse. Airplanes provide liaison and, if necessary, assist with smoke.

Direct-support tanks operate against hostile machine-gun nests, accompanying guns and isolated field pieces. Tanks on these missions are of the 5- to 6-ton type, armed with one machine gun and one one-pounder. They travel at a speed of 10-25 kilometers per hour. Although the tank battalion is an organic part of the division, one tank company is normally attached to each regiment in the attack. In open country tanks usually operate under division control.

Accompanying tanks are of the lightest type. They operate in close coöperation with the attacking infantry and assure its steady progress by engaging and destroying hostile machine-gun nests and other infantry weapons within the battle position. Normally one company is attached to each battalion in the attack. It is a much debated question in the Soviet military press whether or not the battalion commander may in turn attach elements of this tank company to his assault units. It is believed that these tanks should strike the hostile front line just as the assault wave arrives within 200 meters.

GERMANY: *Militär-Wochenblatt*, July 4, 1935.

ANTITANK DEFENSE WITHIN THE BATTALION, by 122.

The battalion's zone of action is relatively deep. Firing positions of antitank guns are normally in rear of front-line companies—300-500 meters from the main line of resistance. A lesser distance would unduly expose guns and crews. Necessarily the gun must be carried into position by hand. Since the success of a tank attack depends largely upon the element of surprise, it follows that antitank guns should be held under cover, in readiness and close to their probable firing positions.

The antitank gun has an effective range of 1,000 meters. Its greatest effect is obtained at 700 meters. Ac-

cordingly, hostile tanks will run into the effective fire of antitank guns in the belt 200-400 meters beyond our front line. A slow-moving tank can cover that distance in 90 seconds. It should be remembered that the attacking tanks will greatly outnumber the antitank guns in the battalion sector. The Italians expect that about 16 tanks will be used on a battalion front of 400 meters; on this basis they consider three antitank guns the minimum requirement for the defense. Under similar circumstances the French demand four guns. A ratio of 1:5 demands that each antitank gun dispose of five hostile tanks in the space of 90 seconds. Well-trained peace-time gun crews may be able to accomplish such a feat but certainly the hastily trained, poorly disciplined war levies never will.

Although the antitank gun may be master of the situation at 700 meters, it rapidly loses its advantage as the tank approaches. We must also bear in mind the moral effect the approaching tank has on the poorly trained soldier, particularly where he fires round after round without any apparent effect on his mechanical nemesis. It has caused panics in the past and will no doubt do so again. The remedy lies in increasing the number and effectiveness of the battalion's antitank weapons.

Militär-Wochenblatt, September 18, 1935.

GENERAL INFORMATION.

Austria. The reorganized federal army of Austria consists of about 60-70 thousand men organized in seven divisions and special arms. On a war footing the first line will comprise 14 divisions of 500,000 well-armed and thoroughly trained troops. They will be reinforced by Landwehr, Landsturm and Ersatz formations.

Czechoslovakia. The Czechoslovak army has at present 527 officers of German nationality, a marked decrease from the 1,735 carried on the rolls in 1921. The last graduating class of the Czechoslovak military academy consisted of 233 Czechs, 19 Slovaks, 4 Germans, 1 Pole, and 1 Ruthenian. The German element in the ranks of the Czechoslovak army represents 20% of the total.

Great Britain. The Bristol Works, according to report, has succeeded in developing a muffler which will effectively silence airplane motors. Experiments conducted by the British air ministry developed a propeller silencer. It is said these improvements make it impossible to detect airplanes at distances greater than two kilometers.

Italy. As a result of the recent increase and reorganization of the Royal Italian Air Force, that arm now consists of 3,061 officers, 7,026 NCO's and 30,396 men. In addition to these, 1,500 reserve officers and NCO's are now on active duty. The flying personnel includes 5 fleet generals, 7 division generals, 21 brigadiers, 68 colonels, 166 lieutenant colonels, 160 majors, 675 captains, and 652 lieutenants. The enlisted combatant personnel includes 1,600 sergeants of all classes and grades. The remainder of the personnel is apportioned among the administrative, technical, supply and special services.

Japan. The Japanese daily, *Asahi*, reports the adoption

of a five-year plan by the Imperial War Ministry to increase the efficiency of the army and its equipment. The plans contemplate the adoption of antitank and antiaircraft weapons; increase in the number of automatic weapons; increase in the fire power of cavalry; modernization and improvement of artillery equipment; extension of motorization, increase of chemical-warfare troops, and possibly the introduction of a new type of rifle.

U.S.S.R. *Krasnaya Svezda* No. 71 reports the results of an interesting experiment in tank crossings of frozen rivers at temperatures of -5 degrees centigrade and less. Thus, a thickness of ice of 10-18 cm. with a snow blanket of 5-8 cm. will support 3-ton tanks crossing singly. An ice thickness of 20-30 cm. with a snow blanket of 10-12 cm. will support a 5.5-ton tank. A thickness of 35-40 cm. with 15-20 cm. of snow covering will support the weight of a single tank weighing 7 tons. An ice thickness of 40-50 cm. with 20-35 cm. of snow covering will support 11-ton tanks crossing in a column with 50 meters' distance between tanks. Tanks weighing up to 15 tons require an ice sheet of 55-70 cm. thickness with a snow blanket 35-50 cm. In all cases the crossing must be made at reduced speed. Other units may cross simultaneously at 150 meter intervals. Tanks deployed in line may cross rivers not more than 35-50 meters wide, stream velocity not in excess of 0.75-0.90 meters per second, and temperature not above -12 to -15 degrees centigrade. Streams of greater velocity freeze unevenly, hence demand great caution. The ice sheet may be reinforced by the use of straw, allowing about 1.5 kg. of straw to the square meter. The straw is laid to form a track about 7.5-8 meters wide. About 30-40 minutes before actual crossing the straw track must be covered with water. In case of thaw the use of boards becomes necessary. In any case careful reconnaissance is essential.

Militär-Wochenblatt, October 18, 1935.

MOUNTED BATTALIONS, by Captain Gerhard, Cavalry.

Motorized divisions failed to come up to expectations in recent maneuvers in Great Britain and Italy. Of course the command got the blame, but the real difficulty seems to have been inadequate teamwork between the new and the older arms. The maneuvers clearly demonstrated the helplessness of troops lacking protection of motorized elements. They equally emphasized the need for troops capable of moving at a greater rate of speed than infantry. They evidenced the value of mounted reconnaissance detachments. Under modern conditions reconnaissance without combat is becoming increasingly difficult. Experience indicates the desirability of providing each infantry division with an organic squadron of cavalry. This squadron should consist of three rifle troops, one cyclist troop, one machine-gun troop, one howitzer platoon, three motorized antitank guns, a signal detachment and a number of reconnaissance cars. Armored cars may be added when demanded by the situation. The armament of this squadron would include 36 light and 18 heavy

machine guns, and 2 trench mortars. The command would have great mobility as well as fire power.

During the maneuvers referred to, horsemen and cyclists cooperated without difficulty, although there was room for further improvement. Effort should be made to bring into play the advantages of each arm and reduce its defects correspondingly. In the past cavalry charged with sabers and lances; in the future it should strike with still greater fury using machine guns and armored cars.

Artilleristische Rundschau, August, 1935.

THE BOFORS CALIBER 40 ANTI-AIRCRAFT GUN, L/60.
by Dr. F. Mouths, Major, Retired.

The Swedish Bofors arms works has developed a 40-mm. machine gun of considerable effectiveness. It is an air-cooled gun weighing 180 kilograms. Its barrel is 2.4 meters long and is equipped with a flash-hider. The trigger is foot-operated. The magazine consists of a double frame, each holding four cartridges (total 8). The mechanism operates on the same principle as the Browning machine gun except that the second round is actually fired before the gun completes the forward movement in counter-recoil, thus utilizing part of the counter-recoil force as a brake against recoil.

It has an all-around horizontal radius of action. The elevating gear provides a vertical field of fire from -5 to +90 degrees. The gun employs explosive tracer shells weighing 0.955 kilograms; weight of cartridge complete is 2.06 kilograms. The tracer charge burns 11.5 seconds; distance of visibility is 4,000 meters. Maximum range, 8,500 meters; rate of fire of 100-120 rounds per minute; muzzle velocity, 900 meters per second. The gun is provided with either mobile or fixed mount.

In discussing this gun the author invites attention to the convention of St. Petersburg of December 11, 1868, which specifically prohibits the use of explosive shells of less than 400 grams. He shows by mathematical computation that explosive shells of a caliber less than 30 millimeters are contrary to international agreement.

HUNGARY: *Magyar Katonai Szemle* December, 1935.

THE INFANTRY HAS THE WORD, by Lieutenant Béla Móricz.

Technical science in the army owes its ascendancy to the World War, which proved conclusively that decisive results cannot be obtained by obsolete methods and means. Post-war developments, notably along the line of organization, are not altogether logical. Mobility and mechanization often conflict. In order to increase the fire power of infantry, we have provided a great variety of weapons with necessary means of transportation. It is out of all reasonable proportion. We are gradually transforming the infantryman into an artilleryman.

The foot soldier wants to remain what he is. He knows that he needs weapons to help him to combat tanks and airplanes, but he does not want to be hampered

by complicated matériel, wagon and motor columns, and involved methods of munition supply when he sets out to do his job. He does not crave a multiplicity of weapons; he merely wants those best suited to his mission. He does not want to be saddled with the problem of keeping his thousand-and-one supporting weapons up with him, or worry about someone else doing it for him.

The Doughboy's big moment is the assault. He depends upon the fire power of his artillery to get him within assaulting distance. His real job begins when he sees the enemy and not when the enemy sees him. The infantryman has four enemies: man, the gun, the tank and the airplane. He must have effective weapons to combat these. He knows that one gun cannot do all four jobs, but he also knows it should not take more than four guns to do all he reasonably expects. Each weapon should serve its specific purpose and no other. The Doughboy submits that his chance in battle should not be reduced by peace-time theorists.

SPAIN: *Revista de Aeronautica*, July, 1934.

THE RÔLE OF AVIATION IN THE PACIFIC PROBLEM, by Captain Fernando Villalba, Infantry.

The author presents an interesting study of the Pacific problem, and seeks to determine the probable rôle aviation may be expected to play in the event of an armed conflict in that quarter of the globe. He points out that Japan is the only country that really gained from the World War. She is now practically in control of the profitable Chinese market and in possession of the former German colonies in the Pacific. China, with its vast territorial expanse and teeming population, has for some time been the free prey to satisfy the appetites of the great powers. The Japanese, by virtue of geographic proximity and racial affinity, believe that they have prior rights in China and on the Asiatic mainland.

The United States, the author points out, has no territorial interests in the Far East now that the Philippine Islands are about to be cast adrift. Although the United States enforced upon Japan recognition of the "open door policy" in 1921, Japan has become a serious trade rival in China as well as elsewhere. Consequently, with the creation of the new Manchu Empire by Japan, the United States extended recognition to Soviet Russia. This coincidence of events causes the author to wonder whether the United States now seeks to inflict injury upon Japan by the hand of Russia just as England had used Japan for a similar purpose in 1904-1905. The existing situation in the Pacific, the author states, was defined by President Roosevelt in 1905, when he declared that "the era of the Pacific will constitute a new epoch in human history, and that it will mark the hegemony of the United States in those parts."

Considering the possibilities of a conflict in the Pacific, the author summarizes the military, naval, and aerial strength of the United States and Japan. He concludes, that while the United States has a marked naval superior-

ity in point of total tonnage and armament, the two countries are about equal in respect to training, efficiency, morale of personnel and quality of matériel. Two factors the author states, tend to equalize the difference in physical strength: the strong geographic position of Japan and the probability that the United States would have to assume the offensive which would entail the necessity of guarding a long line of communications. Russian intervention would materially weaken Japan's position and would seriously menace her lines of communication with her sources of supplies on the Asiatic mainland.

The author believes that at the outbreak of a war Japan might take the offensive to take the Philippine Islands and Guam. The inability of the United States to prevent such an exigency, the author believes, prompted the decision to grant independence to the Philippines. A naval engagement near Japan would be fought under conditions decidedly disadvantageous to the United States, although Russian intervention might seriously complicate matters for Japan even though the Soviet fleet in Far Eastern waters should prove of little value. Hence, in the author's opinion, naval forces alone will not be able to decide the issue.

Russia's position in the Far East has been materially weakened since the sale of the Chinese Eastern Railway. The Japanese air force operating from Manchurian bases could readily eliminate Russia altogether as a factor in a conflict with the United States. In the author's opinion, the air force of the United States would play an important part in case of a conflict, possibly operating from a base at Petropavlovsk on the peninsula of Kamtchatka. However, he adds, Petropavlovsk still is a long way from the vital centers of Japan. On the other hand, the author believes, the Japanese might try to repeat the British exploit at Zeebrugge against the Panama Canal. He quotes Chief Engineer Ronqeron to the effect that a comparatively small charge of explosives could put the canal out of commission. He believes that Japan might attempt to destroy the canal on the eve of hostilities, perhaps before the actual declaration of war.

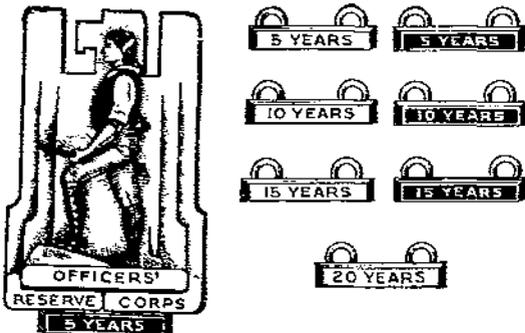
Memorial de Infanteria, November, 1935.
MILITARY INTELLIGENCE.

Great Britain. The new Mark IV tank recently adopted by the Royal Tank Corps weighs 9.8 metric tons, is 4.9 meters long, 2.08 meters wide, and 2.18 meters high. It has a speed of 44 kilometers and a radius of action of 160 kilometers. The tank carries two cannon, 25- and 40-mm., respectively, and one machine gun. The armor plate varies from 9 to 22 millimeters. The tank can climb 30° slopes, cross trenches 1.80 meters wide, obstacles 0.76 meters high and streams 1.20 meters deep.

Italy. The Italian firm, Scotli, has produced an automatic rifle weighing less than 9 pounds. It fires 7.9-mm. ammunition, with a muzzle velocity of 835 meters per second. Its practical rate of fire is 50 rounds per minute. The clip contains five rounds.

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BOOK REVIEWS

A RIFLEMAN WENT TO WAR. By Captain Herbert W. McBride. Small-Arms Technical Publishing Co. 398 pages. \$3.75.

This record of one man's experiences with the Canadian Expeditionary Forces during the World War is a combination of an autobiography, a chronological narrative, both historical and philosophical, and a treatise on the use of the rifle under war conditions.

The emphasis throughout the book is laid on the work of the individual soldier and his reactions to changing conditions. "It is up to him, personally and individually, for the protection of his own hide, to be able to locate the enemy and to place himself in a position where he can deliver effective fire upon said enemy."

The author is very critical of many items: of United States Army training methods and results, of water-cooled machine guns, of war-time ammunition, of involved plans or maneuvers, of officers and plain people who disagree with him.

Although this is no training manual, it contains much information and many observations of value to those whose job is the training of the individual soldier. In peace time we prepare for war, but there is no simulation or pretense which can imitate the actual war conditions. Such experiences as these may give some idea of the circumstances to be encountered.

The Small-Arms-Technical Publishing Company must be complimented on undertaking the publication of these specialized books of firearms, shooting and ballistics. However we must criticize the present volume because of its jumbled, repetitious ramblings. With proper editing what has been said by the author could have been cut in half without harming the content or the emphasis. We must agree with the author when he says, "It is at best but a diffuse and disjointed record of the observations and experiences of a rifleman who went to war."—E. W. T.

BLACK SHIRT—BLACK SKIN. By Boake Carter. The Telegraph Press, Harrisburg, Pa. \$1.50. 178 pages.

A queer mixture of fact, fiction and fancy. A casual reader very probably will be left with something more than a doubt as to whether it is intended to be a serious treatise on the Italo-Ethiopian dispute or an historical novel. It is written in the free-flowing journalistic style combined with the bombastic eloquence of a "broadcaster"; the cult which considers it necessary, in order to catch the attention of the listener, to toss words around without due regard to their meaning and without the

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painstaking effort to insure the accuracy of the completed picture. An artist may turn out a pleasing picture and sacrifice much to detailed accuracy; not so with the painter of word pictures, unless he intends solely to entertain.

The author of *Black Shirt—Black Skin* has injected into the work much material drawn from a fecund imagination, and has portrayed conditions, causes and events to suit his fancy rather than building them on the solid rock of fact. For example, his treatment of the deep-rooted causes that have led Italy to strive for additional territory cannot be accepted without much mental reservation, while his treatment of the battle of Adowa (even overlooking the incorrect date) is almost childlike in its grasp of essentials.

Not being content with treating of the Italo-Ethiopian situation in a manner to bring consternation to the trained research student the author further carries the narrative to a discussion of the underlying causes of the World War and draws the altogether improbable conclusion that it had its roots deep in the heart of Africa. We wonder if this is the result of gazing into the crystal or whether or not the author is gifted with clairvoyant powers; however, such treatment of a profound subject is to be expected considering the fact that he earns his livelihood by entertaining the public with fanciful statements clothed in convincing phraseology.

In the final chapter the author draws attention to the sore spots in the world today and paints a word picture of the European military-political situation. In this he rises to truly great heights of prophecy. His analysis of the rise and fall of empires is exceedingly well taken. Drawing his lessons from the pages of history he points the way to what the future probably has in store for some of the present-day world powers with special reference to the United States. No one can read this without recalling the words of the poet, "When wealth accumulates and men decay." One paragraph is especially worthy of note. "We cannot live now without the most elaborate comforts. Everything is aimed to save physical labor and undue exertion. Where are the days when the mother of the house raised ten children, kept her home spotless, washed, ironed, and mended their clothes, found time to go out with her husband, cooked all the meals and weeded the cabbage patch? Today, the 'help' wants to know if the laundry is to be included in the domestic duties and if it is—well, it doesn't want the job." And again "We have the picture of a man suing his city government to increase his dole of \$60.00, because it isn't enough. The more intense grows the civilization, the less physical exertion is offered and the financial return for doing nothing is expected to be doubled."

The final chapter of *Black Shirt—Black Skin* should be read, studied and indelibly imprinted on the mind of every thinking American. If you do not read any other part of the book, by all means read its closing pages.

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