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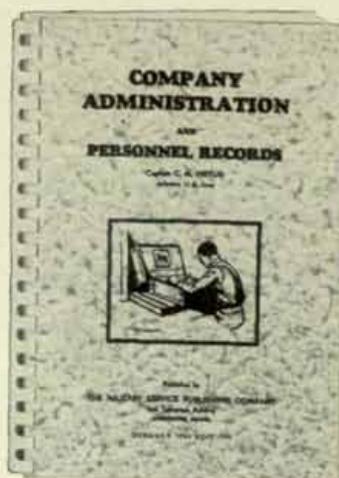
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THE COAST ARTILLERY JOURNAL

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COAST ARTILLERY JOURNAL

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Call to Arms!

By Captain Robert J. Wood, Coast Artillery Corps

At least once to every generation of Americans has come the call to arms. The founding fathers established our country by revolution. Their sons carried on against England in the war of 1812. Their grandsons crossed the Rio Grande in the Mexican War. Their great-grandsons bled and died in the fratricidal strife of the 60's. Their great-great-grandsons defeated Spain and pacified the Philippines. Their great-great-great-grandsons went overseas in World War I. Now the present generation, some of them great-great-great-great-grandsons of Continental soldiers, hear the call to shoulder arms for America.

Again, we prepare to fight if necessary, for a principle as always. In 1776, it was for liberty. In 1812, for freedom of the seas. Against Mexico in the 40's for what we considered American rights. In the War Between the States, regardless of side, for what that side thought right. Against Spain, to relieve oppressed

peoples on our doorstep. Against Germany and Austria-Hungary for what was popularly called "to make the world safe for democracy." And now, we prepare to defend our institutions, our principles, our American way of life.

The United States has never sought war, nor has it shirked war when other means of solving questions have failed. It grew strong on its principles. It fostered pioneering and adventure. It accepted immigrants from every country. It bred the race American.

Yet, the recent years have seen a decline in the spirit which made possible these accomplishments. Youth found no western plains to conquer, no hardships to endure, no toil nor sweat nor fight necessary to sustain life. Our civilization developed to a point where humanitarianism demanded social security, where charity enlarged into national relief, where thrift and individualism were dwarfed by old age insurance.





Our long years of national existence under a republic have made us too certain of its benefits. We have grown to accept it as unquestionably the only possible form of government. We have thought its values obvious. We have failed to consider the possibility that it might be replaced with something less to our liking; that, if we wanted it, we might have to fight for it.

In short, finding it unnecessary to fight for land, for bread, or for country, we have taken these things for granted.

The debunking which followed the Great War has had something to do with this attitude. The War, it was thought, was really arranged by international bankers and armament makers. Certain individuals had become wealthy as a result of the conflict, while the majority had given their labor and some their lives.

Our schools and our textbooks too, contributed. Perhaps unwittingly, but none-the-less effectively, our system of education fostered and encouraged the anti-war spirit. Pacifist groups arose. Students took oaths never to bear arms, even in defense of the United States. Our teachers forgot to emphasize the stories of the great names and events in American tradition. They emphasized instead the plight of the masses, the poverty of labor, the misfortunes of old age.

Consider briefly the study of history.

For the last twenty years, the period since the World War, history, fundamental of the social sciences, has been treated in a way which can be compared only with the teaching of the classical languages. Like Latin

and Greek, it has become almost a dead science. It has taught that radical social, political, economic or religious changes are unlikely. It has taught that the principles of liberal democracy are universally accepted; that they are unchangeable, immutable; that states founded on them should endure possibly forever, certainly for the lifetimes of the present world inhabitants.

History has taught that the world was remade at Versailles in 1919 and in a pattern which could not be questioned. It has taught that autocracy as such died in 1919, that democracy has blossomed in fullest flower, that an era of friendly relations and absence of war has been born.

The events of the past year have made it increasingly clear that much was wrong with the treaty of Versailles. It has been asserted by many writers that the treaty was conceived in hate and nourished in vengeance. So far as the German delegates were concerned, it was signed in futility. Time has placed the Allied delegates in a hardly less happy category.

It was not enough for the victorious powers to divide up Austria-Hungary and disarm Germany. Wilson's Fourteen Points had to be compromised to the extent of settling a debt on the defeated nations in terms which they could never hope to pay.

The punishment of Germany was popular in the United States. Popular sentiment demanded a trial for the Kaiser. Roosevelt and Taft, both ex-Presidents, cried out against the moderation of Wilson. The Senate turned thumbs down on his League of Nations plan,

and Wilson died a defeated and broken man. Disillusionment replaced glory; depression, prosperity. America apparently settled back heavily to earth, asking no reparations or territory, soon learning that she could expect little in the way of war debt payments.

And yet, paradoxically enough, history books still believed that we had "made the world safe for democracy"! The United States, Great Britain, and France were still democratic nations. Surely they were the biggest and strongest nations in the world! What if new European countries were unable to maintain republican forms of government? The Latins had always had that difficulty. Perhaps the Slavs and the Teutons were just as inept. Certainly they had had no traditions of self-government. We should not worry too much if their governments gradually evolved into dictatorships. After all, "national self-determination" didn't necessarily require democracy. Such was the burden of the song.

We felt secure. The world was tired of war. Every thinking man realized its futility. There was little danger of Germany or her allies disturbing the world for many years to come. And if they did attempt such a disturbance, surely there was the French army, best in the world, and the British navy, no smaller than our own, between Europe and the western hemisphere. Yes, the world was safe for democracy—certainly for American democracy. We had been suckers. We would stay in our own back yard. We would solve our internal problems. Let imperial nations be internationalistic; world affairs were no concern of ours. Such was the isolationist teaching.

Besides, and here was the greatest delusion, democracy was so inherently good, so patently the most moral type of government, so obviously the only kind under which any educated individual would care to live, we had nothing to worry about. After all, the Versailles Conference, if it did nothing else, consolidated the gains of previous centuries. *Liberté, égalité, fraternité*, fought for in the French Revolution, revived after Metternich had temporarily entombed them, emphasized in the establishment of national states and the freeing of the Balkans, now were enthroned as the watchwords of all mankind. And this mankind, twentieth century mankind, was rapidly becoming too wise scientifically, too wise mechanically, ever again to engage in destructive war. How little we learned from history! Where are the watchwords of revolution today? Where is the wisdom of humanity?

But the history books of the past twenty years conspired in this delusion. The new generation was led to believe, either through outspoken or implied statements, that world history stopped with world conflict and remained stopped. The new era, the Era of Democracy, was to be free from pre-war hates, jealousies, and conflicts. Gone would be the dictatorial aristocracies and oligarchies of the past. The new generation would not have to worry about testing new govern-

mental theories, about fighting a war or understanding balance of power alliances. All this was over, settled. A new world was created. All one had to do was to exist.

The very method of writing history furthered the delusion. The old biographical, episodic, localized type of history had disappeared. The idea of basic trends permeating history, causing parallel events in all countries, creating kings here, destroying them there, bringing forth intellectual and industrial revolutions—the ideas had become the ideas of history as written in modern times. These changes were natural. The world had become a much smaller place with increased communication and transportation facilities. Events in one country undoubtedly have repercussions all over the world.

But the viewpoint destroyed the emphasis. "The Napoleonic Era" became "The Spread of Revolutionary Liberalism," "The Age of Metternich" became "Restoration and Reaction" and "Events Preceding the World War" became "Towards Armageddon."

The danger in this type of history is the danger of trying to fit events, people, things, into a predetermined pattern. No loopholes were left for the possible introduction of new ideas, for a change in trend. Occurrences which did not seem to fit were classed as exceptions—one might even say freaks.

True, post-war upheavals were noted as they occurred, but they were considered temporary innovations, transient sores on the body politic, unfortunate blemishes in an otherwise well-regulated epoch.

Thus, a generation came to manhood uninterested in history as a living, changing story. If history taught no lessons, why study it? If the world were never again to change, why worry?

For fourteen years after Versailles nothing exceptional did happen in the western world. Then, in 1933, Adolph Hitler came to power in Germany. Since then the youth of Germany has scoffed at the doctrine of such history. They began to hope for a restoration of their honor, a restoration of their pride in themselves as a people. Whether or not we approve their leaders, the means which such leaders used to attain their ends we can understand the attitude of German youth towards an unequal peace forced on their fathers. American youth in a similar position would strive just as hard, let us trust, for a restoration of the United States to world councils.

This is the motivation of a new era. Today, almost every hour witnesses the recording of new and unexpected history. A time of change, a period of flux has replaced the expected millennium. Only wishful thinkers envision any immediate return to old standards.

Former ground rules seem strangely misplaced, perhaps gone forever. Statesmen search for new ones to take their places. Liddell-Hart was right when he, in 1938, predicted that the Second World War had already started; that Manchuria, Ethiopia, Spain, China, Austria and Czechoslovakia were but preliminary skirmishes.

ishes for the greater and more devastating conflict to come.

The youth of Germany, then, took up the march, upsetting the plans of world elders and destroying the illusion created by post-war "new" history. The youth of Germany did not want a world in which change had been eliminated. The youth of Germany had no interest in history which taught no lessons, which established the form and content of life, which left no room for the recording of the story of a new generation.

German youth wanted excitement, not security, innovation, not immobility, color, not drabness.

So German youth followed a leader and is still following him. As long as he achieves success he will have their strength behind him.

But what of American youth? Cuddled in security, nursed in false educational theories, our young men are just beginning to see clearly what lies ahead of them. They are beginning to realize that, if the peace and security of democracy are worth having, they are worth fighting for.

We must be prepared to defend the United States, not to renounce the principles on which it was founded, but to preserve them; not so much to catch up with changes in the organization of the world as to prevent further changes. We must abandon the attitude that democracy is a form of government whose intrinsic value is apparent to all men. Liberty and freedom may not endure simply because of recognized value and inherent worth. If we believe in our form of government, we must be prepared not only to propagate it but actively to defend it.

Young men called to arms face a new and different life. Yet, if they possess one fundamental American attribute, that of courage, they come well-equipped.

"Courage," says the dictionary, "is that quality of mind which enables one to encounter difficulties without fear."

That, in itself, is a colossal understatement.

Courage is bravery, boldness, intrepidity, fortitude, valor. Courage, as the poets say, is the "inspiration immortal," the "spirit eternal," the "will everlasting." Courage is the strength that raised insignificance to the heights; it is humanity's greatest asset.

Consider the soldier. Duty is his watchword, honor his wealth, but his badge is courage.

Do you remember the story of Leonidas at Thermopylae? With three hundred valiant warriors, this king of Sparta stood to defend the pass. Backs to the wall, they beat off the assaults of Xerxes and his Persian hordes. They withstood all attacks until treachery by some of their own countrymen, the Malian, Ephialtes, led to their downfall.

But the greatness in the story is this: With the secret of a hidden mountain pass leading to their rear in the hands of the enemy, did those Spartans lay down their lives? Did they surrender the gateway to their country to the invaders? Be it said to their everlasting glory that

they did not. Hopelessly outnumbered, surrounded on all sides, Leonidas and his men fought on gamely until the last of the brave band lay slain upon that bloody mountain trail.

Consider Horatius, heedless of his companions' warnings to hurry back across the bridge. The bridge down, did he give himself into the hands of the hated Tarquinians? Were Rome's enemies given the pleasure of taking the bravest of the Romans? Encased in heavy armor, and suffering from deep wounds, this worthy son of the eternal city threw himself into the turbid Tiber and swam the muddy stream to safety.

What sustained these heroes when their physical strength was gone? What sustains any soldier to bear arms, to go into battle, to fight a hopeless fight, to die, if necessary? It is courage, the spiritual backbone of the brave.

Remember Browning's *Incident of the French Camp*? Remember the courier who speeds from the smoke of battle to dismount at Napoleon's feet?

...

You looked twice ere you saw his breast
Was all but shot in two.
'Well' cried he, 'Emperor, by God's grace
We've got you Ratisbon!
The Marshal's in the market-place
And you'll be there anon
To see your flag-bird flap his vans
Where I, to heart's desire,
Perched him!' The chief's eye flashed; his plans
Soared up again like fire.
The chief's eye flashed; but presently
Softened itself, as sheathes
A film the mother-eagle's eye
When her bruised eaglet breathes;
'You're wounded!' 'Nay,' the soldier's pride
Touched to the quick, he said
'I'm killed, Sire!' And his chief beside,
Smiling the boy fell dead."

History and legend abound with examples of courage. There was the famous Roland, commanding Charlemagne's rear guard and cut off at Roncesvalles. There were the leaders of the Crusades, toiling over countless miles of uncharted wilds to fight the infidels. There was Galahad and his search for the Holy Grail.

Or, select just three examples from our own military history. Captain Lawrence, his *Chesapeake* riddled from stem to stern and he himself wounded, gave voice to that slogan of the American Navy: "Don't give up the ship!"

Robert E. Lee, offered the command of all the Union forces, believed it his duty to offer his sword to his mother state. Though he did not favor secession, he never murmured against the privations, the sufferings, the hardships, which he and his men had to endure. His was the courage to remain faithful to a principle

he believed right until he saw that further fighting was useless.

Lieutenant Colonel Whittelsey, cut off with his "Lost Battalion" in the Argonne and called upon to surrender by the German forces, sent his famous answer, so American, so cryptic, to the enemy demand.

Martial history is not the only course of examples of courageous acts. It exists in all fields. There was Peter the Great of Russia, who stooped to manual labor in foreign countries that he might learn. There was Christopher Columbus, who defied the thought of his times and dared to sail uncharted seas. There were Benjamin Franklin, Abraham Lincoln, Thomas A. Edison. Who can question the courage of a Florence Nightingale, a Queen Victoria, an Edith Cavell, or the numerous pioneer housewives of America?

And so one can go into any field of worldly endeavor and pick out the courageous individuals who by their tenacity to an ideal rise above the common level. For every one whose name becomes famous, however, there exist hundreds whose courage is also strong. They do their part in the small jobs which are their lot. With-

out them, their leader could not hope to do more than sacrifice his own life courageously.

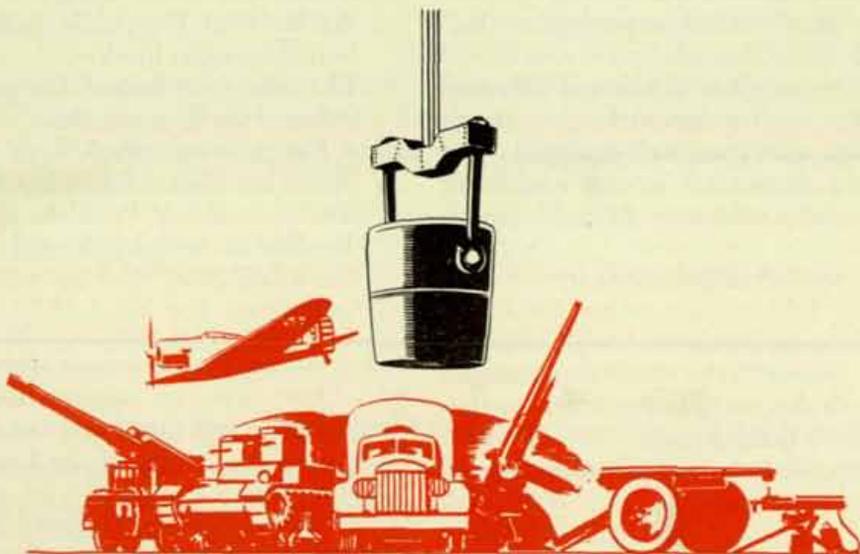
Today then, America hears the call to arms. Our youth must remember the courage of earlier Americans. Our young men must be taught the courageous saga of our history. Only with courage can we hope to build an army worthy of the name. Only with courage may we hope to defend the American way of life, the American ideal of Democracy. With that courage in every individual heart we need fear no enemy, no invader. Thus may we understand Kipling's lines:

"

If you can force your heart and nerve and sinew
To serve your turn long after they are gone,
And so hold on when there is nothing in you,
Except the Will which says to them: 'Hold on!'

...

If you can fill the unforgiving minute,
With sixty seconds' worth of distance run
Yours is the Earth and everything that's in it,
And—which is more—you'll be a Man, my son!"



Honorable Mention 1940 Prize Essay Competition

Let's Wave More Flags

By Captain Staff N. Halyard, Coast Artillery Corps

The cynicism of the past twenty years is catching up with us. For two decades it has been fashionable to hoo-hoo patriotism, to decry flag-waving. Historians, novelists, columnists—and soldiers—have been, to varying degrees, at fault.

It has been considered a sign of weakness to feel old chills chasing down the spine when the national anthem is played. Very soon after the World War the public began to remain in its seats when the flag was shown on the screen.

The last outposts of old-fashioned patriotism were service installations. On an army post, at least, some measure of respect was offered the flag. Reveille and retreat, evening parades, and other courtesies kept alive some of the veneration we owe our national emblem—among the enlisted men. But even some officers, and more especially, some "intellectual" officers, began to look upon the courtesies due the flag as a rather meaningless mumbo jumbo that served no practical purpose other than the effect it might have on the more impressionable enlisted men.

We are paying the price today—and the price may be increased tomorrow. How many of our youths will say, without a trace of consciousness of shame, "Comes a war, I'm going to get me a nice warm job in a munitions factory—and not in the department where they handle powder, either." The marriage license rosters in the daily newspapers doubled and tripled in the months between passage of the Selective Service Act and the first day of registration.

After all, the army officer's task is to make men fight, and to fight willingly because they believe in what they are doing. The soldier cheerfully will drill long hours and march longer hours to toughen himself for battle when he *wants* to fight—if the fight is for something he believes in. Freedom, democracy, and the rest of the pretty words are merely pretty words and nothing else, unless they are identified with the United States of America.

When the problem is to prepare an army of willing fighting men, it cannot be done with appeals to reason. It is hard to explain the advantages of free polls to men who don't vote unless they are hounded into it by politicians. The advantages of free enterprise do not mean much to the youth of twenty-two who has never had a steady job. The American standard of living doesn't strike like a responsive chord to the submerged portion of the population.

We, who read the available literature, who know world conditions as well as is possible through the fog of foreign and domestic propaganda, know that America is worth fighting for if we cannot save it by reason. But we can't do it alone. We must have the backing of every last one of the 130 million-odd inhabitants of this country.

Emotion is a powerful driving force. If emotion were not more powerful than reason, many of our beautiful but dumb matrons would still be spinsters, the writers of our torch songs would be paupers, and Hollywood would be laid out in orange groves.

Since it does require emotion to transform men into the kind of fighting Americans who have left their imprint on history from Sedan to Tientsin, it seems a shame that the one ready-made key to the right kind of emotion has been permitted to lose prestige because of mistaken cynical ideas.

Since it requires emotion to make laborers, clerks and artisans stay at their posts, providing the things that an army must have or face defeat, we have dissipated wantonly the power that might have maintained that emotion.

The recent strikes in defense industries have awakened many of us, army officers and every day citizens, to the fact that the same danger might face this country that helped to subdue France.

Let's have a return to flag-waving. Let's once more come back to the feeling that the Stars and Stripes is something that is worth everything we have, whether it be money, time, blood, or all three. Let's feel that tingle at the base of the skull when the national anthem is played. Let's forget "what's in it for me," and take a little more of "my country, right or wrong, my country."

Let's drop some of the cynicism. Call it a tool, call it a weapon—patriotism is still the greatest possible driving force to keep America safe for Americans, and for the American way of living. Patriotism is compounded of many things. The flag, the national anthem, the freedom that is still ours, and literally thousands of other objects, phrases, ideas, ideals, and images are compounded in this one word.

Now, as never before, we need the kind of patriotism that has bulwarked the nation in the past. It's time to deny ourselves the luxury of scepticism, and to rebuild what we have torn down. Let's wave more flags—it's time to start a whispering campaign for patriotism, the old-fashioned Fourth of July kind of patriotism.

Emotion is a powerful driving force



Our Replacement Center

Enters now the Replacement Center as the latest development of the Selective Service phase of our National Defense program. This new cog in the machine that is being constructed carefully by precise and expert methods to produce the rapid attainment of our maximum military effort, is by no means a mere "gadget" of inconsequential importance but promises actually to become vital to the success of the whole undertaking.

After March 15th these large cantonments which have sprung up swiftly in the various parts of the country, will be engaged in an intensive program of training "selectees" and will be demanding much attention from military experts. And from that date forward, the new system of producing military manpower should become a permanent part of the national defense system.

"But," interjects the reactionary for whom these various modifications in the basic military system have been appearing too rapidly, "just WHERE does the Replacement Center fit into the group picture and is it positive that it does not duplicate the efforts of some other agency? We already have Supply Centers, Transportation Centers, Mobilization Centers, Reception Centers, Induction Centers, Training Centers and many more and NOW comes the REPLACEMENT Center. It looks like this CENTER-alized control subject might be getting out of hand."

The answer is simple and definite—the Replacement Center DOES have a definite place in the complete military cycle; it does NOT duplicate the efforts of any other agency.

From the viewpoint of fundamental training alone, the mission of the army is twofold:

First it must produce efficient fighting organizations—teams that function smoothly and proficiently in accomplishing tactical objectives.

Second, it must produce efficient individual soldiers—basic components of the teams mentioned above. These basic military effectives must be made available in quantities sufficient to supply the demand for men to form new regiments or to raise existing ones to prescribed strength—filler replacements—and for replacing

all losses to include battle casualties—loss replacements.

It is fundamental that if the combat organization is to be made available for immediate employment at full strength and maximum fighting efficiency, it must NOT be encumbered with the task of taking in green men and developing them into soldiers. So long as a unit is called upon to train recruits it is weakened in two respects—it is utilizing a large overhead of personnel in instructing recruits at the sacrifice of the advanced training of the personnel involved in the training, and secondly, it cannot muster its full fighting capability so long as some of its members are still below minimum requirements of efficiency.

The Replacement Center fits perfectly into this requirement of producing trained basic files for the fighting army. It is a reservoir from which soldiers trained to minimum acceptable standards may be drawn in the exact quantities required—after, of course, the system becomes fully operative. Theoretically the individual may be assigned to a battery and immediately participate in its combat employment just as a new spark plug inserted into a gasoline motor is expected to function satisfactorily from the start. No longer need training divisions be broken up to furnish replacements to other tactical groups about to participate in combat. No longer need an organization be withdrawn from a critical tactical situation because of losses sustained, since it is assumed that replacements can be furnished from men trained in the same things and in the same manner.

With the rapid expansion of the military establishment now in progress, both organization and training are demanded by mass production schedules. It is logical, then, that the "chain store" system be introduced wherein "standard brands" may be furnished whenever and wherever required. Standardization of training and flexibility of output are two important characteristics of the Replacement Center program.

So long as this system of training is in effect, no longer will it be necessary in the future, to render tactical units of the initial protective force inoperative when its personnel is utilized almost entirely to accomplish

activation of the new, expanded military establishment. In effect it will change the function of the existing military forces from that of "Protect OR Train" to one of "Protect AND Train." The Replacement Center system is the basic element in this transformation. It is the "fluid drive" of the modern military machine, performing an important function according to a new principle which eliminates the possibility of stripping gears. Perhaps the objective of Replacement Centers is best expressed in the directive of the War Department which states:

"Selective Service personnel will be inducted so as to arrive at Replacement Centers . . . for the following purposes:

"a. To provide personnel to activate units indicated (according to the definite expansion program).

"b. To provide fillers to war strength for those units of the National Guard indicated upon induction as 'To train at allotted strength initially. Will be raised to War Strength later.'

"c. To provide additional enlisted men for Corps Area Service Commands and War Department overhead.

"d. To provide additional enlisted men for the Air Corps.

"e. To provide additional enlisted men for Air Corps Services.

"f. To provide enlisted loss replacements."

By War Department authority the following Replacement Centers are being organized:

Coast Artillery:

Fort Eustis, Va., Third Corps Area, capacity 14,800.

Vicinity Galveston (Hitchcock), Texas, Eighth Corps Area, capacity 7,600.

San Diego, California, Ninth Corps Area, capacity 500.

Infantry:

Spartanburg, S. C., Fourth Corps Area, capacity 16,500.

Macon, Georgia, Fourth Corps Area, capacity 16,500.

Camp Wolters, Texas, Eighth Corps Area, capacity 17,000.

Nacimientto, California, Ninth Corps Area, capacity 15,000.

Cavalry:

Fort Riley, Kansas, Seventh Corps Area, capacity 7,000.

Field Artillery:

Fort Bragg, North Carolina, Fourth Corps Area, capacity 16,500.

Fort Sill, Oklahoma, Eighth Corps Area, capacity 8,000.

Nacimientto Area, California, Ninth Corps Area, capacity 6,000.

Engineers:

Fort Belvoir, Virginia, Third Corps Area, capacity 10,500.

Seventh Corps Area Training Center, Rolla, Missouri, capacity 10,500.

Signal Corps: (War Department control)

Fort Monmouth, N. J., Second Corps Area, capacity 7,000.

Ordnance: (War Department control)

Aberdeen Proving Ground, Maryland, Third Corps Area, capacity 5,800.

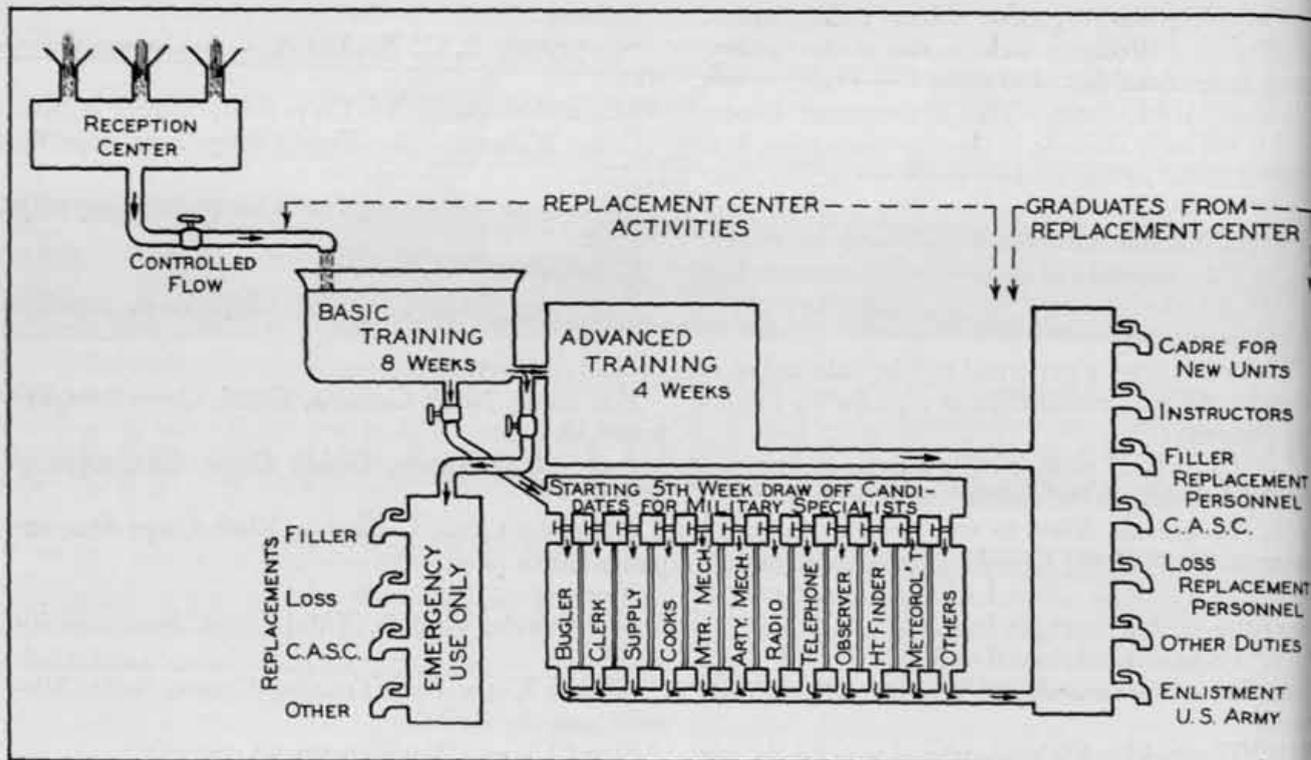
Chemical Warfare Service: (War Department control)

Edgewood Arsenal, Maryland, Third Corps Area, capacity 1,000.

Quartermaster:

Camp Lee, Virginia, Third Corps Area, capacity 12,000.





Fort F. E. Warren, Wyoming, Sixth Corps Area, capacity 7,000.

Medical:

Camp Lee, Virginia, Third Corps Area, capacity 7,500.

Camp Grant, Illinois, Sixth Corps Area, capacity 7,000.

Armored Corps: (War Department control)

Fort Knox, Kentucky, Fifth Corps Area, capacity 9,000.

Already construction is under way at most of these localities and personnel has been assigned to the various Replacement Centers. Construction will be uniform as to building units, the number of buildings, of course, varying with the capacity of the establishment. Utilities of the most modern type, surfaced roads, small arms and artillery ranges and other training aids are being provided. Each camp will have adequate hostess house facilities and a motion picture theatre as a contribution to morale. Minimum requirements in officers' quarters are being included.

Personnel requirements for the conduct of the various camps have been worked out by the War Department in cooperation with the various chiefs of branches. A general officer will command each Replacement Center—some indication of the importance of these installations in the scheme of mass military training—and adequate staffs have been provided. Groups or battalions will form the basic training units—that is, there will be no Replacement Regiments as such. Special Tables of Organization have been prepared for Replacement Batteries, Groups and higher headquarters. These tables are not duplicates of standard War Department

Tables of Organization inasmuch as the units themselves have been organized to facilitate training procedure rather than tactical employment. This permits of economy in the use of matériel and makes possible certain consolidations in training efforts.

Replacement quotas to be trained are based upon immediate requirements and will be varied as future demand indicates. Type basic training is to be given and the required numbers of key specialists for the various types of organization will be produced as called for.

Immediately upon issue of the War Department directive, the names of the Executive Officers and Planning and Training Officers of the Coast Artillery Replacement Centers were announced. These are:

Fort Eustis: Colonel H. F. Nichols with Lieutenant Colonel C. E. Atkinson as P&T.

Hitchcock, Texas: Colonel John B. Maynard with Lieutenant Colonel W. F. Marquat as P&T.

San Diego: Colonel Francis P. Hardaway with Lieutenant Colonel G. deL. Carrington as P&T.

These officers were called to Washington for conference with General Green and the officers on duty in his office on the details of organization and conduct of the new training establishments. The executive officers and their training assistants were dispatched to their respective sectors of operation with instructions to take necessary steps immediately to insure the prompt and efficient initiation and conduct of the new activities.

Training in seacoast, tractor drawn and anti-aircraft artillery will be given at the Coast Artillery Replacement Centers. Fort Eustis will offer instruction in three branches as will San Diego. Hitchcock will concentrate on production of anti-aircraft replacements.

The Replacement Centers will receive selectees from the designated Reception Centers and will assign them to organizations the basic cadres of which are furnished from Regular Army batteries.

For the first eight weeks the trainee will be subjected to intensive training which will mould him into a basic soldier for Coast Artillery batteries in the field. An additional four weeks of instruction is provided to improve the basic file into a minor specialist. At the expiration of eight weeks he is considered capable of taking his place in a battery of Coast Artillery and performing his duties in an acceptable manner. The men will be qualified as plotters, observers, gun pointers, machine gunners, and as minor, intermediate or major caliber sea-coast cannon or antiaircraft gun, machine gun, 37-millimeter gun or searchlight personnel, in accordance with percentages established by the anticipated replacement requirements for the immediate expansion program.

At the expiration of the twelve weeks, the trainee will be deemed to be capable of serving as a member of an active organization. At that time he is considered to be better than a soldier of minimum standards. Unless required in an emergency prior to the expiration of twelve weeks he will be held for the full time and then assigned to a unit in the field. After eight weeks ALL will be merely basic files but at the end of the twelfth week there will be clerks, cooks, communications operators and such key personnel among them.

During his initial training period, the selectee will be trained in infantry drill, marching and camping and the ordinary duties of living and acting like a soldier. He will complete, during this period the required rifle marksmanship qualification and pistol instruction, and will receive instruction in antiaircraft defense for ground troops, defense against chemical attack, tent pitching, first aid, interior guard, military courtesy and customs of the service, convoy discipline, elementary map and aerial photograph reading and basic signaling. He will have had the Articles of War read to him and should be a pretty good soldier when he goes to his new organization.

Of course the greater part of his technical training will be on the artillery piece for which he is being prepared as a replacement. Gunners' instruction will be thorough and fundamental. Gun drill will be emphasized. Artillery instruction will take him through an actual target practice firing. There should be no risk involved of his operating an instrument the wrong way, becoming excited and forgetting to function or in other ways slowing down the smooth operation of the active battery to which he will be assigned ultimately. Actually it may be that the battery commanders' dream of having a command without "rookies" is about to be realized.

After eight weeks, instead of assigning the men immediately to organizations of the tactical force, there will be advanced training to provide the field units with the required number of clerical, supply, mess, artillery

specialists, communications men including radio operators, and similar key personnel.

His training having been completed the trainee will be assigned to a battery which requires a soldier of his qualifications. Having been assigned he is considered to be capable of performing any normal duty required of him, including that of becoming a member of a training cadre. At the expiration of the selectee's year of training he will have a number of courses open to him, the first of which is, naturally, his return to civil life to engage in his normal civilian pursuit. Having had his military training, however, he is still a "military replacement effective" competent to take his place in the armed forces when and if it becomes necessary for the United States to muster its total military effort. Other trainees will follow him through this cycle of instruction and within a comparatively short time there will be created a reservoir of reserve soldiers who should be at least the equal of any in the world.

If the trainee, now no longer a recruit, decides to pursue further his military education he may take advantage of any number of opportunities open to him according to his capabilities and cultural background. He may enlist, and if qualified, attend one of the schools offered by the Army Training Centers. The Coast Artillery school will offer him the training required for eligibility for staff sergeant in any of the technical fields required in modern artillery. It may be well to indicate at this point that this advanced training is the function of the Army Training Centers and that it in no way duplicates the elementary and minor specialty training given at the Replacement Center. The missions of the two are distinct and not in the least overlapping.

Naturally the selectee, if qualified, may take the examination for entrance to the Military Academy or such examination for commissioned grades as may be prescribed by the War Department. For the individual there is no limit, other than his personal ability, to the level of his attainment in the military science. For the army as a whole, the Replacement Center is the first link in a chain of educational development, which should produce vastly improved individual components for the military team from the basic soldier on up the scale of military command. The system should be smooth, fast and flexible and should prove a decided improvement over previous methods.

There will be plenty of headaches connected with the launching of the new training system on such a large scale, ranging from difficulties of construction of the actual training plant to shortages of training equipment and instructor personnel, at least initially. A new model of any machine must undergo minor readjustments of its integral parts after its first field test and it is to be expected that such will be the case with the Replacement Center procedure. However, from the Chief of Staff of the Army on down the line, those acquainted with the new scheme are "sold" on its soundness and enthusiastic about the results to be expected.

European Air Battle

By Major General Henry Rowan-Robinson, British Army, Retired

World War Number Two has now raged for over a year. Only for the last four months, however, has it directly and seriously affected Great Britain. During a weary period of eight months, armies faced each other behind supposedly impregnable barriers—West Wall and East Wall—Siegfried and Maginot. On the one side, final touches were being given to that long and thorough preparation of army and air force which was to give Germany so wide a dominion over Continental Europe. On the other, were hurried production and improvisation to fill the gaps resulting from belated recognition that defense is of greater importance than politics and that, in an imperfect society, force has still to be countered by force if territories, liberties and ideals are to be preserved. Clashes between the embattled opponents, though loudly trumpeted in the press, were of minor importance and gave no indication of the nature and scale of the approaching struggle.

It was during the winter of 1939-40 that the R.A.F. executed the much-scorned leaflet-raids which, rather by luck than intention, proved of so much value, not indeed as propaganda, but in gaining knowledge of the enemy's country and for practice in night-flying under difficult conditions.

The first incident to break the murky calm was the German invasion of Norway. The clever surprise effected there, the quick submission of the Norwegians and the peculiarly unfavorable conditions under which our army and air force were compelled to battle, robbed that campaign of the valuable lessons for the future conduct of the war which it might have afforded us.

Strategically the stroke against Norway was extraneous to the main operations, though the German General Staff might dispute the statement. The real battle of western Europe began with the invasion of the Low Countries. That event sounded the knell of much wishful thinking and crushed the unfounded but ineradicable hopes of small nations for immunity from assault. Unfortunately their resolute refusal to confront realities resulted not only in their own defeat but also in disaster to the Allies who, allowing sentiment and policy to override the demands of strategy, moved to their aid. The previous record in *Blitzkriegen* was easily surpassed. Whereas the Germans had taken nine-

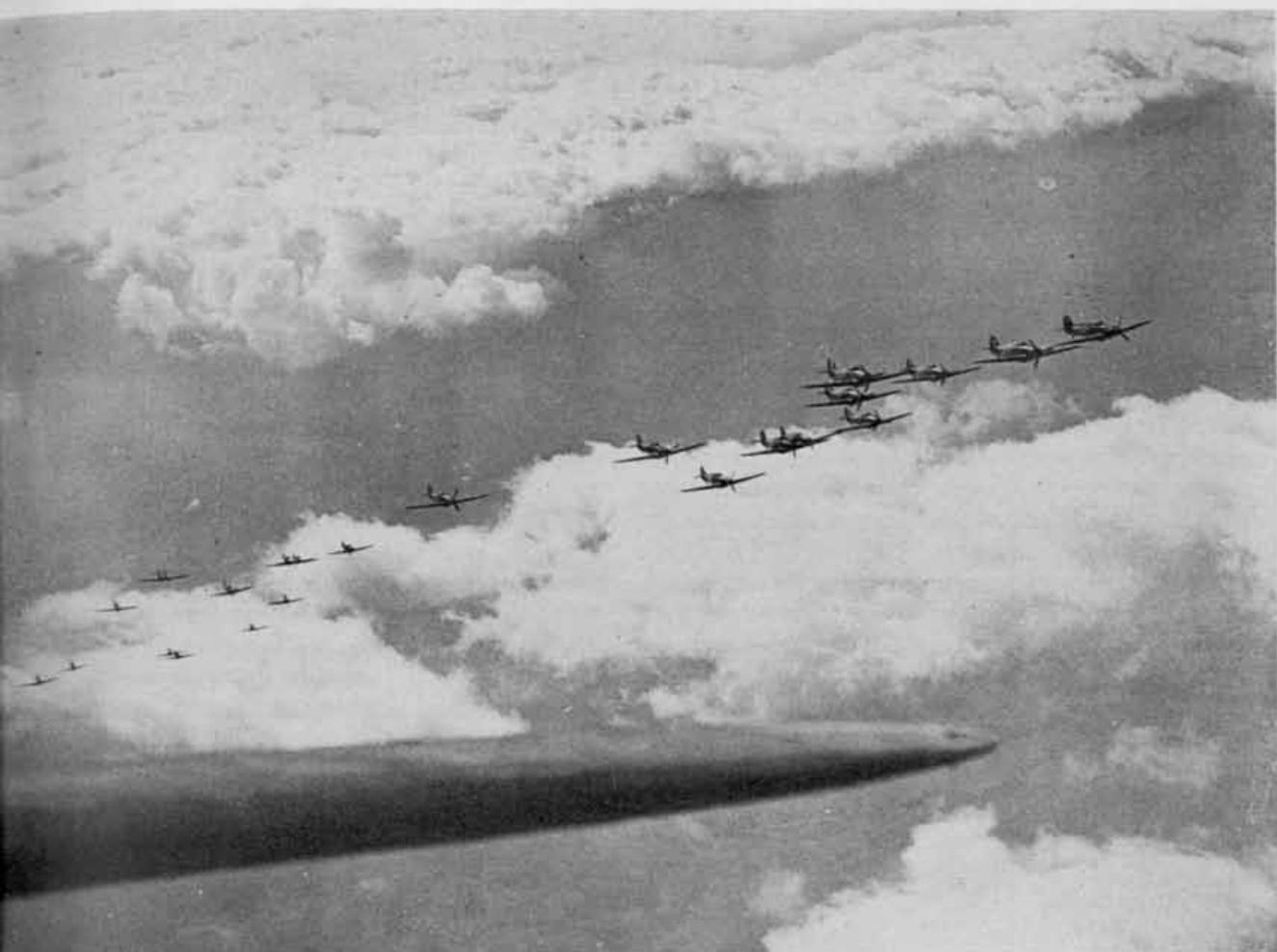
teen days to destroy the field armies of Poland and twenty-eight days to capture Warsaw, they succeeded in overrunning Holland, despite its famous dykes and Vesting, in five days and made naught of the elaborate fortifications on the Meuse and the Albert Canal. The destruction of the Dutch and Belgian armies was quickly followed by the complete collapse of France.

During this struggle, the R.A.F. was compelled to act in a protective rôle, mainly in close coöperation with the armies whose retreat it was endeavoring to cover. Dispersed over a wide front, confused by the kaleidoscopic changes in the situation, and hampered in its attacks by the crowds of refugees, it succeeded nevertheless in heavily punishing the invaders. It had the opportunity, however, to display the full splendor of its quality until the battle-royal that occurred when the British Expeditionary Force was driven back on Dunkirk. Then it made a magnificent contribution to that joint naval, military and aerial miracle which will remain imperishable in British annals. Encountering the full blast of a *Luftwaffe* which had hitherto swept before it and was expecting easy and overwhelming victory over land and sea, it proved for the first time on any large scale, that it could dominate its opponent by the skill and courage of its pilots and by the technical excellence, though not, alas, by the numbers, of its machines. The victories won on this occasion astounded even the warmest believers in British airmanship. A superiority of 100 per cent represented their hope, one of 200 per cent was obtained.

With the British withdrawal from Dunkirk, the war entered on a new phase both on the ground and in the air. In Britain, the Home Guard was formed for static defense, and the army began its preparations for resisting invasion and for an eventual assumption of the offensive. At the same time the R.A.F. enlarged the scope of its operations, raiding far into Germany and German-occupied territory. These attacks displayed brilliant staff work. All the former schemes of the Bomber Command were based on the expectation of being most conveniently able to strike from aerodromes on the Franco-German border. The defection of France threw them completely out of gear. The Ruhr and other great factory towns on the Rhine, instead of being within a stone's throw, receded to a distance of 250-

*This article has been passed by the British censor.

A long and strenuous struggle may be expected



Spitfires and Hurricanes

miles and the range to Berlin increased from 400 to 600 miles. Nevertheless, the bombers were launched at once on a carefully scheduled and far-reaching plan of night-raiding, based to a great extent, on information obtained during the leaflet days. It was rendered effective largely through the skill which the pilots had gained in their long practice in flying by night over German territory. At the beginning of the war, our daylight-raids, executed at ranges far beyond the reach of escorting fighters, had been heavily punished. Having learned our lesson, we abandoned such adventures pending the solution of the special problems they involve, and have since attacked the same targets by night with great effect and usually without any loss whatever.

Fundamentally, war is a struggle for supplies, which postulate, for their production and utilization, security of base and of communications. If bases be destroyed, if communications be severed, armies, fleets and air forces become inert and die of inanition. In aerial conflict, there is also the possibility of decision through panic. It failed to materialize in Spain and China. If it ever existed as regards Britain, it vanished when Hitler made the invasion of Poland his opening move; for the time gained by the resistance of that gallant country enabled London and other large towns to improve their

defensive organizations and shelters to the extent that the inhabitants were no longer fatally vulnerable when the great assault took place. Unfortunately, however, Germany enjoys many advantages: very widely dispersed aerodromes; short range to her objectives; low relative vulnerability due to the less concentrated nature of her factory-areas and communications. Against all these factors as well as superior numbers, the R.A.F. has to battle.

The targets chosen by our bombers are those the destruction of which will effect a definite reduction in the military power of the enemy, especially his aerial power. Of these, oil is perhaps the most important, and its scarcity in enemy countries may ultimately prove their Achilles heel. German and Italian reserves are large but not inexhaustible. They probably cannot be made good by Russia or by even the fullest exploitation of the wells of Rumania. Hence refineries, hydrogenation plants and storage tanks are hammered nightly; and the smell and smoke of burning oil has become the most pervasive sign of war in western Europe, as also in Libya and Abyssinia. Second in importance to oil are aircraft-factories, and then follow aerodromes, naval bases, munitions-factories, canal-locks, railway-junctions and other installations. Many of the targets now almost

daily under fire are household words in the worlds of mechanics and munitions: Fokker, Junker, Krupp, Daimler-Benz, Zeiss, Fiat, Skoda. In these and other factories it is stated on reliable authority that the R.A.F. has already effected a large decrease in production. In addition to normal objectives, there are the definitely military targets presented by the great accumulation of men and shipping which fill the ports from Rotterdam to L'Orient, with the apparent intention of invasion.

The German bombers gained an immense advantage in range and consequently in fire-power, by the conquest of the Low Countries and France—an advantage which we share with them only when we bomb the invasion ports. Instead of having to emerge from a narrow front and to fly 300 to 400 miles across the North Sea, they can operate, protected by fighters, from bases along the whole length of the Channel which is a mere twenty-two to one hundred miles in width. They commenced their serious operations against Britain on the 18th of June and, meeting with but little success, have ever since that day, been ringing the changes ceaselessly in search of a method by which our defensive organization can be shattered. They arrived in mass and then separated into small groups. They arrived from various points of the compass, made rendezvous over England

and then continued their flight in mass towards London. By these means they may have hoped to puzzle the Air Staff and induce them to despatch their machines in faulty directions. That plan failing, they launched a succession of concentrated attacks by daylight—a method from which they expected to obtain decisive results—beginning on the 8th of August. On the 13th of that month, the German wireless asked the people to listen in to hear great news. Two days later with the blare of martial music filling the gaps between announcements, it reported a succession of victories, figments of the imagination. There is now but little doubt that, between the 8th and 18th of the month the German High Command had calculated on destroying our air force as a preliminary to invasion. Following the methods they had found so profitable in Poland they attacked particularly our aerodromes and aircraft factories. They failed, according to a Russian account because they had faulty information regarding the location of aerodromes and because the latter were well camouflaged. Actually, the cause lay rather in skillful direction by our Air Staff and in the daring and brilliant handling of the Hurricane and Spitfire squadrons. Be whatever the cause, the raiders—a thousand strong suffered a complete repulse, losing 180 machines



Westland Lysanders Guard the Suez Canal

among which were many dive-bombers, at small cost to the defenders. This was their first great defeat, and it may well prove to have been the turning point of the war. Nevertheless, they pursued the same bludgeoning tactics for another month, although on each of four occasions within that period they incurred losses of over one hundred machines. In these daylight raids they came over first with unescorted bombers and then with bombers accompanied by Messerschmitts in numbers which steadily mounted until, at one time, the proportion was five fighters to one bomber. Recognizing defeat at last, they changed tactics again and took to night-raiding, an art which they had affected to despise as ineffective and at which their crews had not received much training.

Their most dangerous attack of this nature began on the 7th of September. It was directed against London. There a few aircraft broke through the barrage by daylight into dockland and caused several great fires. A few hours later, a horde of night-raiders followed and, with their path lighted by the flames, were able to cause severe damage. Fierce assaults of a similar nature continued and were directed mainly on central and east London. They were checked, however, on the 17th, largely because of improvements achieved in the anti-aircraft barrage. Thereafter, bombs were scattered indiscriminately whenever penetration by the aid of darkness or cloud could be effected.

Against the new form of attack, no satisfactory anti-aircraft tactic has yet been found. Hurricanes and Spitfires, so brilliantly successful by day are greatly handicapped by night, not only owing to the difficulty of finding the enemy in the darkness but also because the glow of their exhaust-rings betrays them and gives early warning of their approach to the enemy. Our anti-aircraft guns and searchlights have, however, filled the breach to some extent by showing an improvement both in numbers and method during the past few weeks. This is clear from the following table produced by the *Evening Standard*, which indicates that, in the period June 8th to October 5th we brought down only 64 enemy aircraft by night and that—

the first 22 shot down, A.A. guns scored 2 successes;
the next 9 shot down, A.A. guns scored 4 successes;
the next 21 shot down, A.A. guns scored 15 successes;
the next 12 shot down, A.A. guns scored 9 successes.

Scientists, technicians and tacticians are all hard at work trying to defeat the night-bomber; but it still rides at starry heights, almost unchallenged. As an instrument of attack, it is, however, not decisive because it cannot be employed in large formations nor can it assail targets with precision. Goering was probably correct in his tactics of mass raids by daylight, because such attacks, unless successfully countered, can virtually wipe out their objectives—witness the destruction of Rotterdam. Beaten by the superlative performance of the R.A.F., he has, nevertheless continued to operate by daylight but on a very much lower scale. He has

been sending over fighters to act as bombers and has ordered them, in the absence of favorable cloud conditions, to fly at great heights. This method does not lend itself either to heavy or accurate bombing, but it has made matters very difficult for intercepting aircraft which have a high climb to make in a short time and which are by no means at their fighting best at the top of their ceiling. The Germans, by making their principal effort by night and by flying in the sub-stratosphere by day, have effected a considerable reduction in their adverse casualty-ratio. On the other hand, the R.A.F. may well claim to have compelled them to adopt procedures, which, however high their nuisance values, can never be decisive.

Since our own unpleasant experiences against German naval bases in September, 1939, we have eschewed daylight-raiding on any large scale, except for short-range affairs against the invasion ports. We are, however, preparing for them, and there are numerous proposals for rendering them effective without being costly. Various new types of machines are suggested: very fast unarmed bombers; powerful long-range fighters intended to act as escorts on bombing raids—both of these machines being either despatched from an advanced base or given a pick-a-back lift; a bomber—a real bomber, not a fighter-bomber—capable of sub-stratosphere flying. So far as is known in unofficial circles, no such craft are yet in the offing. Before they appear, we shall presumably be putting into the air as they come into production latest pre-war models and those designed from lessons, now perhaps obsolete, learnt in Poland and Norway.

A capacity for flying under severe conditions of weather is another factor of importance to be weighed in estimating relative prospects. The R.A.F. profits in this respect by its experience of flying over hostile territory last winter when it achieved marked progress towards solving the de-icing problem. The Germans, for their part, benefit from a device in their engines by which the battery pumps fuel directly into the cylinders. This enables them to dispense with the carburetor, which has always been a source of weakness in that it is liable to cause a stoppage by icing up. They are likely, however, owing to the moisture carried by the southwesterly winds from the Atlantic, to find ice-conditions more troublesome over Britain than our machines will over Germany. Thus, advantages and drawbacks even up; and they also do so as regards the effect of the long, dark nights, which indeed enable our bombers to spend more time over far-away targets but cause them to suffer considerable hardships in speeding long distances in wintry weather.

On the whole, therefore, it appears that the changes in conditions that will take place during the next six months will not favor either of the two principal belligerents to any great extent.

A few words may now be said on branches of the air force which do not come directly under the Bomber



British Antiaircraft Fights a Night Attack

and Fighter Commands. First of all, there is the Coastal Command, at one time the Cinderella of the party, but now recognized as an indispensable factor in our defensive system and grown to great proportions. It has its own bomber and fighter squadrons, its land-aircraft, its flying-boats, its mine-layers and reconnaissance craft. The scope of its action covers the sea from Iceland and Norway by the Baltic, the Channel and the Bay of Biscay down to the Mediterranean and is extended for 1,000 miles westwards into the Atlantic. Since the beginning of the war, its machines, according to the aeronautical correspondent of *The Times*, have flown 19 million miles—"equivalent to about 782½ times round the world."

In this year alone, up to the end of September, its aircraft have escorted approximately 1,300 convoys made up of more than 30,000 ships. In the whole war-period so far, Coastal Command has guarded and guided between 90,000,000 and 100,000,000 tons of shipping, and during this period not a single ship has been lost while under its care. In the same period it has carried out 150 attacks on submarines.

Then there is the air-component of the army, consisting mainly of Army Coöperation Squadrons. In the short battle in France, it did excellent work in reconnaissance and in affording direct tactical assistance to

both infantry and artillery. It also succeeded in shooting down 124 German aeroplanes. With the withdrawal from Dunkirk, however, it ceased to function except for fighting purposes in the Middle East and for training purposes elsewhere. In such circumstances, and at a critical time in the aerial battle, a waste of power would obviously have resulted from the retention of a large number of machines with the army. The Fleet Air Arm—the corresponding service in the navy—has done splendid work, especially along the Norwegian coast which is a rather distant target for the R.A.F. bombers to tackle.

The epic struggles of fighters and bombers naturally tend to engross the attention and captivate the imagination of students of aerial warfare. But there are other aspects of this conflict to which due place must be assigned. Ground-defenses play an important part therein.

AA fire has played an important rôle, but not in the predicted manner. Instead, as we had hoped, of skillfully and destructively handling our batteries against single aeroplanes or small groups we have had to resort to the extravagant expedient of barrage fire. This has had the effect of forcing the enemy to fly high, making accurate bombing impossible, but has not destroyed large numbers of planes nor prevented the bombing of large areas.

Our balloon-barrages have not destroyed large numbers of aeroplanes, but they have brought down some and have proved useful in preventing the enemy from making low-flying attacks; and Germany has paid them two compliments—the first of copying them, and the second of making constant attempts to shoot them down—both indications that the silvery monsters are not without their value.

An unobtrusive but very valuable share in defense is taken by the Observer Corps, which mans a vast network of stations covering Great Britain and Northern Ireland. The object of the corps is to trace, plot and report the course of every invading aeroplane. Each station, as it picks up a quarry (in daylight by sight, in the dark by sound) reports its height and direction of flight, both to the Fighter Command and to neighboring stations. To a numerically inferior air force this work is of vital importance; for, where machines are scarce, it is essential that their efforts, instead of being dispersed over such false trails as may be laid by the enemy, should be concentrated on the points where the danger is greatest. In this task of giving a right direction to the counter-attack the Observer Corps has never failed. Its vigilance, said the Minister for Air, in a recent speech, has made an indispensable contribution to the success of the R.A.F. fighters. "Their victories," he proclaimed, "are your victories." 40,000 men spent a bitterly cold winter in 1,500 posts, but their long and patient watch has now borne splendid fruit and will be remembered with gratitude. "Forewarned is fore-armed" is their motto and their badge illustrates, in becoming fashion, a beacon lit at the approach of the Spanish Armada.

So much for the strategy of operations and organization. There is also a strategy of equipment; and in it, as in the other forms, risks have to be balanced against gains and decisions taken. Particularly is this the case with mechanical equipment. Standardize your aeroplanes at the right moment and, *ceteris paribus*, you will overwhelm your opponent with numbers. Go to mass-production a little early, on the other hand, and you may find yourself saddled with a large number of obsolescent craft. That has been the fate, to some extent, of both Germany and Italy. Britain has been more fortunate. She has driven research and production in elastic harness and, though outnumbered in her air force as she is in her army, she has won great technical advantages by her policy.

We may now, in order to complete the picture, turn from military to civil defense. Mr. Churchill once observed that: "The great sphere of domestic organization becomes the counterpart of our military effort." He might almost have said part rather than counterpart. Supplies are necessary; they have to be convoyed. Foreign exchange is required for the purchase of armaments; therefore, export trade must be stimulated. To meet the military assault on morale, a number of civil measures are needed, all of them important and all now

being adopted: evacuation of women and children; an insurance scheme covering property damaged by raids; communal feeding, housing and transport for the homeless. The spirit of the Londoners is marvelous, as is that of the inhabitants of the other great cities under constant attack. But they are suffering greatly and require not only sympathy but a high measure of continual help of a practical kind.

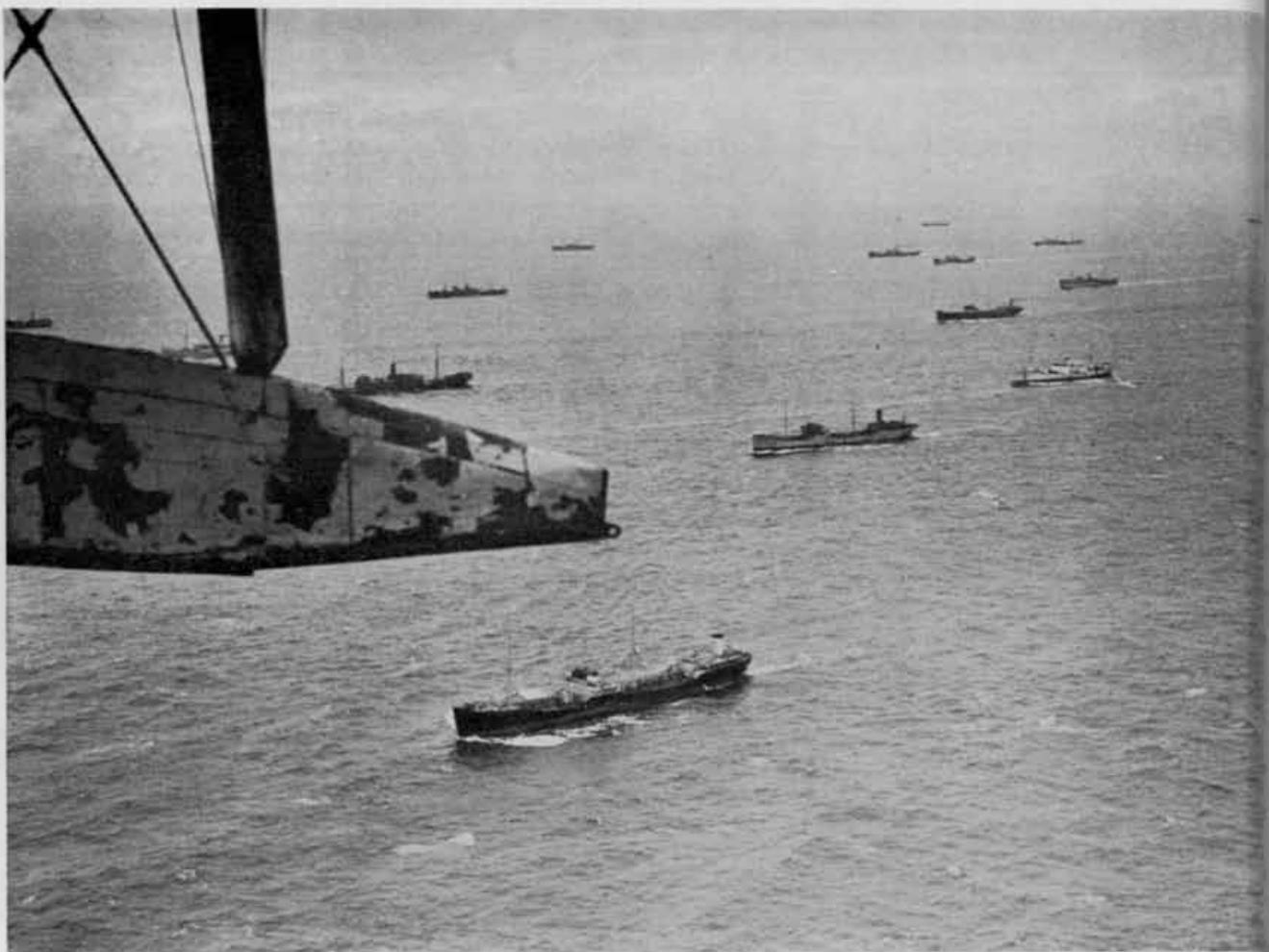
The principal rôle in civil defense, which is also an important part of the aerial battle, is played by the A.R.P. (Air Raid Precautions) Service. It suffered terribly from a flat refusal on the part of both the Government and the municipal authorities, to recognize the perilous implications of the aerial threat. In this respect, both in pre-war and early war days, even London—at once the most important and most vulnerable target in the world—was neglected. For long, A.R.P. was the adopted child of a non-official parent—the British Red Cross Society—which, though it advocated necessary measures and attempted to educate the public in their need, had neither the authority nor the funds to institute a new immense and vital service.

Nine months of immunity from attack afforded the country some chance of recovering lost ground. The opportunity was, however, not seriously grasped until a few months before the bombing proper of London began, with the result that it was and remains inadequate. The wardens and firemen are doing splendidly; but, between hard work and lack of sleep, they are already, in mid-October, badly in need of relief.

We may close with a brief glance at the future. At the moment the enemy's numerical superiority is still dangerous, and it is likely to cause anxiety to our leaders for some months to come. By the spring of 1941, however, numerous aircraft will have arrived from the United States, and the Empire Training Scheme, which affords the surest guarantee of eventual victory, will be beginning to pour forth both machines and pilots.

The intervening winter will probably be filled with battle in Middle East. Owing to the defection of France, the British air force has been deprived of flexibility, which is one of the greatest assets of the aerial arm. The enemy, on the other hand, with an easy hop from Sicily to Tunisia, will be able, if he so desires, to concentrate very powerful aerial forces in the Libyan theater. There, too, he will probably dispose of a numerically superior army. The British will, however, have command of the sea and many advantages of position. A long and strenuous struggle may therefore be expected.

On the northern flank, Germany may have entered Rumania because she is already feeling a shortage of oil and can therefore afford to take no risks with her principal source of supply. Conceivably (she may be arguing) British aircraft might appear in Thrace or in the Aegean and swoop down on the Ploesti oil-field. In order to defeat that menace, she has brought a considerable quantity of aircraft and anti-aircraft guns with her. Thus oil is seen to dominate strategy; and it is not



A Short "Sunderland" Escorts a Convoy

alone in Rumania that it does so. Russia must protect Baku and, however keen she may be to keep out of the war, must therefore bar any German attempt to pass the Bosphorus. Again, the absence of oil from Spain and western Africa seems likely, in spite of Hitler's advances to Franco, to prevent that area from being used as a main theater of operations. Moreover, a determination to build their power on a solid foundation of oil, without which all hope of gaining and maintaining supremacy in the air must fade, is probably enticing the Axis powers to strike by north Africa towards Iraq and Iran.

To sum up the situation. At the time this is written, Hitler has been concentrating his aerial strength on an assault upon Britain for just four months. Having won every advantage of position, he endeavored to destroy the R.A.F. as a preliminary to invasion, but failed completely in the attempt. He struck at British communications, especially at the docks of London and Liverpool, but his airmen lacked the precision necessary to render the attack seriously effective. He aimed a blow at British morale by assailing the civil populace and succeeded only in hardening its purpose to endure.

In the twelve weeks following the 8th of August, our defenses in their various forms accounted for 2,433

German aircraft, of which about half were fighters against a loss on our side of some 850 machines. During the same period over 6,000 German airmen were killed or taken prisoner against a loss on our side of 35 fighter-pilots and an insignificant number of bomb crews.

In the meantime, in Hitler's own country, the source of power have been hammered insistently and accurately by a force of bombers which is hourly growing. In the invasion ports, his army must have suffered huge casualties from naval and aerial action.

The war in the air is not yet over. We cannot capture Germany's lead in numbers until the summer of 1941. Moreover, though we are ahead of her now in technique, the memory of the first World War paints many pictures of vicissitudes due to the temporary ascendancy of particular machines; and it is possible that, during the present war, new and efficient types on either side will be dominant for short periods. All that can be seen at the moment is that, with an air force greatly inferior in numbers to that of the enemy, we have repulsed his attacks on Britain with heavy loss and that, operating under the grave disadvantages of long range to our chief objectives and high relative vulnerability, we have carried the war effectively into the enemy's country.

The Graeco-Italian Campaign

By Major William Yale

The Graeco-Italian campaign in the Epirus and in southern Albania illustrates the significant rôle played by geography and climate in both strategy and tactics.

Because there is meager data on the political and psychological matters affecting the military events, an attempt to analyze them would be mere speculation. The Italian defeat can, in the main, be satisfactorily explained by examining the military, the strategical, and geographic aspects.

Southern Albania, although it offers some advantages as a base for launching an invasion of northwestern Greece, had many disadvantages. The main Italian bases were on the Albanian coast at Durazzo, Valona, and Porto Edda. From the first two, roads ran across the coastal plains along river valleys. The rivers rise in the Pindus Mountains—some of them on the Albanian side of the frontier, others on the Greek side. The main watershed is located in Greece in the heart of the Pindus mountains of the Epirus.

The Italian columns advancing to the Greek frontier followed the river valleys southeastward. The nearer they came to Greece the more narrow and precipitous became the valleys. Contact between the advancing units grew increasingly difficult as rugged mountain ridges separated them. These broke the invading forces into separate groups, each with its exposed flanks, a disadvantage not felt to be important during the advance. But when the invasion was halted by resistance and the Greeks took the offensive, these vulnerable flanks made possible the successful Greek attacks.

The war started when the Italian advance forces crossed the frontier and began a penetration of the Pindus *massif*. To reach their main objectives the Italians started their drive through the heart of these mountains, which would have to be crossed before they could penetrate the vital areas of Greece. The ultimate Italian objectives were: the plain of Salonika in the northeast; the plain of Thessaly in central Greece, and the western coast south of the island of Corfu to the Gulf of Corinth.

The route to Salonika passed through Florina from where a railway, following a river valley through Edessa on the northwestern edge of the plain, ran to Salonika. The right flank of the force attacking Florina was protected by Italian troops which advanced toward Kastoria.

The road to Thessaly lies through Yanina almost at the height of the Pindus watershed. From Yanina a highway descends to the plain at Kalabaka, the head of a railway passing through Trikkala to the Greek naval base at Volo. In Thessaly this railroad crosses the main railway between Salonika and Athens. The left flank of the Italian forces advancing towards Yanina was protected by an Italian attack on Konitza to the north;

while the right flank was secured by the Italian advance along the coast to the Kalamas River. The topography of this section of the Pindus area is such that the Italian forces had to advance as widely separated spearheads with exposed flanks. A continuous line of advance, stretching from Lake Presba to the Adriatic, was impossible.

The Greek plan of defense at the outset was to hold the Italian spearheads in the mountains at any cost, in order to protect the approaches to the plains of Salonika and Thessaly. The Greeks offered less determined resistance along the coastal area where the Italians reached the Kalamas River. But this minor success proved of little value because it was impossible to turn the Greek left flank from the western coast. Having slowed up the advance in the mountains, the Greeks then began their own offensive by penetrating between the enemy's spearheads and threatening the communications of the advanced columns.

By a clever maneuver the Greeks, using the Yugoslavian frontier near Lake Presba to protect their right, worked through the mountains on the left flank of the force attacking Florina. Thus outflanked, the easternmost Italian spearhead began its retreat. This exposed the left flank of the Italians advancing on Kastoria and made vulnerable the flanks of the forces at Konitza and at Yanina. These were compelled in turn to retire, which left the troops on the Kalamas River exposed. The Italians were obliged to retreat into Albania.

Shrewdly the Greeks made no attempt to attack the Italian spearheads and risk the loss of men and materials. By well conceived strategic plans and brilliant tactics, and by exploiting every topographical advantage, troops trained in mountain warfare, who know every ridge and valley in the Pindus, worked between the hostile columns and menaced their supply lines confined to the narrow valleys of southern Albania.

Following up these initial successes, the Greek staff continued the same strategic plan and employed the same tactics in attacking the Italians in Albania itself, where the topography was even more favorable. Working along the frontier of Yugoslavia, toward Lake Ochrid, the Greeks were able to reach the Mokra mountains and force the Italians to withdraw from Pogradetz. Farther west they secured the ranges on the eastern side of the valley in which the town of Moskopoli lies. Thus they threatened to cut the Italian communications in the valleys of the Shkumbi and Devol rivers, preparing an advance upon the enemy base at Elbasan along the roads to Tirana and Durazzo.

In the center the Italians, for a time, held on to Liaskouika until their position there was outflanked by Greek advances along the finger-like ridges which dominate Premedi and Argyrokastron. These strategic towns



The Albanian Front

the Italians were forced to evacuate, for the Greeks not only gained control of the mountains to the east, but penetrating between the coast and both Premedi and Argyrokastron, captured Delvino, which obliged the Italians to abandon the important coastal base of Porto Edda. At the present writing the Italians are fighting desperately to hold the key position north of Tepeleni, which commands the lower reaches of the valley of the Viosa River; and that at Moskopolis, which controls the central part of the valley of the Devol River, one of the two main avenues leading to Elbasan; and that at Khimara on the coastal road to Valona.

While advancing along the coast from Porto Edda to Palermo on the road to Valona, the Greeks are pressing their encircling movement from the Mokra mountains toward the middle section of the Shkumbi River. As the Italians retreat towards the coastal plain, their right and left flanks are threatened by the Greek approach to Valona and Elbasan. However, the Italians now have their chance to reorganize and bring up reinforcements to check their opponents. On the other hand, as the Greeks descend to the broader valleys along the coast and into the plains between Berat, Petrolia, and Elbasan, they lose the advantages which the finger-like mountain ridges gave them farther to the south.

Although political considerations may have led to

the attack on Greece, the Italian military leaders, if responsible for the failure to reach the vital plain Salonika and Thessaly, must certainly bear the blame for their retreat. The Italian staff could have been under no illusions about the difficulties of the invasion. It must have known that the worst weather of the year would prevail. Yet, when the civilian government ordered a military operation, commanders can but obey. At the same time, the Italian command made inexcusable blunders.

Seemingly enamoured of blitzkrieg tactics, the Italian staff sent highly mechanized units up the narrow valleys into the Pindus massif into terrain that was utterly unsuited for their use. Until the plains of Salonika and Thessaly could be reached mechanized equipment would be practically useless, clogging the mountain valleys and passes with supply trains which could not operate along the highways. Indeed, the use of mechanized force seriously reduced mobility instead of increasing it.

This left the flanks of Italian columns exposed to attack by the far more mobile mountain troops of the Greeks. With plenty of manpower at their disposal, the Italian staff failed to take the elemental precaution of protecting vulnerable flanks, a tactical error of which the Greek staff quickly took advantage.

Besides the topography and climate which favored

the Greeks, they also had many other advantages. Southern Albania has a Greek population; for more than twenty-five years it had been a Greek *irredenta* which some day the Greeks intended to make a part of their Hellenic homeland. Even before the Balkan wars of 1912 and 1913, the Greeks were planning to seize southern Albania before it might be absorbed either by the Austro-Hungarian Empire or by Serbia or Italy. Consequently, the Greek staff had studied every aspect of a campaign there. Strategic plans were prepared for an invasion of Albania and special troops whose homes were in the Pindus mountains were trained in suitable tactics. The Italian occupation in 1939 warned the Greeks of a probable Italian invasion through the Epirus. Hence the Greek military authorities, backed by the Metaxas Government, prepared to meet such an attack and launch a counteroffensive into Albania.

The Greek forces also had native Albanian allies to serve them by misleading the Italians in the mountain wilderness while acting also as guides and informers for the Greeks. Albanian Greeks sniped and raided supply trains and isolated units.

The brilliantly conceived strategy of the Greek staff coupled with the able tactical employment of troops and equipment made this victory possible. The contrast between the staff work of the Greeks and the Italians is striking. The operation is an example of how competent leadership can overcome the handicap of inferiority of numbers and of matériel. The Greek Army has written a brilliant chapter of military history.

But whether the Greek forces, now far distant from their bases and with long and difficult lines of communication, will be able to exploit their victory remains to be seen.



The Rocket-Bomb*

By Major General J. F. C. Fuller, British Army, Retired

On September 19, 1939, we were threatened by a "secret weapon," Hitler himself telling us that: "The moment may come when we shall use a weapon which is not yet known and against which there is no defense."

Now, like a cork, it has bobbed up again, for German military leaders have said that weapons never before used will be employed against Britain.

It should be remembered that the life history of weapons has been fairly constant; for nearly all have emerged out of secrecy.

Daily, scores of men are thinking them out; thousands are devised; few are accepted, and then generally most reluctantly; some have changed the course of history, whilst others have disappeared.

Though at first it may seem strange, yet it is logical that throughout history it is siege and not mobile warfare which has stimulated inventive genius. Thus, in the last war, no sooner was the Western Front entrenched than, as if out of a conjurer's hat, appeared first lethal gas and secondly the tank. Nevertheless, though the one surprised us and the other our enemy, the ideas behind these two weapons were nearly as old as war itself.

No, there is precious little new in war. Therefore should Hitler really have a secret weapon up his sleeve, the likelihood is that it is but the development of an old idea. What it is, I cannot say; yet I do know this: Since the ending of the World War the Germans have been experimenting with the oldest of all explosively propelled projectiles—the rocket.

In modern times, the first man to make a true weapon

of this piece of fireworks was Major General Sir W. Congreve, who said, about a century ago: "The rocket is, in truth, an arm by which the whole system of military tactics is destined to be changed."

Though the range of Congreve's rocket was no more than 3,000 yards, experts inform us that, should two difficulties be overcome, there is no theoretical reason why a rocket could not be constructed which would travel from Berlin to London, or Berlin to New York.

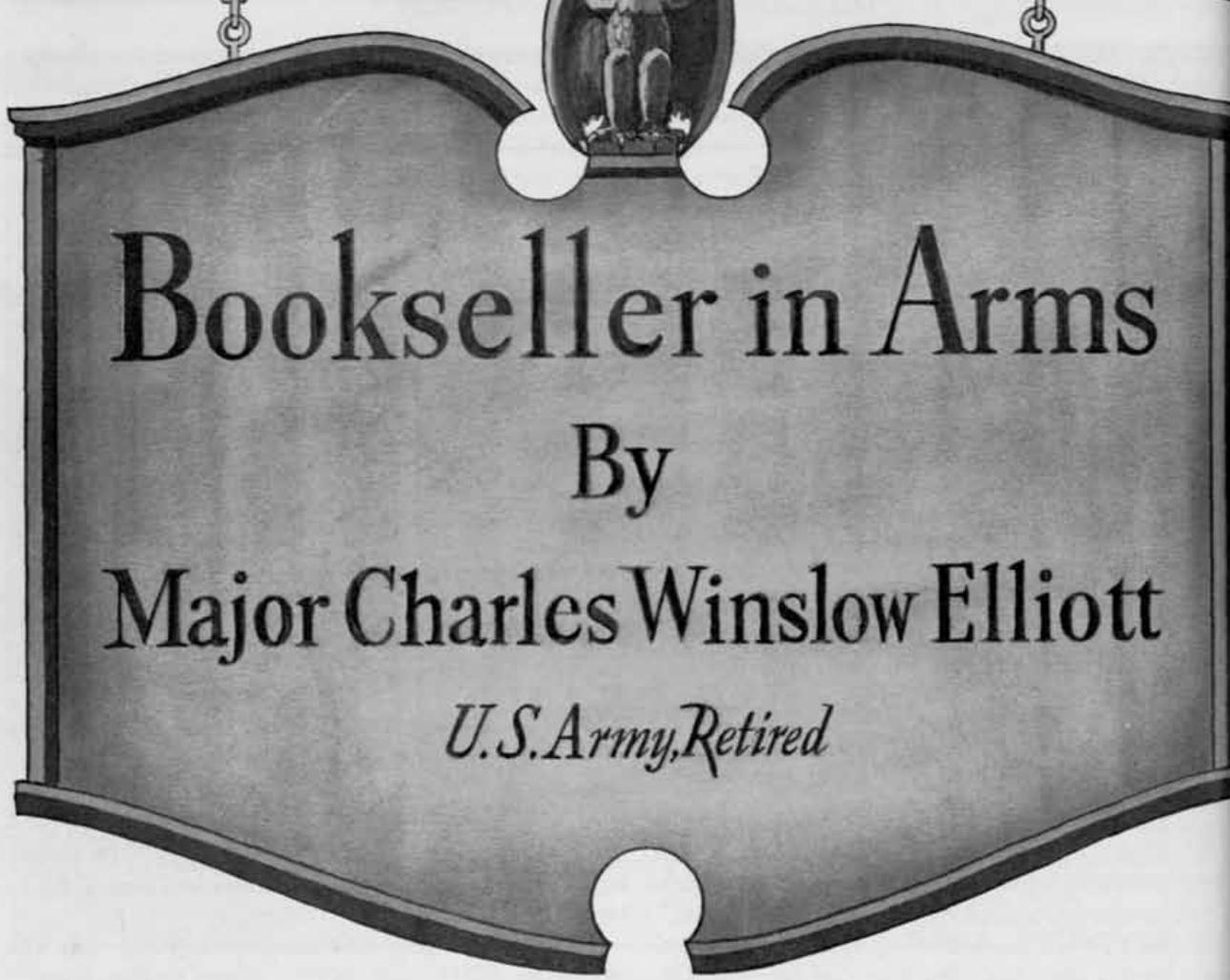
These two difficulties are motive power and maintenance of direction. Should these be solved, then it will become possible to bombard cities by rockets carrying scores of tons of high explosives: manless projectiles which will devastate acres of built-up areas in a second.

Personally, I think that, as a stepping-stone to this war of annihilation, aircraft will be fitted with rocket-bombs, which will enable them to bombard a city without penetrating its ground antiaircraft defenses, as formerly walled cities were bombarded by cannon and mortars.

"There is," wrote an American rocketeer five years ago, "no possible doubt that militarists all over the world, with the possible exception of England, are fully alive to the tremendous possibilities of the rocket in modern warfare, and in the next war it will inevitably follow that rocket propulsion will be developed to the fullest extent of its destructive powers, just as happened in the Great War with the airplane."

Be this as it may, there is a saving clause, and every schoolboy who has played about with fireworks knows it. Rockets have the unpleasant habit of sometimes turning round. (By courtesy of *The Evening Standard*.)

*From *The Gunner*.



Bookseller in Arms

By

Major Charles Winslow Elliott

U.S. Army, Retired

A sultry July morning in the city of Boston, metropolis of His Majesty's none too loyal Colony of Massachusetts Bay. The year, 1771. Officers of the detested garrison that held in sullen subjection that hot-bed of rebellion and sedition, when their soldier servants brought in the morning cup of tea, noted with interest in the day's *Gazette* the news that:

This day is opened a new London Book-store by Henry Knox, opposite William's Court, in Cornhill, Boston, who has just imported in the last ships from London, a large & very elegant assortment of the most modern books in all branches of Literature, Arts & Sciences (catalogues of which will be published soon) and to be sold as cheap as can be bought at any place in town. Also a complete assortment of stationery.

And before the day ended it was apparent to young Master Knox that his new commercial venture was going to be a success. Tory and Whig, officers in brilliant scarlet and sedate citizens in somber broadcloth, came in to browse over the "elegant assortment" and stock up with imported stationery. For the military gentlemen there were fresh copies of the current best-sellers at home: *Pamela*, the hilarious and lusty *Tom Jones* and *Clarissa*. For the more serious-minded, *Dodd's Sermons to Young Men*, William Robertson's new histories, and ponderous tomes in the field of law

medicine, politics and military science. The ladies of the *haute-monde*, who came tripping in to examine trifles on the stationery counters, remained to exchange polite pleasantries with dashing young lieutenants, firing the shop an agreeable clearing house for the day's gossip. Mr. Knox, having celebrated his 21st birthday only four days past, wrapped up copies of *Tristram Shandy* and Baxter's *Saints Rest* with equal gravity, guineas and shillings clinked in his cash drawer. Business was brisk despite the uncertainty of the times.

He was a very sterling and substantial young citizen, this Henry Knox. Born in Boston in 1750, the son of an once prosperous shipmaster, he had been left fatherless at the age of twelve. Discovering that the family fortunes had disintegrated, the sturdy lad at once assumed the burden of supporting his widowed mother and a year old brother. Apprenticed to a bookseller, he learned the business from the ground up, saved money, until nine years later he emerged from servitude as the proprietor of his own establishment. While clerking for Messrs. Wharton & Bowes, he made it his business to familiarize himself with the content as well as the exteriors of his employers' stock, and in so obscure a manner to speak and read the French language. The latter accomplishment was to have a future use in business which he could then hardly appreciate.

From the beginning of his studies, his tastes, literary and social, seem to have been distinctly military. Ph

ally he was a stalwart and imposing figure, big-boned, generously fleshed, ruddy of complexion, with a low forehead, beneath which sparkled a pair of small grey eyes. All that was needed to set off properly his manly proportions was a well-fitting uniform. At eighteen he acquired it. The Ancient and Honourable Company of Artillery gained a noble-looking recruit when the six-foot bookseller's clerk signed his enlistment papers in 1768. When the Boston Grenadier Corps was organized in 1772 a new, snappier, (and roomier) uniform had to be provided for Lieutenant Knox, second-in-command. When he appeared in the "unusually handsome" habiliments of his new command, he made, we are told "a splendid figure." Even the British regular officers, ordinarily contemptuous of the colonial militia bodies, conceded that the Grenadiers made a tolerable appearance.

Mr. Knox may have sensed the approaching need of his dissatisfied and patriotically seditious country for competent military mentors. By day he sold books, stationery, surveying instruments and playing cards, but after business hours he boned drill, tactics, field engineering and gunnery, until he had the textbooks gutted of their contents and the theory, if not the practice of 18th-century warfare carefully tucked away in a canny

Major General Henry Knox

Secretary of War Under President Washington



Scotch brain. The time was near when the opportunity for practice would be ample.

These first three years of the London Book Shop's existence were hectic enough in Boston Town. The Boston Massacre had left its stains on the cobblestones before the Custom House and the snows of five winters had failed to wash them away. Rebellion was in the air. The East India Company's chests of China tea flavored the dirty water that sloshed about the piers. It was Tory and King's Man now, or Patriot and Whig. Unhappily for Mr. Knox, as stout a Patriot if a less noisy one, as Samuel Adams himself, politics interfered with personal and private affairs. Among the more distinguished of his Tory customers was the Royal Secretary of the Province, Thomas Flucker, a loyalist gentleman who seems to have been definitely *plus royaliste que le roi* in his sentiments. And Mr. Flucker had a daughter. This charming and sprightly young lady often made it a point to meet her fashionable friends among the bookshelves and tables of the London Book Shop. She bought books, but would be waited upon by none but the proprietor himself, who found it difficult to make change for her properly because he thought her bright eyes more interesting than her guineas. When the Grenadiers paraded on the Common in their dashing uniforms. Mistress Flucker was unfailingly present, to toss admiring glances at the tall second-in-command. His politics might be anathema to her outraged parent, but the herculean frame, the martial bearing, and the evident partiality of the Lieutenant for her company, outweighed all other considerations. When Mr. Knox called at the Flucker mansion, the Secretary and his wife were less than cordial, Mistress Lucy quite the reverse. When actual marriage with the young "rebel" was suggested, the lady was compelled to listen to some stormy remarks from her aristocratic parents. She stuck to her guns—and to her Whig militia grenadier—and, being of age, could not legally be coerced. On June 16, 1774, Lucy and her Henry were married, the fuming Secretary giving a reluctant consent when threatened with the scandal of an elopement. The happy couple at once went to housekeeping, oblivious to the Flucker family's gloomy prophecies of the dire disaster awaiting a union of Tory and Rebel.

With his bride, Mr. Knox acquired a single brother-in-law. Mr. Flucker, Jr., was a lieutenant in one of the King's Regiments, a good soldier, who perceived in his sister's husband the makings of a first class officer. He bestirred himself to secure for Knox a royal commission and held out promises of early promotion and preferment if the bookseller would abandon his bourgeois trade, forego Whig activities and don the scarlet coat. His loyal endeavors got him nowhere so far as Knox was concerned. That ardent patriot's sympathies were wholly with the colonial cause. He kept his sword sharp, his books on tactics and field works well thumbed, and his associations with the seditious element closer than ever. The Governor of Boston, General Thomas

Gage, also had his eye on young Mr. Knox. So promising a rebel must not be permitted to get beyond the reach of the King's sheriff. Orders went down to the Book Shop that the owner was confined to the limits of the post and under no circumstances to leave the town.

II.

April 19, 1775. Forty-nine Americans and 273 British soldiers lay dead between Concord and Charles Neck. The Revolution had begun. When the sweat-regiments of Lord Percy and Colonel Smith returned to their barracks that fateful evening, Boston learned that the years of agitation, talk and petitions were now past history. Henceforth it was to be War, Rebellion, and Revolution. The proprietor of the London Book Shop lost no time in joining up. He and Lucy hastily packed a bundle of necessities and after dark slipped quietly out of town, General Gage's sentries to the contrary notwithstanding. He was abandoning a prosperous business, she her home and family. On the sword that her Henry had worn while a militia lieutenant depended the carving out of a new fortune. Lucy had the sword with her, cunningly sewn in the lining of her long cloak. Henceforth her husband was a rebel prescribed, a rebel in fact and deed as well as in opinion. All about the city the patriot militia swarmed like angry bees. At the headquarters of General Artemus Ward Mr. Knox proffered his services as a volunteer. The General was just then desperately in need of officers who could emplace a battery and stake out an intrenching position, martial mysteries completely outside the comprehension of his staff of embattled farmers. He accepted with alacrity the suggestion that the bookseller be permitted to undertake the solution of such problems. For two months the text-taught engineer planned and superintended the construction of the siege works that encircled Gage in Boston. He would accept no rank or commission as yet.

After Bunker Hill the army began to get organized. General Washington came up to Cambridge as Commander-in-Chief and on July 5 made an inspection of the field works for which Knox was largely responsible. That anxious volunteer, who accompanied him as he examined the redoubts and trenches, wrote proudly to Lucy in Worcester:

When they had viewed the works they expressed the greatest pleasure and surprise at their situation and parent utility, to say nothing of the plan, which did not escape their praise.

But not until early November was the civilian persuaded to accept a commission and don a uniform. Perhaps his delay was evidence of his Scotch shrewdness. General Washington had his eye on this surprisingly competent engineer, who seemed to be so well versed in the lore of artillery management. The word got around that splendid material for a gunnery colonel was going to waste. Old Richard Gridley, who commanded the artillery had been a good man in his day, but his day

ing past, back in the years of the old French and Indian War. "I take the liberty," wrote the Commander-in-Chief to the President of the Continental Congress, "of recommending Henry Knox" as colonel of the one and only regiment of guns of which the army boasted. At the appointment, warmly seconded by the little group of officers under Gridley came through in due course. The bookseller belted on his sword and stepped forth as full colonel. The midnight hours of study by candlelight had jumped him over the heads of all the lieutenants, captains and majors and old Colonel Gridley stepped aside with a sigh of relief. The Regiment was assigned by its new commander to number 635 men, in twelve companies.

Down at Philadelphia, where the Congress was struggling with the inauguration of a new government, stern John Adams of Massachusetts was highly gratified at the honor bestowed on his fellow-citizen from Boston. "I have been impressed," he wrote to Colonel Knox, "with an opinion of your knowledge and abilities in the military way, for several years." He added some injunctions that occurred to him as opportune. The Colonel would be useful to him as a source of information at his headquarters. "I want to know," he told Knox, "your name, rank, and character of every officer in the army. . . . What is comprehended within the term of 'military engineer' and whether it includes skill both on fortifications and gunnery?" Was there a "complete set of books upon the military art in the library at Harvard College?" And what were the best books on those subjects? Doubtless he got sound information on these matters from the man who had been selling "the best books" to British and provincial officers for years surely knew all the answers in that field.

Throughout the autumn months the siege—it was really a blockade—dragged on. But to knock loose General Howe, who had succeeded the fatuous Gage, much more and more numerous ordnance was imperatively required. Colonel Knox must find a lot of additional guns to throw shells into his beleaguered home town. In June he had the answer to Washington's inquiries. In May, the ebullient Ethan Allen, "in the name of Jehovah and the Continental Congress," had taken Fort Ticonderoga, its walls and storehouses well garrisoned with guns of various calibers, its magazines piled high with boxes of lead, barrels of flints and good British gunpowder. Knox suggested to Washington that he had better make a trip to Lake Champlain and recover over a train of this valuable plunder. Winter was coming in, the roads, if any, were lost in drifted snow, the passes of the Berkshires were presumably impassable. Nevertheless, he would like to have a try at it. Hiring oxen and sledges for transport, and following wherever possible the frozen rivers, he thought he could succeed in bringing home the ordnance before the end of the year. Washington approved and Knox started for Albany, via New York City. Young brother William who had been left in charge of the bookstore in

April, went along to help out. He was definitely unemployed at the moment, a Tory mob having sacked the shop and wound up the business of its rebel owner for the time being. The pair halted briefly in Manhattan, the thrifty Colonel finding the city "expensive." Up the Hudson to Albany they proceeded. There General Philip Schuyler hustled about among the prosperous Dutch farmers and rounded up the oxen. Arriving at Ticonderoga on December 5, Knox dug out the guns, eight brass and six iron mortars, a howitzer and thirty iron cannon. They ranged in caliber from 12 to 24-pounders. A barrel of flints and some cases of pig lead would be useful and were added to the loads. Forty-two "exceeding strong sleds," with eighty yoke of oxen to drag them were freighted and the long journey to Boston began. Four times the ice-choked Hudson had to be traversed between Lake George and Albany, the sledges and their motive power precariously shipped in flat-bottomed "gundalows." Then over the Green Mountains, through the snow-filled passes and along the rough country roads of Western Massachusetts to Springfield. It was a slow and immensely difficult odyssey. Not until late in January did the long train plod wearily but triumphantly into Roxbury. Three thousand round shot for the 12-pounders were already on hand, part of the spoil taken by Captain Manly of the privateer *Lee* when he captured the British ordnance brig *Nancy* off the coast. They were now to be delivered to their original consignees, but with considerable more velocity than expected or desired.

Off to Dorchester Heights went General John Thomas and a couple of thousand willing workers, to throw up new redoubts and emplace the mortars and heavy guns. With them went Colonel Knox and Lieutenant Colonel Gridley to show them how it must be done. From dark to dawn on the night of March 2, 1776 the fatigue details, 800 men to a relief, labored mightily with ax, pick and shovel. When Howe turned his long-barreled telescope on the Heights in the morning he was amazed to see two powerful works, fronted by abattis and crowned with stone-filled casks, looming menacingly on each of the two hills across the flats. It was clear that he must either assault and carry them, or get out of Boston Town. When the big 24-pounders began to tumble the chimney-pots about his ears, and solid shot crashed through the brick walls of his barracks, the General wisely decided to evacuate. On the 17th he sailed for Halifax, and with him went 11,000 of the King's troops and seamen and a round thousand of the Tory citizens of Boston. Washington marched in. Colonel Knox, whose batteries had been pounding the home town for two weeks, rode in the parade. If he accepted the frenzied plaudits of the patriots on the curbs with complacency, it is easy to forgive him. To borrow a journalistic cliché as yet unspawned, it was clearly a case of "local-boy-makes-good." For a few days he helped Brother William in the dismal task of resuscitating the wrecked business on Cornhill. Then the



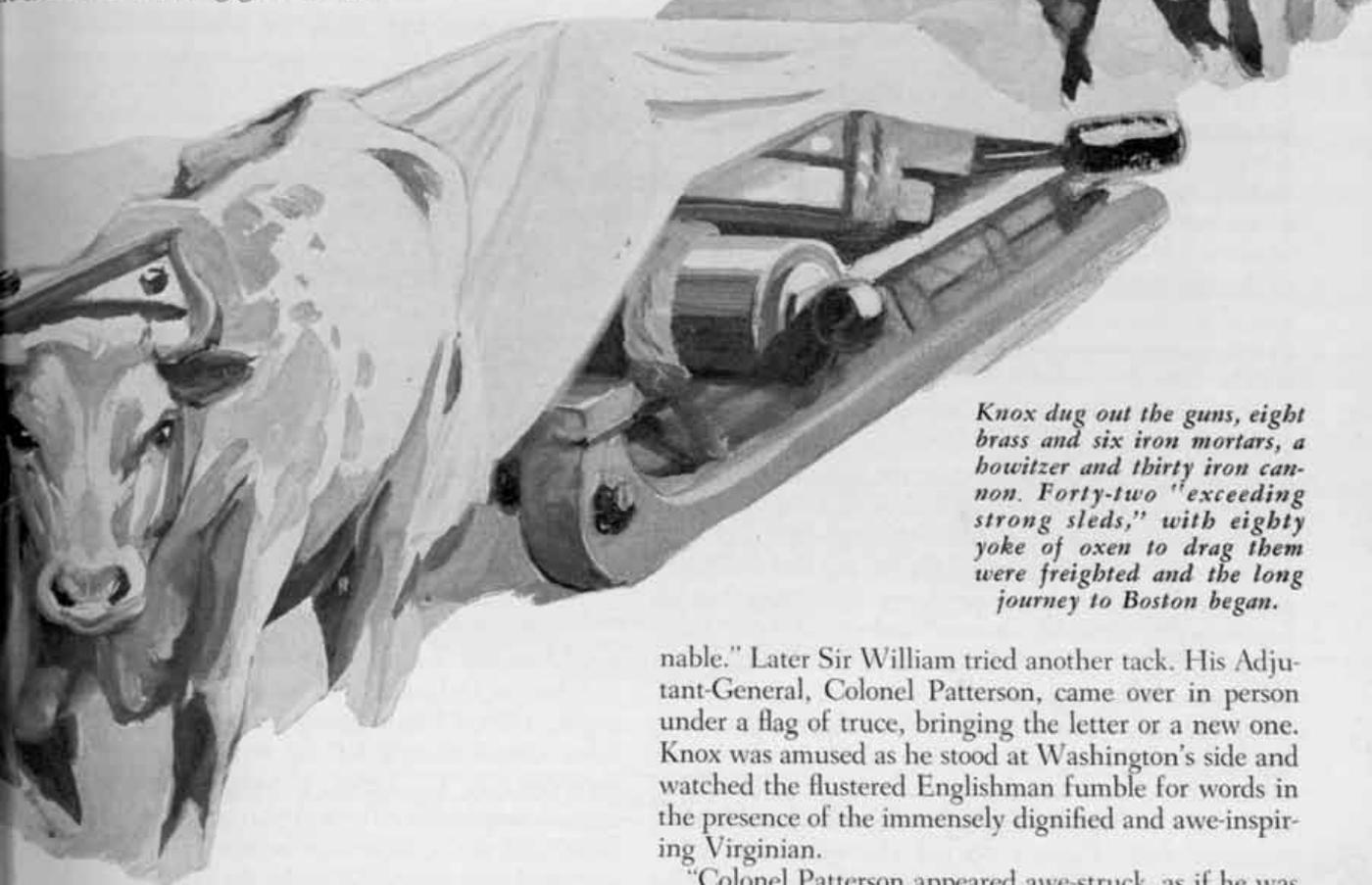
army departed for New York, but the Regiment of Artillery went without its colonel.

Connecticut and Rhode Island required fortifications along their coasts. Colonel Knox must go there and lay them out. Lucy, unwilling to remain longer in her safe retreat at Worcester, came over and joined him, bringing with her a fat infant that she had recently produced. The Colonel sent the family to Fairfield while he went down to Newport and there marked out five batteries on which the stout Rhode Islanders could exercise their muscles. These works, he informed the C. in C., "must, when executed, render the harbour exceedingly secure." With doughty Commodore Esek Hopkins of the miniature Continental Navy, he con-

ferred on the general subject of coast defense. He liked the old salt, who reminded him, he said, of Van Tron "an antiquated figure," but shrewd and capable. "I would have taken him for an angel," he told Lucy in a letter, "only he swore now and then!"

The shores of the Sound provided for, Knox left provincial citizenry to do the digging and happily joined the army on Long Island. As Chief of Artillery he found himself with 120 guns available, but only 100 officers and men to work them. He needed 1,200 more men, he begged Washington to arrange for a draft to bring his regiment up to strength. Howe was coming

to disembark the army lately chased out of Boston. Eight thousand Hessians helped to bring the British force up to more than 30,000. Behind the trenches on Long Island the Americans waited nervously for the attack. Mrs. Knox and the baby were shipped back to Connecticut after a lively argument with their lord. "My God!" wrote Knox to William, "may I never experience like feelings again! . . . I scolded like a fury at her for not having gone before!"



Knox dug out the guns, eight brass and six iron mortars, a howitzer and thirty iron cannon. Forty-two "exceeding strong sleds," with eighty yoke of oxen to drag them were freighted and the long journey to Boston began.

Sir William, and his brother Lord Howe, who had just come out from England bearing the "Olive Branch," would have preferred a pacific conclusion of the war just then. The celebrated attempt of the noble Earl to open communications with Washington, without recognizing the existence of the self-styled United States, is told by Knox in a letter to Lucy:

Colonel Reed and myself went down in the barge to receive the message. When we came to them, the officer, who was, I believe, the captain of the *Eagle* man-of-war, rose up and bowed, keeping his hat off: "I have a letter, Sir, from Lord Howe to Mr. Washington." "Sir," says Col. Reed, "we have no person in our army with that address."

Then followed the polite argument. It was intimated that if Lord Howe desired to address himself to *General* Washington, well and good. The Commander-in-Chief of the Armies of the United States was close at hand. But a letter addressed to some obscure *Mr.* Washington could not be delivered. "Whereupon," says Knox, "we bowed and parted in the most genteel terms imagi-

nable." Later Sir William tried another tack. His Adjutant-General, Colonel Patterson, came over in person under a flag of truce, bringing the letter or a new one. Knox was amused as he stood at Washington's side and watched the flustered Englishman fumble for words in the presence of the immensely dignified and awe-inspiring Virginian.

Colonel Patterson appeared awe-struck, as if he was before something supernatural. Indeed, I don't wonder at it. He was before a very great man indeed." They had a cold buffet supper prepared and Knox lamented exceedingly that his sprightly Lucy was not there to do the honors. The General's servants, he thought did tolerably well, but the scarlet-coated guest disappointed them by declining to partake even of a glass of wine. It was evidently not calculated rudeness. Not even a swash-buckling English officer could be boorish in the august presence of the laird of Mount Vernon.

The remainder of the summer Knox passed in ceaseless labor. If his statement that for more than forty days and nights he did not have time even to take off his clothes is to be taken literally, the Chief of Artillery must have exuded, on hot August days, a fragrance almost as formidable as the blasts from his own 12-pounders. He tells his Lucy of the ways in which his time was occupied. He rises a little before the sun, and immediately, "with part of the Regiment" (there were, apparently, some godless fellows on the rolls) he attends prayers, sings a Psalm and reads a chapter from the Bible at the Grand Battery. Considerable business is

despatched before breakfast. Then, until dinner, he broils in a sun hot enough to roast an egg. Sometimes he dines with Washington, Stirling or Putnam, but is mortified that he has not yet arranged to have them dine with him. "However," he asserts, "that cannot be." One wonders why. Perhaps his soldier servant is not up to the task of devising a dinner fit to put before the Great Man. Here again he regrets the enforced absence of the socially experienced Lucy.

That lady was finding her enforced exile amid the back-waters of Connecticut anything but jolly. Her aristocratic upbringing in Secretary Flucker's family had unfitted her for the bucolic existence she was forced to endure among the rude yeomanry of the Nutmeg State. She complained caustically in her letters to Knox, of their plebeian manners and uncouth speech, drawing a mild rebuke from her republican husband. That want of refinement to which she objected, he told her, "is, or will be, the salvation of America; for refinement of manners introduces corruption and venality." The kind of simplicity to be noted in these young States, should be, so he thought, quite pleasing to the attentive observer.

While Lucy fretted up at Fairfield, General Howe finally launched his attack on Washington's line of forts across Long Island. The patriots took a sound drubbing, with three generals lost as prisoners. Knox says that his regiment "behaved like heroes" and that a lot of them "went to glory." Their colonel was not with them during the battle, having gone to the city to see that the batteries did their duty if Lord Howe's fleet approached. The defeat on Long Island made necessary the evacuation of New York and during the two weeks breathing spell that the British obligingly allowed, Knox worked furiously with Putnam to get the guns and what munitions he could out of town. At the last minute he had to join in the wild scramble to get up to Harlem before Howe closed the trap. During the disorderly retreat up the island, he came on General Silliman and a mob of demoralized troops at a fort called "Bunker's Hill." Knox was all for rallying the men and defending the post to the last. But Putnam's aide, Major Aaron Burr came dashing along with orders for them to retreat. When Knox refused to budge, Burr turned to the milling soldiers and told them that with a single howitzer he could knock the fort about their ears. They decided that he must be right and again took to their heels. Knox had to follow or fight the British single-handed. They already had his bedding roll with his "other uniform" in it; but he did not propose to join Stirling, Sullivan and Woodhull in captivity if he could help it.

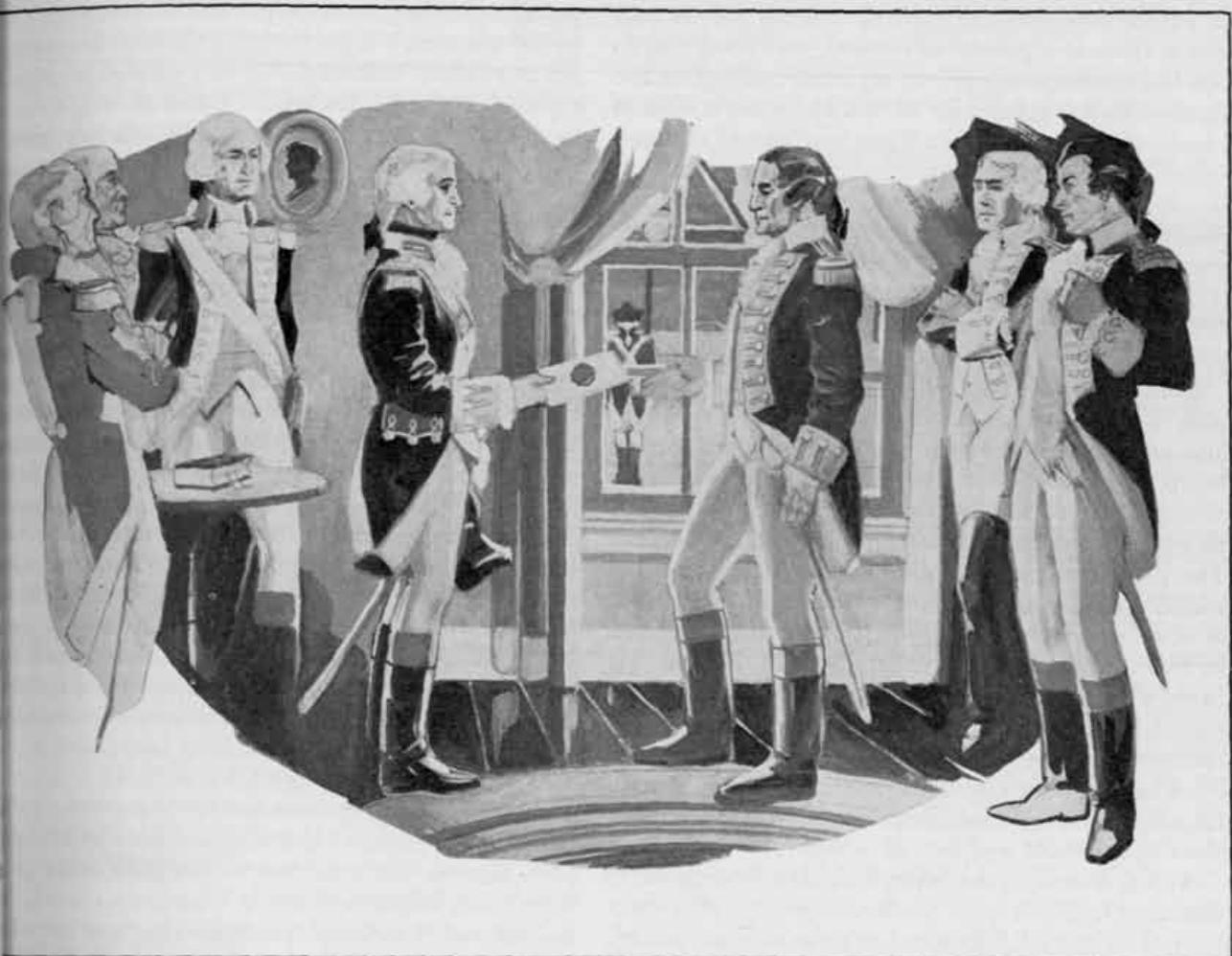
A period of general despondency followed the loss of New York and Fort Washington. Even Knox, who was constitutionally optimistic, seems to have shared temporarily in the *cafard* that affected everyone from Washington to the humblest militia drummer. What the country needed, he declared morosely, was a supply of strong men who would refuse to be downed when fortune declined to smile. He thought that Congress

would now realize that their stupid parsimony was likely to ruin the Cause. One or two more good beatings at the enemy's hands might be just what we needed to really make us a great people. The bogey that so everlastingly terrified the patriot fathers—a standing army—was exactly what we must have, he declared. So he took heart again and ordered Lucy to scout around and find him some good blue cloth for a new uniform, "or, that is not to be had, then some brown cloth superfine. In blue and buff, or in the staidier superfine brown, would keep on fighting.

The greatest handicap under which Washington labored—the lack of competent officers—worried Knox incessantly. He thought the bulk of the Continental and State commissioned personnel a lot of "ignorant stupid men," and until Congress saw fit to provide a means to educate young professional officers properly, "they will be beat until they are heartily tired of it." Already he was dreaming of the stately academy which later he was to help found on the cliffs at West Point. Disgustedly he characterized the Army as it stood, a receptacle for ragamuffins. The bookseller in arms he needed only a year in uniform to perfect himself in the traditional military habit of grousing about conditions in "this man's Army."

III.

It was directly under the eye and command of Colonel Knox that the never-to-be-forgotten crossing of the half-frozen Delaware was accomplished on Christmas night, 1776. "The floating ice in the river made labor almost incredible," he reported afterwards. By perseverance, he added, accomplished what at first seemed impossible. By superhuman exertions he led 3,000 men to the Jersey side between dark and daylight with eighteen guns. Sitting in the stern of the boat which Washington crossed, the corpulent artillery chief evidently did considerable squirming while he watched the progress of the struggling flotilla. It is related that one of the austere Commander-in-Chief's rare ribalds was emitted that night at Knox's expense. "Colonel, move that fat bottom of yours a bit and get out of the boat!" Probably Glover's toiling Gloucester fishermen at the oars got a chuckle out of that Olympian. But after the victory at Trenton His Excellency publicly thanked the big colonel in orders. Better even than Washington's thanks was the recognition of his services that arrived from the seat of civil government. John Adams was looking out for Massachusetts. Along with a commission as Brigadier-General to cheer up the ready inspirited soldier. He was now to have, as complete command of all the artillery in the Army. Lucy he protested modestly that people were more lavish in their praises of his endeavors, than he deserved. All the merit he could claim, he insisted, was his industry. Washington thought otherwise and sent off the twenty-seven-year-old brigadier to Massachusetts to establish at some suitable place an arsenal and an ordnance laboratory. Confidentially, he was directed to



"Colonel Patterson appeared awe-struck, as if he were before something supernatural. Indeed, I don't wonder at it. He was before a very great man indeed."

great influence in his home State, in regulating the military dispositions of the province. He was already enormously popular there, and his trip home had excellent results. He selected Springfield as "the best place in all the four New England States" for his cannon foundry and powder manufactory. He told the Massachusetts solons that Washington expected them to furnish recruits for the Army, not in proportion to the population of the State—they had already done that—but in proportion of the great numbers they had hitherto supplied. And he put this extraordinary idea across! Before the War ended the Bay State had sent into the Army more than double the number of troops furnished by any other State in the Union.

The General managed to work in a brief visit with Lucy. She was staying in Brookline, with no company, and she protested, but that of Mrs. Major-General Heath, a woman whose manners she found so stiff that it was impossible to be sociable with her. And Lucy was above all things sociable. Not a word had come from Halifax, where the Fluckers had fled with the emigré Tories, and the family completely ignored their erring rebel daughter, and she was now fed up with a war that was cutting her off from family and husband alike. Before long she

and her Harry had something even more serious to worry about. Knox was no sooner back in the camp at Morristown than he learned from her that a certain Frenchman had appeared in Boston with a commission from Silas Deane in Paris—a commission as Major-General with supreme command of the Artillery! Lucy declared that much as she would hate to be separated longer from her husband, she was very sure that he would never suffer himself to be superseded in his own department by another, and a foreigner at that! The newly created Chief of Artillery was thunderstruck at the tidings. An unknown foreign soldier-of-fortune, just in from the Continent, to be stepped up to a major-generaley and given command of his Corps, without even a try-out to see whether he could point a cannon! Perhaps he thought that there was no time to be lost in making his protest. He went into a huddle with Greene and Sullivan, both of whom would also be outranked by this interloper, and together they prepared letters to Congress. John Hancock, the President of that body, was informed that if the rumor was true, they requested permission to retire from the Army. Washington, too, was much disturbed. Some of the Frenchmen sent over by the American emissaries in Paris had turned out to

be excellent fellows and valuable officers. But to start one of them as a general of division, and hand over to him the command of a proven organizer and fighter like Knox—that was going a bit too far. He wrote at once to Hancock in earnest protest. Knox was “one of the most valuable officers in the service, who, combatting almost innumerable difficulties in the department he fills, has placed the artillery upon a footing that does him the greatest honor.” He was, besides, a man of great military reading, sound judgment, and clear conceptions. It would never do to humiliate him in the manner proposed.

Congress at once backed down, but saved face by rapping Knox, Greene and Sullivan sharply over the knuckles for their “singular impropriety” in writing the letters of protest. They were directed to apologize for attempting to coerce the supreme legislative body, but they calmly ignored both admonishing and the penalty. The French officer whose appearance on the scene had stirred up the hornet’s nest was a certain M. Du Courdray, a first-class engineer whom Deane had contacted in Paris. He had come over in all good faith and was easily placated by an appointment as Inspector-General of Ordnance with the rank of major-general, his commission being so dated that he ranked no one but a lot of hard fighting brigadiers who had been in the service since the beginning. Within a very few weeks he solved the whole problem of seniority by obligingly drowning himself in the Schuylkill when he declined to dismount from his horse while crossing the river on a ferry. The animal, frightened in some manner, reared, fell overboard and carried his rider to the bottom and his death. The American brigadiers ceased growling and went back to work. Recruits were coming in, to be disciplined and equipped for what promised to be an interesting and possibly successful campaign. For once the army was fairly well supplied with arms and ammunition. Knox’s spirits soared, although he worried a bit over what he called the evident increase of impiety among the troops. After all, he was a Massachusetts Puritan at heart, and he counted godliness very close to marksmanship among the military virtues. Too many of the ragged Continentals seemed to be acquiring the habits and language of Flanders Fields to suit his notions of good discipline.

IV.

The autumn campaign of 1779, despite Knox’s sanguine expectations, furnished the patriots with slight cause for rejoicing. Brandywine was unquestionably a defeat. “Our people behaved well,” he observed philosophically, “but Heaven frowned on us to a degree.” The unlucky Sullivan had something to do with it too, but Knox seldom blamed his fellow generals. The Artillery Corps did their commander honor again, but he could not prevent the loss of ten precious guns. Germantown, with its sorry story of confused fighting in the murky fog; the fatal delay when Knox kept the little 3-

pounders barking harmlessly at Mr. Chew’s stout stonewalled mansion, was another near-disaster. This time he got away all his ordnance, and with incurable optimism reported to the Massachusetts Board of War that the men were still in fine spirits and ardently desired another go at the enemy. He knew of no ill consequences that could follow the reverses, on the contrary he thought that the army had gained valuable experience!

He was lucky to escape most of the terrible winter experience at Valley Forge that year. Washington asked him to explain, with a Captain Sargent, the needs and distresses of the starving and half-naked troops at camp. When one of the well-fed gentlemen of the legislature interrupted to remark wittily that he had never seen a fatter man than General Knox, or a better dressed one than the Captain, the emissary withered by explaining that out of respect to Congress, the Army had sent on its only member with an ounce of superfluous flesh and the only other one with a complete set of clothes! The boys around the camp fires at Valley Forge got a bitter laugh out of that retort when they heard of it. Washington then gave Knox a leave of absence and he went up to Boston to pass a couple of months with Lucy. She must have laid down the law on the subject of separations, for when he returned to camp in early spring, she came along and took up residence in his quarters. And why not? Mrs. Washington, Mrs. Greene, Lady Stirling and a good many others were there, helping to keep their husbands cheerful and industriously knitting socks for the blue bare feet of shivering soldiery. Lucy was getting fat, but she was good-natured, intelligent and so much to the manner born that Martha Washington adored her. From day until the end of the war, she stuck close to Harry’s headquarters, so that the soldiers said “she loved the Army like a drum.” When Philadelphia finally fell she rode in with the triumphant Continentals, but she refused to take up her abode “in the town.” The British garrison had paid slight attention to sanitation during their stay. “The town stunk so,” admitted Knox, “that it was impossible for her to remain in the city as was her first design.”

When the army went out to reconquer the Jersey shore and at Monmouth Lee almost let it in for another feat, Knox handled his corps with skill and daring. In fighting on that day, he admitted, was the hottest he ever seen, and he was enthusiastic over the cool bravery and good conduct of his men. Washington again commended him, writing that “no artillery could have been better served than ours.” Through 1778 and 1779 the interminable war dragged on, but Knox was never doubtful of the outcome. Wherever he was stationed, in camp or garrison, he loved to entertain his men, set a good board and serve sound wines. His men were expensive and his pay, when he could get it, began to cover his outlay. From time to time he invested funds in privateering enterprises. With luck, it

way to quick wealth. Unhappily, most of the ships in which he had shares were either captured by the British cruisers, or failed to make port. Winter quarters in '79, however, gave him the leisure to put into practice some of his long cherished theories on the desirability of training officers in military schools. He set up an "academy" at the artillery park and compelled his officers to listen to lectures and readings on tactics and gunnery. The auditorium, 50 x 30 feet, built by his artificers, was perhaps the original ancestor of the great school later to rise on the Hudson. When the opportunity came to celebrate the French alliance, it was the General and Mrs. Knox who gave the "splendid entertainment." The grand ball that concluded the festivities was opened by General Washington, whose proud partner was none other than the plump and popular Lucy.

In July, 1780 the French under Rochambeau arrived, and in September, Washington, accompanied by Knox and Lafayette, went to Hartford to concert the plans of combined operations. Then came the stunning blow of Arnold's treason, incredible to Knox who loved and admired the traitor. When the Pennsylvania Line, goaded beyond endurance by their sufferings and the neglect of Congress, mutinied at last, Washington sent Knox up Massachusetts to raise money and new levies. To the General Court in Boston he pictured in moving terms the miserable condition of the troops, and the "aggravated calamities and distresses" that had resulted from lack of pay, clothing and rations. From the Bay State and New Hampshire he extracted promises that each of his soldiers, who had enlisted for the war, would immediately be supplied with the munificent sum of \$24. With the French officers of the Expeditionary Force, Knox was always popular. For one thing, he could speak French after a fashion; it was book-learned and self-taught, but intelligible. His heartiness and sociality appealed to the gay and debonair blades in the white uniforms. His real military capacities also impressed them. Major General de Chastellux, a Member of the French Academy, thought Knox a military genius. "He is a man of talent," the Chevalier testified, "well instructed, of a buoyant disposition, ingenuous and true; it is impossible to know him without esteeming and loving him." In the American army Knox's closest intimate friend was the solid Quaker QMG, Nathaniel Greene, who was godfather to Lucy's son Harry, Jr. Greene had a broad sense of humor not often discovered in Revolutionary big-wigs, and his bantering letters to Knox from the deep South during the campaign of 1781 make delightful reading.

The part played by Knox in the swift and decisive operations that culminated in the surrender of Cornwallis at Yorktown, was a doubly important one. To assemble, in the North, the necessary ordnance and munitions, and the animals to haul them to Virginia, was the first task. To get them to Yorktown and then employ the guns and superintend their employment during the bombardment, was the second. When the

means, the facilities, or the munitions were lacking, as they repeatedly proved to be "the resources of his genius supplied the deficit of means," testified the Commander-in-Chief. Immediately after the surrender he was recommended for promotion, but not until the following March would the jealous Congressmen from States outside New England vote him his two stars. The major-general's commission, at Washington's insistence, was dated back to November 15, 1781.

When Lord Cornwallis's band, dolefully playing *The World Turned Upside Down*, headed the march of the surly British captives to the field outside of Yorktown, they sounded the death knell of England's hopes that the rebellious colonies could be subdued. The War was not to end officially for another year, but the consequences of the Franco-American victory were clearly, as Knox wrote to John Jay, "extensively beneficial." For him, there remained three years of tough assignments connected with the business of the little army. We find him, in company with Gouverneur Morris, fruitlessly endeavoring to arrange with the stubborn and evasive British commissioners some settlement of the prisoner exchange and expense accounts. For a time, Knox commanded at West Point, where he finds that key post not sufficiently well fortified and devotes his inexhaustible energy to remedying the defects. In authorizing the work, Washington assures him that such is the confidence in his abilities that even to point out to him the bare outlines of what he should do was unnecessary.

At Newburgh, during the cruel winter of 1782-83, while the army fumed at the delay in demobilization but hung on hoping to get paid off before discharge, the officers teetered on the verge of mutiny. They boiled down their grievances into memorial form and selected Knox to chairman their committee on redress. When Congress turned a deaf ear to his appeals, and the commotion over the notorious Newburgh Addresses threatened to disrupt the whole military establishment he remained unswervingly loyal. He admitted that a better and stronger government was badly needed, but he followed Washington faithfully in trusting to the ultimate justice even of the confederate Congress.

The crisis past, Knox proposed and put across his pet scheme to insure the preservation of associations arising out of the War, perpetuating friendships formed in uniform, and keeping alive the brotherhood of field and camp. The Society of the Cincinnati, forerunner of the G.A.R. and the American Legion, was the product of Henry Knox's fertile imagination. He served as its first secretary and took on his broad shoulders a goodly share of the denunciations that the outraged republicans poured on it. It was an audacious attempt, screamed these super-patriots, to establish an hereditary nobility, on which a new tyranny would surely be erected. One learned judge in South Carolina, who had resigned a lieutenant's commission in the Continental army in 1778, declared that the Society was planted in a "fiery, hot ambition and thirst for power."

On November 25, 1783, at the head of the American army, Knox marched into New York City when Sir Guy Carleton and his garrison boarded the transports for other and more hospitable shores. By this time he weighed close to 300 pounds and it required a powerful horse to carry him as well as a good many yards of "blue cloth, super-fine" to uniform him. With the War over and the British gone, one of the first tasks that fell to him was the demobilization of the army that still remained in service. By January, 1784, Knox was able to report to the President of Congress that one regiment only, 500 men, and about 120 artillerymen then comprised the Army of the United States under his command. He scattered this little force about to guard the arsenals and man a few posts on the northern lakes and then went back to Boston. Massachusetts put him to work at once, sending him up into Maine to negotiate with the Penobscott Indians. The following year, when General Lincoln declined to continue as Secretary at War under the Confederation, Knox was elected to fill the post. The salary, out of which he was expected to pay a single clerk or assistant, was \$2,450. Nevertheless, he accepted the place, flattered that "nine states out of eleven" had voted for him in Congress. He thought that he would probably have time while in office, to improve his private affairs, which were in no too healthy a condition. He had, he told Washington, some dependence on the unwieldy estate of Mrs. Knox, and perhaps a bushel or two of the practically worthless Continental paper money that he had drawn as pay, but his expenses were always considerable and he would need more than his salary to make ends meet.

Shay's Rebellion in Massachusetts kept him busy for some months. General Lincoln and Governor Bowdoin together managed to suppress the uprising, but Knox kept close tab on events and operations and reported regularly to Washington at Mount Vernon. The commotions in the State fixed more firmly than ever in his mind that detestation for a weak central government that had long been one of his chief preoccupations. He longed for what he called "a government of unity." There never was a fiercer federalist and when the prospect of a constitutional convention appeared he worked like a Trojan to forward the project. He even sat down and wrote out a plan of his own for a sound federal organization of the dissentient states. He would have a "Governor-General" with wide powers, and a Congress with teeth to it. When he sent the draft to Washington for perusal, the wise old gentleman on the Potomac approved, but commented sadly that there was small chance of the states accepting so vigorous a central authority. Washington hesitated long before deciding to attend the Convention. He asked for advice from his closest friends and Knox responded to the invitation with characteristic energy. He told his chief earnestly that he must go. The presence of Washington, who would, of course, be elected chairman, was the sole surety against a patchwork revamping of the wretched

Confederation. If they got a real constitution out of the association of the *Pater Patriae* with the work would be essential to its ratification. This was clear thinking and sound advice, and Washington took it.

The Secretary "at" War watched the tedious progress of the Convention with anxious eagerness. In September, 1787, the product of its combined wisdom was ready for ratification or rejection by the states. Knox agreed with Pitt that it was the pattern for all future constitutions, and would be the admiration of all future ages. He did yeoman service in prodding Massachusetts to favorable action. When, in June of '88 the necessary nine states had ratified, Knox loomed large as a probable big-wig in the coming government. James Madison wrote to Jefferson that Washington, naturally, would be the first President, and that either Knox or John Jay would be Vice-President.

Knox was spared the necessity of declining the Vice-Presidency, because nobody voted for him, but Washington would hear of no one else for Secretary of War. That first Cabinet was a compact little foursome of experts, each the President's conception of the ideal man for his job. Jefferson at the State Department, Hamilton at the Treasury, Knox at the War Department and Edmund Randolph for Attorney-General, provided a group of executive advisors not too unwieldy for conferences. The Postmaster-General, Colonel Samuel Osgood, did not rise either to the dignity of a cabinet seat or the managership of the party in those days, was besides, an anti-Federalist, and "agin" the adoption of the Constitution.

The work of the Secretary of (no longer "at") War during the next five years was sufficiently onerous to keep him busy, but interesting enough to make him happy. Theoretically, he was in charge of Navy affairs as well, but since there was no Navy, the attention required was largely speculative. In 1790 he quarreled bitterly with Hamilton over the purchase of Army supplies. The Treasury head insisted that it was his business, and Knox, rather reasonably, thought it came within the province of the War Department. Hamilton won the argument and the resulting confusion and delay in getting provisions and munitions for St. Clair's little force perhaps had a direct influence on that unfortunate campaigner's disaster. The Indian troubles in the South and on the Western borders made enough work for the Secretary. He was continually negotiating treaties with the tribes, and then having to defend his work before a dissatisfied and carping Congress. Many days he spent "on the carpet" in the session hall, with the President at his side, producing documents from his pockets on demand and explaining the workings of his Department to the House or Senate. Some Senator Maclay of Pennsylvania, who despised soldiers of all breeds, thought it was "a mad act to have a Secretary of War in time of peace." But he grudgingly conceded that Knox was, naturally, trying to earn his salary and justify the existence of his office.

V.

Despite the increase of his salary under the constitutional government—he was raised to \$3,000 and given four clerks at \$500 and a messenger at \$350—the costs of living up to his position continued to outstrip his income. If he was frugal so far as the expenses of his Department went (\$7,550 in 1793) he and Lucy still clung to the mode of private life that had earned him the nickname of "The Philadelphia Nabob." They rented a large house on Broadway, kept two horses and a groom, two female servants, one "girl without wages" and a couple of indentured German lads, all probably with husky appetites. The General and his lady were either giving or attending parties a good deal of the time. More than one member of high society agreed with Lucy herself that nothing could be properly done in the drawing room or ballroom without her coöperation and general superintendence. She was now getting a good income from her share of her mother's estates, the sole portion of the Flucker family wealth that had escaped confiscation after the Tory emigration. And the Secretary had a finger in a good many financial pies, including the Ohio Company and some extensive land speculations in Maine.

By 1794 he had had enough of public life and three days after Christmas he sent his resignation to Washington. "The indispensable claims of a wife and growing family of children," whose sole hopes of future security depended on his exertions, no longer permitted him to neglect "duties so sacred." The President reluctantly let him go, telling him that he had deserved well of his country. The General and his family went off to Thomaston, Maine, where he had already ordered the building of "an elegant mansion" on his estate. He called the place Montpelier, differentiating the name from that of Madison's home in Virginia by spelling it with one instead of two l's. The house cost him about \$15,000 and was of brick, stone and timber from his own lands, with outhouses, stables and cookhouses patterned after those he had seen at Mount Vernon. The quatters and claim-jumpers who encroached on his broad acres, and were chased off by the indignant General, now dubbed him "The Nabob of Hancock county."

The Nabob, however, was not permitted to enjoy his retirement. He was much embarrassed by law-suits and some of his speculations turned out badly so that he lost a good deal of money. The multifarious enterprises conducted on the estate, sawmills, shipbuilding, lumbering, tick-making and fishing, gave employment to over 100 men, and were not invariably profitable. At the great house, a hundred beds were made every day, to the care of the swarms of guests and relatives who dropped in, and usually stayed for more than a long week-end. In time, the General pulled his affairs into black, but during the first few years he sometimes came perilously close to the bankruptcy courts. In addition to her social activities, Lucy found time to present

him with twelve children, nine of whom, in obedience to the pitiless infant mortality rates of the time, died in childhood.

The final appearance of Cincinnatus on the stage of national affairs came in 1798. War with France appeared certain. Washington was appointed lieutenant general of the provisional army to be raised for the emergency, and three major generals were authorized. He selected, and demanded from President Adams, Hamilton, Pinckney and Knox, their seniority to be in the order named. Knox was deeply hurt. He had ranked both Hamilton and Pinckney in the Revolution, and the great Federalist had been only a lieutenant colonel. Washington patiently tried to explain to him that this was a new Army and had no relation to the old one that was disbanded in '83. It was no use; the Nabob could not see the argument. He had been a major general through seven years of war and peace, he was only 49, he felt that he was quite competent to command the army under Washington. President Adams felt the same way and stubbornly resisted the urging of his Cabinet members that he acquiesce in Washington's desires. He had to give way finally, but Knox refused to accept the third place. As the French never showed up as invaders, the army was not used and it made no difference, although his apparent ill-temper and irritability let Knox in for some criticism.

For eight years more he lived regally at Thomaston, running his vast estate with boundless energy, corresponding with old military comrades, and exerting a marked influence on many phases of the State's activities. They sent him to the legislature, the "General Court" at Boston, and the Governor admitted him to membership in the Council. Full-blooded, florid, pompous in manner but generous, hearty, sensible and good-humored, he was regarded universally as the incorruptible patriot, a soldier with unblemished record, and a citizen who deserved well of the Republic.

In 1806, when he was but 56 years of age, he died at Thomaston, from an ailment which may have been appendicitis although medical science of the day laid it to a perforated intestine caused by swallowing a splinter of chicken bone. On the plain limestone shaft over his grave they carved the words:

*'Tis Fate's decree; Farewell thy just Renown,
The Hero's honour, and the good Man's crown.*

They might well have added the words of the local historian, who perhaps sums up most fittingly the militant bookseller's claim to fame when he wrote:

Wherever Washington fought, Knox was by his side; and there can be no higher testimony to his merits than that, during a war of so long continuance, he uniformly retained his confidence and esteem.

The affections of the Army's first Commander-in-Chief were not prodigally bestowed. Three only of his generals knew the full measure of his love and trust. They were Greene, Lafayette, and the devoted soldier who remained at his elbow from 1776 to 1794, Henry Knox.

ACTION AT DAKAR

By Colonel Cary Ingram Crockett, United States Army, Retired

Roused shortly after daybreak by the drone of strange aircraft the people of the coastal city rushed from their homes to peer anxiously into the fast lightening skies. Circling high above the houses and harbor were a number of airplanes of unfamiliar shape and marking. As the people watched, black specks falling from the planes burst into sheaves of flashing leaflets which fluttered downward in the fresh morning breeze and came to rest in the streets and parks. A barefooted native soldier grasped one of the pamphlets and rushed with it to the palace of the Governor General. It contained a summons urging the officials, troops and inhabitants to surrender the place and unite with the Free French force of General Charles de Gaulle.

A little later two of the foreign planes landed at the principal airfield and seven armed men leaped from them and tried to capture the airfield commander, but by that time the local forces were on the alert and the audacious assailants were themselves taken prisoner.

This is how on September 23, 1940, war came to Dakar, main seaport of Senegal, capital of French West Africa, lying about fourteen and a half degrees north of the Equator on the Gulf of Goree, a few miles southeast of Cape Verde—the most westerly point of Africa.

Occupying a commanding strategic position over the sea and air routes traversing the relatively narrow water area between Africa and the bulge of Brazil, Dakar is strongly fortified and garrisoned; most of the troops are native Senegalese. The port is a fueling station for French maritime lines and naval ships; it is also a depot for French trade with South America. The harbor is protected by two jetties, one over a mile in length; there are commercial and naval docks, a drydock and torpedo boat basin; and safe anchorage is afforded for the largest ships. Dakar was founded in 1862, a year after the declaration of a French Protectorate over the mainland. It is connected with the homeland by direct submarine cable to Brest, and as the sea terminus of a railway to the interior has rail communication with upper Senegal. As early as 1904 the city, including suburbs, had a total population of nearly 25,000. In 1887 the settlement was made a commune on the French model, all citizens regardless of color being granted the franchise.

On September 11, 1940, as a result of what Prime Minister Churchill characterized in his speech to the British Parliament of October 8th as a series of blunders on the part of the British Admiralty, the three French cruisers, *George Leygues*, *Montcalm*, and *Gloire*, accompanied by several destroyers, had been permitted to pass through the Straits of Gibraltar. These ships,

after having been sought by British naval craft, arrived at Dakar on September 16th. The French 35,000-ton battleship *Richelieu* and several French submarines were already there. The *Richelieu's* rudder had been disabled during a British speedboat attack made some time before.

Soon after the arrival over the port of the aircraft whose sensational actions have already been described the situation became cleared up somewhat for the local authorities. About seven-thirty A.M. a lifeboat flying a white flag and carrying two officers and a few "Free French" sailors pulled up at the main wharf. The officers brought a summons for surrender from General de Gaulle and a British admiral. The envoys were accompanied by two young naval lieutenants from the French battleship squadron at Dakar who telephoned to Governor General Pierre Boisson the contents of the summons. The Governor General refused to surrender and ordered the arrest of the parlementaires, but they managed to escape after being fired on.

A historical example of a forced landing on a hostile shore under modern conditions was lacking until the British made their great landing on the western tip of the Gallipoli Peninsula in 1915. A forced landing is one of the most interesting and difficult types of tactical operations. Moreover a duel between naval craft and shore batteries is an extremely rare occurrence. For these reasons an attempt is made here to reconstruct from rather scanty information the stirring events which took place at Dakar during the period of September 23-26.

At about nine A.M. on the same day (September 23) sea front watchers near Dakar signalled the arrival of two battleships and several cruisers and other craft some miles off Cape Manuel. These were the ships of a strong British naval force arriving from Bathurst, the capital of British Gambia, situated on the Gambia River about a hundred and ten miles south of Dakar. The British squadron is reported to have consisted of two battleships, four cruisers, six destroyers, and six transports carrying about seven or eight thousand deck troops, largely native Africans. Later reports indicated the presence also of a fairly strong force of British Marines.

Evidently Governor General Boisson and the French authorities on shore were not in sympathy with the aims of the British and General de Gaulle. To what extent their sentiments had been influenced by the naval action between British and French ships at Dakar is not known. At any rate the coast artillery batteries

in the Dakar vicinity were ordered to open fire immediately on the British ships, and did so.

Thereupon the British admiral warned the shore forces, presumably by signal, that unless the batteries ceased firing he would be compelled to reply. The French commander radioed back to the effect that the British ships should retire beyond the twenty-five mile line; meanwhile the batteries continued to fire.

A bombardment by the British then began which is said to have lasted for eight hours throughout the day of the twenty-third.

Since it has long been held as axiomatic that naval vessels have little hope of victory in an engagement with modern shore batteries it is to be regretted that details of this interesting fight are lacking.

The French naval vessels also took part in the battle, but just when they began to do so is not indicated in the reports at hand. It is said, however, that the French submarine *Persee* torpedoed a British cruiser and damaged it seriously, but was itself sunk; also that a fifteen-inch shell from one of the shore batteries hit a British cruiser and damaged it badly.

According to French accounts from Vichy the losses of the defenders in casualties on September 23d totaled 66 killed and 340 wounded.

The situation on the night of the 23d seems to have been a stalemate. According to the information received from published parts of French official reports and (at third hand) from the conversation of French officers who were present, neither side had gained a decisive advantage. Realizing evidently that other measures must be adopted the allied commanders decided to make a forced landing. Perhaps they thought that the Governor General would surrender after a show of force by land troops had been made. Such an operation at least would indicate that the action was not merely a naval raid. Beyond doubt it was also thought that a land operation would afford an oppor-

tunity for any disaffected elements on shore to declare for de Gaulle.

The next problem therefore became that of selecting a landing place or places. A glance at the sketch shows that Dakar, lying at the southern point of the peninsula of Cape Verde near where it ends at Cape Manuel, could easily be cut off from the mainland if a beach-head could be captured to the eastward near where the railway to the interior leaves the coast line.

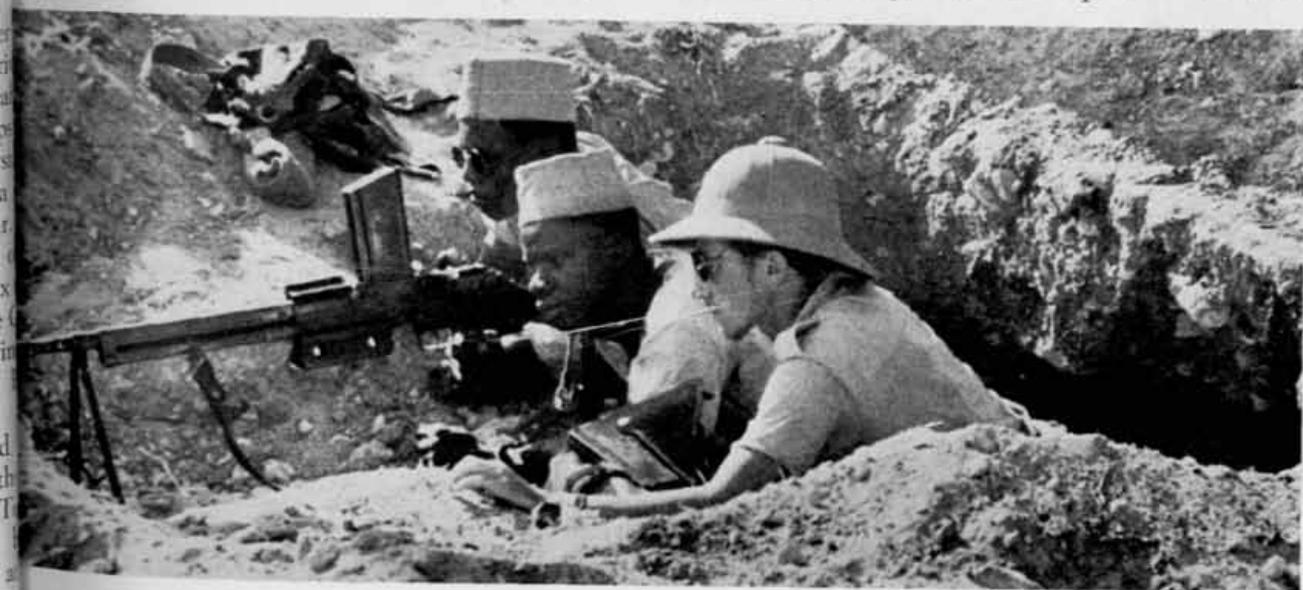
With communication to the interior severed and an opposing naval force holding command of the sea actually present in front of the port, the defenders could hardly hope to wage a successful defense.

Without doubt these and other considerations led the allied commanders to select landing places in the vicinity of Rufisque, a town on the railroad and also the coast, distant about twenty-one miles to the east of Dakar.

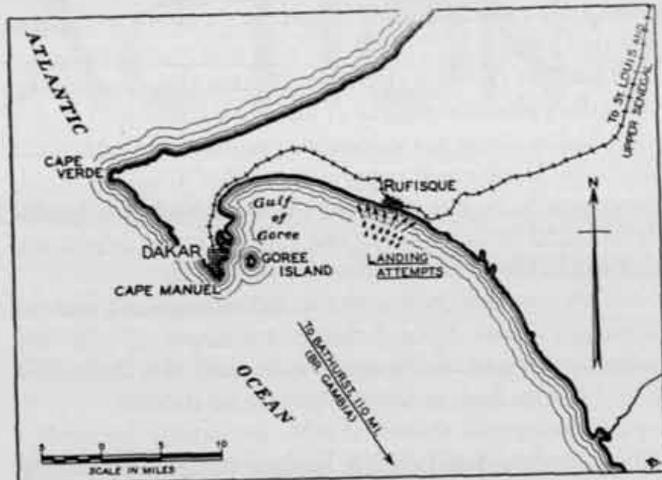
Naturally in the reports published the actual sites of the shore batteries are omitted. It is to be presumed, however, that since the permanent fortifications at Dakar had been established under competent direction the tactical importance of Rufisque had not been overlooked. Evidently at least one, and more probably several, shore batteries had been established in that locality. In any case the cover of darkness for seizing beach-heads would be essential, and since surprise was a highly desirable factor the more quickly the landing operations could be carried out the less time the defenders would have for preparations to cover the entire coast line.

Whatever may have been the considerations which governed the decisions of the allied commanders, the time selected for the landing was the night of September 23d-24th, and the places, various beaches in the vicinity of Rufisque.

Turning now to the situation of the military commander on shore a glance at the map will show that he



Native Soldiers on the Beach at Rufisque



had little choice in his lines of action; that is, he was limited to a beach defense. One great advantage was that Dakar and Rufisque are connected by a railroad extending inland from the beach and therefore protected to some extent from naval fire. Without doubt a highway also parallels the railroad although none was shown on the chart from which the attached sketch was traced. The railway and existing roadways of course greatly favored the quick dispatch of troops to cover the threatened landing beaches.

Unfortunately details of the landings attempted are lacking. The reports show that efforts were made to secure beach-heads near Rufisque, four landings being tried; also that two other attempts were made at beaches to the south of Rufisque, the landing parties being formed in waves of approximately two hundred men each.

The exact hours of the landings and the measures taken to provide covering fire from the naval ships are not stated. It is stated however that all the landing attempts were repulsed with heavy losses to the attackers in killed and wounded, and that over two hundred and fifty of de Gaulle's men were made prisoners. In all probability the main effort must have taken place after daybreak on the 24th as otherwise it would not have been possible to observe the naval fire either from the ships or spotting planes. Reports also state that the effectiveness of the covering fire from the naval craft was seriously reduced by a strong concentration of fire from coast artillery heavy guns emplaced near Rufisque.

Apparently after the failure to capture and hold a beach-head the de Gaulle forces were reëmbarked and the transports withdrawn to the base at Bathurst.

Synchronizing his action with the attempts at landing the British admiral sent an ultimatum demanding surrender of Dakar by six A.M. of the twenty-fourth, and threatened that upon refusal he would bombard the city. Governor General Boisson refused to surrender and on Tuesday, September 24th, the bombardment began.

The picture is presented on this date of an engage-

ment between a naval force of considerable strength on one side and various coast defense batteries and a fairly strong naval force on the other side. The armament of the *Richelieu* consisted of nine 15-inch guns. Due to this great ship's rudder being disabled it was necessary to use a tug to maneuver her; nevertheless she carried on throughout the fight and managed to secure a direct hit on the British battleship *Resolution* that caused a decided list. *Resolution* is said to have been further damaged by a torpedo fired from the French submarine *Bevezieres*. The *Richelieu* suffered minor hits only, but the destroyer *Audacieux* was damaged and beached.

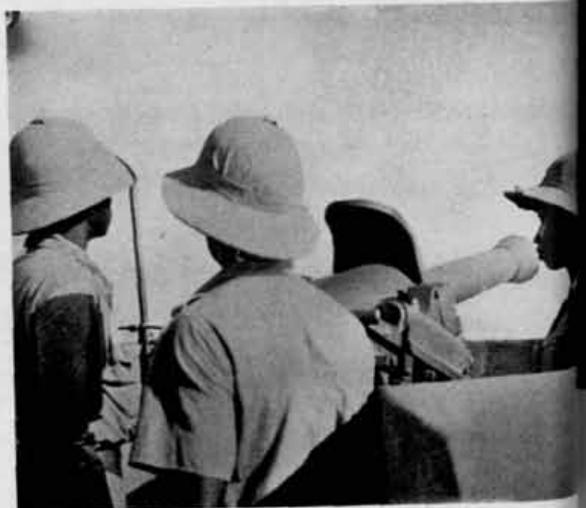
The firing continued on the 25th of September, the heaviest naval action apparently taking place during the late morning and afternoon of that day.

Three British scouting planes were claimed to have been shot down during the naval fighting.

On September 26th the British warships withdrew to Bathurst. The French claim that torpedo hits were made on one battleship and a direct shell hit on another, and also that a successful torpedo attack was carried out against one of the British cruisers. French scouting planes reported that they observed the British squadron during the withdrawal to Bathurst and *Resolution* was listing badly and several other vessels were "limping."

The total French casualties reported included 1,000 killed, with damage to the arsenal, port and residential areas of over 20,000,000 francs.

The British communiqué covering the Dakar bombardment stated in effect that General de Gaulle had made a mistake in concluding that Dakar would surrender after a show of force, that his flag of truce had been fired upon, that the British bombardment followed after the British ships had been attacked by the batteries, and that abandonment of the mission was decided upon only when it had become clear that the future of the place would require a major operation.

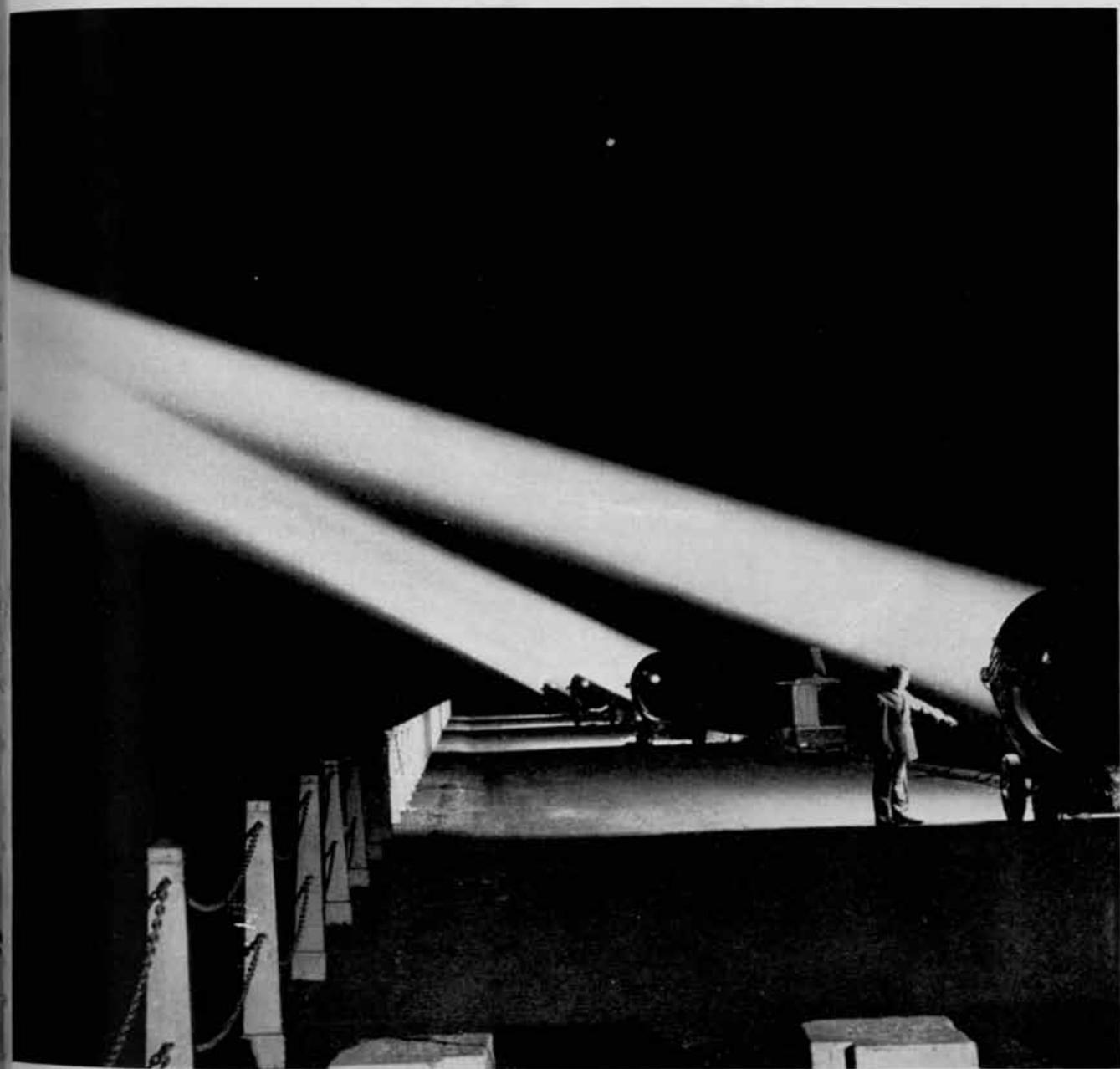


Gun Crew Defending Dakar

involve civil warfare between Vichy and de Gaulle troops.

As well as can be ascertained from the incomplete reports studied, the failure to gain a landing was due mainly to faulty military intelligence; lack of surprise, inadequate strength and equipment, and the strong will to resist and good tactical handling of troops on the part of the defenders.

Study of the reports gives the impression that with respect to the gun fire of both ships and coastal batteries the ratio of hits to shots fired was extremely low. Probably the shore batteries held the British ships at such a distance from the shore that they were hull down on the horizon and could hardly be seen. In any case, the honors rested with the defenders, on whose side the shore batteries seem to have played a major part.





Don't Blame The Constructing Quartermaster

By Lieutenant Colonel W. D. Styer, Corps of Engineers, and
Major O. E. Davis, Quartermaster Corps

From the viewpoint of the average citizen, probably, there is little to challenge the imagination in the building of an Army cantonment. It is a prosaic, practical job, utterly lacking in either drama or mystery. The layout is simple, the materials are common to construction, and labor seeks employment. There you have the basic elements. All the local Constructing Quartermaster has to do is press the button and lo!—up springs a military city in ninety days, comprising hundreds of wooden buildings to meet the thousands of needs of thousands of men!

That's what you think!

Let us follow through one of these projects in the Temporary Emergency Construction Program and see how a CQM operates. Let us get a glimpse of the complexities into which simple things ramify and extend, and learn about some of the headaches connected with the exacting job of the much-harassed Constructing Quartermaster. It will give a new perspective to the little task of building a city overnight.

It will be quickly sensed that the whole industrial life of America flows into the construction of an Army camp. Steel goes into nails holding sheathing from our forests. Deep from mother earth, through smelters, refineries, mills and factories, move the varied materials which shape the completed product. The impulse of demand reaches far and wide into countless markets of needs and supplies. All the facilities of transportation and communication are brought into play—railways and trucks, radio, telegraph and telephone. And always bear in mind that between the first and the last piece of paper moves the mail man.

We will assume, for the sake of brevity, that the strength of the garrison to be quartered at the camp has been decided upon, the site selected and the necessary land leased or purchased. Further, we will take it for granted that the Constructing Quartermaster has received from the Construction Division, Quartermaster Corps, in Washington, a standard layout for the project together with master prints of all drawings and specifications, and funds with which to proceed. Armed with the necessary authority, blue prints and copies of the contracts, he gets the green signal and takes a look around the reservation to find out what kind of a job he has on his hands.

The CQM's first view of the undertaking indicates the nature and order of his chief problems. First, the question of an adequate and stable water supply must be determined. Rolling land may suggest the desirability, next, of a gravity system of sewage disposal, whereas flat land might require sewage pumping. Engineering parties are at once started on the task of preparing a topographical map which becomes the basis of conferences with the Corps Area Commander for the purpose of establishing the basic location of the camp. At the same time a study is made of the sources of electrical power and fuel supply, while a thorough survey is made of railway and road facilities.

The approval of the camp location within the temporary reservation is the signal for things to happen. At that moment the project goes forward and the CQM has a large going concern to handle. The standard layout has to be adjusted to local ground conditions, a task involving many complications. Road elevations

for instance, are set to meet surface drainage; floor levels of buildings are raised or lowered to comply with sewage system demands; water mains are laid out with respect to living needs, and fire protection and transportation facilities mapped out for the expeditious delivery of materials and supplies from the railroad sidings to the men on the job.

The general problems and the general operations are the same, whether the contract be advertised for competitive bids or be awarded on the cost-plus-fixed-fee basis. A cantonment has to be built in a hurry and the CQM is the sparkplug of the project.

An idea of the many details to which the CQM must give attention in carrying out the program may be obtained by enumerating some of the duties and activities for which he is held responsible. Samples of materials must be inspected and checked with later deliveries. Shop drawings showing the contractor's methods of construction require approval. Utilities must move forward in step with the shaping of the structures to be erected, including not only water and sanitary systems but electric power lines and communications, to provide immediate services.

Some of these camps are very large business enterprises, employing upwards of 22,000 men each, with weekly payrolls of around \$800,000, which have to be checked against the prevailing wage rates as received from Washington. Reports must be prepared and for-

warded on the progress of the job and matters affecting funds and personnel, not to mention problems that may arise from labor complaints and charges of unfair practices. The question of priorities for materials necessitates factual data from each prime manufacturer, while contract forms, precisely accurate, must be filed with the finance officer to insure timely payments to contractors. All work in place, moreover, must be given progressive inspection, including supervision by the technical staff employed for this specific purpose. In a word, each action has its groove, its moment of time, for aiding or delaying related progress. A careful timing of details, therefore, is absolutely essential.

As must be expected in jobs of this nature, encumbered with a multitude of complexities, matters do not always move either as smoothly or as swiftly as desired. The date of completion of the project becomes more and more vital, as it governs the induction date for troops or trainees. The objective toward which the CQM and his staff direct all their efforts is readiness of the camp to receive troops on schedule. That is the real target but a lot of things can happen to prevent their scoring a bull's-eye. They go with the job and the CQM must take them in his stride.

On a construction job involving the erection of several thousand semi-permanent tent structures or many hundreds of frame barracks and buildings, the variety of factors contributing to confusion or delay may well





seem endless to the CQM struggling to accomplish a construction miracle in from ninety to 120 days.

Window glass, as we know, is of standard size; yet one mill may deliver a sash-width different from that furnished by another, even though the glass may be of the same dimensions. Lumber may arrive poorly graded yet bearing the proper grade marks. Decisions have to be made as to the use of clay or concrete pipe for sewers; cement-coated steel pipe or cast-iron pipe for water mains; coal or gas for fuel. Accumulating scrap lumber and other debris must be continuously cleaned up, reducing the fire hazard, the chance of injury and drawbacks to ready occupancy of sites.

In all decisions, the CQM must hold in mental focus the completion date, the contractor's rights, the availability of labor and materials, the probable weather conditions and whether solid facts or mere opinions are at hand as a basis for action.

There is the little matter of priorities for construction projects, to insure procurement of materials in the order of military importance, with the least burden upon industry. With every request for a preference rating, the CQM must forward detailed information, giving the order number, date, item and description of job; a statement from the prime manufacturer as to the reason for the priority; and the delivery dates, with and without the rating sought. It is obvious that it takes large numbers of letters, back and forth, compiling this information and obtaining results.

In the popular mind, perhaps, labor troubles constitute one of the chief sources of delay in the construction program. It should be said, however, in fairness to the hundreds of thousands of workers in organized and unorganized labor engaged on these camps and cantonments, that the program has encountered little or no retardation by reason of serious labor troubles.

Some of the unsuspected handicaps that spring from tricky soil conditions, range from difficulties with the impervious, gluey clay in some southern sections to the frozen tundra of Alaska. At the site of one camp, it was found that the soil, with a change of moisture content,

developed an upward thrust approximating five per square foot, while at another the top soil was covered to be but a thin layer of dirt, covering rock shale that had to be drilled and blasted in order to lay utility lines.

Each site constitutes a different sort of challenge to the resourcefulness, determination and skill of the builders, the industry and coöperation of the workers, and the leadership of the CQM. An unexpected increase in the strength of the camp may precipitate a long succession of upsets to be overcome, affecting the capacity of the water supply, sewage treatment plant, bakery, laundry and other facilities. Alterations in the size of the project are followed by changes in contracts involving such essentials as cooking equipment, refrigerators, boilers, dough-mixers, cooking utensils and many other items of necessary equipment. A change-order in Texas will affect a factory in Louisiana or New England. The products of a nation engaged in the building of a camp for 20,000 soldiers.

Winter weather has not added to the joys of the CQM. In some portions of the South long springs and rains have made outdoor work impossible and roads impassable. In some parts of the North work has been hampered by snow, ice and very low temperatures. Whatever the obstacles may be, however, it is up to the CQM to surmount them. He does so through the assistance and coöperation of the other participants in the job—the contractor, the architect-engineer and the worker.

He is the quarterback of the team, out there in the firing line, in the mud and snow, engaged in the active task of helping to shape the national defense structure of America. He has but one aim in mind—to build that camp. Thanks to him and his associates, the task is being accomplished, in many instances, in the face of seemingly insurmountable difficulties, and the second-guessing of Monday morning quarterbacks.

The first need of our new, vastly enlarged army, is safe, adequate shelter. Trust the CQM to bust himself to have it ready when the troops march.

Knox Trophy Winner



The Secretary of War has announced that the winner of the Knox Trophy in the Coast Artillery competition for 1940 is Battery B, 41st Coast Artillery (Ry), commanded by Captain William J. McCarthy.

The winning battery is stationed at Fort Kamehameha, Harbor Defenses of Pearl Harbor. Blasting out the winning score with their eight-inch railway guns, the personnel of Battery B made it a clean sweep for Hawaii, since Battery C, 11th Field Artillery, stationed at Schofield Barracks won the Field Artillery competition.

The purpose of the trophy is expressed in the certificate which accompanies it:

The Society of the Sons of the Revolution in the Commonwealth of Massachusetts, desiring to make the early and inspiring traditions of the Army and Navy tributary to the present efficiency of the service, has prepared a series of trophies to be given for excellence in gunnery and in artillery. The trophies bear the name of Henry Knox, the most resourceful soldier of the Revolution, who won early distinction and rapid promotion under Washington for skill in handling heavy ordnance, and who, upon the organization of the Federal Government, became the first Secretary of War. The career of General Knox has been recalled not only for its fitness to the purpose for which these trophies are to be presented, but with still more reason, because of those professional and personal qualities which made him so conspicuous an example of the soldier and the patriot—supreme devotion to the country, a controlling sense of honor, and unflinching courage and hopefulness in times of adversity. The Knox trophies are designed to express the reliance which the country must place upon the technical skill of those who stand for its defense, and for its part in maintaining the peace of the

world. They are given in full recognition of the fact that no nation can be safe or useful which does not keep pace with the advance of science as applied to the arts of war. In this advance, the supreme test of efficiency is accuracy in the science of gunnery. Every shot which finds its mark adds to the security of the nation. Hence the increasing interest, and watchful pride with which the country follows the practice of the Navy in gunnery, and of the Army and Militia in artillery.

The above certificate accompanied the trophy for the year 1927, which was won by Battery E, 52d Coast Artillery (Ry). It may be of interest to note that the executive of that battery was Lieutenant William J. McCarthy—the same officer who commanded the winning battery in this competition.

In this issue of *The JOURNAL* appears "Bookseller in Arms," by Major Charles Winslow Eliot, a story of the life of Henry Knox. For the artilleryman, this article is of particular interest now, at the time of award of the trophy which takes his name.

The President of the Coast Artillery Board was charged with the responsibility of recommending the winning battery and the two next best batteries, which was done through the Chief of Coast Artillery.

The computation of the scores and their comparison is a particularly complicated process because of the varied armament of the Coast Artillery, and the different conditions under which practices are held. Although there is nothing confidential in the rules for computation, they will not be stated here, due to the space that would be required.

The first award of the Knox Trophy was made in 1913. The trophies are the permanent property of the units to which they are awarded.

We're Doing Okay



Man has always wanted to fly. Perhaps always, in his dreams of flight, he saw himself throwing down upon a helpless enemy stink-pots and old bottles and bombs that would blow up after everybody thought them harmless. Anyway it is a matter of history that no sooner had successful flight been achieved than Man began doing these very things. The result, as we know, is that prompt counter-measures had to be taken, and so, in the United States Army we find ourselves possessed of the antiaircraft artillery. Just how the new service got into the Coast Artillery Corps is no part of this story; probably everybody knows all about it anyway. For the reception and training of these regiments and battalions, many of them new, some of them transformed from other arms or branches, we are now building camps and training centers in various parts of the country. As might be expected, these camps are not so many nor so big as those being provided for the ancient infantry, the clanking cavalry or the field artillery, all of which have to be created on a divisional basis, whereas the brigade is at present AA's largest unit, and will probably continue to be so. These training centers hold 10,000 to 12,000 men. They are large enough to enable several organizations to make joint use of various technical facilities, but not too large for profitable use of what firing points can be found. Camp Hulen, Texas, is one of these training centers. Just how three regiments of National Guardsmen have been getting along while the camp itself has been undergoing expansion and reconstruction is the subject of this story.

Before our present how-de-do, Camp Hulen was the training ground of Texas' 36th Division, National Guard. When Uncle Sam took over its 1,350 acres he found so much space ready to use that it was deemed possible to install troops almost immediately. Good shell roads criss-cross the area. Several hundred concrete tent platforms were ready for use. There are an

800-foot artesian well, giving an ample supply of excellent water; three regiments' worth of pretty good, if small, mess halls; a recreation pier as long as the well deep; rail connections, small warehouses and administration buildings; and, most important, a mild and healthful, if temperamental and unpredictable, climate.

In September, a force of two to three thousand men began the work of adapting the old camp to its new uses. The new units are so much bigger than the old ones and they have so much more and so much heavier motor equipment that vigorous changes had to be made. The work started with framing and screening all old tents and providing many new ones. Several hundred new buildings including those for administration, quartermaster and ordnance work, sanitation, kitchen use, had to be built. The roads will be reinforced in concrete and the whole place furnished with water mains, gas for fuel, and with drainage. Not very much could be done prior to the arrival of troops, so John W. Soldier has been forced to do his bookkeeping and his training while the camp was rising under his feet and swaying about his ears.

On the 26th of September arrived the 203d Coast Artillery from Missouri. Right on its heels came the 197th Coast Artillery from New Hampshire. On October 26th descended a regiment of frost-bitten soldiers just out of the snowbanks of Cape Cod; the 21st Coast Artillery, Massachusetts National Guard, or, as it is known as the historic First Corps of Cadets. Later when the camp is finished, the 204th, and the 11th Separate Battalion, both from Louisiana, the 69th Separate Fort Crockett, Galveston, and the 106th Separate Battalion from Kentucky, will arrive to complete the camp's quota, as now planned.

Now a little about the Texas part of this Gulf of Mexico country, which is of special interest at this time because it is to be one of the great training areas during the coming months. The continent of North America

Major Samuel H. Edes, 197th Coast Artillery (AA)



gulges in a lot of tumbling acts while it is up north by itself, but as it nears the Gulf it quiets down and ally, for the last fifty miles or so before reaching water's edge, stretches away in grassy prairie land, level as a billiard table and bald as a billiard ball, for clusters of derricks which mark the oil lands and a few trees in the river bottoms. Towns, big and small, are spaced at thirty and fifty mile intervals, connected by excellent concrete highways. These, however, are few and far apart and the road net is composed by dirt roads usable for military purposes when dry, but most difficult when wet. About midway on the coast line between Galveston and Corpus Christi lies Palacios Bay, an arm of Matagorda Bay, whose western side is bounded by the great coastal barrier.

Camp Hulen occupies a point at the water's edge a few miles west of the small trading and shrimp fishing center of Palacios, normal population 2,500. A hundred miles or more to the northeast is Houston, one of the nation's most beautiful cities and the promised land of every officer and soldier. It will be seen from this that, judged by ordinary standards, Hulen is a very isolated. But ordinary standards, so far as distances are concerned, do not apply to Texas nor to its people, plenty of whom are said to take a fifty-mile march before breakfast just for a can of beer or a package of corn flakes. But to other folks a hundred miles is a hundred miles and after a few exploratory trips, a soldier's tendency is to content oneself with whatever amusement and recreation the camp and its immediate surroundings afford.

Our 200,000 National Guard soldiers who spent part of 1916 and 1917 in the Mexican Border service learned through hard experience to associate Texas with sand and still more sand, alkali, limitless varieties of thorn- and brier-bearing vegetation, rattlesnakes and other poisonous creatures. Here on the continental divide, no sand at all, not even enough to dust a soldier's

chocolate pudding ere he can eat it, cactus and other thorny growth middling scarce, dust only about average except at rodeos, and not much except the rattlesnakes, scorpions, black widow spiders and centipedes to keep up the state's reputation. Texas is a big place and the conditions so graphically presented in that grand old poem, "Hell on the Rio Grande," with which all old-timers were so familiar, apply after all, only to a small part of it. The rattlesnake business, however, is real enough. And the bugs. Any battery is in disgrace that hasn't at least one husky rattler to its credit, sometimes killed in the battery street. The other disagreeable neighbors mentioned have a partiality for living in mess shacks, tents and latrines. Their extermination is a matter of considerable industry and perseverance, but it can be done in a matter of two or three weeks—except for mopping up, necessary because the scorpion tribe and their brethren have their own brand of perseverance. The hunt must continue for some time after the last specimen seems to have been liquidated. In fact the prudent soldier, be he Ozark or Codfish, had best continue indefinitely to peer cautiously into bed or shoe before venturing to insert therein either the whole or any part of his anatomy.

Speaking of these old Border soldiers, one sees a respectable number of officers and NCO's still wearing the green and yellow ribbon which rewarded the Border service. But of course these veterans are far outnumbered by youngsters who will tell you with considerable pride that their fathers or uncles ate dust with the old Umty-Umpth back in those memorable years. It demonstrates that voluntary military service, or, even more specifically, National Guard service, runs in families and could almost be called an hereditary trait. Getting back to Hulen, how do these soldiers from widely separated and widely differing parts of our country get on together, and what do their interrelations argue as to the solidarity and homogeneity of the Amer-

ican Army? The answer is, "Splendidly." No trouble or friction at all, beyond the poking of a little fun at regional peculiarities or dialect. No trouble—but down here soldiers from different states just *do not mix*. My friend the poolroom proprietor, tells me that different groups, each usually from a single regiment, come into his place, each having a good time in its own way—but not mixing. Later perhaps, witticisms and jibes, yes. A lank Missourian down on the pier observed one of the sting-rays that so infest the waters as to prevent swimming at some seasons. This one had met with what a Texan might call "an acciDENT" and been gathered to the sting-ray heaven. The soldier was heard to remark, "Reckon he musta tried to bite one o' these here dam' Yankees and hurt hisself." Maybe the soldier had seen the sign which appeared on a Yankee's tent before the screens were installed, "DANGER—Any rattlesnake bites me at his own risk."

So much for weather and construction and snakes, but how's training coming along in the face of all these unhelpful things? Disappointments have, it is true, appeared, but on the whole, training, especially in the broader aspects of soldiering, is coming along well. Antiaircraft training consists of a great deal besides making pretty puffs of smoke up around a sleeve target; of filling the air full of brilliant searchlight beams hunting for the scudding, mothlike plane; or streaking tracer bullets right through the nose of a B-9-A target. The regiments now at Camp Hulen reached here with something like 50% recruits. They will receive more recruits in January. First job, of course, and one requiring the best efforts of every available trained man, is to accomplish the mental, physical, and even spiritual transformation necessary before the civilian can be called a soldier, and do it without spoiling that part which we call the man himself. To do this, infantry training has to be drawn upon heavily. Interspersed is weapon training, which, in the case of the anti-aircraftmen runs all the way from the pistol and rifle, for local defense, through the machine-gun

(both .30 and .50), 37-mm., searchlight, with all accompanying gadgetry of height finders, direction control boxes, sound locators, and so on. The gun offer lots of opportunity for indoor work on rainy days with infantry drill and artillery drill reserved for weather.

And then there's all the business connected with motor transportation. So much to learn about motor driving, convoy work, upkeep and all the rest that trucks are kept pretty much on the move, what overnight camps, supplies, and miscellaneous errands. They do splendidly, but truth compels one to admit that moments come when John Soldier wishes he was back in the days of the army mule. The mule's virtue was—and is—that he thrives upon soft-going, the motor vehicle just doesn't. (Our new four-wheel drive pick-ups, known here as "doodle-bugs," come nearest to it of anything we have seen.) Hard roads are not scarce here, but good parking areas are few. For lack of a better place, prime movers and heavy cars have to be parked on natural ground.

Just what can be done in the way of tactical instruction when a brigade, or several regiments, act together remains to be seen. Right now the chief bottleneck in the training program is the problem of finding points where a suitable field of fire is available. The commander has an energetic commander and under his leadership the camp looks forward to having good firing points for most everything else now wanting. It may be that the rainy season is about over (we are having wonderful weather for Christmas), but no native-born Texan can be found who would bet so much as a worn-out string one way or the other. The spirit of everybody at Camp Hulen is to push training along just as fast as possible in order to have the regiments ready for active duty, when and if. And the one really hot topic of conversation among the officers and men at Camp Hulen is—"WHERE DO WE GO FROM HERE—AND WHEN!"

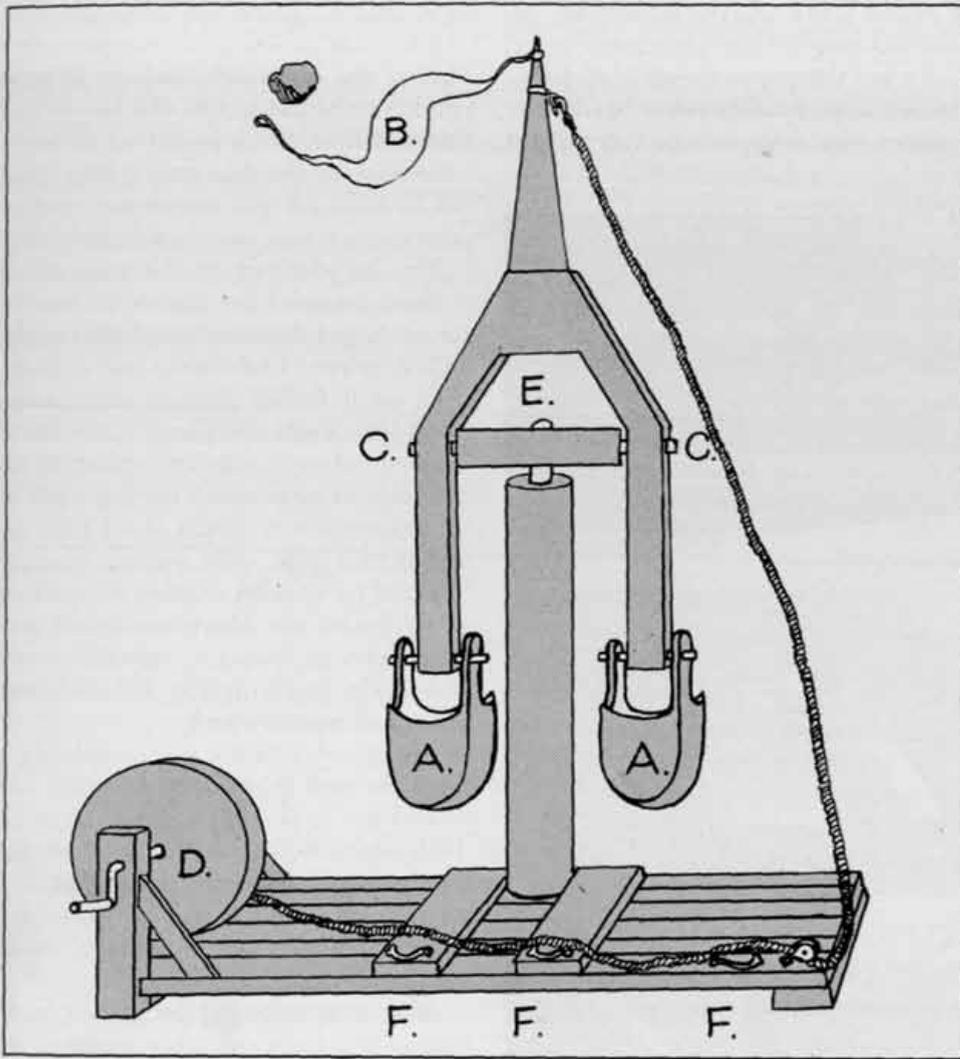


If a general shows confidence in his men but always insists on his orders being obeyed, the gain will be mutual.

SUN TZU.

The Story of Artillery Through the Ages

By W. A. WINDAS



Chapter 12: THE MATE-GRIFFON

The Mate-Griffon was used during the eleventh and twelfth centuries. The design of medieval artillery had begun to improve. This machine is still of the counterweight pattern, but certain changes have been made. There are two counterweights (AA) employed, instead of the usual one. These are large containers, filled with lead metal, and are closer to the fulcrum of the lever than is the sling (B) which carried the projectile. The fulcrum is at (CC).

The winch at (D) is for "cocking" the arm, by pulling down the sling end, and raising the counterweights. This winch is fitted with a fly-wheel.

The pivot at (E) enables the weight and sling assembly to revolve, thus, when the arm is cocked it can be

engaged in any of the trigger-hooks at (FFF). This plan gives the machine a certain degree of traverse.

Several writers of the times mention instances when the body of a dead horse was thrown by a Mate-Griffon. This seems an astonishing weight to be hurled by a "counterbalance" engine, but the range might have been very short.

With a stone sufficiently heavy to be effective against thick donjon walls, the range of the Mate-Griffon could not have been very great. Many castles of this period are still standing, and there are often commanding heights within three or four hundred yards of them. It does not seem reasonable that castles would have been built in such locations, if contemporary missile engines were effective at that range.

SOS On the Highway

By Captain W. E. H. Voehl, Coast Artillery Corps

Did you ever see a ten-ton prime mover in a ditch? It's a sad sight under any circumstances, but to the motor transport officer who falls heir to the task of

putting the behemoth back on the road, the stricken giant is an object to tear the heartstrings. In the hope that this short article might save a few hours and no little grief for the next man with a like problem, I offer the benefits of my experience with an upset prime mover.

My introduction to the task of righting ditched vehicles occurred last summer. I was fortunate in that the message informing me of the accident was accurate and complete. The ten-ton prime mover was on its side in a ditch beside a road, about twenty miles from Borinquen Field Air Base.

From salvage piles and other sources we had assembled, in preparation for just such an emergency, a conglomeration of blocks of all sizes and lengths, wire and manila rope with suitable clamps, and old tires. We had no wrecker capable of handling a ten-ton job, so we loaded the above-mentioned material and some other issue items including a universal wrecking bar, blocks and tackle, and hydraulic jacks into two prime movers and set off for the wreck.

The wrecked truck was completely off the road to the right, and lying on its left side, as can be seen in illustration 1. Directly behind the truck was a ten-foot ditch which led to a culvert; this complicated the problem because it restricted the distance we could tow the wreck backwards, as well as reducing the number of angles at which rescue vehicles could approach the ditched truck.

After reconnoitering the terrain on both sides of the road to find trees and other means of anchoring blocks and tackle, it was decided in this case to perform the operation in four steps. The truck would be pulled over to the right to set it back on its wheels; it would be dragged backward a short distance; the left front wheel would be placed on the road by means of blocks and winches; finally, the prime mover would be towed out of the ditch.

A stump was found on the hill to the right to anchor the block and tackle, and the end of the rope was brought out to the road where it was attached to the winch of one of the rescue party's prime movers. A chain was fastened to the wrecked truck's left front spring, passed over the body, and made fast to the block. When the winch began to take up on the rope, the wrecked truck began to fall to the right. (Illustration 2.)

At this point, blocks were set under the body of the truck to hold it in position if anything should break. The first prime mover remained in position to act as an anchor, and a second one was brought to the rear of



wreck. The wire rope on the winch of the second prime mover was secured to the left rear spring of the wrecked truck. On signal, the first prime mover began to slacken its cable while the second one took up its line. (Illustration 3.) The wreck came backwards, at the same time completing its upturning. Blocks were still used under the body of the truck to prevent loss of time in the event of a cable break.

Part of the bank under the right front wheel of the wreck was dug away. The first prime mover was moved to a position close to the wrecked truck's left front wheel, its wire cable made fast to the front axle of the wreck. The rope which had been used to right the truck was fastened to a small tree on the opposite side of the road to prevent the wreck from slipping back to its original position. The prime mover began to take up on its winch and the wrecked truck was pulled slowly onto the hard-surfaced road. (Illustration 4.)

Towing the wrecked truck to Borinquen Field was a

problem in itself. Both front springs had been damaged, the right front wheel had been pushed back about a foot, every spring bolt had been sheared, and the steering assembly was bent. The front bumper was binding the left front wheel, which necessitated tearing the bumper. The right wheel had to be pulled forward before the truck could be moved; this was done by using a line from the towing truck to force the axle forward.

As in so many military activities, the lessons of this experience boiled down to two essentials—the necessity for advance preparation and complete information. The speed with which the wrecked prime mover was placed on the road—three hours—was a reward for months of scouring salvage piles to assemble such items as blocks and extra rope. Complete information which was received before leaving our base insured that we came properly equipped for the job at hand. In the absence of complete information, it is better to err by bringing too much equipment.



If we desire to avoid insult we must be able to repel it; if we desire peace, one of the most powerful instruments of our rising prosperity, it must be known that we are at all times ready for war.

GEORGE WASHINGTON.



. . . We are not a military nation, yet we are a rich nation, and undefended wealth invites aggression.

THEODORE ROOSEVELT.

LATE GERMAN AIRCRAFT



Junkers 87 Dive
Bombers—"Stuka"

BOMBERS

→
Junkel 111's



→
Junker (Ju 88)—Much-used Medium Bomber

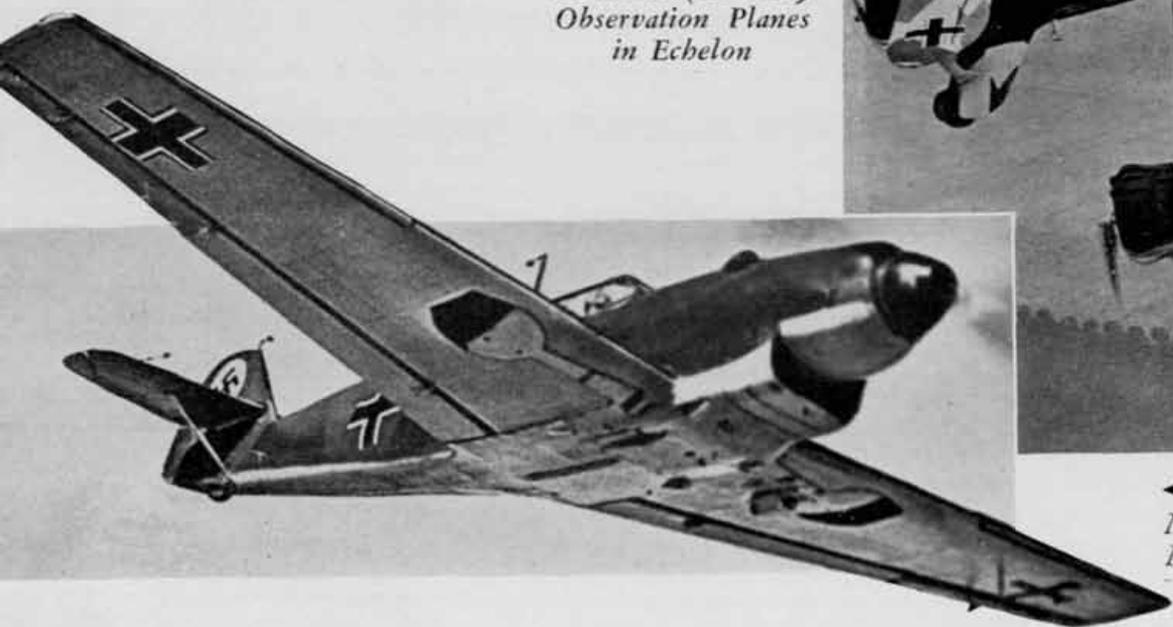


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Dornier (Do 215)—Long Distance Reconnaissance and Bombing Plane



FIGHTERS

→
*Henschel (Hs 123)
Observation Planes
in Echelon*



←
*Messerschmitt 109
Most-used Fighter*



↑
*Heinkels (He 112)
Ready for Flight*



←
Focke Wulff "Destroyer"

→
*Heinkel (He 115)
All-Purpose Seaplane*

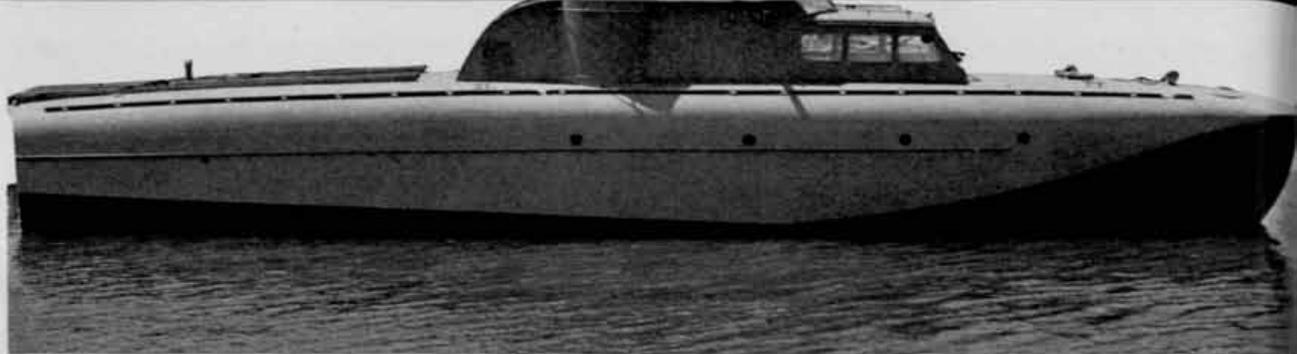


←
*Messerschmitt 110's
Effective Fighters*

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*Fieseler Storch—A Low-Speed
Observation Plane
for Front-Line Coöperation*



PROPERTY OF U.S.



Motor Torpedo Boats in Coast Defense

By H. T. Robertson, Boatswain's Mate First Class, U.S.N.

Recent newspaper prognostications of the threatened German invasion of England have emphasized the possibilities of employment of swarms of motor torpedo boats, the present-day descendants of the "mosquito-boats" of World War fact and fiction. These craft have a large degree of usefulness to any navy, but it is probable that they might have even a greater bearing on problems of coast defense.

When it is considered that small M.T.B.'s are relatively inexpensive and require little time to build, the economy of the craft both in money and man-hours becomes more evident. These light M.T.B.'s should be able to skim over the water at forty-five to fifty knots, bearing one 21-inch or two 18-inch torpedoes, several depth charges, and a few light guns. A modern destroyer leader costs eight million dollars and takes a year or more to build; think how many of these stinging hornets of the sea could be built for that much money—and in how much less time!

For the enemy who attempts a landing on our shores fleets of these speedy craft might be of incalculable assistance. With their great speed and light draft, they could evade our defenses long enough to land determined troops in positions where they might be a serious threat to coast defense installations—they would be the parachute troops of the sea. While whole fleets of M.T.B.'s were landing troops on our shores, other fleets of these well-armed craft could be playing havoc with our net tenders, mine layers and other harbor defense boats—even to the extent of sinking warships and merchant ships at anchor in our harbors.

Mines and nets will probably not be a serious deterrent to these fleets of M.T.B.'s. Their draft is too shallow for them to contact ordinary mines. By installing a small fin or projecting arm in front of the rudder and propellers, they would skip over nets with the greatest of ease. In the interest of speed the fins might be retracted within the hull, using much the same principle as retractable landing gear in aircraft. Some additional obstacle such as a floating boom with spikes would have to be provided in order to stop them.

An enemy force could carry large fleets of M.T.B.'s both on deck and in the holds. They may be swung

overside within striking distance of the shore, to be used as scouts in conjunction with airplanes, to deal with such of our smaller patrol boats as may be in the vicinity, and to land troops. With their light draft, they would be especially dangerous along the most lightly defended portions of our shores, where in the past landing operations were hardly considered feasible. A small harbor, weakly defended, would be a perfect target for this form of attack. With the landing fleet offshore, the landing detachments would be fairly secure from attack by sea.

Once established on shore, the next step would be to permit the enemy to extend his lines to a fair-sized harbor where he would find dockyard facilities and a favorable road and railroad network. Given enough M.T.B.'s, they could probably keep our defense craft from the adjacent water areas while he consolidated his position.

With the added suggestion that the reader keep in mind the fact that the use of M.T.B.'s for landing would permit the enemy transports, tenders and warcraft to keep farther offshore than would be possible in previous conceptions of landing operations, we leave the subject of the use of the boats by the enemy and turn to their uses in defense.

Right now our country is putting forth every possible ounce of effort to build up our defenses. No matter how fast we are able to gear industry and our defense forces, we will never have a fleet sufficient to take care of every contingency. Every fighting ship of major type that is released from coast defense duties strengthens the fleet twice over—a ship is added to the fleet, and a placement will be saved if a ship assigned to coast defense should be sunk.

One division of five M.T.B.'s will release a patrol vessel of some other type such as a destroyer or submarine used normally for coast defense. Almost every landing mine planter and net tender might carry one or more of the smaller M.T.B.'s; many of these craft might carry one M.T.B. of a larger type. The new large fleet boats are capable of carrying one. With this pick-a-back arrangement, harbor boats acquire formidable fighting power, and the M.T.B.'s range of operations is increased greatly.

In the defense of our larger sounds and harbors such as Chesapeake Bay, Puget Sound, Long Island Sound and Delaware Bay, the coast defense guns are handicapped when smoke is used or the weather is bad. Under these conditions, it is conceivable that the guns might not cover all the shore line, all the mine fields, and all the channels where an alert enemy might be tempted to plant a few mines. With a fleet of M.T.B.'s as part of the local naval defense forces patrolling constantly, the range of the shore defenses would be extended so far to sea that even hit-and-run raids would be too costly for the enemy to attempt more than once. By operating a screen of these light craft out to sea, harbor mine and net tenders could retire to the protection of shore batteries if attacked.

With their tractor- and truck-drawn guns, as well as the railroad mounts, the mobility of the Coast Artillery Corps has become one of its most valuable features. This idea of land mobility could be used by the M.T.B. squadrons as well.

The plan would be relatively simple. Squadrons of the smaller M.T.B.'s would be loaded on railroad trains, using as many flatcars as necessary to accommodate the squadron, plus a shop car, spare-parts car, dining and galley car, office and radio car, crane, and the required fuel tankers. The Army would lay out operating routes and communications procedure, being responsible for

the movement of the boats until they were placed in the water. These highly mobile squadrons would be reinforcements for local naval units, either M.T.B. or other types, having knowledge of the local situation and the hydrography of the surrounding waters.

Small M.T.B.'s would not overlap standard railroad cars more than a few inches, if at all, so there need be no problem of routing the craft over the rails. As for unloading, a common railroad crane could do the job. To unload from an open trestle, the boats could be lifted by a pair of overhead horses, the train moved to a position which would bring the crane to the suspended boat, the boat lowered, and the operation repeated until all boats were in the water. In emergencies, or where no crane or trestle would be available, the boats could be skidded overside in their cradles, designed so they would slide on inclined timbers.

These railroad squadrons could be moved with the speed of our fastest passenger trains. A few days would be sufficient to concentrate in Florida every small M.T.B. stationed on the East coast. There, for example, they could be used by the Navy to make the West Indies a most uncomfortable spot for an enemy.

Truck and trailer units, of which the United States has thousands, if not tens of thousands, could transport the small M.T.B.'s where railroads were lacking or inoperable.



Supply for the M.T.B. squadrons would be a small problem. No extensive shore establishments would be necessary. Divisions could reprovision at neighborhood grocery stores, and refuel (with the aid of metal drums) at the nearest corner filling station.

Intelligence, communications, and related functions could be handled the more easily with the assistance of local boatmen, who know their own waters and how to put that knowledge to the best use. My opinion of our coastal boat operators is rather high, after several years experience with them. These men's ideas on the employment of M.T.B's should not be dismissed too lightly. Their knowledge of channels and currents would be invaluable. Many of the operators of fishing boats and other coastal craft have installed radiotelephone communication—with instruction in military intelligence and proper organization they could be used as an efficient scouting force while engaged in their normal everyday occupations.

Just as one example from thousands of possibilities, a fishing boat may observe a strange ship. Remaining at a safe distance, it might radio its information to the M.T.B. base, where one of the fast boats would be ordered to investigate. If the M.T.B. should come to grief by action of the strange ship, another radio message would bring a division or more of the speedy little stingers. No commander of a surface ship wants to meet a squadron of deadly little M.T.B's armed with torpedoes—especially in restricted waters where his maneuverability is hampered.

M.T.B's can aid coast defense batteries materially by extending their range. An enemy fleet could be brought under torpedo fire much farther out than the maximum

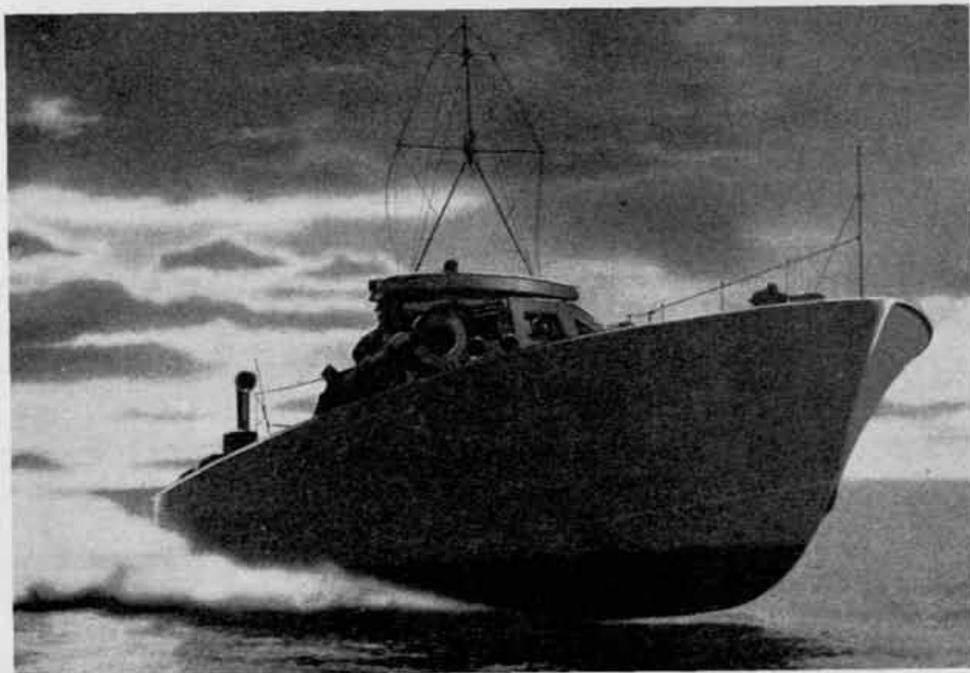
range of the guns, and harassed all the way in until it comes within the range of the coastal batteries. With proper coordination, naval M.T.B's and the Coast Artillery Corps working together can provide a much tighter defense than has been the case in the past.

The torpedo, the M.T.B's primary armament, is a weapon deadly to any ship. While a direct hit by an aerial bomb may not incapacitate a ship, few ships are able to withstand the effect of a well-placed torpedo. Working in waves, with the proper use of smoke and concealment, a squadron of M.T.B's should be able to destroy almost any ship.

The mobility of the motor torpedo boat, both strategical and tactical, makes this type of craft a valuable adjunct to both attack and defense in shore operations. The United States, and more particularly the Coast Artillery Corps, is interested in coast defense. We have swarms of these cheap, fast, mobile boats to extend their range and increase their fire power, the harbor defense units will be far more formidable than ever before. By releasing to the navy larger units, such as destroyers, our fleet will be strengthened greatly.

The time to prepare for adequate defense is now. Let's get into production on both types of M.T.B's—45-foot boats for railroad and truck squadrons, and larger 75-footers also. Let's organize our coastal boatmen to enable them to assist the M.T.B's. National defense is an expensive proposition at best—but in my opinion M.T.B's will give us big results with relatively small outlay.

EDITOR'S NOTE: M.T.B's were in use during World War I; they form a part of nearly every navy. There are no available reports which indicate the extensive use of these boats in coast defense during World War II.



A Universal Bracketing Fire Adjustment Chart

By Captain Oswald H. Milmore, Coast Artillery Corps

The desirability of graphic solutions of artillery problems is obvious. In the vast majority of cases the use of charts increases the speed of solution of gunnery problems and reduces the probabilities of error in computation.

The Universal Bracketing Fire Adjustment Chart, described in this article, has the advantages of ease of construction and simplicity of operation.

PURPOSE

This chart is designed for use in artillery fire adjustment employing the bracketing method and will indicate graphically the correction which should be applied to the range after any combination of overs and shorts have been observed during fire for effect. This particular chart gives corrections in terms of percentage of range, but it may be adapted to yield corrections in terms of yards of range or of angular units of elevation, as desired.

The value of the probable error varies with range, although when expressed as per cent of range it is fairly constant within certain limits, extreme and very low ranges being beyond these limits. Therefore the selection of a single value of the probable error in the construction of bracketing fire adjustment charts and the use of such charts is justified only when corrections are expressed as a percentage of the range and the range is within such limits. When the range is outside of these limits and, regardless of the range, when the corrections are expressed in other terms, cognizance must be taken of the variation in the magnitude of the probable error, so that it would be necessary to provide a large number of alternate charts based on such diverse values of the probable error unless a single chart is available which will yield corrections for any value of the probable error.

The chart is universal in that the same chart may be used for any value of the probable error and is, therefore, of particular value for rapid fire batteries because it obviates the need for preparing a number of alternate adjustment charts. A further feature of the chart is that it is constructed on a logarithmic scale so that it may be used if desired in connection with the percentage corrector or with the range correction ruler to set the slides to their proper positions. This is done simply by moving the slide for a distance and in a direction indicated on the chart without the necessity of reading the numerical value of the correction on the chart. The opportunity for error in reading and applying corrections is thereby reduced.

The chart is used in a manner similar to that of the present type of bracketing adjustment chart, except that the correction is not indicated continuously while the firings are being traced. After the completion of the firing line it is necessary to locate a reference point on

the chart, and to determine the correction by measuring the distance to this point from a normal line. This introduces two more movements after the completion of the sensing line to determine the correction when the chart is employed alone. However, when the chart is applied to a percentage corrector or to a range correction ruler the same total number of operations are involved as in the existing methods, since the operation of reading a numerical value of the correction on the chart and the application of this to the corrector are eliminated; in this case the correction is applied by moving the slide through a distance corresponding to the distance from the normal line to the reference point, no other measurement of the distance being required.

The chart is based upon the true normal curve of error and will, therefore, yield corrections which differ somewhat from corrections determined by the approximate formula commonly used.¹ While the use of the approximate formula is justified when numerous calculations must be made in the field (as was the case when a separate over-short adjustment chart had to be prepared for each value of the probable error, or in the adjustment of precision fire in the Field Artillery, wherein no charts are used) it was felt that more exact mathematical relationships should be employed in the construction of a universal chart. The chart may, of course, be modified to give corrections based upon the approximate formula.

DESCRIPTION

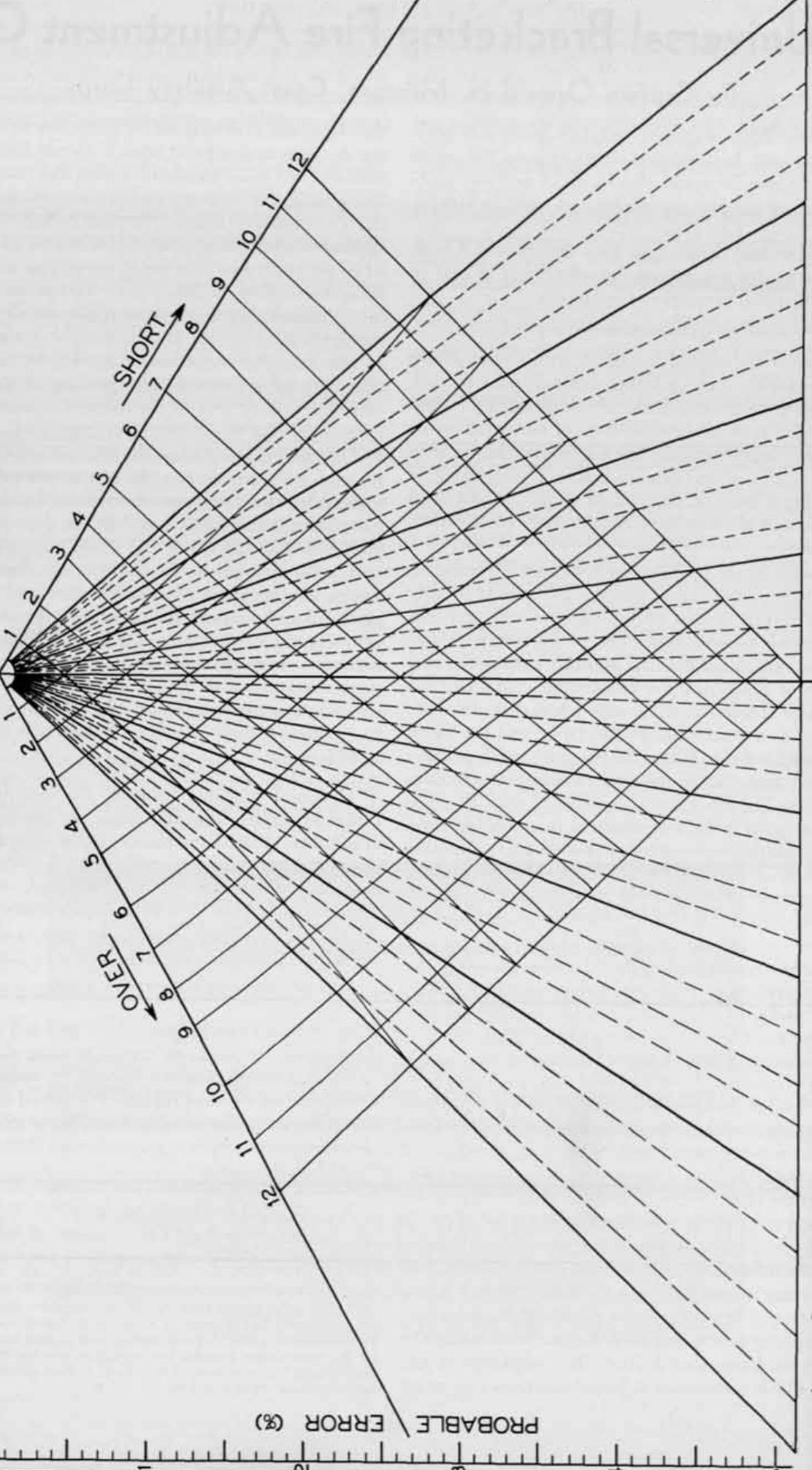
The most probable value of the deviation of the center of impact from the target for any combination of numbers of overs and shorts may be determined from the normal curve of error and from a knowledge of the value of the probable error. For example, when eight shots are considered, seven of which are over and one of which is short, the probable proportion of shots which would fall between the target and the center of impact is $\frac{7-1}{16} = 0.375$. The probable proportion of shots, both over and short, which will fall within this distance of the center of impact is twice this number, i.e., 0.75. From the table of probability factors the factor corresponding to this probability is found to be 1.706, this being the most probable deviation in terms of probable errors. The proper correction is, therefore, down 0.426 forks.²

¹The approximate formula gives the correction as: Correction = $\frac{(O-S)}{2(O+S)} \times F$, where O and S are the number of shots observed to fall over and short of the target, respectively, and F is the value of one fork (four probable errors) in yards of range, or per cent of range, or elevation, the correction and F being in the same units.

²By the approximate formula the correction for this combination of overs and shorts is given as down 0.375. Corrections determined by the tables of probability are slightly smaller than those determined by the approximate formula for corrections smaller than 0.25 fork; are the same for corrections of 0.25 fork; and are considerably greater for corrections above 0.25 fork.

200 300 400

UNIVERSAL BRACKETING FIRE ADJUSTMENT CHART



In this manner the corrections in terms of forks based on each combination of overs and shorts from 1 to 12 are calculated.

For each of the corrections thus determined a number of corrections in terms of per cent of range were calculated for various values of the probable error, likewise expressed in percentages. The logarithms of the ratios of corrected to uncorrected ranges (based on the up and down percentage corrections thus obtained) were plotted as abscissae, horizontally from a vertical normal line appearing near the middle of the chart, against values of the probable error as ordinates, using a scale of 1 inch = 0.005 logarithmic units, this being the scale commonly used in the percentage correctors. Points based upon the same correction in terms of forks were joined by curves. Certain of these curves appear on the finished chart radiating from a point on the normal line; others were omitted to avoid overcrowding. The two curves making the greatest angles with the normal line correspond to up and down corrections of one form, respectively, and are applicable when all shots are observed in the same sense.

A grid indicating the number of overs and shorts necessary to yield a particular correction in terms of forks was then superimposed on the curves, so that the intersections of grid lines fell on the proper curves. A logarithmic scale indicating percentage corrections and having 300 as normal appears at the top of the chart and is repeated at the bottom. It is graduated so that one scale unit greater or less than 300 corresponds to a correction of 0.1% of range up or down, respectively. Vertical scales indicating the probable error appear at the sides of the chart.

OPERATION

A horizontal reference line is drawn on the chart at the level of the probable error for the particular armament and range, as indicated by the vertical scales at the sides of the chart. During fire sensings are marked on the chart in the usual manner with a heavy or colored pencil, starting from the point of convergence of the curves at the top of the chart. Thus, when a shot is over, a sensing line is drawn along the grid line downward and towards the left one division; when a shot is short, the sensing line is extended downward and towards the right one division; and when a shot is reported as a hit the sensing line is drawn downward to the next grid intersection, since a hit is counted both as an over and as a short. To determine the correction to be applied the location of the end of the sensing line with respect to the curves is noted and the curve passing through the end of the sensing line is followed up or down to the horizontal reference line previously drawn; a reference point is marked at the intersection of the curve with the reference line. (When the end of the sensing line falls between two curves an interpolated reference point is visually located and marked

on the reference line.) The horizontal distance from the normal line to the reference point indicates the proper correction in units as indicated on the logarithmic scales at the top and bottom of the chart.

For convenience in reading the correction it is desirable to provide a rigid scale graduated like the logarithmic scale shown, and to place the scale on the reference line with the 300 mark at the normal line. Such a scale can be provided conveniently by cutting the lower horizontal logarithmic scale from the chart and mounting it on a rule. It should be noted that the logarithmic scale is not symmetrical about the 300 mark so that care must be taken not to invert it.

The chart may be used in conjunction with the range percentage corrector without reading the magnitude of the correction by drawing the sensing line and locating the reference point as described above but, instead of measuring the distance, moving the read pointer through a distance equal to the distance. Thus, the chart is positioned so that the normal line coincides with the fiducial edge of the read pointer, and the latter is moved to the reference point.

It may, with certain correctors, be convenient to mount the chart on the corrector on the platform provided for the interpolator. In this case it is mounted with the top of the chart towards the range elevation tape so as to cause the logarithmic scale to be parallel to the ballistic correction scale, the graduations of the two scales being in correspondence. It will be necessary to modify the use of the corrector by using the adjustment correction scale for setting ballistic corrections as well as corrections based on trial fire, and to move the carrier to incorporate adjustment corrections. For this purpose the short "ballistic pointer" should be replaced by a longer pointer reaching over the chart. This long pointer will hereafter be referred to as the "adjustment pointer."

When fire for effect is begun the carrier will be positioned so that the fiducial edge of the adjustment pointer lies over the normal line of the chart. The reference point is located as described above and the carrier is then moved until the edge of the adjustment pointer lies over the reference point. The proper correction is thereby set into the instrument.

For adjustment corrections based on subsequent shots two possibilities are presented. The adjustment correction determined for the first series of shots may be incorporated into the ballistic correction and the carrier may then be brought back to normal; subsequent shots may then be plotted on the same chart (beginning again from the top) using a pencil of a different color, or on a new chart similarly mounted. Alternately, a chart may be mounted on the board in a new position, selected so that the normal line falls under the fiducial edge of the adjustment pointer in its position resulting from a prior adjustment correction.

The United States Coast Artillery Association



The purpose of the Association shall be to promote the efficiency of the Coast Artillery Corps by maintaining its standards and traditions, by disseminating professional knowledge, by inspiring greater effort towards the improvement of matériel and methods of training and by fostering mutual understanding, respect and coöperation among all arms, branches and components of the Regular Army, National Guard, Organized Reserves, and Reserve Officers' Training Corps.

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The Coast Artillery Journal

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The JOURNAL prints articles on subjects of professional and general interest to officers of all the components of the Coast Artillery Corps in order to stimulate thought and provoke discussion. However, opinions expressed and conclusions drawn in articles are in no sense official. They do not reflect the opinions or conclusions of the Chief of Coast Artillery or any other official or branch of the War Department.

The JOURNAL does not carry paid advertising. The JOURNAL pays for original articles upon publication. Manuscripts should be addressed to the Editor. The JOURNAL is not responsible for manuscripts unaccompanied by return postage.

News and Comment

JOURNAL Circulation Grows

With the resurgence of interest in national defense the circulation curve in the editor's office gets steeper. Greater circulation means more income, more income means larger payments to authors, and larger payments to our authors means more and better articles. If the improvement will, we hope, result in still greater circulation and the start of the same cycle all over again.

Keep us informed of your changes of address—won't want to miss The JOURNAL, now of all times.

Incidentally, if you have an article you would like to get off your chest, send it along. The JOURNAL is always on the lookout for new articles and new authors.

✓ ✓ ✓

Holly Ridge, North Carolina

A large new antiaircraft training center, which has been designated Camp Davis, is being constructed at Holly Ridge, North Carolina, approximately 100 miles north of Wilmington.

Eight semi-mobile antiaircraft regiments are to be activated there on April 1, 1941. These will be designated the 93d, 94th, 95th, 96th, 97th, 98th, 99th and 100th. The 99th and 100th will be activated with colored enlisted personnel.

Cadres for the new regiments are now being transferred in existing regiments, as follows:

for the 93d C.A. (AA) by the 69th C.A. (AA)
for the 94th C.A. (AA) by the 63d C.A. (AA)
for the 95th C.A. (AA) by the 63d C.A. (AA)
for the 96th C.A. (AA) by the 63d C.A. (AA)
for the 97th C.A. (AA) by the 70th C.A. (AA)
for the 98th C.A. (AA) by the 65th C.A. (AA)
for the 99th C.A. (AA) by the 76th C.A. (AA)
for the 100th C.A. (AA) by the 77th C.A. (AA)

These cadres will be transferred to Camp Davis about February 15, 1941, and it is anticipated that selectees to complete the new regiments will be received about March 15, 1941. Cadre personnel for the tactical headquarters of the new station is being trained by the 63d C.A. (AA), the 65th C.A. (AA), and the 70th C.A. (AA).

Colonel James B. Crawford, Coast Artillery Corps, has been designated as Executive Officer and Lieutenant Colonel S. L. McCroskey as Plans and Training Officer of the new training center. These officers have arrived at Camp Davis following a period of temporary duty in the office of the Chief of Coast Artillery.

Individual Trophy Winners

Announcement of the names of the winners of the Individual Trophy Awards has been delayed due to the number of changes in the status of the Reserve Officers and Unit Instructors concerned. With Unit Instructors and regimental field officers not immediately available, in some cases it was difficult to select the captain or lieutenant who was most deserving of the award.

The saber is awarded to the Reserve captain or lieutenant in each corps area who has done most to promote the training and *esprit* of the Coast Artillery regiment in the corps area that attains the highest rating in extension school competition.

Here is a brief outline of the rules for the award:

The regiment's average Coast Artillery Reserve strength on the last day of December and June must be thirty or over.

The number of Coast Artillery Reserve officers in the regiment who have earned twenty-five hours or more of credit while members of the regiment as evidenced by completed subcourse certificates or satisfactorily completed command and general staff lessons between July 1st and June 30th, is divided by the regimental strength as determined in paragraph *a* above and the result expressed as a percentage.

The regiment with the highest percentage receives the saber.

The saber is then presented to the Coast Artillery Reserve officer of that regiment in the grade of captain or lieutenant, first lieutenant, or captain who has done most to promote the active duty and inactive status of the regiment and the *esprit* of the regiment, during the year.

This officer is selected by a committee composed of the field officers of the regiment and its Unit Instructors.

The winning regiment in each corps area and the officers selected by the committees are:

First Corps Area—606th C.A. (TD) First Lieutenant Roland Everard Falls, Boston, Massachusetts.

Second Corps Area—621st C.A. (HD) Second Lieutenant J. F. Nichols, Wilmington, Delaware.

Third Corps Area—503d C.A. (AA) Second Lieutenant William Shinn Greer, Pittsburgh, Pennsylvania.

Fourth Corps Area—925th C.A. (AA) Captain Alexander James M. Wannamaker, Orangeburg, South Carolina.

Fifth Corps Area—535th C.A. (AA) Captain Myron Bauer, Lebanon, Indiana.

Sixth Corps Area—506th C.A. (AA) Captain Carl William Bernhard, Hales Corner, Wisconsin.

Seventh Corps Area—507th C.A. (AA) Captain Eldon R. Johnson, Wyzata, Minnesota.

Eighth Corps Area—974th C.A. (AA) Captain John Makian, Denver, Colorado.

Ninth Corps Area—509th C.A. (AA) Captain Glen Walker, Seattle, Washington.

British A.A. Gunners

Up to 10th November a seventh of the German raiders destroyed since the air attacks on Great Britain began have been shot down by anti-aircraft guns. During the thirteen weeks previous to this date the gunners destroyed three hundred and fifty-seven bombers and fighters. In one week during August they accounted for sixty-four—fifty bombers and fourteen fighters—an average of nine a day.

For some months after war was declared the crews spent most of their time polishing their guns, practised "shooting down" patrolling Spitfires and Hurricanes, and impatiently awaiting the Nazi onslaught. When the onslaught came they showed how effective their previous training had been.

As the German Air Force has changed its tactics, so the gunners have quickly learned to deal with the new menace. Fast, high-flying Messerschmitts have been shot down as well as the slower and lower flying Heinkels and Dorniers. On one occasion Dover gunners shot down a Messerschmitt 109 fighter which was just a white speck in the sky five miles above them.

An analysis of anti-aircraft successes reveals that bombers and fighters have been destroyed in the ratio of two to one. Between 8th August and 10th November one hundred and twelve fighters were shot down against one hundred and ninety-six bombers and forty-nine doubtful types. These figures, however, do not tell the full story of the damage inflicted on the German Air Force by anti-aircraft fire. There are the "winged" bombers that may just manage to limp home but crash on landing. Some are probably beyond repair, while others may be out of service for several weeks. Definite news of the fate of these aircraft can never be known to our vigilant gunner crews.

Almost every day wreckage of a German aircraft is washed ashore, and examination often proves that the guns can claim the victim.

Shooting down aircraft is not the sole task of the gunners. Their concentration of fire may be so deadly that the Nazi airmen drop their bombs and run for home without reaching their objective. This happened on 19th August, when a formation of seventy German bombers approached the Thames Estuary. Spitfire pilots who were patrolling at the time reported that the anti-aircraft barrage was so terrific that the whole enemy formation turned and went back. It is also the task of the gunners to keep the enemy bombers flying high and so make accurate bombing difficult. And the gunners "point the way" to our fighter pilots, who, when they see the puffs in the sky, are sometimes given their first clue of the enemy's location. Bursting shells also cause tight formations of bombers to break up and so make them easier prey for the fighters.

There is no doubt that German airmen have learned to respect our anti-aircraft defenses. Even when broadcasting Nazi pilots have openly admitted their dislike of our A.A. fire in general and of the London barrage in

particular. This great barrage was first heard by Londoners on the night of 11th September. German experts argued that such a tremendous concentration of fire must mean the weakening of our A.A. defenses elsewhere. They imagined that the guns had been brought to London at the expense of other towns and cities.

The experience of the past two months has disconcerted them. Many of the German raiders destroyed by A.A. fire since the London barrage first went up have been shot down in other parts of the country. They have crashed all round England "from John o'Groats to Land's End."

The effect of London's nightly barrage has been to force the raiders higher, to make them fly faster, to turn them away from their targets. After a few hours on the first night the German bombers were flying 6,000 feet higher. Except when they have been helped by heavy low clouds they have kept that height ever since.

After the inauguration of the London barrage the number of raiders who managed to get through each night to central London became much smaller. They may set out with orders to bomb definite targets, but the network of steel flung up against them forces them to change their plans. They are now much more inclined to drop their bombs hurriedly and turn for home.—*The Fighting Forces—December, 1940.*

New Mine Planters

Six new mine planters are expected to be placed in commission during the latter part of this year. Using uniflow steam propulsion instead of Diesel power, the new vessels are expected to be much more maneuverable. The *Niles*, newest of the present fleet of mine planters, is a Diesel-powered ship. The heavy electrical equipment used in conjunction with the Diesel engines will be omitted in the new vessels, with a consequent increase in maneuverability.

The increase in the number of warrant officers and other crew ratings for the new ships, already provided for by Congress, is welcome news for the mine planter personnel, whose promotion has been slow heretofore.

Examinations for promotions in the Mine Planter Service are in prospect shortly. An eligible list will be prepared to fill the requirements of the new vessels.

Submarine Mine Courses

Beginning about February 1, 1940, the Coast Artillery School will institute ten-week courses in Submarine Mining, to be held at Fort Monroe. Two courses are planned, with the decision for holding future courses reserved until a later date.

Each course will have a capacity of twenty student officers, with preference given to students who are graduates of electrical engineering courses, or who have had experience with automatic telephone equipment. Instruction will be conducted under the supervision

of the Commanding Officer, Submarine Mine Detachment, although the students will be processed by the Coast Artillery School.

The purpose of the course is to prepare officers for duty with submarine mine batteries.

Rations in the German Army

Since the beginning of the war, the press has frequently mentioned the soy bean, chiefly in connection with the German ration. Few of our readers will realize the extent to which Germany uses the soy bean and the extent of its importance in wartime service of supply. It has become vitally important to the Reich from the point of view of food politics as well as from the military point of view. The weakest point in German food economy is the lack of animal food products, for example, meat, milk and eggs. The Germans have met this deficiency by the development of a soy bean flour called "Edelsoja," which, because of its high protein content, 40-45%, as well as its fat and carbohydrate content, can be used as a substitute for meat and other animal products. This flour is added to dishes such as soups, sauces, bread, pastry, and macaroni in such a way that the flavor remains completely unchanged. Each individual receives the balanced daily ration of protein, fat and mineral salts necessary for human nourishment, without receiving meat.

Soy bean flour is neither a food substitute nor a nourishment pill, but a new and highly valuable article of food, the nutritive value of which has been attested for centuries by experience in the Orient. We cannot afford to laugh at German attempts to increase soy bean cultivation.

The military importance of the soy bean lies in its use as an article of food as well as in the fact that many chemicals are produced from it. Soy bean flour and other products are ideal foods for an army, and already they are considered as the iron ration of the German army. These products are not only important as a ration for men who perform manual labor, but they have also proved an excellent preventative against rheumatism and trench fever. With a supply of soy bean rations the German Army can march into foreign countries without needing to trouble about its subsistence. German papers, such as the *Frankfurter Zeitung*, have often openly pointed out this fact. The German soldier can easily carry in his haversack a three day ration of soy beans, and reserves of this food can be supplied on short notice upon demand.

Cans must be used very sparingly because of the shortness of the tin supply. After preliminary studies had been carried out, the Army administration was able to produce, within a very short time, new foods which could be packed in receptacles other than tin cans. These foods are suitable for military purposes from

supply standpoint. Instead of tomato pulp in tins, there is tomato powder; canned cheese is replaced by powdered cheese, canned applesauce by apple powder, and jam in tin pails by jam powder.

The layman will undoubtedly understand that powdered food not only facilitates packing, but it also improves the system of supply. When cheese powder is poured into a pail and mixed with cold water, it emerges in a short time as a firm cheese which can be cut as well as Swiss or Tilsiter. The soldier receives for dessert applesauce which was made by mixing apple powder with cold water just before issue. Easy solubility means great saving in transportation.

* * *

Whenever possible, raw vegetables or fresh herbs are provided. In addition, pure Vitamin C has been developed and used in "V candies" as an anti-scorbutic acid. To assure a regulated apportionment, 50 mg. of anti-scorbutic acid is twice worked into candies, taffies and the like, with dextrose, fat and whey.

* * *

With the aid of new compression and refrigeration methods, the Army administration, assisted by Army food experts, has produced tomato puree, tomato pulp, and tomato powder from the German tomato. This was previously impossible because the variety of tomato raised in Germany during the short ripening period contained too high a water content. The tomato and its products are tasty, nourishing, beneficial, rich in vitamins, appetizing, and economical in that no waste is involved in their preparation.

Dried vegetables, such as cabbage, carrots, and spinach, compressed into brick form by means of hydraulic presses, are well known to all who have passed by a field kitchen during this war. But the fact that sauerkraut, dried and compressed into cubes, can now be sent to the kitchens deserves special mention. Sauerkraut is a very popular item of the Army ration.

The introduction of the American Birdseye refrigeration methods in 1939 by the Army administration has produced definite advantages in vitamin preservation, especially in meats, fruits and vegetables. Not only is a saving in tin accomplished by eliminating cans, but food and vitamins can be kept for years frozen at 35° C below zero.

The immense amount of research work done by the chief of the Reich's Institute for Food Preservation is of unusual importance in connection with the practical transport of meat for the Army. Meat is packed already roasted or cooked. Pork hocks and chops are packed in corrugated cardboard boxes, the cartons are compressed to double shoe-box size, and the contents are then frozen gradually. Under favorable transportation conditions, these products will stand journeys of five to six days, even in sunshine, and they can still be kept for years. In addition, a 400% saving in space is made.

Concentrated foods play an important rôle in specialized rations—for example, rations for tank troops, fortress troops, mountain troops, and aviators. One of the best examples of highly concentrated food is Pemmikan, originally used by the American Indian during long migrations. He prepared it from dried game and cranberries. Following our own experiments and those of Nansen, the German Army developed *Pemmikan-Landjaeger*, which contains all the substances necessary for building up the body, such as carbohydrates, protein, fat, and mineral salts. *Pemmikan-Landjaeger* contains the following:

- Meat, smoked, containing protein (beef and pork);
- Bacon, containing fat;
- Soy bean flour, containing protein, fat and carbohydrates;
- Dried fruits, containing carbohydrates;
- Whey, containing minerals;
- Tomato pulp, containing vitamins;
- Yeast, containing vitamins;
- Green pepper, containing vitamins;
- Cranberries, containing vitamins;
- Lezithin containing lipid;

Frankfurter Zeitung, August 29, 1940.



THE KNOX MEDAL—Awarded by the Society of the Sons of the Revolution in the Commonwealth of Massachusetts, to the outstanding enlisted student at the Coast Artillery School. The 1940 winner was Staff Sergeant Joseph H. Valliere.

Coast Artillery Ring



The Coast Artillery Association has approved this ring, but it may be worn by any Coast Artilleryman, whether or not he is a member of the Association. The design, as shown in the illustration, has been worked out with great care. The other side is equally attractive, depicting a fort and the shield of the United States superimposed on a crossed saber and rifle above the letters U.S.A.

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To keep the cost within reach of all, the manufacturer has worked out a plan whereby the outside of the ring is 10k. gold over a sterling silver inlay; in appearance this is exactly like the solid gold ring and will wear equally as well.

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Blue Sapphire ..	30.00	20.00	12.50
Topaz	30.00	20.00	12.50
Amethyst	30.00	20.00	12.50
Garnet	32.00	22.00	14.00
Green Tourmaline	30.00	20.00	12.50
Emerald	30.00	20.00	12.50
Bloodstone	28.00	19.00	11.00
Onyx	27.50	18.50	10.50

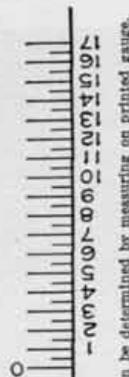
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Trophy Runners-Up

In addition to the Knox Trophy award announcement which is carried elsewhere in this issue, information is now available concerning the batteries which came in second and third in the competition.

Battery C, 70th Coast Artillery (AA), commanded by Captain Harlan C. Parks, placed second. This battery, firing 3-inch anti-aircraft guns, is located at Camp Stewart, Georgia.

In third place was Battery A, 6th Coast Artillery, Fort Winfield Scott, California. Major E. Carl Enghart commands this battery, which fired 6-inch harbor defense guns in the competition.

Army Motor Traffic

A Highway Traffic Advisory Committee to the War Department, composed of nationally prominent civilian traffic experts, has been formed to give advice on military traffic movements.

The committee will advise the War Department the best means to expedite the movement of troops and supplies on public roads, and to coordinate these movements so as to reduce to a minimum interference with normal civilian traffic.—*Army and Navy Journal*.

The German Corps of Officials

Officials play an important part in the activities of the German Army by performing many of the duties assigned to commissioned officers in other armies. They are not full-fledged soldiers according to German concepts, but they occupy, rather, a double position. As officials of the German Reich, they are subject to transfer from one division of the civil government to another; hence, they may be serving one year in the Ministry of Agriculture and in the next year in the Army or Navy.

While serving with the armed forces, they are subject to general laws governing officials of the German Reich and also to most of the laws and regulations for officers and soldiers. They wear a uniform closely akin to that of a soldier while on duty with the Army, but their uniform is distinguished from that of the soldier by the dark green color of the epaulets and cuff distinguishing marks.

Civil officials serving with the Army fall into three general categories.

- Officials of higher classification;
- Officials of upper middle classification;
- Officials of lower middle classification;
- Officials of lower classification.

It is not possible for a German official to be promoted from one of these group classifications to another. When a German desires to enter upon a civil official

career in the German government, he is classified in one of these four groups according to the general level of his education and the degree of excellence with which he has passed the required examinations. In general, all officials of the higher service have passed examinations equivalent to those required for graduation from an American university.

Army officials perform a variety of different tasks. The two principal classifications into which their duties fall are the technical engineering and the administrative.

The following are the principal divisions of the administrative service:

- Intendance (QMC)
- Finance
- Military Architecture
- Military Pharmacy
- Archives
- Libraries
- Psychology
- Sport Teaching
- Chemistry
- Military Agricultural Service
- Military Museums Service
- Military Forestry
- Army Radio Reception Service
- Remount Service
- Mobilization Service
- Army Motion Picture Service
- Army Clothing Service
- Judge Advocate General's Department
- Army Chaplains' Corps
- Army Trade Schools

Branches in the engineering and technical classifications are as follows:

- General Technical Service
- Artillery
- Sound and Flash Ranging Service
- Fortress Engineer Service
- Motor Transport Service
- Signal Service
- Gas Protection Service
- Pioneer Service
- Topographical Service
- Ordnance Service

German officials, while on duty with the Army, are not given military titles, but each position has a title of its own. Thus, the Chief Intendant of the German Army has the title of *Generalstabsintendant*, while the Chief Intendant of the Corps Area has the title of *Generalintendant*. All officials of the higher and upper-middle classifications have social position equal to that of an officer within the Army, while those of the lower-middle and lower classifications are treated as non-commissioned officers.—*Das Buch Vom Heer, Germany, 1940.*

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BOARD NOTES

Any individual, whether or not he is a member of the service, is invited to submit constructive suggestions relating to problems under study by the Coast Artillery Board, or to present any new problems that properly may be considered by the Board. Communications should be addressed to the President, Coast Artillery Board, Fort Monroe, Virginia.

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Revision of TM 2160-35, Coast Artillery Target Practice. The Coast Artillery Board has completed and forwarded to the Chief of Coast Artillery a draft of Technical Manual 4-235, Coast Artillery Target Practice. This manual is a revision of TM 2160-35, Coast Artillery Target Practice. Major changes included in the revision are stated below.

a. General.

(1) Officials for target practice are required to be detailed from other regiments unless this is manifestly impracticable.

(2) Instructions for classification of organizations have been changed to conform to Circular 77, WD, 1939; that is, classification will be made by army and department commanders instead of by the War Department.

b. Seacoast artillery.

(1) *Settling shots.* A subparagraph has been added to clarify the instructions relative to the firing of "settling shots." Subject to the approval of the district or brigade commander, mobile batteries are authorized to fire one round per gun of the target practice allowance as "settling shots" when occupying positions from which no firing has been conducted.

(2) *Time out for changing zones.* Mortar batteries are to be authorized a time out of not to exceed 2K for changing zones. The added time is expected to provide greater latitude in directing the movements of the tug.

(3) *Film scale.* The matter formerly appearing in TR 435-56, Schloming Film and Tangent Scale has been revised and included in the new publication. A new film scale which provides for the measurement of deviations directly in angular values has been prepared for the issue by the Coast Artillery Board. The

use of this scale eliminates the need for an auxiliary tangent scale. Also a new work sheet for determination of range deviations has been included for use when the deviations are reported as angular values. Care should be taken that the new work sheets be used only when deviations are reported in accordance with the new film scale.

(4) *Table 1.* This table has been revised and brought up to date.

c. *Submarine mines, test phase.* The instructions for the test phase of a submarine mine practice have been revised to require the planting and maintenance of two complete groups instead of only one.

d. *Antiaircraft guns.* Under current instructions one record practice is fired without trial fire on the day of practice. Another requirement has been added to the effect that no adjustment of fire will be permitted during this practice. This does not prohibit the application prior to the beginning of a course, of corrections based on observation of preceding courses. It is believed that this is a service condition and will serve to impress on battery commanders the importance of preparation for fire.

e. Antiaircraft automatic weapons.

(1) The requirement that on at least one course of each practice the average slant range will be "less than 500 yards" has been changed to read "less than 700 yards." Safety requirements restrict the minimum altitude of the target to 300 yards. The maximum elevation of the M-2 mount is $68\frac{1}{2}$ degrees. These two conditions make it desirable to increase the maximum limit prescribed for average slant range.

(2) For additional assignment practices, the requirement that "slant range will be less than 700 yards when fire is opened on each course" has been modified by adding "except on incoming course"

Limits on minimum altitude and maximum elevation of the machine gun mounts make this change desirable.

(3) For those practices in which the central control equipment M-1 is used, a tabular and graphical analysis are required. New forms AA-19 and AA-20 have been prepared for this purpose. The analysis shows the leads actually used and the leads which should have been used. The analysis is designed to convey a picture of the performance of the fire control section on each course and point out to battery commanders errors to be corrected by further training.

f. Antiaircraft searchlights.

(1) The requirement that searchlight practices be conducted from war positions has been added.

(2) The size of the defensive sector has been changed so as to vary with the number of lights employed, a 360-degree defense being provided when fifteen or more searchlights are available.

(3) Each searchlight battery is required to conduct three record service practices annually instead of one practice per platoon as prescribed in TM 2160-35.

✓ ✓ ✓

Case II pointing for seacoast guns. The Coast Artillery Board has recommended that the following changes be made in TM 4-210, "Coast Artillery Weapons and

Matériel," since it is contemplated that, wherever the site permits, 12-inch or 16-inch guns mounted on bar-bette carriages may be fired by Case II methods:

On page 70, the last sentence in subparagraph 31 c (4) and page 74, the last sentence in subparagraph 31 d (5), each be amended to read:

"A sight is provided for Case II fire except for those batteries so sited as to preclude that method of firing."

Telescope mounts and sights are provided for all batteries of this type except those so sited as to preclude the use of Case II fire in any important part of the field of fire.

✓ ✓ ✓

Use of Lewis Charts. It is contemplated in the next revision of FM 4-110 to delete all reference to the use of Lewis Charts for the solution of triangles in view of the fact that these problems may be solved with the Crichlow Slide Rule. Formulæ and instructions for the solution of triangulation problems are printed on the slide rule, and all trial shot and calibration problems may be solved by using the reverse side of this rule. For these reasons the necessity of using several Lewis Charts, especially under adverse weather conditions, is eliminated and the result is a simplification of the battery officer's field problems.

The Crichlow Slide Rule has been standardized for issue to antiaircraft organizations. Pending the issue of these rules they may be purchased from the Book Department, Coast Artillery School.

Deflection for Automatic Weapons

1. a. The section on fire adjustment appearing in Chapter 5 of FM 4-112 states, "The use of central control equipment necessitates thinking of leads in terms of lateral and vertical angles instead of distance along a target's course and above or below that course. This requires a knowledge of lead characteristics. The adjusters at the central control box must have not only a thorough knowledge of how to estimate initial leads, but also a knowledge of how these leads change. . . . A study of the effects of the increased speed of service targets upon leads is the only method of training at the present time for such targets."

b. The officer assigned to an automatic weapons battery should be thoroughly familiar with the deflections required for the many types of airplane courses presented as possible fire control problems. The computation and plotting of deflections for various types of courses is one of the best methods of improving the knowledge and technical skill of officers who instruct the adjusters at the central control box. In addition to providing a way to the basic understanding of why deflections vary for various types of courses, this type of "home work" also leads to a knowledge of how and why various changes in basic data affect the deflections.

c. The following discussion is published with a view to extending the subject matter appearing in Chapter 2 of FM 4-112.

2. Sighting systems.

a. Subparagraph 28 c, FM 4-112 states that certain formulæ were set up for the tangent type sight as used on

the M-2 antiaircraft machine gun mount and that these formulæ are not strictly true for the rotary type of sight as used on the 37-mm. gun. The graphical analysis of the difference in the construction of the two sighting systems (Figure I) can be used to define an equation for the difference in the deflections that should be computed for each type of sight.

b. *The tangent sight.* In the tangent type of sight, the lateral deflection is measured and laid off in a plane perpendicular to the vertical plane through the gun axis and the future position of the target. This plane of lateral deflection also contains the axis of the gun. This is the plane GVS in Figure I-A.

c. *The rotary sight.* In the rotary type of sight, the lateral deflection is measured and laid off in a plane perpendicular to the vertical gun plane and passing through the present position of the target. This is the plane GT₀W in Figure I-B.

d. Conversion of deflections.

(1) The vertical deflection to be used with each type of sight is the same.

(2) Lateral deflection.

(a) With the tangent or machine gun type of sight: $\text{Tan } \delta_t = \frac{VS}{GS}$

(b) In the rotary sight: $\text{Tan } \delta_{37} = \frac{T_oW}{GW}$

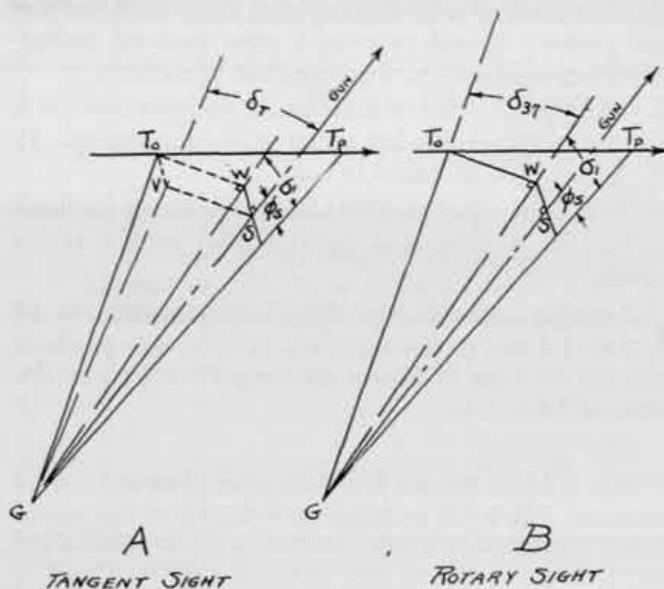


Figure 1

(c) Since $T_0W = VS$,
 $GW (\tan \delta_{37}) = GS (\tan \delta_t)$
 $\frac{GS}{GW} = \cos (\sigma + \phi_s)$
 $\therefore \tan \delta_{37} = \tan \delta_t \cos (\sigma + \phi_s)$ (A)

(3) The lateral lead is always greatest for the tangent type of sight. This is true because the plane GVS is the reference plane for lateral leads. The rotary sight sets off the lateral lead either above or below the reference plane. Formula (A) reduces the tangent of the rotary sight lateral lead by the cosine of the angle between the plane GVS and the plane GT_0W . The $\cos (\sigma + \phi_s)$ term in the conversion factor is always positive regardless of the sign of $(\sigma + \phi_s)$.

(4) Since in the vast majority of courses the lateral deflection is increasing while the vertical deflection decreases and after passing the midpoint the lateral deflection decreases and the vertical deflection increases (in negative value), it is believed that a maximum value of δ_t and $(\sigma + \phi_s)$ may be assumed as approximately 200 mils. Under this assumption the difference in δ_t and δ_{37} would be four mils for $\tan \delta_{37} = \tan 200 \text{ mils} \times (\cos 200 \text{ mils} = .19891 \times .98079 = .19509$ and $\delta_{37} = 196 \text{ mils}$.

3. The Campbell formulæ appearing on page 12 of FM 4-112 are correct for the tangent type sight and are within a few mils of being correct for the rotary type sight under extreme conditions. The use of these formulæ is believed to have the following disadvantages:

a. Any error in the determination of future angular height results in an error of the same magnitude in the vertical deflection.

b. Proof of the derivation of the formulæ is not simple.

c. The terms within the formulæ are not subject to graphical check. The only real way to check the computations is to recompute the deflections.

4. The deflection formulæ appearing in subparagraph 28 c, page 14, FM 4-112, can be derived from elements shown in Figure II, A, B, C and D. The derivation of the following formulæ is a continuation of the analysis of this group of expressions obtained from the elements of data

appearing in Figure II. The distance T_0a equals $S_g t_p \sin \alpha_p$ and T_0b equals $S_g t_p \cos \alpha_p$.

a. Lateral deflections.

(1) Diagrams A and B of Figure II represent the horizontal plot of a course.

$$\sin \delta_1 = \frac{S_g t_p \sin \alpha_p}{R_0}$$

To convert this deflection angle in the horizontal plane to the angle in the slant plane, this expression must

be multiplied by $\cos \epsilon_0$, but $\cos \epsilon_0 = \frac{R_0}{D_0}$

$$\therefore \delta = \sin^{-1} \frac{S_g t_p \sin \alpha_p}{D_0}$$

Another method of arriving at the same formula is to consider that the distance $S_g t_p \sin \alpha_p$ does not change the plane in which true lateral deflection is measured, but the distance R_0 increases and is equal to D_0 , the present slant range.

(2) Also $\delta_1 = \alpha_0 - \alpha_p$

$$\sin \delta = \sin (\alpha_0 - \alpha_p) \cos \epsilon_0$$

(3) Numerous other relationships could be shown, but any solution, some element of present position data must be calculated. In order to obtain the time of flight and superelevation, the elements pertaining to the future position of the target must be calculated. Due to the complexity of the problem, equation (1) is preferred. A simple and sufficiently accurate method of determining D_0 is to plot D_p using L as the abscissa and the values of range as the ordinates of a graph. Plot D_p against L_p ; read D_0 against values of L_0 . A vertical scale of one inch equals 100 yards is sufficiently accurate to obtain deflections within ± 1 mil of the true value in the majority of cases. Lateral deflections calculated by means of equation (1) are correct for all types of courses.

b. Vertical deflections.

(1) Constant altitude. Diagrams C and D of Figure II represent the vertical projection in the plane of vertical deflection (through the gun and the future position of the target).

$$\tan \sigma_1 = \frac{S_g t_p \cos \alpha_p \sin \epsilon_p}{D_p \pm S_g t_p \cos \alpha_p \cos \epsilon_p}$$

$$\text{Also } \frac{\sin \sigma_1}{\sin (180 - \epsilon_p)} = \frac{S_g t_p \cos \alpha_p}{D_0 \cos \delta}$$

$$\sigma_1 = \sin^{-1} \frac{S_g t_p \cos \alpha_p \sin \epsilon_p}{D_0 \cos \delta}$$

Equation (4) is favored for use in connection with equation (1) since D_0 is used as the element of present position data in each equation. Equation (3) does not contain an element of present position data and if a simple method of determining lateral deflection without use of present position data could be found, equation (3) could be used to advantage. Equation (4) has an additional advantage when the Crichlow circular rule is used, in that the value for the sines of small angles can be used. Values for tangents of angles below 100 mils are not printed on this rule and their inclusion would further complicate the tangent scale.

c. Vertical deflections—Diving targets. Diagrams E and G of Figure II represent planes through the vertical plane of deflections. Applying the law of sines to the triangles in Diagrams F and H (approaching diving

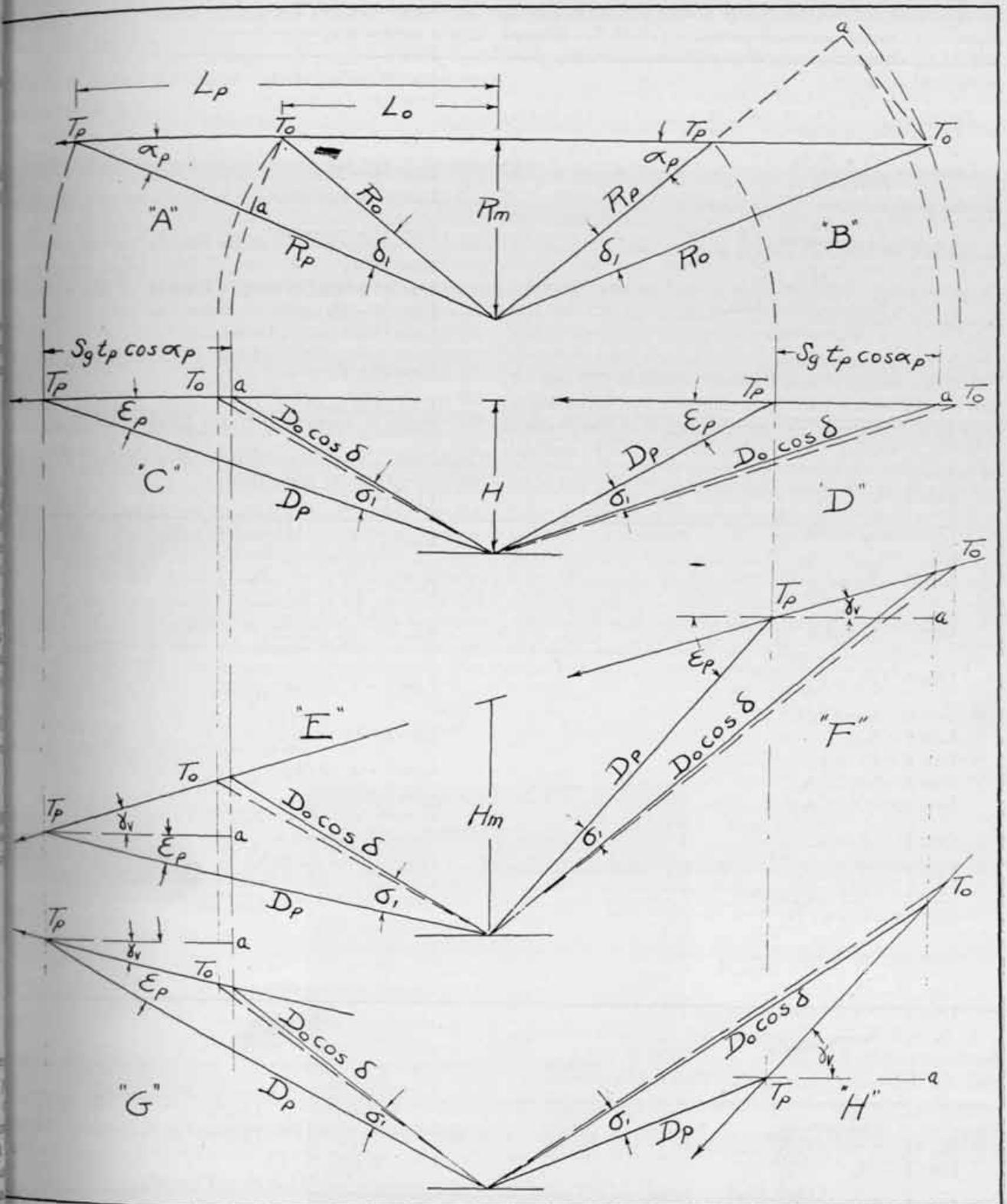


Figure II

$$\frac{S_g t_p \cos \alpha_p}{\cos \gamma_v} = \frac{D_o \cos \delta}{\sin 180 - \epsilon_p + \gamma_v}$$

$$S_g t_p \cos \alpha_p [\sin 180 - (\epsilon_p - \gamma_v)] = D_o \cos \delta \cos \gamma_v \sin \sigma_1$$

$$\sin \sigma_1 = \frac{S_g t_p \cos \alpha_p \sin (\epsilon_p - \gamma_v)}{D_o \cos \delta \cos \gamma_v} \quad (5)$$

From Diagram E, Figure II (receding dive),

$$\sin \sigma_1 = \frac{S_g t_p \cos \alpha_p \sin (\epsilon_p + \gamma_v)}{D_o \cos \delta \cos \gamma_v} \quad (6)$$

Equations (6) and (7) can be combined in the following form:

$$\sigma_1 = \sin^{-1} \frac{S_g t_p \cos \alpha_p \sin (\epsilon_p \pm \gamma_v)}{D_o \cos \delta \cos \gamma_v} \quad (7)$$

If ΔH equals the altitude change during one second, $\Delta H t_p$ equals the change in altitude between T_o and T_p . Gamma sub v (γ_v) equals the angle of dive projected into the plane of vertical deflection.

$$\tan \gamma_v = \frac{\Delta H t_p}{S_g t_p \cos \alpha_p} \quad (8)$$

$$\cos \gamma_v = \frac{S_g t_p \cos \alpha_p}{\Delta H t_p / \sin \gamma_v} \quad (9)$$

Substituting equation (9) in equation (7),

$$\sigma_1 = \sin^{-1} \frac{S_g t_p \cos \alpha_p \sin (\epsilon_p \pm \gamma_v)}{D_o \cos \delta \cdot S_g t_p \cos \alpha_p} \frac{\Delta H t_p / \sin \gamma_v}{\Delta H t_p / \sin \gamma_v} \quad (10)$$

$$\text{or } \sigma_1 = \sin^{-1} \frac{\sin (\epsilon_p \pm \gamma_v) \Delta H t_p}{D_o \cos \delta \sin \gamma_v} \quad (10)$$

5. Forms for calculations.

a. For constant altitude courses, equations (1) and (4) can be used with a ruled form similar to that appearing on page 13 of FM 4-112. The form is ruled in as many vertical columns as needed. The horizontal lines can be arranged as follows:

Line 1 - L_p

$$\text{Line 2} - \alpha_p = \tan^{-1} \frac{R_m}{L_p}$$

$$\text{Line 3} - R_p = \frac{R_m}{\sin \alpha_p}$$

$$\text{Line 4} - \epsilon_p = \tan^{-1} \frac{H}{R_p}$$

$$\text{Line 5} - D_p = \frac{H}{\sin \epsilon_p} = \frac{R_p}{\cos \epsilon_p}$$

Line 6 - t_p - (F/T)

Line 7 - $S_g t_p$

Line 8 - $L_o = L_p \pm S_g t_p$

Line 9 - $S_g t_p \sin \alpha_p$

Line 10 - D_o (Graph)

$$\text{Line 11} - \delta = \sin^{-1} \frac{\text{Line 9}}{\text{Line 10}}$$

Line 12 - $S_g t_p \cos \alpha_p$

Line 13 - $\sin \epsilon_p \cdot \text{Line 12}$

Line 14 - $\cos \delta \cdot D_o$

$$\text{Line 15} - \sigma_1 = \sin^{-1} \frac{\text{Line 13}}{\text{Line 14}}$$

Line 16 - ϕ_s (F/T)

Line 17 - VD (Line 16 \pm Line 17)

b. In calculating deflections for diving or climbing courses, equation (1) can be combined with equation (7) and the following form used. The following assumed quantities should be shown at the top of the form as they are common to all points:

$R_m, H_m, \gamma, \tan \gamma, S, S_g,$ and $\Delta H.$

Line 1 - H_p

$$\text{Line 2} - L_p = \frac{(H_p - H_m)}{\tan \gamma}$$

$$\text{Line 3} - \alpha_p = \tan^{-1} \frac{R_m}{L_p}$$

$$\text{Line 4} - R_p = \frac{R_m}{\sin \alpha_p}$$

$$\text{Line 5} - \epsilon_p = \tan^{-1} \frac{H_p}{R_p}$$

$$\text{Line 6} - D_p = \frac{H_p}{\sin \epsilon_p} = \frac{R_p}{\cos \epsilon_p}$$

Line 7 - t_p (F/T)

Line 8 - $S_g t_p$

Line 9 - $L_o = L_p - S_g t_p$

Line 10 - $S_g t_p \sin \alpha_p$

Line 11 - D_o (Graph)

$$\text{Line 12} - \delta = \sin^{-1} \frac{\text{Line 10}}{\text{Line 11}}$$

Line 13 - $\Delta H t_p$

Line 14 - $S_g t_p \cos \alpha_p$

$$\text{Line 15} - \gamma_v = \tan^{-1} \frac{\text{Line 13}}{\text{Line 14}}$$

*Line 16 - $\epsilon_p \pm \gamma_v$

Line 17 - $\sin (\epsilon_p \pm \gamma_v) \cdot \text{Line 14}$

Line 18 - $D_o \cos \delta$

Line 19 - $\cos \gamma_v \cdot \text{Line 18}$

$$\text{Line 20} - \sigma_1 = \sin^{-1} \frac{\text{Line 17}}{\text{Line 19}}$$

Line 21 - ϕ_s (F/T)

Line 22 - VD (Line 21 \pm Line 20)

Equation (1) can be combined with equation (10) in following form for calculation:

Line 1 - H_p

$$\text{Line 2} - L_p = \frac{(H_p - H_m)}{\tan \gamma}$$

$$\text{Line 3} - \alpha_p = \tan^{-1} \frac{R_m}{L_p}$$

$$\text{Line 4} - R_p = \frac{R_m}{\sin \alpha_p}$$

$$\text{Line 5} - \epsilon_p = \tan^{-1} \frac{H_p}{R_p}$$

$$\text{Line 6} - D_p = \frac{H_p}{\sin \epsilon_p} = \frac{R_p}{\cos \epsilon_p}$$

Line 7 - t_p (F/T)

Line 8 - $S_g t_p$

Line 9 - $L_o = L_p - S_g t_p$

Line 10 - $S_g t_p \sin \alpha_p$

Line 11 - D_o (Graph)

$$\text{Line 12} - \delta = \sin^{-1} \frac{\text{Line 10}}{\text{Line 11}}$$

Line 13 - $\Delta H t_p$

Line 14 - $S_g t_p \cos \alpha_p$

$$\text{Line 15} - \gamma_v = \tan^{-1} \frac{\text{Line 13}}{\text{Line 14}}$$

*Line 16 - $\epsilon_p \pm \gamma_v$

Line 17 - $\sin (\epsilon_p \pm \gamma_v) \times \text{Line 13}$

Line 18 - $D_o \cos \delta$

Line 19 - $\sin \gamma_v \times \text{Line 18}$

$$\text{Line 20} - \sigma_1 = \sin^{-1} \frac{\text{Line 17}}{\text{Line 19}}$$

Line 21 - ϕ_s (F/T)

Line 22 - VD (Line 21 \pm Line 20)

6. *Mechanics of calculation.* The forms listed have been devised for use with the Crichlow slide rule. If the indicated multiplications and divisions are performed on ordinary slide rule or on a calculating machine, it will be necessary frequently to refer to tables of natural functions in mils and the forms should be enlarged so as to provide

*The sum of ϵ_p and γ_v is used on the receding diving, or approaching climbing, leg of a course. The difference between ϵ_p and γ_v is used on the approaching diving, or receding climbing, leg of a course.

horizontal columns for recording the value of these functions. The use of a Crichlow circular slide rule is recommended. By following the directions printed on the face of the rule for the solution of right triangles, all computations can be completed, without reference to tables of trigonometric functions. In performing calculations of the

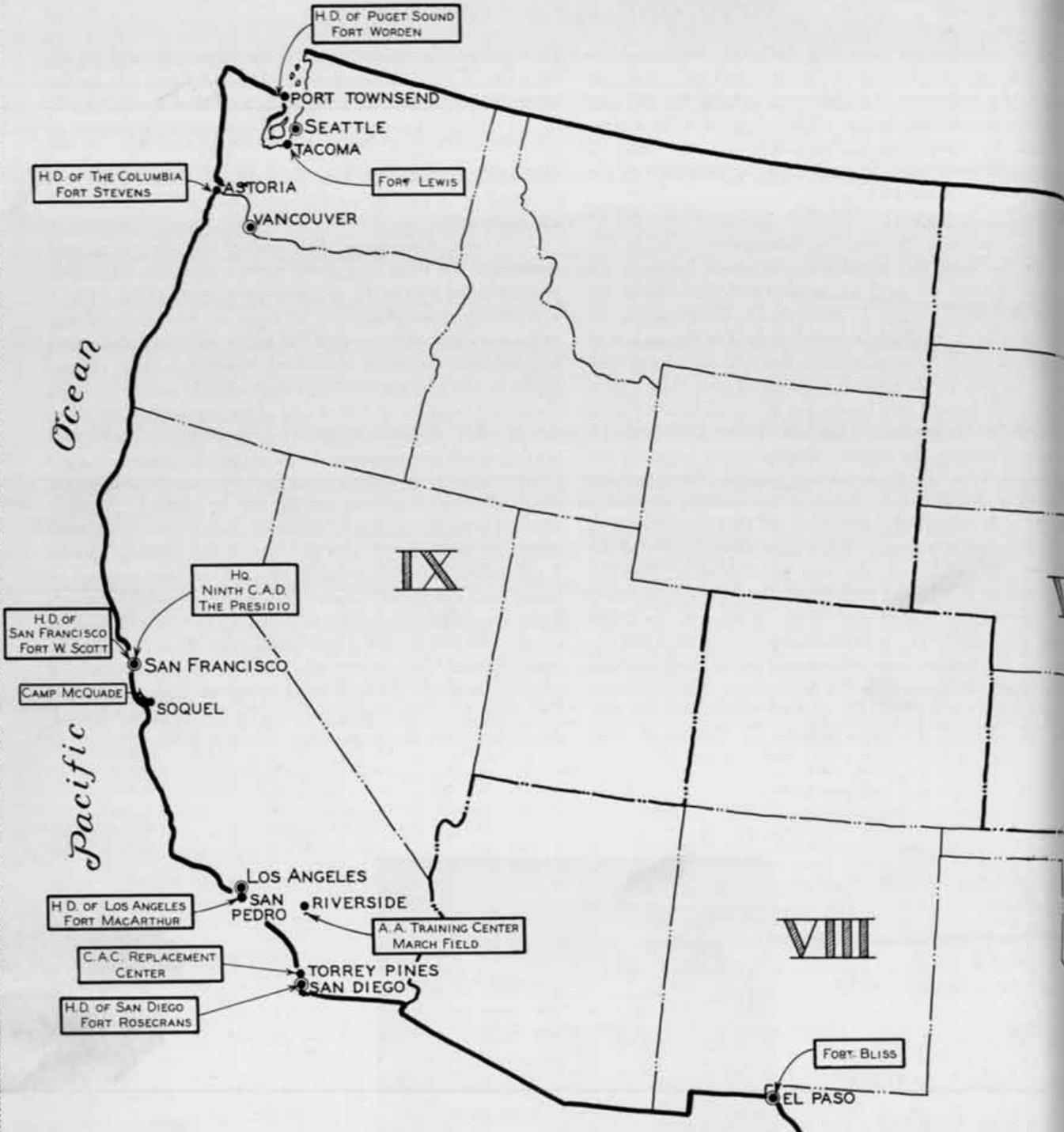
type: $\delta = \sin^{-1} \frac{\text{Line 10}}{\text{Line 11}}$ hold arm "S" on the numerator (Scale E), set arm "L" on the denominator (Scale E). Without changing the angular displacement between the two arms, move "L" until "S" is on the index. Read the value of the angle under "L" on scale D. When using the Crichlow rule to multiply a number by the sin or cos of an angle, it must be remembered that the scales are constructed for the reciprocals of these functions. The operation of multiplying 1,000 by the sin 800 mils is as follows: Hold arm "S" on the index, set arm "L" on 800, Scale D. Without changing the angular displacement between the arms, move "L" to 1,000. Read the product 707 under arm "S" on Scale E. If the L_p distances are selected symmetrically on each side of the midpoint, all of the elements of the basic computation will be the same on each side of the midpoint. L_0 and D_0 are the only terms entering into the calculation of the lateral deflections that have to be computed for points on each side of the midpoint. In determining graphically D_0 , it is necessary to plot only the approaching leg as the curve will reverse at the midpoint and retrace itself. If deflections for a constant altitude course are computed for various R_m and H values and for one speed (50 yds/sec), the deflections for all other speeds may

be rapidly calculated as it will be necessary to compute only lines 7, 8, 9, 10 (use same D_0 graph) and 11. In the computation of vertical deflections for other speeds, multiply line 12 by $\frac{S_e}{50}$. Compute lines 14, 15 and 17. All the elements of future position including t_p and ϕ_s are not changed by a change in the speed for which deflections are computed.

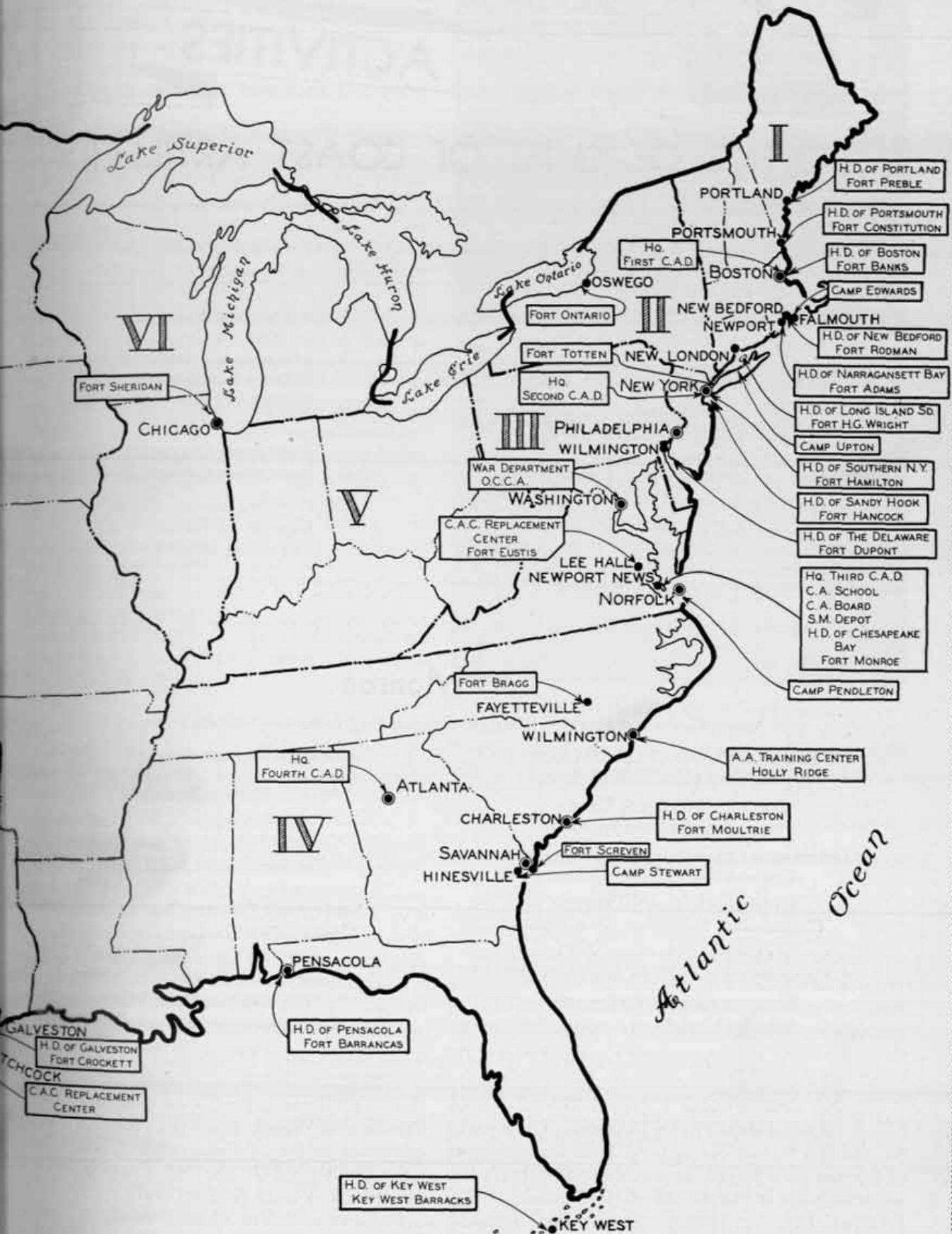
7. *Plotting deflections.* As a general rule, ten points will determine the trace of a curve representing the deflection when plotted against L_0 as shown on page 17 of FM 4-112. Frequently it is convenient to separate the origin of the ordinates sufficiently so that the curve of lateral deflection will not cross the curve of vertical deflection. Many officers prefer to use lead curves rather than a lead chart of the type shown on page 19 of FM 4-112. One method of reducing the number of sheets necessary is to plot the lateral and vertical leads on separate sheets of graph paper. If each sheet is used to plot the curves for one altitude and speed, about six courses of varying R_m can be plotted. Another method is to plot curves of constant altitude and horizontal range on each sheet, plotting curves for various speeds. Each individual will probably have his favored method of using the calculated leads. Whatever method is used, some system of numbering or indexing the data should be adopted in order that a particular type of curve may be easily located. No matter what system of calculation and plotting is used, the author of a set of lead charts will find that the work is well paid for by his increased knowledge and ability in the automatic weapon field.



Callan Hall



Location of Coast Artillery Troops
in Continental United States





COAST ARTILLERY

ACTIVITIES



OFFICE OF CHIEF OF COAST ARTILLERY

Chief of Coast Artillery
MAJOR GENERAL JOSEPH A. GREEN

Executive
COLONEL K. T. BLOOD

Personnel

LIEUTENANT COLONEL F. E. EMERY, JR.

Matériel

MAJOR F. R. CHAMBERLAIN, JR.
MAJOR W. H. J. DUNHAM
MAJOR C. VAN R. SCHUYLER
MAJOR F. B. KANE
SECOND LIEUTENANT D. B. SELDEN

Plans and Projects

COLONEL A. G. STRONG
LIEUTENANT COLONEL C. E. COTTER
LIEUTENANT COLONEL J. T. DE CAMP
LIEUTENANT COLONEL L. L. DAVIS

Organization and Training

LIEUTENANT COLONEL H. N. HERRICK
MAJOR R. E. STARR
MAJOR J. E. HARRIMAN
MAJOR C. N. BRANHAM

Finance

LIEUTENANT COLONEL J. T. LEWIS
LIEUTENANT COLONEL L. W. JEFFERSON

Coast Artillery Journal

COLONEL C. THOMAS-STAHLE
CAPTAIN A. SYMONS



Fort Monroe

MAJOR GENERAL FREDERIC H. SMITH, *Commanding Third Coast Artillery District*

BRIGADIER GENERAL FRANK S. CLARK
Commandant, Coast Artillery School

COLONEL WILLIAM S. BOWEN
President, Coast Artillery Board

LIEUTENANT COLONEL FRANCIS B. CHRISTIAN
Commanding 2d Coast Artillery

COLONEL DELMAR S. LENZNER
Commanding Submarine Mine Depot

LIEUTENANT COLONEL MANNING M. KIMMEL, JR.
Commanding 57th Coast Artillery (TD)

COLONEL SAMUEL F. HAWKINS
Commanding 74th Coast Artillery (AA)

BRIGADIER GENERAL ROLLIN L. TILTON
Commanding General, Harbor Defenses of Chesapeake and Fort Monroe

COLONEL MALCOLM W. FORCE
Commanding 244th Coast Artillery

COLONEL REGINALD B. COCROFT
Commanding Virginia Beach State Camp

LIEUTENANT COLONEL DALE D. HINMAN
Commanding 71st Coast Artillery (AA)

COLONEL CHARLES C. CURTIS
Commanding 213th Coast Artillery

COLONEL ALONZO E. WOOD
Commanding 246th Coast Artillery

By Major Franklin W. Reese and Lieutenant George H. Burgess

Brigadier General Rollin L. Tilton, U.S.A. who assumed command of the Harbor Defenses of Chesapeake Bay and Fort Monroe November 8, 1940, was welcomed to the post by a brigade review. General Tilton's last assignment was as Harbor Defense Commander of San Francisco Bay, with headquarters at Fort Winfield Scott.

The Harbor Defenses of Chesapeake Bay now in-

clude Fort Monroe, Fort Wool, Fort Story and Camp Pendleton at Virginia Beach. Fort Monroe is at present garrisoned by the 2d Coast Artillery (HD), the 57th Coast Artillery (TD), the 74th Coast Artillery (AA) and the 246th Coast Artillery (HD).

Rapid expansion of all the units of the Harbor Defenses is in full swing at Fort Monroe and the other parts of the Harbor Defenses of Chesapeake Bay.

Colonel Samuel F. Hawkins, formerly instructor of 246th Coast Artillery is now commanding officer of 74th Coast Artillery (AA). Thirty-three additional reserve officers were assigned to the regiment January and a large group of selectees is expected March 5. Officers' instruction and cadre training is progressing rapidly.

Brigadier General Arthur G. Campbell arrived to take command of Camp Pendleton, Virginia, located at the Virginia State Rifle Range at Virginia Beach. The former station was Fort Sam Houston, Texas. Camp Pendleton itself is a new camp established for National Guard units. The 213th Coast Artillery (AA), Pennsylvania National Guard, and the 244th Coast Artillery (TD), New York National Guard, are now stationed here.

The following construction is underway or about to begin:

at Fort Monroe—Temporary construction for the Coast Artillery School includes forty-three buildings to house students, equipment and classrooms. Temporary construction for additional troops includes seventy-five permanent type buildings for housing, messing and storage.

at Fort Story—Temporary buildings sufficient to house two regiments and overhead troops and a two-hundred bed hospital.

at Camp Pendleton—Temporary buildings to house two regiments and overhead troops.

at Fort Eustis, Virginia—Temporary buildings are being constructed to house 14,000 troops at this Coast Artillery Replacement Center.

1 1 1

74TH COAST ARTILLERY (AA)

By Major C. M. Mendenhall, Jr.

November and December have been months of intensive training for the regiment. Training programs are in a state of flux, due to the necessity of furnishing additional cadres for expansion of other units, training for our expansion, and meeting the test, demonstration, and drill requirements of the Coast Artillery School and Board. Gunners' instruction has been progressing at a rapid pace. Delay in receiving lumber for barracks construction has resulted in postponing our expansion until March 5, 1941.

The initial allotment of transportation was received in November, 1940. Since then the Regimental Garage has been the scene of great activity, with mechanics and troops receiving the maximum training possible with the facilities available.

On December 6, 1940, the first selectee, Private Cyril Greenya (Spec. 020), arrived, and was assigned to Battery B. He will ultimately be one of the key men in the Regimental Band.

The Regimental Headquarters moved from its office in Building T-423, Camp No. 3.



The Coast Artillery School in operation

Since all batteries of the regiment are quartered in Camp No. 2, this change proved beneficial.

1 1 1

2D COAST ARTILLERY

By Captain Leslie G. Ross

The 2d Coast Artillery has changed regimental commanders since the last report. Colonel Francis P. Hardaway departed in mid-November for California.

Fort Eustis claimed another ranking member of the 2d—Lieutenant Colonel Charles E. Atkinson. Lieutenant Colonel Francis B. Christian, a recent arrival from Washington, D. C., assumed command of our regiment on December 10, 1940.

The 2d Coast Artillery, which has always called Harbor Defense Headquarters its own, is well on its way to becoming an independent regiment. A battalion organization has been initiated with Headquarters Battery and Batteries A, B, and D, comprising the 1st Battalion under the command of Captain Edgar R. C. Ward. The 2d Battalion commanded by Captain Leslie G. Ross, contains Headquarters Battery and Batteries C, E, and F.

On January 3, 1941, Battery G, a Harbor Defense

searchlight battery, was organized from cadres furnished within the regiment.

The 2d Coast Artillery's main mission these days is cadre training for Fort Eustis, with the mission of furnishing 402 enlisted men, all of whom are specialists, to Fort Eustis. Regimental cadre schools are being organized to train the specialists required. Lieutenant Colonel Joseph Hafer is assisting with the training.

The 2d has recently completed two annual service target practices. Battery A, commanded then by Captain Ward, completed its practice on December 14, 1940. Battery C, commanded by Captain Thompson, successfully completed a 3-inch AA practice on December 21, 1940.

The 2d Coast Artillery is expecting augmentation to tables of organization strength at an early date. The first contingent, 349 trainees, is scheduled to arrive on January 8, 1941; twenty-nine Reserve officers reported on December 26th.

57TH COAST ARTILLERY (TD)

By Captain Emmor G. Martin

Since the publication of its last news letter, the 57th has blossomed forth with its regimental insignia. The shield commemorates the outstanding feat of the regiment's service in France during the first World War, the cutting of the railway line between Montmedy and Sedan on November 6, 1918, from positions near Stenay.

One item of interest which took place on October 29, was not included in the last news letter. This was demonstration firing by Battery B, Captain A. A. Koscielniak commanding, for visiting South American officers. From all points of view this was a perfect practice. When the visitors arrived the target was on its course, the field of fire was clear, firing began, the first salvo was a bracket for range, firing continued without interruption, deviations in direction and range were excellent. The visitors took away with them the knowledge that 155's are accurate and fast shooting guns when properly handled.

During November Batteries A and B fired their first annual target practices. In spite of bad weather and numerous delays both practices were entirely satisfactory.

Athletics still occupy an important place in training schedules. Football and volleyball schedules have been completed. Batteries are now participating in the Post basketball and bowling leagues.

The battalion still occupies barracks at Fort Monroe. According to present plans we expect to move to Camp Pendleton, near Virginia Beach the latter part of February where we will be expanded to a regiment upon receipt of selectees.

We suffered a sudden loss when Technical Sergeant James H. Tays was ordered as a First Lieutenant to Fort Meade for reception center duty.

Major and Mrs. V. W. Wortman (ex Panama) their two children were welcomed to our midst on November 30. Major Wortman has been assigned to as Executive.

246TH COAST ARTILLERY (HD)

By Second Lieutenant Hilary E. Duval

The 246th Coast Artillery (HD) functioning divided regiment has now settled down to a routine of army life. Training under a 44 hour schedule, officers and men are kept busy with moments few and far between.

Our schedule consists of gunners' instruction, artillery drill, searchlight drill, interior guard duty, infantry drill, antiaircraft defense, and other subjects which toward training a good soldier.

Officers of our regiment are attending semi-weekly schools. Gunnery, military law, administration, harbor defense command, and various other subjects are being studied. Noncommissioned officers are receiving instruction in such subjects as electricity, radio and signal communication and courses for Master Gunner.

Troops of our regiment from both stations took leave with full equipment and set up bivouac during the months of November and December. Battalion parades and regimental reviews were held weekly while brigade reviews were held about once a month. On Saturday, November 9th, troops of the 246th stationed at Fort Monroe participated in a brigade review given in honor of Brigadier General Rollin L. Tilton, commanding the Harbor Defenses of Chesapeake Bay. Troops from units of the 246th stationed at Fort Story took part in the Armistice Day Memorial Parade held in Norfolk, Virginia.

Dances, parties and other social activities are making the life of a soldier very enjoyable to both officers and men of our regiment. Officers and Noncommissioned Officers' Clubs are the scenes of entertainment during many off-duty periods.

On December 19th Regimental Headquarters Battery was transferred to Fort Story, Virginia. At the same time Battery H of the 3d Battalion was transferred to Fort Monroe.

With many things settled and barracks completed, officers and men of the 246th Coast Artillery (HD) are doing what we hope is our part towards National Defense.

FORT STORY

By Second Lieutenant Anthony R. Bayer

The 71st Coast Artillery (AA) came to Fort Story, Virginia, August 1st, 1940, and work began at once. Intensified training for the incoming recruits carried the soldiers far into September. This training consisted of regular calisthenics, infantry drill, artillery drill, organized athletics, and necessary fatigue details.

After the National Guard was called into active service for one year, Fort Story was designated to receive two battalions of the 246th Coast Artillery. Upon receiving this order, the 71st went into action at once in clearing a large area, preparing tent floors, making kitchens, and setting up the camp area in general for the incoming Guardsmen. The two battalions arrived in the early part of October and received a cordial welcome at the Fort. They immediately dug in and set up drill training schedules. The Guards are now manning the 155-mm. guns, 8-inch railway howitzers, and 3-inch antiaircraft guns.

The firing points necessary for the different guns were constructed by both the 71st and the 246th. These firing points were carefully planned and built by the batteries immediately interested. Firing schedules are now being followed under constant guidance and supervision with satisfactory results being obtained.

For diversion and sport, organized athletics have been undertaken with great enthusiasm.

The post has installed a quartermaster supply office, quartermaster commissary, main post exchange with three branches, ordnance and artillery engineer offices, meteorological station, radio station, hospital, post theater, finance officer, and other organizations vital for the successful operation of the post.

The famed old Coast Guard Station has now been remodeled and turned into an officers' club. The officers' wives have made excellent use of the club during the day. Every Saturday night an officers' dance is held, with guests coming from Camp Pendleton, Fort Monroe, and Langley Field.

The new cantonments are spreading out in all directions. Already the two battalions of the National Guard are moving into the new barracks. To date, all construction on the post is on schedule, and if anything, a little ahead of schedule.

We are now looking forward to the arrival of the selectees.



213TH COAST ARTILLERY (AA)

By Captain Ralph O. Bowman

As much training as possible was crowded into the period prior to December 21st when the Christmas holiday began. In addition to artillery drill, specialists training and tracking, gunners' examinations were completed; record rifle fire was completed except for a few who were on furlough, and many hours spent in C.P.X. problems and tactical problems involving the selection

and occupation of positions both day and night by all units.

The Officers' Mess had a buffalo dinner on December 5th, the *piece-de-resistance* having been furnished by the County Commissioners of Lehigh County, Allentown, Pennsylvania, from the game preserve formerly owned by the late General H. C. Trexler.

Social functions over the holidays, in addition to several cocktail parties, included a Christmas party for the children of the regiment on Christmas afternoon and a New Year's Eve party at the Pinewood Hotel in Virginia Beach. On Christmas Eve, a camp carol service was held at Camp Pendleton Post Headquarters at which the public of Virginia Beach was invited to join the units at the Camp.



244TH COAST ARTILLERY

A welcome Christmas present to the men of the 244th Coast Artillery was the move into the new barracks area, completed over the Christmas holiday. Each building, holding sixty-three men, was fully occupied by Christmas Eve, with the noon and evening meal of that day being served in the new mess shacks.

The various battery messes had decorated the buildings in keeping with the holiday spirit, with pine trees, cones, and so on, gathered in the neighborhood, and with the traditional lighted Christmas tree very much in evidence. There was a present for each man, supplied by friends of the New York troops. The Christmas boxes contained wool pull-over sweaters, cigarettes and candy.

Since the last issue of the JOURNAL, drill has been progressing well. Instructors have been selected and their training is in progress in preparation for the reception of the 244th's allotment of selectees early in the new year.

During the period just prior to the holiday lay-off, all three battalions emplaced guns in nearby positions, one emplacement of each battery taking advantage of cover, and the other located in the open. When drill re-opens after January 2d, these guns will be used for camouflage training, while the balance of the guns of each battery will be emplaced overlooking the beach, preparatory to subcaliber and service practices scheduled to take place shortly.

During the holiday suspension of drill, trips to nearby points of interest were arranged by the various elements of the regiment. Points visited included the Naval Operating Base at Norfolk, Fort Monroe, colonial Williamsburg, and the Lost Colony at Roanoke.



First Coast Artillery District

MAJOR GENERAL THOMAS A. TERRY, *Commanding*

COLONEL WILLIAM C. KOENIG, *Executive*

CAPTAIN FAY S. HAMMERS
S-1 and Adjutant

LIEUTENANT COLONEL ROBERT T. CHAPLIN
S-2

LIEUTENANT COLONEL VERNON W. HALL
S-3

LIEUTENANT COLONEL JAMES G. DEVINE
S-4

FIRST LIEUTENANT EDWIN G. ORRICK
Assistant S-4

SECOND LIEUTENANT WILLIAM O. HOGARTH
Assistant Adjutant

CAPTAIN GEORGE R. CAREY
Aide-de-Camp

It is apparent, even to the casual observer, that times have changed in the First Coast Artillery District. This one-time "Haven of the Caretaker" is now a bee-hive of activity. The personnel in all harbor defenses have settled into stride and training has been intensified.

The strength of all elements in the harbor defenses will be greatly augmented in the near future and the next few months promise to be busy, instructive, and interesting. Detailed plans for the inspection and training of recruits and selectees have been formulated. New construction to house these enlisted men is proceeding satisfactorily.

General Terry continues to spend much of his time in frequent inspections of all harbor defenses. He emphasizes the fact that much remains to be done but expresses satisfaction with the progress that has been made.

HARBOR DEFENSES OF PORTSMOUTH

LIEUTENANT COLONEL EDWARD G. COWEN,
Commanding

By Second Lieutenant William R. Kintner

By the end of October, most of the pioneering work connected with the reactivation of a dormant post had been accomplished at Fort Constitution. The tall grass was cut and the existing buildings were painted. Winterized tents were set up to quarter the men during the interim before the first barracks were completed. Naturally the bulk of the activity at this command centered around the expansion program.

On November 23d, Headquarters Battery and Battery A moved from Headquarters Building to barracks at the New Reservation. Their former quarters were immediately occupied by a detachment sent from the Harbor Defenses of Portland to form the Corps Area Service Command.

Battery A carried on an intensive training program leading up to a record service practice the latter part of December. On December 9th the 22d Coast Artillery fired its first sub-caliber practice. On December 17th the first record service practice was held. The second practice was fired on December 20th with quite favorable results notwithstanding the inexperience of the gun sections.

Major General Terry made several inspection visits to this post during the October to December period.

Orders assigning twenty additional reserve officers to this post have been received. This will bolster a Officer of the Day roster.

Recreational facilities for the enlisted men are complete but progress is being made in the right direction. A weekly showing of films in the town hall adjoining New Castle and a Christmas Party have been the high spots so far.

HARBOR DEFENSES OF PORTLAND

BRIGADIER GENERAL ROBERT C. GARRETT,
Commanding

By First Lieutenant John M. Rossnagel

Brigadier General Robert C. Garrett arrived December 13, 1940, to take command of the Harbor Defenses of Portland. General Garrett is no stranger for served here as Harbor Defense Commander and Commanding Officer of the 68th Coast Artillery (A) from December, 1939, to September, 1940.

The 240th Coast Artillery, under the command of Colonel Fogg, has adjusted itself to its new environment. The change from civilian to army life was made quickly and smoothly. All posts are seething with action. Training has been intensified. During the week of November 9th, six batteries of the 240th Coast Artillery fired creditable service practices.

The 8th Coast Artillery, commanded by Colonel Kemble, continues its training. In addition, detailed plans for the reception of trainees in February have been worked out and made ready for operation.

The holidays have come and gone with the usual festivities and celebrations. Recreation and athletics played an important part in providing enjoyment for one and all.

HARBOR DEFENSES OF BOSTON

COLONEL MONTE J. HICKOK, *Commanding*
By First Lieutenant Stanley W. Howard

New construction and intensified training has brought much activity to Fort Banks and the nine posts from Fort Ruckman in Nahant to Fort Revere in Hull. After a tour of inspection of the defenses in Boston Harbor on November 26th, Major General James A. Woodruff, Commanding General of the First Coast Artillery Area, in a letter to Colonel Monte J. Hickok, Commanding Officer of the Boston Harbor Defenses, stated

I was very much pleased at the progress that has been made in administration and training of your harbor defenses. The guard of honor was excellent."

The progress made in the Harbor Defenses of Boston was depicted in a radio broadcast through an all-New England hook-up over the Colonial Network by Colonel Hickok on December 10th. His address dealing with the improvements of the defenses at Boston and an analysis of harbor defenses was received favorably by the radio audience.

Joining the Corps Area Service Command at Fort Banks are First Lieutenants Elmer W. Davis and Earle Mallett.

Colonel William D. Cottam's 241st Coast Artillery (HD) is entering on its fourth month of active service with training reaching a high standard of efficiency. Fifty per cent of Battery "A," 241st Coast Artillery, at Fort Heath, Winthrop, Mass., attend the local evening school. Battery "N," of the same regiment at Fort Andrews, is maintaining a library of 1,500 books for that garrison.

Mine planting operations have been conducted in Boston Harbor, by Batteries "A" and "C," 9th Coast Artillery.

Early winter descended upon Boston Harbor on December 4th, when the temperature dropped below zero. Fortunately many of the troops who had been sheltered in tents had moved into barracks on November 30th.

The 9th Coast Artillery which now has four batteries activated, will be increased to authorized strength within the next few months.

HARBOR DEFENSES OF NEW BEDFORD

LIEUTENANT COLONEL CHARLES J. HERZER,
Commanding

By Captain John H. Kochevar

Fort Rodman is bustling with activity. Preparations have been made for the reception of trainees to activate Batteries "B" and "C" in February, 1941. The construction of barracks to house these selectees is proceeding satisfactorily.

Battery "A," commanded by Captain Underwood, has completed all preliminary preparations incident to the conduct of sub-caliber and service practices. The battery was sorry to lose the services of Technical Sergeant Lane who has been ordered to active duty as a first lieutenant at Camp Edwards but rejoices at his advancement.

Recent arrivals at the post include Lieutenants Orman and Shagrin who have been assigned to Battery "A." Lieutenant Carrera who has been assigned to command the Service Detachment and Lieutenant DeMilly who takes over the duties of Harbor Defense Ordnance Officer. In addition, Lieutenants Pryor and Brightman have reported for temporary duty at Fort Rodman. Lieutenant Brightman is Hawaii bound and Lieutenant Pryor sails for Puerto Rico in January.

The officer personnel will be further augmented on January 5, 1941, with the arrival of eighteen line officers, a chaplain, and three medical officers.

HARBOR DEFENSES OF NARRAGANSETT BAY
COLONEL EARL C. WEBSTER, *Commanding*
By Captain George A. Ford

The construction of temporary barracks and quarters and other buildings has changed the outward aspect of the outlying posts as well as that of Fort Adams itself. The 243d Coast Artillery is now in its new buildings at Fort Wetherill and Fort Getty; new construction for the expanded 10th is well under way and will be completed prior to the arrival of selectees. Moderate weather has contributed to rapidity of all phases of construction as well as to troop training. However, the 243d, faced with the prospect of seacoast firing in midwinter, is now concerning itself with such matters as viscosities of recoil oils in zero temperatures. The 10th Coast Artillery upon arrival shortly of the Junior Mine Planter *Anderson*, will investigate the January temperatures of the local waters.

Several Reserve officers of the garrison have been transferred to Panama within the past two or three months. Lieutenant Carl Fuller departs in January for station at Fort Randolph.

HARBOR DEFENSES OF LONG ISLAND SOUND
COLONEL THOMAS H. JONES, *Commanding*
By Lieutenant Joel T. Walker

The island forts of these harbor defenses have grown to huge proportions during the last few weeks, necessitating the use of other post buildings as improvised barracks. Even though recreational activities have been somewhat limited, the men have shown a fine spirit of cooperation, making the best of the situation without loss of morale. Forts Terry and Michie are now fully activated by the 242d Coast Artillery and are being rebuilt to accommodate that regiment.

If any of the old timers should return to the post, they would find very few familiar faces. Most of the former enlisted men of the Eleventh Coast Artillery have been recently transferred, or are about to be transferred, to other posts as initial cadres or as station complements. A large number of officers have left during the fall and winter months. Lieutenant Colonel Ira B. Hill was transferred to the Army Base at Boston for duty with the General Staff Corps and Captain Dunham has been transferred to Panama.

Although many officers and enlisted men took advantage of leaves and furloughs, the holiday season proved to be very enjoyable for those remaining on the post. The enlisted men enjoyed their Christmas parties at their batteries and a number of Christmas and New Year's parties climaxed by the annual New Year's Eve dance at the Officers' Club, furnished the high spots in the social calendar for the officers.



Tent city, March Field

March Field

By Lieutenant Linus P. Ward

Daniel in the lion's den had much in common with the 78th Coast Artillery (AA) when the latter was organized at March Field, California, an Air Corps post.

And somewhat parallel to Daniel and the lion, the 78th and the Air Corps formed a mutual admiration society. Going even a step farther, the 78th and the Air Corps showed each other their wares and compared notes. Each was happy with his lot.

"We'll take flyin'," said the air corps.

"Glad we're on the ground," said the 78th.

Seriously, though, the cooperation given the 78th by the Air Corps was, to put it mildly, superior.

March Field is situated on a high plateau overlooking the orange groves of Riverside and San Bernardino. It is eleven miles east of Riverside, about sixty-five miles south and east of Los Angeles.

Hard baked and dried out in the summer under the Southern California sun, it's a barren sagebrushy spot, but freshened with the winter rains it's a different post. The palm trees dotting the residential section add a tropical touch in the green setting.

Prior to the organization of the 78th in August, about 3,000 officers and men were stationed at the field. Air Corps, Quartermaster Corps, Signal Corps, Medical Corps, Engineers, Dental Corps, Ordnance Department—all were represented.

The organization of the 78th was carried out under the supervision of Lieutenant Colonel Robert H. Van Volkenburgh, commanding officer.

Commissioned personnel drew heavily from the Reserve corps, but the regimental staff was made up of regular army officers. Cadres from Fort Lewis, Fort Scott, and Fort Worden formed the nucleus around which the enlisted personnel was built up from recruits.

Orders sending the 28th Engineers to Alaska provided four temporary barracks and a mess hall for the cadre, and recruits were housed in Hangar Seven. So rapidly did the regiment expand that Hangar Seven now houses the overflow from the barracks and another mess hall has been turned over to the 78th. Batteries C

and D operate messes for the 1st Battalion. Organization of the 2d Battalion is set for January or early February.

Lieutenant Colonel Van Volkenburgh remained in command for slightly more than two months when he received orders sending him to the Presidio of San Francisco. Soon after Lieutenant Colonel Van Volkenburgh left, Brigadier General E. B. Colladay and Lieutenant Colonel H. W. Stark arrived at the field.

General Colladay initiated construction of the new anti-aircraft training center across the road from March Field, and Lieutenant Colonel Stark assumed command of the 78th.

Both had previously been with the 75th C.A. at Fort Lewis. As a colonel, General Colladay was regimental commander of the 75th and Lieutenant Colonel Stark was his executive officer.

The new anti-aircraft training center will soon be the permanent station of five anti-aircraft regiments: two Regular Army and three National Guard.



Residential grounds, March Field

78th, of course, will relinquish their temporary barracks and Hangar Seven and move across the road. The 65th is due from Fort Scott and soon after both will be joined by the 215th, 216th, and 217th Minnesota National Guard regiments, converted this year from infantry.

A tremendous "tent city" has mushroomed up over a large area in the past month.

Full consideration is being devoted to the entertainment and recreational needs of the men. The new training center will have six post exchanges: one central exchange and one for each regiment. Each regiment will have its own recreation hall, 55 by 99 feet, with a stage for regimental programs and church services.

First-run movies will be shown in the training center's 90 by 200 foot theatre tent.

The Southern California sunshine precludes the necessity for indoor recreational facilities required in

colder climates. Provision has been made for outdoor basketball and volleyball courts and soccer and touch-ball fields.

The training center will be occupied in January or early February.

* * *

Because of crowded living conditions at the field the officers and married noncommissioned officers of the 78th have taken residence in Riverside and surrounding communities. But with the steady influx of officers, houses are becoming increasingly more difficult to locate.

Riverside, a city of more than 30,000 population, offers most of the conveniences to be found in larger cities—adequate primary and secondary schools and the Riverside Junior College, beautiful parks, good department stores, quiet residential sections, two golf courses, the Victoria Country Club, and four motion picture houses.



Harbor Defenses of Puget Sound

COLONEL JAMES H. CUNNINGHAM, *Commanding*

By Second Lieutenant Thomas L. Chambers

Most of the cantonments for the 248th Coast Artillery will probably be completed in January and those at Casey and Flagler in February. The new buildings at Worden, in addition to those for the 248th Coast Artillery, will include a recreation building for the 14th Coast Artillery and an officers' dormitory and mess capable of accommodating about forty officers.

We are busy training cadres for the formation of new units—those for the new units to be activated in January have been under training for several months. Another cadre of sixteen officers and 166 enlisted men will begin its training January 1st, under Lieutenant Colonel William R. Stewart. This cadre will go to Torrey Pines, California, in February.

On December 16th the Harbor Defenses of Puget Sound, with the cooperation of the Air Corps at Gray Field, conducted a night air alert, with air observations

to determine the efficiency of the blackout. The cities of Port Townsend and Port Angeles, Washington, the Coast Guard stations at Port Townsend and Port Angeles, and nearby industrial establishments participated in the exercise. Upon the arrival of the observing planes over Fort Worden, the Harbor Defense Commander telephoned the message "Simulate Air Alert" to municipal authorities, who, in turn, relayed it to the industrial establishments. The same message was transmitted by radio to the Coast Guard stations. The planes observed the effect of the blackout for ten minutes. The results obtained were excellent in every respect.

The wharfs at both Casey and Flagler are being rebuilt and a harbor boat, the *Virginia V*, has been chartered in Tacoma for sixty days, available until March 13th.

Fort Bragg

COLONEL CLAUDE M. THIELE

Commanding Provisional Coast Artillery Brigade

Pursuant to General Orders No. 12, Headquarters I Corps, dated November 30, 1940, there was formed at Fort Bragg on December 5th a Provisional Coast Artillery Brigade, composed of the 67th Coast Artillery (AA), the 76th Coast Artillery (AA) and the 77th Coast Artillery (AA). Colonel Claude M. Thiele, commanding the 77th, is the senior officer now assigned, but as he was on detached service, the organization was effected by Colonel Turley with the assistance of the Plans and Training officers of the battalions concerned and by the temporary use of two newly assigned Reserve captains.

This provisional brigade has been functioning unofficially for the past two months as a matter of coordination of training activities among the antiaircraft units at this station and is the forerunner of the 34th Brigade which is contemplated but not yet activated.

1ST BATTALION, 67TH COAST ARTILLERY (AA)

LIEUTENANT COLONEL ROBERT E. TURLEY, JR.
Commanding

By Captain J. E. Mortimer

The 67th Coast Artillery (AA) was activated on July 1, 1940. At that time, it consisted of one first lieutenant and three recruits. On July 13th a cadre of 126 men arrived from the 62d Coast Artillery (AA) and by July 17th the battalion reached its full strength. Our first transportation, a Plymouth sedan, arrived October 14th and has been followed by twelve cargo trucks.

Our guns, which arrived October 18th, did not remain idle long. Instruction progressed with such rapidity that all battery officers fired trial and verification fire problems during November and December.

The battalion moved from its tent camp to comfortable wooden barracks on December 1st. In fact, the barracks, with their automatic, humidified heating and toilet facilities, are so comfortable that a soldier of the last war would probably declare that the present day army had gone "sissy."

The battalion is busy with recruit training and training cadres for our 2d Battalion and other units to be activated. Officers have been ordered in and out so frequently that it keeps the adjutant busy keeping score.

77TH COAST ARTILLERY (AA)

COLONEL CLAUDE M. THIELE, *Commanding*

In the area of the 77th Coast Artillery, classes are being held in every available building, instructing cadres for organizations soon to be formed. Of the 506 men in the 77th, 375 are being trained as cadre personnel to be sent out about February 1, 1941.

The largest cadre to be furnished, 168 men, is for the 100th Coast Artillery (AA), at Wilmington, North

Carolina. This cadre will include sixteen first sergeants, sixty-six sergeants of various qualifications, thirty corporals, eighteen clerks, thirty-two cooks, and other specialists. Another cadre of eighty-four men including five first sergeants, eleven cooks, six clerks, and nineteen sergeants of special qualifications will go to Coast Artillery Replacement Center near Galveston, Texas. In addition, a third cadre of about ninety men will be furnished to the 2d Battalion of this organization when it is organized in February.

The 77th is still under canvas. Sibley stoves serve to take the chill off the air in the tents, and so far, men have remained remarkably free from illnesses. Mess buildings formerly used by CMTC groups serve as classrooms as well as messes. Temporary barracks are rapidly being constructed and, it is hoped, will be available for occupancy by February 1st.

Equipment is gradually arriving. So far, we have four 3-inch AA guns, one director M4, five searchlights, five sound locators, twelve 50-caliber machine guns, and seven 1½-ton trucks. All this equipment is being used primarily for cadre instruction since there is no opportunity for organization artillery drill.



Pay day in the 76th



The Northern-airs—popular quartet of the 76th

The 77th has twenty-seven officers, fourteen Regular Army and thirteen Reserve. Most of the Reserve officers are from the middle west, many from Kansas. On December 15th an informal dinner party was held for the officers and ladies of the battalion for the purpose of getting acquainted. Special entertainment was provided by Lieutenant Frank J. Anneberg and Captain Hermit Schweidel. Lieutenant Anneberg has had an interesting career, specializing in physical culture. He has appeared in Ripley's "Believe it or Not" several times for his feats of roller skating on his hands, shaving while standing on his head, playing a saxophone or drinking a pitcher of water while standing on his head, and other stunts. (Naturally Lieutenant Anneberg is Athletics Officer of this organization!) Captain Schweidel, an accomplished magician, amused an appreciative audience at the party with a number of feats of magic. Captain Schweidel's brother, Haskell Schweidel, who happened to be visiting at Fort Bragg and who is a professional magician, also gave an extraordinary performance.

1ST BATTALION, 76TH COAST ARTILLERY (AA)

LIEUTENANT COLONEL HARRY R. PIERCE,
Commanding

This battalion finally completed its provisions for keeping warm during the winter. All tents were framed and most of them were walled from scrap stock salvaged from the construction area. The pine needles first laid down in battery areas to keep down the sand were found to be too great a fire risk and were replaced by sawdust which answered the purpose better.

In order to harden the officers and men, practice marches were the order of the day each Friday during October, later reduced to twice a month in November. On November 8th the unit had worked up to the overnight bivouac stage after a twelve-mile march. Unfortunately the temperature suddenly dropped to twenty degrees and caused much discomfort but resulted in a great deal of beneficial experience.

After the completion of recruit training activities entered around the troop schools. It was necessary to

run schools simultaneously for officers, for noncommissioned officers and for specialists. From now on, for several months, schools will take up most of the time.

Work was commenced on the new barrack area during the first week of November. Barracks planned will accommodate 2,000 men. Completion is promised by the middle of January or the first of February. Construction is going ahead on schedule.

Four 2½-ton trucks arrived the latter part of November, the first practical indication that the 76th is a mobile unit. Other motor vehicles are expected to follow shortly.

As December opened the Fort Bragg units commenced to obtain the final information as to the scope of activities for the next few months. The 76th received orders to provide cadres for the 99th Coast Artillery (AA) at Wilmington, North Carolina, the 54th Coast Artillery (TD) at the Replacement Center at Galveston, the Replacement Center at Fort Eustis, Virginia, and some for the Quartermaster Corps. This will leave about 260 men for the foundation of the 76th which is due for expansion in February. Consequently, all fond ideas of anti-aircraft target practice practically went up in smoke, replaced by extensive cadre training, at least, for another three or four months.



The soldier's life is a varied one

Corregidor News Letter

COLONEL JOHN L. HOLCOMBE, *Commanding*

COLONEL JOSEPH F. COTTRELL, *Executive*

LIEUTENANT COLONEL L. J. BOWLER, *Adjutant and S-1*

LIEUTENANT COLONEL S. McCULLOUGH, S-2

LIEUTENANT COLONEL W. C. BRALY, S-3

LIEUTENANT COLONEL L. R. CREWS, S-4

LIEUTENANT COLONEL NAPOLEON BOUDREAU
Commanding 59th Coast Artillery (HD)

COLONEL JOHN L. HOLCOMBE
Commanding 60th Coast Artillery (AA)

COLONEL WILLIS SHIPPAM
Commanding 91st Coast Artillery (PS) (HD)

COLONEL OCTAVE DECARRE
Commanding 92d Coast Artillery (PS) (TD)

During October and November the Rock had very little rain and fewer typhoons, consequently few interruptions in gunnery practice. Special attention has been centered on Beach Defense.

Machine-gun and 75-mm. gun practice was conducted mainly by the noncommissioned officers with commissioned officers acting only as officials. Excellent results were obtained both with standard and emergency fire control methods.

Reserve officers reporting for duty in the recent months are undergoing strenuous practical training with personnel and matériel and already are taking over responsible battery assignments.

Preparations are being made for the 1940-41 Philippine Department maneuvers to be conducted on the Island of Luzon during December and January.

Tennis and badminton experts have been working out daily on the Club courts. The newly completed improvements, including indirect lighting and ceiling lining to the Main Club room have greatly improved conditions for indoor activities.

Major General and Mrs. Wilson sailed November 25th on the evacuation liner *Washington*. Prior to their departure a Post Despedida was held for the Wilsons, and the General reviewed all the Harbor Defense troops at a ceremony in his honor. A special ceremony was held at Harbor Defense Headquarters when General Wilson took the oath as Major General.

59TH COAST ARTILLERY

By Major A. K. Chambers

All batteries have completed Beach Defense firings and this has proved to be one of the most interesting and instructive phases of the training year. In all practices fire was conducted by noncommissioned officers; commissioned officers acted only as officials. The objective was training of maximum personnel rather than high scores by a selected, experienced few. However, two small pyramidal targets were destroyed by the 75-mm. guns.

We have had many personnel changes. Colonel Robert P. Glassburn and First Lieutenant Kenneth Glade returned to the United States on the November transport. Captains Reed Graves and Clair M. Conzelman have been assigned to the Harbor Defense Staff.

Captain Harry Schenck joined by transfer from the 92d Coast Artillery (PS) and has been assigned to Battery G.

The November transport brought First Lieutenants Stockton D. Bruns and J. B. McCluskey and Second Lieutenants Robert G. Cooper, H. T. Simpson, S. M. Byars, W. E. Lewis, P. D. Morehouse, and H. J. Schutte.

60TH COAST ARTILLERY

By Major G. L. Field

As we go to press, the 60th Coast Artillery (AA) has been completing antiaircraft machine-gun practices. A and F Batteries have fired their .30 caliber practices and are in the process of completing the .50 caliber firing. These practices were slightly delayed by the transfer of the 2d Observation Squadron from Nichols Field to Clark Field, but now that the Air Corps is in its new home, the last practices should be fired within the next three days. Scores are not yet available, but all appearances to date are creditable.

Air Corps enlisted personnel still form a not inconsiderable part of this regiment, and their willing cooperation, in spite of the adverse circumstances under which they arrived and remain, leaves a new high mark for the standards of inter-branch coöperation.

Colonel W. C. Koenig left on the November transport to go to the First Coast Artillery District at Boston. Sailing on the same transport were Major and Mrs. E. F. Adams.

The new arrivals for the 60th Coast Artillery on the November transport included: Lieutenants R. O. Hill, C. V. Haven, K. W. Ramsey, C. K. Britt, H. E. Packer, Jr., and C. H. Pipkin.

Other recent arrivals were a daughter, Patricia Ann, to Lieutenant and Mrs. Lawrence C. Baldwin, a granddaughter to Colonel Karl C. Baldwin, and a son, Dallas F., Jr., to Lieutenant and Mrs. Dallas F. Haynes.

Organization Day was celebrated on November 4th. The Harbor Defense Recreation Officer presented the 60th Coast Artillery with the 1939-40 championship trophies in baseball, tenpin bowling and volleyball. Battery B was presented the Regimental Commander's Trophy for all-round athletic supremacy during the year ending June 30th. Interbattery championship trophies were presented as follows: softball, Battery

basketball, Battery A; duckpins, Battery D; tenpins, Battery E.

91ST COAST ARTILLERY (PS)

By Lieutenant Colonel V. P. Foster

The past two months have been busy ones for the 91st Coast Artillery (PS). The 2d Battalion has completed rifle and pistol practice and improved its technique in antiaircraft guns and searchlights. The 1st Battalion has been spending much of its time on mines.

Officers' classes have been organized for the newly arrived lieutenants. Their duties and schools are running on a coordinated plan that is rapidly fitting them into the 91st Coast Artillery as a high-grade team.

After three successive years in the runner-up position of the Department Basketball League (Scout Division) the 91st Coast Artillery Squad moved forward a notch and brought the Championship Cup to our Trophy Cabinet for the first time since 1931. The final game with the 45th Infantry at Fort McKinley had the distinction of being the first scout basketball game to be broadcast over the Philippine network, and was enthusiastically received throughout the Provinces.

92D COAST ARTILLERY (PS)

By Lieutenant Colonel E. L. Barr

Since the last news letter this regiment successfully completed the various problems of intensive training

with emergency beach weapons, and range practice with all small arms. Battery Officers' schools, artillery training and chemical defense occupies the training calendar for November and December. Organization Day, November 15, 1940, was celebrated with an appropriate program and by special athletic events on Herring Field—Middleside. Battery C won the Organization Day plaque—a beautiful piece of artistic work by the Bilibids.

General Wilson, Harbor Defense Commander, presented the Harbor Defense Trophy awards to this regiment for championship in bowling duckpins, bowling tenpins and basketball. Each member of the regimental team received a silver medal appropriately engraved.

The regiment was pleased to welcome First Lieutenant and Mrs. Charles F. Monteith, Second Lieutenant and Mrs. Robert I. Wheat, and Second Lieutenant and Mrs. Jules D. Yates, who arrived on the November 1st transport.

Second Lieutenants Royal S. Gulden, Jr., and Elton D. Winstead also joined by transfer from the 91st Coast Artillery (PS) on October 20th.

Captain Harry W. Schenck has been transferred to the 59th Coast Artillery for duty at Fort Hughes since October 20th.

Captain Thomas H. Harvey and family returned to the States on the November 6th transport for assignment to the 76th Coast Artillery, Fort Bragg, North Carolina.



Puerto Rico

MAJOR GENERAL E. L. DALEY, *Commanding*

By Captain Peter S. Peca

66TH COAST ARTILLERY (AA)

CAPTAIN E. F. McKEE, *Commanding*

By Captain E. A. Chapman

The 66th Coast Artillery (AA) moved into its third temporary home on October 28th. The buildings were barely finished, but we had to move to make room for the 25th Bombardment Group and attached troops arriving in Puerto Rico. The ground had not been graded. Due to the heavy rains, we swam around in a sea of mud. Ingenuity and overtime soon conquered the mud so that now we are able to move on dry land.

The month of November saw an intensive recruiting drive. Neither replacements nor recruits came down from the States. All the increases had to be found in Puerto Rico. Our recruiting office worked from the

During the last two months all Coast Artillery units have been acting as Infantry units. Training in these organizations has been largely devoted to the school of the soldier and infantry drills. To prepare for the reception of the new National Guard units and later on for the selectees who enter the service, the Department Commander has directed that each organization be trained to be examples for the new men. As a result the saluting, the military appearance, and the training of the troops is outstanding.

During November War Department authority was received to recruit to war strength in Regular Army units and peace strength in National Guard organizations. As soon as the information was sent out from this Headquarters the recruiting offices at the various posts were swamped.



AA machine gun against a tropical sky

6th to the 10th, from the 12th to the 15th, and on the 19th. During those days we processed and enlisted a total of 947 men. This brought the 66th to war strength, the 201st to peace strength. The greatest difficulty was finding applicants who spoke enough English to understand instructions. After recruiting, the first task that confronted us was to feed and toughen the men to enable them to undergo a rigorous training program.

The thirteen weeks training program arrived and we all plunged into that. We have been working steadily on that program with a view to having an efficient, highly trained antiaircraft unit in record time. In addition to our own training, we are charged with the training of the 201st. This battalion was inducted from the Puerto Rico National Guard on October 15th. It is a new organization. One battery, Battery B, had had a few hours instruction. The Battery Commanders of the 66th have spent eighty per cent of their time with the 201st, leaving their own batteries largely in the hands of their lieutenants.

In addition to our intensive training we have had the privilege of furnishing the guard of honor for Secretary of the Treasury Morgenthau, General Andrews, and the House Military Affairs Committee.

The temporary officers' quarters will be ready for occupancy by Christmas. The 66th is fortunate to be assigned seven of them. It appears now that our families will be off the highways by Christmas. Most of the families have lived far from the post for over a year.

It appears that we will be performing as an antiaircraft outfit again. During the week of December 16th we completed some antiaircraft machine-gun firing. It was the first time that we had been able to do so. Although the results were not startling we were glad to be firing again. Since the arrival of additional Air Corps personnel and planes about December 1st, we have been able to obtain many more flying missions. The Air Corps has been very cooperative. With their help we are getting back into the swing of things.

51ST COAST ARTILLERY

LIEUTENANT COLONEL B. L. FLANIGEN, *Commanding*

By First Lieutenant O. K. Marshall

On October 12th the battalion returned from Borinquen Field to take over its new station, the post of San Juan. The 51st is the first Coast Artillery unit to occupy this station since the United States took possession of Puerto Rico. Before the time of the American occupation, the four-century old ramparts had always been armed with heavy Spanish artillery. Since 1898 the United States troops stationed here have been Infantry.

All Coast Artillery troops in the Puerto Rican Department are engaged in intensive training. At the present time batteries of the 51st Coast Artillery are undertaking field exercises and small arms practices at Punta Salinas. Batteries alternate in moving to the little peninsula and camping in shelter tents among the coconut trees. The seasonal rains which are prevalent at this time of the year make camping a little damp but not uncomfortably so. The men are enjoying the training and work.

✓ ✓ ✓

201ST COAST ARTILLERY

CAPTAIN RAFAEL CHARNECO, *Commanding*

By Second Lieutenant Agustin Echevarria, Jr.

The 201st Coast Artillery (AA) was originally a part of the 92d Infantry Brigade, Puerto Rican National Guard. The gun batteries were scattered all over the Island with the Headquarters, Headquarters Battery and Searchlight Battery stationed at San Juan.

On October 15th the 201st was inducted into the Army of the United States. Upon induction, orders were received to move to Borinquen Field to undergo instruction by the officers of the 66th Coast Artillery.

The arrival of the 201st at "Punta Borinquen," as it is called in Spanish, was quite an event. Our tents had been pitched by personnel from the 66th Coast Artillery. The area assigned to our battalion was the remains of a sugar cane field. The pyramidal tents were pitched over the burned cane. Our recruits looked very much like caterpillars when they tried to march down the battery streets. The reader may well imagine troops parading through a recently plowed field. Hard labor with constant supervision has turned our battalional area into an attractive site. We will move soon to another area with temporary wooden barracks as our home.

The conversion of infantrymen into artillerymen is no easy task, especially with cadres of untrained officers. Half of the officer personnel of the 201st come from the Organized Reserves and half from Infantry units of the National Guard. All are college graduates who have obtained their commissions through R.O.T.C. courses.

Hawaiian Separate Coast Artillery Brigade

MAJOR GENERAL FULTON Q. C. GARDNER, *Commanding*

COLONEL J. H. LINDT, *Chief of Staff*

MAJOR E. FIELDING, *Adjutant General & S-1*

CAPTAIN D. D. MARTIN, *S-2 & Gunnery*

LIEUTENANT COLONEL R. M. PERKINS, *S-3 & War Plans*

MAJOR T. W. MUNFORD, *S-4*

MAJOR I. H. RITCHIE
Com. and Engineer Officer

CAPTAIN E. M. LEE
Ordnance Officer

LIEUTENANT COLONEL J. C. BATES
Sec. Ath. Officer

MAJOR N. D. FRANKLIN
Judge Advocate

COLONEL E. B. WALKER
Commanding Harbor Defenses of Pearl Harbor

COLONEL P. H. HERMAN
Commanding Harbor Defenses of Honolulu

COLONEL CHARLES K. WING
Commanding 64th Coast Artillery (AA)

COLONEL JOHN H. SHERMAN
Commanding 251st Coast Artillery

By Captain Milan G. Weber

THE 251ST JOINS THE BRIGADE

A welcome increase in the personnel of this brigade took place when the 251st Coast Artillery (AA), National Guard, having previously been inducted into the Federal service, arrived from California. The advance party of the regiment, consisting of twenty officers and 724 enlisted men under the command of Lieutenant Colonel Rudolph C. Wueste, arrived in Honolulu on board the S.S. *George Washington* on November 4th. The remainder of the regiment, consisting of thirty-two officers, one warrant officer, and 415 enlisted men arrived on November 23d, on the U.S.A.T. *Leonard Wood*. The regimental commander, Colonel John H. Sherman accompanied this detachment. It is believed that this is the first instance of a mainland National Guard Regiment being stationed outside of the continental limits of the United States in time of peace.

CONSTRUCTION OF CAMP MALAKOLE

Originally planned to become only a firing center for the mobile anti-aircraft units of this brigade, Camp Malakole, located on the west shore of Oahu about two miles north of Barber's Point is now in the process of expansion and construction so that it will be the home post of the 251st Coast Artillery as well as the firing center as originally planned. Housing plans were accordingly expanded and construction of the buildings rushed.

Soon after arrival, units of the 251st Coast Artillery moved out to Camp Malakole and are continuing the construction begun by the 64th Coast Artillery (AA). At the time of the writing of this letter (December 26, 1940), six lettered batteries of the regiment are at Malakole, the remaining personnel being temporarily stationed at Forts Shafter and Ruger, pending completion of the camp.

When completed, the camp for the regiment will contain 48 barracks buildings, 12 mess halls, 9 magazines and storehouses, 5 officers' quarters, 7 showers and latrines, a dispensary, officers' mess, camp headquarters, post office, regimental dayroom, theater, laundry, motor repair shop, utilities, gasoline station, fire station, guard house, photo laboratory, engineer and quartermaster buildings—a total of 96 buildings. Complete sewage and sanitary facilities are being installed concurrently with building construction.

Early during the construction period, on the night of November 19th, while Batteries G and H were occupying tents at the camp, a heavy rainfall took place. A large part of the camp area was under two feet of water and most of the tent floors were below the water level. This necessitated a premature move to those barracks which were nearing completion. Since the roofs had at that time not been covered with roofing material, the rain came into the buildings and tents were put up in the barracks. The floors of the barracks are several feet above the ground so that the floors, at least, were not in standing water as the formerly occupied tent floors had been.



The 251st arrives



Tent camp, 251st Coast Artillery

The officers and men of the regiment have taken these difficulties in their stride and have maintained throughout a high standard of morale. The Hawaiian Separate Coast Artillery Brigade welcomes the 251st Coast Artillery into the fold.

PRESENTATION OF SOLDIER'S MEDAL

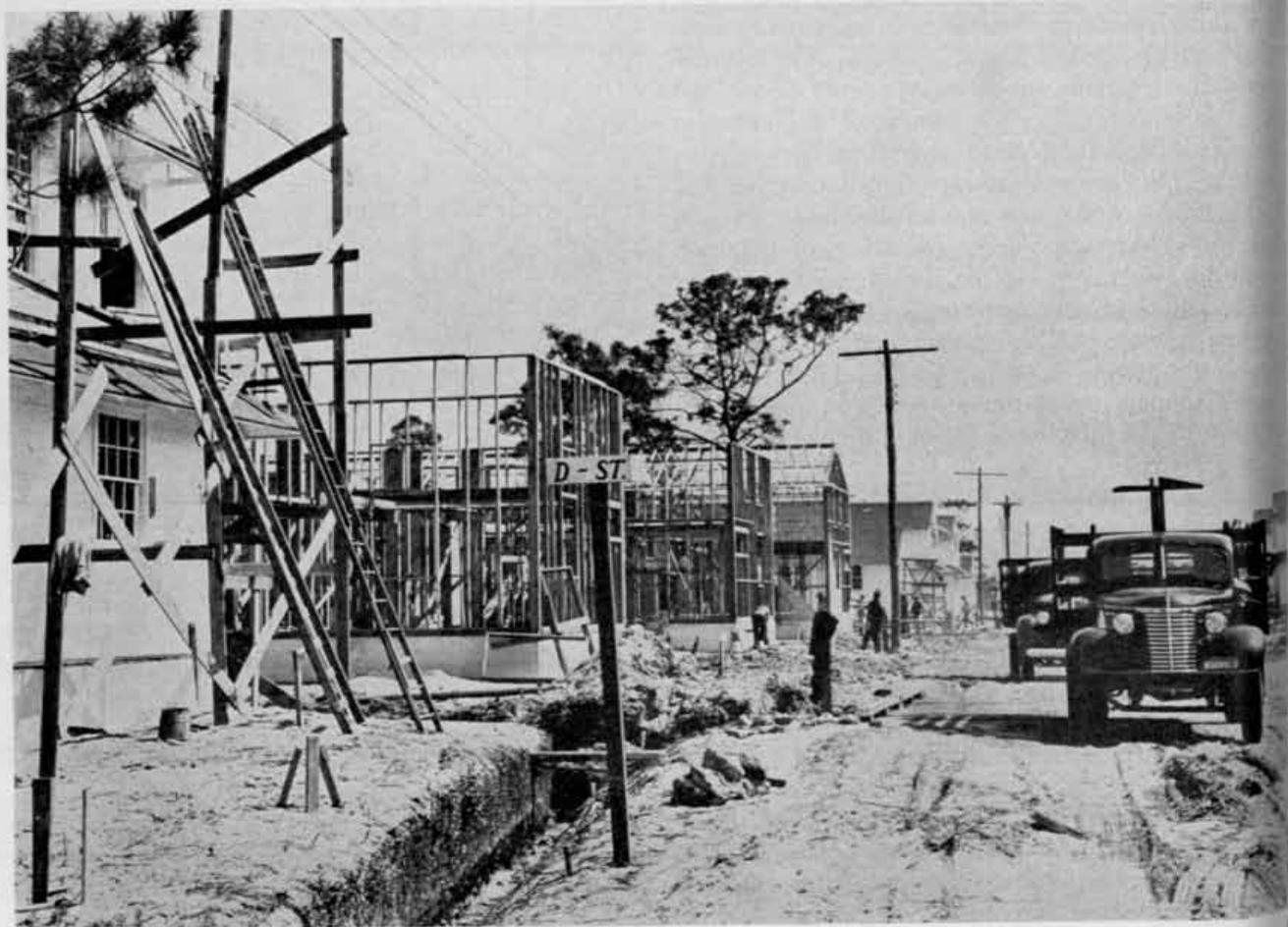
On December 12, 1940, Major General Fulton Q. C. Gardner presented the Soldier's Medal to Captain Perry H. Eubank at a review of the troops of the Harbor Defenses of Honolulu at Fort DeRussy. The War

Department awarded the medal to Captain Eubank in recognition of the heroism displayed by him in rescuing a woman from drowning near Mokapu Beach, Oahu, on September 4, 1940.

PERSONNEL CHANGES

Colonel C. M. S. Skene, the Chief of Staff of this brigade for the past two years, is sailing this week for the mainland where he will assume command of the 63d Coast Artillery (AA) at Fort Bliss, Texas. Colonel John H. Lindt, who has been the brigade S-3 and War Plans officer, will become Chief of Staff. Lieutenant Colonel Robert M. Perkins will be changed from S-4 to S-3 and War Plans officer. Major Thomas W. Munford will become the brigade S-4.

Captain E. M. Lee will become the Ordnance Officer of the brigade replacing Lieutenant Colonel R. S. Barr who is moving to Schofield Barracks. Colonel Paul H. Herman, having arrived in Honolulu on December 14th, is the new Commanding Officer of the Harbor Defenses of Honolulu, replacing Lieutenant Colonel Shuey E. Wolfe who becomes the Harbor Defense Executive.



Construction in California

COAST ARTILLERY ORDERS

(Covering period November 1 through December 31, 1940)

- Colonel Paul D. Bunker to Philippine Department, sailing San Francisco, January 24.
Colonel James B. Crawford to Miscellaneous Station, Hollyridge, North Carolina.
Colonel Henry C. Davis, Jr. to 65th, March Field.
Colonel Edward B. Dennis to First Corps Area Service Command, Fort Banks.
Colonel Albert Gilmor to Second Corps Area Service Command, Fort Ontario.
Colonel Francis P. Hardaway to Replacement Center, Torrey Pines, California.
Colonel Paul H. Herman to Hawaiian Department sailing San Francisco, December 4.
Colonel John B. Maynard to Replacement Center, Hitchcock, Texas.
Colonel Charles B. Meyer to 68th, Camp Edwards.
Colonel George F. Moore to Philippine Department sailing Honolulu, November 14.
Colonel Hollis LeR. Muller to 9th Coast Artillery District, Presidio of San Francisco.
Colonel Harold F. Nichols to Replacement Center, Fort Eustis.
Colonel Willis Shippam to New York Port of Embarkation, Brooklyn.
Colonel Cedric M. S. Skene to 63d, Fort Bliss.
Colonel Oscar C. Warner to 54th, Hitchcock, Texas.
Lieutenant Colonel Carl R. Adams to Replacement Center, Torrey Pines, California.
Lieutenant Colonel Reamer W. Argo to Panama Canal Department sailing New York February 18.
Lieutenant Colonel Charles E. Atkinson to Replacement Center, Fort Eustis.
Lieutenant Colonel Henry R. Behrens to Replacement Center, Fort Eustis.
Lieutenant Colonel Enrique M. Benitez to General Staff Corps.
Lieutenant Colonel Herbert H. Blackwell to 3d Coast Artillery District, Fort Monroe.
Lieutenant Colonel George Blaney to Replacement Center, Fort Eustis.
Lieutenant Colonel Elmer R. Block (FA) to Replacement Center, Hitchcock, Texas.
Lieutenant Colonel Benjamin Bowering to Replacement Center, Hitchcock, Texas.
Lieutenant Colonel Robert D. Brown to Fort Ontario.
Lieutenant Colonel Abraham L. Bullard to 206th, Fort Bliss.
Lieutenant Colonel Albert D. Chipman to 261st, Fort Du Pont.
Lieutenant Colonel Francis L. Christian to 2d, Fort Monroe.
Lieutenant Colonel Charles I. Clark, CA-Res to instructor Command and General Staff School.
Lieutenant Colonel Hugh McC. Cochran, 3d to 33d Coast Artillery Brigade, Camp Hulén.
Lieutenant Colonel George H. Collins, CA-Res (QM-Res) to Newburg, Missouri.
Lieutenant Colonel Morris E. Conable to Miscellaneous Station, Hollyridge, North Carolina.
Lieutenant Colonel Frederic W. Cook to Replacement Center, Fort Eustis.
Lieutenant Colonel William W. Cravens to Miscellaneous Station, Hollyridge, North Carolina.
Lieutenant Colonel Evans R. Crowell to Replacement Center, Torrey Pines, California.
Lieutenant Colonel Cyril W. Dawson to San Francisco Port of Embarkation, Fort Mason.
Lieutenant Colonel John T. DeCamp to Office of the Chief of Coast Artillery.
Lieutenant Colonel Harold P. Detwiler to GSC with troops, Quarry Heights, C. Z.
Lieutenant Colonel Ward E. Duvall to Panama Canal Department sailing San Francisco, January 10.
Lieutenant Colonel Charles R. Finley to GSC with troops, Quarry Heights, C. Z.
Lieutenant Colonel Archibald D. Finken to Fort Ontario.
Lieutenant Colonel John W. Fletcher, CA-Res to duty with Assistant Chief of Staff G-3.
Lieutenant Colonel William C. Foote (GSC) to Headquarters Second Army, Chicago, Illinois.
Lieutenant Colonel Manly B. Gibson to Replacement Center, Torrey Pines, California.
Lieutenant Colonel Roy S. Gibson (Inf.) to Miscellaneous Station, Hollyridge, North Carolina.
Lieutenant Colonel Richmond T. Gibson to Miscellaneous Station, Hollyridge, North Carolina.
Lieutenant Colonel Walter J. Gilbert to New York Port of Embarkation, Brooklyn.
Lieutenant Colonel Chauncey A. Gillette to Replacement Center, Fort Eustis.
Lieutenant Colonel Arthur W. Gower to 54th, Hitchcock, Texas.
Lieutenant Colonel Joseph B. Hafer to Replacement Center, Fort Eustis.
Lieutenant Colonel Linton Y. Hartman to Miscellaneous Station, Hollyridge, North Carolina.
Lieutenant Colonel Allison W. Jones to Replacement Center, Fort Eustis.
Lieutenant Colonel Clifford R. Jones to Miscellaneous Station, Hollyridge, North Carolina.
Lieutenant Colonel Rolla V. Ladd to 54th Hitchcock, Texas.
Lieutenant Colonel Arthur L. Lavery to Replacement Center, Fort Eustis.
Lieutenant Colonel Abraham M. Lawrence to Replacement Center, Fort Eustis.
Lieutenant Colonel Frederick Lofquist to Replacement Center, Torrey Pines, California.
Lieutenant Colonel Edward B. McCarthy to Replacement Center, Fort Eustis.
Lieutenant Colonel Kenneth McCatty to 9th Coast Artillery District, Presidio of San Francisco.
Lieutenant Colonel Samuel L. McCroskey to Miscellaneous Station, Hollyridge, North Carolina.
Lieutenant Colonel Hubert A. McMorrow to Replacement Center, Fort Eustis.
Lieutenant Colonel William R. Maris to Replacement Center, Fort Eustis.
Lieutenant Colonel William F. Marquat to Replacement Center, Hitchcock, Texas.
Lieutenant Colonel John B. Martin to New York Port of Embarkation, Brooklyn.
Lieutenant Colonel Maurice Morgan to Antiaircraft Training Center, Camp Hulén.
Lieutenant Colonel Geoffrey M. O'Connell to Replacement Center, Fort Eustis.
Lieutenant Colonel George R. Owens to Miscellaneous Station, Hollyridge, North Carolina.
Lieutenant Colonel Otto G. Pitz to Replacement Center, Fort Eustis.
Lieutenant Colonel Caesar R. Roberts to 40th Coast Artillery Brigade, Fort Sheridan.
Lieutenant Colonel Lloyd E. Rolfe, CA-Res to active duty, Fort Ord.
Lieutenant Colonel William Sackville to 71st, Fort Story.
Lieutenant Colonel Lucas E. Schoonmaker to 3d Coast Artillery District, Fort Monroe.
Lieutenant Colonel Evan C. Seaman to Replacement Center, Fort Eustis.
Lieutenant Colonel Rexford Shores to Hawaiian Department sailing San Francisco, April 4.
Lieutenant Colonel Harry W. Stark to 78th, March Field.
Lieutenant Colonel William R. Stewart to Replacement Center, Torrey Pines, California.
Lieutenant Colonel Edward L. Supple to Miscellaneous Station, Hollyridge, North Carolina.
Lieutenant Colonel William H. Sweet to Panama Canal Department, sailing Charleston, February 20.
Lieutenant Colonel Louis H. Thompson to New York Port of Embarkation, Brooklyn.
Lieutenant Colonel Berthold Vogel to Replacement Center, Hitchcock, Texas.
Lieutenant Colonel Albert H. Warren to Replacement Center, Torrey Pines, California.
Lieutenant Colonel William C. Washington to Replacement Center, Fort Eustis.
Lieutenant Colonel Lawrence B. Weeks to Assistant Commandant Coast Artillery School.
Major Philip W. Allison (FA) to 6th, Fort Winfield Scott.
Major Laurence W. Bartlett to GSC with troops, Quarry Heights, C. Z.
Major William I. Brady to 6th, Fort Winfield Scott.
Major Paul W. Cole to GSC with troops, Philippine Department.
Major William H. J. Dunham to Office of the Chief of Coast Artillery.
Major John W. Dwyer to Miscellaneous Station, Hollyridge, North Carolina.
Major Hamilton P. Ellis to 61st, Fort Sheridan.
Major George R. Geller, CA-Res to duty with Assistant Secretary of War.
Major Edward A. Kleinman to GSC with troops, Ninth Corps Area.
Major Donald D. Lamson to 18th, Fort Winfield Scott.
Major Donald McLean to 78th, March Field.
Major Edward L. Millis, CA-Res to active duty, Fort Hamilton.
Major George F. Nichols to Miscellaneous Station, Hollyridge, North Carolina.
Major Joseph S. Robinson to 54th, Hitchcock, Texas.
Major Edmond E. Russell, CA-Res to active duty, Fort Hamilton.

Major Harold W. Smith to New York Port of Embarkation, Brooklyn.

Major Forrest B. Volkel, CA-Res to instructor, Command and General Staff School.

Major Francis O. Wood (FA) to 18th, Fort Stevens.

Captain Gilbert N. Adams to Miscellaneous Station, Hollyridge, North Carolina.

Captain John Alfrey to 21st, Fort Du Pont.

Captain William W. Bailey to Miscellaneous Station, Hollyridge, North Carolina.

Captain Jesse H. Burke, CA-Res to active duty with Air Corps, Savannah Air Base.

Captain Clifton C. Carter to Headquarters Second Corps Area, Governors Island, N. Y.

Captain William S. Coit to Miscellaneous Station, Hollyridge, North Carolina.

Captain Walter C. Conway to Miscellaneous Station, Hollyridge, North Carolina.

Captain Clair McK. Conzelman to New York Port of Embarkation, Brooklyn.

Captain Lewis C. Cook, CA-Res to active duty, Fort Leavenworth.

Captain Harry B. Cooper, Jr. to Miscellaneous Station, Hollyridge, North Carolina.

Captain Frederick E. Day to Miscellaneous Station, Hollyridge, North Carolina.

Captain Matthew K. Deichelmann to GSC with troops, Quarry Heights, C. Z.

Captain Levi C. Erdman, CA-Res to active duty with Air Corps, Hawaiian Department, sailing New York, January 23.

Captain Harvey H. Eustrom, CA-Res (QM-Res) to Asst. CQM, Burlington Shell Loading Plant, Burlington, Iowa.

Captain Odea Evans, CA-Res to active duty, Randolph Field.

Captain Robert W. Evans, CA-Res to active duty with Air Corps, Wright Field.

Captain Nels Fardahl, CA-Res to active duty with Air Corps, Randolph Field.

Captain Frederick P. Fein, CA-Res to active duty, Mitchel Field.

Captain Frank T. Folk to Miscellaneous Station, Hollyridge, North Carolina.

Captain William R. Galt, CA-Res (QM-Res) to Asst. CQM, Fort Hayes.

Captain Harold P. Gard to 5th, Fort Hamilton.

Captain Norman L. Geidel, CA-Res to Bowman Field.

Captain Ralph I. Glasgow to Miscellaneous Station, Hollyridge, North Carolina.

Captain Harry R. Hale to 6th, Fort Winfield Scott.

Captain Robert M. Hardy to 19th, Fort Rosecrans.

Captain John L. Hitchings, (Cav) to Panama Canal Department sailing Charleston, February 20.

Captain Albert H. Hollandsworth, CA-Res (QM-Res) to Office of the Quartermaster General.

Captain John N. Howell to instructor, Coast Artillery School.

Captain William L. Johnson to Miscellaneous Station, Hollyridge, North Carolina.

Captain Roy K. Kauffman to 202d, Fort Bliss.

Captain John M. Kimble, CA-Res to active duty, Hawaiian Department, sailing New York, November 23.

Captain Lewis S. Kirkpatrick to New York Port of Embarkation, Brooklyn.

Captain George E. McCormick, Jr., CA-Res to active duty, Fort Snelling.

Captain Edward W. McLain to 54th, Hitchcock, Texas.

Captain John B. Morgan to 5th, Fort Hamilton.

Captain William R. Murrin to 22d, Fort Constitution.

Captain Paul B. Nelson to 78th, March Field.

Captain James Nesmith, 2d, CA-Res to active duty with Coast Artillery Board.

Captain Kenneth H. Newton, CA-Res to CQM, AA Firing Center, Riverside, California.

Captain William F. Niethamer to AA Training Center, Camp Hulen.

Captain Charles J. Odenweller, Jr. to 22d, Fort Constitution.

Captain George E. Orr, (QM-Res) to Asst. CQM, McChord Field.

Captain Calvin L. Partin to 54th, Hitchcock, Texas.

Captain William P. Price, CA-Res to instructor, Coast Artillery School.

Captain Kai E. Rasmussen to 6th, Fort Winfield Scott.

Captain Karl A. Remensnyder, CA-Res to active duty Hawaiian Department, sailing New York, January 4.

Captain John R. Richards, Jr., CA-Res (QM-Res) to Asst. to QM, Fort Monroe.

Captain Raymond W. Rumph to Miscellaneous Station, Hollyridge, North Carolina.

Captain Kermit R. Schweidel to 54th, Hitchcock, Texas.

Captain Frank H. Shepardson to 3d, Fort MacArthur.

Captain Charles W. Skeele, CA-Res to active duty with Air Corps.

Captain Charles E. Snyder, Jr., CA-Res to Hq. 3d Coast Artillery District, Fort Monroe.

Captain Oscar B. Steely to Miscellaneous Station, Hollyridge, North Carolina.

Captain Alexander J. Stuart, Jr., (OD) to U. S. Military Academy.

Captain Ralph L. Tellman CA-Res (QM-Res) to Asst. CQM, Union Centre, Indiana.

Captain John F. Thorlin (OD) to Office of the Chief of Ordnance.

Captain William M. Vestal to Panama Canal Department, sailing New York, February 18.

Captain Russell Vincent, QM-Res to Asst. CQM, Fort Lewis.

Captain Benjamin M. Warfield to 54th, Hitchcock, Texas.

Captain Bernard S. Waterman to 21st, Fort Du Pont.

Captain H. Bennett Whipple to instructor, Coast Artillery School.

Captain George F. Wigger, CA-Res (QM-Res) to Asst. CQM, Philadelphia and vicinity.

First Lieutenant Aaron A. Abston to New York Port of Embarkation, Brooklyn.

First Lieutenant Frank H. Baker, Jr., CA-Res to Puerto Rican Department, sailing New York, December 27.

First Lieutenant Marshall W. Baker, CA-Res. orders to active duty revoked.

First Lieutenant Lawrence C. Baldwin to New York Port of Embarkation, Brooklyn.

First Lieutenant Kenneth W. Bandel, NGUS to Hawaiian Department, sailing San Francisco, December 17.

First Lieutenant John B. Bomar, CA-Res to Air Corps, Orlando, Florida.

First Lieutenant William T. Boyd, CA-Res to Hq. H.D. of Chesapeake Bay, Fort Monroe.

First Lieutenant John Y. Brightman, CA-Res to Hawaiian Department, sailing New York, February 6.

First Lieutenant Ira E. Buckholtz, CA-Res to Asst. CQM, Fort Lewis.

First Lieutenant Julian H. Burns, CA-Res (QM-Res) to Asst. CQM, AA Firing Center, Wilmington, North Carolina.

First Lieutenant Jerome S. Byrne to New York Port of Embarkation, Brooklyn.

First Lieutenant James M. Cochran to Miscellaneous Station, Hollyridge, North Carolina.

First Lieutenant Joseph Conigliaro to Mis-

cellaneous Station, Hollyridge, North Carolina.

First Lieutenant Jack Cunningham, CA-Res to active duty with Air Corps, Wright Field.

First Lieutenant Harry De Metropolis to 52d, Fort Hancock.

First Lieutenant Malcolm R. Derby, CA-Res to Puerto Rican Department, sailing New York, December 27.

First Lieutenant Alden W. DeYoe, CA-Res. to active duty, Coast Artillery School.

First Lieutenant James S. Dougherty, Jr., CA-Res to Panama Canal Department, sailing New York, January 18.

First Lieutenant Jack G. Engelbert, CA-Res orders to active duty revoked.

First Lieutenant Kenneth T. Farner, CA-Res to active duty with Air Corps, MacDill Field.

First Lieutenant Carl W. Fuller, CA-Res to Panama Canal Department, sailing New York, January 18.

First Lieutenant Green R. Gaillard, CA-Res to active duty with Air Corps.

First Lieutenant Michel A. Garrett, CA-Res (QM-Res) to Asst. CQM, Galveston.

First Lieutenant Frederick J. Gerlich to New York Port of Embarkation, Brooklyn.

First Lieutenant Kenneth Glade to 5th, Fort Hamilton.

First Lieutenant Clarence B. Gragg, CA-Res to active duty with Air Corps, Hawaiian Department, sailing New York, November 23.

First Lieutenant Roswell H. Graves, CA-Res to Puerto Rican Department, sailing New York, December 27.

First Lieutenant John C. Harvell, CA-Res to duty with the Air Corps, Orlando, Florida.

First Lieutenant Herman H. Hauck to 21st, Fort Du Pont.

First Lieutenant George M. Hays, CA-Res to instructor Coast Artillery School.

First Lieutenant Charles F. Heasty, Jr. to Hq. 2d Coast Artillery District, New York City.

First Lieutenant James R. Holmes to New York Port of Embarkation, Brooklyn.

First Lieutenant Bowen C. Huckleberry, Jr., CA-Res to Asst. CQM, Fort Custer.

First Lieutenant Seth F. Hudgins to 5th, Fort Hamilton.

First Lieutenant Lloyd B. Knouse, CA-Res to active duty, Hawaiian Department.

First Lieutenant John W. Koletty, CA-Res to Asst. CQM, Kankakee Ordnance Works, Joliet, Illinois.

First Lieutenant Arpad A. Kopcsak to Miscellaneous Station, Hollyridge, North Carolina.

First Lieutenant George E. Louttit, CA-Res (QM-Res) to Asst. CQM, Philadelphia and vicinity.

First Lieutenant Arthur W. Lynch, CA-Res (QM-Res) to Asst. CQM, Fort Huachuca.

First Lieutenant Hiram Van E. Mahan, CA-Res (QM-Res) to Asst. CQM, Infantry Replacement Center, Macon, Georgia.

First Lieutenant William H. Marvel, CA-Res to active duty, Savannah Airport.

First Lieutenant Frederick A. Miller to New York Port of Embarkation, Brooklyn.

First Lieutenant Robert L. Milligan, CA-Res to Panama Canal Department, sailing New York, January 18.

First Lieutenant George F. Mincher, CA-Res to active duty with Air Corps Savannah Airport.

First Lieutenant Elmo R. Morgan, CA-Res to Asst. CQM, Fort Bliss and vicinity.

First Lieutenant James R. Murphy, CA-Res to AA Training Center, Fort Bliss.

First Lieutenant Walter H. Redit, CA-Res to active duty with Air Corps.

First Lieutenant Dean A. Rhody, CA-Res to active duty with Air Corps, Savannah Air Base.

First Lieutenant James W. Scales, CA-Res (QM-Res) to Asst. CQM, Camp Bowie.

First Lieutenant Alen Seff to Miscellaneous Station, Hollyridge, North Carolina.

First Lieutenant Earle M. Shiley to New York Port of Embarkation, Brooklyn.

First Lieutenant Justin A. Shook, CA-Res to active duty with Air Corps.

First Lieutenant Ward H. Shurtz, CA-Res to Panama Canal Department, sailing Charleston, January 20.

First Lieutenant William P. Simpson, CA-Res to Panama Canal Department, sailing New York, January 18.

First Lieutenant George C. Smith, CA-Res (QM-Res) to Asst. CQM, Camp Shelby.

First Lieutenant Mike Smith, CA-Res (QM-Res) to Asst. CQM, Fort Deven.

First Lieutenant Stazy J. Sukiennik, CA-Res to Panama Canal Department, sailing New York, January 18.

First Lieutenant Walter H. Thaxton, CA-Res to active duty with Air Corps, Langley Field.

First Lieutenant Earl E. Thayer, CA-Res (QM-Res) to Asst. CQM, Fort Monroe.

First Lieutenant Wallace W. Thurston, CA-Res to Panama Canal Department, sailing New York, January 18.

First Lieutenant Edwin M. Turner, CA-Res (QM-Res) to Office of the Quartermaster General.

First Lieutenant William H. Vail, Jr. to Miscellaneous Station, Hollyridge, North Carolina.

First Lieutenant Henry L. Walter, CA-Res to Panama Canal Department, sailing Charleston, January 20.

First Lieutenant Hyman B. Wax, CA-Res to active duty with Air Corps, Langley Field.

First Lieutenant James M. Williams, CA-Res to active duty, Fort Leavenworth.

First Lieutenant Grover L. Wilson, Jr., CA-Res to active duty with Air Corps, Langley Field.

First Lieutenant John D. Wood to New York Port of Embarkation, Brooklyn.

First Lieutenant Clair M. Worthy, CA-Res to 20th, Fort Crockett.

Second Lieutenant John E. Aber to 54th, Hitchcock, Texas.

Second Lieutenant Joseph W. Baker, CA-Res to Panama Canal Department, sailing New York, January 18.

Second Lieutenant Charles L. Beaudry to 57th, Fort Monroe.

Second Lieutenant James N. Belote, CA-Res to Panama Canal Department, sailing New York, January 18.

Second Lieutenant Irving W. Brooks, CA-Res to active duty, Coast Artillery School.

Second Lieutenant William N. Brown, II, CA-Res to active duty with Air Corps, Kelly Field.

Second Lieutenant Ullman J. Carruth, CA-Res to active duty with Air Corps, Kelly Field.

Second Lieutenant Ernest W. Chapman, CA-Res to Panama Canal Department, sailing Charleston, January 20.

Second Lieutenant John Cheney, CA-Res to instructor, Coast Artillery School.

Second Lieutenant Robert L. Colligan, Jr. to 21st, Fort Du Pont.

Second Lieutenant Randolph U. Crenshaw, CA-Res to Panama Canal Department, sailing Charleston, January 20.

Second Lieutenant George H. Cully, CA-Res to Asst. CQM, Nacimiento, California.

Second Lieutenant Robert J. Delaney to 6th, Fort Winfield Scott.

Second Lieutenant Frank A. deLatour, Jr. to 54th, Hitchcock, Texas.

Second Lieutenant Ramon F. Delosua, CA-Res to Panama Canal Department, sailing New York, January 18.

Second Lieutenant Benjamin W. Dickerson, Jr., CA-Res to Panama Canal Department, sailing New York, January 18.

Second Lieutenant Kenneth W. Dickman, CA-Res to active duty with Air Corps, Wright Field.

Second Lieutenant Harry W. Dille, CA-Res to Puerto Rican Department, sailing New York, December 27.

Second Lieutenant Charles P. Downer, CA-Res to active duty with Air Corps, Savannah Air Base.

Second Lieutenant John P. Dwyer to Air Corps Basic Flying School.

Second Lieutenant Adam J. Eisenhower to Puerto Rican Department, sailing New York, January 18.

Second Lieutenant John J. Egan, CA-Res orders to active duty revoked.

Second Lieutenant Jewel W. Ewing, CA-Res to active duty with Air Corps, MacDill Field.

Second Lieutenant Philip J. Foran, Jr., CA-Res to Panama Canal Department, sailing New York, January 18.

Second Lieutenant Frank S. Fugman to QMC, Scott Field.

Second Lieutenant Kirby D. Goldblum, CA-Res to Puerto Rican Department, sailing New York, December 27.

Second Lieutenant James A. Grazier, CA-Res to Panama Canal Department, sailing Charleston, January 20.

Second Lieutenant Ernest G. Gruters, CA-Res to Panama Canal Department, sailing New York, January 18.

Second Lieutenant Clarence E. Gushurst to 6th, Fort Winfield Scott.

Second Lieutenant Arthur F. Hanson, CA-Res to Puerto Rican Department, sailing New York, December 27.

Second Lieutenant Malcolm R. Harvey, CA-Res to Puerto Rican Department, sailing New York, December 27.

Second Lieutenant John C. Hattox, CA-Res to active duty, MacDill Field.

Second Lieutenant William P. Hickman, CA-Res to Panama Canal Department, sailing New York, January 18.

Second Lieutenant Robert B. Jaffa, CA-Res to Panama Canal Department, sailing New York, January 18.

Second Lieutenant James C. Jeffries, Jr. CA-Res to Panama Canal Department, sailing Charleston, January 20.

Second Lieutenant Walter V. Johnson, CA-Res to active duty, Fort Monroe.

Second Lieutenant Ernest B. Jones to 76th, Fort Bragg.

Second Lieutenant Harold N. Kaufman, CA-Res to Puerto Rican Department, sailing New York, December 27.

Second Lieutenant James Kravitz, CA-Res to active duty Coast Artillery School.

Second Lieutenant Thomas M. Lewis, CA-Res to Panama Canal Department, sailing New York, January 18.

Second Lieutenant Edwin C. Luedeking, CA-Res to active duty, Fort Hamilton.

Second Lieutenant Max McCord, CA-Res to 20th, Fort Crockett.

Second Lieutenant Glen A. McFeters, CA-Res to active duty with Air Corps, Selfridge Field.

Second Lieutenant Mark P. Manion, CA-Res to active duty with Air Corps, March Field.

Second Lieutenant Donald R. Morton, Jr., CA-Res to Asst. CQM, Fort Saulsbury.

Second Lieutenant Thomas H. Muller to 14th, Fort Worden.

Second Lieutenant Reuben W. Mundy, CA-Res to Panama Canal Department, sailing Charleston, January 20.

Second Lieutenant Allen H. Murphy, CA-Res to Puerto Rican Department, sailing New York, December 27.

Second Lieutenant Edward A. Murphy, Jr. to Moffett Field.

Second Lieutenant John A. O'Brien to 6th, Fort Winfield Scott.

Second Lieutenant James C. Parker, CA-Res to Panama Canal Department, sailing Charleston, January 20.

Second Lieutenant Gerald J. Priebe, CA-Res to active duty with Air Corps, Jefferson Barracks.

Second Lieutenant Henry P. Pryor to Puerto Rican Department, sailing New York, January 18.

Second Lieutenant Paul Psillos, CA-Res to active duty with Air Corps, Savannah Airport.

Second Lieutenant Richard K. Redfern, CA-Res to Panama Canal Department, sailing New York, January 18.

Second Lieutenant William C. Roberson, Jr., CA-Res to 62d, Fort Totten.

Second Lieutenant William W. Saunders to 19th, Fort Rosecrans.

Second Lieutenant Hillard W. Shaffer, CA-Res to active duty QMC, Kankakee Ordnance Works, Joliet, Illinois.

Second Lieutenant Ferdinand Stano, CA-Res to active duty Coast Artillery School.

Second Lieutenant Charles P. Stroble, Jr. to Panama Canal Department, sailing Charleston, January 20.

Second Lieutenant Fred A. Sumpter, CA-Res to Panama Canal Department, sailing New York, January 18.

Second Lieutenant John C. Tredennick to 57th, Fort Monroe.

Second Lieutenant Kenneth F. Troup, CA-Res to Panama Canal Department, sailing New York, January 18.

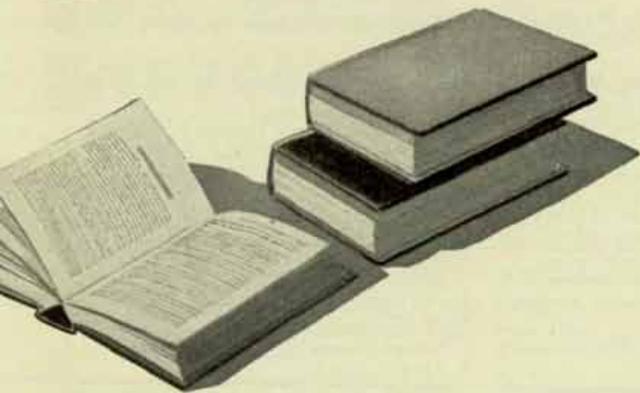
Second Lieutenant Gordon L. Way, CA-Res to active duty with Air Corps, McChord Field.

Second Lieutenant Edgar K. Young, CA-Res to Panama Canal Department, sailing New York, January 18.

Second Lieutenant Robert W. Young, CA-Res to Puerto Rican Department, sailing New York, December 27.



BOOK REVIEWS



Commissars and Crusaders

THE GREAT CRUSADE. By Gustav Regler. Translated from the German by Whitaker Chambers and Barrows Mussey. New York: Longmans, Green and Company. 448 Pages; \$2.50.

The great crusade, about which this book is written, is the crusade against dictatorship, against the Naziism of Hitler's Germany and the Fascism of Mussolini's Italy. The crusaders are men from Russia, Poland, Hungary, Germany, France, Italy, and all of Europe, who fought as volunteers in the International Brigades for Republican Spain against the Moors, Nazis, and Fascists serving under Franco. This is the story of one of the communist brigades that fought so successfully in the early part of the Spanish War. The author was the Brigade Commissar, a sincere Communist. He tells of the early battles to protect Madrid, and of the battles at Las Rozas, El Escorial, Arganda, Algora and Guadalajara. The book does not carry on to the final defeat of Republican Spain and the end of the war, but closes on a note of optimism with Franco's forces apparently stopped. This is not a tactical treatise; there are no maps showing the plans of campaign and battle for either side. The action in battle is a bit difficult to follow. The author does give a series of clear, sharp pictures of what he observed, what he and the officers and men of his brigade did and thought, both during and between battles. We meet the brigade commander and appreciate his task of controlling several battalions all speaking different languages. His orders were issued through several interpreters. The brigade surgeon figures prominently in the story, as do the commissars of the several organizations. The position of a "commissar" in the military organization is of interest to officers in the American army.

Ernest Hemingway states in his preface to this book,

"There are events which are so great that if a writer has participated in them his obligation is to try to write them truly rather than assume the presumption of altering them with invention. It is events of this importance that have produced Regler's book." We may assume that Mr. Regler has written truly of events as he saw them. That he was a prejudiced observer, there can be no doubt, but there is no reason to question the accuracy of his vivid description. He tells of the heroism and of the horrors of the Spanish War. The reader is impressed by the number of men from all nations who came to Spain and volunteered to fight for liberty against the men and machines of Hitler and Mussolini.

There is color and warmth in this book. There is nothing detached about it. We follow Albert, the Commissar, from day to day. His struggles for discipline, selection of officers, political discourses, and philosophy of Communism are described. We share his experiences through battle, alarms, attacks, defense, wounds, and contact with danger and death. Much space is devoted to extolling the doctrines of Russia and of Communism and in villifying totalitarianism and the doctrines of Facism.

✓ ✓ ✓

Plan for Victory

DE GAULLE AND THE COMING INVASION OF GERMANY. By James Marlow. New York: E. P. Dutton and Company, 1940. 95 Pages; \$1.00.

Here is a timely, short, well written book. There are only ninety-five pages. The pages are large, the print is large, and the book is easy to read. General Charles de Gaulle is in the news as the creator and leader of The Army of All Free Frenchmen, and as such he is recognized by the British. This book tells of his efforts as far back as 1934, when he published his *Towards a Professional Army*, to convince the French General Staff of the necessity for a highly mobile mechanized force for the defense of France. His advice went unheeded. The French placed their dependence

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on static defense, the Maginot Line. The Germans created the "Panzer-Division," organized almost exactly as De Gaulle recommended. The result is history. The inference is that the Germans adopted De Gaulle's ideas of a war of movement, of tanks, mechanization and air planes; the French did not. The book points out the advantage of a permanent army of skilled and trained technicians over a mass of half trained conscripts.

The story is told of De Gaulle's part in the Battle of France, and how he was called to advise the government at Bordeaux, but too late. The author is of the opinion that the French succumbed too easily. He is very critical of Gamelin, Weygand and Petain, the "old men of Vichy." De Gaulle has tried to keep alive the French spirit of resistance and fosters the hope that France eventually may join the British in driving out the invader.

The last chapter is devoted to the Plan for Victory. The "Defense of Britain" eventually must give way to the invasion of Germany if democracy is to win free from domination by dictators. The answer given to invasion is overwhelming superiority in the air, on the land, and on the sea. First, with overwhelming air and naval superiority, secure a deep bridgehead; next, guarantee uninterrupted supply by air and sea. The spearhead of the attack should be the mechanized land force acting in close cooperation with the air force. As De Gaulle visualizes it:

"Tanks and guns.
More guns and more tanks.
Thousands of airplanes.
Tens of thousands of airplanes."

More Conjecture

THE SHAPE OF THE WAR TO COME. (Anonymous), New York: Longmans, Green and Company, 1940. 83 Pages; \$1.00.

In this little book the author, who very wisely remains anonymous, tells the story of the Second World War as viewed from the vantage point of 1945. After reviewing the events as now known to us he continues to review them as he thinks we will know them five years from now.

According to this preview, Germany, on a foggy night in November, 1940, feints at the London area and invades the British midlands, using submarine "trailers," tanks carried by giant planes, tremendous numbers of parachute troops, fifth columnists in Eire, and gas. The German forces are, however, repulsed, but the details of the operations and the later surprising events with the part played by the United States had better be told by the book itself.

If these things come true, the author will be a prophet indeed.

Mine of Information

MINE AND COUNTERMINE. By Professor A. M. Low. New York: Sheridan House, 1940. 220 Pages; Illustrated; \$2.75.

History, science and anecdote combine in this book to offer a complete and readable treatise on naval and military mines. A touch of philosophy and a heavy layer of propaganda, strangely enough, do not seem to detract from the content.

Torpedoes, land mines, air mines and booby traps are considered in detail. The chapters on mine sweeping are particularly instructive and entertaining. From Greek fire to the airplane-dropped magnetic mine, Professor Low's treatise is complete.

The writer is British—aggressively so. To the American, his sense of outrage at German methods and at the very idea of the use of mines in a blockade may seem a bit overdone, if excusable. However, he is unstinting in his praise of individual Germans who participated in both the Great War and the present one.

Mine and Countermine is recommended to the military reader for the information it contains, and to the civilian for its wealth of human interest material. War looms large in our consciousness today. *Mine and Countermine* treats of an important phase of warfare.

✓ ✓ ✓

Pride of Virginia

ONE HUNDRED YEARS AT V.M.I. By Colonel William Couper (Executive Officer and Historiographer, V.M.I.) Richmond: Garrett and Massie, 1940. Four volumes; \$12.00.

General George C. Marshall has written the following foreword to this complete and readable four-volume work:

"This book of a century in the history of the Virginia Military Institute records the development of high ideals in a long procession of young men, proven at times by the test of battle and self-sacrifice. No other institute of learning in America, I believe, can offer such a record. It is unique from the standpoint of the participation of the cadets as a corps in the armies of the Confederacy. The traditions and standards evolved over a period of eighty-five years under the leadership of three remarkable characters, have permanently endowed the Institute with a legacy for the development of future citizens having that stamp of character necessary to the maintenance of a genuine democracy."

After many years of preparation the author, in fifty-three chapters, takes the reader from the organization and establishment of the Institute to the end of its first century. "Organization and fruition; destruction and ravage by an invading army; existence in trenches and within the sheltering walls of an almshouse; fire and theft; building and rebuilding—surely some guardian angel has preserved and re-assembled the official rec-

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ords of the Virginia Military Institute. But preserved and re-assembled they were. Orders, letters, reports, biographical sketches of practically all former cadets, together with a bewildering mass of related records have been carefully read—they form the basis of what is to be found within these books."

By the publication of these volumes Colonel Couper has made available to all many extremely interesting documents which formerly were available to only a few.

This work is essential to complete the library of the friend and alumnus of the V.M.I. as well as that of the individual who may be interested in the history of Virginia during the period 1839-1939.

✓ ✓ ✓

Stonewall Jackson at First Hand

I RODE WITH STONEWALL. By Henry Kyd Douglas. Chapel Hill: University of North Carolina Press, 1940. 384 Pages; Illustrated; Index; \$3.00.

This is the book you are looking for if you want to escape for a few hours from today's wars by getting back to the seemingly more solid ground of old and well-loved campaigns. "Being chiefly the war experiences of the youngest member of Jackson's staff from the John Brown raid to the hanging of Mrs. Surratt"—this is the subtitle—and a fine, straightforward book it is.

The author wrote most of the book immediately after the War Between the States came to a close, using diaries and notes he had made all during the war. He laid the book aside until 1899, abstracting material from it only occasionally for use in addresses and articles for magazines. Then he rewrote the whole manuscript. "I have added somewhat," he says in his preface, "and taken away more freely; and time has mellowed the acerbity of more youthful days. My wounds have healed long ago and left no hurt. While I cannot go back on the boy soldier of '61 whose hair was as black as his coat is now, and whose coat was as gray as his hair is now, I remember that in '99 he is wearing glasses, that few of his comrades are left, and that it behooves him to write nobly, discreetly, and fairly."

But somehow this fine book went unpublished until 1940 when the author's nephew submitted it to the University of North Carolina Press.

✓ ✓ ✓

What It Takes to Fight Wars

THE ECONOMICS OF WAR. By Horst Mendershausen. New York: Prentice-Hall, Inc., 1940. 308 Pages; Index; \$2.75.

This is a level-headed, thoroughgoing, and readable treatment of one of the biggest subjects in the world about which a book can be written. The main body of Mr. Mendershausen's book is divided into four parts. The first deals with what a warring nation needs, the second with the war economy, the third with the international economics of war and the situation of neutrals, and the fourth part with postwar economics. The author has included the minimum of economic terminology in his writing.



that there are few passages, if any, in his work which are hard for the layman to understand.

The parts of the book that deal with what the individuals of a nation must expect the effect of a war to be on their lives, are indeed clearly presented. It seems to me, however, that at least one military aspect of war economics is somewhat inadequately covered. I refer to the author's section dealing with transportation. The author does not bring out as he might well have done the possible tremendous effect upon the economics of a nation and a nation's transportation of air warfare, and the exhaustive consideration that should be given in time of peace to substitute means and routes of transporting supplies for the purpose of minimizing wartime interruptions.

The Economics of War is well documented but not too heavily so. The tabular data in the appendixes are clearly and economically presented. Any military reader can understand the present endeavors of this country far more clearly after reading this excellent work.

✓ ✓ ✓

When the Soldier Governs

A PRACTICAL MANUAL OF MARTIAL LAW.

By Frederick Bernays Wiener. Harrisburg: Military Service Publishing Company, 1940. 184 Pages; \$2.00.

The author of this book is a special assistant to the Attorney General of the United States and a captain in the Judge Advocate General's Department of the Officers' Reserve Corps.

The author defines martial law as the carrying on of government in domestic territory by military agencies, in whole or in part, with the consequent supersession of some or all civil agencies. His book therefore does not deal with the law governing the internal structure and operations of the army, courts-martial, military government, or even with military aid to a civil government still exercising all its functions.

This reviewer can find nothing of substance in the book with which to take issue and does not conceive it to be his duty to "speck" it for trifles on which he might criticize the author. The book covers its field thoroughly, even exhaustively. The reader is at once struck with the scholarship of the author and the immense amount of research done by him. The text and footnotes show that he has not only read the cases in the federal courts touching his subject, but also has searched the law reports of all the states of the Union, of England, and of the British dominions and colonies. In addition, he cites many books and magazine articles of a legal, biographical, and historical nature. The footnotes are a mine of information to any one who wishes to make a further study, either legal or historical, of any of the topics with which the book deals.

The author's language is breezy, almost colloquial, very different from and much more readable than the ponderous style sometimes found in legal writings.

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A Practical Manual of Martial Law

By FREDERICK BERNAYS WIENER

Captain, JAGD-Res.

Special Assistant to the Attorney General
of the United States.

WRITTEN in English and not in law, the purpose of this Manual is to provide a practical guide to the much discussed and much-confused field of martial law. The reader will not find here any closely-reasoned exposition of legal theories or any flights into the speculations of juristic philosophy. It states the law—what can be done, what cannot be done, where the doubtful areas lie—with just enough of the underlying doctrine to clarify the results and to show the reasons for the decisions. It is intended as a guide to law and not to tactics.

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liking for clear-cut decisions fostered by his tactical training, wishes a categorical answer, yes or no, to the question whether such-and-such conduct is lawful. As Captain Wiener's book shows, it is not always possible to give categorical answers to such questions with certainty, but the book goes on far in the direction of giving such answers as may safely be done by a conscientious and prudent lawyer who has thoroughly studied his subject.

The book should be within reach of every judge advocate, whether of the Regular Army, the National Guard, or the Reserve Corps, and will be found interesting and instructive reading by any line officer.

✓ ✓ ✓

VENEZUELA. By Henry J. Allen, New York: Doubleday, Doran and Company, 1940. 290 Pages; \$3.50.

This is basically a travel book, but it also covers briefly and interestingly the history and politics of this colorful South American country. Assurance that this is no mere superficial travelogue is afforded by the fact that the observer is an experienced traveler and journalist, a special adviser to the State Department and a former governor of Kansas.

Important changes have taken place in Venezuela during the past five years. An intensive social service welfare and economic program has been put into operation. The author is enthusiastic about the results obtained so far but points out problems yet to be solved and pitfalls to be avoided.

The book is well worth reading.

✓ ✓ ✓

EXTERIOR BALLISTICS. By Lieutenant Colonel Thomas J. Hayes, New York: John Wiley and Sons, 1940. 98 Pages; Paper Cover; \$1.00.

This is essentially a reprint of Chapters X and XII from the author's textbook *Elements of Ordnance* written while he was Professor of Ordnance and Science of Gunnery at the United States Military Academy. Quoting from an earlier review of the original book, "He has written a remarkably clear treatise on a difficult technical subject."

Although this is not a volume for grammar-school students, the reader who has a reasonable knowledge of mathematics can find his way through the pages without too much difficulty. There is a large quantity of information tucked into the ninety-eight pages of the book.

The volume recently published was written primarily to aid engineers and others who are facing unfamiliar problems in connection with the National Defense program, but it is equally valuable for service line officers who do not own the much more expensive *Elements of Ordnance*.



Generalissimo

CHIANG KAI-SHEK: MARSHAL OF CHINA. By Sven Hedin. New York: The John Day Company, Inc., 1940. 284 Pages; Illustrated; Index. \$3.00.

It is to be doubted whether there is any other living man who knows as much about the interior of Asia—Tibet, Turkestan, the hinterland of China, and all those great interior reaches of the Asian continent—as Sven Hedin, the famous Swedish explorer. In one of his books, for example, he tells how his expedition, then seeking to reach the forbidden city of Lhasa, crossed some of the highest mountain ranges on earth, half a dozen times at maximum altitudes in the highest passes of eighteen thousand feet. In another book he describes the hazards his party encountered in crossing an unexplored Chinese desert. On this trip he found the ruins of a great city, a city that a white man had never looked upon since the days of Marco Polo, if ever a white man had seen it at all.

All these exciting adventures are told in Sven Hedin's popular books for the general reader. But each of his explorations has been carried out not merely for the glory of Sweden or Sven Hedin himself, but to extend the world's scientific knowledge of unknown regions. Consequently, most of Sven Hedin's explorations have also resulted in the writing of many detailed scientific volumes containing the full reports of Hedin and the scientists who accompanied him.

Naturally, a man who has spent most of his life—he has been at it for more than forty years; he is more than seventy now—must inevitably meet many high political and military figures in the lands he explores. You cannot take off through Central Asia equipped with an ordinary passport. Full arrangements for permission must be made with the highest authorities, not only, for example, the Central authorities of China, but also the highest provincial authorities in each region. Thus it is that Sven Hedin in the past two decades has several times had interviews with Generalissimo Chiang Kai-shek.

His latest book, *Chiang Kai-shek*, has for its basis these personal encounters between the two men.

Perhaps the most interesting part of the book to a military reader is the part that tells about Chiang Kai-shek during the days he was held prisoner by the Young Marshal at Sian. From Hedin's account there can be no doubt as to the high quality of leadership shown by Chiang Kai-shek during this difficult period. As a prisoner he spent his time endeavoring to prove to his captors how great a mistake they had made. But in speaking to them, he blamed himself to a large extent for what had happened. "I have always told my subordinates," he told his captors, "that when they make mistakes their superiors must also be blamed for not having given them adequate training. As I am in supreme command of the army, your fault is also my fault, and I must ask for punishment by the central authorities. . . . As you have rectified your mistake at an early stage, the crisis has not been prolonged, and I believe the central authorities should be able to be lenient with you. . . ."

"I have always impressed upon the people the importance of ethical principles and integrity . . . to bear responsibility, and to obey discipline. If a superior officer cannot make his subordinates observe these principles, he himself

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is partly to be blamed. Hence in connection with this crisis I am ready to bear the responsibility as your superior officer. . . ."

This speech and others noted by Sven Hedin in his book are in a sense military classics, the product of the mind of a leader who has been engaged upon the most difficult military task of any commander in our time.

The Armies of China

TWIN STARS OF CHINA. By Major Evans Fordyce Carlson. New York: Dodd Mead & Company, 1940. 319 Pages; Maps; Index; \$3.00.

THE CHINESE ARMY. By Major Evans Fordyce Carlson. New York: Institute of Pacific Relations, 1940. 130 Pages; Index; \$1.00.

The author of *Twin Stars of China* and of *The Chinese Army* is a former Marine Corps officer who has seen most of what he writes about at first-hand. I recommend the longer book to military readers because it contains more details than the other and is written in more of a running style. However, the smaller book contains a good deal of factual material not in the other volume and both are essential reading to any student of the present Chinese military situation.

In *The Chinese Army* Major Carlson feels that an ultimate Chinese victory will depend on the following things. "The Chinese people must remain united. The forces engaged in positional warfare must continue to be increased in strength and improved in efficiency. The forces engaged in guerilla warfare must continue to be increased in strength and improved in efficiency. There must be harmonious coöperation between the people and the military forces. China must continue to receive credits and supplies from abroad until such time as she can manufacture her own war materials. Present ports of entry into China must be kept open in order to provide avenues for the flow of war material into the country."

Democracy's Handbook

SPEAK UP FOR DEMOCRACY. By Edward L. Bernays. New York: The Viking Press, 1940. 127 Pages; \$1.00.

This is truly a practical and thorough handbook of counter-propaganda. It offers to every American who wants to "speak up for Democracy" all the information he needs to get busy with.

Mr. Bernays has presented his material in a simple, straightforward manner. On the basis of long experience in public relations with some of the largest organizations in the United States, he makes public his own methods in behalf of Democracy.

If this book is used as widely as it should be used, there should be little fear that any foreign propaganda will seriously or permanently influence the minds of any sizable number in this country. Propaganda is a powerful agent whenever it is efficiently used. But when propaganda is efficiently used to sustain the institutions we know have worked and will work to our common benefit, it can become far more powerful than any propaganda seeking to attack those institutions.

SUICIDE OF A DEMOCRACY. By Heinz Pol. New York: Reynal & Hitchcock, 1940. 296 Pages; \$2.50.

There is a good deal of material in this account of the fall of France not touched upon by other writers. This is true because the author, who was arrested and held as a political prisoner back in the days of the Reichstag fire, later escaped and became an editorial writer in Paris where he had opportunity to witness the decay of French politics.

In his chapter on "The Army and the Maginot Line" the author says that Hore-Belisha, the former British war minister, after inspecting the Maginot Line early in the war, made an adverse report upon it when he got back to London. He also goes at some length into the early warnings of DeGaulle and the efforts of Reynaud to modernize the French Army. Gamelin, says the author, "was not disinclined toward far-reaching reforms—he loved to outline plans, which promptly disappeared into a drawer when others wrinkled their brows at them. But time and again he succumbed to the spirit that prevailed around him and that was conservative to the extreme."

HITLER'S GERMANY. By Karl Loewenstein. New York: The Macmillan Company, 1940. 230 Pages; \$1.75.

This is a new edition of a highly readable book which tells how the German government works. It shows in ample detail for the general military reader all the different bureaucratic ramifications of the Nazi government.

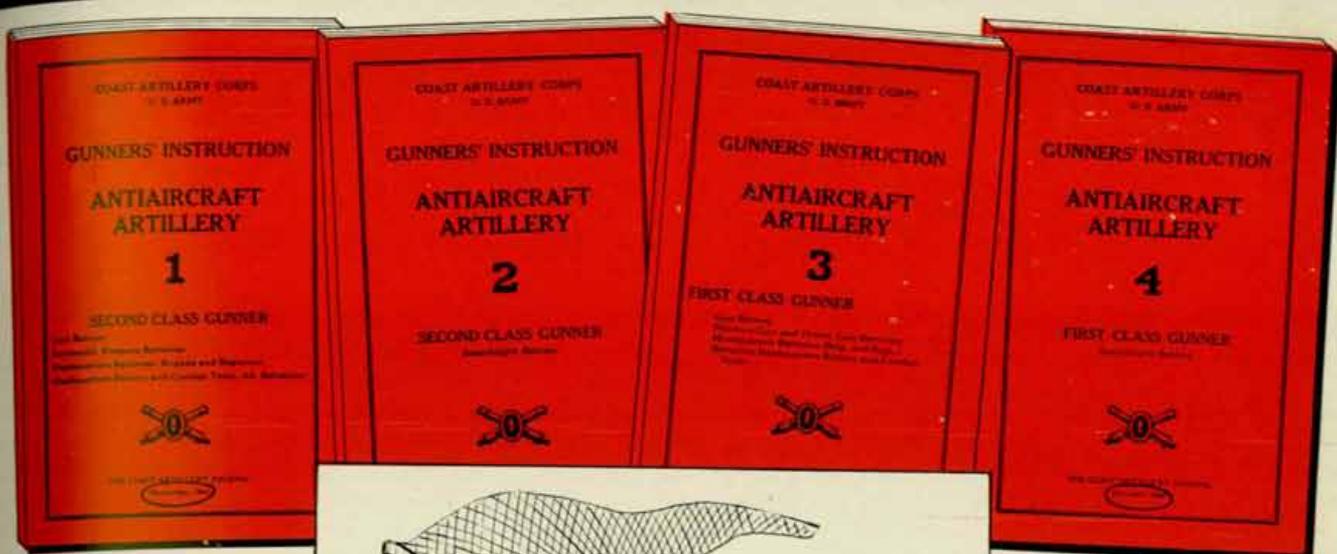
The picture we get, perhaps, from reading the newspapers and magazine articles, is one of an extremely efficient, single-headed, absolute type of government, something like those autocracies of old where the will of a single man was law. Well, the will of a single man is law in Germany, but it apparently takes an enormous number of overlapping government agencies to put that will into effect.

WAR WITHOUT MUSIC. By Peter Muir. New York: Charles Scribner's Sons, 1940. 262 Pages; \$2.00.

Peter Muir was in charge of an American ambulance unit during the recent campaign in France. He was captured by the German Army and was their prisoner for a short time. In his book he simply recounts the adventures of his ambulance unit and himself from the time the unit was formed until it was safely evacuated into Spain. As a veteran of the First World War the author observes many things which are of interest to military readers.

ENEMY SIGHTED. By Alec Hudson. New York: The Macmillan Company, 1940. 61 Pages; \$1.25.

This is another exciting little book by Lieutenant W. J. Holmes, a naval officer who writes under the pseudonym Alec Hudson. Those who read his fine *Battle Stations* will want to read this book in which he describes the work of a patrol consisting of the British cruiser *Perseus* and the British submarine *Petard* which succeeded after a number of weeks in intercepting and sinking the raider, the *Admiral Schroeder*. Lieutenant Holmes certainly knows his submarines.



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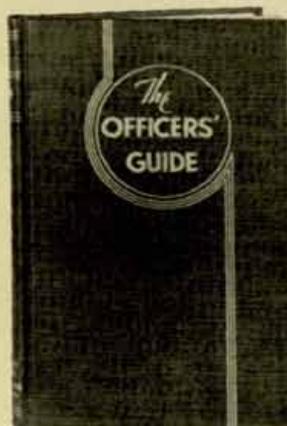
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