

# COAST ARTILLERY JOURNAL

LIBRARY, ANTI-AIRCRAFT  
ARTILLERY SCHOOL, CAMP  
DAVIS, N. C.

JULY-AUGUST, 1940

# Essay Competition 1940

a. PERMISSIBLE COMPETITORS:

Any member of the Coast Artillery Association at date of submission of essay.

b. SUBJECT:

To be selected by the author. Appropriateness of subject for Coast Artillery readers is a point to be considered in awarding prize.

c. PRIZES:

(1) *Number:*

(a) One First Prize—\$200.00. Not to be awarded if no essay submitted is outstanding.

(b) Not to exceed two Honorable Mention Prizes—\$100.00 each.

(2) Awarded by Chief of Coast Artillery upon recommendation of Board of Officers appointed by him. Membership of Committee to be published only after awards for the year have been made.

(3) *Time limit:*

No essay received after September 30th, 1940, will be awarded a prize.

(4) *Payments:*

Payments of prizes will be made immediately after awards are made. All essays submitted become the property of the COAST ARTILLERY JOURNAL. Any person receiving a prize for an essay will receive no other compensation. If any essay is published the author of which received no prize, such author will be paid at the usual rates.

d. HOW SUBMITTED:

Essays will be submitted to the Editor of The COAST ARTILLERY JOURNAL in a sealed envelope bearing the notation "Prize Essay Contest." The copy submitted will contain nothing to indicate its authorship, will be signed by a *nom de plume*, and will be accompanied by a separate sealed envelope containing the *nom de plume* and also the name of the writer. This latter envelope will be delivered to the Chief of Coast Artillery when received and will be opened in the presence of the Editor of The COAST ARTILLERY JOURNAL after the relative merits of the essays have been determined.

e. FORM:

(1) Essays should be limited to approximately 8,000 words, but shorter articles will receive consideration.

(2) Three typewritten copies of each essay will be submitted on letter size paper (one original, two carbons) with double-spaced lines. At least one of any illustration will be a drawing, tracing, or photograph, not a blue print or brown print.

First Prize . . . . . \$200.00

Honorable Mention Prizes . . . 100.00

# COAST ARTILLERY JOURNAL

FOUNDED IN 1892 AS THE JOURNAL OF THE UNITED STATES ARTILLERY

LIEUTENANT COLONEL AARON BRADSHAW, JR., *Editor*

VOLUME LXXXIII

JULY-AUGUST, 1940

NUMBER 4

LIBRARY, ANTI-AIRCRAFT  
ARTILLERY SCHOOL, CAMP  
DAVIS, N. C.

## CONTENTS



COVER DESIGN: Aircraft Carrier U.S.S. <i>Saratoga</i>	
POWER PLUS SPEED. <i>By Captain Herbert W. Ebrgott</i>	306
LIGHTNING WAR AGAINST THE ALLIES. <i>By Quentin Roosevelt</i>	316
PORTRAIT OF AN ARMY. <i>By Captain Fairfax Downey</i>	320
WHO'S WHO? <i>By Major Wendell G. Johnson</i>	328
THE INVISIBLE WEAPON. <i>By Captain John V. Grombach</i>	333
PICTURES: AIR INFANTRY TRAINING	338
ADJUSTMENT OF AA FIRE. <i>By Captain A. H. Bender</i>	346
MIGHTY MAN OF KITTERY. <i>By Major Charles Winslow Elliott</i>	347
AA-ANTIMECHANIZED DEFENSE OF LEESVILLE. <i>By Captain Burgo D. Gill</i>	357
IT WAS A PHONY WAR. <i>By Major William Yale</i>	359
PSYCHOLOGY AND MODERN WAR. <i>By Major Charles A. Drake</i>	360
THE STORY OF ARTILLERY THROUGH THE AGES. <i>By W. A. Windas</i>	362
COAST ARTILLERY BOARD NOTES	363
COAST ARTILLERY ORDERS	365
NEWS AND COMMENT	368
COAST ARTILLERY ACTIVITIES	374
THE CONTRIBUTORS	386
BOOK REVIEWS	387
OFFICERS' STATION LIST	393

PUBLICATION DATE: AUGUST 1, 1940



# POWER Plus Speed

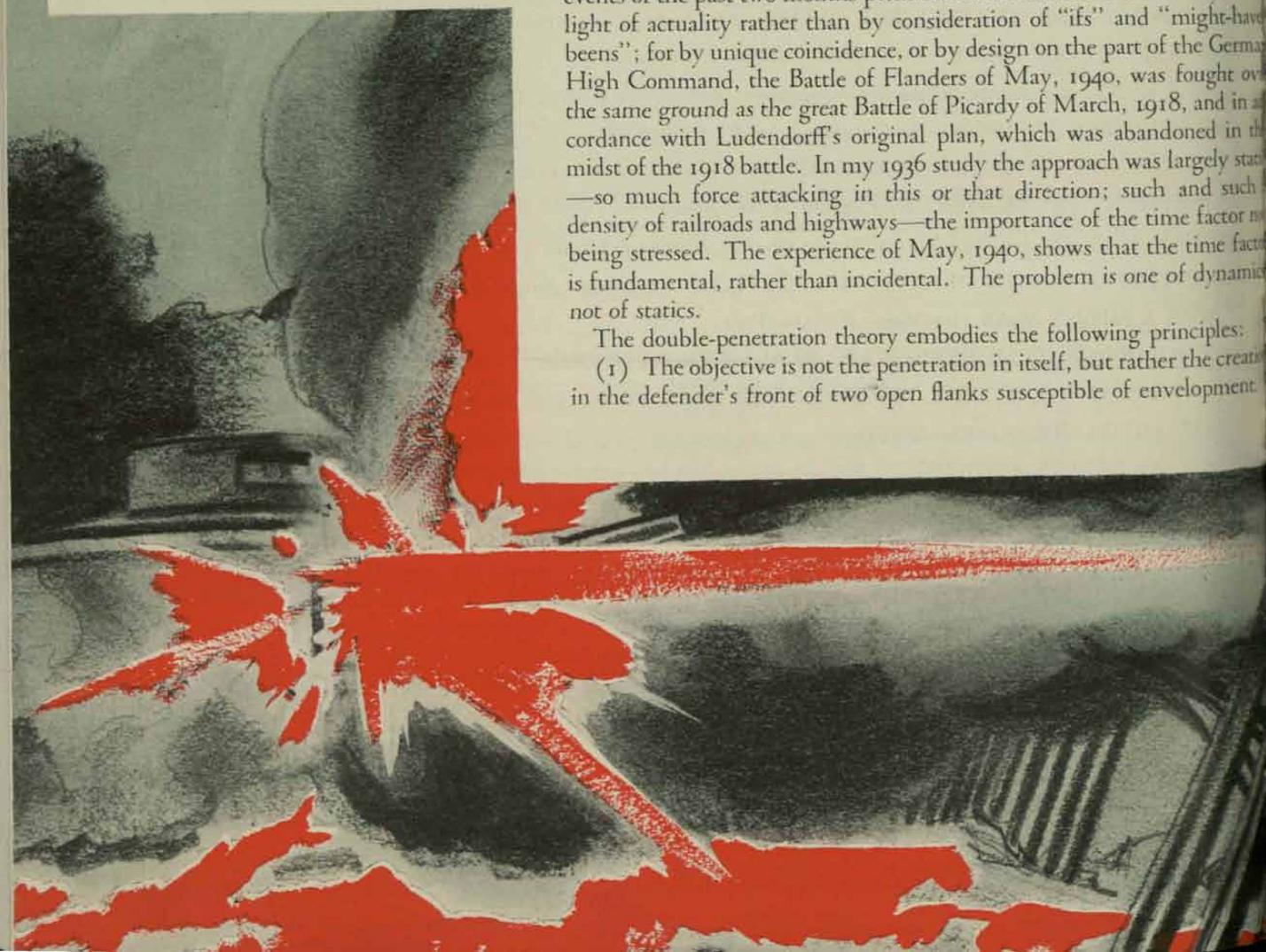
## THE ESSENCE OF THE

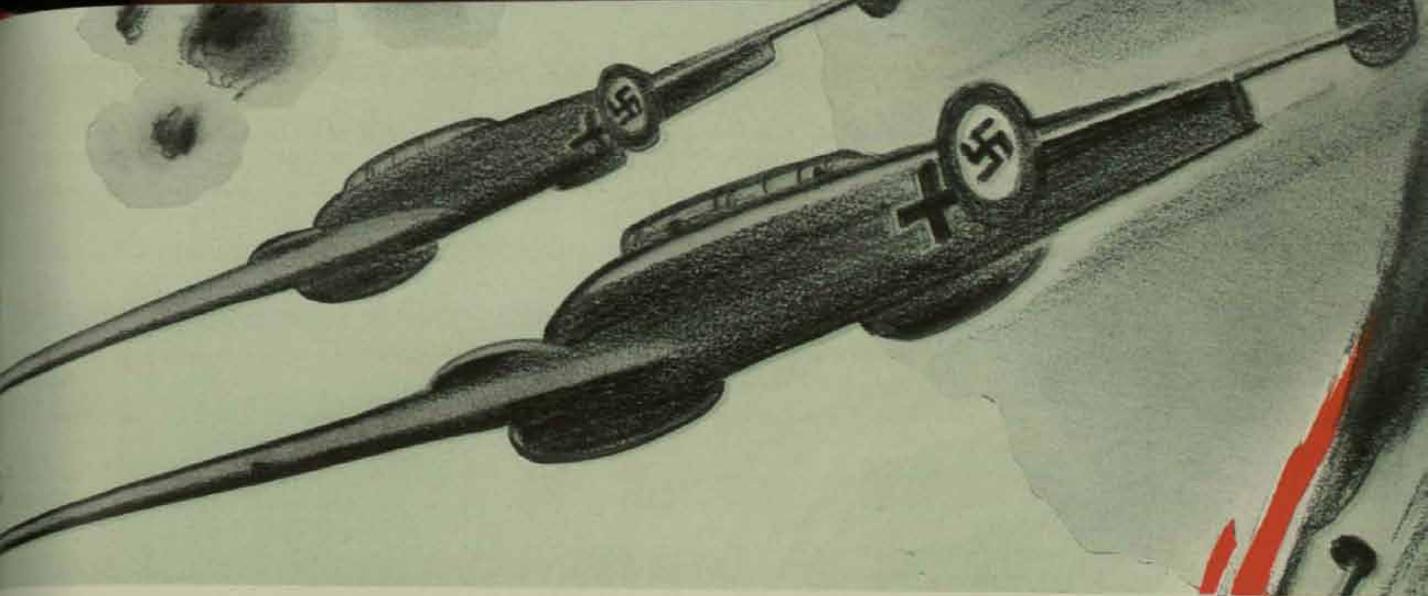
By Captain  
**HERBERT W. EHRGOTT**  
Corps of Engineers

Some years ago in another service journal I presented a theoretical analysis of the problem of the penetration. At that time my solution of the problem, termed the "double penetration," was supported only by theory and by the history of an attempted penetration which failed. The events of the past two months permit a reëxamination of the theory in the light of actuality rather than by consideration of "ifs" and "might-have-beens"; for by unique coincidence, or by design on the part of the German High Command, the Battle of Flanders of May, 1940, was fought over the same ground as the great Battle of Picardy of March, 1918, and in accordance with Ludendorff's original plan, which was abandoned in the midst of the 1918 battle. In my 1936 study the approach was largely static—so much force attacking in this or that direction; such and such density of railroads and highways—the importance of the time factor not being stressed. The experience of May, 1940, shows that the time factor is fundamental, rather than incidental. The problem is one of dynamics, not of statics.

The double-penetration theory embodies the following principles:

(1) The objective is not the penetration in itself, but rather the creation in the defender's front of two open flanks susceptible of envelopment.





# LANDERS PENETRATION

(2) To insure a penetration, the attack must consist of two simultaneous or closely coordinated penetrating attacks (principal penetration and secondary penetration), which diverge sharply as soon as the initial breakthrough of the defender's main battle line has been effected. The result will be to stretch the front progressively, as the two penetrations advance, until it becomes so tenuous as to succumb to a strong, mechanized force.

(3) The penetration must be so directed as to divide the defending force into two segments, one of which will be small enough so that the principal penetrating force can annihilate it before it can be reinforced. Meanwhile, the stronger wing of the divided defender must be *contained* by the secondary penetrating force in conjunction with holding attacks by the forces in quiescent sectors.

(4) The means available to the principal penetration must be sufficient to insure that its *effective combat power will be initially, and will remain at all times* superior to that of the defender's isolated wing.

(5) The means made available to the secondary penetration must be sufficient to withstand all counterattacks that can be brought against it by the defender's stronger wing during the period required for the annihilation of the isolated wing by the principal penetration.



This scheme of maneuver contemplates maximum use of the principle of *Economy of Force* by the secondary penetration, in order to endow the principal penetration with sufficient *Mass* to insure a "Cannæ" against the defender's isolated wing.

The requirements for the success of the double penetration were listed in my 1936 study as follows:

(1) The location of the offensive must lend itself readily to deception, not only as to time and place, but also as to which is to be the principal and which the secondary penetration as the attack develops.

(2) The principal penetration should be directed away from the defender's main reserve mass.

(3) The zone of advance of the principal penetration must contain a network of communications which, in conjunction with available transportation means, is capable of maintaining and supporting the advance at such a pace as will insure at all times the supremacy of the attack over the defense.

(4) The zone of advance of the principal penetration should include few natural obstacles to the rapid progress of the attack, few strongly defensible natural positions on which the enemy may reconstitute his lines.

(5) If possible, the exposed flank of the principal penetration should be protected by an easily defensible extended obstacle such as a wide river, a marsh, or a range of hills.

(6) The attack should preferably be in an area poorly served by communications on the defender's side of the line—particularly lateral communications connecting the two wings.

(7) There should be available, as the limited objective of the secondary penetration, a strong natural defensive position having the following characteristics:

It should be attainable in the shortest possible time.

It should be capable of being quickly organized for resistance, and of being held by the force available for use until the principal penetration can complete its task and return to the aid of the secondary penetrating force.

Its open wing should be based on a strong terrain feature or tactical area difficult of envelopment.

It should command the routes of lateral communication between the defender's main reserve mass and his isolated weaker wing.

(8) The location of this defensive flank established by the secondary penetration must be such as to afford maximum protection to the nerve centers of communication which serve the principal penetrating force during the battle of annihilation.

It will be noted that all these requirements revolve about the necessity facing the principal penetration of enveloping and defeating the defender's weaker wing *before* relief can reach it from the main hostile reserve mass. It is the old problem of concentrating superior combat power at the critical time and place, *and maintaining this superiority throughout the necessary period of time.*

A solution is possible only if the attacker can gain a decisive superiority in one or more of the factors which

affect the balance of combat power. Given essentially equal combat power in a theater of operations, it may be assumed that the force holding the initiative (hereafter called the attacker) can concentrate superior power initially against any selected portion of the enemy's line, and thus achieve a momentary break-through. This initial power superiority must be maintained above a critical minimum value throughout the period required for the battle of annihilation. Stated in mathematical language,

$$P_A - P_D = S_H \quad \text{on H-Day (1)}$$

$$\text{and } \left[ P_A + \int_H^{H+T} R_A \right] - \left[ P_D + \int_H^{H+T} R_D \right] = S_{H+T} \quad \text{after H-Day (2)}$$

Where  $P_A$  designates the initial combat power of the attacker, and  $P_D$  that of the defender

$R$  designates the rate of change of combat power and

$$\int_H^{H+T} R \quad \text{represents the net increment (or decrement)}$$

of combat power between H-Day and (H+T)-Day.

Expression (2), *the equation of differential combat power*, states in symbols the necessary and sufficient condition which must exist if the principal penetration is to succeed in its mission. Similar expressions apply to the secondary penetration and to all other portions of the opposing forces.

The equation of differential combat power (2) is merely another form of the estimate of the situation—a way of expressing in mathematical symbols the balance of combat power which determines the success or failure of an operation. It differs from the familiar five-paragraph estimate only in the fact that instead of the vague subjective language of comparatives it employs a more exact symbolism.

Equation (2) emphasizes the dynamic nature of a complete estimate of the strategic situation in planning a campaign. Not only must a separate estimate be made for each portion of the theater of operations, to determine whether to attack or defend at that point, but a whole series of estimates must be made in each case [for H-Day, (H+I)-Day, etc. . . . up to (H+N)-Day] to determine whether the operation will probably proceed successfully to the hoped-for conclusion.

The attacker can influence the equation in his own favor in three ways:

(1) By increasing the superiority of the initial combat power of the attacker over that of the defender. This can be accomplished either by increasing the combat power of the attacker or by decreasing the defender's immediately available combat power, through diversions.

(2) By increasing the time increment of combat power to the attacker.

(3) By decreasing the time increment of combat power to the defender.

If the attacker is to maintain his initial combat superiority for the necessary time, he must conduct his operations in such a manner as will keep the *net incre-*



ment of combat power to the defender below a figure which would bring the defender's combat power to equality or superiority over that of the attacker before the principal penetration can complete the battle of annihilation. How this can be accomplished becomes evident when we break down the time increment of combat power into its component elements:

(1) Battle losses, in casualties, equipment, ammunition, food, organization and morale (decrement for both sides).

(2) Loss of organized defensive positions or defensible terrain (decrement to the defender).

(3) Reinforcements reaching the opposing forces (increment for both sides).

(4) Loss of elements in the systems of communication, control and transport (decrement to the defender, and a somewhat smaller decrement to the attacker, to the extent that he has to operate over the areas in which communications are disrupted). Generally this element favors the attacker, since he can make extensive preparations to nullify enemy action against the vital points of his own communications, while the defender cannot know beforehand on which points to concentrate his defense.

Each of these elements of the time increment of combat power, as well as the initial combat power itself, involves two factors: *force* and *mobility*. As between two equal opposing forces, that having the greater mobility (assuming equally competent leadership) will prevail. Great commanders, when opposed by equal or superior force, have always sought a decisive advantage in mobility. Napoleon achieved such an advantage in his innovation of supply by combat wagons and carts. The elder Moltke built his victories largely on the masterful use of railroads for the movement and supply of his armies—a matter little understood by his opponents. The World War on the other hand, found neither side in possession of any such decisive means of attaining superior mobility. And since the opposing forces were essentially equal, the war necessarily degenerated into one of pure attrition, with Providence on the side of the larger battalions. By superior tactics and organization the Central Powers succeeded in nullifying for four years the Allied superiority in the time increment of combat *force*, but they never succeeded in developing a sufficient preponderance of *mobility* to maintain the attack one step ahead of the defense. Neither side was ever able to prevent the enemy from freely transferring reserves to a threatened point in time to reestablish the situation. Under such conditions no penetration could be successful until one of the opponents was completely exhausted.

The lessons of the World War were studied exhaustively by all the armies of the world. The conclusions drawn by the German general staff may be summed up in one word: Blitzkrieg. The Germans have for long understood the fundamental principles of war, including that of mobility. The perfection of motorized weapons offered a new means of gaining decisively superior mobility—the first new

means since the development of the railroad. The army that could gain a momentarily decisive superiority in planes, trucks, and motorcycles (assuming approximate equality in other respects) would possess the power not only to breach a hostile defensive system, but more important, to outstrip all hostile reserves of combat power. For the motorized weapon combines in a degree unsurpassed in military history the qualities of force and mobility. It not only increases the combat force of the possessor but enables him to attack directly the means by which his opponent can renew his own combat force. It not only increases the mobility of the possessor but enables him to reduce the mobility of his opponent. With enough such weapons it would be possible to wage a war of shattering force and unexampled speed.

By 1935 Germany had secretly prepared a big enough force of planes and motorized and mechanized divisions to risk the colossal bluff of the occupation of the Rhineland and the Saar—a step which gained for her complete freedom of action for the production of the mass of motorized weapons required for a successful bid for victory over the Allies. The blitzkrieg concept was given its preliminary try-out in the Spanish civil war, and proved sound. As long as the Spanish Loyalists were able to maintain approximate equality in the air (they had relatively few tanks or trucks) the Insurgents could make little headway. But once the Italian and German planes, trucks, and tanks had given the Insurgents unquestioned superiority in strategic and combat mobility, the balance of combat power tipped steeply in favor of the attackers. Meanwhile Germany was proceeding with the development of every possible means of gaining and being assured of maintaining, during a limited period, unquestioned superiority in motorized weapons.

The air arm was given particular attention in the light of the combat experience gained in Spain. Plane designs were improved and standardized. In-line production methods were introduced into vastly expanded automotive and aircraft plants. Vital industries were removed from the Ruhr into the interior. Production was ruthlessly decentralized into large numbers of scattered plants, at a sacrifice to efficiency, but with a vast increase in strategic security. In some cases complete airplane factories are said to have been constructed underground, safe against observation and bombardment. Carefully camouflaged underground hangars, with arsenals and servicing facilities, were built everywhere behind the Westwall. Bullet-proof gas tanks were developed. Swarms of pilots were instructed by the chain method, each half-trained recruit becoming an instructor as rapidly as new planes were made available. In both planes and pilots quality was sacrificed to quantity in view of the expected rate of attrition. Air provisioning of ground troops was investigated. Parachute troops were developed. Antiaircraft defense was brought to a high degree of effectiveness, with all vital installations protected as completely as possible. Gasoline storage was decentralized, and as far as possible placed underground. Motor transport received the same intensive treatment.

Great wide cross-country speedways were constructed to provide increased strategic mobility. Facilities for the mass production of trucks, tanks and motorcycles were obtained through the subterfuge of the *Volksauto*. Motorized infantry divisions were multiplied. The light six-ton tank, which had proven unsatisfactory in Spain, was replaced by a new light tank of about ten tons, and medium and heavy tanks with more power and speed, heavier armament, and thicker armor. A number of these new tanks are believed to be amphibious. Cross-country troop and ammunition carriers were perfected. New types of bridges were designed to carry the heaviest loads, with particular emphasis placed on speed of erection. Key bridges expected to be demolished in anticipated theaters of action were duplicated, and special detachments were trained in their rapid erection. Tactical organization was modified wherever necessary, to make combat units less dependent upon supply by railroad.

Finally, most important of all, tactics involving the closest cooperation of these new fast elements of combat force were worked out and practiced until all units blended together into a smoothly working team. At the same time, an improved, modernized tactics, based on infantry, tank, and air corps cooperation, was developed with a view to maximum interference with all the vital links in the enemy's systems of communication, control, and plane and motor production.

The new material was given its first real workout in the marches into Austria and Czechoslovakia—a sort of shake-down cruise. The final field test of the organization and combined tactics was made against the ill-prepared Polish Army, and proved entirely successful. It was apparent that the German Army was in temporary possession not only of a superior combat force, but also of a method which endowed that force with superior mobility and made possible consideration of the main drive against Britain and France.

The strategic problem, in its broadest terms, was to force the Allies into a decisive battle before their vast industrial power and raw material resources could be mobilized. How was this to be accomplished? Sun Tzu once wrote:

If we wish to fight, the enemy can be forced to an engagement . . . [if we] appear at points which the enemy must hasten to defend.

What points would the Allies "hasten to defend" if attacked? There were several: the oil fields of Syria; the Suez Canal and Gibraltar; the Maginot Line; the Italian frontier; the entire Channel and North Sea coast, from Le Havre to Trondheim, from which devastating attacks could be launched, by sea and air, against British industrial centers and the absolutely vital Allied shipping and naval power. Of these possible objectives, only the last mentioned promised the opportunity of finally coming to grips with the main bodies of the Allied land and sea forces under favorable conditions. The others could serve admirably as diversions, in accordance with the principle of Economy of Force.

The main effort must be concentrated on the North Sea and Channel coasts. This involved the invasion of Norway, Denmark, Holland, Belgium, and Luxembourg, with the consequent disadvantage of increasing the enemy's initial combat power. To counter-balance this disadvantage, certain economic advantages were to be gained by the occupation of each country.

*Norway:* Depriving the Allies of important supplies of pulp, wood, ore, and fish products, with corresponding gains to Germany. Completely isolating Sweden from trade with the Allies, giving Germany a practical monopoly of her entire industrial effort, including the vital Swedish iron ore.

*Denmark:* Depriving the Allies of important fish, farm, and dairy products, with corresponding gains to Germany, which was in great need of those very products.

*Holland:* Agricultural and dairy products, stocks of strategic metals, considerable stores of gasoline and oil, and refineries. Important rail and water communications for the supply of German armies in Belgium and Northern France.

*Luxembourg:* Access to Belgium and the open flank of the main Maginot fortifications. Important deposits of coal and iron, and a large iron and steel industry.

*Belgium:* Large reserves of gasoline, oil, and strategic metals, great deposits of coal suitable for reduction to gasoline, an important industrial plant. Most important of all, a dense network of railroads, roads, and canals pointed straight at the vital industrial sections of Northern France, on her one relatively open frontier.

The invasion of all these neutral countries was worked into a comprehensive scheme for enticing the Allied armies into a decisive battle in open country. Norway was to be used as a diversion, to draw Allied reserves out of position, and to camouflage final preparations for the main effort. Holland and Belgium would serve as bait, to draw the French and British out from behind their Little Maginot Line. For it could be assumed that Britain's vital interests would force her to come to the aid of Holland by way of Belgium, and that Belgium would thereby be forced to throw in her lot with the Allies. The initial thrust against Holland had to be overwhelming—not only to eliminate Dutch combat power promptly, but to outflank the Belgian armies, forcing them to withdraw from their eastern defenses. Meanwhile, the main attack would be developing, through Luxembourg and the Belgian Ardennes.

We cannot know for some time General Gamelin's estimate of the situation, nor the details of the northward movements of the Allied armies between May 10 and May 13 (map 1); but all the information available seems to indicate that the Allied high command diagnosed the German attack as an enlarged and improved version of Schlieffen's sledge-hammer plan. Much of the French force in the Dinant area appears to have been hurried north to the aid of the Belgians, so that the German debouchment in force from the Belgian Ardennes found the Meuse line from Mézières—Charleville to Givet inadequately

defended. At the time the Germans rushed across the Meuse on May 14 and 15 the main body of Allied mechanized forces was heavily engaged with the German mechanized spearhead driving southwestward from Maastricht toward Gembloux. Perhaps the Allies were aware of the power of the German drive through the Ardennes, and believed the French IX Army was strong enough to hold the Meuse line. If so, it was a costly miscalculation, for the IX Army was completely engulfed by the German tidal wave, and the attack proceeded too swiftly for a reconstitution of lines. There is much in the communiqués and official and semi-official statements of May 15 to 18 to indicate that the Allies believed the breakthrough between Mézières and Dinant (map 2) was aimed at Paris. German comment throughout those days certainly nourished such a belief. But the entire strategic situation, the preliminary air bombardments of Calais, Dunkirk, Lille, Béthune, Lens, Amiens, and Arras, and the constant preoccupation of the German General Staff with the idea of a battle of annihilation, all pointed clearly to an attempt to envelop the northern armies from the south and west. By May 19 the battle line bore a striking resemblance to that which had existed on March 21, 1918, except for the Allied "bulge" surrounding Mons, Maubeuge, and Valenciennes. It was on this day that the main attack turned definitely toward the northwest, following exactly the route prescribed by Ludendorff's original operations order of March, 1918. It soon became apparent that the previous attacks, toward Sedan, Rethel,

and Laon, were merely phases in the establishment of a defensive flank, behind the protection of which the principal penetration (via Cambrai—Arras—St. Pol) could proceed with its mission of surrounding and destroying the Belgian and northern British and French armies.

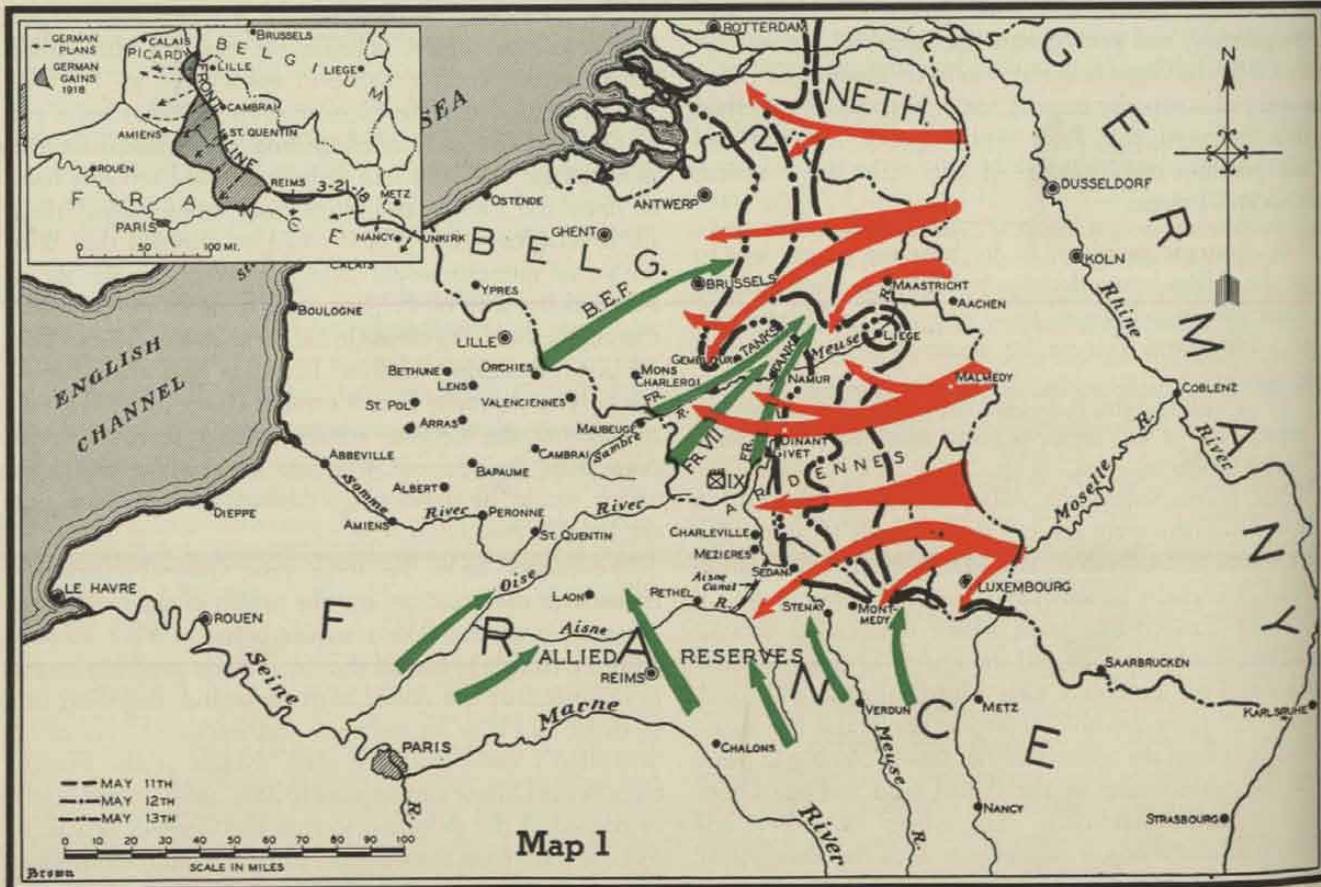
Returning to the double penetration, it will be seen that all the conditions listed at the beginning of this article were fulfilled:

(1) The location and timing of the main penetration were admirably calculated to deceive the Allied High Command. For the first two days the full power of the German forces appeared to be concentrated against Holland and northern Belgium. The force of the penetrating attack was well hidden in the hills and forests of Luxembourg and the Belgian Ardennes. When the magnitude of the penetration became apparent, it was not clear until about May 18 whether the main effort would be turned in the direction of Paris or toward the coast.

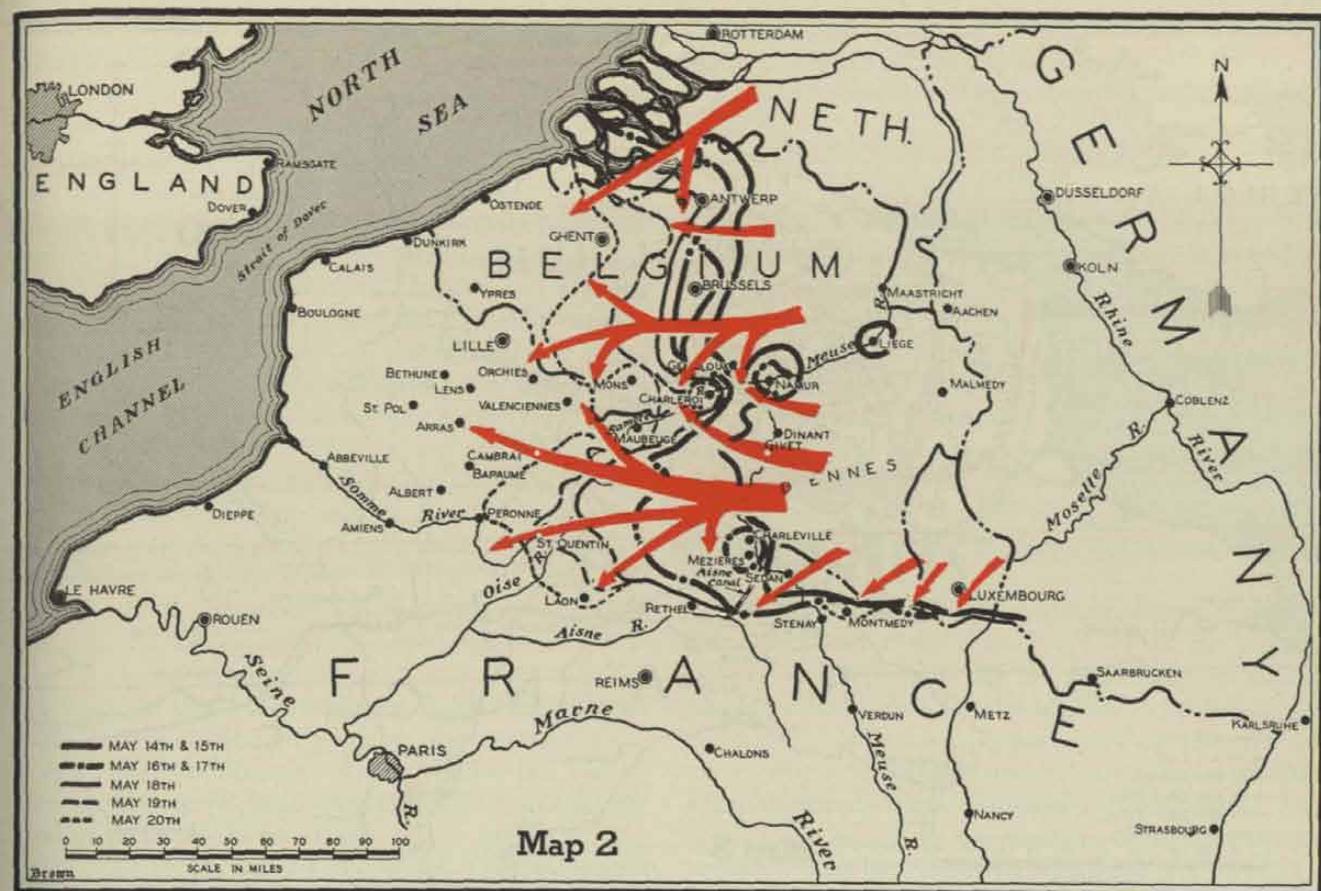
(2) The principal penetration was directed away from the defender's main reserve mass, and sought to cut off and destroy a large segment of the Allied forces.

(3) The zone of advance of the principal penetration was selected with a particular eye to communications, but by road rather than rail: Luxembourg, the Belgian Ardennes, and Guise have very few east-west railroads, and what few there are are secondary lines. It is evident that reliance was placed almost entirely on motor transport for troop movement and supplies.

(4) The zone of advance crossed only one important



Map 1



natural obstacle—the Meuse River. It may be presumed that the penetrating force was supplied with ample means for quickly effecting this crossing against whatever opposition, and maintaining sufficient bridges despite the utmost efforts of Allied air forces to close them. The severity of the Allied attacks against these bridges may be inferred from the following communiqués, which refer to the actions on May 13 and 14:

Two permanent bridges and two pontoon bridges were destroyed, and at least 15 enemy aircraft were brought down. In the fury of these engagements . . . our losses, which were not considered excessive, in view of the results obtained, were 35 aircraft. Over 150 Allied aircraft took part. Apart from the operation in the Sedan area, where success could not be achieved without casualty, the balance of aircraft losses remain heavily in Allied favor.—*British Air Ministry.*

Total losses of the opponent on May 14 amounted to more than 200 planes of which 170 were shot down in air fights. More than 70 British and French planes were shot down at one point alone. Thirty-five of our own planes are missing.—*German High Command.*

When the German High Command admits the loss of thirty-five planes missing in one day it is probable that the actual losses were closer to 100. We may be sure that an epic air battle was fought over the Meuse. Beyond the Meuse the principal penetration was directed throughout its course entirely along high ground suitable for the operations of mechanized and motorized units. The swampy land along the Sambre, and the defensible east-west river lines to the south were attacked only in so far

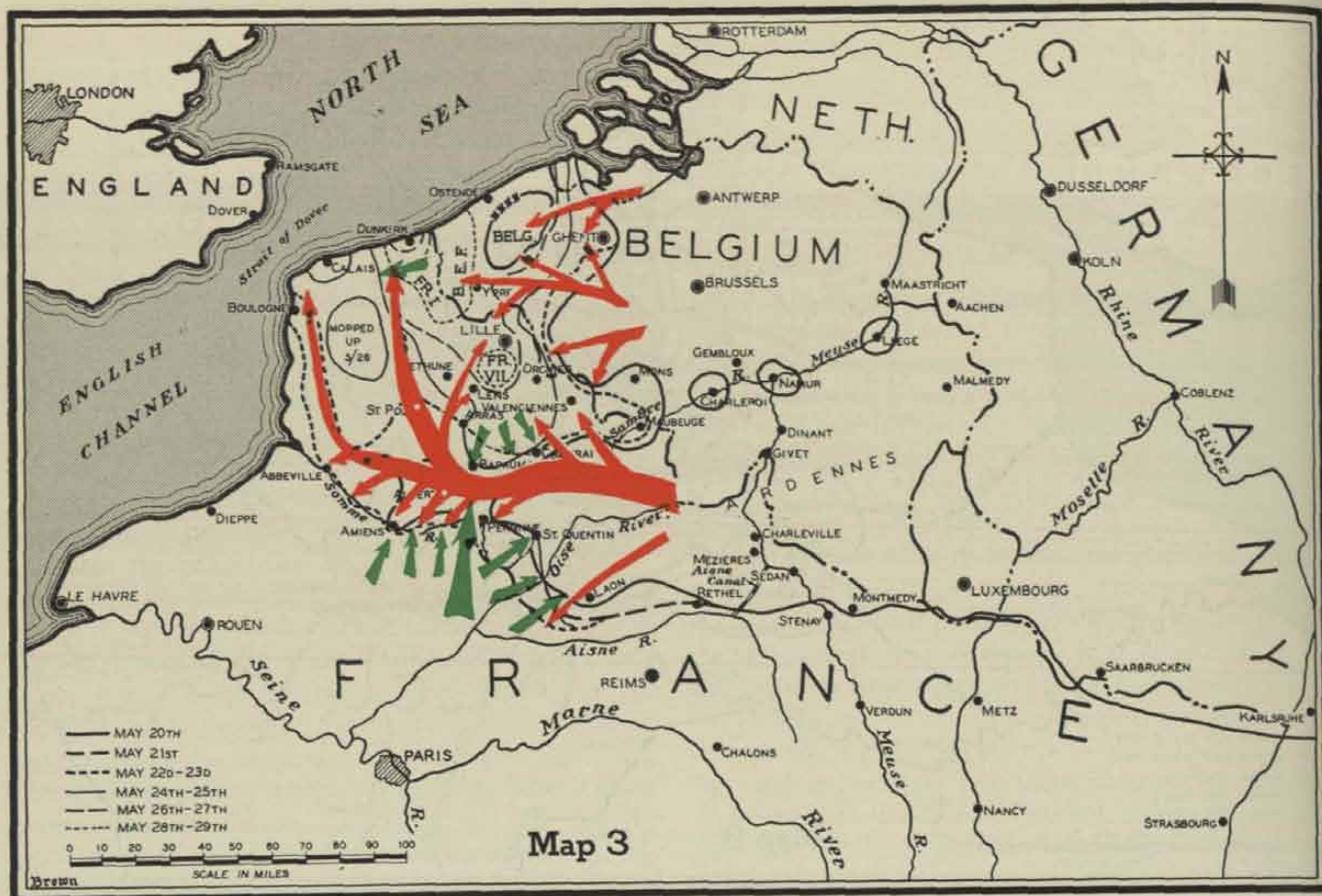
as necessary to protect the flanks of the principal penetration, pinch out fortified areas, maintain deception, or establish valuable points of departure for future operations.

(5) The left flank of the principal penetration was well protected by the secondary penetration up to Abbeville, and thereafter by the English Channel.

(6) The secondary penetration had little trouble in establishing a strong protective flank fulfilling all the necessary conditions. Most of the larger streams in this area run east and west and the intervening wooded ridges are ideal for defense. The line: Aisne River—Oise-Aisne Canal—Somme River, intercepted all communication between the main Allied reserve mass and the forces in Belgium and Northern France. The right flank of this defensive line could be turned only by crossing the wide swampy Somme estuary, or by a landing attack on the Norman coast.

(7) The Allies' communication system was systematically disrupted by aircraft and parachute troops. Additional impedance to Allied transport was afforded by the systematic bombing and machine-gunning of refugees. Particular attention was given from the very first day to all ports and railroad and road centers serving for the supply and reinforcement of the northern Allied armies.

(8) The one weakness of the plan lay in the vulnerability of the communications network available to the penetrating attack—particularly in the area: Valenciennes—St. Quentin—Arras. The strongly fortified Sambre Valley and the Somme—Aisne line converge toward the



Map 3

west, with the narrowest point between Péronne and the fortified areas of Valenciennes and Maubeuge. By the time this narrow sector would be reached, the Allied northern armies could be expected to have become well concentrated, and would probably be counterattacking toward the south. The main Allied reserves would be coming up from Paris. Moreover, by that time the penetrating force would have lost materially in aircraft and tanks, and its combat power would be further reduced by fatigue and the exhaustion of ammunition and food supplies. The attack had to be planned to conserve its most powerful effort for the break-through at this point. In the event, the attack barely outstripped the defense. The most advanced mechanized spearheads had barely passed Arras and fanned out toward Amiens, Abbeville and St. Pol (map 3), when the French VII and IX Armies struck to the south between Cambrai and Arras, deflecting the German main route of advance to the south of the old Roman road from Cambrai to Arras. Instead of a gap of some forty miles, as planned, the penetration was forced to squeeze through a bottleneck of only eleven miles, between the Somme and Bapaume. The quadrangle: Arras—Cambrai—St. Quentin—Albert, was not a healthy area to be in between May 20 and 27.

After May 27, when pincer attacks northward through Vimy and westward through Orchies threatened encirclement of the large French force on the line: Valenciennes—Cambrai—Bapaume—Arras, the success of the double penetration maneuver was assured. The French VII and

IX Armies retired toward the north, and Weygand's impending counterattack northward from Amiens—Péronne was abandoned.

The theory of the double penetration as I presented it in 1936 did not include consideration of the method to be used in accomplishing the final annihilation of the defender's isolated wing. The German solution seems to be to cut it up into segments by successive pincer movements, thus disrupting all communications and organization, and leaving each segment to be cut to pieces, or to surrender or starve.

Several explanations may be advanced for the failure of the principal penetration to prevent the escape of a large part of the isolated Allied force. Most important, perhaps, was the remarkable skill and resiliency of the Allied forces in rear-guard fighting. Time and again the Allies fought the Germans to a standstill, and then pulled out of a threatened double envelopment just in time: at Maubeuge—Valenciennes; at Arras—Cambrai—Bapaume; at Ghent; and at Ypres. The German westward attack north of Antwerp and Ghent was too slow, or had insufficient power. When the full story is known, the resistance of the Belgian Army in this area may prove to have been decisive in saving the port of Dunkirk to the Allies. It may be that by May 27 the Germans had suffered such tremendous losses in combat power that they had insufficient reserves to finish the job. Judged by the experience of our own tankers on maneuvers, most of the German tankers must have been dead at the wheel by that time.

and a considerable number of vehicles must have been immobilized with minor mechanical troubles, or for lack of gas and ammunition. It may be that by May 27 the Germans were already withdrawing divisions for rest, reorganization and repair, preparatory to the drive along the Oise. Probably the truth includes all these factors.

With the ethics of invasion of the neutral countries, the question of responsibility for the initial break-through at the Meuse, the practicability of a French counterattack from the vicinity of Péronne, the cost to the Germans in casualties, planes and tanks, or the numbers of Allied troops saved in the unforgettable retreat, this article is not concerned. The important thing to be considered is that a complete penetration was effected, and that the isolated wing was eliminated as an effective combat force—a large part for the duration of the war, the remainder for several months at least. Considering tanks, trucks, and planes, as well as personnel, the effect, so far as the immediate strategic situation was concerned, was the same as though five or six Allied field armies had been destroyed.

During the battle of annihilation in Flanders, General Weygand was hurriedly regrouping, organizing a defense in depth along the Somme—Ailette—Aisne line, and instructing his forces in improvised tactics for countering the coming plane-tank-motor attack. There appears to have been little question that the next attack would be against the French, and that it would be launched without delay.

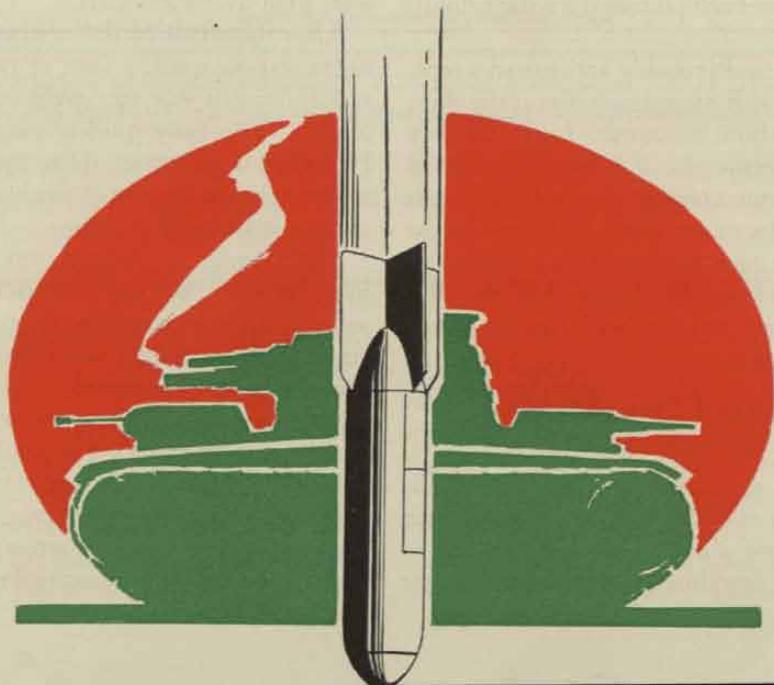
The French line was badly over-extended. Allied combat power was reduced by four or five field armies, not to mention disrupted communications and loss of the Little Maginot Line. Upon the reduced force fell the necessity of occupying and defending not only the additional frontage originally allocated to the lost armies, but the Italian frontier as well. It is probable that on June 5 when the blow fell, the combat power of the Germans between Abbeville and Montmedy was twice that of the French. And since the Germans possessed the initiative and superior mobility, this proportion could easily be made four

to one at selected spots. The French simply lacked the power to prevent a break-through.

The Battle for France shows most of the characteristics of the double penetration. There is the secondary penetrating attack on June 5 to fix the Allied reserves. There is the holding attack in the difficult corridor between the Oise and the Ourcq. There is the widely divergent, and tremendously powerful principal penetration, launched on June 9 from the Aisne straight up the valleys of the Meuse, Marne, Aube, and Seine, toward Besançon and Dijon, to surround the Maginot Line. Owing to the overwhelming combat superiority of the attacker, however, it was not necessary to assign a defensive mission to the secondary penetration. This force possessed a sufficient superiority of combat power to engage in some surrounding and pursuing of its own. Instead of the double penetration visualized in the theory, this was a double envelopment, turned inside out.

The details of the Battle of France, like those of the Battle of Flanders, are obscure, because of the extreme rapidity of development and the particularly severe censorship on both sides. One would like to know how the gasoline and ammunition supply kept up with the advance; why Paris was abandoned; why Metz capitulated when Montmedy managed to hold out for six weeks. Particularly interesting are the questions of organization for stream-crossing by mechanized divisions, and the means by which the various arms were so perfectly coordinated in all operations. Most of these points will be clarified only after the war is ended.

One point emerges clearly: that the German armies had an overwhelming superiority in immediately available effective combat power. When fire-power was needed, it was on the spot ready to be used. Accounts by Allied survivors of Flanders abound in comments to the effect that they "never had a real go at Jerry." Of course not; they were never meant to. The whole show was designed for speed and overwhelming power. The Germans had both.



# Lightning War Against the Allies

By QUENTIN ROOSEVELT

The 34-day period ending June 13, 1940, with the fall of Paris held events second to none in military history. Adolf Hitler's war machine, using a new type of warfare, swept through the Netherlands, Belgium, Luxembourg, and northern France, to capture the French capital.

It is of course a task for military experts to analyze and explain the new measures that revolutionized warfare in a period of five weeks. The following is a presentation in chronological order of the principal events in the campaign, made after comparing the information given in the high command communiqués with the actual progress of the German advance.

This campaign, the greatest offensive of all time, depended for its success on three general factors: (1) The perfect coordination, training, and equipment of the Reich's army; (2) The lack of preparedness on the part of the Allies for the incredibly swift action of the *panzer* divisions and their *Stürzenkämpfer* or dive-bomber support; (3) A lack of understanding on the part of the Allied high command of the plans of the German staff.

The end of the First World War left the Allies with a clear knowledge of the plans of Schlieffen, German Chief of Staff before the War, and why these failed. Every soldier knew that the original scheme of operations called for a predominantly strong right-wing attack, intended to engulf the channel ports and then encircle Paris. A series of blunders on the part of the Imperial General Staff, including the weakening of the right wing to bolster the drive in the Lorraine sector, had left a strong British army in Artois and Flanders which could attack on a line all the way from Ypres to the Oise. The first battle of the Marne would have lost much of its effect had the right flank of the German forces been protected by the English Channel.

The Allied high command probably anticipated a repetition of this procedure, with more emphasis on the drive along the Flanders coast from the north. Little did they visualize the audacious maneuver of a break-through at Sedan and the consequent cutting of communications between the Allied armies in the north and those in the south. Nevertheless this plan was most successfully carried out by the armies of von Reichenau, and the BEF was surrounded and driven out along with the best of the French mechanized divisions.

## THE INVASION OF THE LOW COUNTRIES AND THE BREAK-THROUGH AT SEDAN

Until Tuesday, April 9, after eight months of small-scale patrol activities on the Western Front, the world wondered what to make of a war which never seemed to start. But the invasion of Scandinavia on this date brought

the war home to Britain and she made a mighty effort to dislodge the Germans already securely installed in central Norway. In spite of the weight of British sea power this campaign ended in defeat and withdrawal for the Allies. On May 1 the only action in Norway was taking place in the extreme north near Narvik, which finally fell under permanent German control later on.

Smarting from her failure in Norway, Britain was again driven into action by the German invasion of the Low Countries on May 10. Here the Allies felt they would at least be in a position to succeed, for Holland could be flooded to slow up the German mechanized advance, and the strong defenses along the Albert Canal in Belgium would at least give Britain and France time to rush in troops.

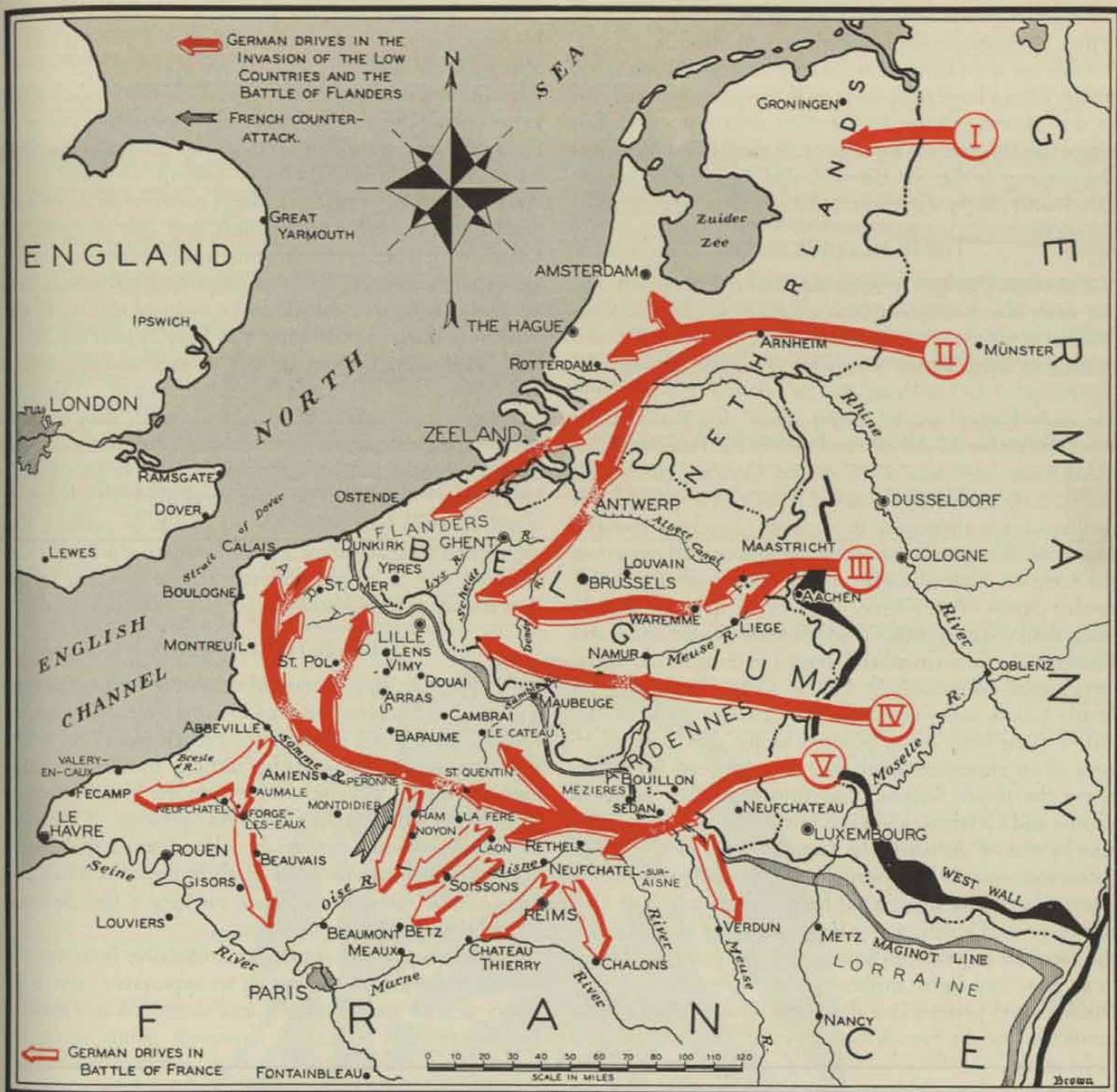
The first ace up the Nazi sleeve was the parachutist. After suitable preparation by undercover agents and the Fifth Column, squadrons of transport planes flew over important airdromes and communication junctions dropping hundreds of soldiers equipped with a fantastic variety of weapons, with instructions to hold these points as long as possible, and then destroy their usefulness. At Rotterdam, so large a force was dropped, armed with light machine guns, that they managed to hold a considerable part of the city until the main army arrived. Near The Hague, these troops were joined by men landed by fast speedboats. The Queen narrowly escaped being taken prisoner.

A decisive factor in the conquest of Holland was the action of many Nazi sympathizers and actual German agents sprinkled throughout the country in preventing the flooding of major portions of the country. Where the floodgates were opened thousands of small rubber boats were used by the invaders.

After the whole of the northern section around Gröningen was occupied, a force of two or three light mechanized divisions was sent west through Arnheim to Rotterdam. This force quickly took over Amsterdam, The Hague, and the peninsula to the north, then turned its attention to the capture of the islands in Zeeland Province to the northwest of Antwerp.

The conquest of Holland, thus effected, was important in many ways, but was perhaps of predominant military value in that it exposed the Albert Canal and Antwerp to attack. The operation which had started from Münster could now turn southward.

Simultaneous with the operations across the Netherlands frontier, a strong attack was launched through Maastricht at Liège, an important cluster of forts on the Albert Canal. Possibly through the operations of the Fifth Column, at least one important bridge across the canal was not blown up until too late, and a vanguard of motorized troops swept



I — Occupation of Northern Holland; II — Light Mechanized Force; III — Attack against Liège Forts; IV — Strong Attack against Namur; V — Break-through at Sedan.

past Liège to Waremme, flanking the original Belgian positions. This drive swept on towards Louvain, while the forces in Holland attacked the Antwerp area from the north. An important thrust just north of Luxembourg crossed the Meuse near Namur, then proceeded towards Brussels from the southeast, assisting by a flank operation the fall of stubbornly defended Louvain. The gateway to Brussels was clear.

With the most important line of Belgian defense positions successfully mopped up, and the fall of Brussels imminent, the next phase in the operations began. A fierce attack was launched south of Bouillon against the Sedan sector on the Maginot Line extension. The now familiar Stuka dive bombers dropped tons of explosives with

deadly accuracy. The advance shock infantry began a systematic liquidation of the concrete forts and machine-gun nests. With stunning speed these were followed up with panzer divisions which broke through the lines and sped on to further objectives in the rear. Spreading fanwise to the west, north, and south behind the rest of the fortified line, the Germans succeeded in rolling up the flanks of the defenders, widening the breach across the frontier, and at the same time advancing to the Aisne on the south, and Laon, St. Quentin, and Le Cateau on the west.

The French explanation of the break-through admitted that the best French troops had been withdrawn from the Ardennes sector and sent into Belgium in anticipation of an intensified right-wing attack. General Corap's army

consisted of second-line troops incapable of quick, decisive action, according to the French high command, making it possible for the Germans to achieve their initial successes. In any case, a large body of French troops was surrounded in the Maubeuge area by German advances which followed swiftly after the liquidation of the Namur forts and the crossing of the Sambre river and which were coordinated with the St. Quentin and Le Cateau operations to the south.

#### THE BATTLE OF FLANDERS

The break-through at Sedan had startled the world, but the news which followed was cataclysmic. In the short space of about twenty-four hours Amiens, Abbeville, and Arras had fallen to the advancing Teutonic legions. All communications had been severed between the BEF and the main French armies to the south. To make affairs more serious for the Allies, the flower of the French mechanized forces also was north of the German salient. At the time this news was received it seemed impossible for this audacious maneuver to succeed. Surely a counter-attack by Weygand's armies in the south could cut across the German neck and effect a junction with the forces further north. For a time, with this gap only slightly more than a dozen miles in width between Bapaume and Péronne, the German salient seemed in danger, but as the days passed, Montreuil, St. Pol, St. Omer, Boulogne, and finally Calais, came under German domination while the Allies made little or no progress along the Somme. In spite of an almost constant pounding by French artillery along the upper Somme, and British artillery near Bapaume and Cambrai, and even in the face of French tank attacks east of Amiens, the German lines of communication were intact. The Germans in defending this narrow gap used a defense against the French tanks which, if used earlier by the French, might have effectively slowed down the German armored divisions. A large number of anti-tank guns and light artillery pieces were arranged in a checkerboard pattern in a deep belt across the area to be protected, and the French mechanized cavalry was stopped in its tracks.

This second break-through of the Allied lines on the Somme was effected in much the same way as the original one in the Ardennes, and was likewise immediately exploited by panzer divisions, but more light units were used in the advance up the Channel coast. Motorcyclists with machine guns as well as fast armored cars were in the van, while parachutists again were used to occupy key points behind the Allied lines. The capture of General Giraud with his staff, as well as the destruction of the French Ninth Army, were primary consequences of this maneuver.

As if the Allied cause had not suffered enough, a new blow was to come, the *coup de grâce* of the Flanders armies. Driven back across the Dendre, Scheldt and Lys Rivers in rapid succession the Belgian armies, short of all necessary supplies and suffering untold casualties, capitulated to Germany on Tuesday, May 28. Simultaneously the southern German forces had occupied Vimy Ridge and Lens, further tightening up the ring of steel around the

Allies. Since the Belgian surrender exposed the whole northern flank of these forces, already hard pressed and in retreat, there was only one course open: retreat to the Channel and evacuation to England. It was tragic for the English and French that their soldiers had no chance to show their courage and fortitude except during a disastrous retreat, but such was the case. Swarms of boats of all types and tonnages evacuated large numbers of these men from Dunkirk, the only Channel port not occupied by Germany, while a fortunate mist made operations by the German air force difficult. Complete annihilation was avoided only by the most skillful rear-guard action. It was evident to many experts as early as May 25 that the Allies were faced with a colossal military disaster, and that Hitler had taken a long step towards eventual victory. Although many men had escaped alive from Flanders, they had left behind the greatest part of their equipment, including all-important tanks and artillery which could not be replaced before many months. The mere handful of Allied mechanized divisions had been reduced to one or perhaps two which had been stationed on the southern front, and this remnant was to be pitted against Hitler's fifteen or sixteen divisions, individually larger and more powerful.

#### THE BATTLE OF FRANCE

On Tuesday, June 4, most of the Allied troops had been driven out of Flanders and the Germans were able to undertake the next phase of the war. French planes on reconnaissance reported a gigantic turning movement being executed by the German armies from the Flanders battlefield towards the south. The next operation of the Germans was no longer in doubt. The French had barely time to begin consolidation of their positions along the Somme and Aisne Rivers when on June 5 the Germans started their huge drive on Paris.

At the start of the attack the Stuka dive bombers and panzer divisions did not put in an appearance. Fierce infantry attacks were launched and succeeded in establishing bridgeheads at various important points along the fronts. This attack cleared out many advance artillery positions which would have menaced an attack by tanks. On the second and third day the tanks went over the top, supported by the air force, and the already battered French line began to bend and bulge. Strong motorized units, followed in turn by mechanized forces and infantry divisions, poured across the Abbeville bridgehead, drove across the Bresle River, past Neufchâteau, to reach Forge-les-Eaux. Advances in the Péronne sector accompanied by crossings of the Somme at Ham and advances down the Oise to La Fère turned both flanks of the Somme defense line, forcing French troops to retreat to a line running roughly from Aumale to Noyon. Simultaneously, German advances were threatening Soissons, bridgeheads had been thrown across the Aisne and crossings of the Somme-Aisne Canal had been made. The Chemin-des-Dames heights were under German control and another obstacle between the Germans and Paris had been removed.

The most important action at this time, however, was being carried on by the mechanized column which had

occupied Forge-les-Eaux. From this point the forces proceeded to Gisors, about thirty-five miles northwest of Paris, and to Rouen on the lower Seine. Spreading out fanwise they took Beauvais on the east and advanced towards Fécamp to the west on the Channel. The advance to Beauvais further outflanked the French armies due north of Paris, forcing a withdrawal to a point south of Montdidier, while the advance toward Fécamp started the encirclement of two or three British divisions which attempted evacuation from Vallery-en-Caux, an evacuation only partially successful according to British spokesmen.

Thus with the German right flank completing an advance from Abbeville across the Bresle River, through Forge-les-Eaux, south to Rouen, and finally across the lower Seine north of Louviers, coördinated with the crossing of the Aisne between Soissons and Neufchâtel-sur-Aisne, the position of the French armies north of Paris was seriously threatened. A twenty-mile retreat down the Oise from Noyon to Beaumont was necessary, while French forces in the Soissons sector, also outflanked, retreated to Betz, a dozen miles north of Meaux. The news that the German Army had crossed the Marne on a twelve-mile front east of Château-Thierry after an ad-

vance from the Soissons region did not come as a surprise. The German capture of Reims was the beginning of another phase of the offensive which was the encirclement of the Maginot Line, and the occupation of Paris was a foregone conclusion. The Reynaud government had already gone to Tours, and Paris had been declared an open city. General Herring, military governor of Paris and commander of the troops in that area, relinquished his governorship and withdrew his troops to the south, leaving the way clear for a German entry.

On Thursday, June 13, Paris fell. The German vanguard rolled down the Champs Elysées. The end was soon to come. Besides being a military and economic blow to the Allies, the loss of Paris was a terrific blow to their morale. The state of the French forces at this juncture has been shown by the incredibly swift advance of the Germans to Fontainebleau, Orléans and Nantes in the southwest, and to the Swiss frontier south of Gray in the east, invalidating and cutting off the Maginot fortifications.

Verdun had fallen at the first German assault. With tragic irony, the man who saved Verdun in the First World War, Marshal Pétain as Premier of France on June 16, 1940, was forced to offer an armistice to Hitler.



An army of long service, isolated in hostile territory, becomes an entity, acquires a personality. Though it is a composite of many men, it displays the traits and characteristics of an individual. That proved true of a number of the Roman legions, of some of the British expeditionary forces which thrust the far-flung empire deep into India and Africa. It was also true of the American army that took part in the Indian campaigns following the Civil War.

Thus the story of this Indian-fighting army is in a sense a biography. It covers a life span of, roughly, from 1865 to 1898, although remnants of the Old Army, as it was then called, fought in Cuba, the Philippines, and in France in the first World War.

By act of Congress, out of necessity. So might be described the parentage of this army. It favored and was largely brought up by its mother. Its sire neglected and maltreated it and frequently disowned it. Fortunately its birth resembled that of Minerva who sprang full-panoplied from the brow of Jove, for never in our history has an army better manned, equipped and trained (though it had much to learn about fighting Indians) taken the field at the outbreak of hostilities. There had been no long interval of peace to permit the operation of our traditional policy of indifference to and shrinkage of the military establishment. Staff and ranks were not filled, as before and since, with recruits and a leavening of veterans, but with the vigorous, seasoned survivors of the hard-fought Civil War battles. Accordingly it was able, as indeed it was often compelled, to take care of itself, and to a strong degree it developed self-reliance and initiative.

High valor it possessed, gallantry sometimes degenerating into foolhardy rashness. It was alternately proud of itself and bored and disgusted with its lot. As a man is torn by conflicting emotions, so was this army the victim



# PORTRAIT OF AN ARMY

of internal dissensions and jealousies; while its efficiency temporarily suffered, it always swung back into line. Honor and tradition, loyalty and duty, were its gods—gods worshipped by deeds, seldom words—gods disguised as discipline and a matter-of-fact acceptance of orders. And the symbols of the army's faith, usually only inwardly acknowledged were these: The flag waving over the frontier posts and the guidon snapping in the rush of a charge. The uniform of blue it so carelessly wore. The anthem the band played at Retreat and the bugle call floating in the still air of the plains or ringing brazenly in canyons to stir its fighting heart.

It owned to the usual army vices. It chewed plug to-

bacco, could spit with accuracy in a rattlesnake's eye and did. Once an army scout, hiding in a buffalo wallow from a band of Indians, was confronted by a big rattler, coiled and ready to strike; he saved himself with a well-directed stream of brown juice which blinded the reptile. Pipes were the favorite smoke; they were cheaper, more practical on wind-swept plains and showed less light, which might draw Indian arrows, than cigars and the later cigarette. Some officers drank themselves to death or out of the service. On payday the rank and file converted Uncle Sam's scanty stipend into rotgut whiskey and after a night of hell-raising crammed the guardhouse. The army chased women on occasion, though occasion seldom



It was a tough,  
hard-swearing, devil-may-care outfit

offered during its constant campaigning and at its isolated stations. It was a tough, hard-swearing devil-may-care outfit, yet it almost always accepted the iron grip of discipline and enforced it upon itself.

It was portrayed, was this army, in drawings and paintings by Remington, by Zogbaum, De Thulstrup, and others, who caught it in action. The cumbersome cameras of the day snapped it in garrison: soldiers at the pay table; officers and their families on the porches of their quarters; thin lines of troops on the drill ground. You see sun-bronzed men, bearded far less frequently than in the Civil War but usually adorned with mustaches ranging from the trim to the handlebar. The forage cap, which was a replica of the French *képi*, gave way to the better-

adapted felt campaign hat. For a period the Prussian spiked helmet and festoons of braid characterized a dress uniform which became the American soldier not at all. The field-service uniform of loose blue tunic with breeches in lighter blue, striped with white (later pale blue) for infantry, yellow for cavalry, and red for artillery, was not as suitable in color as the later khaki. No bandbox soldier was the Doughboy swinging along with rifle and blanket roll over his shoulders or the booted and spurred trooper, bandana knotted around his neck, saber and pistol at his side, carbine in saddleboot. He stripped to a shirt to fight under the Arizona sun or bundled in a greatcoat with fur cap and earflaps against the Montana winter. He was classed as a guerilla type by the super-military Ger-

By CAPTAIN FAIRFAX DOWNEY

*Illustrated by H. Charles McBarron, Jr.*

man, the white-and-gold hussar of Austria, and the Britisher smart in scarlet. But this rough-and-ready, hard-bitten Indian fighter, as picturesque as his surroundings and his foe, was the most dashing, romantic figure in all our wars.

His deeds and his way of life were chronicled in the official reports, that mass of paperwork military usage demands; in accounts by newspaper correspondents and by the writing men in its own ranks and, not least, in the letters of devoted Army women who shared its perils and hardships in remote posts. Every page and picture reveals as its background two prime influences which made this army unique in our or any other annals.

By these twain was it wrought and moulded, as is a man by his environment and the antagonistic forces he encounters.

First, by the vivid theater of its warfare—the West. There the army lived and marched and campaigned in surroundings of surpassing beauty or cruel harshness. Over mountain and mesa. In forest or lava bed. Through parching, shriveling desert and the snowdrifts of subzero plateau.

And secondly, by its adversaries. The plains Indians, mounted on the descendants of Coronado's chargers, were termed "the finest light horsemen the world ever has seen, with tactics that have never been equalled by Bedouin, Cossack, Numidian, or Tartar at his best." The fierce, elusive tribes of the Southwest. The stubborn Modocs in their natural fortresses. The valiant Nez Percé, who made one of the most magnificent fighting retreats in history. Nor did the red man lack great leaders when he fought under such chieftains as Red Cloud, Crazy Horse, Roman Nose, American Horse, Black Kettle, Sitting Bull, Gall, and Joseph.

## II

This army was, so to speak, practically a posthumous child. When first it came into being, the far greater array from which it sprang was passing out of existence. At scores of camps and depots, the Grand Army that had conquered the Confederacy was being disbanded. Regiments marched through Washington in the victory parade and stacked arms. Comrades between whom lay the strong bond of battle said farewell. One million, thirty-four thousand Volunteers and Militia, war-weary and homesick, were rapidly mustered out. They hastened back where rejoicing families and flag-decked, cheering towns welcomed them with honor due. But the Regulars stood fast. There was need of them still.

Regulars must garrison the vanquished South for the bitter years of Reconstruction. Regulars, hard-riding squadrons under Phil Sheridan, must mass on the Rio Grande until Louis Napoleon wryly withdrew his French invaders from Mexico, sealing the doom of the Emperor Maximilian. Desperate and insistent came the call from the West for Regulars to relieve state troops, tired and some of them even mutinous—summonses from all the wide frontier where the Sioux and Cheyennes wiped out wagon-trains and settlements, the Kiowas and Comanches

raided scattered ranches, and the Apaches swept back and forth across the border to scalp Americans or Mexicans with fine impartiality.

Regulars? There were not a great many of them left after Appomattox. In 1860 the Regular Army had numbered only 16,000. Throughout the war it carried no more than 26,000 on its rolls. Heavy casualties had decimated its ranks, and seldom had the gaps been filled, for there was no bounty for enlistment in the Regulars. But now replacements flowed in. Welcomed were many of the best Volunteers, from high-ranking officers to enlisted men. Demotions, regardless of war record or merit, were inevitable in the new, greatly reduced organizations. Take it or leave it, was the edict. They took it—there were throngs of applicants waiting. "Corps commanders became colonels, brigade commanders took new rank as majors and captains, and not a few who had commanded regiments of Volunteers in battle accepted commissions as second lieutenants." Former sergeants, who had won a commission for gallantry in action, stepped back into the ranks. Long years without promotion would be the destiny of many. Gray-haired lieutenants would be no phenomenon in the Indian wars.

Here were men with the love of the army too deeply ingrained in them to leave it. Restless, footloose men who knew no other profession than soldiering and were unwilling to learn one. Back into uniform came veterans who, finding stay-at-homes had married their girls or grabbed their jobs, cursed their luck and sought the nearest recruiting station. Here rallied youths, disappointed because they had been just too young to serve in the last war and determined to see some Indian fighting—lads from West Point, youngsters from civil life.

Through all the period of the Indian wars they would keep coming, both the cream and the dregs. Farm boys, bored clerks, blacksmiths, salesmen who drank themselves out of a job. Bowery bums dragged out of the gutter. Criminals one jump ahead of the police enlisting under assumed names. Men who joined simply as a means to reach the goldfields and who deserted or tried to at the first opportunity. Thus have the ranks of all armies throughout history been filled by the call of adventure or a craving for glory. By the need of food, clothing, and shelter of a sort. By the necessity of escaping from the law or from one's self. By motives varying from the patriotic to the strictly dishonorable.

Yet this army was extraordinary in several respects. For one, it contained an amazing number of men who were not whole. By no means could they be called disabled or crippled, for they served through hard campaigns, neither asking any favor nor sparing themselves. Yet most of them would never have passed a World War medical board. Thousands carried wounds from the Civil War and subsequently from Indian bullets or arrows. Perhaps no more than scars that ached in damp weather, but not infrequently far worse than that—hurts on which retirement for disability justly could have been demanded. A one-armed general was followed by an adjutant who



rode with an artificial leg; and there were others lacking a leg or an arm. Cavalrymen who limped were not uncommon, such as the Civil War veteran who, enlisting in a regiment on active service in Montana, was spotted as lame. "It's an old wound and it's only so once in a while. I can ride first-rate," he pleaded and was assigned to duty. Missing fingers and toes, frozen off in winter expeditions, were regarded only as minor inconveniences. One good eye was enough. Rheumatism might reduce a campaigner to being dragged along on a travois for a while, yet his begging not to be sent to the rear would be heeded if he proved able to mount his horse again within a reasonable time.

The French Foreign Legion could not outmatch this American army in variety of nationalities. Besides the native Americans, it was full of Irish, Germans, French, British, Scandinavians, Italians, Russians, and others. Many of the foreign-born had fought in the Civil War, and so much of the subsequent stream of immigration flowed into the service that the Army became one of the busiest sections of the great American melting pot. Roll calls sounded like the line-up of a Notre Dame football team.

Orders barked in a thick Irish brogue or with a guttural German accent were commonplace. The Army drew the sons of Erin as irresistibly as police forces. Woe betide the peace of a post when the paymaster was rash enough to pay off on St. Patrick's Day. In numbers and with abandon the Hibernian celebrated. But he absorbed hard campaigning as readily as hard liquor, and Harrigan & Hart sang his praises in the minstrel shows of the 70's.

*There was Sergeant John McCaffery and Captain Donabue,*

*Oh, they made us march and toe the mark in gallant Company Q.*

*Oh, the drums would roll. Upon my soul, this is the style we'd go:*

*Forty miles a day on beans and hay in the Regular Army, O!*

Fine soldiers, too, and hardly less predominant in numbers were the Germans. Though many of them had fled the Vaterland to escape compulsory military service, they did not hesitate to enlist voluntarily in the Army of the United States. Army bands were composed almost entirely of Germans and Italians. In 1870 German musicians in several garrisons blared forth *Die Wacht am Rhein* to celebrate the victories of the Franco-Prussian War. Although French-born soldiers sang *Le Marseillaise* at the top of their lungs, they were drowned out, and fists and horns flew till the guard was turned out. However, on the whole there was little trouble among medley of nations serving together loyally in the army of their adopted country. An Austrian baron, ruined by gambling, marched uncomplainingly as a private of infantry. The sergeant, who was an Eton graduate, died as gallantly under the arrows of the Cheyennes for his new land as he would had his forebears come over on the *Mayflower*.

Heard as often as a foreign accent or a Yankee twang was the soft drawl of men who, until the Battle of Gettysburg, almost had made another nation—ex-Confederates. While the Civil War was still in progress, hundreds of captured Southerners had been released from Yankee prisons to fight the Indian tribes in the West, with the promise that they would not be asked to serve against their own people. Reluctant though they were to exchange their gray uniforms for blue, they preferred the plains to a cell. They were called "galvanized Yankees" either because of the fact that iron, when galvanized, changes color as they did the shade of their uniforms or because their freedom after prison inactivity resembled the effect of a galvanic shock on inert bodies. Their number was augmented after the surrender at Appomattox by comrades who despaired of making a living in the prostrate South or could not endure the carpetbagger régime. Among these veterans were officers who, having fought against the Army of the United States, were now disbarred by law from holding commissions in it, and consequently compelled to serve in the ranks. A former captain of the Confederacy became a trumpeter in this Indian-fighting army. Able officers, who had led a battalion, company or platoon under Lee, relinquished their shoulder straps for the chevrons of a sergeant or corporal. In later years the ban against their receiving commissions was ended, and some rose to high rank, notably "Fighting Joe" Wheeler. The story goes that it was that one-time Confederate cavalryman who, leading a charge against the Spaniards at Las Guasimas, Cuba, in 1898, turned time backward by whooping a Rebel yell, as the enemy broke, and shouting, "Come on, boys. We've got the damn Yankees on the run!"

Negroes, many of them fresh from slavery, served in this cosmopolitan army under white officers. Fine horsemen, hard fighters, well disciplined, they formed such splendid regiments as the 10th Cavalry. From their woolly hair and the shaggy hide coats they wore on winter campaigns, they were christened "Buffalo soldiers" by the Indians.

And even Indians were represented in this force arrayed against their own race. Pawnees, Crows, Shoshones, and Rees (Arickarees) donned the blue uniform, sometimes shedding it to daub on warpaint when they went into action. Hating the all-conquering Sioux who had driven them from their hunting grounds, these lesser tribes helped fight the white man's battles—superb scouts, brave warriors. Scout and police companies were later on organized from subdued tribes of the Apaches and Sioux. Rarely were the red men united; divided, they fell. The subjugated, loving fighting for its own sake or seeing the handwriting on the wall, supported their former foe in completing the conquest of their brethren.

The last state troops on active service in the West were relieved in the summer of 1866. An army, formed from the heterogeneous elements just described, then took over. At the outset it was, of course, a regular army in name only. As has been declared it contained many veterans but



its component of Regulars (enlisted men and officers, mostly West Pointers commissioned before and during the Civil War) was small. However, that nucleus would suffice for the transmutation. The old officers and, most of all, the old noncoms, who are the backbone of any army, hammered this new one into a Regular organization. Aiding them immeasurably were the traditions of the service.

As compared with the British, for instance, the United States Army could boast few such immemorial usages. Yet the histories of certain American regiments stretched back, unbroken, to the Revolution. They had fought through four wars and Indian uprisings besides. Though their colors usually rested cased in a corner of the Colonel's quarters, upon them, emblazoned in gold, were battle honors—Yorktown, Lundys Lane, Chapultepec, Gettysburg. Washington had praised an exploit of this regiment; Zach Taylor—Old Rough and Ready—had cited that one. This battery was once Alexander Hamilton's. Their rolls were lustrous with the names of their heroes. Here and there was preserved a regimental custom, a ceremony. Some regiments marched proudly to the stirring strains of their own battle march and wore their insignia like a decoration. So, hallowed by time and strengthened by the continuity of service of regular organizations, was fostered that *esprit de corps* which, prized by the old soldier and instilled into the recruit, carries a body of fighting men to victory or rallies them on a stricken field.

The fact that this thing of the spirit, this intangible, should somehow have thriven and been maintained through the Indian wars is altogether remarkable. Seldom was a whole regiment assembled in a single spot. Except for concentrations in a few larger campaigns, all actions were fought by small detachments of infantry and cavalry, with perhaps an artillery piece or two, or by single troops or companies, or less.

In this series of conflicts extending through the last four decades of the nineteenth century, alone of all wars, militia and reserves normally essential to supplement our small professional army, were not called to the colors. The Indian wars were won by soldiers who claimed and deserved the proud title of Regulars.

### III

The two great military mainstays of the Union—U. S. Grant, as General-in-Chief, and William Tecumseh Sherman, as Chief of Staff—presided in Washington over the

destinies of the Army and fought its battles with Congress and the Indian Bureau. Phil Sheridan, who had seen Indian service as a young lieutenant, commanded the Department of the West. Under their orders, blue columns marched and counter-marched through the plain and desert led by field commanders: Crook and Mackenzie and Miles; Canby, Howard, Terry, Gibbon, Custer, Henry, Merritt, Otis, and the rest.

Ride today through the peaceful lands which were once Indian country, and imagination may call up one of those blue columns out of the midst of some distant dust cloud rolling up from the sagebrush. Fanned far out ahead, Indian scouts—Crows or Rees under a young white lieutenant, or Pawnees led by the redoubtable North brothers. Then advance guard and flankers. The officer in command and his staff. Riding with them Buffalo Bill or Jim Bridger or one of the other mountain men whose services to the Army were invaluable. Perhaps a newspaper correspondent such as Mark Kellogg of the *New York Herald*, to die at Little Big Horn with Custer. Chatting with him may be the young cavalry officer, Charles King, who would write so many stories of army life. That horseman with a sketch-pad in his kit would be Fred Remington, saddle-weary but still genial; once after a thirty-mile ride he dismounted painfully and groaned to the troop commander, "Captain, I've got the heart of a cavalryman but the behind of a nursemaid." Also in the staff group would be another civilian, the contract surgeon, although he might be commissioned in the Medical Corps as was Leonard Wood, who served in the Apache campaigns, commanded the Rough Riders in Cuba, became Chief of Staff of the Army, and trained one of the best World War divisions. Sometimes, making heavy weather of it on his mount, might even be observed a naval officer who had taken leave from dull sea duty and wangled a detail to the service that was seeing all the action.

Thuds of hoofs and tramp of marching feet. Troops of the line. Riding at heads of units and along the columns, their officers. Bluff and hearty, or mild-mannered men of gentle demeanor. One who every day read his Bible in the original Hebrew or Greek. Another a hard-drinking gambler who had pawned his Civil War sword of honor at the Post trader's. A scholar who between skirmishes toiled on translations of the *Æneid* and the Odes of Horace. One who was brute enough to string up a delinquent soldier by his thumbs till they pulled from their sockets,

contrasted with chivalrous, quiet-spoken leaders who owned the devotion of their men. An occasional skulker. Many a one who in spite of severe wounds would lead a determined charge or a stubborn, last-ditch defense. The incompetent and unfit among them would be cleaned from the Army List by the "Benzine Board" of 1869, leaving a corps of "officers whose type has never been improved upon in any later state of our Army, or any other army in the world."

Marching behind them and beside them, the rank and file. Young and old, fine soldier or shirker. Men who faced disablement or a quick death by bullet or arrow or an agonizing, slow one by torture; who endured incredible hardships, who performed back-breaking hard labor—all for \$13 a month and food, clothing, and shelter, when any. Hard-riding cavalry, mounted on sturdy Western mustangs: sorrels, blacks, bays, and grays, leaving the gaudy pinto or calico ponies to the Indians. Staunch infantry, more dreaded by the savages who preferred to match their own fine horsemanship against riders in blue rather than launch a charge against the volleys of the steady foot. Perhaps a howitzer carted in a six-mule wagon or some pack artillery but all too rarely, for though they slowed the pace of a march, nothing routed the red man as quickly as a salvo of bursting shell.

Creaking wheels of supply wagons and ambulances. Cracking whips and, more explosive still, the language of drivers, mule-skinners who "reduced profanity to a science, if not a fine art." Sun glistening on the sweating hides and flapping ears of their teams of Army mules, cursed but prized as the king of toiling beasts—"unapproached in devilment, fathomless in cunning, born old in crime, of disreputable paternity and incapable of posterity, stolid, imperturbable, with no love for anything but the perpetration of tricks, no dexterity in aught save the flinging of his heels, no desire for anything but rations, and no affection at all."

A dust-eating rear guard passes. So vanishes the column returning through hostile territory to its base. Perhaps where its post stood, prairie grass sprouts today or on its site rises a town. But in such a town's square, the surviving veteran of the Indian wars still can visualize the ghostly outlines of an Army post of the 70's or 80's.

Flanking one side of the square parade ground, Officers' Row—houses of brick, planks or unbarked logs. Dwelling in them, making the best of them, Army wives—ladies who under conditions often rather primitive somehow managed to preserve the amenities of civilization and the latest styles in bangs, bodices, and bustles. Given sometimes to gossiping, jealousies and tempests over the teapots when their husbands failed to receive a promotion or were ranked out of quarters, but resourceful, enduring and courageous. Heartsick with anxiety when their men were absent on campaigns, yet themselves bravely facing the possibility of an Indian attack, when they were prepared to obey their husbands' orders to shoot themselves with the pistols left with them rather than fall into the hands of the savages. Their loneliness was mitigated by

their children and by their house guests, usually sisters or sisters-in-law who in frontier posts seldom lacked an opportunity to marry into the Army too, if they thought they could stand it. Hops, amateur theatricals, and card parties enlivened garrison existence. As for the Army children, they led the life of a juvenile Riley. School was likely to be sporadic. They were given ponies as soon as they could bestride a saddle. Alarms and excursions and tame Indians wandering through the post were frequent. Their friends might include Indian boys, kind old sergeants who carved toys for them, and even Buffalo Bill.

Opposite Officers' Row were the barracks of the men, and on either side, the guardhouse, quartermaster storehouse, officers, and the hospital. Offices housed the commanding officer, the long-suffering adjutant, that harassed factotum, the quartermaster, and the paymaster whenever he reached the post which was so often six or eight months late that an Army proverb ran:

*They say some disaster  
Befell the paymaster.*

Clerks handling the rolls and requisitions were usually men of some education whose careers in civil life had been ruined by drink. When one of them was reprimanded for his habits by his captain who asked, "How is it that whenever I get a clerk worth anything, he is a drunkard?" the backslider replied, "Sir, if it weren't for whiskey there wouldn't be any clerks in the Army."

In the quartermaster storehouse there bulked large supplies ofhardtack so ancient that once a learned quartermaster sergeant addressed the weevils drilling therein in the words of Napoleon at the Battle of the Pyramids: "Soldiers, forty centuries are looking down on your achievements today." The vicinity of the hospital was too often tactlessly chosen by the band to practice "The Dead March" from *Saul* to the strains of which had been interred those who lay in the post cemetery under headboards marked "Awaiting the Last Reveille."

Outside the quadrangle lay quarters for the married soldiers, called "Sudsville" because their wives usually eked out Army pay by doing the post washing. Further away might be a sutler's store. Besides merchandise it might contain an officers' club and a canteen for the men. When canteens selling beer were abolished by the influence on the government of temperance fanatics, they were replaced by riotous, whiskey-selling "hog ranches" outside the post boundaries.

Such was that little world of its own, the Army post, fairly spacious and open if not in hostile territory; otherwise compact, constricted and stockaded and continuing to exist only because the Indians seldom possessed the patience nor the heart for sieges.

#### IV

The West was a great natural arena in which for thirty years or so was fought a bloody series of gladiatorial conflicts. The Indian may be compared to the fleet, light-armed *retiarus* of the Romans, with his net and trident;

the soldier to the heavy-armed *secutor*, wielding a short sword. The slow pursuer would not begin to catch up his swift adversary until he learned to strike him in the winter when the red man was comparatively immobile.

Watching the single combats and mass mêlées, spectators were not infrequently present in the "stands." Squaws and children on the hillsides or staring from the dark interiors of wigwams, as cavalry charged through the village. Army women and youngsters and settlers' families in stockade, ranch-house or behind the canvas of wagons encircled by a whirling red ring. But a great unseen audience, the nation, followed the wars through the newspapers. And it was no more unpartisan than the Roman mob.

Settlers, railroad builders, buffalo hunters, and gold-rushers in the West cheered the Army or vehemently cursed it when treaties or government interference prevented the troops from giving protection. The East, forgetful of the long-past massacres by the Six Nations of the Iroquois, sentimentally pitied the plight of the poor red man and hysterically damned the Army for a gang of cut-throats. Renegade white traders sold the Indians repeating rifles and whiskey. Grafters in certain Indian agencies enriched themselves and stirred red embers into flaming rebellion. The Indian Bureau of the Department of the Interior hamstrung the Army right and left when it had the

chance. Congress, making treaties with the Indians, which it did not compel the emigrants and the prospectors to keep, left the job to be done all over again by the Army. Confusion and cross purposes, skulduggery and useless bloodshed.

The march of empire had taken its westward path. A conquest, whether right or wrong, had been embarked upon. It was stretched out over long years by a nation which could not make up its mind, which never exerted but a fraction of its full strength.

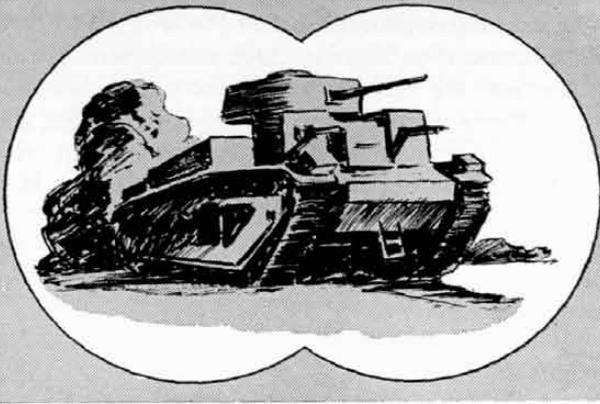
They were little wars, our Indian wars. Their ultimate result was a foregone conclusion. But let these pages from the record be illuminated and remembered.

There were more than two-hundred pitched battles between the Army and the Indians from 1869 to 1875, with the soldiers heavily outnumbered in most of them. Many a forgotten minor skirmish meant life or death to all engaged. From 1870 to 1887 there was almost incessant fighting with the Apaches; one regiment in Arizona took part in ninety-seven actions. "From 1866 to 1892 there was not a year, and hardly a three months, in which there was not some expedition against the Indians in the vast regions west of the Mississippi, and between the Canadian and Mexican borders."

From that ordeal by fire the Indian-fighting army emerged with honor.



# Who's Who?



**By Major  
Wendell G. Johnson  
Infantry**

No mere map-problem phrase is "the fog of war" when in real battles men have to stop, look, and even listen to determine who's who. Afoot or mounted, entrucked, entanked, or emplaned, in the smoky distance friends look much the same as enemies. The greater the distance and the thicker the murk, the more difficult they are to recognize or identify.

Mistaken identity can bring about disaster when shooting irons are toted. It has caused men to be potted, truck trains and guns to be strafed, planes to be winged, attacking troops to be fired on, and tanks rallying rearward to be peppered—all by comrades in arms.

Shooting friends in the belief that they are enemies is tragic. But withholding fire on enemies for fear they may be friends has also brought tragedy. Either kind of mistake seldom goes uncensored or uncut into the pages of military history. Yet in war memoirs and battle records many examples can be found. The World War and the Spanish civil war are full of them.

---

## How will we recognize distant tanks as friendly or hostile?

---

What intensifies the difficulty of recognition and identification is the ever-increasing use of cover, concealment, camouflage, color blending, elimination of distinctive markings, use of neutral colors. These facilitate movement on the battlefield, gain surprise, deceive the enemy. But what deceives the enemy all too often deceives the friend as well. On modern battlefields nobody can believe his eyes.

A common question during last summer's Plattsburg maneuvers was: "How can we tell enemy tanks from our own?" The answer was easy when infantry tanks were on our side and cavalry combat cars on the other: "Theirs have double turrets."

But even this marked difference in type was not generally known until it was disseminated, for the simple reason that our army is woefully ignorant about its own mechanized vehicles. Why? Because tanks have not been seen, before the maneuvers of the past twelve months, by more than a small fraction of the Army. Of foreign types we know practically nothing. What chance have we had to know them?

Unfortunately, recognition of tanks in general is nowhere near as simple as it was in our peacetime maneuvers at Plattsburg. Armored track-laying combat vehicles in all armies have gradually become more and more alike. Distinguishing differences at a distance are minute or disappear entirely. The same may be said of other motor vehicles, of planes, guns, and military attire. Consequently, the questions "who's who," and "shall we shoot or not," are far more difficult to answer in modern warfare than when red coats meant Britishers and blue pants Frenchmen.

But an answer must be found. Means of recognition and identification must be devised. As a one-time tankner and now an antitankner, I am concerned primarily with recognizing friendly from hostile tanks and identifying both as to type and characteristics. What can be done to help antitank gunners, tank crews, and airplane bombers in this matter?

In the British, German, and Russian armies these troops carefully study their own and all foreign types of armored

fighting vehicles. They learn every visible, distinguishing detail. We should do the same thing.

Recognition training should be a part of all troop instruction, especially for scouts, ground observers including antiaircraft guards and antitank guards, personnel of combat and observation aviation, tank crews, and antitank-gun squads. Instruction should begin with a study of our own machines at close hand, then at a distance and in movement on typical combat terrain. Items like track arrangement, size and number of bogie wheels, general contour, and location, number, and appearance of turrets and other projections should be pointed out, studied and memorized. Silhouette charts and photographs of the different types of tanks should be hung up in barracks where men can examine them at odd times. Even latrines might not be a bad place for contemplating of tank photos. Training films of the tanks on various kinds of terrain and series of still slides would be excellent to show what our tanks look like from different angles and at varying distances.

Rotating tables can be rigged up, and scale models made, so that one after another, the different tank types could be examined from various angles and at increasing distances. This would be a good way of testing training progress, and good also for indoor work—especially on indoor subcaliber antitank ranges. Perhaps animated films could be made from these scale models.

Some foreign armies have distributed so-called silhouette charts showing profiles and miniature photos of various tanks. These can be carried in the pocket for ready

reference. They are good for occasional study, but a soldier can't waste time referring to such a gadget when half a dozen tanks are bearing down on him.

Once a group of men becomes thoroughly acquainted with our own machines, the same general procedure must follow with foreign tanks. Naturally, nobody is going to lend us foreign tanks to examine at close hand, but undoubtedly there are plenty of pictures in G-2 files that could be used. The study of foreign tanks should include armor thickness, armament, and speeds for each model.

All this training must be supplemented by a scheme of recognition signals or markings that will work regardless of camouflage, atmospheric conditions, distance, or direction of approach. Large, permanent *markings* on tanks would, of course, help enemy and friend alike. Also, mud, fog, smoke, or camouflage might easily obliterate them. Some non-permanent *signal* would be far better; one that could be changed daily or even more often, and used only on call or challenge, or at prescribed times. Such a signal shown or flashed by a tank upon demand from an antitank-gun squad would serve the same as the answer to a sentry's challenge.

Not only antitank-gun squads, but also tank crews have to determine from afar whether friendly or hostile machines are approaching them. They have even more difficulty telling who's who. They lose direction, can't

*Tanks are not ordinarily used at night, but they do move into attack positions during darkness. Hence they should use signals visible at night.*



see much, and in dust, smoke, or fog are really blind. So besides being trained to recognize their own and enemy machines, they need some way to challenge tanks they encounter but are unable to recognize because of distance or atmospheric conditions. Here also, of course, the means for replying are required on friendly tanks.

No doubt there likewise ought to be markings or signals that identify vehicles as to unit so that tanks of one platoon or company can keep together in the dispersion, confusion, dust, and smoke accompanying a tank action.

Air observers must also be considered. Observation aviation has to be able to differentiate between friendly and hostile tanks and besides, must if possible, be able to identify particular units of friendly tanks. Combat aviation also is interested in this matter. Therefore, in addition to other training in recognition, aviators will also need top-view charts and markings or signals on the tanks. Visual demand-and-response signals aren't so practicable because cooped-up tank crews might not see the call signal from a plane. However, a solution may be found. Radio would be fine, but it also involves difficulties.

Navies seem to have the recognition problem pretty well worked out. Ships carry markings showing nationality and squadron and even have markings topside for the benefit of airplanes. They use silhouette charts and instruct commissioned and noncommissioned personnel in the appearance of their own and enemy ships. Equipped with his chart and binoculars, a mariner can usually recognize a ship up to ten miles away as friend or foe. At night luminous colors can be hoisted. Ships also carry projectors for challenging and replying in Morse code. Luminous signals were used by both the Allies and the Central Powers from 1914 to 1918.

Of course this challenge procedure has some bugs in it. It isn't wise to indulge in promiscuous flashing of the password, especially at night when any ship within sight—friend or enemy—can see it. In December, 1914, during the Scarborough raid, a German ship queried "Who's there?" upon sighting a ship some three miles away. Though the challenge was in the German code, the British ship replied with "KF" repeated three times. The Germans then opened fire. Later on, the same German ship got cornered and flashed KF three times and thereby was permitted to escape, along with a couple of other German boats. In the battle of Jutland, the Germans saw one British ship ask another for the prescribed recognition-and-reply signal and soon the whole German fleet was informed. Later when the *Elbing* and *Hamburg* flashed "UA" to the British 11th Torpedoboat Flotilla, and at the same time opened fire on its craft, many torpedoboats held their fire, figuring friendly cruisers were shelling them.

Naturally, the methods used by ironclads afloat won't work any too well for those on land. Battleships move in two dimensions; tanks in three. That is, tanks also go up and down hill, behind slopes and woods, show their bellies, then their tops. Ships can be seen afar off, tanks only a few hundred yards away. Seconds count on land. Signals must be faster.

A mariner knows just where he is. Tankers often lose their bearings and don't know whether the tanks that come in view are moving from the direction of friendly or hostile lines.

Also, with only three or four men in a tank you can't expect to detail one man as a recognition-and-identification expert which they do on a ship. Neither will a tanker have time to compare a tank he sees with those on his chart of tank silhouettes.

We do have electrical installations on tanks that can be used to provide juice for luminous signals, but the signals must be much simpler than those used by ships. It isn't necessary to change signals very often on land cruisers because if one hostile tank crew does learn the code it can't pass it on to other tank crews in time to be of use. One set of signals for each phase of an operation, or perhaps for each objective, would be enough.

Tanks are not ordinarily used at night, but they do move into attack positions during darkness. Hence they should use signals visible at night.

Considering all factors together, these appear to be the characteristics needed in *recognition signals* for use by tanks:

- (1) They should not be permanent.
- (2) They should be designed both to challenge and to reply to challenges.
- (3) They should be easy to operate from within the tank.
- (4) They should be projected by a small apparatus.
- (5) They should be visible either by day or night, and at a distance of, say 1,000 to 1,500 yards, and visible to the flanks as well as to the front.
- (6) The projection apparatus should be sturdy and protected from fire.
- (7) It should be possible to change signals immediately upon order.

For recognition by friendly aviation, signals should be visible from the sky. And they should be designed so that they can be concealed or extinguished when not required, in order to escape hostile air observation or photography. They should not be visible from planes above a given altitude or to hostile OP's.

There are a number of possible ways of handling the recognition problem.

First, we have distinctive, permanent markings. These are suitable for identification of units by friendly tanks, but do not meet the characteristics needed for distant recognition as to nationality.

Then, there are metallic flags or semaphores. These can't be protected; they can't be seen at a distance or at night; and they require a complicated apparatus liable to break down in combat.

Cloth flags operated by the tank commander won't work at night and are hard to see at a distance. Disappearing disks and the like have the same disadvantages.

Shortwave radio? There is already too much radio. It is costly, and a set would be needed for each tank and

each antitank gun. It is, of course, a solution in fog and smoke.

Smoke and smoke shells are uncertain, and liable to be misunderstood. Rockets, Very pistols, and similar devices reveal too much to the enemy and may not be seen in daytime. They are also hard to project from inside a tank. However, they would be suitable for emergency use, especially for signalling to friendly aviation hounding a tank unit by mistake.

Special movements or maneuvers of the tank turret or the tank itself have been suggested for signalling, just as airplanes dip or wiggle their wings, but they are liable to be misunderstood or go unnoticed in combat. Moreover, little variety is obtainable and signalling movements might be confused with actual combat movements.

Sound signals by sirens, possibly with variations in tone, and using the Morse code, have certain advantages. But in all the noises of a battlefield they might not work at a distance. Close-in and during fog, they would be all right.

What should work most satisfactorily are luminous electric signals; that is, colored lamps or lights. These answer practically all requirements: day and night use, non-permanency, variability, ease of operation from inside the tank. And lamps can be protected too. Moreover, each antitank-gun section could readily be provided with signal lamps to be set up a hundred yards or so from the guns in order to challenge oncoming tanks.

It might be possible to use the headlights now found on most tanks, but these would have to be protected from fire, say by pulling them inside the tank or having pivot-

ing armorplates to screen them from fire when they were not in use for signalling.

Practically all-around visibility could be obtained by using antisolar protective steel guard hoods on the lamps, something like the ones used on traffic lights and railway signals. Or several colored lights could be put behind slits in the armor, and pivoting plates used to cover the slits when signals weren't being flashed.

On tanks with rotating turrets it might be possible to mount lights inside near the base of the turret so they would shine through apertures while the turret was rotated in a desired direction.

Whatever the arrangement of the lamps, there should be a hookup to operate them with a key or button so code signals could be sent. Colored lenses would permit greater variety and more code combinations. Colored flashes would be more noticeable in daytime. Tanks might flash, say twice red followed by twice green; or dot-dash-red, then dash-dot-green.

Lamps possess the additional advantage of affording a means of communication within a unit when radio fails. A simple code covering regularly used orders ought to be routine for use either by radio (CW), lamps, or siren.

It is true that electrical systems are liable to short circuits, broken bulbs and lenses, and other failures—especially

*Note how tanks blend into the scenery and how difficult they are to recognize or identify. Means of identification and recognition must be devised. Moreover, signals should be visible from the sky to insure recognition by friendly aviation.*



when subjected to the severe conditions of battle. Mere protection of each lamp behind narrow slits or small holes in the armor won't insure them against electrical faults. It would be desirable, therefore, to have other devices to fall back on. The siren is one. Another, usable at night, is phosphorus. It could readily be used to form glowing "buttons" of luminosity attached to plates that would be fitted into slides on the top, sides, front, and rear of a tank. Signals could be sent by moving such a plate in and out from behind a shield. If one of these plates were struck by a bullet or shell fragment it is unlikely that the phosphorus "buttons" would be entirely destroyed.

Besides some sort of luminous recognition signals, tanks should carry *permanent identification markings* for the information of friendly tanks. The best place for these would be on the rear end. (Phosphorescent buttons would be ideal during night moves to forward positions.) Markings should not be so large or prominent that enemy fire would be attracted. They should indicate battalion, company, platoon, and platoon command tanks. This would simplify keeping a unit together.

Geometric figures, such as squares, rectangles, triangles, diamonds, circles, checkerboard, alternate stripes of contrasting colors and combinations of these with letters or numbers, give a degree of secrecy and also of distinction not provided by numerical or lettered markings alone. Colors other than white are preferable. White makes an excellent target against a dark background. For identification markings all that is needed is a color sufficiently contrasting against a background color for it to be seen by friendly tank personnel, say two or three hundred yards away.

This same sort of identification marking is needed on trucks, reconnaissance cars, and command cars. But there more prominent than on tanks. The color of the arm as background facilitates identification. The rear end of vehicles or the big bumpers on trucks is a good place for unit markings; also the front bumper or fenders. Traffic personnel, guides on routes, liaison officers, convoy commanders, and quartering parties responsible for directing vehicles into bivouacs and assembly areas—they are the ones who are especially interested in unit identifications. The present system of marking is of little help to these people when it comes to spotting units as they approach or pass at twenty-five to forty-five miles an hour.

At the Plattsburg maneuvers in 1939, what first was taken to be enemy detrucking a couple of miles from an OP, turned out to be friendly infantry when the trucks were examined closely through field glasses. The unit was identified by the special large markings on the rear ends of its transport.

Confucius might say there should be a scheme for motors to signal with lights to friendly aircraft—for example, when a night motor move is taking place and is under friendly air surveillance. Flashlights could be used for this. The pilot of a plane might gun his motor or flash lights in Morse code, asking "Who are you?" The column commanders would reply with a flashlight.

One more thought—the use of signals and the orders prescribing them. It should be standing operating procedure for tanks to flash their recognition signal frequently whenever they are moving to the rear. The signal to be used should be changed periodically, instructions appearing in field orders under paragraph 3 *x*. The sub-sub-paragraph might be headed "Recognition signals for friendly tanks."

The challenge and reply should be the same for both tanks and antitanks, so that only one set of signals would be needed during a given period. The order might prescribe International Morse signals, for example:

Period	Challenge Signal	Reply Signal
1st Phase of attack . . .	Q (green)	U (red)
2d Phase of attack . . .	S (green)	AM (red)
3d Phase of attack . . .	W (red)	AK (green)

The same code letters would remain in force for signals by siren whenever fog or smoke made visual signals impracticable. Friendly tanks moving to the rear should probably announce themselves both by lamp and siren signals.

Secrecy requires that recognition signals be changed frequently. However, identification markings may well remain more or less permanent. Therefore markings on tanks need not and should not appear in orders that might fall into enemy hands. Rather should they be communicated to interested units before combat and be memorized by them. Emergency rocket signals, on the other hand, ought to be changed from time to time and should be prescribed in orders.

Speaking of orders brings up the matter of including information of friendly tank operations and probable enemy mechanized movements in field orders, with numbers, routes, objectives and rallying points divulged in the paragraph covering our own tank action.

These, then, are the preventives offered against bouncing bullets off our own iron buggies: *Training in recognition; use of silhouette and photograph charts; prescribed and periodically changed recognition signals, habitually used whenever tanks move to the rear; semi-permanent identification markings; information in orders about our tank operations and routes.*

Only a general idea of what might be done has been indicated. The details will have to be worked out by tankers, ordnance, and signal people.

Up to now nothing has been done. In the last war, lots of remedies came after it was too late. Let's do something to remedy this matter beforehand. At the present time we are correcting deficiencies in our military armament and organization, and in our operating procedure. The present deficiency in means for recognizing and identifying combat vehicles must also be corrected.

Once we equip combat vehicles with signals for recognition and markings for identification, we shall enable the personnel who are vitally concerned to penetrate some of the fog of war and to determine, before it is too late, *who is who*.

# The Invisible Weapon.....



By

**Captain John V. Grombach, Infantry, NGUS**

World War No. 2 and the year 1940 have wrought fundamental and unforeseen changes in warfare. Neutral, non-belligerent, and warring powers have found themselves faced with a hundred new problems—air power, motorized and mechanized units, new tactics, parachutists, and by no means least, the Fifth Column. In all this change, communication remains vital to the participant in war. And propaganda and the protection of military secrets are vital both to participants and to nations near the brink of involvement. Thus a mighty power in the struggle for world dominion by nations, forms of government, and ideals, is radio.

International radio is just now beginning to be evaluated adequately as the powerful though invisible weapon it is. Just as dominance in the air by plane may be the key to victory on land and sea, so the use of the ether waves may be the most potent means for mastery of the minds and hearts of men, without which no nation or ideal can survive.

Let us imagine, if we can, the invisible and increasing world-wide host of lightning messengers impressed on carrier waves. A magic which in effect has banished time and space throughout the entire globe. In a minute fraction of a second a mere whisper is audible from the Antipodes to the Arctic and from Cathay to the Caribbean, to one hundred million radio receivers, each capable of listening in to hundreds of messages. There is one radio

receiver for every twenty inhabitants, almost sixty million, in the Western Hemisphere alone. The air around our world seethes with long and short waves radiating to those hundred million receivers from more than fifty thousand transmitters of commercial, government, military and naval stations, and from those of over one hundred thousand efficient and indefatigable amateurs. From any point in the world, hundreds of powerful short-wave transmitters are easily contacted, relaying messages from the most remote points of all continents and from seventy-eight different countries. Such, briefly, is the most potentially powerful agency for many purposes that the world has ever known.

While the present airplane, tank, and automatic weapon have changed conditions of combat, radio broadcasting has completely revolutionized the problems of the intelligence sections of the services. For example, before and during the present war, Englishmen and Frenchmen have cleverly sold, in impeccable English and French, Nazi and Fascist ideals and beliefs over the air. Every day, the strongest effort has been made to discourage the English and French civilian public on war. In France, radio propaganda was used to create suspicion and break down confidence in the English alliance. Moreover, before the war and since, a steady stream of information has been sent secretly, quickly, and effectively by the German espionage system by way of the radio. The perfect coördina-

tion of troops with aviation, fifth columnists, and parachutists, particularly in Poland, Norway, and Holland, was accomplished largely through radio broadcasting. Also, the German submarine that threaded its way through the safeguards, mines, patrols, nets, and booms of Scapa Flow on October 14, 1939, and sank the British battleship *Royal Oak*, was undoubtedly guided by some seemingly innocent radio broadcast in England or Holland, perhaps even a band concert or a dramatic presentation.

Just as the ancient counterpart of the tank, the elephant, was employed by the Persians centuries ago, codes and ciphers have been used as long as there has been war. In fact, recorded history tells us that a cryptogram to Lysander of Sparta saved a general, an army, and the empire later to be enlarged by Alexander the Great. At the same time, all authorities from Julius Cæsar, one of the first cryptographers, to the Black Chamber of the last World War, all agree that there is really no secret writing code or cipher created by man that cannot be broken by man. But as Francis Bacon, Lord Verulam, himself one of the world's greatest cryptologists, said in his *Advancement of Learning*: "The only truly secret system of writing conceals the existence of a secret." Little did Bacon know of the day when the secret would be even better concealed by not even being written. Seconds may now send a crucial cryptogram hurtling thousands of miles through space, whose secret meaning and presence is known only to sender and receiver. And an instant after it is delivered there is not one shred of evidence, nor even a record of any kind by which the message can be deciphered into the "clear." Such is the blitzkrieg in the cryptographic battle of radio in World War No. 2.

A practical illustration will be far more effective, perhaps, than dissertations in history and literature. Not long ago, a former world's heavyweight boxing champion, in an interview on a major network of thirty-nine United States stations, capable of being picked up over thousands of miles, broadcast a message in the most simple jargon code, so simple that any amateur cryptographer or alert listener should have made it out. The broadcast had a potential audience of twenty-eight million radio homes in the United States alone. Evidently not a single listener caught the message because not a single listener was expecting it. The message was: "S 112—SS. *Queen Elizabeth* sails tonight with hundreds of airplanes for Halifax, N.B." Neither the sponsor, the network, the world's champion, or the sports commentator interviewing the champion knew anything about the message. This particular message, of course, was only sent out as an experiment to see whether anyone would pick it up from the air waves. But if such a message can be sent, with millions listening in, is it safe to assume that there have not been far more important uses made of this agency here in America.

If radio could be used with such devastating effect in Europe, it can be used here with even more telling effect. In America, because of our commercial radio system, our

programs are the best in the world. Single radio performances of many of our network programs would be events of outstanding importance in other countries. As a result, we have by far the greatest radio-listening audience in the world, and in no country can more people be reached by radio than here. Also, in no country is there any greater freedom and tolerance. All these facts, it seems most evident, constitute a new and serious military problem.

There are some 813 commercial (long-wave) broadcasting stations in the United States, over six hundred more than in all Europe combined, and in addition, all of ours are privately owned. Then there are thirteen short-wave stations, twenty-one television stations, and sixteen facsimile stations. There are over fifty-three million radio receiving sets, including eight million automobile sets, in the United States, and a potential audience of over one hundred million. The problem of planning the control of radio by the War Department to cover both prewar and wartime necessities is staggering. All stations should be carefully guarded or controlled:

(1) Against cryptic broadcasting, which either relays military information by enemy espionage agents, or coordinates fifth column activities, this in addition to providing ordinary censorship of news that might be of value to the enemy.

(2) For the broadcasting of propaganda and information to combat the enemy's short-wave propaganda which would be intensified in case of war (there are many foreign short-wave broadcasting stations easily picked up here); also propaganda to serve as a deterrent against fifth-column activity.

(3) For the proper kind of recreation and morale-building entertainment, which would require minimum attention from the War Department, since this is a radio station's ordinary service in peacetime.

(4) In order to minimize or neutralize the effects of possible physical seizure by enemy armed forces or the fifth column.

According to report from excellent authority, though so far unconfirmed, the break-through at Sedan on May 14, 1940, which caused the separation of the Belgian and English forces and the French Army of the North from the main French Army and resulted in the encirclement and destruction of the northern units and the final crushing of France, was a German victory in the radio war of cryptography. Over one of the government-owned and -operated stations, spies or traitors concealed messages in code appraising the Germans of the thinly held line at the elbow between the Maginot and Little Maginot Line, and of the temporary gap between the armies moving rapidly into Belgium and the few divisions under General Corap holding the northern end of the Maginot Line. If this report is true, it shows that government-owned stations are as liable to subversive use as stations privately owned. It also proves that the Battle of France was lost in large part by radio.

This is doubly strange when one considers the fatalistic parallel this war has with World War No. 1. In World

War No. 1, the turning point was the Battle of the Marne. It was won by radio. In 1914, however, there was little radiotelephony, but much radiotelegraphy. The air was filled by radio traffic with many jammed wave lengths. French, British, Belgian, and German communications transformed the German offensive into a mess of faulty coöperation. On September 2, 1914, von Kluck was ordered to close up on von Bülow to his left and push the French away from Paris. He never received this message, but the French did. He radioed that he was following his original orders to swing southwest to Paris. This message was also intercepted by the French, but never received by the German GHQ. The French cryptographers laid the deciphered messages side by side before Joffre, and from them developed the Battle of the Marne, won by radio and cryptography.

However, ordinary military radio telephonic or telegraphic messages, their interception, and the cryptography relating to them, do not constitute, strictly speaking, a new problem. Although perhaps more complex now than it was before, and more exacting, particularly with respect to time, this is a fairly established military problem handled by the Signal Corps. According to the latest booklet on our armed forces, *The Army of the United States*, the Signal Corps is charged with intercepting enemy radio messages and locating enemy (military) radio stations by radio goniometry.

The new military problem which is the subject of this article is more in the province of the Military Intelligence Division (G-2) which has duties "that relate to collecting, studying, analyzing, and furnishing all kinds of military information," which "supervises any army activities dealing with military surveys, maps and photographs, codes and ciphers, and translations," and which "also directs a Press Relations branch which prepares and issues War Department press releases and handles other matters concerning relations with the press and with the public at large." To these extensive duties must be added the new military problem of radio propaganda and counter-propaganda, fifth column and counter-fifth column radio activities, and the audio-aspects as against the transmitter aspects of radio from the creation and production of radio entertainment to preventing fifth column or espionage secret communications by way of radio.

The problem does not always stop at any given line nor is it any too well-defined. Here, for instance, is an actual case: One of the most powerful short-wave stations in Europe, heard all over the world, often emitted either before or after a scheduled evening broadcast a buzzing signal resembling static, so fast in vibration it would not be recognized as consisting of separate noises. However, that was not the answer. The noise was actually a message concealed not only in code or cipher, but by speed of transmission, and intended for their nationals in a country six thousand miles away. First the message had been recorded, and then the record was broadcast as played at perhaps ten times the normal velocity. The key to its

reception and solution lay, of course, in reversing the operation.

Returning again to the four points of control which together represent the new military problem of radio, we can label them:

- (1) Espionage and fifth-column cryptography and censorship;
- (2) Propaganda and counter-propaganda;
- (3) Recreation, entertainment, and morale-building;
- (4) Neutralization of physical seizure of stations by enemy or fifth column.

These form a staggering new assignment for the Intelligence Division of our service. And on the basis of European experience, they offer as vital and as difficult a problem as any encountered in the warfare of 1940.

With regard to espionage and fifth-column cryptography and censorship, it will be well to explain and describe in detail how a message can be inserted in a commercial radio program broadcast. It should be clear that if by the adaptation of a well-known system a cryptogram can easily and secretly be transmitted through audio means and doubly concealed in the music, sound effects, and dramatic dialogue of the program, superior cryptographers would have no trouble doing a far better and more original job for espionage purposes or for the organization and control of a fifth column.

While many different methods can be used to conceal a cipher or code message in a radio program, including simple jargon, the most obvious cipher is the radio equivalent of the grille or "cardan" method, in which the sender writes his "clear" through the holes of the grille, the letters following the order of the numbered grilles, and then fills up the vacant spaces with innocent letters to make a message. In radio, actual words in most cases could be used as letters, and the grille replaced by key numbers, all based on the order of words in the program from its beginning, or from some key word. Here the difficulty of even suspecting, much less deciphering without both a recording and stenographic transcript of the broadcast, is to be noted. This is what makes sending and receiving cryptographic messages by radio easier than their discovery or prevention.

A reverse of the Gronsfeld cipher especially adapted for radio can also be effectively used. In the Gronsfeld, there is a set of key numbers in a series that can be easily memorized. These numbers are written down over the "clear" and repeated as often as necessary. Each letter of the "clear" is then represented in the written message by a letter which is the number of letters further in the alphabet called for by the key number over it. In the radio adaptation, a key word would be written down over the "clear" and repeated as often as necessary. Each letter of the "clear" can then be represented by a number equivalent to the number of letters in the alphabet separating the letter of the "clear" from the corresponding letter of the key word. In the radio program, words with the number of letters equivalent to those numbers could be designated at indicated spots or key breaks.



tive Frenchmen or Germans speaking perfect French. In England, the propaganda took a different tack, and from September to May millions of English and French soldiers listened to Lord Haw Haw and Paul Ferdonnet prove that they were fighting for nothing.

How efficient this invisible weapon can be is evidenced by "The Link," an English fifth column of English Fascists meeting regularly in London. It can be positively stated that this organization owes more to radio than to any other single factor. When Fascist Sir Oswald Mosley visited Paris as a member of the British fencing team at the world's championship a number of years ago, he was wine and dined by the radio executives of the government radio agencies of France, Italy, Belgium, Holland, Germany, and, strangely enough, Denmark, and also by the owners of several of the few commercial stations on the Continent.

The importance of the radio weapon is still paramount in the most militarily efficient country in the world. On June 27th, the German advance guard arrived at the Spanish-French border. The first German unit to reach the border consisted of twenty specialists of the radio-propaganda section travelling in radio-equipped trucks. They stated to correspondents that they broadcast many times a day both from their trucks and from radio stations taken over in their advance.

Yes, mastery of the sea may be vital to England, mastery of the air may win the present war for Germany, but mastery of the minds and hearts of men must be gained today to wage war successfully, and that mastery can only be attained in full by radio.

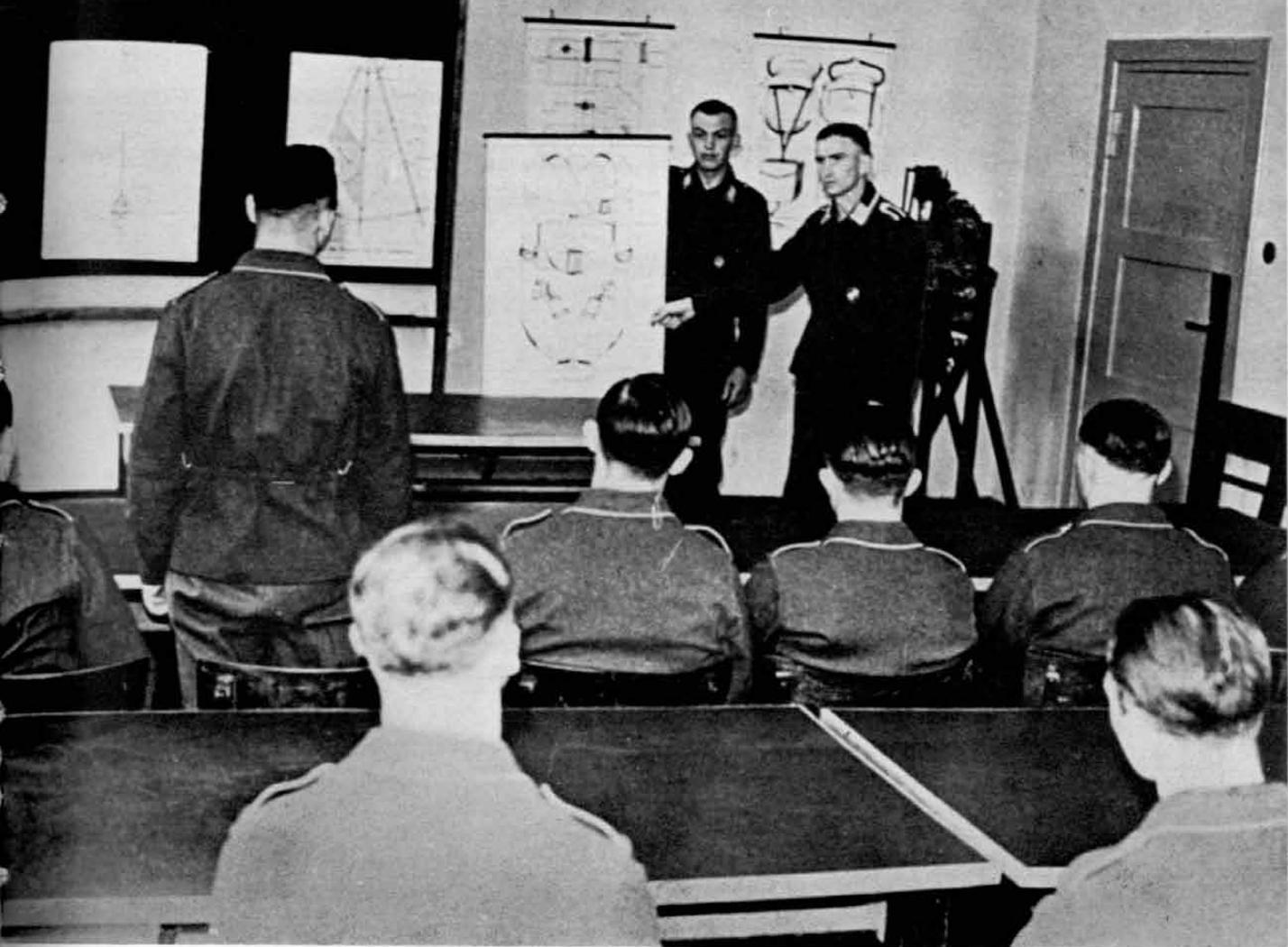
The actual recreation, entertainment, and morale-building qualities of radio are almost as important as the propaganda and counter-propaganda which are in most cases carried within the talks and shows broadcast. If radio is a "weapon" then we can carry the comparison further and call the entertainment the "propellant" by which it reaches the ears of millions, and propaganda the "disruptive" that either explodes theories and ideals, and leaves a horrible débris of apprehension and confusion, or crystallizes the understanding and gives men the urge to fight on.

The actual physical seizure of radio stations is our least important topic because it can only come at a stage in war at which radio will already have done its worst. Only upon invasion or revolution will the armed forces or the civil agencies of law and order be so helpless as to permit the seizure of radio stations by the enemy or by the fifth column. Yet plans should nevertheless be formulated to neutralize the effect of such a seizure in part of a nation just as plans are made for every other military eventuality.

In a visit to England just before the war, it was my very good fortune to discuss World War No. 2 with my friend, the late Sir Basil Thomson, who was head of Scotland Yard for eleven years and head of the British secret service in World War No. 1. His last remark to me was, "Remember that in the next war, radio will be the secret as well as the invisible weapon one always wonders about when a new war comes along." I now know he was right, and I hope that this article may at least serve to prevent its readers from underrating the problems created by this new weapon.







# AIR INFANTRY TRAINING

The picture at the top of the opposite page shows a typical section from a *Fallschirmjäger* (Parachute Chasseur) regiment. These young men are single, between the ages of seventeen and twenty-three, and in the pink of physical condition. In fact, athletic prowess demonstrated in civil life gives an applicant a preferred status. Recruits are required to be above the average mentally, and in addition to the routine physical examination they are subjected to extensive psychological tests to determine their ability to translate a speedy estimate of the situation into instant action.

Initially the German air soldier gets the four-month basic training that is the lot of every infantryman. But in addition to learning the how-and-why of the ordinary

infantry weapons he gets special training in map reading and the use of explosives and demolitions. After he has learned the basic business of an infantryman he gets an eight-week course of highly specialized training that has as its object the placing of a fighting man in action at a critical point.

In classrooms (*above*) he learns the fundamentals of parachute construction and the intricate business of parachute folding (*bottom picture, opposite page*). He packs his own chute—as a precaution against careless packing and to inspire confidence in his equipment. He also learns how to pack the chutes of various sizes that carry machine guns, grenades, rifles, ammunition, and various other impedimenta and tools. Portable radio sets and folding



bicycles are also among the equipment he learns to handle.

Like a cat, the skilled parachute jumper always lands on his feet. So, indoors and out, he gets a daily stint of tumbling and acrobatics. The group of young men in the picture on the opposite page are practising "free" rolling and somersaults on an airfield.

Later on in their course of training these soldiers go through their acrobatics while fastened to chutes on the ground in the blast of a motor-produced wind. This makes them expert in rising against the tug of the parachute. As he gains his feet, the soldier runs inward toward the parachute at such an angle as will readily enable him to grasp the twenty-eight rigging cords to collapse the chute.

Suspension exercises (*pictures above and left*) are for the purpose of accustoming the soldier to the rolling swing of an air descent and to teach him the best possible landing position.

In the upper picture the instructor is cautioning the soldier to place his arms across his face to guard against abrasions or cuts from obstacles on the ground.

The establishment of the German Army Parachute School at Stendal some three years ago is an outgrowth of an experiment conducted the year before with 160 men and three officers from the *Regiment General Göring*. Prior to the outbreak of the war enrollment in this school was said to be voluntary. Indeed, enlistment was restricted to men who had had no prior military service, although



they were required to have completed their tour in the Labor Corps. It is believed that hundreds of men took the course at the school and that the best of these became instructors for the larger increments that must have been trained before the attack on the Low Countries.

While naturally enough interest centers on the more spectacular phases of operations that call for the dropping of thousands of troops, it must be realized that the Germans prefer to land the troop-laden planes without the use of the parachute. Descending parachute soldiers are more than excellent targets by day, and by night there is the not inconsiderable disadvantage of trying to collect scattered men over terrain that is strange.

So if it is at all possible to land the planes this procedure is followed. But if suitable fields are not available then the risk must be taken and the men are dropped. In some instances it has proved feasible to drop covering forces who have seized airfields and prepared them for the landing of transport planes.

The standard transport plane in use so far has been the Junkers JU-52, a mass production job. This plane carries twelve soldiers with their equipment.

During the large-scale air troop movements that took place during the battle for Norway and later for the Low Countries one may safely hazard the guess that the majority of the troops were not trained parachute infantry. More likely than not they were the run-of-the-mine foot soldiers who were fastened into a parachute and given a three-minute lecture that wound up with "count ten before you yank the ripcord in case you have to jump."

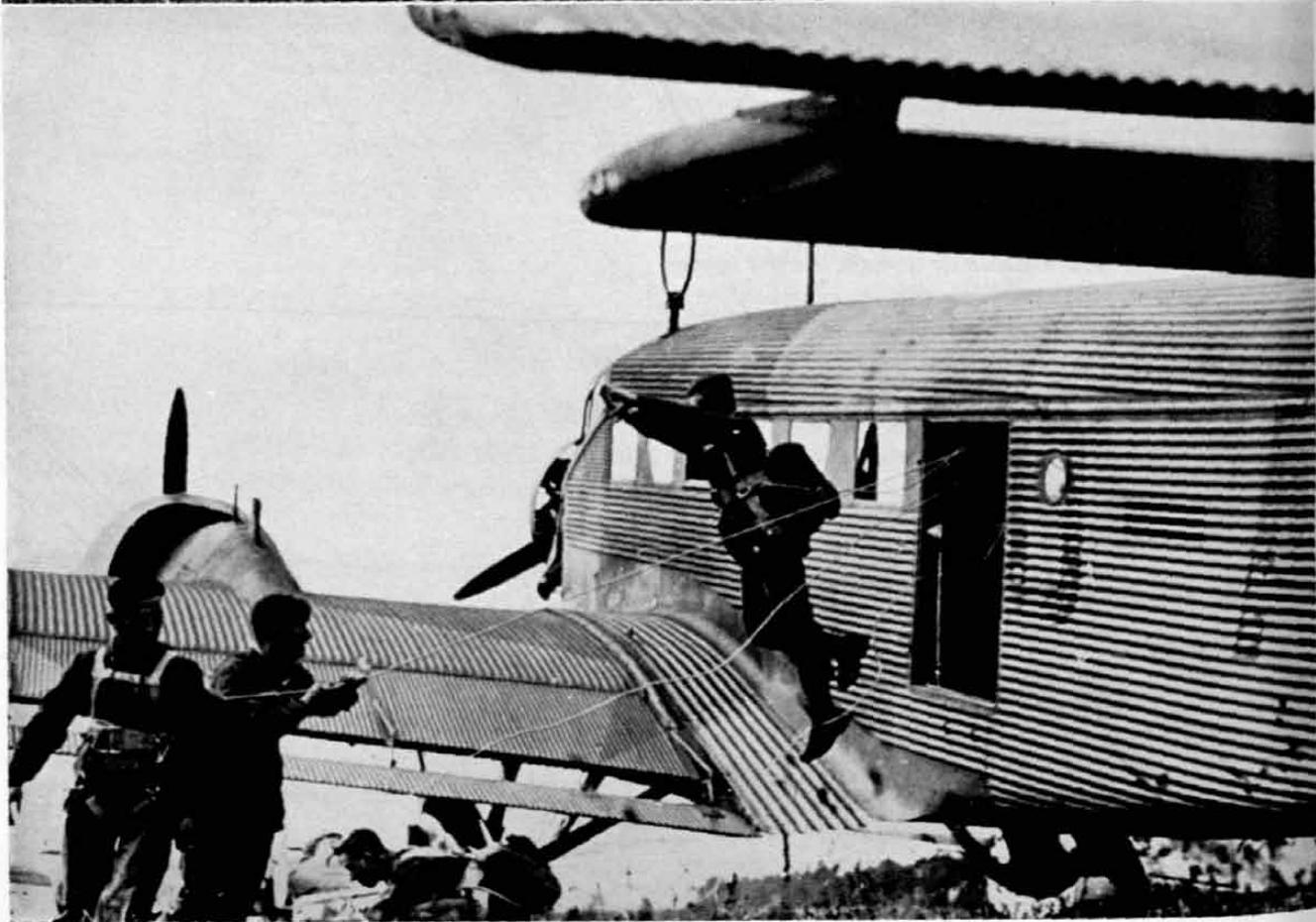


The German parachute jumping recruit does his first jumping from a platform and from the door of a grounded plane. The soldier stands stooped in the doorway, spreads both legs apart, and with both hands grasps the bars on each side of the door. The form displayed in the ensuing leap is inelegantly but graphically termed "tailbuster" at the old country swimming hole.

In the lower picture on this page you will note that one man has already completed his jump, one is on the ground, and the third is emerging from the plane. The trailing ropes are those which open the chute when the actual descent is made.

After his work on the ground and in the classroom is finished, the recruit goes aloft to witness advanced students and instructors jumping from planes in flight. After a series of flights he is now ready for his first jump.

A jumping master, of whom more later, gives the command to leap after first fastening the soldier's ripcord to a bar at the door. This makes it unnecessary for the man to release his own chute.





The jumping master is charged with the responsibility of judging the speed of the plane in relation to the prevailing wind, the condition of the terrain, and the tactical situation. When he decides that the moment is propitious he slaps the air trooper on the back and commands "Jump!" The jumping master does no jumping himself; he remains with the plane.

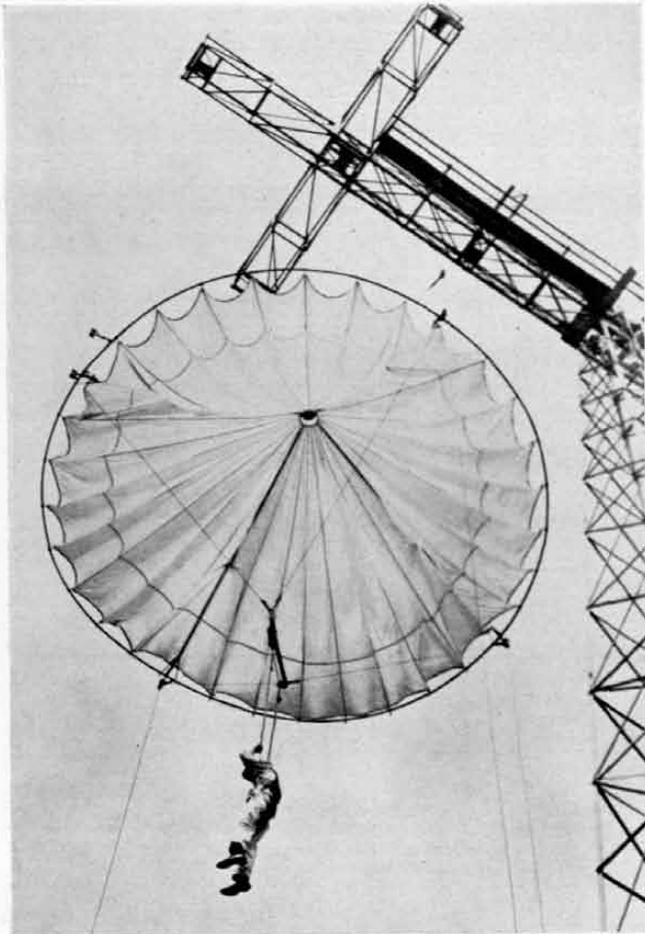
Upon the completion of six successful jumps (one of which must be at night or at dusk) the soldier is graduated from the school with the rating of "parachute jumper." He now joins a Parachute Chasseur regiment and engages in further training.

#### LARGE TROOP-CARRYING PLANES

To carry the idea of the vertical envelopment to its logical conclusion calls for the design and construction of a large-type helicopter plane, say one that would carry a useful load of 10,000 pounds—fifty men and their equipment. This is a problem that a large-scale airplane industry should have no trouble in solving.

A fleet of several hundred of such troop-carrying planes might in very short order deposit behind enemy lines a force large enough to have a decisive effect.

Moreover, no specially prepared landing fields would be needed and the attack could be made at night.



Devices to aid in training parachute jumpers have been in operation in this country for a number of years. At Hightstown, New Jersey, Commander J. H. Strong, U. S. Navy (Retired), has constructed a pair of training towers and has also developed a training course for military parachute jumpers. Commander Strong describes his towers and method of training at some length in *U. S. Air Services* for March, 1940. The following account is based on his article.

The Strong system of training is divided into four phases of progressive work.

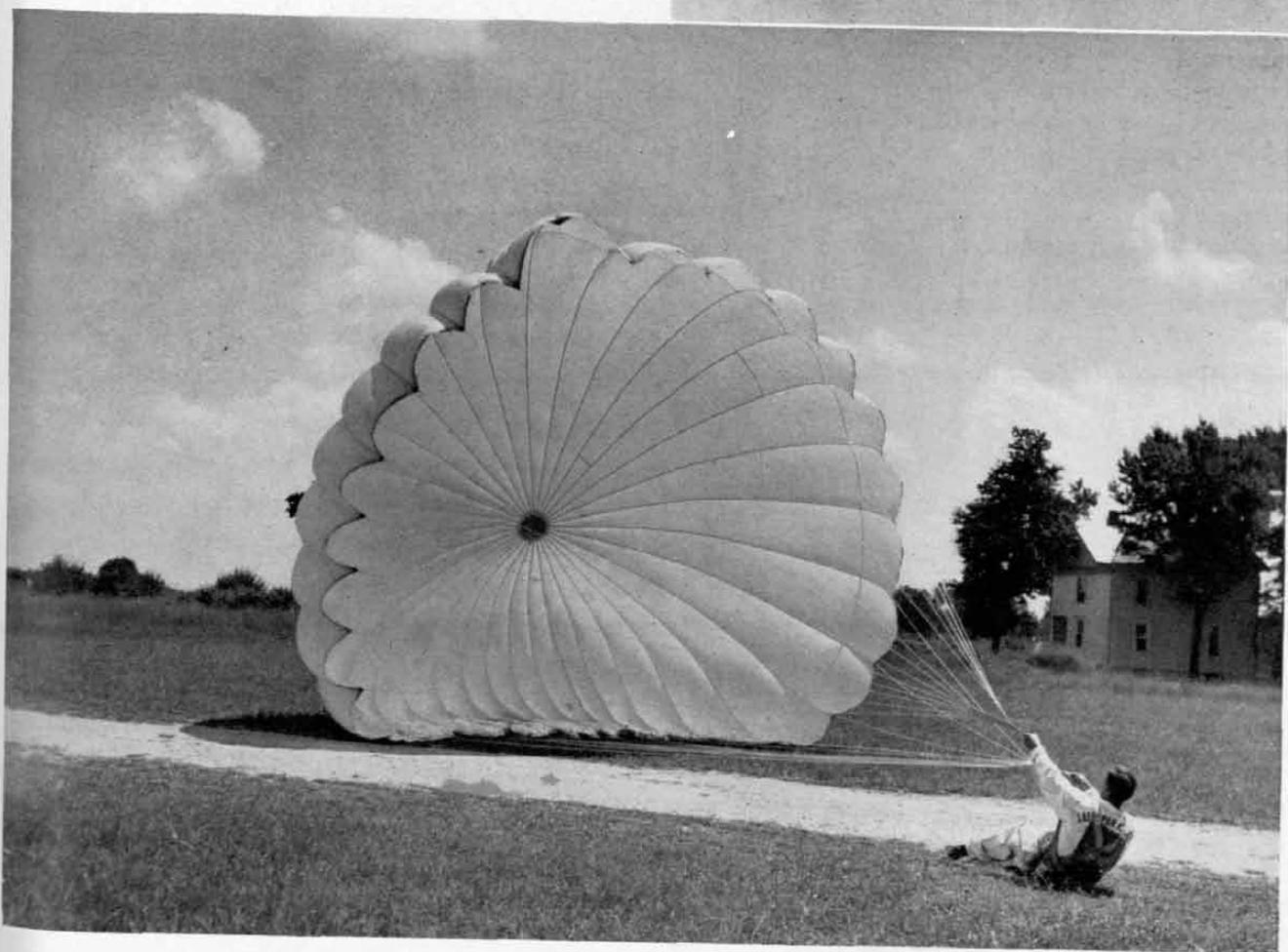
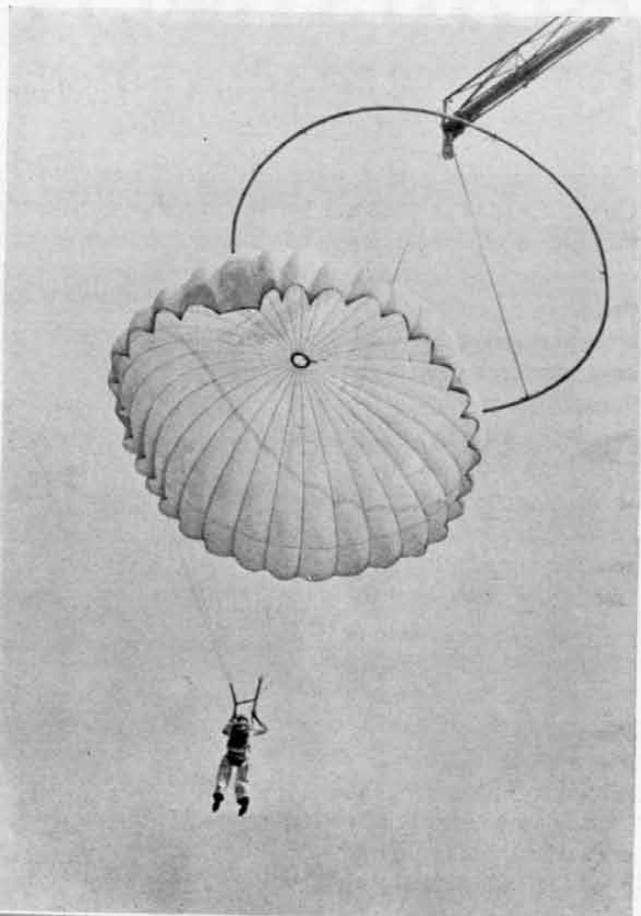
The first phase is designed to remove every vestige of fear and uncertainty and consists mainly of rides in a "captive drop with seat." This is essentially what you get in the thrill parachute ride at the New York World's Fair. Incidentally, nearly 500,000 men, women, and children have been carried safely in one of these devices that has been operated at a Chicago amusement park during the past four years.

The second phase of the course consists of a "captive drop with harness." Now the seat has been replaced by the regular chute harness which permits the student to land on his feet. At the same time, however, the drop is controlled so that there is no parachute drift. The student is taught to relax and cushion his landing with his feet. After acquiring confidence with this experience the student is ready for the third stage of the training.

The third phase is called the "free drop with opened chute." This training stage employs a tower that has a rotating beam at the top which is trimmed down-wind during operation. Secure in his harness at the top of the tower, the student detaches himself from the hoisting hook and drifts down-wind for a normal landing. During this stage of the training he learns the various steps involved in descent, landing, and handling the parachute on the ground. From the ground an instructor notes and corrects errors.

The fourth and final phase is the "captive drop with a packed parachute." The student now takes practical instruction in dropping and pulling the ripcord to open the chute after he has dropped far enough to clear obstacles.

The pictures on this and the facing page show the various training stages. The captive drop is shown in the upper picture on the opposite page; in the lower picture you see a landing from a captive drop. The upper right picture on this page shows a student in position near the top of the mast during a free drop. In the lower picture a student is collapsing his parachute after reaching the ground.



# ADJUSTMENT OF AA FIRE

By Captain A. H. Bender, Coast Artillery Corps

Several articles have appeared in recent issues of The COAST ARTILLERY JOURNAL advocating that antiaircraft gun fire be adjusted in range by correcting in fuze instead of in altitude. The reason given for this departure from the accepted technique is that an altitude correction upsets the rates in the M4 Director, this in turn causing an erroneous prediction and consequently erratic data at the guns.

It is true that an altitude correction will cause erroneous rates for a short period of time in the director. However, if the range rate setter pushes in the "red button" at the instant that he has to resort to the range rate handwheel to rematch the angular height dials, holds the button in for five full seconds after the dials are matched, and during the time the button is in he continues to keep the dials matched with the range rate knob, the erroneous prediction will be held to a very small difference from the true prediction. But this cycle of events just described calls for thorough training on the part of the range rate operator.

The argument advanced in favor of a fuze correction to make a range adjustment is that a fuze correction changes only data that is being sent directly to the guns and does not upset the rates or prediction. This argument is absolutely correct, but this is not the whole story. The question is how to determine the proper fuze correction to apply at a moving target to take care of a range deviation as reported from the flank spotting station and what effect a fuze correction will have on the fire of the battery.

Let us examine what a correction in fuze will do to a burst. It will move the burst along the trajectory or a path parallel to it. (Figure 1.) The first question that

must be answered is what is the amount of  $dF$  or the correction in fuze. Of course for a particular spot in the sky such as a trial shot point the question is easily answered. But under service conditions where the target may be at any point within the range of the battery, the relationship between  $\Delta D$  and  $dF$  is constantly changing and it would be extremely difficult, if not impossible, to construct any fire adjustment chart or rule that would solve this constantly changing relationship. If the range adjustment is made by an altitude correction the proper amount may be determined by means of the Flank Spotting Rule, M1, as the relationship between the observed deviation and the altitude correction can be solved by ordinary trigonometry.

However, the above objection to the method of fuze correction is not the most serious one. Assume that the proper amount of fuze correction could be determined, and that a burst occurs as shown in Figure 2, that is on the line of position. In this case the fuze correction or  $dF$  would move the burst to B and a large down vertical correction would be needed to move the burst to the target. As angle X, the angle between the line of position and the trajectory is constantly changing and as the amount of the vertical correction is also dependent on the amount of the fuze correction applied, it will be extremely difficult, to say the least, to determine the proper vertical correction. In the situation as shown in Figure 1 the vertical adjuster would see the burst below the line of position and apply an up vertical correction. But actually a down vertical correction would be necessary had a fuze adjustment been made, to move the burst to the target, as an examination of Figure 1 will show.

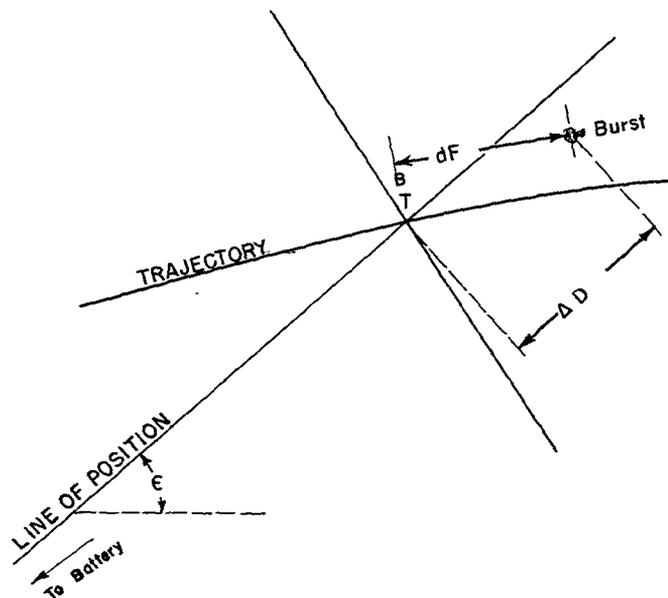


Figure 1.

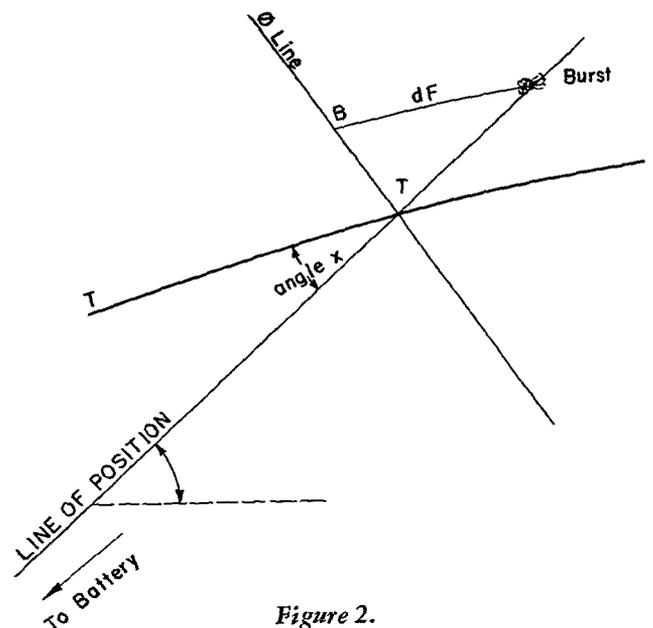


Figure 2.

# Mighty Man of Kittery

By Major Charles Winslow Elliott, U.S.A., Retired

When Thomas Wentworth, Earl of Strafford, and his Right Reverend colleague the Bishop of Bristol, Queen Anne's plenipotentiaries at Utrecht in 1713, completed their labors and signed the treaty that rang down the curtain on the bloody War of the Spanish Succession, they must have felt gratified at Britain's success in despoiling the Grand Monarque of priceless possessions in the New World. On Hudson's Bay, and in Newfoundland and Nova Scotia, the white standard with the golden lilies came down; St. George's cross on its blood-red field went up. British rule in North America crept northward to the mouth of the St. Lawrence, and in New England the fishermen and shipping folk rejoiced in a new freedom on the North Atlantic.

The Treaty of Utrecht left to France but one remaining outpost close to the Grand Banks. The island of Cape Breton, "the long wharf of Canada," 3,000 square miles of territory north of Nova Scotia, seems to have been overlooked by the British map-changers. Down to it from ceded Newfoundland, and up from ravished Acadia, came swarms of refugee Frenchmen. At Havre à l'Anglois, a tiny settlement on a projecting tongue of land near Gabarus Bay, they built a town and named it Louisbourg in honor of the King who had delivered their homelands to the heretic English. By 1720 the statesmen at Versailles realized fully the importance of retaining and protecting this last ocean outguard of New France. Engineers and artisans, trained in the school of the great Vauban, came over the Atlantic to fortify Louisbourg, that Isle Royale might never fall into the hands of the hereditary enemy or their North American



*Sir William Pepperrell*

*A Hemisphere Defense Campaign of 200 Years Ago*

colonists. For twenty years the work progressed, swallowing so many millions of livres that the King petulantly inquired whether the streets of the city were being paved with gold.

Louisburg (as the English and Americans spelled the name) was, by 1744, two miles in circumference, surrounded by a solid rampart of fitted masonry more than thirty feet high, forty feet thick at the base, with powerful bastions, a ditch eighty feet wide, garnished with 100 cannon, seventy-six swivels, and six mortars. All the genius of Vauban was reflected in the setting and construction of the defenses. On a rocky islet athwart the entrance of the harbor was a stone fort with a battery of thirty guns, and at the bottom of the harbor, facing the entrance, the so-called Grand Battery of thirty more, moated and bastioned. Crowning the bluff across the narrow channel from the Island Battery was a lighthouse, and near the shores of the northeast end of the inner bay, storehouses for naval and military supplies. The main entrance to the town itself, known as the West Gate, was guarded by a circular Battery mounting thirteen 24-pounders. In theory, Louisburg was impregnable. To French ships homeward bound from Quebec or the West Indies it afforded a safe refuge in peace or war; to French privateers or naval vessels, a convenient base from which to sally forth against the American fishing fleets on the Banks, the unguarded coasts of New England, or the English merchantmen plying between the colonies and the mother country. From Maine to Philadelphia, Louisburg was balefully regarded as a loaded pistol aimed at the heart of British America. For twenty years New England looked uneasily over her

shoulder as the pupils of Vauban raised higher the great walls that were to shelter the sleek privateers in this Dunkerque of America.

War, long foreseen, broke out between England and France in March, 1744; the War of the Austrian Succession. Or, as the Americans, knowing little and caring less about the claimants to the imperial throne, called it, King George's War. A swift French vessel brought the news to Louisburg before it was known in Boston. M. Duquesnel, military governor of the fortress, acted with promptness. He initiated a brisk little *Blitzkrieg* of his own, sending a Captain Duvivier with some six or eight hundred men to surprise and seize the English settlement at Canseau (Canso) on the Gut or straits between Cape Breton and Nova Scotia. The captain surprised the unsuspecting garrison consisting of about eighty militia, destroyed the fishing station and its feeble stockade, and carried off his prisoners to Louisburg. First blood for *le Roi Soleil*. Boston seethed with alarm and indignation. The fishing fleets hugged the wharves. Word came in that the French privateers were swarming; twenty-five Boston vessels were taken before the end of the year.

The Governor of Massachusetts, William Shirley, was, fortunately, no loiterer when the times called for action. Able, hopeful, and a hustler, he was hounded incessantly by an avid hunger for distinction, military for choice. Although he knew nothing of the operations of war, practical or theoretical, there appeared to him no good reason why a smart lawyer like himself should not contrive warlike stratagems, devise schemes for reducing fortifications, and plan campaigns for discomfiting the enemy, with all the facility of an experienced veteran. Already he had written to the home government that Louisburg ought to be the object of British military attention, lest Nova Scotia—and thereafter the coasts of Massachusetts—be certainly ravaged by the French. One William Vaughn, a restless and fiery young fishing magnate of Damariscotta, came to Shirley and proposed to him an astounding enterprise. Nothing less than the invasion of Cape Breton and the capture of the great fortress by an expedition from Boston—the soldiers and sailors involved to be American volunteers, the generals colonial militia officers, the fleet armed merchant ships now lying idle in the ports from the Kennebec to Long Island Sound!

Shirley's first reaction was favorable. His fertile imagination took fire at the magnificent conception. Vaughn told him that in winter the snowdrifts at Louisburg were piled so high that they filled the great ditch to the very top of the wall. All an attacking force needed to do was to arrive just after a good blizzard and snow-shoe to the muzzles of the guns on the ramparts! The Governor thought that it might be somewhat less simple than that, but he was airily confident that he could work out a plan equally promising.

It was essential, first of all, to obtain the consent and assistance of his legislature, the General Court of Massachusetts Bay. Solemnly he notified the members that he had an official communication to impart to them, of so

urgent and critical an import that before he could deliver it he must ask of them an oath of secrecy. This was legislative procedure without precedent, but the Governor stood high in the regard of his assembly and the oath was readily taken. Behind locked doors he startled the grave gentlemen of the Court by proposing to them that the colonies, led by Massachusetts, raise a military-naval force, ship it to Cape Breton, and proceed with the reduction of the Gibraltar of America.

But there were no regular troops, no experienced officers or engineers, no frigates or line-of-battle ships, and, worst of all, no money. The Province was, in fact, definitely in the red. Everyone agreed that Louisburg ought to be taken, but to attempt the task without the consent, approval, financial aid, and military coöperation of the royal government in London, was a suggestion that took their collective breath away. A committee of both houses went into a solemn huddle, reporting after two days' consideration that the scheme was impracticable.

Despite the oath, the secret quickly got out. One pious old member from the back country had retired to his lodgings and prayed in stentorian tones for divine guidance as to his vote. He neglected to close the transom over his door, and other boarders who overheard his devotions were not slow to spread the news that the incredible enterprise was being considered by the legislature. For a few days the Province hummed with excited discussion. Public sentiment so far favored the plan that Shirley was encouraged again to tackle the General Court. He caused to be circulated a petition for re-consideration. The merchants and shipowners of Boston, Salem, and other coast towns, whose profits the French privateers were fast swallowing, signed up by the score. The assembly reconsidered, a vote was taken, and by a majority of one, the Governor's egregious scheme was approved.

Once they had determined to carry on, the excited colonials threw overboard all doubts and misgivings. With tremendous enthusiasm the raising and equipping of an expeditionary force began. Letters begging coöperation went out to all the New England districts as well as to New York, Pennsylvania, and New Jersey. Little except good wishes was forthcoming from any except New Hampshire, Connecticut, and Rhode Island. Benjamin Franklin, who had some militia experience, wrote dryly that fortresses like Louisburg were tough nuts to crack for teeth "not accustomed to it!" But New England, teeming with fiery Old Testament Puritans, soon converted the project into a holy crusade. The French were Roman Catholics, and it was freely predicted that Jehovah would see to it that the cities of the Sons of Belial would, like Jericho of old, come tumbling down when Israel assailed their walls. A few sound 24-pounders, some 13-inch mortars, and several thousand loaded muskets in the hands of the Israelites, would also be of service in the matter. So they began to get together these lethal accessories to the trumpets of Joshua.

Governor Shirley's first necessity was a commander for the expeditionary force. As far as could be ascertained,

there was not a man in the English colonies who had ever issued an operations order to a muster larger than a company of militia going out to drive off marauding Indians. There were a few survivors of the disastrous Cartagena affair in 1741, but on the general subject of storming walled towns their recollections were too painful to bear resuscitation. They knew how it ought *not* to be done, but their suggestions seemed likely to have a negative value only. The Governor came to the conclusion that, failing professional commanders, he would have to select a man preëminent for good, sound common-sense, tact, energy, and personal popularity. Especially popularity. New England volunteers comprised a brand of soldiery whose notions of military discipline were anything but orthodox. They would enlist under, and follow a leader whom they liked and trusted. But none other.

At Kittery, in the Maine District, Shirley found the man who seemed to fulfill the requirements admirably. William Pepperrell was a wealthy and respected merchant—he might fairly be called a merchant prince—a landowner, shipbuilder, importer and exporter; shrewd, deeply religious, tactful, and highly esteemed throughout the Province. A colonel of militia, Chief Justice of the Court of Common Pleas, he was also President of the Governor's Council, the highest elective office in the Colony. In every village and hamlet of the Maine District he was known, respected and looked up to as The Mighty Man of Kittery, honest, prosperous, an upright judge, a zealous militiaman, a devout and earnest Puritan whose stern theology was mellowed by a sense of humor and an understanding of human frailty. The Governor urged him to take the command and with a good deal of reluctance he accepted the commission as lieutenant general commanding the combined land and sea forces of Massachusetts, New Hampshire, and Connecticut. His ideas on sieges and escalades were fairly nebulous, but as an army commander he seemed likely to prove less incompetent than anyone else available.

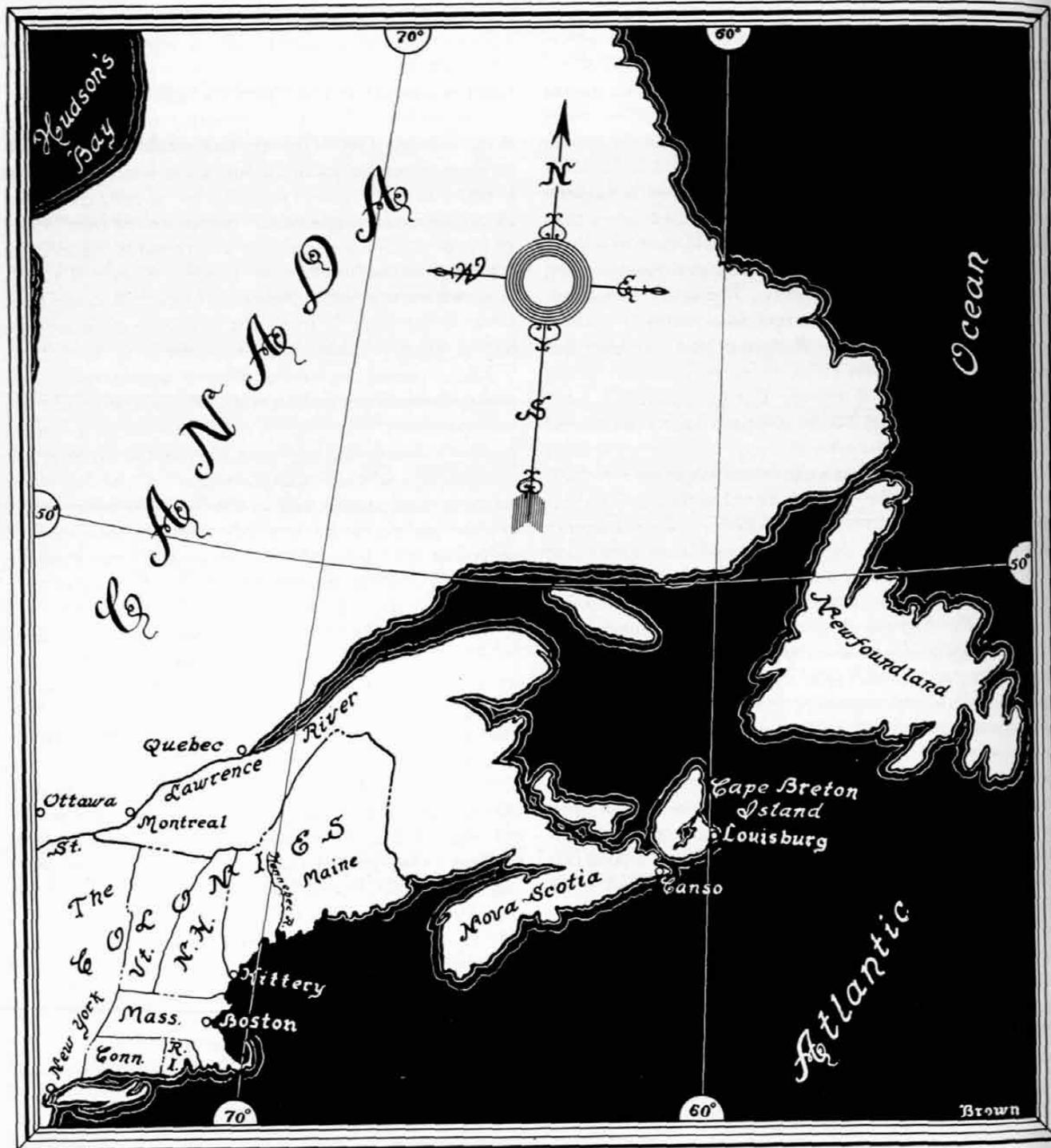
Recruiting went on with vigor and enthusiasm. Massachusetts raised about 4,000 men, a third of them from Maine, where the stalwart fishery population, temporarily unemployed, flocked to the standards in shoals. Whole regiments of militia volunteered; others were easily filled up with doughty frontiersmen from the border settlements, unerring shots with the firelocks and bitter haters of the French and Indians. In the towns the clergy united in preaching a sort of Jihad against the Papists; more than one of them declared his intention of joining up as a fighting chaplain. The celebrated Parson Moody reported himself at headquarters with an ax strapped to his shoulders, a carnal weapon which he proposed to employ personally in smashing the idolatrous images in the churches of the French. The pay of the soldiers was fixed at sixpence a day, recruits to furnish their own uniforms and guns. Lieutenant General Pepperrell was thrice commissioned in that exalted military grade, once by each of the three provincial governors. Second-in-command was Major General Roger Wolcott, a sixty-seven-year old

Connecticut magistrate. Each of the participating provinces contributed its private navy—a few brigs or schooners—and Massachusetts purchased a large brig to be fitted as a frigate and flagship for Captain Edward Tyng, a successful privateersman appointed to command the fleet. A single French seventy-four would be big enough to blow the entire squadron out of the water, but it was hoped that the campaign would be successfully completed before any dreadnaughts of the enemy arrived from France to interfere. Shirley, realizing the probable influence of sea power on the history of his expedition, sent off a swift schooner to the West Indies to solicit assistance from Commodore Peter Warren, the British commander of a fleet of frigates cruising in those waters.

Naval protection for the New England coasts had already been demanded from the Admiralty in London and orders had been sent out to Warren directing him to proceed to Boston and cooperate with the Governor in any measures the provincials might initiate for the defense of the coasts and discomfiture of the foe. These orders had not yet reached the Commodore when Shirley's message arrived at Antigua, and after consulting his captains he thought it necessary to send his regrets. Three days after the ship had departed with his refusal he received the instructions from the Duke of Newcastle; and with his frigates, the *Superbe*, *Launceston*, and *Mermaid*, he promptly set sail for Boston. On the way north he spoke to a trader and learned that the expedition had already departed for Louisburg. Without calling at Boston he went on directly to Cape Breton.

It had taken Shirley and Pepperrell seven weeks to raise their army, provide transports, and assemble the stores, ordnance and munitions. The hardest task was to find the artillery. They scraped together a few light 22-pounders and New York came through with the loan of ten 18-pounders. New Jersey and Pennsylvania contributed some clothing and provisions. The prisoners taken by Duvivier at Canso, who had been sent home on parole, gave full descriptions of the armament and defensive works at Louisburg. They pointed out that in the great Royal Battery across the harbor from the town, there were at least thirty guns of large calibre. On the dubious principle that it is sometimes legitimate to sell the bear's skin even before he is caught, Pepperrell decided that the most feasible way to get heavy guns would be to filch them from the enemy. That took care of the heavy ordnance problem.

A sarcastic contemporary observed that the expedition had a lawyer for contriver, a merchant for general, and a horde of farmers, fishermen, and mechanics for soldiers. The lawyer-contriver, Governor Shirley, deemed it advisable to instruct his emissaries in advance, and in meticulous detail, just how they were to accomplish their object. He drafted complete stage directions for the performance and delivered them to his merchant-lieutenant-general. If the French are not informed of your coming, he predicted, "it is probable that Louisburg will be surprised." That seemed reasonable enough. So, he continued, you must time your



arrival about 9:00 a'clock in the evening, being careful not to bring the fleet over the horizon during daylight hours. You must land at Flat Point Cove. (Here one of the Canso prisoners was evidently prompting him.) The landing must be made in four divisions, three of which were to march to the back of certain hills a mile and a half west of the town, where two of the three would halt and "keep a profound silence," the third column keeping on behind the hills until it came up in rear of the Grand Battery, which it would then assault at a concerted signal. Simultaneously one of the other columns would storm the West Gate of the City and the remaining division would

act in support wherever needed. As simple as that.

If Lieutenant General Pepperrell had any lingering doubts of his ability to adhere strictly to this truly Hitlerian program, he must have eyed with relief the concluding paragraph. "Notwithstanding the instructions you have received from me," wrote the Governor sapiently, "I must leave you to act, upon unforeseen emergencies, according to your best discretion." There was reason to suppose that a goodly number of "unforeseen emergencies" would arise. Such factors as the weather, the fogs, the surf on Cape Breton's rocky coast, the trackless forests around Louisburg, the swamps, the hostile population,

and the possible vigilance of the French commander had weighed very little in the Governor's consideration of the problem.

On March 24, 1746, all was ready. The armada spread its sails and bore away for the Gut of Canso. Nantasket waved farewell to nearly ninety transports carrying 4,000 men, escorted by the miniature navies of the three provinces. As the bobbing topsails dipped below the horizon the home-folks betook themselves to the white-steeped churches to pray for success. A good many of the more worldly-minded rendezvoused in the taverns to invoke victory over bowls of spiced rum. "If drinking to your success would take Cape Breton," wrote a convivial stay-at-home to one of the colonels, "you must be in possession of it by now!" He hoped he added, that his gallant friend was already in Louisburg, with a bowl of punch, a pipe, "and a P-k of C-ds," not to mention "a Pretty French Maddamoselle."

But a good many dismal days were in store for the volunteers before they were to have an opportunity of exchanging boisterous badinage with the "Maddamoselles" of the fortress town at their journey's end. The transports had very little in common with the great steel leviathans that would carry their descendants to another French port 172 years later on a friendly instead of a hostile mission. They were nearly all fishing schooners, sloops, or "scows"; they rolled and pitched malevolently and they stank abominably of their former cargoes. The fisher-folk among the troops were used to it, but the lads from the inland counties were agonized martyrs to seasickness. A violent March gale dispersed the fleet, and some of the ships narrowly escaped being dashed on "the stern and rock-bound coast" of Maine. It was, as one private confided to his diary, "a very fierce Storm of Snow, som Rain, and Very Dangerous weather." Nevertheless, they all managed to assemble at Canso before the middle of April.

The army passed three weeks at the Gut before proceeding to Louisburg. The winter ice in Gabarus Bay had not yet broken up, and until it did it was useless to attempt a landing. So Pepperrell kept the troops busy, drilling, filling cartridges, and erecting a blockhouse which was to fill the double purpose of defending Canso and serving as a base hospital for sick and wounded later on. On Sundays the valiant Chaplain-in-Chief, Parson Moody, drew capacity congregations in one pasture while across the fence the drill sergeants disturbed his discourse by bawling commands at the extra-drill details. To furnish the fort-hospital cheaply and conveniently, the cruisers went out to sea and picked up a round half-dozen French prizes loaded with supplies intended for Louisburg. One of these was a brig from Martinique, her holds full of good West Indian rum—a ration component that New Englanders appreciated even more than codfish balls.

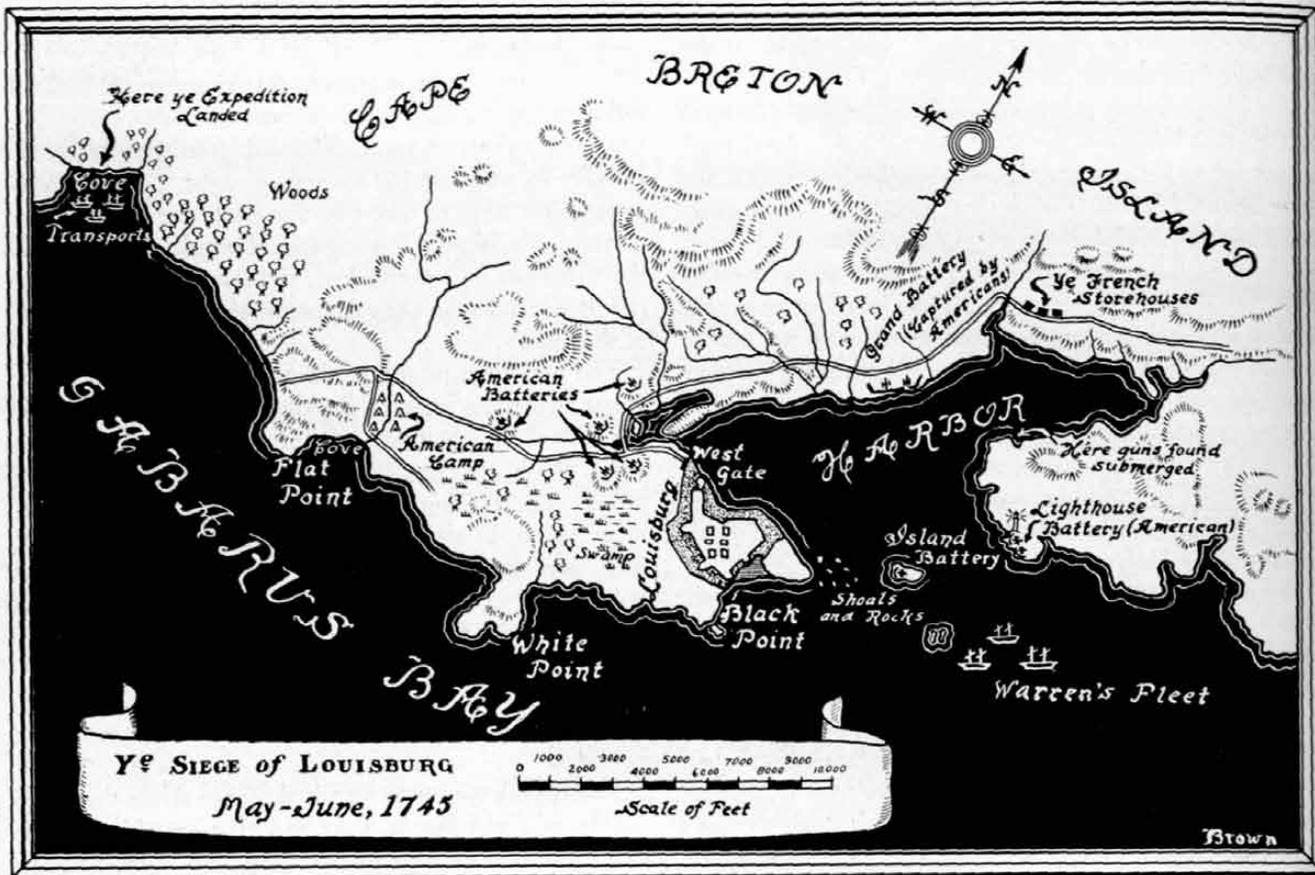
On the 22d, a British frigate, the *Eltham* arrived from Boston. Her commander reported that Warren and his squadron would soon appear—as they did indeed the following day. With the 60-gun *Superbe* and her two 40-gun

consorts added to the provincial flotilla, the expedition could anticipate the arrival of a French fleet without undue anxiety. Warren, after conferring with Pepperrell, sailed at once to take station off the harbor of Louisburg. On the 29th the transports followed, getting an early start in order to arrive off the fortress at night. Governor Shirley's orders were to take the city while the unsuspecting garrison was asleep. The vagaries of wind and tide, which the Governor had overlooked, dislocated the schedule so that it was dawn on the 30th before the fleet came in sight of the quarry.

The first attempt at a landing was made at Flat Point, about two miles west of the city. The rocky shore line was lashed by a boiling surf and as the boats drew in towards the beach they discovered that a welcoming committee was expecting them. A force of French troops, some eighty in all, under a privateersman named Morpain, was drawn up to dispute the landing. Pepperrell quickly changed his plans, signaled to the boats to return, and sent them with all speed possible to a cove farther west. Morpain and his party scrambled over the rocks to meet them, but the boats won the race, spilling out their passengers among the breakers in time to beat off the defenders.

The French were not surprised, either while they slept or otherwise. For weeks they had been expecting the attack, informed by Indians returning from New England that the expedition was planned. The commandant and military governor of Louisburg, Chevalier Duchambon, who had succeeded Duquesnel, was a capable soldier, beset by many difficulties and somewhat lacking in forcefulness and decision. His regular troops numbered nearly 600, including some companies of Swiss mercenaries, and he had, in the town, about 1,300 *habitant* militia. His regulars were not entirely dependable, having joined in a near mutiny only five months before. Their officers had succeeded in reestablishing their authority, but retained little confidence in the men. Some work had been done in strengthening the fortifications, but much precious time had been wasted in futile councils and discussions that led to little but confusion and disagreement.

By the evening of April 30th Pepperrell had upwards of 2,000 men ashore; the rest, another 2,000, landed the following day. On May 2nd, Vaughn and 400 men marched up to the high ground overlooking the harbor opposite the town, appeared on the hill-tops, and announced their presence with a round of vigorous cheering. They then made their way along the ridges north of the bay to the French naval storehouses near the northeast harbor. These were found full of cordage, tar, and pitch. The New Englanders immediately applied the torch, and soon billows of thick black smoke were rolling across the water towards the watching garrison of the city. Returning to camp the next morning, Vaughn passed in rear of the Grand Battery and gave it a scrutiny from a distance. The flag was gone from its staff, no smoke rose from the barracks chimneys, no sentries could be perceived on the parapets. The massive work seemed to be utterly deserted.



An Indian auxiliary, bribed with a bottle of fire-water that Vaughn conveniently produced from his pocket, crept down to the ditch, crawled up to and through an embrasure—and found the place unoccupied. Vaughn, with a dozen of his men at once entered and took possession. A youngster peeled off his scarlet tunic, shinnied up the flag-pole and nailed the improvised standard of Great Britain to the staff. He slid down with greater speed when a shower of swivel gun balls whistled across the water from the walls of Louisbourg.

"May it please your Honor," ran the despatch sent by the gratified Vaughn to his C. in C., "to be informed that by the grace of God and the courage of thirteen men, I entered the Royal Battery about 9:00 o'clock, and am waiting for a reinforcement and a flag."

The hasty and ill-considered abandonment of the Grand Battery by its garrison is as difficult to understand as it was for Duchambon to explain later to the Minister of War at Paris. Thierry, the officer in command, had perceived the march past of the provincial column, and witnessed with growing panic the destruction of the storehouses. He seems to have lost his head and advised the Governor that the Battery should be instantly evacuated. A council of war in the city approved this insane recommendation, directing that the guns be spiked while forbidding the blowing up of the works. Thierry and his crew hastily and inefficiently drove spikes in the touch-holes of the big 42-pounders, dumped their loose powder in the well, and took to their boats, leaving all their

ordnance stores, including 280 live bombs, to be captured with the Battery.

Pepperrell, as soon as he learned of this marvellous piece of luck, sent Brigadier General Samuel Waldo with his regiment of Maine and Massachusetts men to take over the place. Major Seth Pomeroy of the 4th Massachusetts, a professional gunsmith, collected about twenty fellow-tradesmen and quickly drilled out the spikes. By morning he had a number of the guns in working order and the abandoned bombs were hurtling over the harbor to explode against the city walls. Shortly thereafter the other guns went into action. Before Waldo and his troops entered the Battery, the French recovered from their panic and sent over several boatloads of soldiers to retake the position. Vaughn and his little party boldly went down to the shore line with their muskets alone, and prevented a landing until Colonel Bradstreet brought reinforcements from the ridges.

After the disembarkation of the army, the lieutenant general marched it to a locality near Flat Point, putting it into camp on both sides of a little stream. There were few tents, but shelters of old sails and green boughs were run up. Getting the artillery landed proved a tough job. The guns were lowered from the ships' decks into flat-bottomed boats brought from Boston. These were then paddled into the surf and unloaded by hand, the men struggling chest deep in the icy breakers. It was then necessary to drag the cannon for a mile or more through the swampy, pathless forests, in order to site them on the low hills close to the city. There were no horses, but the men cheerfully

harnessed themselves in teams of 200 to heavy wooden sledges designed and built on the spot by Lieutenant Colonel Nathaniel Meserve of the New Hampshire regiment. Meserve was a field officer who, in the non-military intervals of a busy life, pursued the trade of carpenter and shipbuilder. Floundering in the soft muck, the soldiers dragged his sledges to the assigned positions, constructed emplacements, and threw up some protective cover in the form of fascines and hogsheads filled with earth. Most of the labor had to be done at night as the line of march and the battery positions were all more or less in view of the enemy on the walls, who kept up a brisk and well-aimed fire whenever targets appeared.

Five batteries were soon established. The most distant from the West Gate was on Green Hill, a mile from the Bastion. Four 22-pounders and 10 coehorns (grenade throwers), were emplaced 600 yards nearer the wall. The third battery, mostly coehorns, was only 440 yards from the Gate, a fourth 200 yards, and the fifth, five big 42-pounders brought from the Grand Battery, was set up on a hillock overlooking the little bay at the Northwest end of the harbor.

On May 7th Pepperrell sent in to Duchambon a demand that he surrender the fortress. The Frenchman replied defiantly that he would discuss the matter with his cannon. He was then bombarded vigorously while his own guns replied, making good practice. Both sides used their muskets as well, the French protected by the walls, the New Englanders crawling forward under cover of brush and trees to pick off the gunners or such infantrymen as showed themselves.

Had Duchambon possessed trustworthy troops, he could doubtless have captured or destroyed the nearer batteries by energetic sorties. But since the Christmas mutiny his confidence in the Swiss grenadiers had evaporated, and he evidently feared that if he sallied out he would lose more men by desertion than by enemy fire. One half-hearted attempt of the kind was made, easily repulsed by the Americans. The French were amazed and disconcerted by the utterly unorthodox manner in which their adversaries conducted siege operations. "The enemy," wrote one of the inhabitants, "do not attack us in the correct form, and they do not construct any trenches to provide cover for themselves." To the white-coated regulars, a siege was a siege, and the proper manner in which the besieger ought to enact his part was all clearly laid down in the books. But these unconventional foes broke all the rules and disregarded all the precepts. They drew no parallels, dug no saps or zig-zags, recklessly moved about in full view, laughed at cannon-balls, and hurled verbal taunts at the besieged from behind their fascine defenses. It was all very unorthodox, and the regulars found it difficult to believe that there was not something decidedly "phony" about such tactics. To play safe they stayed prudently within their ramparts, amazedly observing the antics of this strange assailant. When off duty, the Americans frolicked in the fields just out of range, wrestling, chasing spent cannon-balls and shooting at

targets despite the shortness of ammunition. They went hunting and dug on the beach for clams, listened to the exhortations of their voluble chaplains, yelled insults in bad French at the besieged. Alarums and excursions could not wholly divert the Gloucester and Salem men from the honest trade in which they had been born and bred. "Went a-fishing," wrote one subaltern disciple of Izaak Walton in his diary, "about two miles off. Caught 6 Troutts." Another party exercised its ingenuity in catching lobsters: "caught 30."

The great man of Kittery ruled these half-broken military colts with the same kindly, sympathetic, but firm hand that he had used in ordering their civilian lives at home. He recognized the fact that they were not, and never would be, regulars. In his wisdom he sought to keep them good-natured, to prevent and assuage jealousies, and to fan their natural ardor for a fight in a good cause. His immense personal popularity enabled him to get his orders obeyed with good will and reasonable alacrity. To minor infractions of discipline and good order he sensibly turned a blind eye. As one of his biographers puts it: "Though he was not insensible of the necessity of discountenancing vice by proper punishments, yet the humanity of his temper disposed him to make all those allowances which might be alleged in extenuation of the fault." In command of an army like his, it was necessary to make numerous "allowances."

He was constantly plagued by a cloud of irritating and vexatious worries, requiring all his resources of patience and subtlety to resolve. The masters of the transports, many of them owners of their vessels, were a great trial to him. Their behaviour, he complained, "is the greatest fatigue I meet with." His supplies of clothing, blankets, powder, and rum always fell short of the army's needs; his urgent letters and requisitions on the War Committee at home for replacements, were too often returned with aggravating discourses on the unfortunate inability of the Committee to oblige.

The cannonade kept up by the American batteries did a good deal of damage. The West Gate and adjoining wall were soon smashed up. Many of the houses in the town were wrecked. The *habitants* and soldiers found it necessary to spend most of their time huddled in the casemates, which, in the early summer heat, were smotheringly hot. Pepperrell discovered that he had few practiced gunners and was obliged to borrow some man-o'-war-men from Warren's fleet. The New Englanders were much too prone to double-shot and overload the guns; several of them burst in consequence of this practice, killing and injuring many of the amateur artillerymen.

Before long the Commodore began to display impatience with the slow progress of the siege. He could not guess when a relieving French fleet, possibly of overwhelming strength, might show up on the horizon. His own ships had been more than three months at sea; he and his crews were weary of inaction, salt rations, and cramped quarters. Many of the seamen were sick. "If we could get some fish for them," he plaintively observed,

"it might be of service to them." His letters to Pepperrell—they corresponded almost daily—began to show irritation. "For God's sake," he urged upon the harassed General, "let us do *something*, and not waste our time in indolence!" He urged vehemently that the army try to take the Island Battery, an enterprise which the army council regarded with justifiable apprehensions. Pepperrell, however, was anxious to oblige his impetuous colleague. He called for volunteers and met with a ready response. Four hundred men, mostly from his own regiment, were quickly assembled. The irrepressible Vaughn offered to take command of them, promising that if allowed to handle the undertaking in his own way he would reduce the little stronghold in forty-eight hours. The volunteers preferred a leader of their own selection. Under an obscure captain named Brooks, they put off from the Grand Battery in boats, after several false starts, on the night of May 26th.

The Island Battery was one of those "tough nuts to crack" that Franklin had mentioned. It was a strong work, fully walled about, heavily armed with thirty cannon, and bristling with swivels and mortars; garrisoned by a captain and 180 regulars. When the boats approached the pounding surf on the rocky beach below the parapets they were not discovered until about 150 of the men were ashore. These then committed the incredible folly of announcing their presence by giving three cheers. The sleeping garrison came to life with disconcerting promptitude. They lined the walls, poured musketry into the milling crowd below, and grape, langrage-shot, and cannon-balls into the boats waiting just off-shore to land their men. Many of them were smashed to bits; the others hastily pulled out of range. When day broke, 119 Americans, a good many of them wounded, were stalled among the rocks, the French above them still as safe as ever. There was no choice but to surrender or be annihilated. They threw down their firelocks and put up their hands.

Pepperrell, although disappointed by this fiasco, was not discouraged. When the Commodore again insinuated that it was high time something decisive was done, he kept his temper and replied with commendable patience. Rather reasonably he had the impression that he had been doing quite a bit, and he tried to make the fact clear.

"I beg leave to represent that it is now the 29th day since the army invested Louisburg and drove in the inhabitants. That we have erected five fascine batteries, and mounted them, have distressed the inhabitants, made some breaches in the wall, and doubt not we shall soon reduce the circular battery. That in this time we have made five unsuccessful attempts on the Island Battery, in the last of which we lost 189 men and many of our boats. . . . The fatigue has brought on disease and left us not more than 2,150 men fit for duty. . . . The council decide that another attack on the Island is impracticable. . . . We continue our best exertions against the enemy."

But the Island Battery had to be reduced, even if it could not be stormed. The General sent Colonel Richard Gridley, captain of the artillery train and "Chief Bom-

bardier" of the expedition, to set up a battery near the lighthouse, half a mile distant from the Island, on the eastern side. Guns were ferried over from the plentiful supply at the Grand Battery, hoisted with block and tackle up the cliffs and dragged a mile to a point from whence they could play with good effect on the formidable work in the harbor mouth. Forty-two pound balls began to make things interesting for the hitherto secure garrison on the Island.

The encouragement afforded the French by their repulse of Brooks and his storming party was short-lived. On the 19th May, a week before the affair, Warren had a chance to vary the tedious routine of blockade duty. He intercepted a 64-gun French frigate, the *Vigilant*, which arrived from France with stores and munitions for Louisburg. She put up a stiff battle, but was no match for the three British ships and the provincial cruisers. Her cargo proved to be composed of precisely the articles most needed so that her capture was a veritable godsend to the besiegers. Twice already had the host of Israel been providentially supplied with implements of war by their Canaanitish foes—or so it seemed to the pious in the army's ranks. Now a third dispensation favoured them. Some of the men, wandering about on the flats at low tide, probably gathering clams for a good New England chowder, discovered thirty excellent cannon buried in the mud. Ten of them were hauled out, taken to Lighthouse Point, mounted and used with further good results against the Island.

In order to cooperate effectively with Warren, it was necessary for Pepperrell to visit him occasionally on the flashship—the Commodore seldom came ashore. But in the thick blankets of fog that usually concealed the fleet, the *Superbe* was hard to find. "I went aboard a schooner with some of my council," wrote the General to his naval coadjutor on the 31st, "and was out four hours trying to reach you, but was prevented by fogs; shall try again . . . in order that we may do something effectual in the enterprise we have so much at heart." On June 5th he finally succeeded in meeting his colleague and found him still unwilling to enter the harbor until the enemy batteries had been further damaged. They then decided to let Duchambon have the bad news of the capture of the *Vigilant*, a misfortune that so far had been concealed from him. It was rumored that the prisoners taken when the Island was assaulted were being subjected to unnecessary suffering. The Marquis de la Maisonfort, late commander of the *Vigilant*, was permitted to visit his own imprisoned crew, finding them comfortable and well treated. It was suggested to him that he write Duchambon, stating this fact and intimating that equal consideration ought to be given the American prisoners. He willingly complied and a flag of truce carried his message to the Governor. Great was the consternation at the Chevalier's headquarters when it was learned that their high hopes of a relief by the expected *Vigilant* had been blasted. From that moment the resolution of the besieged seems to have wavered.

Warren still stuck to his determination not to run the

Island Battery and Pepperrell declined to assault that impregnable stronghold a second time. Two Swiss deserters came into the camp on June 9th, bringing the welcome information that there was no more than a month's supply of provisions in the city and that unless help came from France soon the garrison expected to surrender. They also mentioned the fact that a mortar installed near the lighthouse "would greatly annoy them." The General took the hint. "I shall send over our large mortar this night," he assured Warren, "and more cannon to bear upon the enemy, and shall make the island battery too warm for them." On the 9th and 10th June the bombardment was intensified; red-hot shot were poured into the city together with all the bombs that the mortars could throw. A day or so later several additional British frigates joined Warren and he concluded that he was at last capable of forcing the harbor entrance. He wrote to Pepperrell that when the wind was fair he would get in; a Dutch flag at his maintopgallant masthead would be the signal that he was under way. "When I hoist the Dutch flag," he admonished the General, "you should march towards the town, drums beating and colors flying; when I hoist the red flag on the flag-staff you may be assured I shall be in and begin the attack in about half an hour."

Pepperrell exerted himself to the utmost to do his part. He prepared to overwhelm the town batteries with a concentrated fire—first borrowing fifty barrels of powder from the fleet—he piled up brush heaps on the hills for smoke signals, constructed scaling ladders and plied the Island Battery with bombs and solid shot from his newly constructed positions near the Lighthouse. On June 15th Warren came ashore to review the troops, both he and Pepperrell delivering orations to the men exhorting them to a supreme effort. After his speech the Commodore went over to the Grand Battery and presented the regiment stationed there with a barrel of rum, a courtesy that signally enhanced his reputation with the grateful garrison. Six hundred soldiers were sent to the ships to augment their crews. The fleet lined up before the harbor mouth, an imposing array of eleven men of war, with from forty to sixty guns each.

The Chevalier Duchambon recognized the purport of all these preparations. The Island Battery, upon which his safety depended, was practically out of action; the guns at the northeast battery were mostly silenced and so exposed that their crews could no longer operate them. The circular battery was in much the same case, the West Gate hung in splinters with the nearby wall breached. The French troops were exhausted by the forty-eight days of close confinement under incessant fire; all hope of relief from abroad had vanished. Surrender alone could save the lives of the discouraged soldiers and terrified populace. On the afternoon of the 15th the Governor sent a flag of truce to Pepperrell asking that he be given time to consider terms of capitulation. He was allowed until eight o'clock the next morning to think it over, being told that "if in the meantime you surrender yourselves prisoners of war, you may depend on humane and generous treat-

ment." And his two correspondents were his humble servants, Peter Warren and William Pepperrell.

Duchambon offered to capitulate on his own terms and was politely but firmly informed that these were not acceptable. However, he would be supplied with vessels to take himself and his troops back to France on his guarantee that they would not again bear arms against His Britannic Majesty's forces for a space of twelve months. His sick and wounded would be tenderly cared for, and if there were any in the city who desired to leave without being recognized, they would be permitted "to go off masked." Duchambon then insisted that his troops be allowed to march to the beach under arms and with colors flying. This was granted him. The uncertainty of their affairs, observed Warren to the General, made it necessary "not to stickle at trifles."

There was some confusion in arranging for the delivery of the town. Warren, being a high officer in the regular service of the King, perhaps expected that the formal transfer of possession would be made to him, rather than to Pepperrell, a mere provincial appointee. If so, he was disappointed. The astute merchant-soldier acted with the utmost courtesy and tact, but he made it clear that the army had taken the fortress with the help, and not as the helper, of the Navy. When he strayed a bit from accepted international diplomatic usage in conducting the negotiations with the Governor, Warren rather tartly informed him that these grave matters were not settled quite so casually as he seemed to suppose. Pepperrell acquiesced without taking offense and went serenely on his way, giving full credit to the Commodore and praising him profusely in his final report to Shirley. Long experience in the mercantile world had accustomed him to handling touchy customers and he handled the impulsive sailor as easily as he had recalcitrant bankers, tradesmen, and shippers all his life.

On the 17th June the tattered provincials entered the city, with the Mighty Man of Kittery riding triumphantly in his best scarlet uniform at their head. The fleet sailed unmolested into the harbor and the marines landed to find the situation already well in hand. The Americans were amazed at the damage their fire had done to the fortress. "Never was a place more maul'd with cannon and shells," wrote the General to Governor Shirley, "neither have I read in History of any troops behaving with greater courage. We gave them about 9,000 cannon-balls and six hundred bombs." To the vast disgust of the army, the terms of surrender had included a promise of the inviolability of personal property. Louisburg appears to have been regarded as a sort of modern Babylon and the ragged provincials were looking forward to the luxury of looting a rich prize. When they found the scared inhabitants still occupying their battered homes, and were themselves detailed to guard the buildings from plunderers, there was, as one angry soldier remarked, "A great Noys and hubbub amongst ye Solders a bout ye Plunder; Som cursing, som a-Swearin."

The Navy fared better in the matter of material reward

for their exertions. They kept the French flag flying until a number of enemy merchant ships unsuspectingly sailed into the trap and were seized as prizes. Cargos valued at more than a million pounds were taken in this manner, half the proceeds being the King's share, the balance divided among the officers and seamen. The army was left entirely out of the distribution. The soldiers had to be content—or discontent—with the glory of having been chiefly responsible for the fall of the mighty fortress. General Pepperrell himself received the keys of the city, but a rumor that Warren attempted to allocate to himself the distinction and credit attending the capitulation caused a good deal of hard feeling in America for years thereafter.

England received the news of this startling success overseas with rapturous delight. The King bestowed on the Kittery paladin the honor of a baronetcy and commissioned him a colonel in the regular army—of a regiment which he was directed to raise in America. Warren was promoted admiral and Shirley made a colonel of regulars. Massachusetts, financially insolvent and burdened with a debt of nearly 200,000 pounds spent on the expedition, was fully reimbursed from the British treasury, New

Hampshire, Connecticut, and Rhode Island also being paid in full for their expenditures. Of the men who served before Louisburg, many received training in the art of war which they were to apply effectively when, thirty years later, New England was in arms on her own behalf against the King.

The reduction of Louisburg was the outstanding exploit of the war on either Continent. To the intense mortification of the Americans, the treaty of peace nullified all the labor, sufferings and gallantry of the untutored volunteers who lowered the standard of the Most Christian King in 1746. Louisburg was restored to France in exchange for "a petty factory in the East Indies," and thirteen years later the job had to be done all over again when Jeffrey Amherst and an army of regulars recaptured the town after a siege conducted in the manner prescribed by the regulations. But New England never forgot that the Dunkerque of America was first taken by the Mighty Man of Kittery and his heterogeneous army of citizen soldiery, although they were not permitted to do more than share the glory with the Puritan Providence of which they were "the humble instruments."



# AA-Antimechanized Defense of Leesville

By Captain Burgo D. Gill, Coast Artillery Corps

It is realized that there are two schools of thought in the Coast Artillery Corps concerning antiaircraft mobile regiments being given a secondary mission other than the primary antiaircraft purpose. The "single" purpose group is in the majority. The new tentative *Field Service Regulations* make no mention of any secondary mission for antiaircraft artillery.

But, it is quite possible that a mobile antiaircraft regiment might be called upon to furnish protection against enemy tanks, mechanized cavalry, or swift-moving truck forces.

Before discussing the relative merits of any particular school of tactical thought, let us first consider a situation that arose in the IX Corps of the Red Army of Texas that invaded the Blue territory of Louisiana during the Third Army maneuvers in May, 1940.

On the morning of May 9, the Red Army consisting of the 1st Cavalry Division and the 2d Division, invaded Louisiana with its main body crossing the boundary, the Sabine River, at Burr's Ferry.

The 61st Coast Artillery (AA) protected the bridges over the river at three points on a forty-mile front from Pendleton, to Toledo, and Burr's Ferry.

Corps Headquarters, the rear echelon establishments, and the railhead were some thirty miles behind the front lines at Jasper, Texas.

By the night of May 10, the Red forces had captured Leesville, Louisiana, seventeen miles in enemy territory, and had extended its control some eighteen miles further eastward. Naturally, the Red army commander deemed it advisable to order his headquarters and rear establishments forward from Jasper to Leesville.

While this move was being made, the Red forces were distributed in a wide arc with a radius of about eighteen miles to the east from the center at Leesville. To the north was the 4th Cavalry, a reconnaissance regiment, the 1st Cavalry Division to the east, and on the southern flank was the 2d Division.

It will be seen that the line of communication from Leesville to Jasper, almost a due east-west line, was about fifty miles long. On the Texas side, this road soon became almost impassable for extra heavy trucks, particularly for the large trucks of a civilian trucking firm hired by the QMC as ration and supply trains from the army establishment at Nacogdoches, Texas. The line of communications was then changed to run in a wide circle to the south to the Sabine River over captured enemy road nets centered at Leesville.

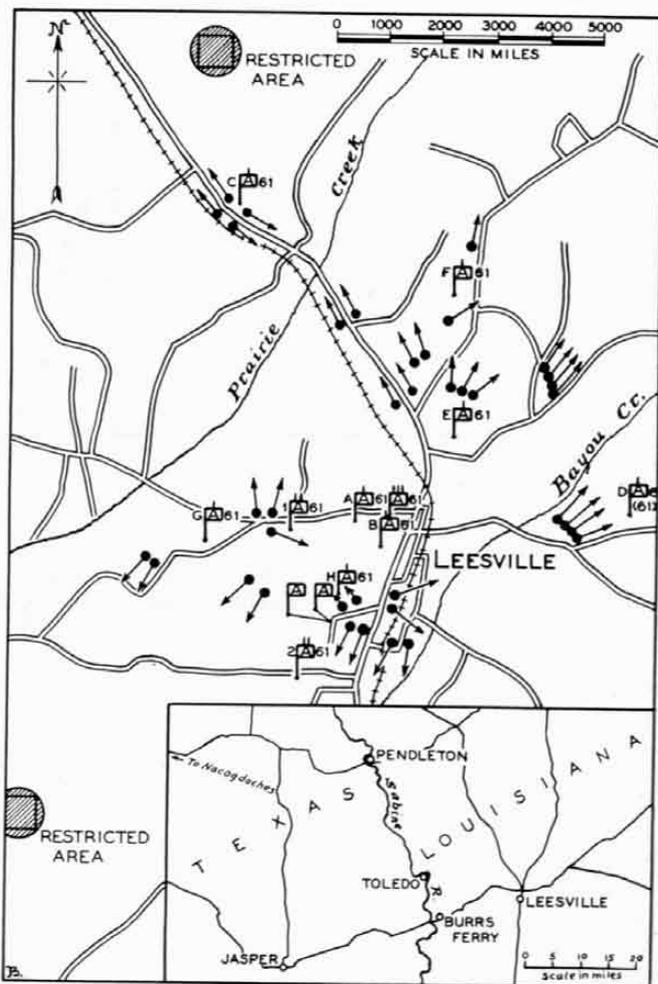
A division of Blue infantry directly east opposed our Red forces. To the north was a mechanized cavalry brigade. Intelligence stated that another infantry division was headed north from New Orleans.

Therefore, while the front to the east was held securely, there was danger of a thrust from the north or north-west by an encircling movement of the enemy's mechanized cavalry. The same threat came from the south and south-west where the entrucked infantry from the 5th Blue Division was operating.

It will be seen that the new Corps Headquarters at Leesville with its ammunition dumps, gasoline, water, and ration distributing points easily might have suffered a sudden attack. Very few units were left to the IX Corps as line of communication troops or as a guard to protect Leesville.

Early during the dark hours of May 11, the 61st Coast Artillery (AA) was hurriedly ordered forward from the bridges on the Sabine to protect Leesville from air and mechanized attacks and raids.

While the gun batteries were disposed around Leesville with the main objective of protecting it from the air, the automatic weapons batteries, and the gun batteries' platoons of .50-caliber machine guns were emplaced to



The Maneuver Area.

cover all roads and open field approaches to guard against mechanized attacks.

That this problem was solved is apparent on viewing the sketch of the operations map drawn up by the 61st Coast Artillery (AA). This defensive measure extended over a period of two days until the situation changed, and General Krueger ordered further dispositions and missions for the 61st.

We can conclude from this bit of maneuver war that:

(1) The present organization and equipment of an

antiaircraft regiment gives it high mobility and great fire power.

(2) The antiaircraft regiment is eminently fitted for dual missions, or even triple missions if one includes the passive mission of serving as line of communication troops.

We should not be blinded by doctrine. Instead of standing adamant on a certain line or adhering to a series of teachings all soldiers should be mentally prepared for any of the unpredictable whims of war.



# IT WAS A PHONY WAR

*By Major William Yale*

'Way back in the autumn of 1939—it seems a century ago now—Americans called the European conflict a phony war. The people on the other side of the water were indignant, the pro-ally columnists heaped ridicule and abuse on Americans who with their native shrewdness sensed there was something “phony” about the war in Europe. Unfortunately for the Allies the Americans were right. The Allied disasters in Holland, Belgium, and France are the inevitable results of that “phony” war.

After the campaign in Poland winter was too near for a German offensive in the west. But during the long hard winter months, during the hardest winter Europe has known for years, what were the Germans doing? A dress rehearsal in Poland where all the modern machines of war were brought into play—all but the parachute arm which was kept as a surprise—had been held. The German staff studied that rehearsal, analyzing every detail of the Polish campaign, its strong points and its weaknesses. German troops and officers were constantly drilled in the new tactics and trained to use the new weapons until they became perfected in the synchronized employment of new instruments of offensive warfare. From the staff down through the line officers to the fighting men the psychology of the offensive was imbued in the German army. Officers and men alike were not coddled in the impregnable fortresses of the West Wall; the night clubs of Berlin were not crowded with officers on leave, entertained by strip tease dancers to make up for the hardships of living in the cramped quarters of fortified lines. On the contrary they were being hardened mentally and physically, trained and rehearsed in preparation for the tremendous offensives which were planned for April and May. And during these long winter months the German staff perfected down to the most minute details the approaching campaigns in Norway, Holland, Belgium and France. There was nothing “phony” about these military preparations by the Germans.

The “phony” war was all on the other side. Depending upon the Maginot Line, the French complacently waited the Teutonic onslaught, confident that their fortifications were impregnable. Their general staff at the top, the line officers, the troops were imbued with the spirit of defense, certain that the major ordeal would fall upon the attackers. The morale essential for fighting was sapped, the training necessary to attain a mastery of the new weapons of warfare was lacking. Despite the example of blitzkrieg tactics in Poland the Allied commanders told themselves and their men “it can't happen here.” As a result the Allied armies were completely unprepared either to meet the German offensive or to carry out an effective counter offensive. For such military operations the staff had no plans, the officers had no experience, the troops had no training,

and all ranks lacked the essential psychology of troops who must fight in the open in a war of movement demanding the highest integration of every arm. The Allied armies had been coddled in comfortable fortifications and billets, lulled by a false sense of security created by concrete fortifications and instilled by the philosophy of defensive warfare. The British, certain of the invulnerability of the French defense lines, convinced themselves that “Hitler had lost the bus” and that the Allies had Germany in a trap formed by the British naval and economic blockade and the French Maginot Line and that the Nazis could be starved into subjection.

The responsibility for defeat rests primarily on the civilian political leadership in England and France which was convinced that victory could be attained by what in America was called a “phony” war. Miscalculating the military might of Germany, overestimating the strength of the defense—the Maginot Line and the British fleet—the civilian leaders complacently awaited the Nazi offensive without preparing to counter it. Following these erroneous conclusions of the civilian governments, the Allied military commanders, Gamelin in France and the Admiralty in England, relied upon a defensive strategy which has proved disastrous to the Allied cause.

In Germany, as in Italy, military and political leadership passed into the hands of new men, of young men, and of older men with new ideas and concepts, who comprehended the significance of new weapons and new methods. On the other hand, in the Allied countries old men, fighting over again the first World War, lacked the imagination and vision to understand the new world in which they lived. Timid, uncertain, wavering leadership on the one hand faced daring, purposeful, determined leadership on the other. New dynamic, revolutionary nations hurled themselves against old static conservative nations. A new world order challenged an old world order. The outcome now appears inevitable. With the vast resources of two world empires with almost limitless resources, with a large portion of the world sympathetic to their cause, old static societies failed to produce that leadership which is essential to victory in the ruthless struggle of armed conflict. Fate has written its eternal decree as it has done over and over again throughout history. Those states which fail to use and master the new instruments of warfare succumb to those who do. The struggle for existence is inexorable. Those who fail to learn its lessons in the military realm suffer defeat and extinction.

May we in America profit before it be too late from the tragic events of the past months in Europe. Then others may not say of us what we today are saying sorrowfully about England and France—too late.

# PSYCHOLOGY AND MODERN WAR

Major Charles A. Drake, Infantry Reserve

Psychology made its first and most brilliant contribution to the military service through the famous Alpha and Beta Intelligence tests that were applied to millions of officers and men of the World War army. These tests were amazingly successful in identifying those individuals of high mental alertness who were the best bets for further training, particularly for training as officers. The high standards set by these early group tests of more than two decades ago have scarcely been surpassed by the more recent tests.

Toward the close of the World War still other tests were produced that were useful in the quick identification of persons possessing knowledge of particular trades, plumbing, steam-fitting, and the like. These tests, supplemented in some instances by quick practical tests in actually wiping a lead joint or threading a pipe, facilitated the classification and assignment of trade specialists required in construction, maintenance, and the technical services.

The increasing emphasis upon mechanization in the armed forces, the newer and more complicated weapons, and the large number of new types of labor-saving devices useful in production, handling, and storage, made a new demand upon psychology. Trained men for the handling of this technical equipment exist only in small and totally inadequate numbers. Quick training of large numbers of such specialists will have to be undertaken.

Training on mechanical devices succeeds best and quickest when the trainees possess the basic aptitudes required by the job. The problem therefore becomes one of identifying, prior to selection and training, the individuals possessing the required aptitudes.

In the light of recent advances in industrial psychology, this is no longer the simple problem of selecting persons of a general mechanical aptitude or a so-called mechanical intelligence. The problem becomes one of specific analysis of the basic abilities in visual perception, auditory perception, two-hand coördination, hand-and-foot coördination—to name only a few—required for superior performance on the job.

Persons possessing these basic abilities can be trained in a fraction of the time required by the average person. The reduction of a standard training time of six weeks to only two weeks is commonplace. Inexperienced industrial employees selected by suitable aptitude tests have attained performances in two weeks at 113 per cent of normal, as against the 100 per cent level of average employees of years of experience.

Increases in production on the job as high as 60 per cent, by selection alone, have been demonstrated. Selection supplemented by suitable training can even increase this gain materially. This is not the result of incentives or the forced speeding up of the work, but solely the effect of choosing persons who can easily achieve the hand,

hand-and-foot, or eye-hand coördinations called for on a particular job.

Consider this example. Everyone is familiar with the circular typewriter eraser to which a small bristle brush is attached. The cycle of hand operations in making the fixture in which this article is assembled bears a striking similarity to the cycle in the operation of the 37-mm. cannon. Successive operators on this fixture were scarcely able to earn the basic piece-rate wages and were obviously working under great strain. They were changed frequently because of their dissatisfaction.

The job called for two-hand coördination, a fair level of visual perceptual ability, and eye-hand coördination. An operator was selected finally who had a high score on each of the tests of this ability, with resulting earning of 140 to 160 per cent of normal or standard. Production was increased, earnings increased, and dissatisfaction ended. What might such an increase represent in the application of infantry weapons?

As another example, consider this case. A job was set up on a power-operated press requiring the handling of two sets of parts simultaneously. Each hand picked up a bottom unit and placed it in the die; returned, picked up and placed the middle units; returned again, picked up, and placed the top units. A pressure with the right foot on a pedal operated the press and swaged the parts into two complete articles, which were then removed by simultaneous motions of the two hands. The job was set up as straight piece-work at a rate that would yield \$16.00 a week for an average operator. Simple analysis showed that dual-hand and hand-and-foot coördinations were the special abilities required.

An applicant was selected who had high scores on two tests measuring these basic abilities. The first week he earned \$26.00, the second week \$28.00. When we asked him why he did not earn the \$32.00 the tests indicated he could earn, he replied that the foreman had warned him "not to go so fast and spoil the rate for everybody." While he was a superior operator on this job, other test results indicated that he would have been a below-average performer on inspection operations or assembly-inspection requiring visual perception.

Probably most significant for the military service is the recent discovery of the wide range of visual perceptual ability among persons whose eyes are found to be normal on the usual eye examinations. It is as true in the Army as it is in baseball that "you can't hit what you can't see." An individual may have perfect vision but still function at a low level of visual perceptual ability, unable to see what he should see for effective performance.

This perceptual ability is not related to intelligence, as the latter is usually measured, and is consequently not revealed in intelligence test results. Since neither the eye examination nor the intelligence test will detect it, its

measurement calls for special forms of tests. Some of these special tests exist and have already demonstrated their worth in selecting inspectors for factory operations.

The need for quick and accurate inspection of mechanisms in the manufacturing process, to guarantee their performance in the field, is evident. Quite as important, perhaps even more so, is quick and accurate perception in handling such mechanisms. Training time for such handling can be greatly reduced and the level of effectiveness of such handling can be greatly increased by selection based upon measures of this basic ability.

Until recently it was taken for granted that intensive and prolonged training would offset the lack of such specific aptitudes in the trainees. But repeated applications of suitable tests, both in the area of perception and in motor coördinations of body muscles have shown only small gains wholly out of proportion to the time and effort expended in training, and sometimes no gains at all.

Even in the relatively simple task of coördinating the two hands in dual operations, in which two objects are manipulated simultaneously, wide differences appear. Some individuals can increase their production as much as 55 per cent by dual operation as against one-hand operation, while others can actually do less with two-hand or dual operation than by one hand alone. These differences seem to be innate, basic, and exceedingly resistant to training.

Some gains in eye-hand coördination are shown as the result of intensive training. This is the area of great importance in the aiming and firing of infantry weapons. But as a rule, these gains come slowly, at great cost in time and training effort, and inferentially, at great cost in the expenditure of matériel.

With our present industrial experience and the techniques now available, it should be no great task to develop suitable tests for the operators of every infantry weapon. The method of analysis of the basic human abilities called

for in the loading, aiming, and firing of a rifle, or the cycle of similar operations of any other weapon, is well established. The design and construction of suitable tests for the abilities called for is relatively simple. The results from the applications of such tests will then make possible the early selection of the men who are to receive the special training required.

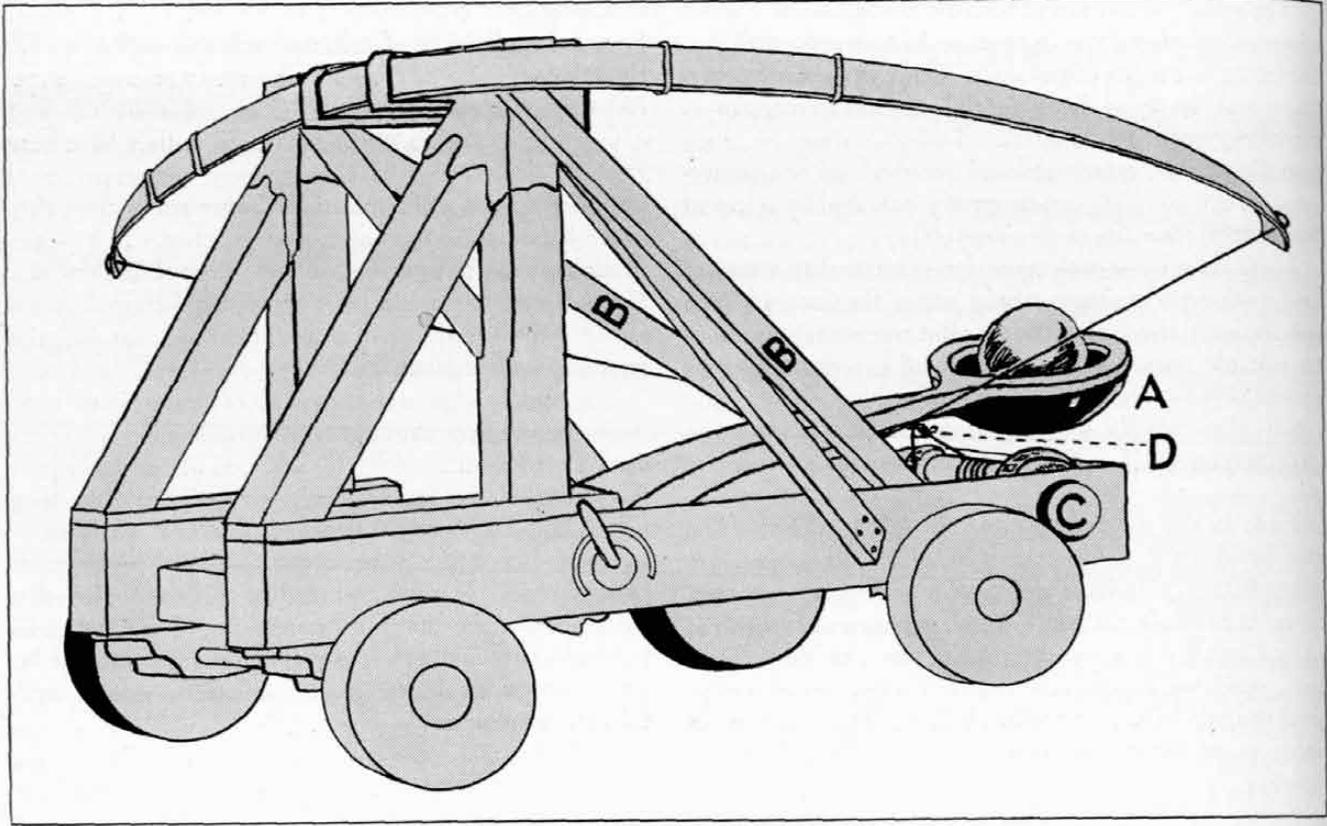
One interesting feature of such tests, as they have been applied in industry, is that trained and experienced operators do not make materially better scores than they made before their training and experience. This is evidence that the tests are measuring innate, basic abilities. If the later test scores were significantly better than the earlier ones, the improvement would indicate that the gains were due to experience and skill.

It is because of this characteristic of real aptitude tests, their measurement of inherent or native abilities, that they can be used so successfully for selection of personnel prior to training. This makes it possible to eliminate the long delays and the wasteful trial-and-error that characterize selection and training when not aided by measures of basic abilities. It must be noted in this connection that we do not make direct measurements of the aptitudes themselves. We measure certain performances that require basic abilities and from such measurements *infer* the amount of aptitude shown.

As the last war made such striking contributions to the instruments and techniques for testing intelligence, so will the next war probably make its greatest contribution to psychology in the further development of aptitude tests and techniques. Time becomes an increasingly important factor, particularly in training, while skill acquires a new importance in the effective employment of mechanized equipment. The new demands can and will be met by services that psychology is now ready to supply. As the war will contribute to the development of psychology, so will psychology in turn contribute to the winning of the war.



# The Story of Artillery Through the Ages



## Chapter 9: THE LARGE ONAGER—By W. A. WINDAS

From the time of Constantine the names of the various Roman engines change. We hear no more of catapults, and the word ballista is used to describe both arrow throwers and light stone throwers. These were similar to the stone and arrow throwers described in earlier chapters, with one important difference.

The Roman artisans had now learned to handle steel to better advantage, and the torsion system which has been used in all Roman machines gave way to the tension principle. Steel bows, instead of twisted skeins, supplied propelling power.

Three types of artillery are now seen in the Roman service: the ballista, the carro-ballista (a catapult mounted on a two-wheeled cart—incidentally the first real "field gun") and the onager.

With the use of the tension principle the onager, or "siege howitzer" assumed an unprecedented size. Although less accurate than some of the fine machines of the Macedonians of an earlier age, the onager was nevertheless capable of giving perhaps the most astounding performance of all pre-gunpowder weapons.

The huge steel bow, designed on the principle of a spring-leaf, is twenty-five feet long. The cup (A) is three feet in diameter. Metal has been used extensively in the construction to reinforce the wooden frame. The beams BB converge behind the arm to form a guideway for the bowstring. The drum at C is mortised and fitted with a ratchet and pawl. It will be noted that both these fittings are inside the frame instead of outside, as had

been the earlier practice. The pulley at D is fitted with a trigger-release by which it is fastened to a hook on the under side of the arm. The rope passes through the pulley, and is then made fast to the frame. This was to reduce whipping of the rope when the arm was released.

The onager was operated by handspikes thrust into the mortises which turned the drum until the bow was bent and then engaged a pawl in the ratchet on the drum. In firing, the trigger-handle on the pulley was struck by a hammer.

This mighty onager could hurl a half-ton stone to a range of 1,000 yards. Stones were not the only missiles in use. Logs, six to ten feet long, were also thrown. Often they would be soaked in pitch and ignited before being hurled.

We see also the first attempt to give heavy pieces a certain degree of mobility, for wheels are fitted to the onager. This obviated the arduous task of hoisting the machine aboard a wagon for transport.

After the revival of Roman power after the barbarian invasion Belisarius used a large number of onagers to drive the Ostrogoths from Rome and to capture the important fortress of Ravenna.

During the Dark Ages, the armorers of Europe forgot how to make such fine "siege guns" as these. The knight held sway largely by virtue of his impregnable castle against which the feeble catapults of his day worked in vain. The impact of 1,000-pound stones would have crumbled the majority of feudal day fortresses.

# Coast Artillery 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.

## THE COAST ARTILLERY BOARD

COLONEL WILLIAM S. BOWEN, C.A.C., *President*

LT. COLONEL DONALD B. SANGER, C.A.C.

MAJOR FRANKLIN E. EDGEComb, C.A.C.

MAJOR WILLIAM F. GERHARDT, Ordnance Department

MAJOR ROBERT W. CRICHLow, JR., C.A.C.

MAJOR ROBERT H. KREUTER, C.A.C.

CAPTAIN CHARLES E. SHEPHERD, C.A.C.

CAPTAIN DONALD H. SMITH, C.A.C.

*Loading Antiaircraft Fire Control Equipment for Transportation.* With a view to preventing damage, which might be caused to antiaircraft fire control equipment by improper handling, the Coast Artillery Board has prepared instructions for loading this equipment in the 15-foot body 1½-ton trucks recently procured for mobile antiaircraft organizations. Two trucks are being issued for the purpose of transporting the antiaircraft fire control equipment.

The Board recommended that the two power plants and data transmission cable be transported in one truck and

the remainder of the fire control equipment in the other.

The arrangement of the equipment in the two trucks is shown in Figures 1 and 2.

*Antiaircraft Camera Spotting of High Explosive Bursts.* Considerable difficulty has been experienced in camera spotting for antiaircraft fire when high explosive shells are used. The bursts from these shells are black and when fired against a blue sky background afford a poor contrast which makes photography difficult.

It is believed that the following excerpts from a letter to

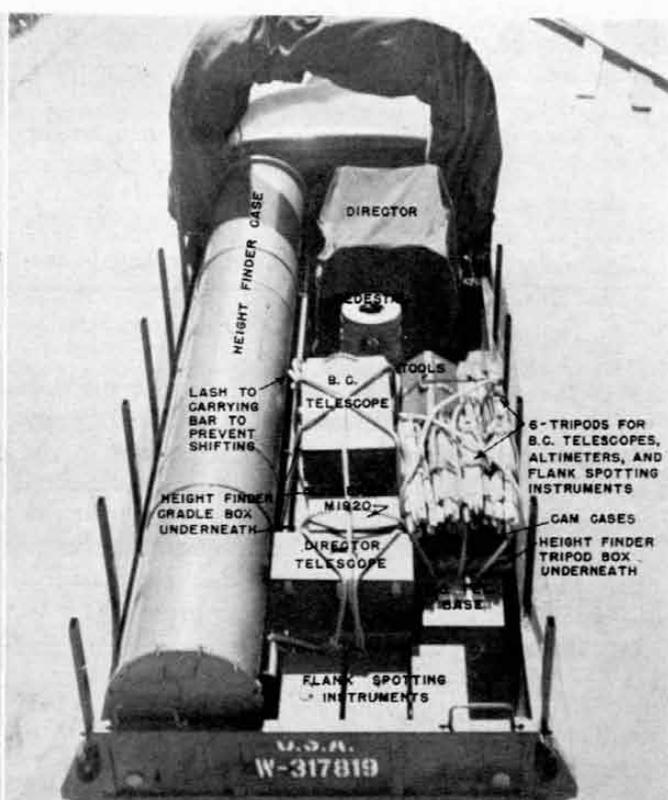


Figure 1: Power and cable equipment loaded. Figure 2: Fire control equipment loaded.

the Chief of Coast Artillery from the regimental commander of an antiaircraft regiment, together with comments by the Coast Artillery Board, will be of interest to all personnel concerned with antiaircraft gun target practices where high explosive shells are fired:

1. The . . . has recently completed a preliminary three-inch antiaircraft target practice utilizing a special allowance of six hundred rounds of high explosive shell. Camera records were taken of the first practice but the bursts failed to show on the film. The cameras were opened to their maximum extent for the next practice but the bursts still were so indistinguishable that the camera records were valueless.

2. Without technical knowledge on the subject of cameras and films it was concluded that the above results were due to one or a combination of the following reasons:

*a.* Deterioration of the film through age or through the effects of tropical weather on it.

*b.* The absolute atmospheric clearness which exists in this section of the country. There is no haze and consequently no background for pictures.

*c.* The darkness and indistinguishability of the bursts of high explosive shell.

In connection with *a*, above, one lot of film used was Film, M. P., Negative, supersensitive panchromatic, Agfa, 35-mm., 200-foot roll. This film was received by the . . . on August 28, 1939, and the expiration date was September, 1940. A different lot of the same film with an earlier expiration date produced no noticeably different effects.

3. In order to produce more satisfactory results from subsequent records of practices the following requests are made:

*a.* That technical information be furnished on the subject of photographing high explosive bursts against a clear blue sky.

*b.* That should the request made in *a*, above, involve additional equipment such as special filters these be furnished this organization.

*c.* That film be shipped fresh to this organization prior to each firing.

4. The visual records obtained from the practices referred to in paragraph 1 were highly unsatisfactory because of the many bursts reported as "lost." The fault does not lie with the spotters in that at the slant ranges fired at, the high explosive bursts are more difficult to see. Since very little improvement can be expected in the visual section, it is felt that camera records are essential if the morale of the firing batteries is to be kept at the high standard now existent.

#### *Comments by the Coast Artillery Board:*

1. The difficulties in photographing high explosive bursts against a blue sky background, which are reported in the basic letter, have also been experienced in the Harbor Defenses of Chesapeake Bay. The Coast Artillery Board has had this matter under study for some time, but

so far a satisfactory method of photographing high explosive bursts successfully at long ranges against a blue sky has not been found.

2. Experimental photography has been conducted recently by the Coast Artillery Board in collaboration with a representative of the Signal Corps Laboratories with a view to determining the proper photographic technique to meet the conditions described in the preceding paragraph. The data collected during these experiments are now under study at the Signal Corps Laboratories and information has been received that a report covering the results of this study will be forwarded through the Chief Signal Officer to the Chief of Coast Artillery.

3. Further comment in reference to the basic communication appears below:

*a. Paragraph 1.* Experience to date has indicated that the F or No. 29 red filter, furnished with the antiaircraft spotting theodolite as a standard accessory is not suited to photographing high explosive bursts against a blue sky background. The red filter tends to destroy the contrast necessary to obtaining an image on the negative. In photographing high explosive bursts against a clear blue sky, better results will be obtained without a filter than with a red filter. The camera lens aperture should be opened  $1\frac{1}{2}$  stops more than indicated by the exposure meter. For instance, if the exposure meter indicates Stop F-22 to be correct for the light conditions prevailing at the time, a stop of F-12.7 should be used. These instructions apply only when photographing against a clear blue sky without a filter.

*b. (1) Paragraph 2 a.* Film in sealed containers, packed for export to tropical countries, should not deteriorate if properly stored. It is considered unlikely that the difficulties reported were the result of deteriorated film.

*(2) Paragraph 2 b.* The absence of haze is an advantage in photography of this character and should simplify the problem. The blue sky background, however, does complicate the problem by reducing contrast. The black high explosive burst against a white cloud background is an ideal combination, favoring excellent photographic results.

*(3) Paragraph 2 c.* The conclusion that the condition of a dark burst against a dark background contributed to the poor results obtained is believed to be correct. The lot of film reported to have been used is considered to have been quite suitable.

*c. (1) Paragraph 3 a.* If information obtained from current studies related to this subject proves to be of value, the Coast Artillery Board will recommend to the Chief of Coast Artillery that such information be furnished to the service as soon as practicable.

*(2) Paragraph 3 b.* The Chief Signal Officer has under consideration a proposal to furnish suitable additional filters to all spotting theodolites now in service. Determination of the most suitable filters is believed to be dependent on conclusions reached as a result of current studies at the Signal Corps Laboratory.

(3) *Paragraph 3 c.* The Coast Artillery Board is of the opinion that a fresh shipment of film at six-month intervals to tropical stations should be sufficiently frequent, provided such film is properly stored by the using personnel.

d. The Coast Artillery Board concurs in the belief that good camera records are essential to dependable analyses of anti-aircraft gun target practices.

*Low Quarter Garrison Shoe.* Recently fifty pairs of low quarter shoes were shipped from the Boston Quartermaster Depot to the Coast Artillery Board for a service

test to determine whether or not the Oxford type (low quarter) shoe is suitable as a replacement for the present brown calfskin garrison shoes of ankle top height.

Based on a service test conducted by three selected organizations at Fort Monroe the Board decided that the low quarter shoe is superior in comfort and appearance to the present garrison shoe and recommended its issue to all Coast Artillery units for garrison duty only.

*General.* All other equipment and matériel recently considered by the Board is classified as restricted, confidential or secret and it is impossible, at this time, to publish any data pertaining to the items tested.

## Coast Artillery Orders

(Covering the period May 1, to June 30, 1940)

Colonel Edgar B. Colladay to Fort Lewis.  
Colonel James S. Dusenbury to Philippine Department, sailing, New York, September 14.

Colonel William D. Frazer to Instructor, Minnesota National Guard, Saint Paul, Minnesota.

Colonel Frank Kemble to 8th, Fort Preble.

Colonel Allen Kimberly to 10th, Fort Adams.

Colonel Kelley B. Lemmon to 18th, Fort Stevens.

Colonel George F. Moore to Hawaiian Department, sailing, Charleston, October 12.

Colonel Harold F. Nichols to Assistant Commandant, Coast Artillery School.

Colonel Edward P. Noyes to duty in connection with recruiting, Omaha, Nebraska.

Colonel Peter H. Ottosen to 19th, Fort Rosecrans.

Colonel Louis L. Pendleton to 13th, Key West Barracks.

Colonel Edward W. Putney to University of Cincinnati.

Colonel Otto H. Schrader to duty in connection with recruiting, Harrisburg, Pennsylvania.

Colonel Edgar H. Thompson to Instructor, Georgia National Guard, Washington, Georgia.

Colonel Rollin L. Tilton to 6th, Fort Winfield Scott.

Lieutenant Colonel Robert D. Brown to 2d Coast Artillery District, New York, N. Y.

Lieutenant Colonel Charles W. Bundy to General Staff Corps with Troops, July 1, 1940.

Lieutenant Colonel Albert D. Chipman to Instructor, Delaware National Guard, Wilmington, Delaware.

Lieutenant Colonel Clarence E. Cotter to Fort Bragg.

Lieutenant Colonel James B. Crawford promoted Colonel, April 30, 1940.

Lieutenant Colonel Henry C. Davis, Jr. to Michigan State College, East Lansing, Michigan.

Lieutenant Colonel Carl S. Doney to 6th, Fort Winfield Scott.

Lieutenant Colonel Bird S. DuBois to 70th, Fort Screven.

Lieutenant Colonel John L. Homer promoted Colonel, June 1, 1940.

Lieutenant Colonel Frank L. Hoskins retired, June 30, 1940.

Lieutenant Colonel Manning M. Kimmel, Jr. to 57th, Fort Monroe.

Lieutenant Colonel Russell York Moore, N.G.U.S., to active duty, War Department General Staff, June 10, 1940.

Lieutenant Colonel Donald B. Sanger to Sacramento High School, Sacramento, California.

Lieutenant Colonel Carl J. Smith appointed Acting Quartermaster for Northeastern New York Recruiting District.

Lieutenant Colonel Harry W. Stark to Fort Lewis.

Lieutenant Colonel Robert E. Turley, Jr. to 67th, Fort Bragg.

Lieutenant Colonel Robert H. Van Volkenburgh to 6th, Fort Winfield Scott.

Major Thomas J. Betts orders to Student, Army War College, revoked.

Major Lloyd W. Biggs (Cav.) to Coast Artillery Corps, Philippine Department.

Major William G. Brey to Fort Lewis.

Major James D. Brown to Instructor, Minnesota National Guard, Saint Paul, Minnesota.

Major Hugh McC. Cochran to 69th, Fort Crockett.

Major Frederic W. Cook to Organized Reserves, 6th Corps Area, Lansing, Michigan.

Major Charles S. Denny to Finance Officer, Fort Jay.

Major Arthur W. Gower to Fordham University, Fordham, N. Y.

Major Morris C. Handwerk to duty Army War College.

Major Howell R. Hanson (F.A.) to Coast Artillery Corps, Philippine Department.

Major James L. Hayden to University of California, Berkeley, California.

Major William Hesketh to 69th, Fort Monroe.

Major Harold R. Jackson promoted Lieutenant Colonel, June 1, 1940.

Major William Q. Jeffords, Jr. to 61st, Fort Sheridan.

Major Edgar W. King to 2d, Fort Monroe.

Major Percy S. Lowe to Instructor, Massachusetts National Guard, Boston, Massachusetts.

Major Robert W. McBride to Instructor, Missouri National Guard, Webb City, Missouri.

Major Robert N. Mackin to Fordham University, Fordham, N. Y.

Major John G. Murphy to Fort Lewis.

Major Archibald L. Parmelee to 63d, Fort MacArthur.

Major Paul W. Rutledge to Office of the Chief, National Guard Bureau.

Major Joseph F. Stiley to 19th (PCAD), Fort Rosecrans.

Major Frederick L. Topping to 63d, Fort MacArthur.

Major James R. Townsend orders as Student, Army War College, revoked.

Major James R. Townsend to Army War College for duty.

Major Henry W. Ulmo to 13th, Fort Moultrie.

Major Fred B. Waters to University of San Francisco.

Captain George M. Badger orders as Instructor, Command and General Staff School, revoked.

Captain George M. Badger to Army War College for duty.

Captain Robert W. Berry to 67th, Fort Bragg.

Captain Laurence H. Brownlee to 2d, Fort Monroe.

Captain Nathaniel A. Burnell 2d orders as Instructor, Command and General Staff School, revoked.

Captain Nathaniel A. Burnell 2d to Office of the Chief of Staff, Washington, D. C.

Captain Walter H. Carlisle promoted Major, June 1, 1940.

Captain Edwin W. Chamberlain to 70th, Fort Moultrie.

Captain Lee A. Denson, Jr. to 67th, Fort Bragg.

Captain Charles E. Dunham orders to Hawaiian Department revoked.

Captain Carl H. Fernstrom to 71st, Fort Story.

Captain Lester D. Flory to U. S. Military Mission, Rio de Janeiro, Brazil.

Captain George A. Ford to 10th (PC AD), Fort Adams.

Captain James R. Goodall to 19th (PC AD), Fort Rosecrans.

Captain Lawrence McI. Guyer to 22d, Fort Constitution.

Captain John S. Henn to 19th (PCAD), Fort Rosecrans.

Captain Edward B. Hempstead to 71st, Fort Story.

Captain Armand Hopkins to 69th, Fort Crockett.

Captain Harold H. Hunt (F.A.) orders to Hawaiian Department revoked.

Captain John W. Huyssoon to Judge Advocate General's Department.

Captain Frederick R. Keeler to Adjutant General's Department.

Captain Lyman L. Lemnitzer to 70th, Fort Moultrie.

Captain Donald McLean to Fort Lewis.

Captain Emmor G. Martin to 69th, Fort Monroe.

Captain Paul B. Nelson to Fort Lewis.

Captain Howard H. Newman promoted Major, April 30, 1940.

Captain William H. Papenfoth promoted Major, June 1, 1940.

Captain Willis A. Perry to 67th, Fort Bragg.

Captain John E. Reiersen to Instructor, Connecticut National Guard, Hartford, Connecticut.

Captain James G. Renno to 69th, Fort Crockett.

Captain Warren C. Rutter to Office, Chief of Staff, Washington, D. C.

Captain Joseph P. Shumate orders to Hawaiian Department revoked.

Captain Peter W. Shunk to Fort Lewis.

Captain Logan O. Shutt to Fort Bragg.

Captain Alba C. Spalding to 71st, Fort Story.

Captain Rupert E. Starr promoted Major, June 1, 1940.

Captain Andrew P. Sullican to 67th, Fort Bragg.

Captain Maxwell W. Tracy to 57th, Fort Monroe.

Captain Charles H. Treat (Inf.) orders to Hawaiian Department revoked.

Captain Louis T. Vickers to Fort Lewis.

Captain Walter L. Weible (G.S.C.) promoted Major, June 1, 1940.

Captain Charles M. Wolff to Fort Lewis.

First Lieutenant George E. Adams (F.A.) to 70th, Fort Screven.

First Lieutenant Dana S. Alexander promoted Captain, June 12, 1940.

First Lieutenant Lewis K. Beazley to 67th, Fort Bragg.

First Lieutenant Severin R. Beyma to Leland Stanford, Jr. University.

First Lieutenant Warren S. Blair to 62d, Fort Totten.

First Lieutenant Gaspare F. Blunda to 62d, Fort Totten.

First Lieutenant Edward Bodeau to Ordnance Department.

First Lieutenant Lawrence A. Bosworth promoted Captain, June 12, 1940.

First Lieutenant Harry R. Boyd promoted Captain, June 12, 1940.

First Lieutenant Richard C. Boys to 69th, Fort Monroe.

First Lieutenant Wallace H. Brucker to 67th, Fort Bragg.

First Lieutenant Marshall S. Carter to Panama Canal Department, sailing New York, August 6, 1940.

First Lieutenant Avery J. Cooper, Jr. to 69th, Fort Crockett.

First Lieutenant Harry B. Cooper, Jr. to Fort Lewis.

First Lieutenant Ira W. Cory to Fort Lewis.

First Lieutenant James T. Darrah promoted Captain, June 12, 1940.

First Lieutenant John B. F. Dice promoted Captain, June 12, 1940.

First Lieutenant Charles B. Duff to 69th, Fort Monroe.

First Lieutenant Joe C. East promoted Captain, June 12, 1940.

First Lieutenant Walter F. Ellis to 9th, Fort Banks.

First Lieutenant Carl H. Fernstrom promoted Captain, June 12, 1940.

First Lieutenant Frank T. Folk promoted Captain, June 12, 1940.

First Lieutenant Arthur L. Fuller, Jr. to 69th, Fort Monroe.

First Lieutenant Arthur L. Fuller, Jr. promoted Captain, June 12, 1940.

First Lieutenant Max S. George to 67th, Fort Bragg.

First Lieutenant Seymour I. Gilman to Fort Lewis.

First Lieutenant Robert F. Haggerty promoted Captain, June 12, 1940.

First Lieutenant William H. Harris promoted Captain, June 12, 1940.

First Lieutenant Harry J. Harrison to 3d, Fort MacArthur.

First Lieutenant Clarence J. Hauck, Jr. to Office of Judge Advocate General.

First Lieutenant Lauri J. Hillberg to Fort Lewis.

First Lieutenant Gordon H. Holterman to 69th, Fort Monroe.

First Lieutenant John N. Howell to 57th, Fort Monroe.

First Lieutenant Howard W. Hunter to 57th, Fort Monroe.

First Lieutenant Maxwell M. Kallman to 6th, Fort Winfield Scott.

First Lieutenant Henry J. Katz to Aberdeen Proving Ground (O.D.).

First Lieutenant Franklin Kemble, Jr. to Springfield Armory, Massachusetts.

First Lieutenant Robert H. Kessler to 67th, Fort Bragg.

First Lieutenant Adam A. Koscielniak to 57th, Fort Monroe.

First Lieutenant Adam A. Koscielniak promoted Captain, June 12, 1940.

First Lieutenant Hubert DuB. Lewis to 2d, Fort Monroe.

First Lieutenant Hubert DuB. Lewis promoted Captain, June 12, 1940.

First Lieutenant Henry D. Lind to 9th, Fort Banks.

First Lieutenant Richard H. Mattern to 57th, Fort Monroe.

First Lieutenant Thomas McG. Metz to 65th, Fort Winfield Scott.

First Lieutenant Elmo C. Mitchell to Fort Lewis.

First Lieutenant Thomas D. Neier to 71st, Fort Story.

First Lieutenant Charles J. Odenweller, Jr. promoted Captain, June 12, 1940.

First Lieutenant Charles S. O'Malley, Jr. to 67th, Fort Bragg.

First Lieutenant Byron L. Paige to 69th, Fort Crockett.

First Lieutenant Willis A. Perry promoted Captain, June 12, 1940.

First Lieutenant Howard P. Persons, Jr. to 69th, Fort Monroe.

First Lieutenant Arthur C. Peterson promoted Captain, June 12, 1940.

First Lieutenant Ray A. Pillivant to Springfield Armory, Massachusetts.

First Lieutenant Grosvenor F. Powell to Ordnance Department.

First Lieutenant Charles L. Register to Watertown Arsenal (O.D.).

First Lieutenant Alvin D. Robbins to 67th, Fort Bragg.

First Lieutenant John W. Romlein orders to Coast Artillery School revoked.

First Lieutenant Franklin G. Rothwell to 19th, Fort Rosecrans.

First Lieutenant Paul A. Roy promoted Captain, June 12, 1940.

First Lieutenant Arnold Sommer to 71st, Fort Story.

First Lieutenant John C. Steele to Fort Lewis.

First Lieutenant Oren Swain to 6th, Fort Winfield Scott.

First Lieutenant Alden P. Taber (O.D.) promoted Captain, June 12, 1940.

First Lieutenant John F. Thorlin to Watertown Arsenal (O.D.).

First Lieutenant Joseph H. Twyman, Jr. promoted Captain, June 12, 1940.

First Lieutenant Humbert J. Versace (F.A.) to 70th, Fort Screven.

First Lieutenant William H. Waugh, Jr. to Fort Lewis.

First Lieutenant Donald B. Webber to 67th, Fort Bragg.

First Lieutenant H. Bennett Whipple to 2d, Fort Monroe.

First Lieutenant Stanley A. Wilfong, CA-Res. promoted Captain, June 27, 1940.

First Lieutenant Pennock H. Wollaston orders to Coast Artillery School revoked.

First Lieutenant Robert J. Wood to 57th, Fort Monroe.

First Lieutenant Robert J. Wood promoted Captain, June 12, 1940.

First Lieutenant Joseph B. Yost to 69th, Fort Monroe.

First Lieutenant Frank J. Zeller to Fort Lewis.

Second Lieutenant Godfrey R. Ames promoted First Lieutenant, June 12, 1940.

Second Lieutenant Frank W. Andrews (Inf.) to Coast Artillery Corps.

Second Lieutenant Frank W. Andrews promoted First Lieutenant, June 12, 1940.

Second Lieutenant Herbert C. Armstrong promoted First Lieutenant, June 22, 1940.

Second Lieutenant William W. Bailey promoted First Lieutenant, June 12, 1940.

Second Lieutenant Walter F. Bosky promoted First Lieutenant, June 26, 1940.

Second Lieutenant Donald R. Boss to Air Corps.

Second Lieutenant Raymond C. Cheal promoted First Lieutenant, June 12, 1940.

Second Lieutenant Stanley J. Cherubin promoted First Lieutenant, June 12, 1940.

Second Lieutenant Milton H. Clark promoted First Lieutenant, June 12, 1940.

Second Lieutenant James M. Cochran to Fort Lewis.

Second Lieutenant Walter C. Conway promoted First Lieutenant, June 21, 1940.

Second Lieutenant George W. Croker to 6th, Fort Winfield Scott.

Second Lieutenant Joseph Paul D'Arezzo commissioned June 25, assigned to 63d, Fort MacArthur.

Second Lieutenant Walter C. DeBill promoted First Lieutenant, June 12, 1940.

Second Lieutenant William G. Easton promoted First Lieutenant, June 12, 1940.

Second Lieutenant Perry H. Eubank promoted First Lieutenant, June 12, 1940.

Second Lieutenant Albert L. Evans, Jr. to Air Corps.

Second Lieutenant Philip Henry Farley promoted First Lieutenant, May 16, 1940.

Second Lieutenant Robert H. Fitzgerald promoted First Lieutenant, June 12, 1940.

Second Lieutenant Frederick H. Foerster, Jr. to Air Corps.

Second Lieutenant John Frederick Fremont commissioned June 25, assigned to 71st, Fort Story.

Second Lieutenant James D. Garcia to Air Corps.

Second Lieutenant Max S. George promoted First Lieutenant, June 12, 1940.

Second Lieutenant Robert H. Greer to Air Corps.

Second Lieutenant John McM. Gulick promoted First Lieutenant, June 12, 1940.

Second Lieutenant Linscott A. Hall promoted First Lieutenant, June 12, 1940.

Second Lieutenant Laird W. Hendricks to Air Corps.

Second Lieutenant Monte J. Hickok, Jr. to 57th Fort Monroe.

Second Lieutenant Monte J. Hickok, Jr. promoted First Lieutenant, June 12, 1940.

Second Lieutenant Farrell Johnson, Jr. promoted First Lieutenant, June 19, 1940.

Second Lieutenant Harold O. Johnson to 75th, Fort Lewis.

Second Lieutenant Edward Anthony King promoted First Lieutenant, June 26, 1940.

Second Lieutenant Joseph T. Kingsley, Jr. to Air Corps.

Second Lieutenant Andrew J. Kinney to Air Corps.

Second Lieutenant Edward M. Lee (O.D.) promoted First Lieutenant, June 12, 1940.

Second Lieutenant George F. Leist to 69th, Fort Monroe.

Second Lieutenant George F. Leist promoted First Lieutenant, June 12, 1940.

Second Lieutenant Charles D. T. Lennhoff to Fort Lewis.

Second Lieutenant Earl Williams Limberg promoted First Lieutenant, June 26, 1940.

Second Lieutenant Charles J. Long 3d to Air Corps.

Second Lieutenant James L. McBride, Jr. to Air Corps.

Second Lieutenant Norman J. McGowan to Air Corps.

Second Lieutenant Edward W. McLain to 69th, Fort Crockett.

Second Lieutenant Alfred A. Maybach promoted First Lieutenant, June 12, 1940.

Second Lieutenant Elbert O. Meals to Air Corps.

Second Lieutenant Thomas McG. Metz promoted First Lieutenant, June 12, 1940.

Second Lieutenant Jessie C. Miller promoted First Lieutenant, June 15, 1940.

Second Lieutenant Robert B. Miller to Air Corps.

Second Lieutenant Charles F. Monteith promoted First Lieutenant, June 17, 1940.

Second Lieutenant Thomas D. Neier promoted First Lieutenant, June 12, 1940.

Second Lieutenant John G. Nelson to 69th, Fort Monroe.

Second Lieutenant David B. Nye promoted First Lieutenant, June 12, 1940.

Second Lieutenant Herbert R. Odom to Fort Lewis.

Second Lieutenant Charles S. O'Malley, Jr. promoted First Lieutenant, June 12, 1940.

Second Lieutenant John G. Pickard to Air Corps.

Second Lieutenant John Aloysius Ronayne, CA-Res. promoted First Lieutenant, June 28, 1940.

Second Lieutenant Charles L. Register (O.D.) promoted First Lieutenant, June 12, 1940.

Second Lieutenant Raymond W. Rumph promoted First Lieutenant, June 12, 1940.

Second Lieutenant James A. Scott, Jr. to 57th, Fort Monroe.

Second Lieutenant James A. Scott, Jr. promoted First Lieutenant, June 12, 1940.

Second Lieutenant Donald W. Shive promoted First Lieutenant, June 12, 1940.

Second Lieutenant William T. Smith to Air Corps.

Second Lieutenant Henry M. Spengler promoted First Lieutenant, June 12, 1940.

Second Lieutenant Oscar B. Steely promoted First Lieutenant, June 12, 1940.

Second Lieutenant Stazy James Sukienik CA-Res. promoted First Lieutenant, June 3, 1940.

Second Lieutenant Louis O. Turley promoted First Lieutenant, June 15, 1940.

Second Lieutenant George V. Underwood, Jr. promoted First Lieutenant, June 12, 1940.

Second Lieutenant William J. Worcester orders to Panama Canal Department revoked.

Second Lieutenant William J. Worcester promoted First Lieutenant, June 12, 1940.

Second Lieutenant Tilden P. Wright to Air Corps.

Second Lieutenant Prentiss D. Wynne, Jr. to Air Corps.

Second Lieutenant Charles G. Young promoted First Lieutenant, June 12, 1940.



*This is the Douglas B-23 bomber recently developed by the United States Army.*

# 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.*

## OFFICERS

MAJOR GENERAL J. A. GREEN  
PRESIDENT

BRIGADIER GENERAL WILLIAM OTTMANN  
VICE-PRESIDENT

LIEUT. COLONEL AARON BRADSHAW, JR.  
SECRETARY-TREASURER

## ADDITIONAL MEMBERS OF THE EXECUTIVE COUNCIL

MAJOR GENERAL H. K. LOUGHRY  
COLONEL C. C. DAWES  
COLONEL F. S. CLARK  
COLONEL C. S. GLEIM  
COLONEL E. A. EVANS  
LIEUTENANT COLONEL MILO BRINKLEY  
MAJOR A. V. WINTON

## *The Coast Artillery Journal*

LIEUT. COL. AARON BRADSHAW, JR., Editor

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

### Meet the New Editor

As this issue of your magazine goes to press the present management relinquishes its editorial post to Lieutenant Colonel Charles Thomas-Stahle, Coast Artillery



Corps. The qualifications of our successor are well known to all Coast Artillerymen. However, it will not be taken amiss if we run over the record of Colonel Thomas-Stahle to assure the Corps that our JOURNAL and Association will be in very competent hands for the next four years. Colonel Thomas-Stahle, a Pennsylvanian by birth, graduated from Pennsylvania State Col-

lege in 1911, as a Bachelor of Science in Civil Engineering. Almost immediately he took the examination for commission in the Regular Army and was appointed a second lieutenant, Coast Artillery Corps, in December of 1911. Colonel Thomas-Stahle has seen service in the Philippines, in France, at Fort Monroe, Fort Totten and in the Harbor Defenses of Puget Sound. Moreover he has the experience of duty with the civilian components for he has served tours of ROTC duty at Michigan State College and Massachusetts Institute of Technology.

He is a graduate of the Coast Artillery School Advanced Course (1926), the Command and General Staff School (1927), and holds the degree of Master of Science from Massachusetts Institute of Technology (1922). Our new editor and secretary comes to his desk well fortified by the experience of three decades of soldiering.

We are glad to turn over to the guidance of Colonel Thomas-Stahle a JOURNAL that marks an all-time high in circulation and an Association that is sound financially. This satisfactory condition, in the main, is due to the wholehearted coöperation of our many friends who have labored on our behalf in the field. Furthermore, it is due to the wise counsel and coöperation given unstintedly by the personnel of the office of the Chief of Coast Artillery. Running an editorial office and business enterprise of the size your JOURNAL has now achieved requires the interested help which has been at our command. The present management has had that assistance in more than generous measure. We know the same coöperation and wise counsel will be given Colonel Thomas-Stahle. We know he will be as appreciative of it as we have been.

To our successor we wish the best of luck. To our subscribers we offer our congratulations since they are assured excellent management in the future.

## Questions From the Battlefield

Major Yang Ya-mei,  
C/o Post Office Box 95  
Kweiyang, Kweichow,  
China.  
May 25, 1940

Editor

COAST ARTILLERY JOURNAL  
Washington, D. C.

My dear Sir:

May I have a few minutes of your valuable time in reading this letter from the war country. I am an old friend of yours—not personally—but through the medium of your valuable JOURNAL. So I have little hesitation in mailing this to you.

First, from the theoretical point of view, trial fire is unsuited for the AA unit. Especially is this true in the forward area, where to shoot trial fire before the raider arrives would undoubtedly tell him where I am and would warn him where not to go. Even in the rear area, the opportunity is quite limited to shoot four or more rounds to determine the conditions which affect the trajectory. I have often observed the ground-air battle and I have discovered that few batteries could control the regular pattern of the four projectiles. Even though there is extensive examination and check of matériel before fire, the ballistic errors can never be corrected except by actual service firing. To my mind, the question as to whether or not to fire trial shot is a problem of both tactics and gunnery. Of course in defending a city several hundred miles distant from the enemy there is no tactical danger in shooting trial shot, but how about in the field army in the forward area? And, moreover, suppose air superiority is held by the enemy? Once our battery is discovered, low-flying machines in formation will rain bombs on it. The infantry or field artillery units in the vicinity will undoubtedly dislike to have a battery shooting when enemy aviation is not in sight. Should the rounds be fired before we see the raider or not? If so, when? How much fire may we indulge in if projectiles endanger the civilians who have not seen or heard any enemy bombers?

Secondly, the single-line column formation is very difficult to fire at. Once I saw eight bombers in triangle formation. The 3-inch gun battery fired immediately the target came within effective range. The raiders then broke down into a single-line column formation. This action apparently caught the battery unawares, for there was a three or four second interval before I saw the second bursts. The bombers' target was a false airfield, not more than 1,000 yards long and 500 yards wide. The bombers dropped their loads in turn from the same point. We made a big error. The fire was not handled so as to form a screen in the vicinity of the planes' descending point. Otherwise, at least two of them could have been brought down. Owing to the long distance between the individual planes—about 300 yards or more—it was useless to follow them. As a matter of fact, one cannot follow them.

To my understanding, the only way to meet a situation of this kind is to form a screen in the vicinity of the first plane's descending point. Is this right or not?

Thirdly, in area defense, air forces cannot work in close cooperation with the ground force. Gun batteries usually hold their fire when the friendly air force is in the air. Thus we lose opportunities to fire and sometimes the raider may dive down to throw a few loads at the gun battery. I have spent a lot of time in searching the textbooks for material dealing with the cooperation of pursuit and AA guns, but so far have found nothing definite.

Once, a little before dark, waves of raiders came to attack a city. We had both air force and several batteries of 75-mm. AA guns. Poor visibility prevented us from distinguishing the insignia on the planes so we did not fire for the first few minutes. Later we decided to shoot disregarding the danger to our own aviation. Fortunately, five of the bombers were brought down, and none of ours were hit. However, I do hope that somewhere there are some good ideas concerning this kind of a situation.

My fourth problem concerns the infantry in the field. As there is no country that can furnish sufficient AA troops with the field units, protection against aviation is the duty of the infantry itself. Here I believe that active methods will be the most effective means to check attack aviation, but nine times out of ten a commander dislikes to have his boys shoot at planes even if these fly low enough to be hit by rifle or machine-gun fire. The chief reason for this unwillingness to open fire seems to be a fear that units will be discovered and will thus afterward attract more attack aviation and so cause more losses. Three years of war in my country have brought little change in this idea of the troop leaders. Yet to rely too much on passive methods results in weakening the morale of boys who have never been in battle. We have had many arguments about the active or passive defense. I wish I could have some of your valuable ideas on this.

Maybe you are too busy, so answering this will be "out" for you, but I do hope your advice will reach me in the near future.

Best wishes to you and your members.

Sincerely,

YANG YA-MEI,  
Major, F. A.,  
Chinese Army.

✓ ✓ ✓

## Promotions of German Army Officers

A recent study of changes in the commissioned personnel of the Reichswehr following a period of over nine years—May, 1930 to August, 1939—indicates a rapid acceleration upward. At the beginning of this period there were 42 generals. In August, 1939 two were listed as army commanders, five as unassigned and 35 as deceased or retired. Likewise, of 106 colonels, two had become army commanders, seven corps commanders, one a general of the air service, five division commanders, three brigade

commanders and 88 deceased or retired. Of 192 lieutenant colonels, one had become an army commander, 25 corps commanders, two generals of the air service, 25 division commanders, one a commander of an air division, 12 brigade commanders, one a commander of an air brigade, five colonels and 120 deceased or retired. Of 378 majors, three had become corps commanders, seven generals of the air service, 31 division commanders, eight commanders of air divisions, 139 brigade commanders, 16 commanders of air brigades, 67 colonels, one a colonel of the air service and 106 deceased or retired. Of 1,100 captains, 13 had become brigade commanders, 15 commanders of air brigades, 400 colonels, 40 colonels of the air service, 450 lieutenant colonels, 40 lieutenant colonels of the air service and 142 deceased or retired. Of 1,300 first lieutenants, ten had become colonels of the air service, the others lieutenant colonels or majors. Of 600 second lieutenants all had become majors or captains. *La France Militaire*, 24 February, 1940.

✓ ✓ ✓

### The Armament Program

The following tabulation showing the status of supply of Coast Artillery critical items, is extracted from the testimony of the Chief of Staff before the House Appropriation Committee on May 22, 1940:

<i>Type of equipment</i>	<i>On hand May 1, 1940</i>	<i>Will be on hand at completion of program</i>
ANTIAIRCRAFT		
3-inch guns .....	448	500
90-mm. guns .....	...	317
Directors .....	168	273
Height finders .....	142	276
Sound locators .....	194	801
37-mm. guns, antiaircraft ..	15	1,423
Machine gun, caliber .50 ...	1,014	1,682
RAILWAY ARTILLERY		
8-inch railway gun and carriage		24
AMMUNITION		
37-mm. antiaircraft gun ....	46,000	2,624,000
ENGINEER CORPS		
Searchlight, 60-inch mobile . .	285	1,028

✓ ✓ ✓

### Defense of AA Artillery Against Air Attack

Two tactical methods may be employed against anti-aircraft weapons by aviation: The direct attack, and the "blinding" of the AA weapons. It should be noted that the direct attack is quite difficult for bombardment aviation, since the positions of the anti-aircraft batteries as a rule present extremely small targets. When properly camouflaged these are hardly noticeable.

Abroad it is considered advisable first of all to conduct a thorough visual and photographic reconnaissance of the areas where hostile anti-aircraft weapons are believed to be situated.

The next step is the destruction of the anti-aircraft fire system by sudden attack against individual targets. It is contemplated that this will force the anti-aircraft personnel to take cover or to be kept fully occupied in defending themselves. With the destruction or neutralization of the AA defense weapons, the enemy at once takes advantage of their momentary inaction for the execution of his primary mission.

The Spanish Insurgents bombarded Government AA batteries with swift bombers, attacking simultaneously from different directions. There were some isolated attacks by pursuit aircraft against AA artillery positions.

The following methods were also employed. Having determined the location of the Government AA artillery, the Insurgent planes approached the zone of effective AA fire and circled about with a view to diverting the attention of the artillery personnel. Fire could not be opened because the targets were still beyond the range of effective fire. And while the attention of the AA artillery was attracted to the direction where the hostile aircraft were circling about, attack planes delivered their raid from another direction.

For the purpose of "blinding" the AA weapons the area in which these are situated is covered with smoke. Under the normal disposition of batteries the general area occupied by an AA battalion is about sixty square kilometers. The task of covering an area of this size with smoke is by no means simple, and requires the utilization of a large number of planes. The number of planes needed to smoke two or more AA artillery battalions is readily apparent. The effort involved is so great as to render such action prohibitive.

And yet the possibility of "blinding" individual areas must not be overlooked. The enemy may "blind" anti-aircraft weapons in a particular sector, and by so doing facilitate the action of his bombers.

What are the methods to be employed in the circumstances? First of all, there must be efficient reconnaissance that will permit of a proper estimate of the intentions of the hostile air raiders. The moment the hostile planes are discovered attempting to use smoke against the area, they must be destroyed. Hence reconnaissance must insure timely detection of the hostile aircraft. It is important that the main group of the hostile aircraft be prevented from reaching the area.

Furthermore, the AA artillery personnel must be trained for action from smoke-covered positions. In these circumstances, fire may be conducted with the aid of listening devices, and by creeping and fixed barrage fire. Consequently, each battery must be prepared to deliver barrage fire in its particular sector.

The enemy may also utilize smoke-screens to cover his bombers against ground observation during flight over the anti-aircraft defense zone. Here a smoke-screen will be

laid down frontally and in depth of the flight of the bombardment group. This will be undertaken in rare instances only, since it will involve the employment of a large number of airplanes. Nevertheless preparations must be made for such contingencies.

First of all, action must be taken against hostile reconnaissance craft attempting to discover the antiaircraft defense system. Next, the hostile aircraft laying down the smoke-screen must be destroyed, and most important of all, the main hostile bombardment group must be destroyed.

Action against the hostile reconnaissance craft is undertaken by specially designated batteries. Otherwise the entire antiaircraft system will be revealed to the enemy. As soon as fire against the hostile reconnaissance craft has been ended, the batteries are shifted to previously prepared positions. Otherwise the batteries which had disclosed their positions during their fire would be subjected to attack, and find themselves unable to participate in the action against the principal hostile air forces.

In certain instances pursuit aviation may be employed against the hostile reconnaissance craft, to the end that the antiaircraft positions may not be revealed.

In planning a direct attack against the AA positions, the enemy will of course conduct a reconnaissance first. On the basis of this reconnaissance he will make his first decision whether to attack the antiaircraft weapons or to avoid their positions entirely. The reconnaissance will be conducted by individual fast bombers or by pursuit craft flights proceeding at low altitude.

As demonstrated by the experience of recent conflicts, the aviation goes into action at the more probable points of the location of hostile troops, in order to determine whether any hostile troops are actually situated there. In some instances this method of reconnaissance has afforded satisfactory results. Having taken cover in groves or at the edge of woods, the troops during aerial attacks dispersed in various directions, or they opened fire, and thus betrayed their presence. The reconnaissance thus accomplished its objective.

From this it follows that fire must not always be opened against reconnaissance planes and that the action must here be based on the tactical situation. The enemy, as a rule, will undertake his reconnaissance in the area of the principal attack objective. And this being the case, it would not be wise for all antiaircraft weapons in the area to reveal their positions.

The enemy will also conduct reconnaissance in secondary areas for the purpose of concealing his actual direction of attack. In the circumstances it is highly important to estimate properly his real intentions.

The antiaircraft personnel must be provided with suitable cover against aerial attack. Even the use of simple dugouts will greatly reduce personnel losses. Special attention must be given to camouflage discipline.

The enemy will obtain best results where he succeeds in destroying the principal antiaircraft defense weapons

simultaneously with his reconnaissance operations. In this instance the enemy will employ two or three tactical groups echeloned in depth and altitude. The first group, proceeding at low altitude but at great speed, will cause inexperienced antiaircraft personnel to open fire. The latter failing to realize the fact that these hostile planes are being followed by another group of aircraft with the object of attacking all AA weapons will reveal their positions by opening fire.

To avoid this, observation must be conducted further than merely against the planes flying at low altitude. Care must be taken to note whether other planes (of greater potential danger) are not following these first hostile aircraft.

The enemy will endeavor to deliver his attack from different directions, more often from the direction of the sun or from behind clouds. Consequently, it is always important to maintain observation in the direction of the sun and clouds. In the event of a simultaneous attack from different directions, the antiaircraft weapons are divided so as to fire against each of the targets.

Mutual assistance is of cardinal importance here. When the hostile craft are attacking one battery, the next battery situated nearby must open fire against these hostile craft.

In defense at night, searchlights are of vital importance. Without the aid of these, the effectiveness of the AA artillery weapons will be greatly reduced. The enemy will first of all attempt to disable all searchlights in operation. Hence these must be protected by the AA artillery.

The AA artillery must also consider the fact that even a single assault at night will suffice to put the battery out of action. Consequently, it is necessary to change positions at night after each fire action. *Krasnaya Zwesda* (USSR), August 14, 1939.

1 1 1

### "Gnats"

The following gives the most interesting features of German "gnats," or motor torpedo boats.

The first motorboats of the LM-type built about 1925, displaced not more than 6-7 tons with a length of 52½ ft. and a beam of 8 ft.; they were propelled by 3 propellers driven by gasoline engines of 630 to 720 hp. and attained speeds from 28 to 30 knots. They had a cruising radius of 150 to 200 miles. The armament consisted of a 1.45- or 1.76-in. gun, a machine gun, and an 18-in torpedo tube.

In 1926, the K-class were built, length 34.4 ft., in which the horsepower jumped to 1,060 and the speed to 40 knots.

About the same period some much larger boats were built, 26 tons, length 69 ft., beam greater, but capable of only 29 knots; these craft were designed primarily as submarine chasers.

The boats constructed from 1933 on have undergone a new transformation. According to the Germans, craft having a rounded hull cross section would have better

sea-keeping characteristics than those with concave or flat bottoms. It is in the direction of craft with rounded hulls but of large displacement that the Germans have concentrated their efforts. Moreover, they have discarded gasoline engines as being too dangerous and have employed in their stead light motors burning a heavier and less volatile fuel.

The R-1 to R-16 boats, built from 1930 to 1935, have a 45-ton displacement, 85.4 ft. length, and are propelled at 18 knots by 2 M.A.N. 600-hp. motors. They mount 2 antiaircraft guns and have a 17-man crew.

The most recent torpedo launching motorboats of the S-6 to S-37 type, built from 1933 to 1939 have a displacement of 62 tons, a length of 93 ft., and are propelled at speeds of 30 to 36 knots by 2 double acting M.A.N. or Daimler-Benz motors of 2,400 hp. They carry an antiaircraft gun and two 20-in. torpedo tubes. There is a 17-man crew.

The majority of these craft, hulls of wood, are built by Lursen-Vegesack. These same yards recently furnished 8 similar craft to the Yugoslavian Navy. They have a displacement of 60 tons, a length of 92 ft., a beam of 14.1 ft., and a draft of 5 ft. Three 1,000-hp. Daimler-Benz motors of the BF 2-type furnish the power plant; there is in addition a small auxiliary motor for use at cruising speeds. The armament consists of a 1.85-in. gun, a machine gun, and two 18-in. torpedo tubes. The crew are 12 in number. All of these craft, of large tonnage and Diesel motored, naturally possess a large cruising radius. The normal cruising radius of a boat driven by gasoline engine of around 20 tons is scarcely greater than 600 miles.

The Diesels used in the German craft are the ones which had been developed by several firms—under government contracts—for use in Zeppelins. These motors underwent very severe tests. The Daimler-Benz motors have been used in Zeppelins in transatlantic service. Those used in the motorboats develop 1,350 hp. through 16 cylinders arranged in 2 banks of 8 in a V at an angle of 50 degrees. The pistons are 7 inches in diameter and have a 9-in. stroke. The weight of the motor dry is some 4,400 lb., a little more than 2 lb./hp.

The M.A.N. motors can develop 1,200 hp. at 1,200 r.p.m.; they normally turn up for 900 to 1,000 hp. Their weight ratio is 2.62 lb./hp. These motors have 7 cylinders of 7.5-in. bore diameter and have a 12-in. stroke.

The auxiliaries of this 2-cycle, double-acting motor are: centrifugal blower for scavenging, pump for cooling oil, pump for lubricating oil, and centrifugal pump for circulating water. They are driven by the motor and use up about 30 per cent of the i. hp. The fuel consumption does not exceed 3 oz. per horsepower hour, which bears witness to the excellent scavenging and complete combustion. The weight of the motor dry is 3,608 lb.

The German Navy has forbidden the sale of this type of motor as well as the publication of any or all descriptive literature. *U.S.N.I. Proceedings from Journal de la Marine Marchande.*

## War Brings New Tactics

*Royal Air Force Quarterly*, June, 1940—New devices have been fitted to British bomber aircraft as the result of recent advances by the Royal Air Force in the scientific study of precision bombing.

Details of bomb sights and mechanism are always close secrets, and the new tactics developed by the Air Force as a result of experience in air actions against the enemy are not yet for general—or enemy—knowledge. But an understanding of the principles of the aerial bombardment of defined targets—as opposed to indiscriminate bombing—affords some indication of what may be achieved.

### TYPES OF ATTACK

Roughly speaking, modern bombing takes one of three forms—high-level or precision bombing, low-level bombing, or dive-bombing. The type of attack depends on such things as ground opposition, nature of target, degree of penetration required, the weather, and the type of bomb used.

High-level bombing may be from any height within the "ceiling" of the aircraft. Conceivably this may be as much as six miles high, where antiaircraft guns and barrage balloons cease to be a menace, but in practice accuracy would demand a lesser height. For the same reason a straight and level approach is necessary. Sometimes the bomber can make use of clouds to hide its approach, but generally a clear run is required to achieve accurate results.

To allow for its forward travel the bomb is released some distance from the target. "Drift" due to the wind, has also to be allowed for. Although, at a considerable height, the point of release may be as much as two or three miles from the target, the bomb arrives on the ground at about the same time as the aircraft would be directly overhead.

"Pattern" bombing, or the aiming of a number of bombs at various points round the centre of the target, rather like the bunch of pellets fired from a shotgun, is a modern development of high-level bombing. In such types as the Vickers Wellington, Handley-Page Hampden and Armstrong-Whitworth Whitley, the Royal Air Force possesses numbers of fast, powerful aircraft admirably suited for precision bombing.

### LOW-LEVEL AND DIVE-BOMBING

Low-level bombing is a method of attack designed to secure accuracy, whilst minimizing the risk from anti-aircraft fire. It has the advantages of surprise, and it may be employed under weather conditions unsuited for high-level bombing. The fast, medium-size bomber of advanced design, which is not suited for dive bombing, is the type which can best be used for this work.

Dive-bombing also aims at attaining greater accuracy than bombing from high altitudes and at presenting a more difficult target to the ground defences. It may be of the "high" or "low" dive variety. In a high dive the

bomb will generally be released between 2,000 and 1,500 feet above the target. A low-dive attack may start at about 2,000 feet and continue to as low as 200 feet before the release and pull-out.

Dive-bombing was largely used by the Germans in their initial surprise attack on Poland, following tactics worked out in their rehearsal in Spain. Roads, railways, moving trains, columns of troops, headquarters, aerodromes, telephone exchanges and similar nerve centres miles beyond the fighting area were attacked, resulting in paralysis of communications.

Special aircraft have been developed for dive-bombing duty, strong enough to withstand the stresses set up in the dive and the pull-out. They are usually fitted with some form of air brake to control the speed of the dive. A typical German example of the type is the JU.87A, whilst the Blackburn Skua is a first-class British aircraft specially designed for dive-bombing as well as fighting.

1 1 1

### Finland

*Royal Air Force Quarterly*, May 1940, from *Le Vie del'aria*, 6th April, 1940—Now that the Russo-Finnish War is over, certain information is available relating to Finnish antiaircraft activity against the Soviet bomber units. It is reported that the number of Soviet aircraft brought down by Finnish AA artillery was 275—50 in December, 60 in January, more than 100 in February, and about 50 during the remaining period of hostilities. The mean number of rounds fired for each aircraft destroyed was 54. Although the source of information cannot be considered reliable, since it is manifestly biased, and in spite of the well-known deficiencies in the organization and employment of the Soviet bomber units, nevertheless these figures are of increased interest when one considers that at the beginning and end of the Great War, 1914-18, the average number of rounds required to bring down a single aircraft was 11,000 and 6,000 respectively. The Finnish record in this field of activity was made by the AA battery commanded by Lieutenant Marton, which is reported to have brought down alone more than 30 Soviet aircraft.

1 1 1

### Paving Slabs as Protection Against Air Attack

*The Shipbuilder and Marine Engineer*, May, 1940—Perhaps the most cruel of all the tactics so far adopted by the Nazis has been the machine-gunning of defenseless coasters and trawlers; but the use of paving slabs, similar

to those employed for pavements, will it is claimed, prove an effective antidote.

In the early days of the war, sandbags were used to protect the wheelhouses, but these had only a short life in North Sea weather conditions. They were expensive, cumbersome and heavy, costing on an average £120 per trawler, and weighing about 20 tons. Later, the Ministry of Shipping considered the suggestion of substituting concrete paving slabs in place of the sandbags. It was claimed that these slabs would be easier to fit, take up less room, be lighter in weight with less strain on the superstructure, and afford permanent protection for the duration of the war. Moreover, supplies of such slabs were available for every trawler and coasting vessel in the country. Plans were produced, and the fitting of concrete slabs to the wheelhouses of such vessels has recently become recommended as preferable to the use of sandbags.

The slabs are made to British Standard Specification, like those used for street paving, and are of a minimum thickness of 2½ inches, which is sufficient to withstand bullets.

A wheelhouse can be given effective protection by placing the slabs flat against the structure and holding them in place with wood or steel channels. Alternatively, they can be held in position by cover plates where the slab butts join. In those vessels which normally have an open wheelhouse, the slabs can be erected and held in position by a strutted framework.

Windows, which are 12 inches deep by about 1 foot 6 inches or 2 feet wide, can be closed at a moment's notice by lowering iron shutters; the doors can be protected in a similar way, or preferably by auxiliary doors made of paving slabs and carried in a special frame.

The compass remains unaffected by the concrete as paving slabs made to the authorized British Standard Specification do not require steel reinforcement.

1 1 1

### The Dual-Mission Problem

The article "Who's Who?" beginning on page 328, is believed to be of special interest to officers serving with antiaircraft units as it is probable that contingent anti-mechanized missions frequently may be assigned to automatic weapons battalions.

It will be noted from another article—"AA-Anti-mechanized Defense of Leesville"—on page 357, that an antiaircraft regiment already has had to cope with this problem during recent maneuvers.



# Coast Artillery Activities

## OFFICE OF CHIEF OF COAST ARTILLERY

*Chief of Coast Artillery*

MAJOR GENERAL JOSEPH A. GREEN

*Executive*

LIEUTENANT COLONEL K. T. BLOOD

### *Matériel and Finance Section*

MAJOR J. T. LEWIS  
MAJOR S. L. McCROSKEY  
MAJOR L. W. JEFFERSON  
MAJOR C. VAN R. SCHUYLER  
MAJOR F. B. KANE

### *Organization and Training Section*

LIEUTENANT COLONEL D. D. HINMAN  
LIEUTENANT COLONEL C. THOMAS-STAHLE  
LIEUTENANT COLONEL AARON BRADSHAW, JR.  
MAJOR H. N. HERRICK  
MAJOR J. E. HARRIMAN

### *Plans and Projects Section*

LIEUTENANT COLONEL A. G. STRONG  
MAJOR L. L. DAVIS  
MAJOR R. E. STARR

### *Personnel*

LIEUTENANT COLONEL F. E. EMERY, JR.



## Corregidor

BRIGADIER GENERAL WALTER K. WILSON, *Commanding*

COLONEL FREDERIC A. PRICE, *Executive*

MAJOR L. U. BOWLER, *Adjutant General & S-1*

MAJOR S. McCULLOUGH, S-2

MAJOR W. C. BRALY, S-3

MAJOR L. R. CREWS, S-4

COLONEL R. P. GLASSBURN,  
*Commanding 59th Coast Artillery (HD)*

COLONEL WILLIAM C. KOENIG  
*Commanding 60th Coast Artillery (AA)*

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

COLONEL J. F. COTTRELL  
*Commanding 92d Coast Artillery (PS) (TD)*

*By Major S. McCullough*

"The Rains Came" certainly applied at Corregidor during the last few days. Prior to May 22d we had bright cloudless days ideal for outdoor training and athletics. However, the last two months have been hot and at times muggy so the rains were welcomed to the extent that they brought the temperature down somewhat, also turned the dry-brown grass on the golf course green again.

Training during this last two months brought to a close a busy training year. All target practices are now completed and these harbor defenses can well be proud of the excellent results obtained.

The Philippine Department announced in General Orders that the following organizations of the Harbor Defenses of Manila and Subic Bays, are classified as "Excellent" in Coast Artillery target practice for the calendar year, 1940:

### *Battery Regiment Armament*

B 59th C.A. 12" Guns  
D 59th C.A. 12" Guns  
F 59th C.A. 12" Guns  
A 60th C.A. AA SL  
B 91st C.A. 3" Guns  
C 91st C.A. 6" Guns  
F 91st C.A. 155-mm. Guns  
G 91st C.A. 155-mm. Guns

### *Battery Commander*

Captain Clair M. Conzelman  
Captain L. S. Kirkpatrick  
Captain John H. Fonvielle  
1st Lieut. Arthur C. Peterson  
1st Lieut. John B. Dice  
2d Lieut. Melvin R. Russell  
Captain Will K. Stennis  
Captain Dean Luce  
and Submarine  
Mines  
A 92d C.A. 3" Guns 1st Lieut. Robert H. Kessler  
B 92d C.A. 155-mm. Guns Captain Olaf H. Kyster, Jr.  
D 92d C.A. 155-mm. Guns 1st Lieut. Thomas H. Harvey  
USAMP Harrison 1st Lieut. Harry J. Harrison

The month of May has been used to clean up antiaircraft machine-gun firing, supplementary small-arms prac-

tice, unfinished emergency defense training and the furnishing of instructors and technical assistance in anti-aircraft and antimarine firings to units of arms other than Coast Artillery now in camp on Corregidor.

In the realm of athletics, King Baseball still reigns supreme. Boxing, tennis, softball and volleyball have also been in full swing with lots of enthusiasm shown by members of the entire garrison.

Two interpost boxing smokers were held with the pick of the fighters, both American and Scout, participating. Fighters from all the regiments at Fort Mills traded punches with the best from Forts McKinley, Stotsenburg, Nichols Field and Post of Manila. The matches were of high caliber with Fort Mills winning a goodly share of the bouts.

The baseball season, which has just ended, was one of the best in the history of the "Rock." The 59th Coast Artillery after losing the post championship to the 60th Coast Artillery (AA) in a bitter five-game series, came back strong to win the department league pennant in the American division; winning nine and losing only one. The 60th Coast Artillery (AA) also did itself proud by finishing in the runner-up position. The 91st Coast Artillery (PS) though deserted by Dame Fortune this year, losing several close games, managed to wind up the season in fourth place in the Scout League of the department.

The rainy season having started, the athletic interest automatically turns to bowling. The inter-battery bowling leagues in the regiments are already under way. Duckpins come first, then tenpins. Officers' teams are now organized and the scheduled games get under way June 3d.

Personnel changes not covered in the regimental articles that have occurred during this period are as follows: Returning to United States on May 31st: Major G. C. Pilkington, to Fort Riley; Major J. H. Gilbreth, to Fort MacArthur, and Major Joe B. Hafer, to Columbia, South Carolina. The following arrived on the May transport for duty in the Harbor Defenses of Manila and Subic Bays, Lieutenant Colonel Murrell, Major E. F. Barry, Captain Artman, and Nurses Fellmeth, Breese, and Stoltz. The following noncommissioned staff officers arrived: First Sergeant S. R. McKellar, Technical Sergeants McArthur and Sherman, and Staff Sergeants Conklin, and Johnson.

At the conclusion of the war condition period, which closes the active training year, many officers took advantage of detached service and leaves of absence to visit Baguio, the Southern Islands, China and Japan during this hot season of April and May.

#### 59TH COAST ARTILLERY

*By Major Louis H. Thompson*

At the conclusion of the war condition period nearly all of the officers of the regiment who are "over the hump" took advantage of detached service at Camp John Hay or leave to travel and seek surcease from the

heat of April and May. Camp John Hay is also becoming popular with the men and during the hot season many have taken advantage of the authorized fifteen days of DS. The lifting of the ban on visiting Shanghai was the occasion for Major Thompson, Captain Kirkpatrick, Lieutenants Lind, Hauck, and McLain to visit that cosmopolitan city on leave of absence. The Southern Islands trip was taken by Colonel Glassburn, Captain Miller and families. Upon returning Colonel Glassburn went on a hunting trip into the unexplored portion of the Zambales Mountains.

The May transport brought Lieutenant Burton R. Brown to the 59th and will take away Lieutenants Henry D. Lind and Edward W. McLain to Fort Monroe.

Included among the noncommissioned staff officers arriving on the May transport, and assigned to the 59th, were First Sergeant Franklin A. Green, and Staff Sergeant Robert E. Bergsten.

The transport sailing from Manila on May 31st will have as passengers the following noncommissioned staff officers of the 59th returning to the United States for duty at stations indicated: Staff Sergeant Norman Senn, Fort Monroe, Staff Sergeant Thomas Woods, Fort MacArthur, and Staff Sergeant George P. Heaton, Fort Crockett. During the month First Sergeant Adrian Leclerc departed on commercial steamer via China and Japan en route to Fort Barrancas.

During the past two months, athletic competition has maintained its usual high level and enthusiasm. Baseball, within the regiment, was won by Battery G, who barely nosed out Battery A, in a whirlwind finish. In the inter-regimental games the 60th nosed us out 3 games to 2. However, at this writing, we have just defeated the 60th to the tune of 17 to 3 in the department league thereby clinching the department championship for the 59th.

The regimental tennis team won the post championship, defeating the 60th 5 matches to 4 and the detachments 6 matches to 3.

Volleyball, nine teams competing, was won by Battery B. Fine spirit and enthusiasm were displayed throughout the regiment. The post volleyball championship (American Division) was won by the 60th.

Duckpins are now the order of the day as rainy season approaches. Headquarters Battery now holds the lead at the end of the first half with Battery B and the Quartermaster at their rubber heels. Season ends June 30th so anybody can win yet.

#### 60TH COAST ARTILLERY

*By Major J. L. Hogan*

The regiment did not receive any officers from the May transport, but it was fortunate in having two officers assigned from the 92d Coast Artillery (PS). These are Lieutenant Dallas F. Haynes who was assigned to Battery D and detailed as assistant regimental motor transportation officer and Lieutenant John D. Wood was assigned to Headquarters Battery and detailed as regimental gas officer and officer in charge of records section.

Lieutenants Franklin G. Rothwell and James R. Holmes have rejoined the regiment from a month's leave during which they visited China and Japan. Major Joseph H. Gilbreth and Captain William C. McFadden are now on leave and will return in time to embark on the May transport.

During the past two months baseball has predominated. Volleyball and tennis have also had a place in the line of sports with many interesting matches.

In the Philippine Department baseball league the 60th opened its season by defeating the Nichols Field Club. Recently the 60th lost to the 59th and thereby took second place in the final standing of the department baseball league.

The regimental volleyball championship was won by Battery D. Representing the regiment, Battery D then won the post championship from the 59th in close and interesting games.

The commanding officer, Colonel W. C. Koenig, during the past week presented the various organizations and individuals with trophies and medals for their past performances. The awards were made at an appropriate ceremony and after having received their trophies, the recipients reviewed their comrades with the commanding officer and his staff.

Battery A, the Searchlight Battery, completed its annual target practice after encountering many obstacles, due primarily to weather conditions. The hearty cooperation of the Air Corps in conducting air missions assisted materially in bringing this practice to a successful completion.

The gun batteries of the antiaircraft defense continue training on all available air missions for the purpose of retaining the efficiency of the command during the indoor season.

The machine-gun batteries completed their training for the year, but are now engaged in training groups from the 4th Composite Group (Air Corps) that have been attached to this regiment for instruction in antiaircraft firing. This training consists of instruction in rifle marksmanship and the use of antiaircraft machine guns. Various infantry units have returned again to Fort Mills for training in machine-gun firing against moving air and water targets.

#### 91ST COAST ARTILLERY (PS)

*By Major V. P. Foster*

The 91st Coast Artillery received two new officers when the *Grant* arrived. Major Napoleon Boudreau has taken over the positions of regimental plans and training officer and commanding officer, 2d Battalion, while Lieutenant Philip H. Lehr is assigned to Battery F and will live at Fort Frank.

The Philippine Department baseball tournament, Scout Division, ended with the 91st Coast Artillery (PS) in fourth place winning five and losing five games. Four of these games were lost by one run.

The regimental volleyball series is over. Battery A won eleven out of the twelve games played. Battery A represented the regiment in the inter-regimental volleyball tournament, defeating the 92d Coast Artillery in two straight games.

The regimental tennis team now holds the post championship (Scout Division). It defeated the 92d Coast Artillery, score 8-1.

During the past two months the officers have been taking advantage of the recreation and recuperation features of Camp John Hay, at Baguio. The following officers have been registered at the Camp recently:

Colonel Willis Shippam, Majors Jos. P. Kohn and Valentine P. Foster, Captains Joseph H. Rousseau, Jr., William B. Short and Will K. Stennis, Lieutenants Thomas McG. Metz and Edgar S. Rosenstock.

Lieutenant John B. F. Dice returned to the regiment after an interesting forty days leave in China.

#### 92D COAST ARTILLERY (PS)

*By Major Elvin Barr*

The annual target practice season for 1940 came to a grand finale when the approved ratings were announced by Headquarters Philippine Department.

All batteries are busily engaged in the conduct of gunners' instruction and examinations. The officers are also occupied in working out their topic assignments and completing the schedules for basic and Battery officers' courses. Harbor defense and regimental troop schools for officers, commence the first week of June and continue to the last week of August.

Officers are now practicing daily for the duckpin tournament as preliminary to the bowling season. Although most of the members of last year's championship team have departed for other stations, the new arrivals are showing good form.

The inter-battery volleyball league completed its schedule with Battery B again winning the league pennant.

Lieutenant Kappes has been detailed for duty at Fort Wint with the Philippine Army.

Lieutenant D'Arezzo was transferred from the 91st to the 92d for duty with Battery E of the Guard Battalion.

Lieutenant Ball has returned for duty with the regiment from Fort Wint.

The regiment welcomes Lieutenants Madison, Snoke and Farris who arrived on the May transport.

Lieutenant Haynes, formerly the Regimental Utilities Officer was transferred to the 60th Coast Artillery (AA), May 19th. Lieutenant Miller was relieved from the 92d Coast Artillery (PS), May 20th and assigned to Harbor Defense Headquarters for duty as Assistant Harbor Defense Recreation Officer. 2d Lieutenant Wood will be relieved from the Guard Battalion and assigned to the 60th Coast Artillery (AA) on the 25th of May.

Captain and Mrs. Kyster, and Lieutenant and Mrs. Kessler are returning to the United States on the May 31, 1940 transport.

# Hawaiian Separate Coast Artillery Brigade

BRIGADIER GENERAL FULTON Q. C. GARDNER, *Commanding*

LIEUTENANT COLONEL C. M. S. SKENE, *Chief of Staff*

MAJOR L. V. WARNER, *Adjutant General & S-1*

CAPTAIN G. SCHMIDT, *S-2 & Gunnery*

LIEUTENANT COLONEL J. H. LINDT, *S-3*

LIEUTENANT COLONEL R. M. PERKINS, *S-4*

CAPTAIN I. H. RITCHIE  
*Com. and Engineer Officer*

MAJOR J. C. BATES  
*Sec. Ath. Officer*

CAPTAIN S. E. WHITESIDES, JR.  
*Chemical Warfare Officer*

LIEUTENANT COLONEL R. S. BARR  
*Ordnance Officer*

COLONEL E. B. WALKER  
*Commanding Harbor Defenses of Pearl Harbor*

COLONEL CHARLES K. WING  
*Commanding 64th Coast Artillery (AA)*

COLONEL W. D. FRAZER  
*Commanding Harbor Defenses of Honolulu*

*By Lieutenant Milan G. Weber*

## OAHU'S TROOPS TAKE TO THE FIELD

In line with the intensive training schedule prescribed by the War Department, the department commander has directed that all troops participate in an extensive field exercise designed to afford training in field duties to all elements of the command. Deployment for this exercise began on the morning of June 17. Designed to test and maintain the defense in a state of complete readiness, the test brought special problems that had not been met in past maneuvers. Among these problems are:

1. The maintenance of a condition of readiness for an extended time without loss of morale or relaxation of the "alert" status. Previous maneuvers have usually been of relatively short duration and the alert status could be maintained by the simple process of overworking the soldier and granting a rest period after the maneuvers. This is not true for a war condition period which is apt to extend indefinitely.

2. The time required to change directors equipped with their peacetime shrapnel cams to their wartime high-explosive cams. Even in a large command, the Ordnance personnel qualified to perform this duty are limited. In a sudden alert, especially if it comes shortly after a target practice season, considerable time is required to make the necessary changes in all directors.

3. Live ammunition. For the first time since the World War, the issue of live ammunition to all troops took place. Although this created no special problems, it afforded excellent opportunity for the troops to actually construct fortification works for the storage of this ammunition at the battery position and to test the time element for the drawing of ammunition.

## ANNUAL MANEUVERS

The regular annual department maneuvers took place May 13 to 25. As usual, this brigade participated in a Joint Army-Navy and Antiaircraft—Air Corps Exercise. The Department phase was unique in that it was largely concerned with anti-sabotage measures. Great emphasis was laid on guarding all installations, communications,

and utilities. A blackout of the entire territory took place on the night of May 23.

## TARGET PRACTICES

Battery C, 15th Coast Artillery, commanded by Captain Ray E. Dingeman with Lieutenant Willard J. Hodges as range officer, fired a 16-inch gun practice from Fort Barrette on June 13, using two-thirds charge at an average range of 20,900 yards. One broadside and three bow-on hits were obtained. A Navy high-speed target towed by a naval vessel was used. Battery D, 16th Coast Artillery, commanded by Captain Albert C. Franklin, conducted an additional assignment antiaircraft searchlight practice at West Loch on April 29. Firing of 3-inch anti-aircraft high explosive shells against a towed seacoast target took place at Fort DeRussy on June 10 by Battery L, 64th Coast Artillery, commanded by Captain F. E. Day.

## PHOTOGRAPHING HIGH EXPLOSIVE BURSTS

With a view toward determining the correct combination of film, filter, lens opening, developer, and fixer for photographing high-explosive bursts with the spotting set PH32, the 64th Coast Artillery fired thirty rounds at Fort Kamehameha on April 29. The camera experiments were conducted by Lieutenant A. Deane Gough with the technical advice of Mr. C. Henry Guell of Eastman Kodak Company.

## NEW GOLF COURSE AT FORT RUGER

A small practice golf course has been constructed at Fort Ruger, but owing to field exercises it has been used very little to date. The course is on the parade ground and has nine tees and three greens. The course is for the use of both officers and men of the post. The watering system on the parade ground has been much improved and the grass has been sodded where necessary.

## INSPECTIONS

During the past several months the department inspector, Colonel W. W. Hicks, inspected all posts of this brigade with the exception of Fort Kamehameha which was inspected by Lieutenant Colonel Frederick Herr.

# First Coast Artillery District

COLONEL RODNEY H. SMITH, *Commanding*

MAJOR ROBERT T. CHAPLIN, *Adjutant*

COLONEL ROBERT C. GARRETT

*Commanding Harbor Defenses of Portland and Portsmouth*

COLONEL T. H. JONES

*Commanding Harbor Defenses of Long Island Sound*

CAPTAIN CHARLES N. BRANHAM

*Commanding Harbor Defenses of New Bedford*

COLONEL MONTE J. HICKOK

*Commanding Harbor Defenses of Boston*

MAJOR GEORGE W. BRENT

*Commanding Harbor Defenses of Narragansett Bay*

Current Army expansion, with a corresponding increase in recruiting activity and extended active duty for Reserve officers, has accelerated the tempo of training to a marked degree. Most harbor defense units have received substantial increases in their authorized strengths.

The routine summer camps are now being held as scheduled. Preparation for extensive Coast Artillery participation in the forthcoming First Army fall maneuvers now dominates the whole district.

Many of the units have already completed their regular annual target practices; all will have done so by September 30.

The objective of all these widely varied activities is the achievement of a single purpose: "Readiness for combat" with the weapons we now have, and with those we expect to receive—when we get them.

## HARBOR DEFENSES OF PORTLAND AND PORTSMOUTH

*By Lieutenant Edward L. Whelan*

The 68th Coast Artillery (AA) was activated on November 4, 1939, with a cadre of 150 men from Fort H. G. Wright. The regiment began to function as such on November 15 when the recruits began to arrive.

Since that time the 68th has gone a long way in organization and training. The regiment is commanded by Colonel Robert C. Garrett who also commands the defenses of Portland and Portsmouth. His executive is Lieutenant Colonel Paul H. French, who also is adjutant of the Harbor Defenses of Portland. Major Donald B. Greenwood commands the 1st Battalion at Fort Williams, Maine, and Major Cameron commands the 2d Battalion at Fort McKinley.

The recruiting period was scarcely over when the motorized equipment of the regiment began to arrive. To date it numbers some 264 units, and includes the latest model reconnaissance cars, searchlight trucks, gun trucks, radio cars, and numerous other vehicles necessary for a motorized antiaircraft regiment.

With the arrival of the vehicles came the task of instructing drivers and teaching convoy rules.

Then searchlight drill and gun drill got under way—and it was not long before the searchlights were picking out the targets and the antiaircraft guns were booming away.

With many inspections completed, and with new recruits already arrived and some ready for duty, the 68th is rapidly becoming the equal of any antiaircraft regiment in the service.

In the meantime, sports have been going full blast. Basketball, bowling, softball, and baseball all hold their share of the limelight.

## HARBOR DEFENSES OF BOSTON

*By Captain Ben E. Cordell*

Colonel Hickok, the harbor defense commander, has returned to duty after hospitalization for an eye ailment.

Colonel Dennis, the executive, has returned from duty with Army maneuvers in Georgia and Texas and is now on detached service at Headquarters, First Coast Artillery District.

Personnel changes during June include the arrival of Lieutenant Colonel Dean F. Winn, MC, from Fort Sam Houston; Major Harold deB. Bruck, QMC, from Fort Leavenworth; and Captain Richard M. Costigan, who came from Madison Barracks. Lieutenant Colonel Chauncey Dovell, MC, and Major Harry C. Snyder, QMC, left for their new stations during the month. Colonel Dovell went to Fort Sheridan, and Major Snyder to Fort Sam Houston.

Captain Norman A. Congdon, has returned from Walter Reed Hospital. At present he is on a month's sick leave. It is expected that he will return to duty on July 17.

The following Reserve officers have recently reported for a six month tour with the 9th Coast Artillery: Lieutenants Frank B. Semple of Caddo, Oklahoma, and Patrick M. Hollis of Phoenix, Arizona. Captain Joseph F. Cook, of Boston, has reported for a twenty-eight day tour of duty.

Battery A, 9th Coast Artillery completed 6-inch gun target practice and engaged in 3-inch gun antiaircraft practice in June. During July the battery held submarine mine practice.

Technical Sergeants James M. Settle and Joseph F. Hardiman, Headquarters Battery (9th Coast Artillery), have departed for a tour of foreign service.

## HARBOR DEFENSES OF LONG ISLAND SOUND

*By Second Lieutenant Joel T. Walker*

The annual target practice season at Fort Wright was completed on May 29 when B Battery fired the 12-inch DC guns. Heavy fog delayed the scheduled firing for almost a week. All batteries turned in good scores and demonstrated efficient operation of material. On May 20 C Battery moved from Fort Wright to Fort Terry for a three-week period of fatigue and police work. At the same



*Colonel W. W. Gordon, inspector general, 1st Corps Area, inspects Battery A, 68th Coast Artillery (AA) at Fort Williams, Maine.*



*Battery D, 68th Coast Artillery (AA) takes part in the Memorial Day parade at North Windham, Maine.*

time, Battery A started training on the 16-inch gun at Fort Michie, making daily trips to and from that fort.

During the last week of May, the 11th Coast Artillery Band orchestra journeyed to Boston to play for a number of social events incident to Memorial Day.

The baseball season at Wright has been quite successful. Battery C is in the lead in the hard ball standings with the QM-Med Detachment team running a close second. After the baseball season was off to a good start, the growing interest in softball brought about the formation of enough teams to warrant a small softball league. The officers' team now leads this league.

All personnel of the 11th Coast Artillery look forward with interest to their summer assignments. Thirty-one men are now on recruiting duty in Connecticut and Massachusetts; the CMTC cadre and band are preparing to leave for duty at Fort Adams; and the remaining organizations, with the exception of Headquarters and E Battery, are preparing for the First Army Maneuvers. Summer camp activity has begun with the arrival of seventy second lieutenants who are here for their fourteen-day tour at the ORC Camp.

Social activity has increased considerably during the last few weeks. Band concerts on Thursday afternoons and parades on Friday have augmented the usual post entertainment. The officers have also been enjoying the golf, swimming, and tennis facilities of the Bay Harbor Club, which is located just off the post.

To provide for year-round recreation for those who enjoy game and competitive shooting, a group of about nine officers and noncommissioned officers got together and founded the Fort H. G. Wright Gun Club. They have laid out a trap and grouse shooting course and have installed the necessary equipment and supplies. The club is open to both officers and men.

#### HARBOR DEFENSES OF NARRAGANSETT BAY

*By Captain O. A. Nelson*

Battery A, 10th Coast Artillery, fired two practices from Battery Crittenden at Fort Wetherill, a 3-inch rifle battery, during May.

The 1st Provisional Battery, Panama Detachment, 10th Coast Artillery, fired a target practice from Battery Edgerton at Fort Adams, a 12-inch mortar battery. The 2d Provisional Battery, Panama Detachment, fired a practice from Battery Greene at Fort Adams, also a 12-inch mortar battery. Both these practices were sub-caliber.

The 3d and 4th Provisional Batteries, Panama Detachment, conducted calibration firings from Battery Wheaton (12-inch disappearing carriage), and Dickenson (6-inch barbette) respectively.

The 4th Provisional Battery, Panama Detachment fired a practice from Battery Dickenson and the 3d Provisional Battery, fired a practice from Battery Wheaton.

Battery Wheaton had not been fired since 1925 and these firings aroused some consternation among the residents on the "Dumplings."

The 2d Provisional Battery, Panama Detachment, has organized a Provisional Quartermaster Service Company for the First Army maneuvers.

The remainder of the Panama Coast Artillery Detachment assisted in the training of 950 CMTC enrollees during July.

The Fort Adams baseball team is doing quite well in the Sunset League of Newport, Rhode Island.

Captain George L. Holsinger has reported for duty with the 10th.

Captain Charles J. Odenweller, Jr., visited West Point during June.

Captain O. A. Nelson went to Norwich University to receive a Military Certificate from his Alma Mater.

#### HARBOR DEFENSES OF NEW BEDFORD

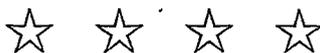
*By Captain Charles N. Branham*

Constant improvement of all existing matériel and facilities in the Harbor Defenses of New Bedford is the continuing purpose of our garrison. This activity, which includes Ordnance, Engineer, Signal Corps and Quartermaster installations and equipment, has produced many changes in the physical aspects of Fort Rodman, both in its visible features and in those not so readily perceptible to the casual visitor.

Battery A, 10th Coast Artillery, whose home station is Fort Adams, conducted its annual anti-aircraft machine-gun target practice at Fort Rodman in July. Fort Rodman was host to the Quartermaster Detachment from Fort Adams for the portion of their annual celebration of the QMC Organization Day. The Fort Rodman baseball team, now a very active member of a local league, had no difficulty in defeating the Quartermaster's team on this occasion.

Lieutenant Colonel Alden G. Strong, of the office of the Chief of Coast Artillery, visited us on June 20th. Lieutenant Seth F. Hudgins, 11th Coast Artillery, on temporary duty here since March 9th returned to his permanent station, Fort H. G. Wright, on May 19th.

The U.S.S. *Lawrence*, a destroyer commanded by Commander V. C. Barringer, Jr., visited New Bedford during July in connection with the local observance of Independence Day. Personnel from Fort Rodman assisted the local authorities in welcoming the warship to this port.



# Puerto Rico

BRIGADIER GENERAL E. L. DALEY, *Commanding*

*By Lieutenant Peter S. Peca*

During these hectic days rumors are much in vogue. The only real fact is that nothing is permanent; mobility is the password.

Alerts continue with a modern touch. Parachute troops and fifth columnist activities are simulated. The first alert of this type caught the troops flatfooted. Many organizations were "captured" and put out of action. The failure on the part of the troops to guard themselves sufficiently was soon corrected, and the next alert found the attempts of the parachute troops and fifth columnists without success. The troops, both officers and enlisted men, learned quickly. Now they expect the worst so they are ready for any eventuality.

The opportunity for command has been emphasized. Junior officers take over higher commands whenever possible. Colonel O. G. Pitz, 66th Coast Artillery, has been detailed to the department staff. As a result Captain J. E. Mortimer assumes command of the regiment.

66TH COAST ARTILLERY (AA)

CAPTAIN J. E. MORTIMER, *Commanding*

*By Lieutenant H. F. Turner*

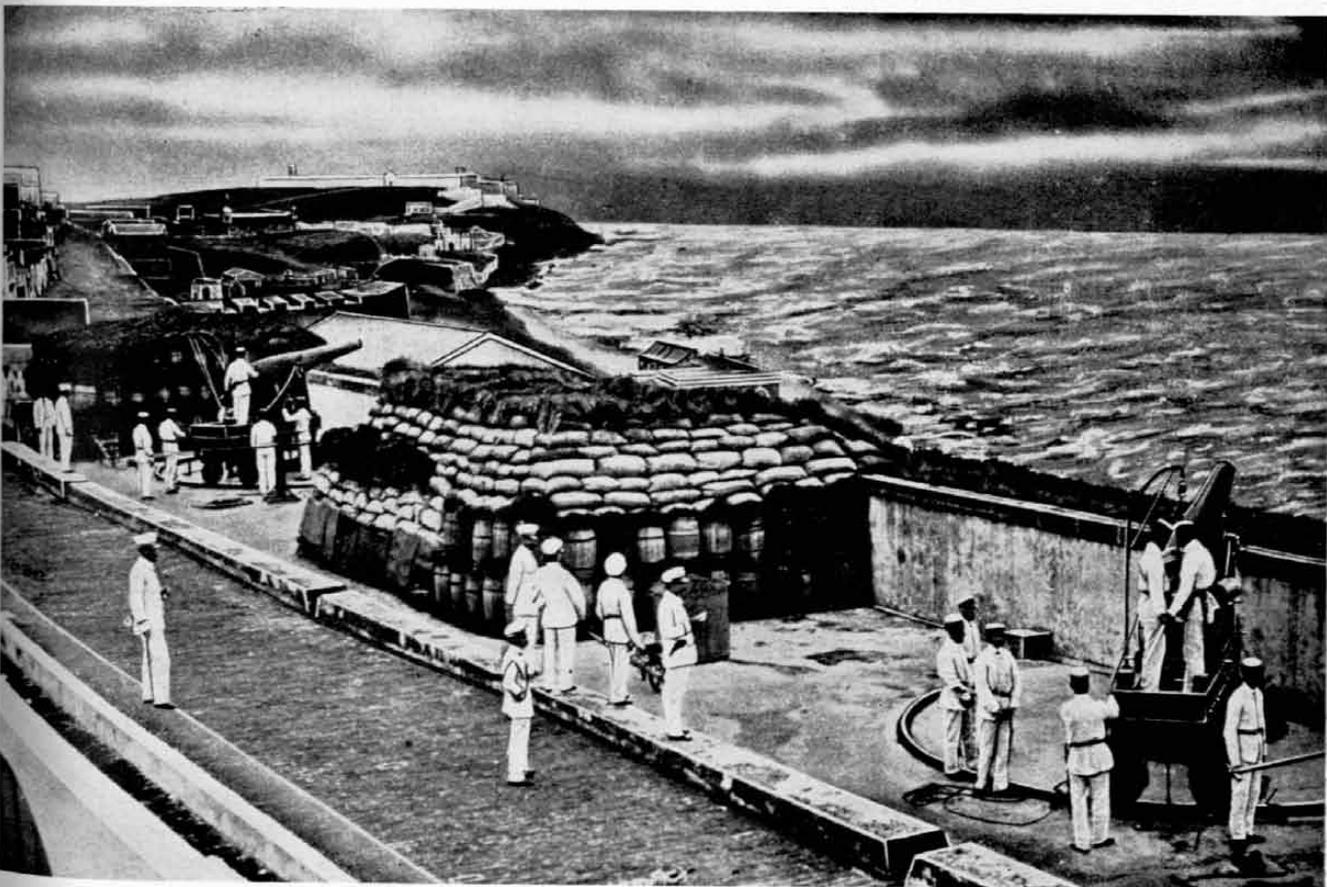
On May 24, Battery C, Lieutenant Robert Totten, commanding, moved to Borinquen Field for permanent station. On May 27 the remainder of the battalion moved and are now settled in temporary barracks. It is quite a

novel experience for the personnel to be under roofs again for they have been quartered in tents for the past eight months. However, they were immediately made to feel right at home as the roofs leaked with the first rain. Nevertheless, Borinquen Field promises to be one of the finest anti-aircraft stations in the Army.

On May 5, the battalion, consisting of eleven officers and 271 men proceeded overland by motor convoy from Fort Buchanan to Borinquen Field, for the department commander's tactical inspection. The period lasted three days during which the battalion was inspected in every phase of its training. Battery C fired one course at a towed target and Battery A conducted a searchlight demonstration for the edification of the department staff.

Captain E. A. Merkle has been taken away from the battalion to act as Coast Artillery adviser to the post commander of Fort Buchanan. At the present time there are only two captains serving with the 66th—Captains J. E. Mortimer and W. F. McKee. Four of the five batteries are commanded by first lieutenants.

On June 17 the entire command was alerted at 2:00 a.m., and kept active until 2:00 a.m., on June 18. Every man was armed with blank rifle ammunition and skirmishes between patrols were constant throughout the period. It was not difficult to tell that the novelty of springing out in the middle of the night had completely worn off.



*Fort San Cristobal during Spanish days.*

The only noise at the sounding of the alert was the first sergeants' voices bringing their organizations to the proper places. The absence of moans and groans was conspicuous. The element of surprise now exists when you are awakened by a bugle call and discover that it's merely reveille and not "Call to Arms."

#### 51ST COAST ARTILLERY

LIEUTENANT COLONEL B. L. FLANIGEN, *Commanding*

*By Lieutenant O. K. Marshall, Jr.*

The first of June saw the 51st Coast Artillery together under one security force commander. Battery B moved from Fort Buchanan to quarters in the casemates of historic Fort San Cristobal. Battery A moved from Borinquen Field back to Fort Buchanan where it joined Headquarters Battery.

The occupation of Fort San Cristobal by a harbor defense unit is reminiscent of the days of the Spanish Government of Puerto Rico, when the heavy Spanish artillery manned the ramparts of the old fort in defiance of Dutch and English fleets. Completed in 1778, the enor-

mous old fort formed the last and strongest unit in the defenses of San Juan. It was considered by many as the most formidable defense in the Western Hemisphere. Modernization by the Quartermaster and the WPA has converted the casemates of the old structure into comfortable living quarters.

Alerts continue as usual. They include practical problems dealing with the activity of parachute troops and fifth columnists and other means which are devised to develop the alertness and security of every organization. The personnel of this organization are thoroughly engrossed with this new and interesting aspect of warfare. Several surprise attacks during the first alert of this type were enough to cure the troops of the attitude of "What the hell, just another alert." A nod from an unseen umpire and a battery will be turned into a group of fifth columnists within a half-hour. The net result is that no one trusts anyone. Sentries on security patrols really mean business. As a matter of fact the whole alert is a vivid picture presented to the men that is as realistic as it is in modern warfare. Both officers and men have learned considerably.

## Harbor Defenses of Puget Sound

COLONEL JAMES H. CUNNINGHAM, *Commanding*

*By Major F. Webster Cook*

In these harbor defenses May was an extremely busy month, probably the busiest in many years. The intensive seacoast firing planned for the period May 13-May 31 was carried out on schedule. In all, ten practices were fired: two by D Battery at Battery Kinzie, two by A Battery with the mortars, three by G Battery at Battery Tolles, including a night practice and three at Battery Tolles by the Panama Canal Detachment.

The last week of this firing was witnessed by Major Harrington, assistant executive, 9th Coast Artillery District, who represented the district commander and who imposed the service conditions required for this firing.

In the middle of the firing the Commanding General, Ninth Coast Artillery District, arrived at Fort Worden for his annual tactical inspection. General Burgin and his aide, Lieutenant Fergusson, stayed with Colonel and Mrs. Cunningham at their quarters and were honored by a dinner and reception at the officers' club. The reception was attended by many of General Burgin's old friends from Port Townsend, he having been twice stationed at Fort Worden. During General Burgin's visit a joint tactical exercise was held with the Navy.

June has been spent in preparation for the Fourth Army exercise at Fort Lewis in August. This will require large personnel details from these defenses, including radio operators, telephone operators, truck drivers and an entire battery to act as a railhead battery. In addition, preparations are being made for the CMT Camp in July and the training of a number of Reserve officers of the 9th Corps Area Service Command. The annual camp of the

248th Coast Artillery also took place during June. Aided by excellent weather, this fine regiment, although it had two new batteries due to a reorganization since its previous camp here, manned the usual seacoast armament at Fort Worden and conducted excellent practices.

The post was honored by visits by Colonel Dohm, the former commanding officer of the 248th Coast Artillery, who now commands the new 205th Coast Artillery (AA), Washington National Guard, and by General Thompson, adjutant general, State of Washington. The latter was accompanied by his aide, Lieutenant Vandenberg, Mrs. Thompson and Mrs. Vandenberg. After a salute and an escort of honor, the General and his party witnessed the firing and later had lunch with Colonel and Mrs. Cunningham.

Changes in officer personnel go on with lightning-like rapidity. Lieutenants Chevaillier, Dennis and Tracy, have rejoined our station for another six months of active duty under the Thomason Act. Captain Mifflin left last week for Fort Lewis and a few days later sailed on the *Saint Mibiél* bound for Alaska. Captain Vickers left to join the 75th Coast Artillery at Fort Lewis and Major Arthur L. Irons, our dentist, has been ordered to McChord Field. Major Cook leaves in July for his new post with the Organized Reserves in Lansing, Michigan. To partly offset the loss of the above officers, Lieutenant Moore has arrived from the Philippines and Lieutenant Clark from Hawaii. Orders for Major Myers, Lieutenant Ashworth and Lieutenant Sharp to leave Fort Worden for various school details have been suspended.

# Panama Separate Coast Artillery Brigade

BRIGADIER GENERAL SANDERFORD JARMAN, *Commanding*

LIEUTENANT COLONEL C. R. FINLEY, *Executive*

CAPTAIN L. W. BARTLETT  
*Communications and Intelligence*

CAPTAIN M. K. DEICHELMANN  
*Plans and Training*

LIEUTENANT C. G. PATTERSON  
*Adjutant and Publicity*

*1st Coast Artillery (HD)*

LIEUTENANT COLONEL A. J. FRENCH, *Commanding*

*72d Coast Artillery (AA)*

COLONEL H. R. OLDFIELD, *Commanding*

LIEUTENANT W. M. SKIDMORE  
*Aide-de-Camp and Assistant S-3*

LIEUTENANT R. M. HARDY  
*Aide-de-Camp*

MAJOR H. P. DETWILER  
*Munitions and Supply*

*4th Coast Artillery (HD)*

COLONEL W. R. NICHOLS, *Commanding*

*73d Coast Artillery (AA)*

LIEUTENANT COLONEL W. M. CHAPIN, *Commanding*

*By Lieutenant C. G. Patterson*

Contrary to the schedule normally expected in Panama at this time of the year, the intensive training period which began for the Panama Separate Coast Artillery Brigade last November did not end with the dry season. Anti-aircraft target practices were completed at Rio Hato on June 10th and all the anti-aircraft units expected to return to their home stations and to the rainy season program of post rehabilitation and indoor training. However, on June 20 the entire Brigade moved into tactical positions for a war condition period.

At present, all units of the Brigade are experiencing arduous field service under field conditions. Mine and harbor defense batteries at both ends of the Canal are engaged in full time training which results in constant and complete service test of all equipment. The railway battery (Battery G, 4th Coast Artillery), Fort Amador, was ordered to Fort Randolph on short notice and made the movement, with all equipment, in record time without incident.

The 72d Coast Artillery (AA) and 73d Coast Artillery (AA) returned from Rio Hato to their home barracks only to leave them again for the movement to field positions. Full time is being devoted to improving anti-aircraft installations, digging in, perfecting supply systems and standing frequent unexpected alerts. For those who have not served in Panama, it is sufficient to say that it requires some 1,500 truck miles, 500 water miles and 100 horse miles daily to supply the units in field positions. Those of you who have served with anti-aircraft artillery in Panama realize the difficulties experienced in supplying all units. However, "Can Do" seems to be the watchword of the S-4's and every battery receives sufficient food, ammunition and other supplies—to say nothing of the water that must be hauled in for some of the outposts.

## TARGET PRACTICE

*Seacoast:* No seacoast target practices have been fired to date. Nevertheless, all batteries completed functional firings to test functioning of armament and emergency fire control systems. Regular practices will be fired during August.

*Anti-aircraft:* The AA practices fired at Rio Hato were

planned to (1) conserve flying hours, (2) place all batteries on a similar basis for annual rating, (3) simulate actual service conditions, and (4) afford all units the maximum training from observing the fire of other units.

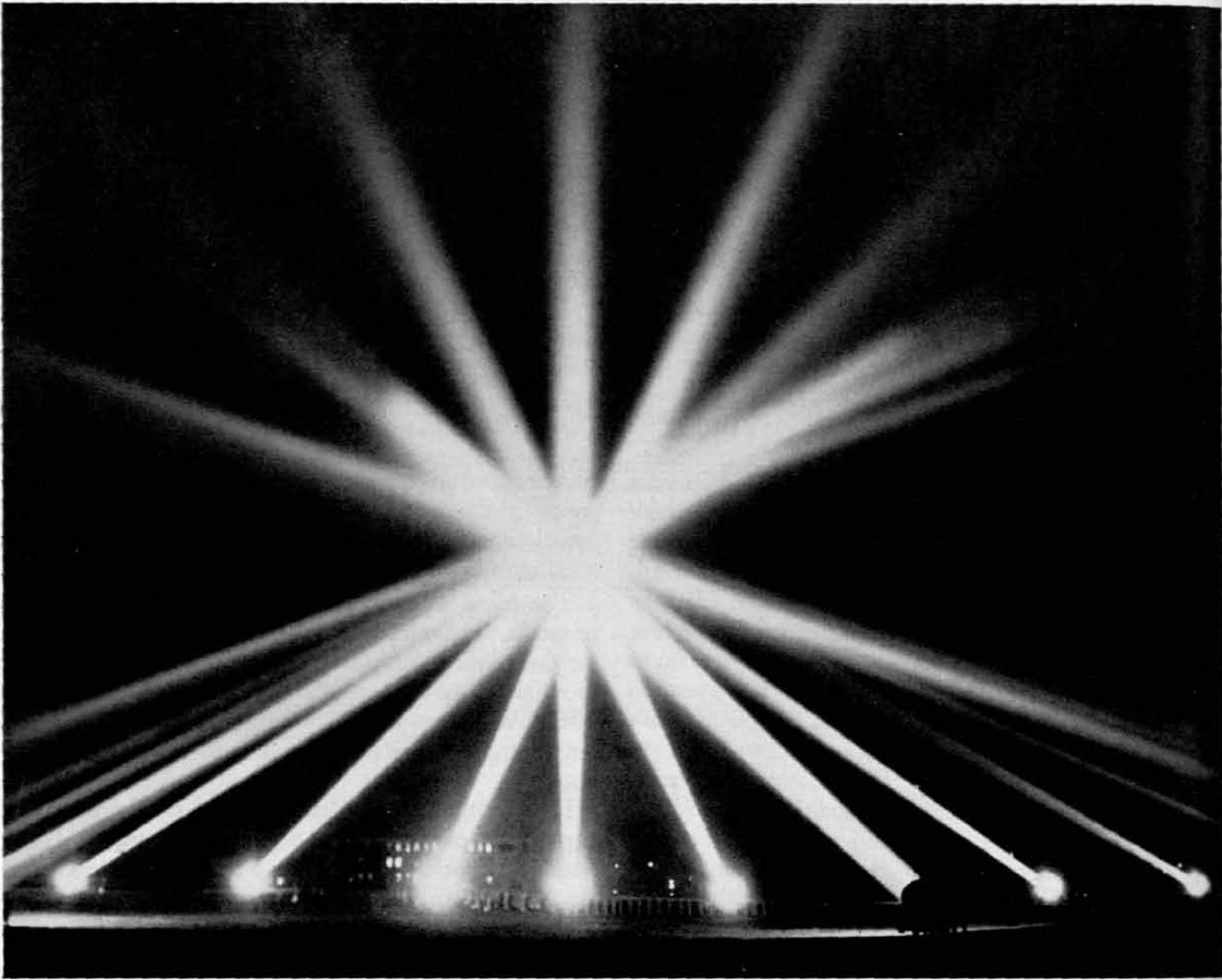
The camp was constructed and firings completed on schedule. The completion of the requirements laid down for the gunnery camp was made possible by the superior coordination of firing and the wholehearted cooperation of the Air Corps. In all, twenty-three gun batteries and ten machine-gun platoons completed all required practices.

Four mobile four-gun batteries were emplaced in line, the guns of each battery in the square formation. Firing batteries alternated on the line so that four batteries were always ready to fire on every course. Direct radio communication from safety tower to plane permitted variation



*Searchlight review at Fort Amador*

*Left to right, front row: Major General Van Voorbis, Department Commander, Major General Arnold, Chief of Air Corps, and Brigadier General Jarman, Commanding Panama Separate Coast Artillery Brigade*



*Searchlight review at Fort Amador*

of courses and altitudes. As many batteries as possible fired on each crossing course. Owing to a wide field and absence of fishing boats, two, often three, and on occasion four batteries fired on each crossing course. The completion of fourteen preliminary practices within a period of six hours is an indication of the successful method of coordination adopted.

Machine-gun platoons were emplaced along the beach at sufficient intervals to allow all platoons to fire on every crossing course. Two and sometimes three platoons fired on every incoming course.

The records made by the two regiments are evidence of the state of training of the two largest regiments in the Army, and until recently, the two youngest. Health and morale were maintained at a high standard. Supplies were transported daily by barge and truck convoy. Recruits at Rio Hato soon became seasoned troops under the hot dry sun seventy-five miles from the white lights and entertainment in Panama.

While no scores have been forwarded to the War Department, the results obtained are in themselves complete justification of the conduct of AA target practice at a

gunnery camp with the entire regiment present. Specifically, conclusions may be summarized as follows:

1. Firing under service conditions with target on unexpected courses at varying altitudes keeps officers and men on the alert. Firing was opened on much shorter notice than under normal target practice conditions.

2. Results indicate that firing four guns from a square formation produces equally as good results as does firing from line formation.

3. Percentage of hits obtained under service conditions was as high as obtained under "down the groove" target practices.

4. The maximum training for all batteries was obtained by conducting annual target practice at a gunnery camp.

#### NEWS

On June 15 the first issue of the brigade newspaper, *The Panama Coast Artillery News*, made its appearance. This bright weekly publication provides a medium for dissemination of news, gossip, challenges, general information and whatnot, and lets the rest of the Army know what the Coast Artillery in Panama is doing when it isn't

soldiering. Would-be poets, editorial writers, columnists and cartoonists from all the batteries in the brigade contribute plentifully, and with Lieutenant Hardy as officer-in-charge and Master Sergeant Doster editing the weekly news, our paper shows promise of expanding into a worthy publication. Published every Saturday morning, it is distributed to all organizations at no expense to the Government, battery funds nor individuals.

The War Department has approved regimental coats-of-arms for the new antiaircraft regiments and has specified the regimental insignia. Most attractive, and quite appropriate, the new regimental insignia will make their appearance soon. The motto of the 72d Coast Artillery (AA) is "Whatever The Task," and the 73d has delved into the Latin for its motto, "*Defensa sino Desaevio*" (Defense but not Defiance).

#### SCHOOLS

Troop schools for officers have been suspended temporarily because of field duties. In lieu of these schools, all officers who are not graduates of the Coast Artillery School are taking Basic Gunnery Extension Courses.

Gunners' instruction conducted in the field within sight of armament under the influence of daily association with the equipment should produce a high percentage of experts. Schools for height finder observers, Diesel engine operators, radio operators and motor vehicle drivers are being carried on by all regiments. The sudden demand for teletype machine operators has necessitated intensive instruction of operators in this modern system of rapid message transmission between command posts of the Brigade.

#### ATHLETICS

The move to field positions disrupted all athletic schedules but reports over the communications nets indicate that softball, volley ball, horseshoe pitching and boxing are just as popular in the jungle as at home. Hunting and fishing continue to provide recreation for a large percentage of the personnel and reports are constantly coming in over the radio and wires of the killing of alligators, snakes and large fish.

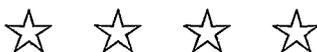
#### MORALE

Despite the discomforts of life in the field under simulated war conditions, the morale of the troops is high, and Coast Artillerymen who arrived in the Department as recruits only three months ago have developed into veteran field soldiers who are rapidly acquiring an esprit which promises much for the future.

#### JOINT EXERCISES

An example of the whole-hearted coöperation between branches of the armed services in Panama is the willingness with which the Navy enters into the training of Army personnel. On the night of June 29-30, a squadron of twelve Navy patrol bombers returning to Coco Solo from Guantanamo Bay, Cuba, staged a simulated bombardment attack on the Canal. The first AWS reports at 4:47 A.M. indicated that many bombers were approaching the Canal from the north. From these reports it was estimated that the attacking planes would arrive over the isthmus at about 5:45 A.M. At 5:46 A.M., they launched their first attack on Gatun Locks. Successive attacks were made at five-minute intervals at altitudes ranging from 10,000 to 15,000 feet. Other flights attacked Pedro Miguel and Miraflores Locks at 5:53 A.M. All guns, searchlights, AAIS stations and automatic weapon platoons were alerted in plenty of time to enable them to bring the attacking planes under simulated fire. Based on the rules prescribed by the "Umpires' Manual," all planes participating in the attacks were shot down. Since the attacks were made during daylight, no searchlight action was necessary. A few minor deficiencies were discovered as a result of the simulated attack, but none that could not be remedied at once.

Major General Daniel Van Voorhis, commander of the Panama Canal Department, and members of his staff, observed the progress of the attack on the operations board at the brigade command post, and also visited AAD positions in the field as the troops were being "alerted." The department commander expressed himself as very much pleased with the antiaircraft defense of the Canal as it was demonstrated in this exercise.



# The Contributors

CAPTAIN A. H. BENDER, Coast Artillery Corps, was born in New Jersey. After initial service in the Officers' Reserve Corps he was appointed a second lieutenant of Coast Artillery in 1926. He is a graduate of the Coast Artillery School Battery Officers' Course (1933), Advanced Technical Course (1935), and the Command and General Staff School (1939). Captain Bender is on duty with the Coast Artillery School, Fort Monroe.

CAPTAIN FAIRFAX DOWNEY, formerly of the 12th Field Artillery, 2d Division, AEF, was educated at Yale. He is the author of a number of books and his work has also appeared in many periodicals of national circulation.

MAJOR CHARLES A. DRAKE, Infantry Reserve, is head of the Bureau of Industrial Research, West Virginia University. In addition, he is an industrial psychologist with a consulting practice. After service on the Mexican Border in 1916 with the Illinois Guard he took part in the World War as a lieutenant of Infantry, serving overseas with the 4th Division. He is the author of more than forty articles dealing with business administration, industrial management, and special aptitude tests for industrial workers.

CAPTAIN HERBERT W. EHRGOTT, Corps of Engineers, graduated from the Military Academy with the class of '26. His career has encompassed a year as an artilleryman before transferring to the engineers, a course at MIT, a scholarship in France where he attended the École des Ponts et Chaussées, troop duty with the 1st and 9th Engineers, an ROTC detail at Alabama Polytechnic Institute, and his present detail to flood-control work at Binghamton, New York. He is now engaged in collecting material for a treatise tentatively titled *The Dynamics of War*.

MAJOR CHARLES WINSLOW ELLIOTT, USA, retired, is a well-known military historian. After entering the Army in 1908, he subsequently saw service in the Philippines, China, Mexico, and France. He is the author of *Winfield Scott, the Soldier and the Man*, and a book on the Lanao Moro dialect. He has contributed many articles on military history and biography to various service journals and to the *Dictionary of American History*.

CAPTAIN BURGO D. GILL, Coast Artillery Corps, entered the Army as a second lieutenant, Field Artillery, in June, 1925, after service in the Officers' Reserve Corps. He transferred to the Coast Artillery Corps in Decem-

ber, 1928, and has rendered all his subsequent service in that arm. Captain Gill is a prolific contributor to periodicals, both military and civil. He is on duty with the 61st Coast Artillery, Fort Sheridan.

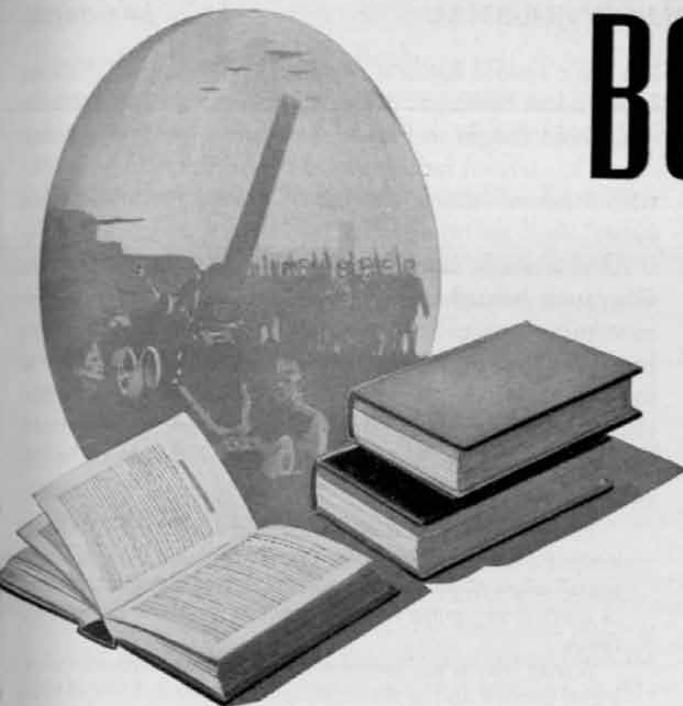
CAPTAIN JOHN V. GROMBACH, Infantry, NGUS, was a member of the West Point class of '23 and was appointed a second lieutenant of Infantry. In September, 1927, he resigned his commission to enter the radio and entertainment field. Shortly after his resignation he joined the 165th Infantry, New York National Guard, reaching the grade of captain in June, 1929. In civil life Captain Grombach is a radio program producer and writer. He has produced shows that have featured some of radio's outstanding stars, including Jack Dempsey, Helen Claire, Max Baer, and Fay Bainter. In addition to his radio work, he has found time to act as co-producer for a New York stage production of J. B. Priestley's *Time and the Conways*.

MAJOR WENDELL G. JOHNSON, Infantry, hails from Illinois. Graduating from the Military Academy with the class of 1923 as a second lieutenant of Infantry he has served with that arm continuously. Among the highlights of his career are a tour of duty with the Spanish Army when Alfonso was still a king, a hitch on an editorial desk at the Infantry School and the course at the Command and General Staff School. He now commands a company of the 18th Infantry, Fort Hamilton, New York.

QUENTIN ROOSEVELT started his military career at the age of nine by attending St. Augustine's Military Academy in Puerto Rico while his father was Governor General there during 1928-29. Between subsequent school terms he has found time to engage in fossil hunting in Mexico and China and to take part in an expedition to Haiti. A graduate of Groton he is now in his senior year at Harvard. At the moment he is taking the ROTC Field Artillery Camp at Fort Ethan Allen, Vermont.

MAJOR WILLIAM YALE is Professor of History at the University of New Hampshire. During our participation in the World War he served as special agent for the State Department at Cairo and as a military observer with Allenby in Palestine. At the Paris Peace Conference he was a member of the section of the American staff that dealt with Arab affairs. In 1919 he went to Turkey to serve in the American Section, International Mandates Commission. Later he served as a major, Military Intelligence Department Reserve.

# BOOK REVIEWS



**THE ART OF MODERN WARFARE.** By Colonel Herman Foertsch, German General Staff. New York: The Veritas Press, Inc., 1940. 265 pages; index; \$2.75.

*The Art of Modern Warfare* is by far the clearest discussion of its tremendous subject that has appeared in many a decade. In the past, English translations of German military books have generally made ponderous and tortured reading. But not so with this new book. The translation is amazing in its clarity and superbly easy to follow and digest; which, of course, can only indicate that the original work was indeed an exception to many of the standard military classics of the past that have come from Middle Europe.

For this reason if for no other, it seems likely that *The Art of Modern Warfare* will, in the future, be a constant source of quotation among military writers. Colonel Foertsch himself quotes Clausewitz and others. It is not hard to imagine that Colonel Foertsch will be as freely quoted.

The publishers have chosen not to indicate directly, on title page or in introduction or preface, just when *The Art of Modern Warfare* was first published. From internal evidence in the text, however, it appears to have been completed toward the end of the recent Spanish civil war. Thus the book can be examined, and will doubtless thus be examined by many readers, as something of a preview of the present great conflict.

When the book is so read and reflected upon, there appears to be little in the German operations thus far which Colonel Foertsch does not touch on indirectly in his general treatise. Even his farcical history of warfare, covered in a few brief chapters written in the customary Nazi fairy-tale manner, gives us an indication of what the German troops are given to believe. (An example is the full credit given to the Prussians for the downfall of Napoleon without even a mention of England's part. This small his-

torical section can, however, be dropped from consideration as not affecting the rest of the book in the least.) And because the book does touch every phase of modern warfare, much as it has already manifested itself on the field of battle in Europe, and is, with the exception of its historical sections, so thoroughly readable, it should be read by every officer of the Army of the United States who thinks a second time about the immediate future development of his own army. And is there any officer, these days, who doesn't think about it most of the time?

What Colonel Foertsch has to say about tactics, strategy, space and time, and the moral factors of war has, a great deal of it, been said before, though never more succinctly. In these parts of his book the author uses a good many quotations from the old masters to whom he would naturally turn. Clausewitz, the elder Moltke, Prince Frederick Charles of Prussia, Frederick the Great, and General von Seeckt are the names that appear most often in the author's discussion of these broader aspects of warfare. Whether he agrees or disagrees that the principles of war are immutable, the reader of this new book will at least find them presented in lively discussion and in a readable manner.

Any reader will find the most meat in the part of Colonel Foertsch's book which deals with the technical side of warfare and the weapons of today. Regarding technical contributions to warfare Colonel Foertsch writes as follows:

Technical improvements are made in normal life, or grow from the conditions of ordinary existence, and are brought in to help in war. Others will be made at the behest of military requirements, and later come into general use. In any event it is a soldier's duty to look into all the technical improvements that are offered him, to try them out, to put them to use, and to promote their extension. The technical side, on its part, has to continue its investigation and to work in every way to assist the soldier, so as to assure him superiority in his field.

\* \* \*

The complete balance of technical equipment on all sides, and in all fields at once, will never be obtained. If it should be so, then the genius of the commander must assert itself the more. Other things being equal it is the spirit of the commander and of the troops that brings about success.

Colonel Foertsch, in the ten pages or so of his book which he devotes specifically to the infantry, writes in part: "So long as wars have been, so long as armies have existed, the foot soldiery—the infantry—has been a vital part of the army. It has usually been the decisive arm." He then goes on to describe the tremendous changes which took place in infantry during the last great war. He speaks of the necessities of combat that caused both

the machine gun and the mortar to be developed. He then considers briefly the tank, which he takes up in greater detail later on in another chapter.

"It is the duty of infantry in attack," thinks Colonel Foertsch, "to bring the fire to bear on the enemy, to overwhelm him by means of fire and shock effect, and to harry his positions; on the defense its duty is to destroy the enemy by fire effect and counter-attack, and to hold its own positions. To accomplish all this, it must have the weapons that have been described. They must be so organized that the quickest possible kind of coöperation is assured. For this reason the infantry is everywhere equipped down to its smallest unit with all the various types of weapons which are different in effect but all of them supplementing one another." In the author's opinion, also, the way infantry fighting is carried on has not changed basically since the First World War. The rule, he believes, requires fighting in depth whether in the attack or on the defense. In remarking on the viewpoint found in some armies that the infantry cannot deliver the final blow except through the aid of tanks, Colonel Foertsch says: "An infantry that believes that it is no longer able to undertake a decisive attack by its own power has, to a great extent, lost its meaning."

As for the future of infantry—meaning the foot infantry, motorized or not—the author thinks that the possibilities of any great changes in the weapons of infantry are not within sight. He sees as the most interesting questions, first, the possibility of applying still more rapid-fire weapons than the infantry now has; and second, the addition of still more high-trajectory weapons to infantry. Both of these he apparently favors but clearly points out the disadvantages that must be overcome.

Any division into light and heavy infantry Colonel Foertsch looks upon with disfavor. "No one can tell in advance where there is going to be attack, and where defense," he writes. "War recognizes no such rigid boundary, and no commander could bear with the shackles that such a mode of organization would impose on him. To insist on uniformity at all costs is another rigid principle of the same kind. A standardized method of employing the mass of the army, however, seems even today to be a necessity on which there can be no compromise."

This German writer also has definite opinions as to the place of the artillery in a modern army. He sees artillery definitely as a firing weapon without shock force. It will, he says, "always remain a subsidiary arm which can help prepare the way for the decision, but which can never bring it about alone." He also thinks that it will always be the most important and desirable auxiliary to be found.

The biggest question concerning the tanks, thinks Colonel Foertsch, is this: "Will the tank, together with the other weapons that enjoy armored protection, go its own new way, and so become a separate great and self-sustained part of the armed forces, or will it remain the auxiliary it was when it originated in the World War?" This he poses as an unanswered question, pointing out that the French have been most cautious in this respect and that the Eng-

lish have tended farthest toward the development of an independent tank arm. Judging from the battles that have so far been fought in Flanders and in France the German Army has tended rather toward the "coöperation of tanks with infantry" than "the use of a separate mechanized force."

After a single careful reading of *The Art of Modern Warfare* it is hard indeed to think of anything whatever concerning armies of today which the author does not consider. In this brief outline it has only been possible to touch on a few of the parts of the book. To any leader, one of its most striking parts is the concluding chapter on "the officer." The closing paragraphs of this last chapter are as follows:

The man who sees nothing more in a machine than some kind of a strange instrument, who yearns for "the good old times" when there were no motors, radios, armored vehicles, or quick-firing guns, has not correctly read the signs of the times.

A man who is not continually and unintermittently working at himself and at the training of his mind, has not heard a whisper of the dynamics of our life.

A man who thinks he can study passively aside in view of the political developments of our times, who thinks he can set himself off from the underlying ideas of our political life, has not recognized the grand connections of the experiences and the struggles of peoples. He will never gain an ascendancy over the hearts of those whom he will some day have to lead.

But the man whose mind is open to everything that happens in the field of technological appeal, who is imbued with a sense of his own duties and responsibilities, whose life is wholly lived in communion with his people—that is the kind of officer for whom the present and the future are calling. Firmly rooted in his people, borne by a feeling of solidarity with his men, standing firmly on his own feet in the brief moments of his independency of decision—that is how an officer should aim to realize his destiny as the supreme embodiment of a mind under control, and of an unshakable will to victory.

Those closing paragraphs just quoted form the mark of the entire book. It will not be possible for any officer who believes he stands within the category that Colonel Foertsch has described in those paragraphs, to do without reading the book of which they are the conclusion.

1 1 1

### Selective Service

CONSCRIPTION AND AMERICA. By Edward A. Fitzpatrick. Milwaukee: Richard Publishing Company, 1940. 150 Pages; Index. \$1.50.

The author of this book, a Reserve officer who is now President of Mount Mary College, was from 1917-19 the draft administrator of Wisconsin. The interest which he gained in selective service during the World War stayed with him, and for a number of years he has made a special study of conscription.

Dr. Fitzpatrick first describes in detail the World War set-up and how it operated, and then tells us what kind of selective service he believes will work best for another

emergency. He completed *Conscription and America*, of course, before the first move had been made in Congress this year toward any general form of nationwide service for war.

This author, though he feels strongly about his subject and puts a good deal of that feeling into his book, writes also with a common-sense based upon his practical experience. He believes that selective service in a new emergency should be handled in much the same manner as in 1917-18. He looks upon it entirely as a means of obtaining the right men for the right places in our armed forces, and does not hold with the broader and more indefinite ideas of conscription of wealth and conscription of industry. His book is limited in its detailed treatment to the military side of conscription.

One of the points this author insists upon most strongly is the absolute desirability of having selective service under civil control rather than military. He feels that so long as a man is classified by boards made up of men from his own locality—men who know him, or at least can readily find out all about him—the highest degree of fairness can be maintained and the man himself will not, in the great majority of cases, feel compulsion as a ruthless military dictation. He will feel it, rather, as a measure which the others of his own community are readily complying with, and therefore expect him likewise to comply with. At the same time, there must surely be available to all a full road of appeal, as there was in the World War, leading all the way to the President. But let the military come however circumspectly into a community to handle selective service, and there at once arises the feeling of being grabbed by the scruff of the neck from normal civil occupations or idleness and thrown bodily into ranks.

Most of the points which Dr. Fitzpatrick favors are well established in the minds of those who have given any real study to selective service. His book offers an excellent way to gain background on a subject now foremost in our minds.

✓ ✓ ✓

### A New Military Classic

**DECISIVE BATTLES: THEIR INFLUENCE ON HISTORY AND CIVILIZATION.** By Major General J. F. C. Fuller, New York: Charles Scribner's Sons, 1940. 1,036 Pages; Maps; Index. \$4.50.

General Fuller is perhaps the most readable of living military writers. However little or much we may have agreed with the broad ideas on war he has put forward in some of his past works, and whatever we may think of his more recent expressions of totalitarian philosophy, we will most of us agree that no soldier writes with a greater fluency or a keener sense of narrative.

In this 1,000-page book, in which he describes thirty-seven battles and campaigns, we have more than a modernized Creasy. For the author has prepared not merely a convenient textbook, as he modestly writes in his preface, but a military classic in its own right—a work to be placed

## 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.

#### GOLD OVERLAY

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.

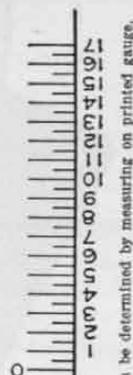
	10K Solid Gold	Gold Overlay	Sterling Silver
Plain	\$26.00	\$17.00	\$ 7.50
Ruby	30.00	20.00	12.50
Blue Sapphire	30.00	20.00	12.50
Topaz	30.00	20.00	12.50
Amethyst	30.00	20.00	12.50
Garnet	32.00	22.00	14.00
Green Tourmaline	30.00	20.00	12.50
Emerald	30.00	20.00	12.50
Bloodstone	28.00	19.00	11.00
Onyx	27.50	18.50	10.50

The same design furnished in miniature for ladies.

PRICES ON APPLICATION.

Order From  
**COAST ARTILLERY  
JOURNAL**

1115 Seventeenth Street, N.W.  
Washington, D. C.



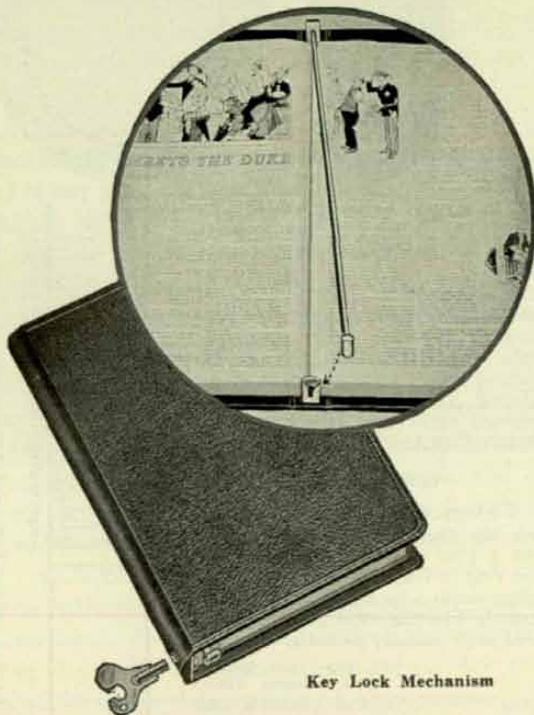
Measure from this point

Take 1/2-inch strip of paper and wind around desired finger. Size may then be determined by measuring on printed gauge.

## New FEDERBUSH SINGLE ROD MAGAZINE BINDERS

The single magazine binder is used extensively in waiting rooms and reading rooms of libraries, offices, steamships and other public places. Besides lending a dignified appearance, when on the reading table or in the magazine rack, it keeps the copy clean and inviting. Inadvertently, people often carry off magazines which are lying around loose, whereas it is less likely to happen if book is contained in a binder. The key lock mechanism locks the rod which holds magazine fastened to binder. Binding is made of stiff boards, covered with canvas, genuine or imitation leather. Also made in Flexible Covers. Supplied in colors, if desired, for any size magazine.

Three lines of lettering in gilt allowed without charge, i.e. name of magazine, organization and location. Instead of location you may substitute "Do Not Remove From Day Room."



Key Lock Mechanism

### Prices

Style MK — Imitation Leather  
1 to 25—\$2.25 each, any size  
26 up—\$2.00 each, any size  
F.O.B. NEW YORK

ADDITIONAL QUOTATIONS AND  
INFORMATION FURNISHED  
ON REQUEST

Order from

**The Coast Artillery Journal**

1115 17th Street, N.W.      Washington, D. C.

beside that of Creasy on the shelves of every reader with an interest in the art of war.

General Fuller places each battle or campaign he describes in world history by an historical synopsis, and it is his aim, successfully attained, to present a background for the war now being fought. "It is true," he says in his preface, "that the full study of war will not seriously assist a subaltern on picket duty; but when it comes to understanding the present war conditions and the probable causes and origins of the next war, a deep and impartial knowledge of history is essential. Further still, as it is not subalterns or generals who make wars, but instead governments and nations, unless the people as a whole have some understanding of what was meant in past ages, their opinions on war as it faces us today will be purely alchemical. . . . Therefore, though my original idea was to write a book for military students, seeing that today war is on every lip and consequently we should all be students of war, I have attempted to write it in such a way that it will prove interesting to the civilian reader. Frankly, I can say that there is nothing technical or abstruse in this book." Nor is there.

\* \* \*

**GUN COLLECTING.** By Charles Edward Chapel, 1st Lieutenant, U.S.M.C., Ret. New York: Coward-McCann, Inc., 1940. 232 Pages; appendix, glossary; bibliography; index; illustrations. \$2.50.

\* \* \*

**THE GUN COLLECTOR'S HANDBOOK OF VALUES.** By Charles Edward Chapel, 1st Lieutenant, U.S.M.C., Ret. Published by the author: San Leandro, Cal., 1940. 222 Pages; illustrated. \$2.50.

These two books are from the pen of an international authority on arms history and the hobby of collecting weapons. Here will be found the answer to hundreds of questions for the beginner, the advanced collector, the student of history and the man in the street who merely has a love for things mechanical. It is safe to say that Lieutenant Chapel's contribution to the literature of arms will be required reading for all even remotely interested in the subject.

*Gun Collecting* explains in plain unvarnished English what types of guns are valuable and why, how to arrange, repair and photograph them, but, most important of all, it reveals the story behind the guns and brings to life the men who have carried them down through history.

*The Gun Collector's Handbook of Values* is fully as unusual as the other volume. By actual count there are more than 500 pictures of arms and there are about 2,200 described in detail and listed for value. Obviously such a book is needed by every collector.

At first sight, one might leap to the conclusion that these books are merely for the "gun nut." But there is much more to them than that; the volumes are a needed addition to the library of the student of the military art.

### Revolutionist

**ETHAN ALLEN.** By Stewart H. Holbrook. New York: The Macmillan Company, 1940. 273 Pages; Map; Index. \$2.50.

The biggest, roaringest, fightingest, writingest man a small state ever produced was General Ethan Allen of Vermont. For more than ten years what Louis XIV of France had once said of himself was just as true of Ethan Allen. He was the state. It made no difference that Vermont came into the Union in 1791, two years after he died. His force and influence had made it into an independent state, fighting with its neighbors, dickering independently with Britain before and after the Revolution ended, and then clamoring for admission into the United States.

Like the rest of the Green Mountain Boys, Ethan Allen thrived on "stone-walls," which were hard cider and rum, half and half. But as easily as he could down a dozen of these at a sitting, he could ride along the mountainsides, gather an army of five hundred men, and with it take a Ticonderoga, invade Canada, or drive the hated New Yorkers back across their borders. No trick, either, for him to search every harsh and resounding word from his dictionary, fashion them into epithets, and spread them down the pages of his pamphlets. These he loved to peddle in regions where there was a price upon his head. He even wrote a book on philosophy before he finished.

Mr. Holbrook's biography is equal to his man, and he writes with an appropriate vigor. He has missed none of humor and drama that his hero lived. His pages are rich with quotations from the words of Ethan Allen himself.

Ethan Allen, as a colonel, was captured by the British and held for two years. On a ship that carried him to England, Lord Cornwallis was also aboard. Allen, attempting to walk the quarterdeck, was asked by Cornwallis if he didn't know "the quarterdeck was a place for gentlemen." "Yes, by God, I do," said Allen, "and that's the reason I'm here."

Ethan Allen is here, now, in Mr. Holbrook's new book because his story has wanted telling in first-class fashion for over a century.

### Indispensable to the Firearms Specialist

**NOTES ON U. S. ORDNANCE.** By Captain James E. Hicks. Volume 1: Small Arms, 1776-1940. Published by the author, 1940. 117 Pages; 80 Plates. \$4.50.

Captain Hicks's historical work on the ordnance of our own and other nations, even to the military man who is neither an expert nor a collector of olden weapons, is easy to recognize as valuable, and is deeply interesting in the bargain. In this volume we have the American firearms from the rifles of 1792 to the M-1 of our own day. There are copious historical notes on matters never before assembled in one place, facsimiles of some of the more important early documents on ordnance, and 80 plates of exterior and sectionalized views of the weapons described.

# THE OFFICER'S GUIDE

THIRD EDITION, NEW

★POPULAR demand has required this new edition of **THE OFFICERS' GUIDE**, a ready reference that speaks authoritatively on subjects of particular interest to officers of all arms and services. It contains the philosophies, thoughts, and conclusions of many experienced officers.

Selection of material has been made from the following viewpoint: Would it be useful for the vast majority of officers? Is the information readily available elsewhere? Will the information assist the young officer during the period of adjustment?

This edition is not just a revision. Most of the subjects have been rewritten by an experienced author of the Regular Army, only a few outstanding parts of previous editions being retained. Several new subjects are presented in a most interesting manner. With a new type format for easy reading and new illustrations, it represents the latest reference book for the Army officer.

Now available at a lower price than ever before.

### TABLE OF CONTENTS

The Army As A Career, by Gen. J. G. Harbord, Chairman of the Board, the R. C. A.	Life Insurance Analysis
First Station	Provisions in Anticipation of Death
Orientation	The Army of the United States
Uniforms and Equipment	The National Guard
Assumption of Command	The Organized Reserves
Exercise of Command	The Reserve Officers' Training Corps
Mess Management	The Organization Staff and Its Functions
Supply	A Background for Peace and War
Military Courtesy	Discipline and Leadership by Gen. G. V. H. Moseley
Customs of the Service	Management of the American Soldier by Gen. D. C. Shanks
Pay and Allowances	Army Posts and DOL Assignments in Each State and Territory
Leaves of Absences, Promotion, Retirement	Tactical Definitions and Special Map Symbols
Efficiency Reports	Index
Foreign Service	
Army Educational System	
Privileges, Rights and Restrictions of Officers	
Participation in Post Activities	

Price \$2.50, Postpaid

### THE COAST ARTILLERY JOURNAL

1115 17th Street, N.W.

Washington, D. C.



# MILITARY BOOKS

A General Staff Officer's Notes, <i>Volume 1: The Division</i> .....	\$ 2.00
Tactics & Technique of Infantry, <i>Basic</i> .....	3.00
..... <i>Advanced</i> .....	5.00
Fighting Tanks Since 1916 (Jones <i>et al</i> ) .....	2.50
Machine Gunner's Pocket Manual, <i>plain</i> .....	1.75
..... <i>With slate, map pocket, flap, etc.</i> .....	2.25
Field Service Regulations, 1923 .....	.40
Fundamentals of Military Strategy (Robinson) .....	2.50
Manual of Administration for the CCC .....	.75
Outlines of World's Military History (Mitchell) .....	3.00
..... <i>cloth</i> .....	8.00
American Campaigns (Steele) 2 volumes .....	3.50
A Rifleman Went to War (McBride) .....	1.00
Index to Leavenworth-Benning Maps .....	3.00
Mass Physical Training (Raycroft) .....	2.00
Balancing Daily Diets (Perley) .....	.70
Infantry in Offensive Combat (S. T. 266) .....	.50
Infantry in Defensive Combat (S. T. 265) .....	.45
Infantry Antiaircraft Defense (S. T. 267) .....	.90
Infantry Signal Communications (S. T. 268) .....	.35
Command, Staff and Logistics for Infantry (S. T. 179) .....	.20
Organization of Infantry (S.T.5) .....	.35
Troop Movements and Shelter (S.T.6) .....	.40
Weapons and Musketry (S.T.8) .....	.25
Solution of Map Problems (S.T.10) .....	.30
Care and Operation of Motor Vehicles (S.T.270) .....	.20
Infantry in Special Operations (S.T.13) .....	.20
Offensive Combat of Small Infantry Units (S.T.11) .....	2.00
Modern Military Dictionary (Garber) <i>cloth</i> .....	2.25
..... <i>leatherette</i> .....	1.25
Essentials of Infantry Training, <i>paper</i> .....	1.50
..... <i>cloth</i> .....	1.25
Company Administration (Virtue) <i>paper</i> .....	1.75
..... <i>cloth</i> .....	.50
Infantry Drill Regulations .....	2.75
Officer's Guide .....	1.00
Map Reading, Sketching, Aerial Photographs, .....	1.25
..... <i>paper</i> .....	1.50
..... <i>cloth</i> .....	1.00
..... <i>leatherette</i> .....	1.50
Training Guides (Elarth) <i>paper</i> .....	1.00
..... <i>cloth</i> .....	1.50

*Discount on Quantity Orders*

ca

## Coast Artillery Journal

1115 17th Street, N.W. Washington, D. C.

illustrations of remarkable accuracy and clarity which were drawn by André Jandot.

The book is large in size, clearly printed, and bound in durable buckram. A second volume will contain ordnance correspondence covering the history of American firearms from 1781 to 1866.

✓ ✓ ✓

### Shorter Mention

THE ARMY OF THE UNITED STATES: ITS COMPONENTS, ITS ARMS, SERVICES, AND BUREAUS, ITS MILITARY AND NONMILITARY ACTIVITIES (Senate Document No. 91). Prepared by the War Department for the Chairman of the Committee on Military Affairs of the Senate. Washington: Government Printing Office, 1940. 200 Pages; Illustrated. \$1.00.

A splendidly illustrated summary of the Army of the United States covering all of its components, agencies, and activities. This book was prepared by the Public Relations Branch of G-2, War Department General Staff, as a general source of information on the Army. It is not a technical work but a factual account simply presented.

✓ ✓ ✓

THINKING ALOUD IN WARTIME. By Leslie D. Weatherhead. New York: Abingdon Press, 1939. \$1.00.

There is much in this little book that will help the sincere Christian to find some degree of peace in a torn and changing world. "Force," believes Dr. Weatherhead, "cannot make a bad man good, but it can, and I think ought to, limit the scope and extent of the evil he plans." Thus the war of England and her Allies began and has continued, he feels, in no sense to seek vengeance but to prevent yet other crimes—an end that does not conflict with Christian teachings.

✓ ✓ ✓

ONE HUNDRED YEARS AT VMI. By Colonel William Couper. Richmond: Garrett & Massie, Inc., 1940. Four volumes, 400 Pages per volume; Illustrated. \$12.00 per set.

This compilation of documents and accounts of the history of Virginia Military Institute, despite the fact that it is not a running history of that fine school, contains many a fascinating page of reading. The founding of VMI, the participation of its cadet corps as a body at Newmarket in the Civil War, and many another solid basis of its traditions, are covered in ample detail. There is a prefatory letter from its distinguished graduate, General George C. Marshall, Chief of Staff.

The third and fourth volumes are to be issued in the fall of this year. Garrett & Massie, The JOURNAL printers, have done an attractive job of binding and printing.

# Officers' Station List

## COAST ARTILLERY CORPS

August 1, 1940

### Section 1. Regular Army Personnel

#### OFFICE OF THE CHIEF OF COAST ARTILLERY

Washington, D. C.  
CHIEF OF COAST ARTILLERY  
Major General J. A. Green

LIEUTENANT COLONELS  
Blood, K. T.  
Strong, A. G.  
Thomas-Stable, C.  
Emery, F. E., Jr.  
Cotter, C. E.

MAJORS  
Lewis, J. T.  
McCroskey, S. L.  
Davis, L. L.  
Herrick, H. X.  
Jefferson, L. W.  
Starr, R. E.  
Harriman, J. E.  
Schuyler, C. Van R.  
Kane, F. B.  
Flory, L. D. (Temp.)

THE COAST ARTIL-  
LERY BOARD  
Fort Monroe, Va.

COLONEL  
Bowen, W. S.

MAJORS  
Edgecomb, F. E.  
Gerhardt, Wm. R. (Ord.)  
Kreuter, R. H.  
Crichlow, R. W., Jr.

CAPTAINS  
Shepherd, C. E.  
Smith, D. H.

1ST LIEUTENANT  
Irvine, M. M.

SUBMARINE MINE  
DEPOT  
Fort Monroe, Va.

COLONEL  
Lenzner, D. S.

MAJORS  
Reuter, H. C.  
Luce, D.

CAPTAIN  
Toftoy, H. N.

### DISTRICTS AND BRIGADES

1st C.A. DISTRICT  
Boston, Mass.

COLONEL  
Smith, R. H.

MAJOR  
Chaplin, R. T.

2d C.A. DISTRICT  
New York, N. Y.

COLONELS  
Cooper, A. J.  
Bisceo, E.  
Maddux, R. F. (Temp.)

MAJORS  
Bucher, O. B.  
Jackson, A. M. (Temp.)  
Crim, C. H. (Temp.)  
Williamson, E. V.  
(F.A.) (Temp.)

3d C.A. DISTRICT  
Fort Monroe, Va.

BRIGADIER GENERAL  
Smith, F. H.

COLONEL  
Bennett, E. E.

1ST LIEUTENANT  
Ellis, W. F. (Aide)

4th C.A. DISTRICT  
Fort McPherson, Ga.

COLONEL  
Mitchell, R. M.

LIEUTENANT COLONEL  
McCain, J. D.

MAJOR  
Hill, R. E.

9th C.A. DISTRICT  
Presidio, San Francisco,  
Calif.

BRIGADIER GENERAL  
Burgin, H. T.

COLONEL  
Lincoln, F. H.

MAJOR  
Harrington, J. H.

HAWAIIAN SEPA-  
RATE COAST ARTIL-  
LERY BRIGADE  
Fort DeRussy, T. H.

BRIGADIER GENERAL  
Gardner, F. Q. C.

COLONEL  
Loustalot, A. L.  
(D.S. Hq. Haw. Dept.)

LIEUTENANT COLONELS  
Skene, C. M. S.  
Lindt, J. H.  
Perkins, R. M.

MAJORS  
Bates, J. C.  
Ritchie, I. H.

1ST LIEUTENANT  
Weber, M. G. (Aide)

PANAMA SEPARATE  
COAST ARTILLERY  
BRIGADE (PRO-  
VISIONAL)  
Quarry Heights, C. Z.

BRIGADIER GENERAL  
Jarman, S.

LIEUTENANT COLONEL  
Finley, C. R.

MAJORS  
Detwiler, H. P.  
Bartlett, L. W.

CAPTAIN  
Deichelmann, M. K.

1ST LIEUTENANTS  
Patterson, C. G.  
Skidmore, W. M. (Aide)  
Hardy, R. M. (Aide)

### COAST ARTILLERY REGIMENTS

1st COAST ARTIL-  
LERY  
Fort Sherman, C. Z.

LIEUTENANT COLONEL  
French, A. J.

MAJORS  
Bowman, O. D.  
Wortman, V. W.  
Dodge, F. B., Jr.

CAPTAINS  
Baron, A. S.  
Peirce, G. F.  
Johnson, W. L.

1ST LIEUTENANT  
Matyas, A. A. (Cav.)

2d LIEUTENANTS  
Michelet, H. E.  
Pattison, J. B., Jr.  
Seaver, P. R.  
Gilchrist, M. F., Jr.

Fort Randolph, C. Z.

1ST LIEUTENANT  
Doyle, P. V.

2nd COAST ARTIL-  
LERY  
Fort Monroe, Va.

COLONEL  
Hardaway, F. P.

LIEUTENANT COLONELS  
Lohmann, L. H.  
Kerr, C.

MAJORS  
Chamberlain, F. R., Jr.  
(SD, CA Bd.)

Goepfert, L. W.  
Atkinson, C. E.  
Sowell, H. E. (F.A.)  
King, E. W. (D.S. 1st  
Army Maneuvers,  
Canton, N. Y.)

CAPTAINS  
Ross, L. G.  
Brownlee, L. H.  
Ward, E. R. C.  
Wood, R. J.

1ST LIEUTENANTS  
Walter, E. H.  
Alfrey, J.

Frith, R. E., Jr.  
Worcester, Wm. J.

2d LIEUTENANTS  
Tredennick, J. C.  
Beaudry, C. L.  
Miley, H. A., Jr.

Att—  
Bascunan, Fernando  
Lt., Chilean Navy.  
Aguayo, Felix,  
Lt. Comdr.,  
Chilean Navy.

3d COAST ARTIL-  
LERY  
Fort MacArthur, Calif.

LIEUTENANT COLONEL  
Mead, E. C.

MAJORS  
Sne<sup>l</sup>, V. C.  
Hawley, D. C. (Cav.)  
Barnes, H. C., Jr.

CAPTAINS  
Tucker, G. A.  
Twyman, J. H., Jr.

1ST LIEUTENANT  
Harrison, H. J.

4th COAST ARTIL-  
LERY  
Fort Amador, C. Z.

COLONEL  
Nichols, Wm. R.

LIEUTENANT COLONEL  
Kennard, J. (Cav.)

MAJORS  
Scott, W. W.  
Nichols, G. F.  
Dwyer, J. W.  
Barker, W. L.  
Sturman, J. F., Jr.  
Duvall, H. H.

1ST LIEUTENANTS  
Corum, D. R.  
Cherubin, S. J.

2d LIEUTENANTS  
Hallinger, E. E.  
Herstad, J. O.  
Belardi, R. J.

Fort Kobbe, C. Z.

CAPTAIN  
Roth, A.

2d LIEUTENANT  
Bane, J. C.

5th COAST ARTIL-  
LERY  
Fort Hamilton, N. Y.

MAJOR  
Barrows, E. R.  
Wolfe, W. J.

1ST LIEUTENANT  
Jordan, Wm. H.

Fort Wadsworth, N. Y.

MAJOR  
Lowder, J. R.

Panama Coast Artil-  
lery Detachment  
Camp Upton, N. Y.

MAJOR  
Gibson, R. S. (Inf.)

6th COAST ARTIL-  
LERY  
Fort Winfield Scott,  
Calif.

COLONEL  
Tilton, R. L.

LIEUTENANT COLONELS  
Doney, C. S.

MAJORS  
Whittaker, L. A.  
Crowell, E. R.  
Fleming, P. C. (F.A.)  
Engelhart, E. C.  
Kleinman, E. A.  
Simmons, J. F.  
Fonvielle, J. H.  
Lafrenz, Wm. F.

CAPTAINS  
Haakensen, N. T.  
Carey, G. R.  
McKinney, M. J.  
Pride, R. L. (F.A.)  
Rothgeb, C. E.

1ST LIEUTENANTS  
McReynolds, S. McF., Jr.  
Mooreman, R. R.

- Root, W. G.  
Kramer, A.  
Swain, O.  
DeBill, W. C.  
Liwski, F. A.  
Fitzgerald, R. H.
- 2D LIEUTENANTS  
Webster, G. B., Jr.  
Hennessy, J. T.  
Ware, E. H.
- 7th COAST ARTIL-  
LEERY  
Fort Hancock, N. J.
- COLONEL  
Willford, F. E.
- LIEUTENANT COLONELS  
Rhein, W. W.  
Kelly, P. K. (Inf.)
- MAJORS  
Hennessy, H. P.  
Jeffords, T. E.  
deCamp, J. T.  
Russey, J. W. (F.A.)
- CAPTAINS  
England, J. M.  
Jaccard, P. A.  
Vestal, Wm. M.  
Woodbury, K. J.  
Berilla, G. P. Jr., (Cav.)
- 1ST LIEUTENANT  
Cordes, C. F., Jr.
- 2D LIEUTENANTS  
deMetropolis, H.  
White, A. B. (D.S., Ft.  
Wadsworth, N. Y.)  
Bradley, F. X.  
Epley, A. D.
- 8th COAST ARTIL-  
LEERY  
Fort Preble, Me.
- COLONEL  
Kemble, F.
- MAJORS  
Hudgins, L. A.  
Imperatori, R. J.  
Hoge, D. H.
- CAPTAINS  
Palmer, G. W.  
Gibbs, G. G.  
Treat, C. H. (Inf.)
- 1ST LIEUTENANTS  
MacLachlan, C. L.  
Hackman, E. E.
- 2D LIEUTENANTS  
Vann, W. MacR.  
Hackett, C. J.  
Young, S. D.
- 9th COAST ARTIL-  
LEERY  
Fort Banks, Mass.
- COLONELS  
Hickok, M. J.  
Dennis, E. B.
- MAJORS  
Cassard, H. DeV  
Costigan, R. M. (F.A.)  
Hogan, J. L.
- CAPTAINS  
Covell, B. E.  
Cassaban, N. A.  
Strickland, H. E.
- 1ST LIEUTENANT  
Lind, H. D.
- 10th COAST ARTIL-  
LEERY  
Fort Adams, B. I.
- LIEUTENANT COLONEL  
Pendleton, R. T.
- MAJORS  
Jolls, E. P.  
Brent, G. W.  
Nelson, O. A.
- CAPTAINS  
Kimm, V. M.  
Holsinger, G. L. (F.A.)  
Ford, George A.  
Carter, C. C.  
Odenweller, C. J., Jr.
- 1ST LIEUTENANT  
Mullikin, O. W. (Inf.)
- 2D LIEUTENANTS  
Hinterhoff, W. A.  
Henry, Wm. J.
- 11th COAST ARTIL-  
LEERY  
Fort H. G. Wright, N. Y.
- COLONEL  
Jones, T. H.
- LIEUTENANT COLONEL  
Hill, I. B.
- MAJORS  
Schmidt, V. G.  
Dawson, M. A. (F.A.)  
Remington, W. E. (Inf.)
- CAPTAINS  
Barber, J. T.  
Samuels, A., Jr.  
Hennig, Wm. H.  
Dunham, C. E.
- 1ST LIEUTENANTS  
Lipscomb, L., Jr.  
Murrin, Wm. R.  
Gough, A. D.
- 2D LIEUTENANTS  
Kelly, J. J., Jr.  
Hudgins, S. F.  
Walker, J. T.  
Rice, H. E.  
Colligan, R. L., Jr.  
Lotozo, J.
- 13th COAST ARTIL-  
LEERY  
Fort Barrancas, Fla.
- COLONEL  
Allen, H. C.
- LIEUTENANT COLONEL  
Rinearson, A. V.
- MAJORS  
Sweet, W. H.  
Morgan, M.  
Haggart, A. L.  
Thomas, B. A. (Cav.)  
Davis, T. D. (Inf.)  
Gunn, C. O.  
Burnett, J. R.  
Featherston, J. H.  
Adkins, J. R., Jr. (F.A.)
- CAPTAINS  
Shumate, J. P.  
French, F. J.  
Niethamer, W. F.  
Hitchings, J. L. (Cav.)
- 1ST LIEUTENANTS  
Rude, W. A.  
Piram, J. S.  
Powell, C. W.  
Donahue, J. M.  
Spann, C. E., Jr.  
Hiddleston, E. W.
- 2D LIEUTENANTS  
Price, Wm. H., Jr.  
Smith, H. T.  
Barnett, Wm. H.  
MacDonald, A. F.  
Williams, J. W.  
Gillmore, Wm. K.  
Bayer, K. H.  
Turner, H. J., Jr.  
Kasper, Wm. M.
- Key West Barracks, Fla.
- COLONEL  
Pendleton, L. L.
- MAJOR  
Putnam, W. F.
- 1ST LIEUTENANT  
Lockhart, E. E.
- Fort Moultrie, S. C.
- MAJORS  
Dunn, G. W., Jr.  
Ulmo, H. W.
- CAPTAIN  
Wilson, D. McC.
- 14th COAST ARTIL-  
LEERY  
Fort Worden, Wash.
- COLONEL  
Cunningham, J. H.
- LIEUTENANT COLONEL  
Engelhart, A. F.
- MAJORS  
Clayton, L. L.  
Bell, C. O.
- Myers, C. M.  
Lamson, D. D.
- CAPTAINS  
McGraw, J. E.  
Decker, K. N. (F.A.)  
Darrah, J. T.
- 1ST LIEUTENANTS  
Hoffman, T. F.  
Schmick, P.  
Moore, R. E. (Inf.)  
Clark, M. H.
- 2D LIEUTENANT  
Chandler, H. B., Jr.
- 15th COAST ARTIL-  
LEERY  
Fort Kamehameha, T. H.
- COLONEL  
Walker, E. B.
- MAJORS  
Van Buskirk, R. J.  
Ladd, R. V.  
Pendleton, H. E.  
Lawrence, A. M.  
McCarthy, Wm. J.  
Anderson, G.  
Ellis, H. P.  
Dingeman, R. E.
- 1ST LIEUTENANTS  
Ebey, F. W.  
Hain, R. W.  
Steely, O. B.
- 2D LIEUTENANT  
Janowski, R. A.
- 16th COAST ARTIL-  
LEERY  
Fort Ruger, T. H.
- LIEUTENANT COLONELS  
Potts, A. E.  
Dutton, D. L.
- MAJORS  
McCormick, W. L.  
Blaney, G.  
Morgan, C. C. (Inf.)
- 1ST LIEUTENANT  
Coit, W. S.
- 2D LIEUTENANTS  
Gifford, J. R.  
Weinigg, A. J.  
Jordan, R. E.  
Weisemann, H.  
Yarnall, K. I.
- 18th COAST ARTIL-  
LEERY  
Fort Stevens, Ore.
- COLONEL  
Lemmon, K. B.
- MAJORS  
Lofquist, F.  
Warren, A. L. (F.A.)  
Gregory, P. T.  
Wood, F. O. (F.A.)
- CAPTAINS  
Shaw, L. E.  
Kendall, Wm. H.
- 1ST LIEUTENANTS  
Passarella, P. F.  
Fairchild, F. H.
- 2D LIEUTENANT  
Hovell, B. B.
- 19th COAST ARTIL-  
LEERY  
Fort Rosecrans, Calif.
- COLONEL  
Ottoesen, P. H.
- MAJORS  
Jacobs, J. P.  
Woodruff, V. R. (F.A.)  
Shores, R. (Inf.)  
Waters, F. B.  
Stiley, J. F.  
Harry, J.  
Frank, K. C.  
Bates, R. E.  
Goodall, J. R.
- CAPTAINS  
Parr, W. H.  
Alexander, D. S.  
Hunt, H. H. (F.A.)  
Henn, J. S.
- 1ST LIEUTENANT  
Rothwell, F. G.
- 20th COAST ARTIL-  
LEERY  
Fort Crockett, Texas
- LIEUTENANT COLONELS  
Vogel, B.  
Powers, J. D.
- MAJOR  
Block, E. R. (F.A.)
- CAPTAIN  
Zimmer, L. A.
- 21st COAST ARTIL-  
LEERY  
Fort Dupont, Del.
- LIEUTENANT COLONEL  
Hudson, J. C.
- MAJOR  
Harris, P. A.
- 1ST LIEUTENANT  
Whipple, H. B.
- 22d COAST ARTIL-  
LEERY  
Fort Constitution, N. H.
- MAJOR  
Cowen, E. G.  
Mitchell, J. D.
- CAPTAIN  
Guyer, L. McL.
- 23d SEPARATE BN.  
COAST ARTILLERY  
Fort Rodman, Mass.
- MAJOR  
Branham, C. N.
- CAPTAIN  
Kochegar, J. H.
- 1ST LIEUTENANT  
Underwood, G. V., Jr.
- 41st COAST ARTIL-  
LEERY  
Fort Kamehameha, T. H.
- MAJOR  
McMorris, W. L.
- CAPTAIN  
Martin, D. D.
- 1ST LIEUTENANT  
Nye, D. B.
- 2D LIEUTENANT  
Hodges, W. J., Jr.
- 51st COAST ARTIL-  
LEERY  
Fort Buchanan,  
Puerto Rico
- LIEUTENANT COLONEL  
Flanigan, B. L.
- MAJORS  
Cordero, M.  
Burgess, G. R.
- CAPTAINS  
Grinder, R. H.  
Peddicord, E. D.
- 1ST LIEUTENANTS  
Simons, M. M.  
Taylor, E. O.  
Fritz, William G.
- 2D LIEUTENANTS  
Marshall, O. K., Jr.  
Snow, J. R.  
Hussey, Wm. J. A.  
Reeves, C. W.
- 52d COAST ARTIL-  
LEERY  
Fort Hancock, N. J.
- LIEUTENANT COLONEL  
Sinclair, J. L.
- MAJOR  
Woods, F. J.
- CAPTAIN  
McGeehan, C. W.
- 1ST LIEUTENANTS  
Sutherland, A. J.  
Hildebrandt, C. W.
- 2D LIEUTENANTS  
Heasty, C. F., Jr.  
Clarke, L. L., Jr.
- 55th COAST ARTIL-  
LEERY  
Fort Kamehameha, T. H.
- MAJORS  
Slicer, H. H.  
Brady, W. I.
- CAPTAIN  
Walbridge, V.
- 1ST LIEUTENANTS  
Conway, W. C.  
Bailey, Wm. W.
- 2D LIEUTENANTS  
Kapesak, A. A.  
Lavell, G.
- Fort Ruger, T. H.
- LIEUTENANT COLONEL  
Wolfe, S. E.
- MAJOR  
Lawton, Wm. S.
- 1ST LIEUTENANT  
Eubank, P. H.
- 2D LIEUTENANTS  
Simon, L. A.  
Roosa, J. A.  
Lentz, C., II
- 57th COAST ARTIL-  
LEERY  
Fort Monroe, Va.
- LIEUTENANT COLONEL  
Kimmel, M. M., Jr.
- CAPTAINS  
Martin, E. G.  
Tracy, M. W.  
Koscielniak, A. A.
- 1ST LIEUTENANTS  
Mattern, R. H.  
Hickok, M. J., Jr.  
Scott, J. A., Jr.  
Howell, J. N.  
Hunter, H. W.
- 59th COAST ARTIL-  
LEERY  
Fort Mills, P. I.
- COLONEL  
Glassburn, R. P.
- MAJOR  
Thompson, L. H.  
Chambers, A. K.  
Sawtelle, D. W. (Cav.)
- CAPTAINS  
Kirkpatrick, L. S.  
Simmonds, N. B.  
Conzelman, C. McK.  
Goodman, S. J. (D. S.  
Hq. Phil. Dent.)  
Graves, R. (Inf.)  
Miller, A. D.
- LIEUTENANT COLONEL  
Julian, H.
- 1ST LIEUTENANTS  
Routh, D. B.  
Cassavant, A. F. (D.  
S. Fort Monmouth,  
N. J.)  
Drake, L. R.  
Ashman, A.  
Skinrood, N. A.  
Bunnoski, A. S.  
Ellert, L. J.  
B'air, W. S.  
Shive, D. W.  
Blunda, G. F.
- 2D LIEUTENANTS  
Wood, O. E. (D. S.  
Fort Wadsworth,  
Mancuso, S. J.  
Brassel, A. L.  
Brown, G. E.  
Marsh, C. T., Jr.  
Heinemann, Wm. E.
- 63d COAST ARTIL-  
LEERY  
Fort MacArthur, Calif.
- COLONEL  
Stockton, E. A., Jr.
- LIEUTENANT COLONEL  
O'Brien, M. J.
- MAJORS  
Parmalee, A. L.  
Gilbreth, J. H.  
Topping, F. L.
- CAPTAINS  
Tomlin, R. F.  
Francis, W. H.  
Soward, J. R.  
Hendrix, R. R.  
Roy, P. A.
- 1ST LIEUTENANTS  
Wilson, N. B.  
Tubbs, H. S.  
Gallagher, R. E.  
Sherardson, F. F.  
Lemmon, K. B., Jr.  
(Inf.)  
Rinley, L. H.
- 2D LIEUTENANTS  
Abston, A. A.  
Holmes, J. R.  
Haines, D. F.  
Wood, J. D.
- 61st COAST ARTIL-  
LEERY  
Fort Williams, Me.
- COLONEL  
Homer, J. L.
- MAJORS  
Harris, C. S.  
Kilgarif, L. M. (F.A.)  
Jeffords, William Q.
- CAPTAINS  
Anderson, R. L.  
Morrow, S. H.  
Gill, B. D.  
Franklin, A. G., Jr.  
Briggs, K. M.  
Dice, J. B. F.
- 1ST LIEUTENANTS  
Curtis, K. I.  
Morris, Robert  
Easton, Wm. G.
- 2D LIEUTENANTS  
Thorkelson, W. L.  
Barry, R. B., Jr.  
Nickerson, D. K.  
Sigley, W. B.  
Platt, R. G.  
Moore, J. M.  
Hamelin, R. W.  
Fisher, S. G.
- 62d COAST ARTIL-  
LEERY  
Fort Totten, N. Y.
- COLONEL  
Spiller, O. L.
- LIEUTENANT COLONEL  
Small, H. E.
- MAJORS  
O'Connell, G. M.  
Willard, S. E.  
Erickson, R. A.  
Hatch, M. A.  
Cary, M. G.
- CAPTAINS  
Brusher, H. A.  
Kyster, O. H., Jr.
- 1ST LIEUTENANTS  
Routh, D. B.  
Cassavant, A. F. (D.  
S. Fort Monmouth,  
N. J.)  
Drake, L. R.  
Ashman, A.  
Skinrood, N. A.  
Bunnoski, A. S.  
Ellert, L. J.  
B'air, W. S.  
Shive, D. W.  
Blunda, G. F.
- 2D LIEUTENANTS  
Wood, O. E. (D. S.  
Fort Wadsworth,  
Mancuso, S. J.  
Brassel, A. L.  
Brown, G. E.  
Marsh, C. T., Jr.  
Heinemann, Wm. E.
- 63d COAST ARTIL-  
LEERY  
Fort MacArthur, Calif.
- COLONEL  
Stockton, E. A., Jr.
- LIEUTENANT COLONEL  
O'Brien, M. J.
- MAJORS  
Parmalee, A. L.  
Gilbreth, J. H.  
Topping, F. L.
- CAPTAINS  
Tomlin, R. F.  
Francis, W. H.  
Soward, J. R.  
Hendrix, R. R.  
Roy, P. A.
- 1ST LIEUTENANTS  
Wilson, N. B.  
Tubbs, H. S.  
Gallagher, R. E.  
Sherardson, F. F.  
Lemmon, K. B., Jr.  
(Inf.)  
Rinley, L. H.

2D LIEUTENANTS  
Holloway, R. H.  
D'Arezzo, J. P.  
Silvasy, S.  
Cunningham, H. A., Jr.  
Light, E. D.

64th COAST ARTIL-  
LEBRY  
Fort Shafter, T. H.

COLONEL  
Wing, C. K.

LIEUTENANT COLONELS  
Behrens, H. R.  
Armstrong, M. G.

MAJORS  
Taliaferro, E. H., Jr.  
Johnson, J. J.  
Meyers, H. F.  
Turnbull, H. T.

CAPTAINS  
Glasgow, R. I.  
Forman, O. T.  
Day, F. E.  
Frederick, R. T.  
Folk, F. T.

1ST LIEUTENANTS  
Thompson, E. H., Jr.  
Kauffman, R. K.  
Tiffany, K. E. (Inf.)  
Rumph, R. W.

2D LIEUTENANTS  
Wickham, K. G.  
Langford, C. A.  
Peterson, I. A.  
Vail, W. H., Jr.  
Evans, B. S., Jr.  
Bennett, A.  
Walker, J. W.

65th COAST ARTIL-  
LEBRY  
Fort Winfield Scott,  
Calif.

COLONEL  
Crawford, J. B.

MAJORS  
Hickey, D. W., Jr.  
Jones, R. C.  
Holder, W. G.  
Krueger, R. H.

CAPTAINS  
Dayharsh, T. J.  
Young, G. E.  
Rasmussen, K. E.  
Allison, P. W. (F.A.)

1ST LIEUTENANTS  
Donnelly, H. C.  
Porter, G. U.  
Hale, H. R.  
Kinard, Wm. H., Jr.  
Wilkins, G. R.  
Moomov, O. A.  
Paddock, J. W. (Inf.)

2D LIEUTENANTS  
Eaton, G. P.  
Evans, J. C.  
Smith, Y. C.  
Hoffman, T. L., Jr.  
O'Brien, J. A.  
Delaney, R. J.

68th COAST ARTIL-  
LEBRY (1st Bn.)  
Borinquen Field, P. R.

CAPTAINS  
Merkle, E. A.  
McKee, W. F.  
Mortimer, J. E.

1ST LIEUTENANTS  
Totter, R.  
Schweidel, K. R.  
Turner, H. F.  
Steele, P.  
Chadman, E. A.  
Voehl, W. E. H.

2D LIEUTENANTS  
Bowman, J. A.  
Mial, J. P.  
Kirby, L. M.  
Ludeman, R. F.  
Smith, C. O.  
deVille, L. B.

67th COAST ARTIL-  
LEBRY  
Fort Bragg, N. C.

LIEUTENANT COLONEL  
Turley, R. E., Jr.

MAJORS  
Newman, H. H.  
Denson, L. A., Jr.

CAPTAINS  
Berry, R. W.  
Perry, W. A.

1ST LIEUTENANTS  
Beazley, L. K.  
Brucker, W. H.  
O'Malley, C. S., Jr.  
Webber, D. B.  
Metz, T. McG.

2D LIEUTENANTS  
Leedom, J. W., Jr.  
Jones, E. B.

68th COAST ARTIL-  
LEBRY  
Fort Williams, Me.

COLONEL  
Garrett, R. C.

LIEUTENANT COLONEL  
French, P. H.

MAJORS  
Greenwood, D. B.  
Cameron, H. H. (Cav.)  
Moore, J. M.

CAPTAINS  
Gard, H. P.  
Nelson, C. G. (F.A.)  
Gilbert, O. H.  
Davis, J. W.  
Schmidt, G.

1ST LIEUTENANTS  
Wolfe, Y. H.  
Waterman, B. S.  
Greenlee, H. R., Jr.  
McGouldrick, F. M.  
Morgan, J. B.  
Weitzel, G. J.  
Hall, L. A.

2D LIEUTENANTS  
Cleverly, R. deF.  
Higgins, H. D.  
Horton, Wm. F.  
Bates, R. H.

69th COAST ARTIL-  
LEBRY  
Fort Crockett, Texas

COLONEL  
Longino, O. H.

MAJORS  
Darrell, R. H. (Cav.)  
Robinson, J. S.  
Cochran, H. McC., III  
Myrah, H. H.  
Pitzer, J. H.  
Reno, J. G.  
McFadden, W. C.

CAPTAINS  
Partin, C. L.  
Benz, H. T.  
Newman, G.  
Denson, P. B.

1ST LIEUTENANTS  
Williams, R. L., Jr.  
Meade, L. K.  
Baynes, Wm. H.  
Warfield, B. M.  
Cooper, A. J., Jr.

Paige, B. L.  
McLain, E. W.

2D LIEUTENANTS  
Chadwick, Wm. D., Jr.  
Shivers, G. W., Jr.  
deLatour, F. A., Jr.  
Aber, J. E.

70th COAST ARTIL-  
LEBRY  
Fort Moultrie, S. C.

COLONEL  
Cox, R. F.

MAJOR  
Lemnitzer, L. L.

CAPTAINS  
Tischbein, C. F.  
Parks, H. C.  
Chamberlain, E. W.

1ST LIEUTENANTS  
Hill, C. W.  
Foote, S. W.  
Wollaston, P. H.

2D LIEUTENANTS  
Banks, J. McM.  
Hart, J. E.  
Gilbert, C. M.  
Wilson, H. L., Jr.  
Lynn, E. A., Jr.

Fort Screven, Ga.

LIEUTENANT COLONEL  
DuBois, B. S.

MAJORS  
Hanson, H. R. (F.A.)  
Wahle, C. B.

CAPTAIN  
Weddell, Wm. A.

1ST LIEUTENANTS  
Lazar, A. M.  
Versace, H. J. (F.A.)  
Romlein, J. W.  
Adams, G. E. (F.A.)

2D LIEUTENANTS  
Wood, J. E., Jr.  
Brumfiel, O. M.

71st COAST ARTIL-  
LEBRY  
Fort Story, Va.

LIEUTENANT COLONEL  
Hinman, D. D.

MAJORS  
Timberlake, E. W.  
Spalding, A. C.

CAPTAINS  
Fernstrom, C. H.  
Hempstead, E. B.  
Hincke, J. I.

1ST LIEUTENANTS  
Neier, T. D.  
Sommer, A.  
Nelson, R. M.

2D LIEUTENANTS  
Freund, J. F.  
Mahoney, Wm. C., Jr.  
Richards, A. P.  
Green, G. D.

72d COAST ARTIL-  
LEBRY  
Fort Randolph, C. Z.

COLONEL  
Oldfield, H. R.

MAJORS  
Adams, N. L.  
Archibald, H. G.  
Stephens, J. C.  
Gregory, E. M.  
Gettys, C. W.  
Gower, A. W.

CAPTAINS  
Wright, W. L.  
Bailey, D. J.  
Miter, F. F.  
Lepping, A. J.  
Raymond, M. B. (D.S.)  
Hq. P.C.D.)  
White, T. B.  
Harris, W. H.  
Miller, R. L.

1ST LIEUTENANTS  
Moore, R. W.  
Adams, G. N.  
Kushner, G. L.  
Reybold, F. B.  
Andrews, F. W.  
Maybach, A. A.

2D LIEUTENANTS  
Bailey, J. R., Jr.  
Seff, A.  
Wald, J. J.  
Royce, P. M.  
Krisman, M. J.  
Curtin, R. D.  
Kelly, J. P. A.  
Dougan, M. D.

Fort Sherman, C. Z.

LIEUTENANT COLONEL  
Underwood, E. H.

CAPTAIN  
Russell, R. W.  
Bain, J. G.

1ST LIEUTENANTS  
Spurgin, Wm. F.  
Rawls, J. W.

2D LIEUTENANTS  
Pavick, J. J.  
Luczak, B. R.

73d COAST ARTIL-  
LEBRY  
Fort Amador, C. Z.

LIEUTENANT COLONEL  
Chapin, W. M.

MAJORS  
Bottoms, M.  
McCormick, J. W.  
(Inf.)

Carlisle, W. H.  
Wilson, A. E.  
Bullene, L. R.  
Thompson, E. B. (D.  
S. P.C. Dept.)  
Gurley, F. K.

CAPTAINS  
Gamble, A. S. (Inf.)  
Gamber, J. F.  
Edwards, P. W.  
Elias, P.  
McNickle, S. P. (Inf.)

1ST LIEUTENANTS  
Green, C. E.  
Logan, Wm. B.

2D LIEUTENANTS  
Schrader, J. R., Jr.  
Megica, M. G.  
Pulliam, C. C.  
Nanney, D. Y.  
Fling, Wm. J.

Fort Kobbe, C. Z.

CAPTAIN  
Thompson, M. R.

2D LIEUTENANT  
Medinnis, C. L. P.

Post of Corozal, C. Z.

LIEUTENANT COLONEL  
Scofield, F. C.

CAPTAIN  
Harvell, M. H.

1ST LIEUTENANT  
Roth, I. D.

2D LIEUTENANTS  
Boughton, R. W., Jr.  
Newcomer, F. K., Jr.  
Chester, R. S.

74th COAST ARTIL-  
LEBRY  
Fort Monroe, Va.

MAJOR  
Hesketh, Wm.

CAPTAIN  
Fuller, A. L., Jr.  
(D.S., C.A. Sch.)

1ST LIEUTENANTS  
Duff, C. B.  
Boys, R. C.  
Holterman, G. H.  
Persons, H. P., Jr.  
Yost, J. B.  
Leist, G. F.  
Nelson, J. G.

2D LIEUTENANTS  
Mason, T. O.  
Gordon, T. F.

75th COAST ARTIL-  
LEBRY  
Fort Lewis, Wash.

COLONEL  
Colladay, E. B.

LIEUTENANT COLONEL  
Stark, H. W.

MAJORS  
Brey, Wm. G.  
Murphy, J. G.  
Loupvet, G. J.  
McLean, D.  
Wolff, C. M.

CAPTAINS  
Nelson, P. B.  
Shunk, P. W.  
Vickers, L. T.

1ST LIEUTENANTS  
Cooper, H. B., Jr.  
Cory, I. W.  
Gilman, S. I.  
Hillberg, L. J.  
Mitchell, E. C.  
Steele, J. C.  
Ashworth, E. T.  
Waugh, W. H., Jr.  
Zeller, F. J.

2D LIEUTENANTS  
Cochran, J. M.  
Johnson, H. O.  
Lennhoff, C. D. T.  
Odom, H. R.  
Biswanger, C. T., Jr.  
Mackin, R. N., III  
Miner, R. E.

76th COAST ARTIL-  
LEBRY  
Fort Bragg, N. C.

LIEUTENANT COLONEL  
Pierce, H. R.

MAJORS  
White, L. A.  
Sullivan, A. P.

CAPTAINS  
Berliner, S.  
Lewis, H. duV.  
Townsend, H. F.

1ST LIEUTENANTS  
Kessler, R. H.  
Bogart, F. A.  
Cheal, R. C.

77th COAST ARTIL-  
LEBRY  
Fort Bragg, N. C.

LIEUTENANT COLONEL  
Thiele, C. M.

MAJORS  
McGarragh, R. E.  
Shutt, L. O.

CAPTAINS  
Smith, J. C.  
Wrean, J. T.

1ST LIEUTENANTS  
Ogden, M. L.  
Young, C. G.  
Robbins, A. D.  
George, M. S.

78th COAST ARTIL-  
LEBRY

March Field, Calif.

LIEUTENANT COLONEL  
Van Volkenburgh, R. H.

MAJORS  
Bunting, G. C.  
Aldrich, H. S.

CAPTAINS  
Wallace, E. C.  
Howell, J. F., Jr.

1ST LIEUTENANTS  
Kallman, M. M.  
McFeely, H. G.  
Crocker, G. W.

91st COAST ARTIL-  
LEBRY (P.S.)  
Fort Mills, P. I.

COLONEL  
Shippam, W.

MAJORS  
Foster, V. P.  
Kohn, J. P.  
Boudreau, N.  
Caluya, P. Q. (P.S.)  
Sevilla, P. C. (P.S.)

CAPTAINS  
Alba, B. M. (P.S.)  
Stennis, W. K.  
Short, W. B.

1ST LIEUTENANTS  
Mellnik, S. M.  
Smith, R. A. (Cav.)

2D LIEUTENANTS  
Russell, M. E.  
Rosenstock, E. S.  
Davis, P. C.  
Davis, J. H., Jr.

Fort Frank, P. I.

CAPTAIN  
East, J. C.

2D LIEUTENANT  
Lehr, P. H.

92d COAST ARTIL-  
LEBRY (P.S.)  
Fort Mills, P. I.

COLONEL  
Cottrell, J. F.

LIEUTENANT COLONEL  
Martin, J. B.

MAJORS  
Barr, E. L.  
Santos, M. M. (P.S.)  
Olivares, J. E. (P.S.)

1ST LIEUTENANTS  
Harvey, T. H.  
Crawford, G. H.  
Ball, Wm. H.

2D LIEUTENANTS  
Kappes, G.  
D'Arezzo, A. J.  
White, C. E.  
Madison, S. A.  
Snoko, D. R.  
Farris, S. C.

## DEPARTMENT HEADQUARTERS AND UNASSIGNED

PANAMA CANAL  
DEPARTMENT  
(Unassigned)

MAJORS  
Goff, J. L.  
McCormick, T. C. (F.A.)

1ST LIEUTENANT  
Carter, M. S.

2D LIEUTENANTS  
Rimmer, H. P.  
Cassidy, R. T.  
Floryan, T. P.

Gildart, Wm. J.  
Smith, P. E.  
Saunders, W. W.  
Arnold, H. H., Jr.  
Merchant, M. H.  
LaRose, R. J.  
Cibotti, P. R., Jr.

Brewerton, H. R.  
Ross, R. N.  
Witt, L. A.

Coontz, J. B.  
Lederman, M. D.  
Sanford, G. C.  
White, F. G.  
Floyd, A. J.  
Ruziv, M., Jr.  
Bennett, Wm. J.

HAWAIIAN DEPART-  
MENT (Unassigned)

COLONEL  
Moore, G. F.

MAJORS  
Griffin, Wm. E.  
Munford, T. W.  
Smith, P. McC.

CAPTAINS  
Ostenberg, F. T.  
Boyd, H. R.

1ST LIEUTENANTS  
Diestel, C. J.  
Farnsworth, E. E., Jr.  
Hampton, Wm. A.  
Longanecker, C. R.  
Mansfield, H. W.  
Spangler, R. S.  
Stiness, P. B.

2D LIEUTENANTS  
Roedy, Wm. H.  
Spengler, J. T. H.  
Craig, Wm. C.  
Carnahan, G. D.  
Norris, R. R.  
Clay, Wm. L.  
Sell, W. B.  
Fraser, R. H.  
Harnett, J. S.  
Kolda, R. M.

**HQ. HD. OF MANILA AND SUBIC BAYS Fort Mills, P. I.**

BRIGADIER GENERAL Wilson, W. K.

COLONEL Price, F. A.

LIEUTENANT COLONEL Dalao, E. B. (P.S.)

MAJORS Rutherford, D. J. Stillman, E. H. Crews, L. R.

Bowler, L. J. Smith, H. W. Bra'y, W. C. McCullough, S. Smith, J. W. (P.S.) Marrelino, P. (P.S.) Cole, P. W.

1ST LIEUTENANTS Moore, R. F. Edison, D. D. Spengler, H. M. (Aide)

2D LIEUTENANTS Ivy, R. G. Shiley, E. M. Miller, F. A.

**PHILIPPINE DEPARTMENT (Unassigned)**

COLONEL Holcombe, J. L.

LIEUTENANT COLONEL DeCarre, O.

MAJOR Biggs, L. W. (Cav.)

CAPTAINS Bosworth, L. A. Haggarty, R. F.

1ST LIEUTENANTS Lawlor, R. J. Massello, Wm. Jr. Schenck, H. W. Somerville, E. C.

2D LIEUTENANTS Davis, T. W., III Cornwall, P. R. Cooper, R. G. Pace, H. E., Jr. Wheat, R. I. Shoss, M. L. Simpson, H. T., Jr.

Wright, J. MacN., Jr. Britt, C. K. Yates, J. D. Cullen, A. J.

**PUEERTO RICAN DEPARTMENT STAFF San Juan, P. R.**

LIEUTENANT COLONEL Pitz, O. G.

MAJOR Conway, E. T.

1ST LIEUTENANT Peca, P. S. (Aide)

**PUEERTO RICAN DEPARTMENT (Unassigned)**

MAJOR Phillips, T. R. 2D LIEUTENANTS Bayerle, G. J., Jr. Malone, A. G. Ferrill, H. B.

**THE COAST ARTILLERY SCHOOL**

**COMMANDANT**

BRIGADIER GENERAL Smith, F. H.

**STAFF**

COLONEL Nichols, H. F. (Asst. Com.) MAJORS Ricker, G. W. Lowry, P. P. Anderson, S. W.

**INSTRUCTORS**

LIEUTENANT COLONELS Weeks, L. B. Robison, G. B. Foltz, C. G. MAJORS Ricker, G. W.

Lowry, P. P. Dennis, L. C. Griggs, D. M. Anderson, S. W. McNeely, O. D. Morrison, D. E. Lewis, P. W. Hartman, N. E. Ennis, A. I. (A.C.)

Madison, J. H. Merritt, W. B. Pamplin, D. G. Vandersluis, H. J.

CAPTAINS Stevens, V. C. Holcomb, C. W. Chester, G. A.

Bender, A. H. McNamee, Wm. L. Davis, Wm. V.

1ST LIEUTENANTS Russell, S. C. Chace, E. N. Weld, S. L., Jr.

**OTHER SCHOOLS**

**THE COMMAND AND GENERAL STAFF SCHOOL**

**Staff**

LIEUTENANT COLONEL Benitez, E. M.

**Instructors**

LIEUTENANT COLONELS Hocker, C. E. Ostrom, C. D. Y.

**MAJORS**

Milburn, B. L. Irvine, W. W.

**ARMY WAR COLLEGE**

**Instructors**

LIEUTENANT COLONEL Carrington, G. DeL.

**Staff**

MAJORS Townsend, J. R. Handwerk, M. C. Badger, G. M.

**THE ARMY INDUSTRIAL COLLEGE**

**Staff**

MAJOR Hastings, F. H.

**THE COMMAND AND GENERAL STAFF SCHOOL**

LIEUTENANT COLONEL Benitez, E. M.

**MINE PLANTERS AND CABLE SHIPS**

*General Absalom Baird* Fort H. G. Wright, N. Y. Captain, N. A. McLamb

*General O. C. Ord* Fort Hancock, N. J. Captain E. F. Heidland

*General J. Franklin Bell* Fort Amador, C. Z. 1st Lt. L. C. Ratcliffe

*Lieut. Col. Ellery W. Niles* Fort Baker, Calif. Major Samuel Rubin

*Cablesip Joseph Henry* Fort Hancock, N. J. Major J. B. Carroll

*General John M. Schofield* Fort Monroe, Va. Captain W. B. Hawthorne

*General William M. Graham* Fort Sherman, C. Z. Captain J. J. Holst

*Col. Geo F. E. Harrison* Fort Mills, P. I. 1st Lt. J. McM. Gulick

**NATIONAL GUARD INSTRUCTORS**

**OFFICE, CHIEF OF NATIONAL GUARD BUREAU**

Washington, D. C.

Lt. Col. J. P. Hogan Major A. V. Winton Major P. W. Rutledge

**COAST ARTILLERY NATIONAL GUARD REGIMENTS**

**Instructors**

Major H. W. Lins 240th (HD), Portland, Maine. Major V. W. Hall, 240th (HD), Rockland, Maine Major W. H. Papenfoth, 197th (AA), Concord, N. H. Lt. Col. H. R. Jackson 241st (AA), Boston, Mass. Major J. G. Devine, 211th (AA), Boston, Mass. Major P. S. Lowe, 211th (HD), Falmouth, Mass. Major R. E. DeMerritt, 241st (HD), Fall River, Mass.

Major C. W. Higgins, 242d (HD), Bridgeport, Conn. Lt. Col. R. E. Phillips, 242d (HD), Bridgeport, Conn. Major J. E. Reierson, 208th (AA), Hartford, Conn. Major R. T. George, 243d (HD), Providence, R. I. Major E. Young, 243d (HD), Providence, R. I. Major J. L. Craig, 244th (TD), New York, N. Y. Lt. Col. N. Dingley, III, 209th (AA), Buffalo, New York. Major K. P. Flagg, 209th (AA), Rochester, N. Y. Lt. Col. A. Bradshaw, Jr., 207th (AA), New York, N. Y. Major C. Forrest Wilson, 207th (AA), New York, N. Y. Lt. Col. R. D. Brown, 369th (AA), New York, N. Y. Major A. D. Pisken, 369th (AA), New York, N. Y.

Lt. Col. F. A. Hause, 212th (AA), New York, N. Y. Major R. N. Mackin, 212th (AA), New York, N. Y. Lt. Col. L. C. Mitchell, 245th (HD), Brooklyn, N. Y. Lt. Col. J. MacMullen, 245th (HD), Brooklyn, N. Y. Lt. Col. A. D. Chipman, 261st (HD), Wilmington, Del. Col. Allen Kimberly, 198th (AA), Wilmington, Del. Major J. F. Cassidy, 198th (AA), Wilmington, Del. Major H. H. Blackwell, 246th (HD), Roanoke, Va. Lt. Col. S. F. Hawkins, 246th (HD), Lynchburg, Va. Lt. Col. C. J. Herzer, 213th (AA), Allentown, Penn. Lt. Col. R. Melberg, 213th (AA), Allentown, Penn.

Lt. Col. E. Villaret, 260th (AA), Shreveport, La. Major W. R. Goodrich, 260th (AA), Washington, D. C. Lt. Col. J. D. Walbach, 252d (HD), Wilmington, N. C. Major W. D. Evans, 252d (HD), Greensboro, N. C. Major H. S. Johnson, 263d (HD) & (AA), Columbia, S. C. Major G. A. Patrick, 263d (HD) & (AA), Greenwood, S. C. Col. E. H. Thompson, 214th (AA), Washington, Ga. Major D. S. Ellerthorpe, 214th (AA), Marietta, Ga. Lt. Col. E. O. Halbert, 265th (HD) & (AA), Jacksonville, Fla. Major W. W. Wertz, 265th (HD) & (AA), Miami, Fla. Lt. Col. F. F. Gallagher, 214th (AA), Shreveport, La.

Major F. J. Cunningham 204th (AA), Shreveport, La. Major F. C. McConnell, 202d (AA), Chicago, Ill. Major R. W. McBride, 203d (AA), Carthage, Mo. Lt. Col. K. McCatty, 203d C. A. (AA), Carthage, Miss. Major A. L. Bullard, 206th (AA), Little Rock, Ark. Major G. R. Owens, 206th (AA), Helena, Ark. Col. Wm. D. Frazer, 215th (AA), St. Paul, Minn. Major J. D. Brown, 215th (AA), St. Paul, Minn. Major C. L. Berry, 216th (AA), Mankato, Minn. Major D. B. Herron, 216th (AA), Mankato, Minn. Major J. B. Muir, Jr. 217th (AA), St. Cloud, Minn.

Major J. H. Rousseau, Jr. 217th (AA), St. Cloud, Minn. Col. R. E. Guthrie, 200th (AA), Sante Fe, N. M. Major G. F. Heaney, Jr. 200th (AA), Deming, N. M. Major P. F. Biehl, 250th (TD), San Francisco, Cal. Lt. Col. W. E. Duvall, 251st (AA), San Diego, Cal. Major W. F. Marquat, 251st (AA), Long Beach, Cal. Lt. Col. H. C. Davis, Jr. 249th (HD) & (AA), Salem, Oregon. Lt. Col. K. Rowntree, 249th (HD) & (AA), Salem, Oregon. Capt. F. F. Scheiffler, 248th (HD), Olympia, Wash. Major W. H. Warren, 205th (AA), Seattle, Wash. Major L. D. Farnsworth 205th (AA), Seattle, Wash.

**ORGANIZED RESERVE INSTRUCTORS**

**1st CORPS AREA**

Major L. E. Schoonmaker, Boston, Mass. Colonel L. P. Horsfall, Hartford, Conn. Lt. Col. E. C. Seaman, Providence, R. I. Col. C. B. Meyer, Portland, Me.

**2d CORPS AREA**

Col. A. Gilmor. Col. C. W. Baird, Lt. Col. W. C. Washington, Col. F. M. Green,

Major A. W. Waldron, New York, N. Y. Col. H. LeR. Muller, Wilmington, Del. Lt. Col. W. M. Cravens, Schenectady, N. Y. Major A. L. Lavery, Buffalo, N. Y.

**3d CORPS AREA**

Col. R. B. Cocroft, Fort Monroe, Va. Col. P. S. Gage, Philadelphia, Pa. Major F. L. Christian, Washington, D. C.

**4th CORPS AREA**

Col. T. M. Chase, Richmond, Va. Major C. D. Hindle, Pittsburg, Pa. Col. Clifford Jones, Knoxville, Tenn. Lt. Col. C. R. Jones, Atlanta, Ga. Lt. Col. E. H. Freeland, Jacksonville, Fla. Major C. A. Gillette, Jackson, Mississippi. Major J. B. Hafer, Columbia, S. C.

**5th CORPS AREA**

Major W. R. Maris, Cleveland, O. Major C. R. Roberts, Cincinnati, O. Major B. C. Dailey, Indianapolis, Ind. **6th CORPS AREA** Lt. Col. R. T. Gibson, Chicago, Ill. Col. J. S. Dusenbury, Major F. W. Cook, Lansing, Mich. Col. C. D. Peirce, Milwaukee, Wis. Major A. W. Jones, Detroit, Mich.

**7th CORPS AREA**

Col. George Ruhlen, Omaha, Neb. Major H. A. McMorro, Minneapolis, Minn. Lt. Col. B. Bowering, Topeka, Kan. Major M. B. Gibson, St. Louis, Mo. Major E. L. Supple, Duluth, Minn.

**8th CORPS AREA**

Col. O. C. Warner, San Antonio, Tex. Major E. B. McCarthy, Denver, Col.

**9th CORPS AREA**

Lt. Col. A. E. Rowland, Lt. Col. A. H. Warren, Major C. R. Adams, San Francisco, Cal. Col. P. H. Herman, Major M. E. Conable, Portland, Ore. Col. P. D. Bunker, Col. J. H. Hood, Los Angeles, Cal. Lt. Col. Wm. R. Stewart, Seattle, Wash. Major L. Y. Hartman, Salt Lake City, Utah

## RESERVE OFFICERS TRAINING CORPS INSTRUCTORS

University of Maine, Orono, Maine Lt. Col. J. C. Haw	Georgia School of Technology, Atlanta, Ga. Lt. Col. F. E. Gross	University of Minnesota, Minneapolis, Minn. Lt. Col. C. A. French
Massachusetts Institute of Technology, Cambridge, Massachusetts Colonel C. T. Marsh	Athens High School, Athens, Georgia Lt. Col. A. A. Allen	Washington University, St. Louis, Missouri Major H. W. Cochran
University of New Hampshire, Durham, N. H. Colonel E. K. Smith	Mississippi State College, State College, Miss. Major A. Heilforn Major C. P. Young	Dever High School, Denver, Colorado Lt. Col. G. F. Humbert
University of Delaware, Newark, Delaware Major R. W. Argo Major T. L. Waters	The Citadel, Charleston, S. C. Lt. Col. Gooding Packard Major C. M. Mendenhall, Jr.	Agricultural and Mechanical College of Texas, College Station, Texas Major F. A. Hollingshead
Fordham University, Fordham, New York Lt. Col. J. S. Smylie	University of Cincinnati, Cincinnati, Ohio Colonel E. W. Putney Major W. H. Steward	Sacramento High School, Sacramento, Calif. Lt. Col. D. B. Sanger
University of Pittsburgh, Pittsburgh, Pa. Colonel R. W. Wilson	University of Illinois, Champaign, Illinois Lt. Col. H. F. Grimm Major D. C. Tredennick	University of California, Berkeley, Calif. Major F. S. Swett
Virginia Polytechnic Institute, Blacksburg, Va. Lt. Col. J. H. Cochran Lt. Col. W. S. Phillips	Michigan State College of Agriculture and Applied Science, East Lansing, Michigan Major J. T. Campbell	University of California, Los Angeles, Calif. Major D. R. Norris
Virginia Military Institute, Lexington, Va. Lt. Col. H. B. Holmes, Jr.	Kansas State College of Agriculture and Applied Science, Manhattan, Kansas Major H. S. MacKirdy	University of San Francisco, San Francisco, California Colonel Frank Drake
University of Alabama, University, Alabama Colonel W. T. Carpenter Major W. R. Carlson	University of Kansas, Lawrence, Kansas Colonel K. F. Baldwin Major C. G. Riggs	Utah State Agricultural College, Logan, Utah Colonel M. A. Cross
		University of Washington, Seattle, Wash. Major G. W. Ames Major T. R. Parker Major A. M. Wilson, Jr.



## GENERAL STAFF

Colonel Frank S. Clark	G. S., Washington, D. C.
Lt. Col. Harold F. Loomis	" " "
Lt. Col. La Rhett L. Stuart	" " "
Lt. Col. William M. Goodman	" " "
Lt. Col. Wm. C. Foote	" " "
Major Homer Case	" " "
Major Frank J. McSherry	" " "
(Federal Security Agency)	
Major Stanley R. Mickelsen	" " "
Major Cyrus Q. Shelton	" " "
Major Walter L. Weible	" " "
Major Edward Barber	" " "
Major Thomas J. Betts	" " "
Major Warren C. Rutter	" " "
Major Nathaniel A. Burnell, 2d	" " "

## G. S. WITH TROOPS

Col. Richard Donovan, Hq. 8th Corps Area, Fort Sam Houston, Texas
Col. Thomas C. Cook, Hq. 2d Corps Area, Governors Island, N. Y.
Col. Arthur G. Campbell, Hq. 8th Corps Area, Fort Sam Houston, Texas
Col. Walter K. Dunn, Hq. Philippine Division, Manila, P. I.
Lt. Col. Earl H. Metzger, Hq. 4th Corps Area, Atlanta, Ga.
Col. Ralph E. Haines, Hq. 1st Corps Area, Boston, Mass.
Lt. Col. Joseph D. Brown, Hawaiian Department, Fort Shafter, T. H.
Major William H. Donaldson, Jr., Hq. 7th Corps Area, Omaha, Nebr.
Major Frederic L. Hayden, Hq. 6th Corps Area, Chicago, Illinois
Major Hobart Hewett, Hawaiian Dept., Fort Shafter, T. H.
Col. John P. S. Smith, Hq. 4th Corps Area, Atlanta, Ga.
Col. George W. Easterday, Hq. 3d Corps Area, Baltimore, Md.
Major John H. Wilson, Hq. 9th Corps Area, Presidio of San Francisco, Cal.
Lt. Col. George R. Meyer, Hq. Panama Canal Dept., Quarry Heights, C. Z.
Col. John T. H. O'Rear, Hq. Philippine Dept., Manila, P. I.
Lt. Col. Charles W. Bundy, Hq. Puerto Rican Dept., San Juan, P. R.
Major Paul B. Kelly, Hq. 8th Division, Camp Jackson, S. C.

U. S. MILITARY ACADEMY  
West Point, N. Y.

Lt. Col. J. C. Ruddell
Lt. Col. C. H. Armstrong
Major W. I. Allen
Major B. F. Fellers
Captain W. G. Devens
Captain W. L. McPherson
Captain F. A. Mitchell
Captain A. Hopkins
Captain A. T. Bowers
Captain A. R. Hartman
Captain J. A. McComsey
Captain W. L. Richardson
Captain E. G. Griffith
Captain G. E. Keeler, Jr.
Captain L. K. Tarrant
Captain M. G. Pohl
1st Lt. A. C. Gay
1st Lt. L. N. Cron
1st Lt. D. B. Johnson
1st Lt. R. C. Leslie
1st Lt. H. J. Jablonsky
1st Lt. J. J. Lane
1st Lt. J. E. Metzler
1st Lt. C. G. Dunn
1st Lt. P. W. Guiney, Jr.
1st Lt. C. L. Andrews
1st Lt. H. A. Gerhardt
1st Lt. S. F. Giffin
1st Lt. K. R. Kenerick
1st Lt. Y. H. King
1st Lt. T. V. Stayton
1st Lt. R. A. Turner
1st Lt. F. T. Berg
1st Lt. H. W. Ebel
1st Lt. R. G. Finkenaure
1st Lt. R. M. Miner

1st Lt. H. P. Van Ormer
1st Lt. J. C. Moore
1st Lt. J. DuV. Stevens

## RECRUITING DUTY

Colonel G. T. Perkins, U. S. Army Recruiting Office, San Francisco, California
Colonel Lewis Turtle, U. S. Army Recruiting Office, Seattle, Washington
Colonel L. B. Magruder, 2nd Corps Area, Governors Island, N. Y.
Colonel E. P. Noyes, U. S. Army Recruiting Office, Omaha, Nebraska
Lt. Colonel A. C. Chesledon, U. S. Army Recruiting Office, Des Moines, Iowa
Colonel Otto H. Schrader, U. S. Army Recruiting Office, Harrisburg, Pennsylvania
Lt. Colonel Carl J. Smith, U. S. Army Recruiting Office, New York, New York

## MISCELLANEOUS DETAILS

Colonel Arthur L. Fuller, Civ. Component Affairs, Fort Hayes, Columbus, Ohio
Colonel John S. Pratt, Civ. Component Affairs, Fort Shafter, Hawaii
Colonel F. A. Mountford, S. F. Port of Embarkation, Fort Mason, California
Lt. Col. Cyril A. W. Dawson, C. O. Troops, U.S.A.T. Republic
Lt. Col. Robert M. Carswell, Office, Judge Advocate, Hq. Philippine Department
Lt. Col. William Sackville, U. S. Military Mission, Rio de Janeiro, Brazil
Major Walter J. Gilbert, McKinley High School, Honolulu, Hawaii
Major Joe D. Moss, Hq. Fourth Corps Area, Atlanta, Georgia
Lt. Col. LeRoy Lutes, Hq. Third Army, P. O. Building, Atlanta, Georgia
Major Fenton G. Epling, Air Defense Command, Mitchel Field, New York
Captain Arthur B. Nicholson, Air Defense Command, Mitchel Field, New York
Major William H. J. Dunham, Aide, Seventh Corps Area, Omaha, Nebraska
Major Lester D. Flory, U. S. Military Mission, Rio de Janeiro, Brazil
1st Lt. John J. Stark, Aide, Hq. First Corps Area, Boston, Massachusetts

OFFICE OF ASSISTANT SECRETARY OF WAR  
Washington, D. C.

Colonel Charles Hines
Lt. Col. C. H. Tenney

C. A. REPRESENTATIVES, ORDNANCE AND  
ENGINEER BOARDS

Lt. Col. J. F. Kahle, Ordnance Board, Aberdeen Proving Ground, Maryland
Major H. C. Mabbott, Engineer Board, Fort Belvoir, Virginia

## MILITARY ATTACHES

Major W. D. Hohenthal, American Embassy, Berlin, Germany
Captain Robin B. Pape, Care American Embassy, Tokio, Japan
Captain John R. Lovell, American Embassy, Berlin, Germany

DETAILED IN OTHER BRANCHES  
DETAILED I. G. D.

Colonel C. H. Patterson, Fourth Corps Area, Atlanta, Georgia
Colonel H. C. Merriam, Hq. Sixth Corps Area, Chicago, Illinois
Colonel W. W. Hicks, Hawaiian Department, Fort Shafter, T. H.
Colonel W. M. Colvin, Hq. Second Corps Area, Governors Island, New York
Colonel Franklin Babcock, Washington, D. C.
Lt. Col. Roy S. Atwood, Hq. First Corps Area, Boston, Massachusetts

**DETAILED IN SIGNAL CORPS**

Captain J. A. Sawyer, Fort Monmouth, New Jersey

**ASSIGNED TO DUTY WITH AIR CORPS**

2nd Lt. C. W. Bagstad  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. A. Benvenuto  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. A. H. Bethune  
Allan Hancock College of Aeronautics, Santa Maria, Calif.

2nd Lt. E. F. Black  
Dallas Aviation School & Air College, Dallas, Texas

2nd Lt. A. R. Brousseau  
Dallas Aviation School & Air College, Dallas, Texas

2nd Lt. William E. Buck, Jr.  
Dallas Aviation School & Air College, Dallas, Texas

2nd Lt. H. F. Bunze  
Cal-Aero Training Corporation, Glendale, Calif.

2nd Lt. M. B. Chandler  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. M. Cloke  
Cal-Aero Training Corporation, Glendale, Calif.

2nd Lt. J. M. Cole  
Allan Hancock College of Aeronautics, Santa Maria, Calif.

2nd Lt. William F. Coleman  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. J. P. Dwyer  
Spartan School of Aeronautics, Tulsa, Okla.

2nd Lt. J. J. Eaton  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. D. B. Ellis  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. A. T. Frontczak  
Allan Hancock College of Aeronautics, Santa Maria, Calif.

2nd Lt. C. E. Gushurst  
Ryan School of Aeronautics, Ltd., San Diego, Calif.

2nd Lt. E. H. Hendrickson  
Spartan School of Aeronautics, Tulsa, Okla.

2nd Lt. A. B. Hughes, Jr.  
Dallas Aviation School & Air College, Dallas, Texas

2nd Lt. William R. Kintner  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. M. C. B. Klunk  
Spartan School of Aeronautics, Tulsa, Okla.

2nd Lt. A. J. Knight  
Cal-Aero Training Corporation, Glendale, Calif.

2nd Lt. P. C. Loofburrow  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. T. F. Mansfield  
Cal-Aero Training Corporation, Glendale, Calif.

2nd Lt. J. B. McAfee  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. A. A. McCartan  
Cal-Aero Training Corporation, Glendale, Calif.

2nd Lt. S. L. McKenney  
Dallas Aviation School & Air College, Dallas, Texas

2nd Lt. B. E. McKenzie  
Lincoln Airplane & Flying School, Lincoln, Nebr.

2nd Lt. T. H. Muller  
Dallas Aviation School & Air College, Dallas, Texas

2nd Lt. E. A. Murphy, Jr.  
Ryan School of Aeronautics, Ltd., San Diego, Calif.

2nd Lt. R. W. Nelson, Jr.  
Allan Hancock College of Aeronautics, Santa Maria, Calif.

2nd Lt. L. M. Orman  
Spartan School of Aeronautics, Tulsa, Okla.

2nd Lt. M. E. Parker  
Cal-Aero Training Corporation, Glendale, Calif.

2nd Lt. J. J. Pidgeon  
Allan Hancock College of Aeronautics, Santa Maria, Calif.

2nd Lt. H. B. Pillsbury  
Dallas Aviation School & Air College, Dallas, Texas

2nd Lt. Wm. L. Porte  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. R. C. Raleigh  
Spartan School of Aeronautics, Tulsa, Okla.

2nd Lt. J. H. S. Rasmussen  
Dallas Aviation School & Air College, Dallas, Texas

2nd Lt. J. McL. Ridgell, Jr.  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. J. W. Ruebel  
Allan Hancock College of Aeronautics, Santa Maria, Calif.

2nd Lt. R. A. Shagrin  
Spartan School of Aeronautics, Tulsa, Okla.

2nd Lt. F. S. Shawn  
Cal-Aero Training Corporation, Glendale, Calif.

2nd Lt. I. H. Shearer  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. T. K. Spencer  
Cal-Aero Training Corporation, Glendale, Calif.

2nd Lt. W. C. Stirling  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. P. C. Stoddart  
Spartan School of Aeronautics, Tulsa, Okla.

2nd Lt. J. B. Summers, Jr.  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. L. E. Symroski  
Spartan School of Aeronautics, Tulsa, Okla.

2nd Lt. F. B. Wagner  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. R. H. Warren  
Alabama Institute of Aeronautics, Inc., Tuscaloosa, Ala.

2nd Lt. C. H. Webb, Jr.  
Cal-Aero Training Corporation, Glendale, Calif.

2nd Lt. S. T. Willis, Jr.  
Dallas Aviation School & Air College, Dallas, Texas

2nd Lt. H. T. Wright  
Cal-Aero Training Corporation, Glendale, Calif.

**DETAILED ORDNANCE DEPARTMENT**

Captain A. P. Taber, Selfridge Field, Michigan

1st Lt. Edward Bodeau, GHQ Air Force, Mitchel Field, New York

1st Lt. E. H. Kibler, Fort Bragg, North Carolina

1st Lt. A. J. Stuart, Jr., Picatinny Arsenal, Dover, New Jersey

1st Lt. F. J. McMorro, Wright Field, Dayton, Ohio

1st Lt. F. Kemble, Jr., Springfield Armory, Springfield, Mass.

1st Lt. J. O. Baker, Aberdeen Proving Ground, Maryland

1st Lt. R. A. Pillivant, Springfield Armory, Springfield, Mass.

1st Lt. S. R. Beyma, Leland Stanford University, Stanford University, Cal

1st Lt. F. Thorlin, Watertown Arsenal, Massachusetts

1st Lt. C. A. Cozart, Raritan Arsenal, Metuchen, New Jersey

1st Lt. F. L. Furphy, Mitchel Field, New York

1st Lt. C. L. Register, Watertown Arsenal, Massachusetts

1st Lt. E. M. Lee, Hawaiian Department, Fort Shafter, T. H.

1st Lt. Henry J. Katz, Aberdeen Proving Ground, Maryland

**DETAILED FINANCE DEPARTMENT**

Major C. S. Denny, Fort Jay, New York

**DETAILED J. A. G. D.**

Captain J. W. Huyssoon,  
Office, Judge Advocate General, Washington, D. C.

1st Lt. C. J. Hauck, Jr.,  
Office, Judge Advocate General, Washington, D. C.

1st Lt. C. R. Bard,  
University of Virginia, Charlottesville, Virginia

1st Lt. F. P. Corbin, Jr.,  
Columbia University, New York

**DETAILED QUARTERMASTER CORPS**

Major G. B. Anderson, New York City

Captain A. R. Thomas, Fort Barrancas, Fla.

Captain A. W. Schermacher, Fort Robinson, Nebraska

Captain Leif Neprud, Fort Clark, Texas

**CIVILIAN CONSERVATION CORPS**

Colonel J. B. Maynard, Hq. Eighth Corps Area, Fort Sam Houston, Texas

**HISTORICAL SECTION, ARMY WAR COLLEGE**

Colonel Robert Arthur

# Section 2. National Guard Personnel\*

\*It had been intended to publish a complete list of all Coast Artillery National Guard officers in this number of The JOURNAL. However, the publication within the past three weeks of a new

edition of *The Official National Guard Register* makes this unnecessary. We are showing the commanding officers of all National Guard Coast Artillery units.

## BRIGADES

**NEW YORK COAST ARTILLERY BRIGADE (HD)**

Brig. Gen. William Ottmann  
120 West 62d Street  
New York, N. Y.

**102d COAST ARTILLERY BRIGADE (AA)**

(CG not yet designated)  
Armory  
6th St. & Exchange Place  
St. Paul, Minnesota

## COAST ARTILLERY REGIMENTS

**197th COAST ARTILLERY (AA)**

Colonel Albert E. Colburn  
State Armory  
Concord, New Hampshire

**200th COAST ARTILLERY (AA)**

Colonel Charles G. Sage  
State Armory  
Deming, New Mexico

**203d COAST ARTILLERY (AA)**

Colonel Ray E. Watson  
State Armory  
Webb City, Missouri

**205th COAST ARTILLERY (AA)**

Colonel Edward C. Dohm  
805 W. Fifth Avenue  
Olympia, Washington

**198th COAST ARTILLERY (AA)**

Colonel George J. Schulz  
State Armory  
Wilmington, Delaware

**202d COAST ARTILLERY (AA)**

Colonel Charles C. Dawes  
5917 Broadway  
Chicago, Illinois

**204th COAST ARTILLERY (AA)**

Colonel J. Fair Hardin  
State Armory  
Shreveport, Louisiana

**206th COAST ARTILLERY (AA)**

Colonel Elgan C. Robertson  
State Armory  
Marianna, Arkansas

<b>207th COAST ARTILLERY (AA)</b> Colonel Ralph C. Tobin 643 Park Avenue New York, N. Y.	<b>215th COAST ARTILLERY (AA)</b> Colonel Ivan Bowen State Armory Mankato, Minnesota	<b>244th COAST ARTILLERY (TD)</b> Colonel Malcolm W. Force 125 West 14th Street New York, N. Y.	Armory, Balboa Park San Diego, California
<b>208th COAST ARTILLERY (AA)</b> Lt. Colonel Louis S. Tracy State Armory Hartford, Connecticut	<b>216th COAST ARTILLERY (AA)</b> Colonel Donald B. Robinson Armory, 6th St. & Exchange Pl. St. Paul, Minnesota	<b>245th COAST ARTILLERY (HD)</b> Colonel Charles S. Gleim Armory Sumner & Jefferson Avenues Brooklyn, New York	<b>252d COAST ARTILLERY (TD)</b> Colonel Royce S. McClelland State Armory Wilmington, North Carolina
<b>209th COAST ARTILLERY (AA)</b> (No C. O. yet designated) State Armory Buffalo, New York	<b>217th COAST ARTILLERY (AA)</b> (CO not yet designated) State Armory St. Cloud, Minnesota	<b>246th COAST ARTILLERY (HD)</b> Colonel Alonzo E. Wood State Armory Lynchburg, Virginia	<b>260th COAST ARTILLERY (AA)</b> Colonel Walter W. Burns National Guard Armory Washington, D. C.
<b>211th COAST ARTILLERY (AA)</b> Colonel Stuart G. Hall 105 Arlington Street Boston, Massachusetts	<b>240th COAST ARTILLERY (HD)</b> Colonel George E. Fogg Milk Street Armory Portland, Maine	<b>248th COAST ARTILLERY (HD)</b> Major Robert W. Forbes State Armory Olympia, Washington	<b>261st COAST ARTILLERY (HD)</b> Major Henry K. Roscoe, Jr. State Armory Dover, Delaware
<b>212th COAST ARTILLERY (AA)</b> Colonel Edward E. Gauché 120 West 62d Street New York, N. Y.	<b>241st COAST ARTILLERY (HD)</b> Colonel William D. Cottam South Armory Boston, Massachusetts	<b>249th COAST ARTILLERY (HD)</b> Lt. Colonel Clifton M. Irwin State Armory Salem, Oregon	<b>263d COAST ARTILLERY (HD)</b> Colonel Claud C. Smith State Armory Greenwood, South Carolina
<b>215th COAST ARTILLERY (AA)</b> Colonel Charles C. Curtis State Armory Allentown, Pennsylvania	<b>242d COAST ARTILLERY (HD)</b> Colonel Russell Y. Moore State Armory Bridgeport, Connecticut	<b>250th COAST ARTILLERY (TD)</b> Colonel David P. Hardy Armory, 14th and Mission Sts. San Francisco, California	<b>265th COAST ARTILLERY (HD)</b> Colonel Percy L. Wall State Armory Jacksonville, Florida
<b>214th COAST ARTILLERY (AA)</b> Colonel John E. Stoddard State Armory Washington, Georgia	<b>243d COAST ARTILLERY (HD)</b> Colonel Earl C. Webster Cranston Street Armory Providence, Rhode Island	<b>251st COAST ARTILLERY (AA)</b> Colonel John H. Sherman	<b>369th COAST ARTILLERY (AA)</b> Colonel Benjamin O. Davis 2366 Fifth Avenue New York, N. Y.

## Section 3. Organized Reserve Personnel

### BRIGADES

(CG's not yet designated)

<b>30th COAST ARTILLERY BRIGADE (By) (RAI)</b> Not Organized. Allotted to Third Corps Area	<b>35th COAST ARTILLERY BRIGADE (AA) (RAI)</b> Post Office Building Ventura, California	<b>40th COAST ARTILLERY BRIGADE (AA) (RAI)</b> Federal Building Detroit, Michigan	<b>201st COAST ARTILLERY BRIGADE (AA)</b> 90 Church Street New York, N. Y.
<b>31st COAST ARTILLERY BRIGADE (AA) (RAI)</b> Not Organized. Allotted to Third Corps Area	<b>36th COAST ARTILLERY BRIGADE (AA) (RAI)</b> 40 W. Palisade Avenue Englewood, New Jersey	<b>41st COAST ARTILLERY BRIGADE (AA) (RAI)</b> 755 U. S. Court House St. Louis, Missouri	<b>202d COAST ARTILLERY BRIGADE (AA)</b> Federal Building Charlotte, North Carolina
<b>32d COAST ARTILLERY BRIGADE (TD) (RAI)</b> 90 Church Street New York, N. Y.	<b>37th COAST ARTILLERY BRIGADE (AA) (RAI)</b> Not Organized. Allotted to Third Corps Area	<b>198th COAST ARTILLERY BRIGADE (AA)</b> 510 Federal Building Pittsburgh, Pennsylvania	<b>203d COAST ARTILLERY BRIGADE (AA)</b> Post Office Building Ventura, California
<b>33d COAST ARTILLERY BRIGADE (AA) (RAI)</b> 414 Federal Building Indianapolis, Indiana	<b>38th COAST ARTILLERY BRIGADE (AA) (RAI)</b> Post Office Building Jackson, Mississippi	<b>199th COAST ARTILLERY BRIGADE (AA)</b> Federal Building Indianapolis, Indiana	<b>239th COAST ARTILLERY BRIGADE (TD)</b> Parcel Post Building Richmond, Virginia
<b>34th COAST ARTILLERY BRIGADE (AA) (RAI)</b> Post Office Building Columbia, South Carolina	<b>39th COAST ARTILLERY BRIGADE (AA) (RAI)</b> 519 Post Office Building Cincinnati, Ohio	<b>200th COAST ARTILLERY BRIGADE (AA)</b> Federal Building Des Moines, Iowa	

### REGIMENTS

<b>42d COAST ARTILLERY (By) (RAI)</b> Fort Monroe, Virginia (No C. O. designated)	<b>504th COAST ARTILLERY (AA) (RAI)</b> Lt. Colonel Caldwell Dumas 1076 Peabody Avenue Memphis, Tennessee	<b>509th COAST ARTILLERY (AA) (RAI)</b> Lt. Colonel H. W. Pease 428 Federal Building Seattle, Washington	<b>517th COAST ARTILLERY (AA)</b> Lt. Colonel Albert B. Cox Presidio of San Francisco California
<b>43d COAST ARTILLERY (By) (RAI)</b> Major Alfred A. Gunter 1011 Post Office Building Pittsburgh, Pennsylvania	<b>505th COAST ARTILLERY (AA) (RAI)</b> Lt. Colonel Frank R. Miller 519 Post Office Building Cincinnati, Ohio	<b>510th COAST ARTILLERY (AA)</b> Colonel J. B. Bennett 800 Custom House Philadelphia, Pennsylvania	<b>519th COAST ARTILLERY (AA)</b> Colonel Forrest E. Baker 1418 Post Office Building Los Angeles, California
<b>44th COAST ARTILLERY (TD) (RAI)</b> Lt. Colonel J. C. Henderson 800 Custom House Philadelphia, Pennsylvania	<b>506th COAST ARTILLERY (AA) (RAI)</b> Colonel Lincoln K. Adkins 312 E. Wisconsin Avenue Milwaukee, Wisconsin	<b>511th COAST ARTILLERY (AA)</b> Colonel Timothy A. Ryan 536 Federal Building Cleveland, Ohio	<b>521st COAST ARTILLERY (AA)</b> Colonel James E. Nestor Post Office Building East Orange, New Jersey
<b>502d COAST ARTILLERY (AA) (RAI)</b> Colonel Charles H. E. Scheer 90 Church Street New York, N. Y.	<b>507th COAST ARTILLERY (AA) (RAI)</b> Lt. Colonel Harold E. Pride 376 Post Office Building Minneapolis, Minnesota	<b>513th COAST ARTILLERY (AA)</b> Lt. Col. Frederick W. Gilchrist Federal Building Buffalo, New York	<b>523d COAST ARTILLERY (AA)</b> Colonel Carl M. Deakin 1011 Post Office Building Pittsburgh, Pennsylvania
<b>503d COAST ARTILLERY (AA) (RAI)</b> Colonel Edwin A. Ziegler 1011 Post Office Building Pittsburgh, Pennsylvania	<b>508th COAST ARTILLERY (AA) (RAI)</b> Colonel James S. Ervin 1011 Post Office Building Pittsburgh, Pennsylvania	<b>514th COAST ARTILLERY (AA)</b> Lt. Col. Nicholas E. Devereux, Jr. 243 State Street Schenectady, New York	<b>524th COAST ARTILLERY (AA)</b> Lt. Colonel Charles M. Boyer 322 Federal Annex Atlanta, Georgia
		<b>515th COAST ARTILLERY (AA)</b> Colonel Robert L. Cochran 1443 H Street Lincoln, Nebraska	<b>525th COAST ARTILLERY (AA)</b> Major Cobert E. O'Conner 433 Masonic Temple Building Charleston, West Virginia

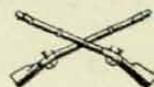
- 526th COAST ARTILLERY (AA)**  
Lt. Colonel John W. Fletcher  
Federal Building  
Detroit, Michigan
- 527th COAST ARTILLERY (AA)**  
Major James M. Mozley  
749 U. S. Court House  
St. Louis, Missouri
- 529th COAST ARTILLERY (AA) (BAI)**  
Lt. Colonel M. W. Hawkins  
225 U. S. Court House  
Portland, Oregon
- 530th COAST ARTILLERY (AA)**  
Lt. Colonel Charles I. Clark  
90 Church Street  
New York, N. Y.
- 531st COAST ARTILLERY (AA)**  
Colonel Howard W. Hodgkins  
252 U. S. Court House  
Chicago, Illinois
- 532d COAST ARTILLERY (AA)**  
Lt. Colonel Walter H. Ogden  
Federal Building  
Springfield, Illinois
- 533d COAST ARTILLERY (AA)**  
Lt. Colonel George A. Burden  
90 Church Street  
New York, N. Y.
- 534th COAST ARTILLERY (AA)**  
Colonel Henry I. Ellerbee  
Post Office Building  
Columbia, South Carolina
- 535th COAST ARTILLERY (AA)**  
Colonel Bowman Elder  
Federal Building  
Indianapolis, Indiana
- 536th COAST ARTILLERY (AA)**  
Lt. Colonel Stanley D. Wiggins  
Federal Building  
Detroit, Michigan
- 537th COAST ARTILLERY (AA)**  
Colonel Earl E. Howard  
375 Post Office Building  
Minneapolis, Minnesota
- 538th COAST ARTILLERY (AA)**  
Lt. Col. Gwynne G. McCaustland  
Federal Building  
Topeka, Kansas
- 539th COAST ARTILLERY (AA)**  
Not Organized  
Brooklyn, New York
- 540th COAST ARTILLERY (AA)**  
(Information not available)  
504 Post Office Building  
Jackson, Mississippi
- 541st COAST ARTILLERY (AA)**  
Major Collis P. Hudson  
425 Post Office Building  
Lexington, Kentucky
- 542d COAST ARTILLERY (AA)**  
Colonel Gordon L. Carter  
233 Federal Building  
Manchester, New Hampshire
- 543d COAST ARTILLERY (HD) (BAI)**  
Lt. Colonel Allyn D. Stoddard  
Federal Building  
Hartford, Connecticut
- 544th COAST ARTILLERY (AA)**  
Colonel Hunter C. White  
238 Post Office Annex  
Providence, Rhode Island
- 545th COAST ARTILLERY (AA)**  
(Information not available)  
Post Office Building  
Jackson, Mississippi
- 601st COAST ARTILLERY (By)**  
Major Eugene M. Vigneron  
Federal Building  
Bridgeport, Connecticut
- 602d COAST ARTILLERY (By)**  
Colonel Charles Houston  
90 Church Street  
New York, N. Y.
- 603d COAST ARTILLERY (By)**  
Colonel William Dennen  
800 Custom House  
Philadelphia, Pennsylvania
- 604th COAST ARTILLERY (By)**  
Colonel Washington Bartlett  
444 Federal Building  
Salt Lake City, Utah
- 606th COAST ARTILLERY (TD)**  
Lt. Colonel Arthur J. Moxfield  
1305 Post Office Building  
Boston, Massachusetts
- 607th COAST ARTILLERY (TD)**  
Lt. Colonel Vergne Chappelle  
90 Church Street  
New York, N. Y.
- 613th COAST ARTILLERY (HD)**  
Not Organized. Allotted to  
Second Corps Area
- 614th COAST ARTILLERY (HD) (BAI)**  
Not Organized. Allotted to  
First Corps Area
- 615th COAST ARTILLERY (HD)**  
Major Robert B. Kelton  
313 Federal Building  
Wilmington, Delaware
- 616th COAST ARTILLERY (HD) (BAI)**  
Not Organized. Allotted to  
First Corps Area
- 618th COAST ARTILLERY (HD)**  
Major Arthur L. Selby  
Post Office Building  
Elizabeth, New Jersey
- 619th COAST ARTILLERY (HD)**  
Lt. Colonel Allison F. H. Scott  
90 Church Street  
New York, N. Y.
- 620th COAST ARTILLERY (HD)**  
Lt. Colonel Allan B. Campfield  
90 Church Street  
New York, N. Y.
- 621st COAST ARTILLERY (HD) (BAI)**  
Colonel Archibald E. Tanner  
313 Federal Building  
Wilmington, Delaware
- 622d COAST ARTILLERY (HD) (BAI)**  
Colonel John B. Bentley  
2145 C Street, NW  
Washington, D. C.
- 623d COAST ARTILLERY (HD)**  
Lt. Colonel James R. Waltman  
227 Federal Building  
Jacksonville, Florida
- 624th COAST ARTILLERY (HD)**  
Lt. Colonel A. N. Murphey  
First National Bank Building  
Oklahoma City, Oklahoma
- 626th COAST ARTILLERY (HD) (BAI)**  
Colonel Dinsmore Alter  
1418 Post Office Building  
Los Angeles, California
- 627th COAST ARTILLERY (HD) (BAI)**  
Lt. Colonel Lyle D. Wise  
Presidio of San Francisco  
California
- 628th COAST ARTILLERY (HD)**  
Lt. Colonel Felix M. Usis  
Presidio of San Francisco  
California
- 629th COAST ARTILLERY (HD)**  
Major R. C. Dunham  
225 U. S. Court House  
Portland, Oregon
- 630th COAST ARTILLERY (HD) (BAI)**  
Colonel W. C. Bickford  
428 Federal Building  
Seattle, Washington
- 901st COAST ARTILLERY (AA) (BAI)**  
Lt. Colonel Stanley G. Barker  
41 Brighton Road  
Worcester, Massachusetts
- 902d COAST ARTILLERY (AA)**  
Major Benjamin B. D'Ewart  
1305 Post Office Building  
Boston, Massachusetts
- 903d COAST ARTILLERY (AA)**  
Major Ralph A. Armstrong  
Federal Building  
Hartford, Connecticut
- 906th COAST ARTILLERY (AA) (BAI)**  
Major Albert W. Waterman  
Post Office Building  
Portland, Maine
- 910th COAST ARTILLERY (AA) (BAI)**  
Lt. Colonel Clarence E. Doll  
90 Church Street  
New York, N. Y.
- 913th COAST ARTILLERY (AA)**  
Lt. Colonel Robert R. Hendon  
2145 C Street, NW  
Washington, D. C.
- 916th COAST ARTILLERY (AA)**  
Colonel Earl W. Thomson  
313 Parcel Post Building  
Richmond, Virginia
- 925th COAST ARTILLERY (AA)**  
Lt. Colonel Fred H. All  
Federal Building  
Jacksonville, Florida
- 932d COAST ARTILLERY (AA)**  
Colonel Robert L. Cole  
414 Federal Building  
Columbus, Ohio
- 933d COAST ARTILLERY (AA) (BAI)**  
Major Everard H. Boeckh  
519 Post Office Building  
Cincinnati, Ohio
- 938th COAST ARTILLERY (AA) (BAI)**  
Lt. Colonel Rupert A. Andereg  
519 Post Office Building  
Cincinnati, Ohio
- 945th COAST ARTILLERY (AA)**  
Lt. Colonel Edward M. Howell  
Federal Building  
Detroit, Michigan
- 950th COAST ARTILLERY (AA)**  
Lt. Colonel Claude M. Cade  
P. O. Box 624  
Lansing, Michigan
- 951st COAST ARTILLERY (AA) (BAI)**  
Lt. Colonel Sanford E. Church  
252 U. S. Court House  
Chicago, Illinois
- 955th COAST ARTILLERY (AA)**  
Colonel Frank C. Tenney  
217 New Federal Building  
Duluth, Minnesota
- 958th COAST ARTILLERY (AA)**  
Colonel Floyd C. Carl  
749 U. S. Court House  
St. Louis, Missouri
- 960th COAST ARTILLERY (AA) (BAI)**  
Major George E. Rose  
Federal Building  
Topeka, Kansas
- 969th COAST ARTILLERY (AA)**  
Colonel John Perkins  
Federal Building  
San Antonio, Texas
- 970th COAST ARTILLERY (AA)**  
Not Organized. Allotted to  
Second Corps Area
- 972d COAST ARTILLERY (AA) (BAI)**  
Lt. Colonel F. F. Bell  
921 Santa Fé Building  
Dallas, Texas
- 973d COAST ARTILLERY (AA) (BAI)**  
Not Organized. Allotted to  
Sixth Corps Area
- 974th COAST ARTILLERY (AA) (BAI)**  
Major Earl L. Mickelson  
Railway Exchange Building  
Denver, Colorado
- 975th COAST ARTILLERY (AA)**  
Lt. Colonel Frank H. Holden  
1418 Post Office Building  
Los Angeles, California
- 976th COAST ARTILLERY (AA)**  
Lt. Colonel Lloyd E. Rolfe  
1418 Post Office Building  
Los Angeles, California
- 977th COAST ARTILLERY (AA)**  
Colonel Edward A. Evans  
1418 Post Office Building  
Los Angeles, California

# ...The **NEW** Soldier's

## CONTENTS

1. Oath of Enlistment and Citizenship
2. Army Regulations
3. Articles of War
4. Military Discipline and Courtesy
5. The Weapons of Infantry
6. General Rules of Drill
7. Drill: The Soldier Without Arms
  - Section I: Positions
  - Section II: Steps and Marchings
8. Drill: The Soldier With Arms
  - Section I: General
  - Section II: Manual of Arms for the Rifle
  - Section III: Carrying the Automatic Rifle
  - Section IV: Manual of the Pistol
9. Drill: The Squad
10. Extended Order: The Squad
11. Signals
  - Section I: General
  - Section II: Whistle Signals
  - Section III: General Arm-and-Hand Signals
  - Section IV: Additional Arm-and-Hand Signals for Weapons Units
  - Section V: Arm-and-Hand Signals for Motor Vehicles
12. The Infantry Pack
13. Display of Equipment, Foot Troops
14. Interior Guard Duty
15. Cover Against Fire
16. Protection Against Gas
17. The Scout
18. The Messenger
19. The Observer
20. The Compass
21. Rations
22. The Use of Maps
23. Insignia
  - Section I: Insignia of Rank and Service
  - Section II: Insignia of the Arms and Services
24. Clothing
  - Section I: Clothing Allowances
  - Section II: Care of Uniforms and Clothing
25. Equipment
26. First Aid
27. Care of the Feet
28. Personal Hygiene

# Handbook



*This book has been completely revised and brought up to date. Everything in it is of 1940 vintage. Moreover, it is written in language that the soldier understands. It tells him in simple, conversational language what he wants to know.*

Fully illustrated and well-indexed, it gives the soldier a convenient and compact source of information that he could only procure by lugging around pounds of scattered pamphlets. It qualifies the soldier to perform his duties and helps to prepare him for the responsibilities of promotion.

In addition to the revisions and editing, new sections have been added. In every instance the text is based on instructional matter contained in various official documents of the latest date. Yes, the new drill is included.

The JOURNAL is now equipped to prepare special regimental editions of the *Handbook*. National Guard and Regular regiments should investigate the morale-building possibilities of a special regimental edition. We shall be glad to discuss prices and details.

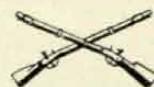
Check over the chapter headings and see the value of this big fifty-cent *Handbook*.

*Convenient pocket size*

Illustrated

SINGLE COPIES: 50c postpaid

*Substantial discounts on quantity orders*



## Coast Artillery Journal

1115 Seventeenth Street, N.W.  
WASHINGTON, D. C.

# Save Money on Your Magazine Subscriptions

¶ For many years The COAST ARTILLERY JOURNAL handled the magazine business of organizations and individuals of the Corps at a saving and with great convenience to those taking advantage of this service.

¶ No matter the number of magazines to which you subscribe, you have only one letter to write to place your order—one letter to enter complaint in case of non-delivery of copies—one letter to enter changes of address—one remittance to make.

## We Guarantee

¶ To meet the best price quoted by any responsible agent for any magazine or combination of magazines. Should any agent or publisher quote better prices, send your orders to us at their price. We will supply any periodical published anywhere in any language at publishers' rates or less.

¶ Prices and descriptive circulars for magazine binders will be furnished on request. These binders protect your magazines from becoming lost or mutilated.



*Send All Your Magazine Orders to*

**THE COAST ARTILLERY JOURNAL**

1115 SEVENTEENTH STREET, N.W.

WASHINGTON, D. C.